

# **HINOJOSA ENGINEERING, INC. STRUCTURAL & CIVIL ENGINEERING**

July 26, 2000

John A. Espinoza  
Project Manager  
Turner Collie & Braden, Inc.  
6800 Park Ten Boulevard  
Suite 180 South  
San Antonio, Texas 78213

**Re: Visual Structural Observation of bridges along the Raymondville Drain Channel.**

Dear Mr. Espinoza

In accordance with your request and authorization we are providing you the following preliminary report on our findings for the above-mentioned project.

## **PURPOSE, SCOPE AND METHODOLOGY**

The North Main Drain Channel carries storm water from metropolitan areas in the Rio Grande Valley, starting west of McAllen, to the Gulf of Mexico. A new route has been proposed for the areas west of McAllen to flow into the Raymondville Drain Channel (RDC) instead of the North Main Drain Channel. Because of the added volume of storm water that will be carried by the RDC, a check of the existing capacity of the channel, and structures along it, is needed.

Hinojosa Engineering, Inc. was asked by Turner Collie & Braden, Inc. to perform a preliminary visual structural observation on the existing bridges along the RDC. Observations are of the exterior of the structure, both above and below the driving surface and are limited to components of the bridge that are readily visible without removing items causing visual obstruction. This structural observation is a preliminary report of first impression conclusions and/or recommendations only.

Hinojosa Engineering, Inc. performed the observations on June 15 and June 19, 2000. The process consisted of driving along the RDC and inspecting the structure at every major highway, farm road and county road.

Hinojosa Engineering, Inc.

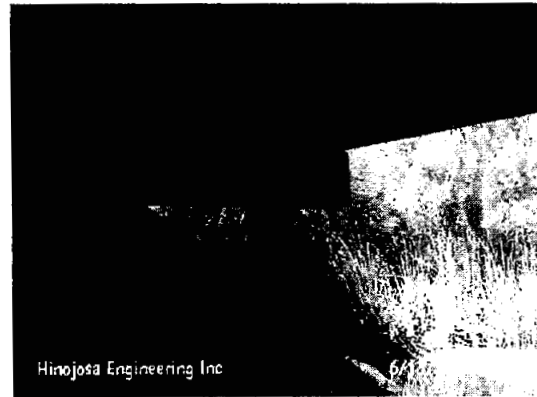
**OBSERVATIONS**

The following information was gathered for each bridge – location, size, structure type and condition. A map showing the location of each bridge is shown in Appendix X.

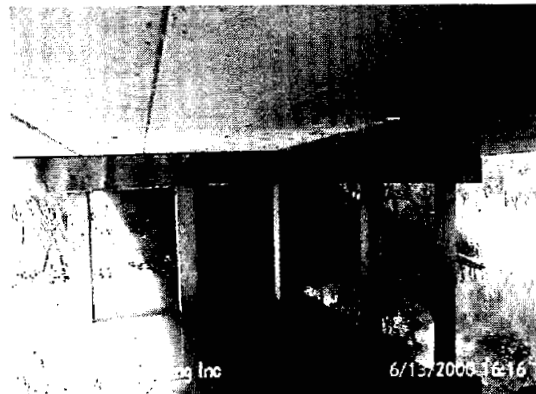
- **FM 493 – 40' x 100', pre-cast flat slab, good condition**



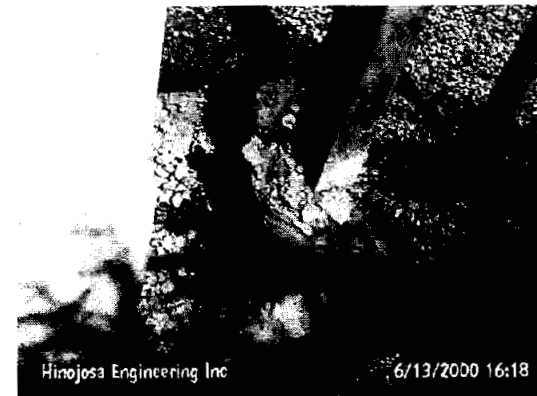
**Figure 1: Bridge at FM 493**



**Figure 2: Beam-column connection**



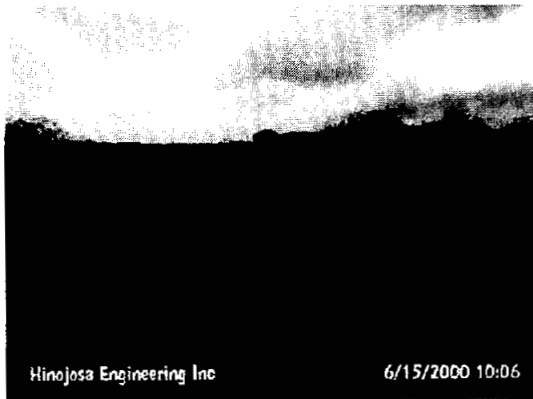
**Figure 3: Flat Slab**



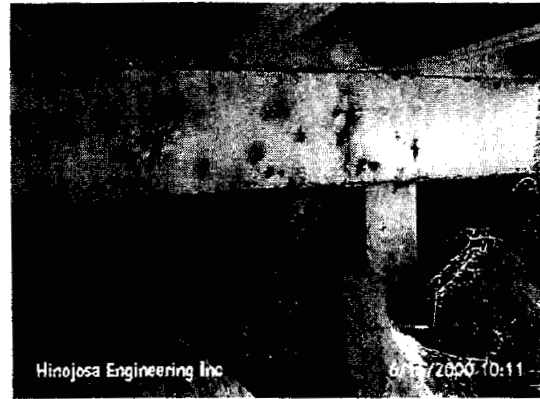
**Figure 4: Erosion at guardrail**



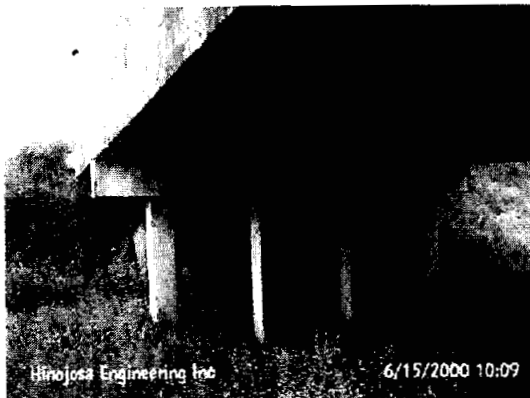
- **Co Rd # 5 – 25' x 60', pre-cast double t-beams, good condition**



**Figure 5: Bridge at Co Rd #5**

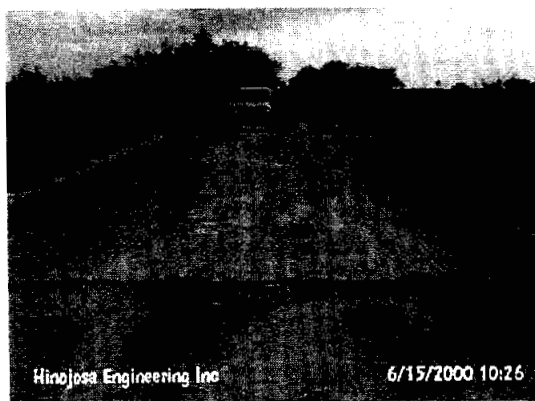


**Figure 6: End-beam**

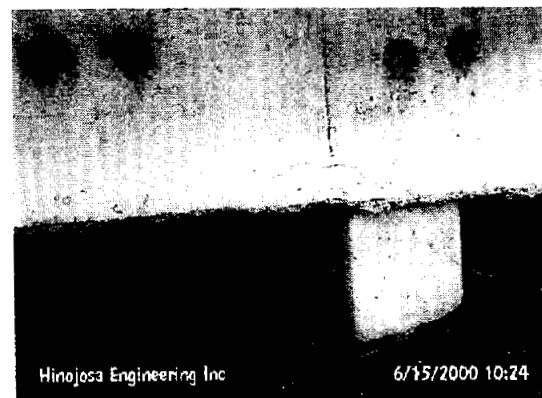


**Figure 7: Double t-beam slab**

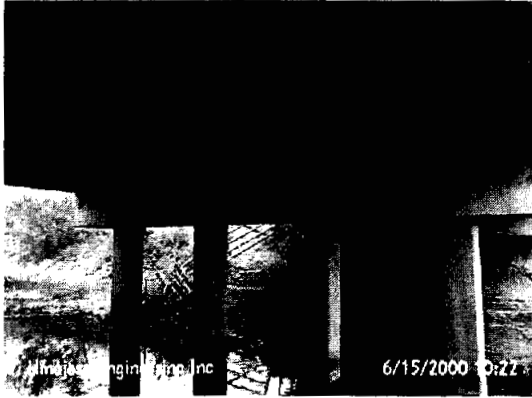
- **Co Rd # 10 – 25' x 60', pre-cast double t-beams, shear cracks at beam supports (see Figures 10-11)**



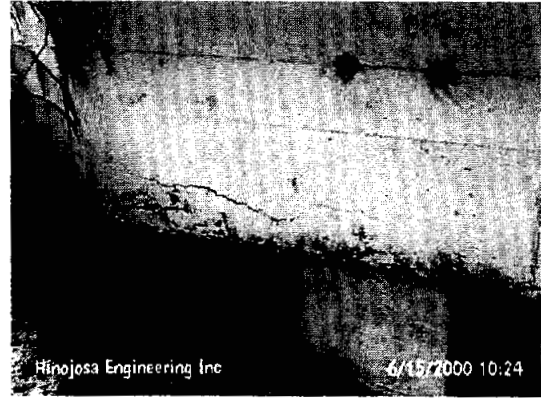
**Figure 8: Bridge at Co Rd #10**



**Figure 9: Shear crack at end beam**



**Figure 10: Double t-beam slab**



**Figure 11: Shear crack at end beam**

- Co Rd #15 – 25' x 60', pre-cast double t-beams, shear cracks at beam supports (see Figure 15)



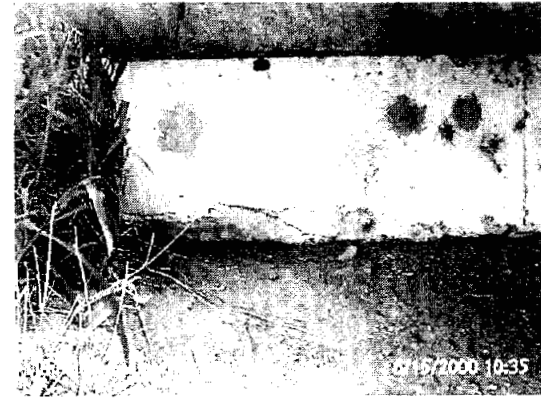
**Figure 12: Bridge at Co Rd #15**



**Figure 13: Beam-column connection**



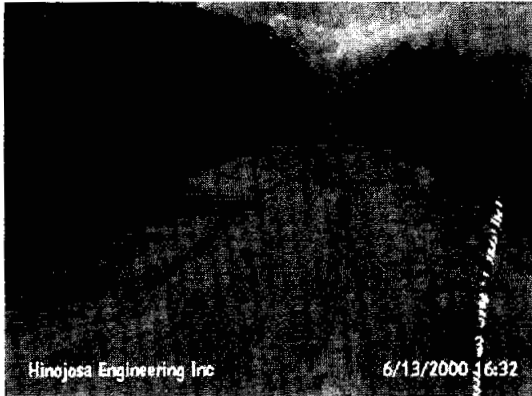
**Figure 14: Double t-beam slab**



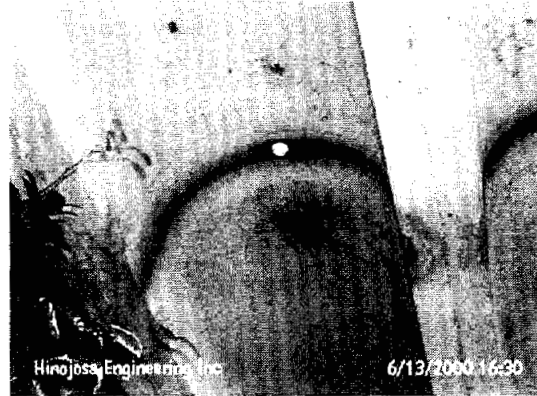
**Figure 15: Shear crack at end beam**

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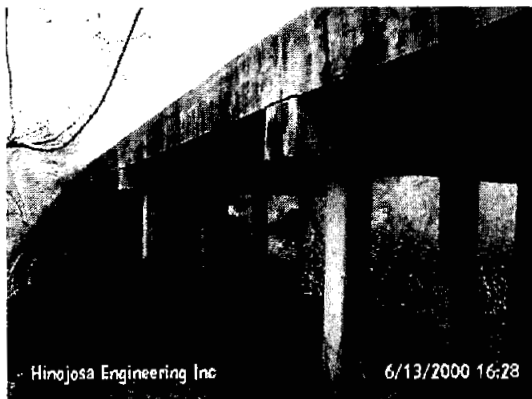
- Co Rd #25 – 25' x 60', pre-cast double t-beams, good condition



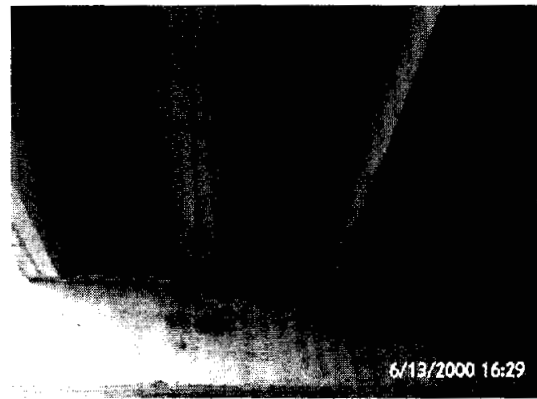
**Figure 16: Bridge at Co Rd #25**



**Figure 17: Weep hole in slab**



**Figure 18: Beam-column connection**

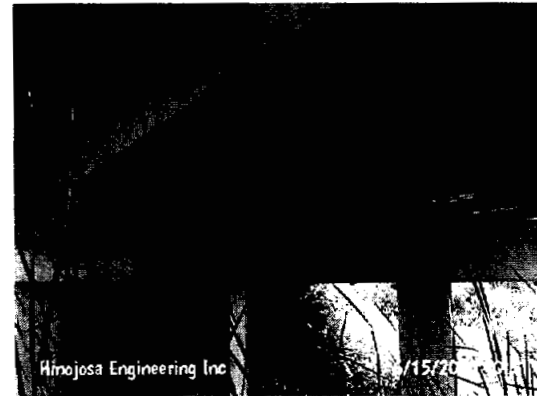


**Figure 19: Double t-beam slab**

- Co Rd #30, 1 – 25' x 60', pre-cast double t-beams, good condition



**Figure 20: Bridge at Co Rd #30**



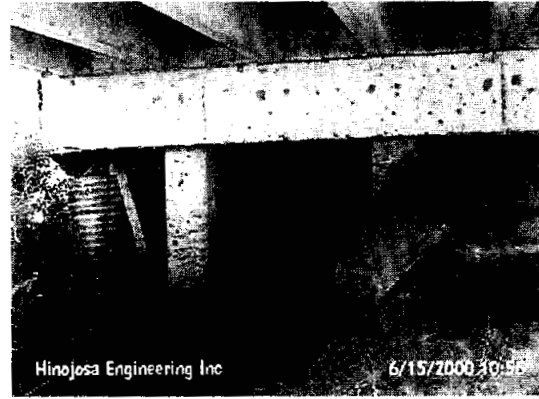
**Figure 21: Double t-beam slab**

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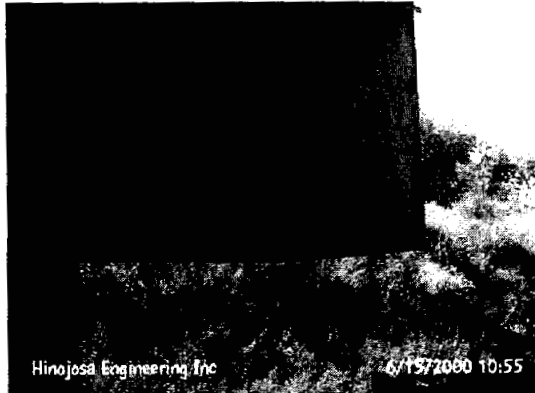
- **Co Rd #30, 2 – 25' x 60', pre-cast double t-beams, concrete deteriorating in some areas (see Figures 24-25)**



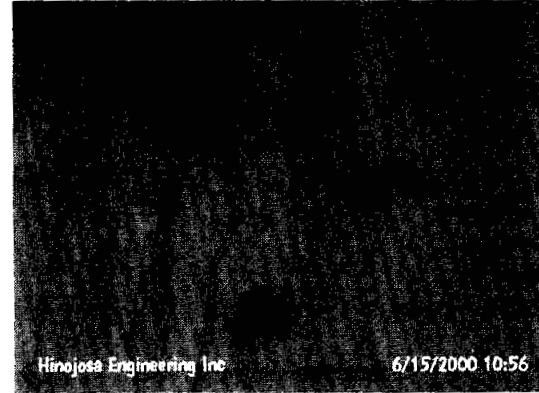
**Figure 22: Bridge at Co Rd #30**



**Figure 23: End beam**



**Figure 24: Concrete deteriorating**

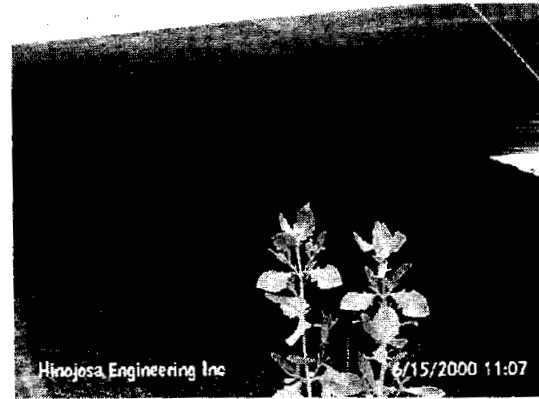


**Figure 25: Concrete deteriorating**

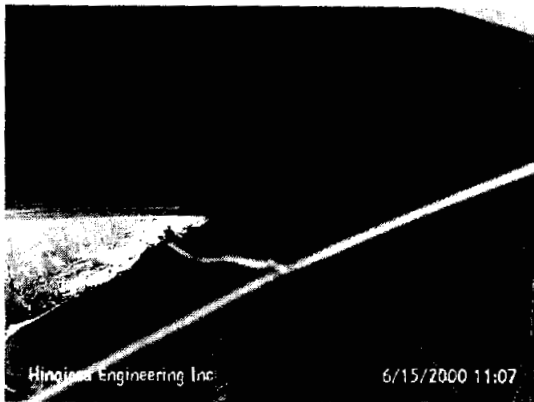
- **FM 88 – 50' x 75', pre-cast flat slab, good condition**



**Figure 26: Bridge at FM 88**

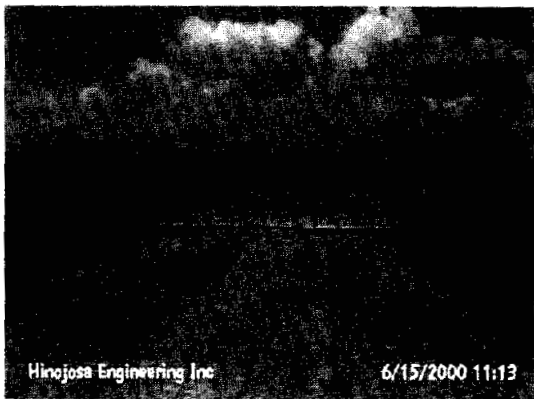


**Figure 27: Slab-beam connection**

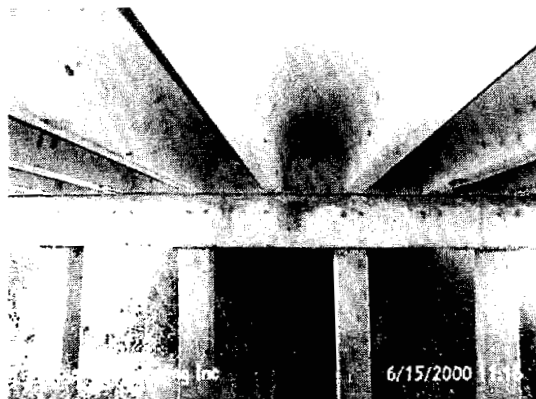


**Figure 28: Flat slab**

- **Co Rd #40 – 25' x 60', pre-cast double t-beams, good condition**

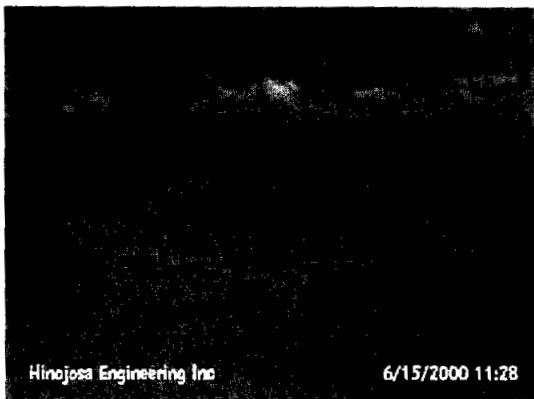


**Figure 29: Bridge at Co Rd #40**

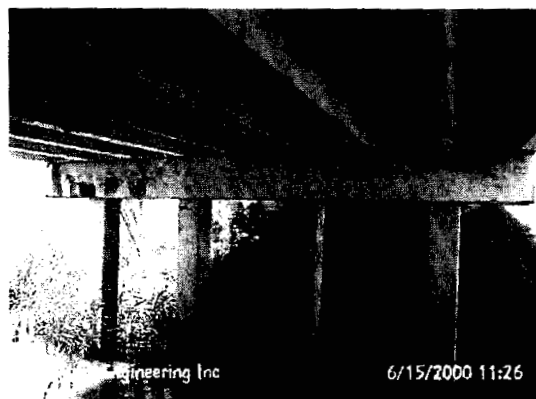


**Figure 30: Double t-beam slab**

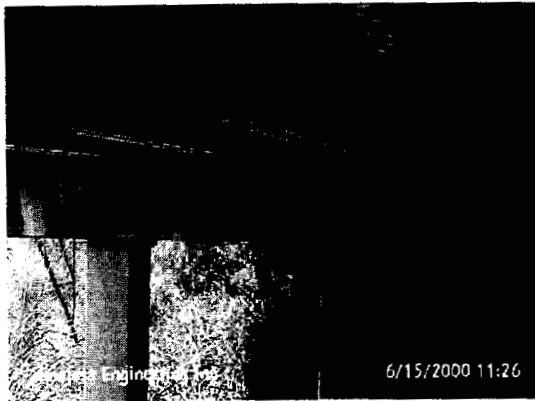
- **Co Rd #60 – 25' x 60', pre-cast double t-beams, cracks on center beam (see Figure 32)**



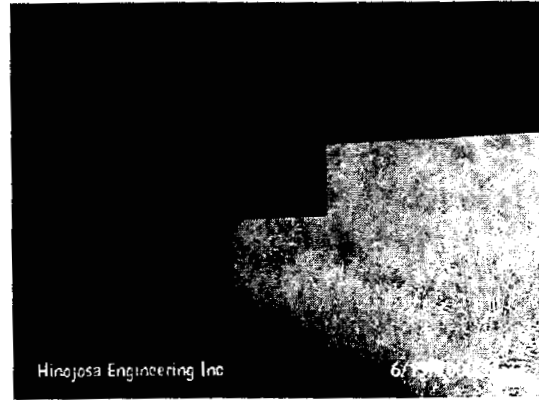
**Figure 31: Bridge at Co Rd #60**



**Figure 32: Double t-beam slab**

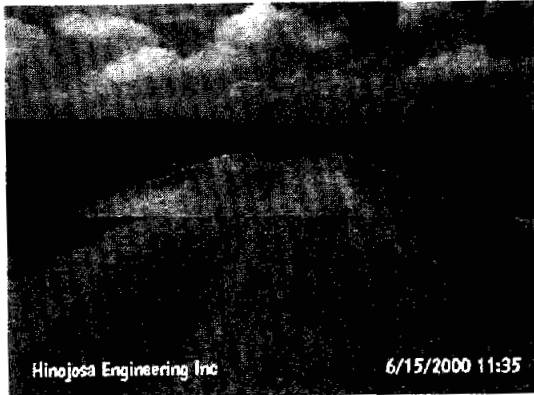


**Figure 33: Crack on center beam**

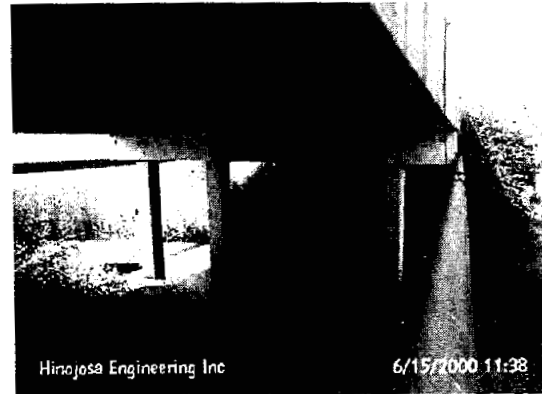


**Figure 34: Beam-column connection**

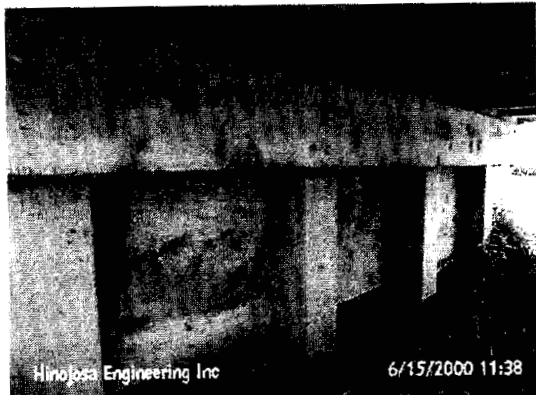
- Cemetery Rd – 25' x 60', pre-cast double t-beams, good condition



**Figure 35: Bridge at Cemetery Rd**



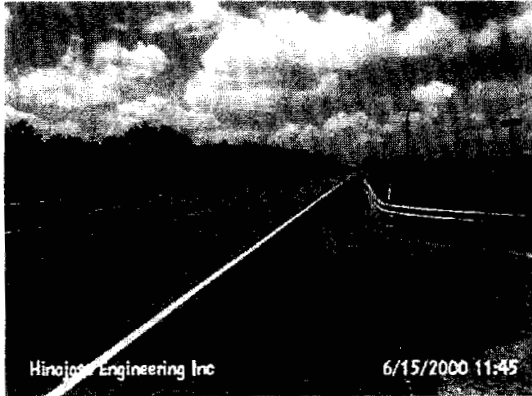
**Figure 36: Double t-beam slab**



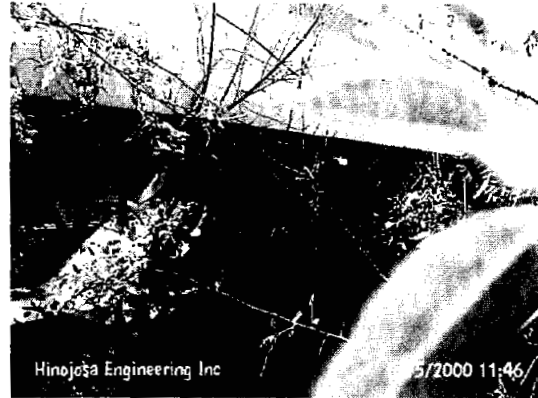
**Figure 37: End beam and retaining wall**

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- FM 1015 – 40' x 65', pre-cast flat slab, good condition



**Figure 38: Bridge at FM 1015**

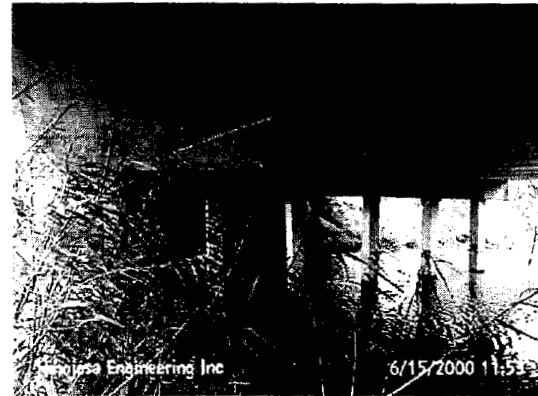


**Figure 39: Flat slab**

- FM 186 – 50' x 112', pre-cast flat slab, good condition



**Figure 40: Bridge at FM 186**



**Figure 41: Flat slab**

- Co Rd #105 – 25' x 95', pre-cast double t-beams, good condition

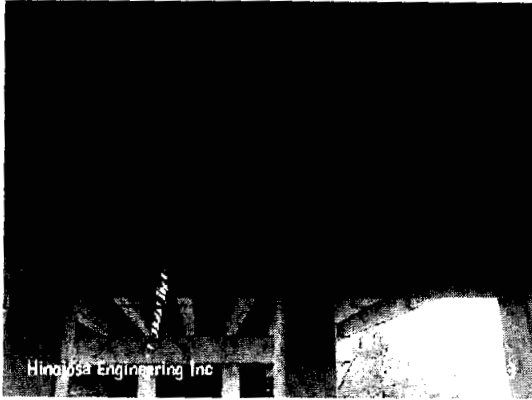


**Figure 42: Bridge at Co Rd #105**

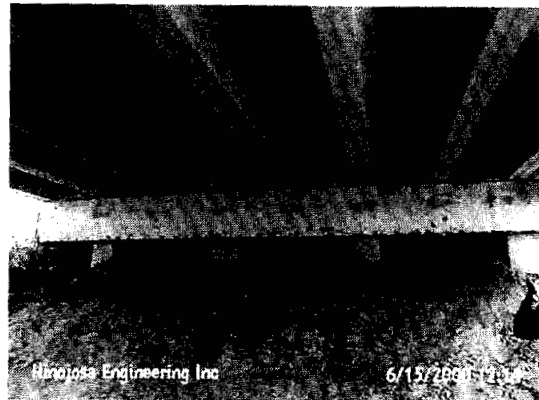


**Figure 43: Double t-beam slab**

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**Figure 44: Beam-column connection**

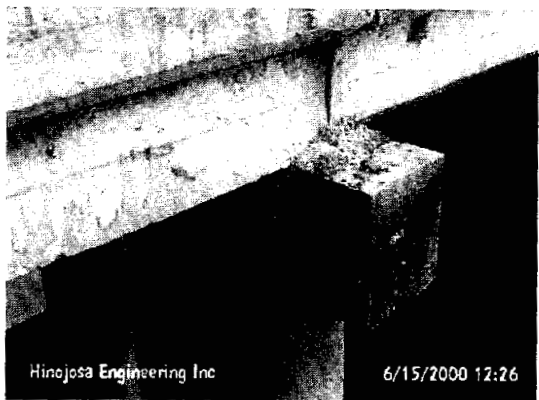


**Figure 45: End beam**

- Co Rd #121 – 25' x 40', pre-cast t-beams, end beams eroded (see Figure 50), cross-beams cracked (see Figures 48-49, 51-53), slab cracked (see Figure 47), steel reinforcement exposed (see Figure 49)



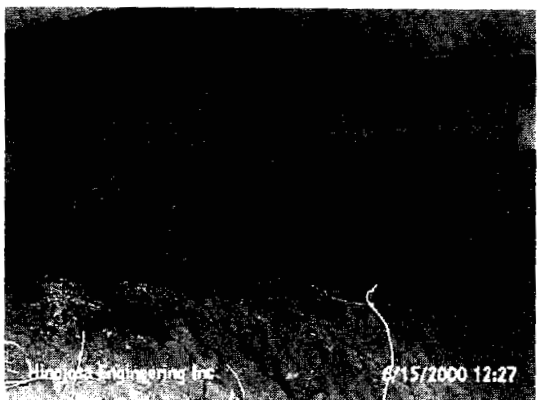
**Figure 46: Bridge at Co Rd #121**



**Figure 47: Shear crack on beam**



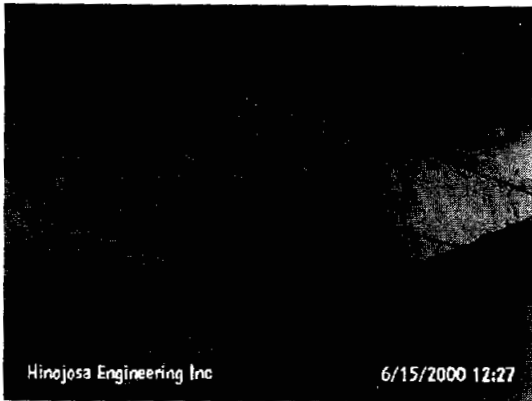
**Figure 48: Cracked slab**



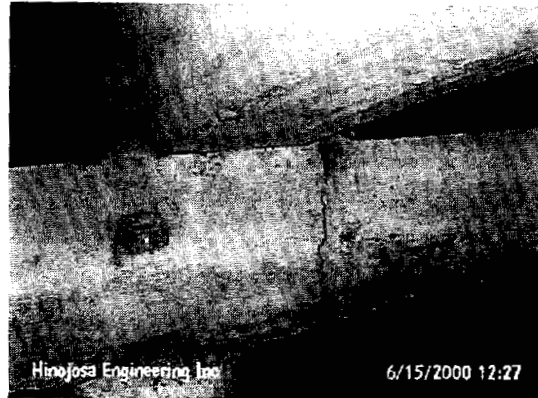
**Figure 49: Eroded End Beam**



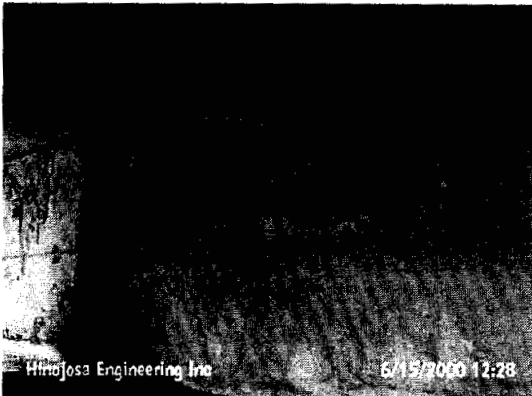
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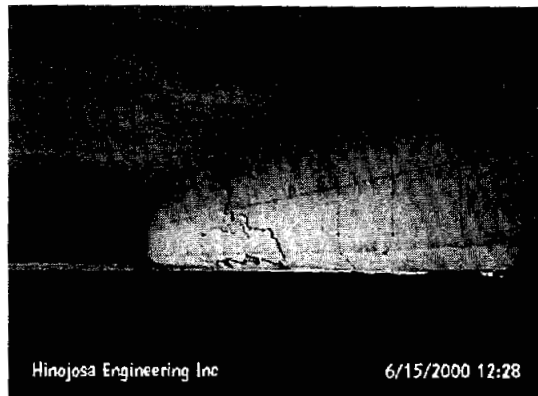
**Figure 50: Shear crack at beam**



**Figure 51: Shear crack at beam**



**Figure 52: Flexural crack at beam**



**Figure 53: Shear crack at beam**

- FM 1761 – 25' x 55', pre-cast flat slab, some cracks



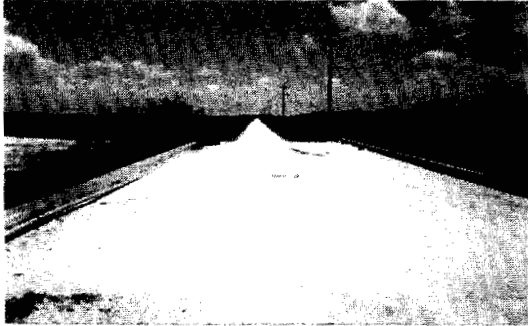
**Figure 54: Bridge at FM 1761**



**Figure 55: Flat slab**

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- Co Rd #156 – 25' x 90', pre-cast double t-beams, good condition



**Figure 56: Bridge at Co Rd #156**



**Figure 57: Double t-beam slab**

- Co Rd #180 – 25' x 90', pre-cast double t-beams, good condition



**Figure 58: Bridge at Co Rd #180**



**Figure 59: End Beam**



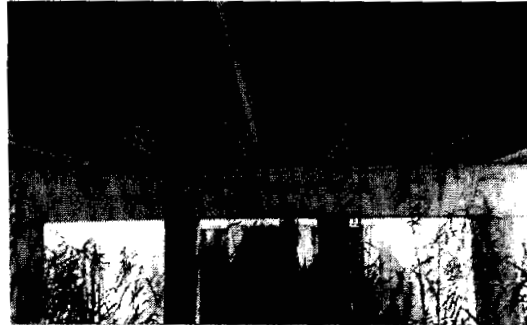
**Figure 60: Beam-column connection**

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- Co Rd #200 – 25' x 90', pre-cast double t-beams, good condition



**Figure 61: Bridge at Co Rd #200**



**Figure 62: Double t-beam slab**

- Co Rd #202 – 25' x 90', pre-cast double t-beams, good condition



**Figure 63: Bridge at Co Rd #202**



**Figure 64: Double t-beam slab**

- FM 1761 – 15' x 90', pre-cast double t-beams, good condition



**Figure 65: Bridge at FM 1761**



**Figure 66: T-beam – beam connection**

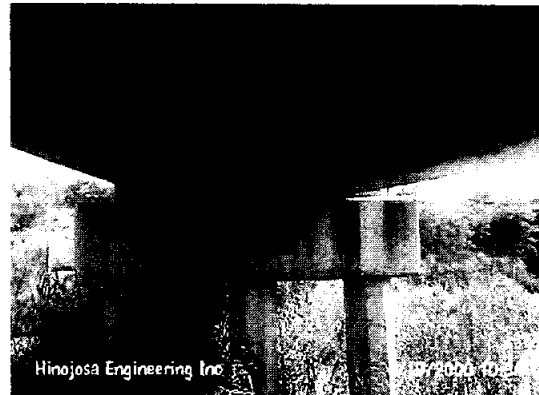


**Figure 67: Double t-beam slab**

- **BUSS 77 RR – 10' x 105', pre-cast t-beams, good condition**



**Figure 68: Bridge at Buss 77 RR**

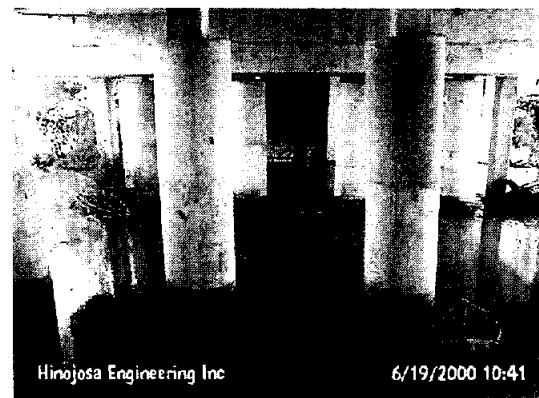


**Figure 69: T-beam slab**

- **BUSS 77 ROAD – 40' x 105', flat slab, some columns have cracks and are tilted (see Figures 71-73)**

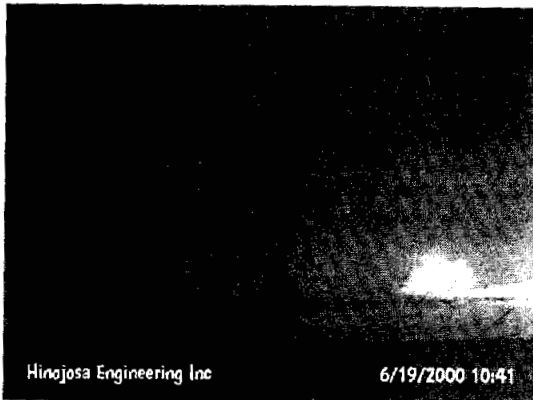


**Figure 70: Bridge at Buss 77 Road**

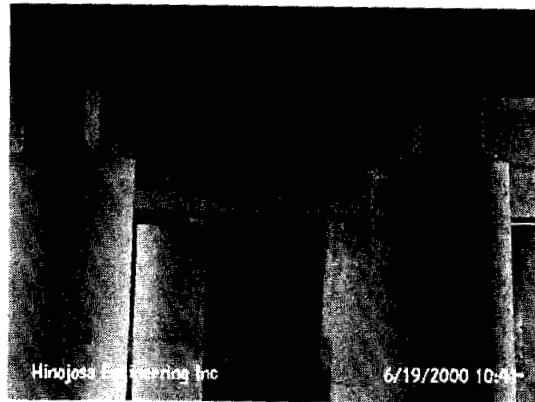


**Figure 71: Tilted column**

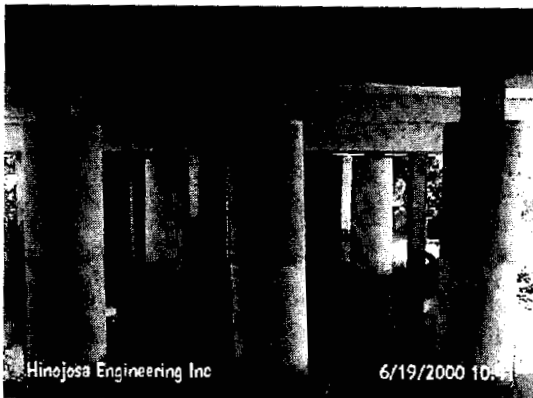
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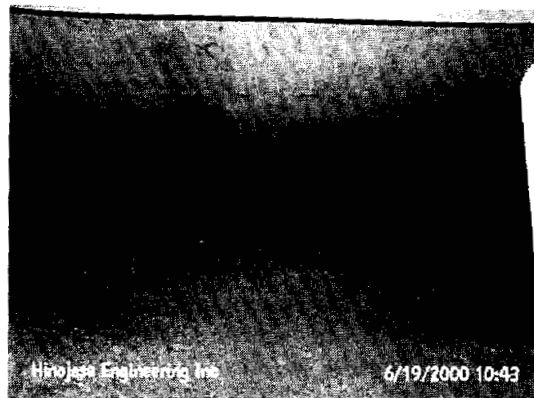
**Figure 72: Flat slab**



**Figure 73: Tilted column**



**Figure 74: Tilted column**

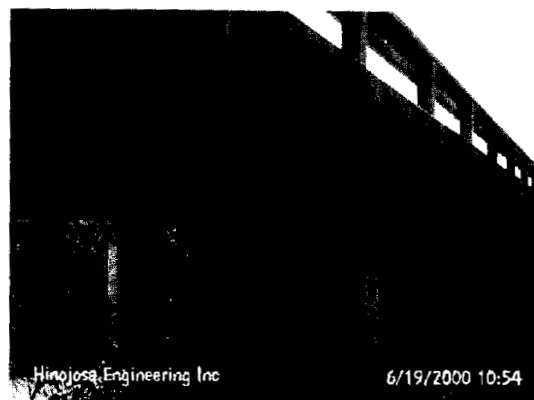


**Figure 75: End Beam**

- **77 SOUTH – 40' x 95', pre-cast flat slab, good condition**



**Figure 76: Bridge at 77 South**



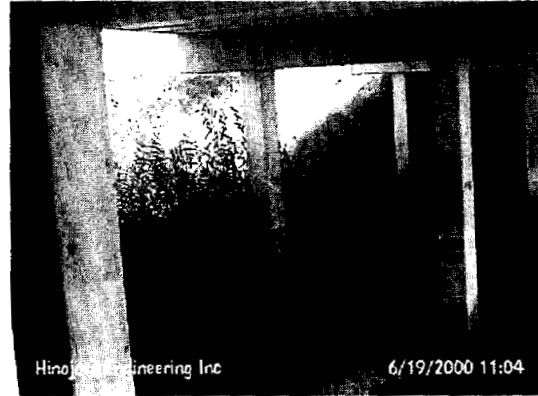
**Figure 77: Flat Slab**

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- 77 NORTH – 40' x 95', pre-cast flat slab, good condition



**Figure 78: Bridge at 77 North**

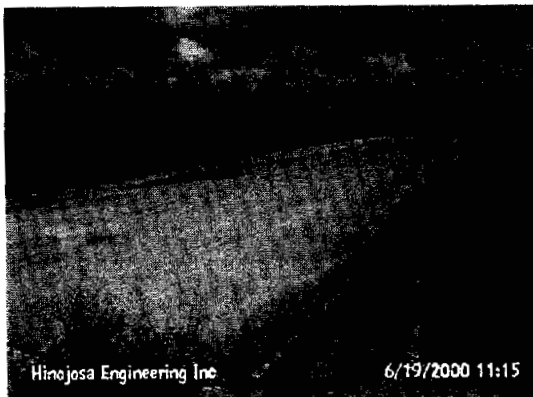


**Figure 79: Flat slab**



**Figure 80: Beam-column connection**

- Co Rd #300 – 25' x 120', pre-cast double t-beams, good condition



**Figure 81: Bridge at Co Rd #300**



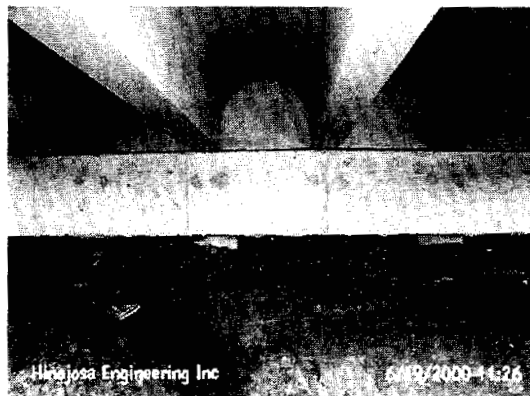
**Figure 82: Double t-beam slab**

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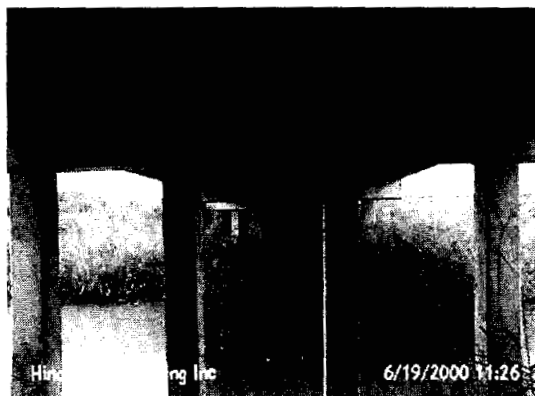
- Co Rd #315 – 25' x 120', pre-cast double t-beams, good condition



**Figure 83: Bridge at Co Rd #315**



**Figure 84: End Beam**



**Figure 85: Double t-beam slab**



**Figure 86: Double t-beam slab**

- Co Rd #330 – 25' x 120', pre-cast double t-beams, good condition



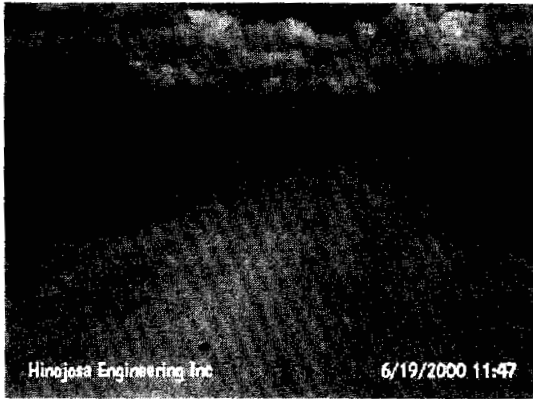
**Figure 87: Bridge at Co Rd #330**



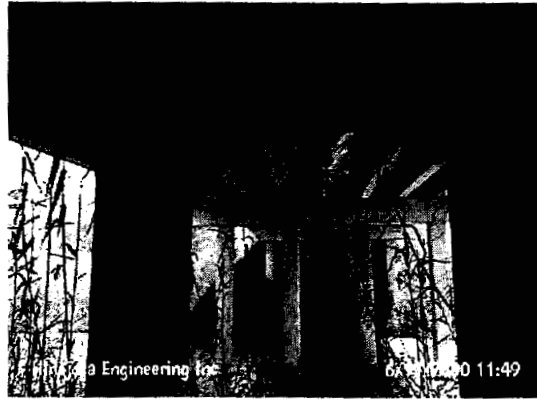
**Figure 88: Beam-column connection**

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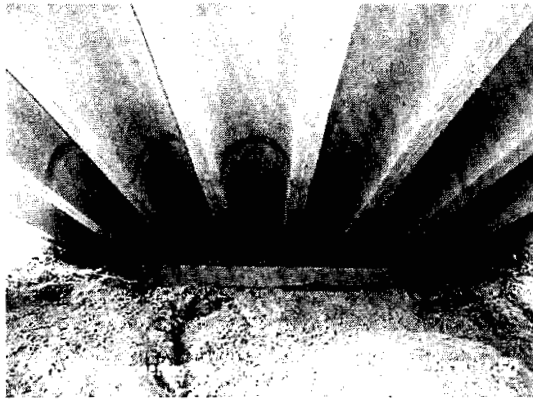
- Co Rd #345 – 25' x 120', pre-cast double t-beams, good condition



**Figure 89: Bridge at Co Rd #345**

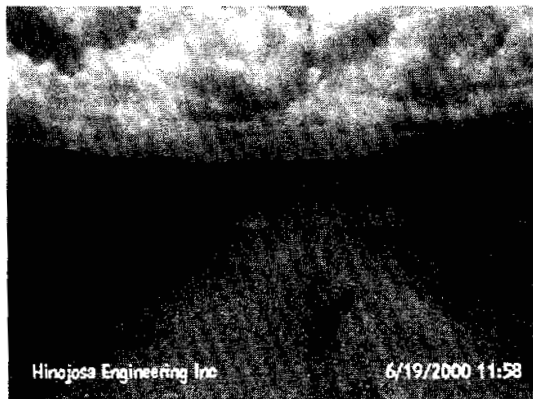


**Figure 90: Beam-column connection**



**Figure 91: Double t-beam slab**

- Co Rd #360 – 25' x 120', pre-cast double t-beams, good condition



**Figure 92: Bridge at Co Rd #360**

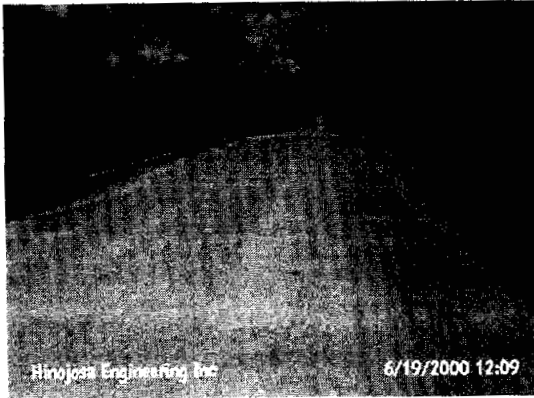


**Figure 93: Beam-column connection**

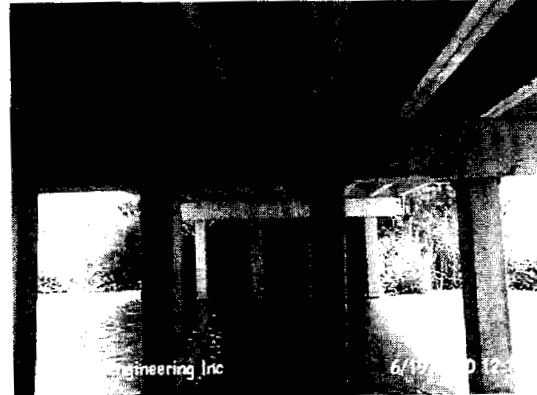


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- **Co Rd #380 – 25' x 90', pre-cast double t-beams, good condition**

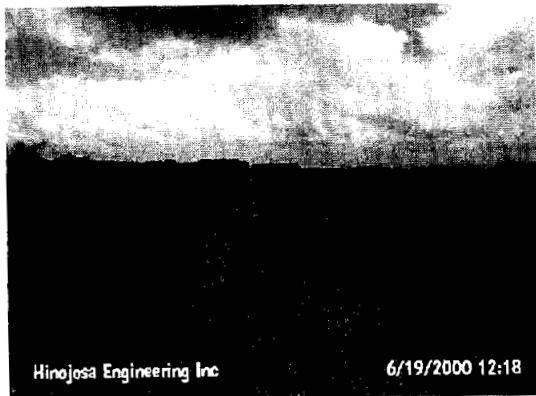


**Figure 94: Bridge at Co Rd #380**

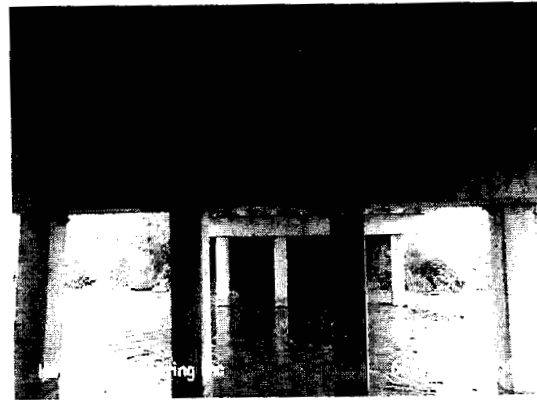


**Figure 95: Double t-beam slab**

- **Co Rd #398 – 25' x 90', pre-cast double t-beams, good condition**

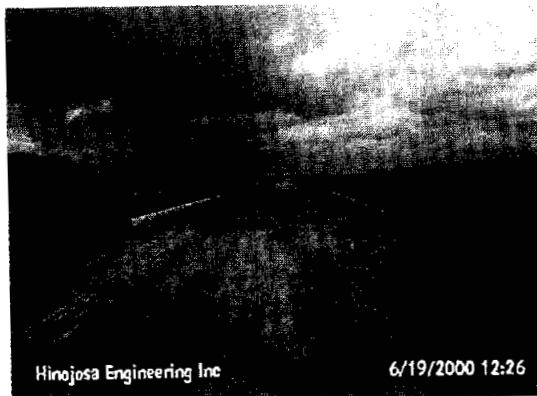


**Figure 96: Bridge at Co Rd #398**

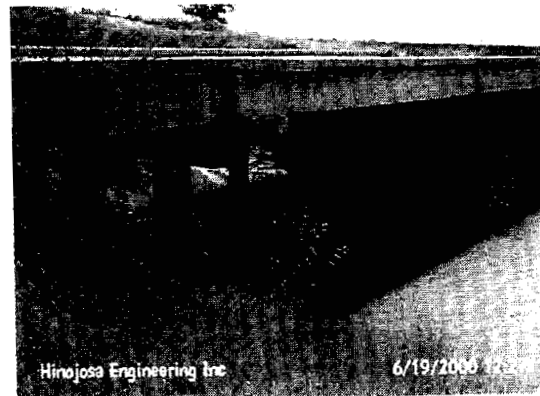


**Figure 97: Double t-beam slab**

- **Co Rd #415 – 25' x 90', pre-cast double t-beams, good condition**



**Figure 98: Bridge at Co Rd #415**



**Figure 99: Side view of structure**

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- **FM 2209 – 25' x 100', flat slab, good condition**



**Figure 100: Bridge at FM 2209**

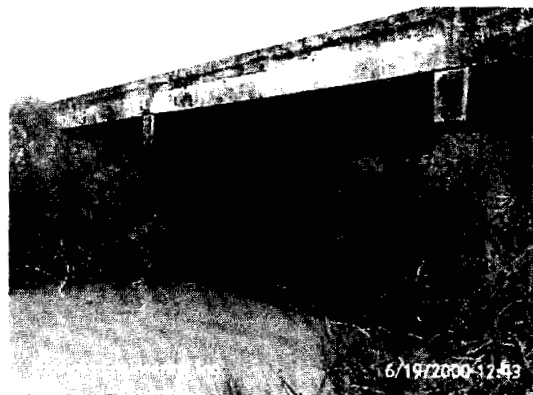


**Figure 101: Side view of structure**

- **Co Rd #445 – 25' x 90', pre-cast double t-beams, good condition**



**Figure 102: Bridge at Co Rd #445**

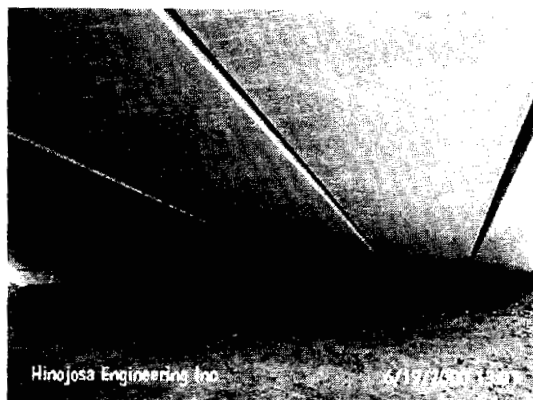


**Figure 103: Side view of structure**

- **FM 186 – 40' x 175', pre-cast flat slab, good condition**

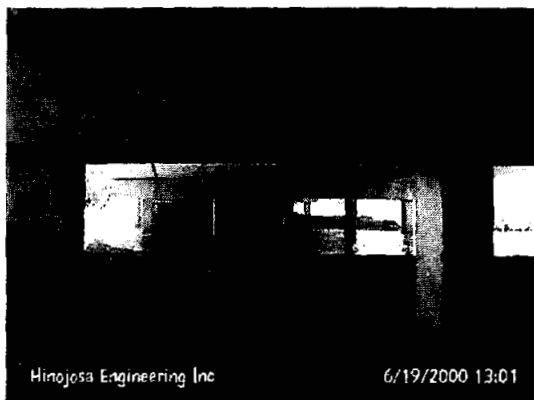


**Figure 104: Bridge at FM 186**

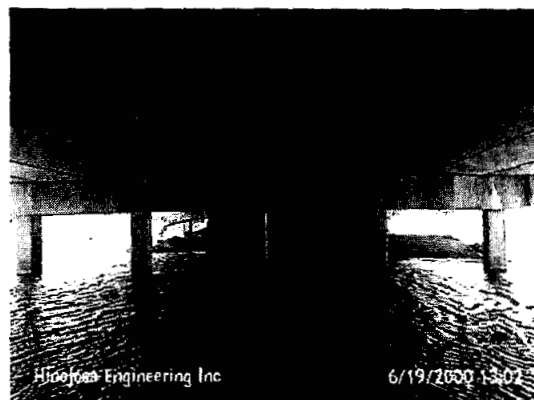


**Figure 105: End beam**

# HINOJOSA ENGINEERING, INC. STRUCTURAL & CIVIL ENGINEERING



**Figure 106: Beam under slab**



**Figure 107: Flat slab**

## CONCLUSIONS

Based on our visual structural observations, in our opinion the bridge structures are in good conditions, except for the bridge at County Road #121. The supporting beams at this bridge have failed in flexure, leading to exposed steel reinforcing (see Figure 49), and in shear (see Figures 48, 51-53). The beams at the end of the bridge have eroded (see Figure 50). Structural repairs are foreseen for this bridge structure.

## LIMITATIONS

This report is the result of a professional, specific, and limited scope assignment. It was prepared with care and within the customs and practices of the industry. The opinions expressed are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on the structure. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the opinions expressed in this report may be invalidated wholly or partially by changes outside our control. Further, this report does not serve as a guarantee, but instead as a memorial of a site observation visit.

The information is meant for use by the addressee and is in no way intended to be used by a third party, which may have different requirements.

It has been a pleasure to have been able to serve you in this matter, should any questions arise please feel free to call our office at (956) 581-0143.

Respectfully Submitted  
Hinojosa Engineering, Inc.

*Ricardo Hinojosa*

Ricardo Hinojosa, P.E.

Hinojosa Engineering, Inc.



7-26-00

**North Main and Raymondville Drains  
Photograph Cross Reference Listing**

*North Main Ditch*

**STATION CALCULATOR**  
**HCDD No. 1, Phase 1--Photographs**

<i>Photo Sta</i>	<i>Description</i>	<i>Project Sta</i>		
1	13378 North Main Drain Ditch	0		
2, 3	13664 Conc. Weir	286		
4	14733 18" Steel Casing Irr. Crossing	1355		
5, 6	16053 County Rd., Conc. Bridge 42	2675		
7	17165 48" Steel Casing of Irr. Crossing	3787		
8	18492 County Rd., Conc. Bridge 43	5114	5285	171
9, 10	19819 18" Steel Casing Irr. Crossing	6441		
11, 12	21153 County Rd., Conc. Brdge 44	7775	7925	150
13	26483 18" Steel Casing Irr. Crossing	13105		
14, 15	30524 FM 493, Conc. Bridge 45	17146		
	0 FM 493	17146		
16	574 12" Steel Casing of Irr. Crossing	17720		
17	1340 48" Steel Casing of Irr. Crossing	18486		
18, 19	2655 County Rd., Conc. Bridge 46	19801		
20, 21	3797 County Rd., Conc. Bridge 47	20943		
22	5374 18" Steel Casing Irr. Crossing	22520		
23, 24	7387 County Rd., Conc. Bridge 48	24533		
25, 26	8730 FM 1423, Conc. Bridge 49	25876	22279.8	-3596.2
	0 FM 1423	25876		
27	1263 24" Steel Casing of Irr. Crossing	27139		
28, 29	2635 County Rd., Conc. Bridge 50	28511		
30	5554 18" Steel Casing Irr. Crossing	31430		
31	5600 County Rd., Conc. Bridge 51	31476		
32	6796 18" Steel Casing Irr. Crossing	32672		
33	6796 Dirt Ditch Crossing, Conc. Bridge	32672		
34, 35	7095 Brush Line Rd., Conc. Bridge 52	32971		
36, 37	7317 Conc. Weir	33193	29700	-3493

**STATION CALCULATOR**  
**HCDD No. 1, Phase 2--Photographs**

<i>Photo Sta</i>	<i>Description</i>	<i>Project Sta</i>			
38	11301 24" Steel Casing of Irr. Crossing	2784			
	15094 10" Steel Casing of Gas Line	6577			
39 [	15234 24" Steel Casing of Gas Line	6717			
40	15475 County Rd., Conc. Bridge 53	6958			
41	21623 County Rd., Conc. Bridge 54	13106	12500		606
44 [ 42, 43	24102 Doolittle Rd., Conc. Bridge 55	15585	16000		415
	24122 18" Steel Casing	15605			
	24140 18" Steel Casing	15623			
45	26000 P.I. Of Ditch	17483			
46	28375 24" Steel Casing	19858			
47, 48	28970 County Rd., Conc. Bridge 56	20453	20900		447
49, 50	32269 County Rd., Conc. Bridge 57	23752	24200		448
51, 52	34686 County Rd., Conc. Bridge	26169			
53	36970 18" Steel Casing of Irr. Crossing	28453			
54 [	37914 8" Steel Casing to Water Line	29397			
	37924 2-24" Steel Casings	29407			
55	37965 N.Bound 281, Conc. Bridge 58	29448			
56	38126 S.Bound 281, Conc. Bridge 59	29609			
57 [	0 S.Bound 281	29609	29950		341
	185 10" Steel Casing	29794			
	205 10" Steel Casing	29814			
58	1203 24" Steel Casing	30812			
59, 60	6362 Seminary Rd., Conc. Bridge 60	35971	36200		229

**Station Calculator**  
**HCDD No. 1-- Phase 3 Photographs**

Photo Station	Description	Project Station
61	18" Steel Casing of Irr. Crossing	37723
62, 63	Caliche Rd., 10'X10' Conc Box 61	40183
64, 65	Concrete Weir	41000
66	24" Steel Casing	44762
67	24" Steel Casing of Irr. Crossing	49705
68	24" Steel Casing of Irr. Crossing	53638
69, 70	FM 1925, Conc. Bridge 62	55990
	FM 1925, Conc. Bridge 62	55990
71	24" Steel Casing of Irr. Crossing	57340
72, 73	Rogers Rd., Conc. Birdge 63	58659
74	42" Steel Casing to Irr. Crossing	59990
75, 76	Russell Rd., Conc. Bridge	61305
77	18" Steel Casing of Irr. Crossing	62625
78, 79	Chapin Rd., Conc. Bridge 64	63942
80	18" Steel Casing of Irr. Crossing	65254
81	Concrete Weir	65510
82, 83	Schunior St., Conc. Bridge 65	66576
	US Hwy. 107, Conc. Bridge 66	69145
84 [	US Hwy. 107, Conc. Bridge 66	69145
85 [	52" Conc. Pipe to Irr. Crossing	69243
	24" Steel Casing to Irr. Crossing	70550
86	Sprague St., Conc. Bridge	71870
87	28" Steel Casing to Irr. Crossing	71900
88 [	18" Steel Casing of Irr. Xing w/ 2- 12" Conc Pilings	74462
89 [	Freddy Gonzalez St., Conc. Bridge	74512
90	Concrete Flume	77090
91, 92	Canton Rd., Conc. Box X-ing w/ Conc. Headwalls	78645
93, 94		

**Station Calculator**  
**HCDD No. 1-- Phase 4 Photgraphs**

<b>Photo Station</b>	<b>Description</b>	<b>Project Station</b>
95, 96 9961	Concrete Weir	68380
97 10205	CL of South Main, North Main & McAllen Lat.	68620
98 10791	2-72" Corrigated Pipe Crossing under R.R. Track	69210



**STATION CALCULATOR**  
**HCDD No. 1, FM 1420 to Laguna Madre--Photographs**

	<i>Adjusted</i>		
<i>Photo Sta</i>	<i>Photo Sta</i>	<i>Description</i>	<i>Project Sta</i>
	0	-8550 FM 1420	1458
99	8208	-342 Beg Curve in Channel	9666
100	8520	-30 End Curve in Channel	9978
101, 102	8550	0 Concrete Weir	10008 Plan Sta.
103, 104	9148	598 Conc. Bridge	10606
105, 106	18942	10392 Gas Pipeline Bridge	20400
107, 108	21917	13367 Main Ranch Road Bridge	23375
109	22434	13884 48" Conc. Pipe (channel)	23892
110, 111	31636	23086 Conc. Bridge	33094
112	31636	23086 Channel (Machinery)	33094
113	31636	23086 Channel (Machinery)	33094
114, 115	38737	30187 PI of Channel	40195
116, 117	45086	36536 PI of Channel	46544
118, 119	47467	38917 Conc. Bridge	48925
120-123	50548	41998 Outfall weir	52006

**STATION CALCULATOR**  
**HCDD No. 1, US 77 to FM 1420--Photographs**

<i>Photo Sta</i>	<i>Description</i>	<i>Project Sta</i>
124	0 U.S. Business 77	74520
125, 126	1890 US Expressway 77, S bound	72630
127, 128	2090 US Expressway 77, N bound	72430
	0 US Expressway 77	72430
129, 130	1054 County Rd, Conc Bridge 16	71376
131, 132	10625 County Rd, Conc Bridge 15	61805
133	11316 Control weir	61114
134, 135	16299 County Rd, Conc. Bridge 14	56131
136, 137	21579 FM 2099, Conc. Bridge 13	50851
	0 FM 2099,	50851
138, 139	5173 County Rd, Conc. Bridge 12	45678
140, 141	9844 County Rd, Conc. Bridge 11	41007
142, 143	11166 Conc. Weir	39685
144, 145	15058 FM 507, Conc Bridge 10	35793
	0 FM 507	35793
146, 147	5277 County Rd, Conc Bridge 9	30516
148, 149	10000 Downstream Drain Channel	25793
150, 151	17376 County Rd, Conc. Bridge 8	18417
152, 153	21608 FM 498, Conc. Bridge 7	14185
	0 FM 498	14185
154, 155	7978 County Rd, Conc. Bridge 6	6207
156	8122 Gate Control WCDD No. 1	6063
157, 158	8545 Control weir	5640
159, 160	13715 FM 1420, Conc. Bridge 5	470

**STATION CALCULATOR**  
**HCDD No. 1, Panchita to HWY 77 RR Xing**

<i>Photo Sta</i>	<i>Description</i>	<i>Calculated Project Sta</i>	<i>Selected Project Sta</i>
	0 FM 1015		
161, 162	12300 Panchita Control Gate Structure	61880	61929
163, 164	18328 PI Channel DS Panchita	55852	
165, 166	21914 County Road, Bridge 30	52266	
167, 168	26855 County Road, Bridge 29	47325	
169, 170 [	32180 FM 2629, Bridge 28	42000	
	0 FM 2629	42000	
171, 172	4056 County Road, Bridge 27	37944	37707
173, 174	10854 County Road, Bridge 26	31146	31227
175	14581 Channel section DS Bridge 26	27419	
176, 177	15601 Concrete Weir	26399	26500
178, 179 [	16580 FM 1425, Bridge 25	25420	25500
	0 FM 1425	25420	
180, 181	4428 County Road, Bridge 24	20992	21107
182, 183	8363 County Road, Bridge 23	17057	17152
184, 185 [	10398 FM 2845, Bridge 22	15022	
	0 FM 2845	15022	
186, 187	5282 County Road, Bridge 21	9740	9876
188, 189	10363 County Road, Bridge 20	4659	4597
190, 191	13059 County Road, Bridge 19	1963	1957
192, 193	14965 Railroad Bridge adjacent to 77	57	0

# Raymondville Drain

## UNIT No. D-1

011+00.0	361 Bridge at Expressway 77 West Bound Lane	West
011+00.0	362 Bridge at Expressway 77 West Bound Lane	East
014+00.0	363 Bridge at Expressway 77 East Bound Lane	West
014+00.0	364 Bridge at Expressway 77 East Bound Lane	East
028+48.0	365 Bridge No. 15 (23' Roadway X 121.33Lg.)	West
028+48.0	366 Bridge No. 15 (23' Roadway X 121.33Lg.)	East
083+82.0	367 Bridge No. 14 (23' Roadway X 121.33Lg.)	West
083+82.0	368 Bridge No. 14 (23' Roadway X 121.33Lg.)	East
136+82.0	369 Bridge No. 13 (23' Roadway X 121.33Lg.)	West
136+82.0	370 Bridge No. 13 (23' Roadway X 121.33Lg.)	East
190+68.0	371 Bridge No. 12 (23' Roadway X 121.33Lg.)	West
190+68.0	372 Bridge No. 12 (23' Roadway X 121.33Lg.)	East
243+56.0	373 Bridge No. 11 (23' Roadway X 121.33Lg.)	West
243+56.0	374 Bridge No. 11 (23' Roadway X 121.33Lg.)	East
296+40.0	375 Bridge No. 10 (23' Roadway X 121.33Lg.)	West
296+40.0	376 Bridge No. 10 (23' Roadway X 121.33Lg.)	East
349+20.0	377 Bridge No. 9 (23' Roadway X 91Lg.)	West
349+20.0	378 Bridge No. 9 (23' Roadway X 91Lg.)	East
427+00.0	379 Bridge No. 8 (23' Roadway X 91Lg.)	West
427+00.0	380 Bridge No. 8 (23' Roadway X 91Lg.)	East
480+12.0	381 Bridge Lengthened by the State Hwy. Dept.	West
480+12.0	382 Bridge Lengthened by the State Hwy. Dept.	East
524+50.0	383 Bridge No. 7 (23' Roadway X 91Lg.)	West
524+50.0	384 Bridge No. 7 (23' Roadway X 91Lg.)	East

# Raymondville Drain

## UNIT No. D-1

011+00.0	361 Bridge at Expressway 77 West Bound Lane	West
011+00.0	362 Bridge at Expressway 77 West Bound Lane	East
014+00.0	363 Bridge at Expressway 77 East Bound Lane	West
014+00.0	364 Bridge at Expressway 77 East Bound Lane	East
028+48.0	365 Bridge No. 15 (23' Roadway X 121.33Lg.)	West
028+48.0	366 Bridge No. 15 (23' Roadway X 121.33Lg.)	East
083+82.0	367 Bridge No. 14 (23' Roadway X 121.33Lg.)	West
083+82.0	368 Bridge No. 14 (23' Roadway X 121.33Lg.)	East
136+82.0	369 Bridge No. 13 (23' Roadway X 121.33Lg.)	West
136+82.0	370 Bridge No. 13 (23' Roadway X 121.33Lg.)	East
190+68.0	371 Bridge No. 12 (23' Roadway X 121.33Lg.)	West
190+68.0	372 Bridge No. 12 (23' Roadway X 121.33Lg.)	East
243+56.0	373 Bridge No. 11 (23' Roadway X 121.33Lg.)	West
243+56.0	374 Bridge No. 11 (23' Roadway X 121.33Lg.)	East
296+40.0	375 Bridge No. 10 (23' Roadway X 121.33Lg.)	West
296+40.0	376 Bridge No. 10 (23' Roadway X 121.33Lg.)	East
349+20.0	377 Bridge No. 9 (23' Roadway X 91Lg.)	West
349+20.0	378 Bridge No. 9 (23' Roadway X 91Lg.)	East
427+00.0	379 Bridge No. 8 (23' Roadway X 91Lg.)	West
427+00.0	380 Bridge No. 8 (23' Roadway X 91Lg.)	East
480+12.0	381 Bridge Lengthened by the State Hwy. Dept.	West
480+12.0	382 Bridge Lengthened by the State Hwy. Dept.	East
524+50.0	383 Bridge No. 7 (23' Roadway X 91Lg.)	West
524+50.0	384 Bridge No. 7 (23' Roadway X 91Lg.)	East

UNIT No. D-2

Station	Clip	Description	Viewed
508+75.0		330 Bridge at Highway 186.	South
508+75.0		331 Bridge at Highway 186.	North
506+90.0		332 Rain Control Structure To Salt Lake	Southeast
506+90.0		333 Rain Control Structure To Salt Lake	Northwest
500+00.0		334 36"X1/4"X125' Steel Pipe	Southeast
451+89.0		335 14' Roadway X 91' Lg. Bridge	South
451+89.0		336 14' Roadway X 91' Lg. Bridge	North
410+50.0		337 23' Roadway X 91' Lg. Bridge	South
410+50.0		338 23' Roadway X 91' Lg. Bridge	North
420+00.0		339 Rain Control Structure To North Hargill Drain	West
420+00.0		340 Rain Control Structure To North Hargill Drain	East
338+00.0		341 23' Roadway X 91' Lg. Bridge	South
338+00.0		342 23' Roadway X 91' Lg. Bridge	North
288+49.0		343 Bridge at County Rd. where State Hwy. 1761 turns South.	West
288+49.0		344 Bridge at County Rd. where State Hwy. 1761 turns South.	East
236+70.0		345 14' Roadway X 91' Lg. Bridge at Farm Rd	South
236+70.0		346 14' Roadway X 91' Lg. Bridge at Farm Rd	North
204+41.1		347 23' Roadway X 91' Lg. Bridge	West
204+41.1		348 23' Roadway X 91' Lg. Bridge	East
152+49.0		349 23' Roadway X 91' Lg. Bridge	West
152+49.0		350 23' Roadway X 91' Lg. Bridge	East
082+42.5		351 23' Roadway X 91' Lg. Bridge	West
082+42.5		352 23' Roadway X 91' Lg. Bridge	East
056+02.5		353 23' Roadway X 91' Lg. Bridge	West
056+02.5		354 23' Roadway X 91' Lg. Bridge	East
031+38.0		355 14' Roadway X 91' Lg. Bridge	West
031+38.0		356 14' Roadway X 91' Lg. Bridge	East
000+95.0		357 Rail Road Bridge	West
000+95.0		358 Rail Road Bridge	East
000+00.0		359 Bridge at U.S. Hwy. 77	West
000+00.0		360 Bridge at U.S. Hwy. 77	East

UNIT No. D-3

Lateral 5

Station	Clip	Description	Viewed
145+86.9		290 36" X 12' Conc. Pipe Inlet	Southwest
145+86.9		291 36" X 12' Conc. Pipe Inlet	Northeast
145+30.9		292 30" R.C. Flex J.T. Pipe X 56'	Southwest
145+30.9		293 30" R.C. Flex J.T. Pipe X 56'	Northeast
141+54.0		294 30" R.C. Flex J.T. Pipe X 80'	Southwest
141+54.0		295 30" R.C. Flex J.T. Pipe X 80'	Northeast
033+65.4		296 7' X 7' X 96' Prefabricated Concrete Box	Southeast
033+65.4		297 7' X 7' X 96' Prefabricated Concrete Box	Northwest
003+86.0		298 7' X 7' X 84' Prefabricated Concrete Box	Southwest
003+86.0		299 7' X 7' X 84' Prefabricated Concrete Box	Northeast

West Hargill Drain

Station	Clip	Description	Viewed
506+40.0		300 Bridge at Mile 10W.	East
506+40.0		301 Bridge at Mile 10W.	West
535+79.9		302 Bridge at Mile 10-1/2W.	East
535+79.9		303 Bridge at Mile 10-1/2W.	West
442+80.6		304 Bridge at Mile 9-W.	East
442+80.6		305 Bridge at Mile 9-W.	West
474+20.8		306 Bridge at Mile 9-1/2W.	East
474+20.8		307 Bridge at Mile 9-1/2W.	West
345+86.0		308 Bridge at Mile 7-1/2W.	West
345+86.0		309 Bridge at Mile 7-1/2W.	East
316+59.0		310 Bridge at Mile 7W.	East
316+59.0		311 Bridge at Mile 7W.	West
295+40.6		312 Bridge at Mile 11-1/2N.	North
295+40.6		313 Bridge at Mile 11-1/2N.	South
236+29.5		314 Bridge at Mile 6W.	West
236+29.5		315 Bridge at Mile 6W.	East
207+67.5		316 Bridge at Mile 5-1/2W.	West
207+67.5		317 Bridge at Mile 5-1/2W.	East
207+00.0		318 Bridge at Mile 11-1/2N.	South
207+00.0		319 Bridge at Mile 11-1/2N.	North
180+84.7		320 Bridge at Highway 88.	West
180+84.7		321 Bridge at Highway 88.	East
154+44.7		322 Bridge at Mile 4-1/2W.	West
154+44.7		323 Bridge at Mile 4-1/2W.	East
086+99.1		324 Not Shown	
086+99.1		325 Bridge at Mile 3-1/2W.	East
060+23.7		326 Bridge at Mile 3W.	West
060+23.7		327 Bridge at Mile 3W.	East
028+74.7		328 Bridge at Mile 2-1/2W.	West
028+74.7		329 Bridge at Mile 2-1/2W.	East

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**NORTH MAIN**  
**25-YEAR MODEL**



```

1* *****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
*   RUN DATE 05/08/01 TIME 10:09:30 *
* *****

```

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*
*****

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X   X  XXXXXXXX  XXXXX      X
X   X  X        X   X      XX
X   X  X        X           X
XXXXXXX XXXX   X   XXXXX   X
X   X  X        X           X
X   X  X        X   X      X
X   X  XXXXXXXX  XXXXX      XXX

```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: NM25re.DAT Revised Existing Conditions  
 \* 25-year Rain-fall  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES SR-9R  
 \* CORRECTED DA FOR SM-1B FROM 37.73 TO 27.11  
 \* DIAGRAM

1 ID West Main drain area  
 2 ID 25-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 4 3.61 4.29 4.65 5.45 6.22 6.62  
 9 LS 5.721 60  
 10 UD 53.5  
 \* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0  
 \* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1  
 \* \*\*\*\*\*

LINE	ID	1	2	3	4	5	6	7	8	9	10
22	KK	1C									
23	KM	Combine hydrograph from SC-7A and SC-7B, at node 1									
24	HC	2									
		*****									
25	KK	2R									
26	KM	Route hydrograph from node 1 to node 2									
27	RD										
28	RC	0.08	0.03	0.08	32000	0.0002	187				
29	RX	1000	2500	2977	2994	3005	3032	4500	5000		
30	RY	175	173	172	160.91	160.91	174.0	173.0	175.0		
		*****									
31	KK	SC-7C SUBWATER SHED									
32	KM	Compute hydrograph for sub-water shed SC-7C									
33	BA	23									
34	LS	5.028	60								
35	UD	27.4									
		*****									
36	KK	SC-6A									
37	KM	Compute hydrograph for sub-water shed SC-6A									
38	BA	41.66									
39	LS	4.484	60								
40	UD	50.5									
		*****									
41	KK	2C									
42	KM	Combine hydrograph at node 2									
43	HC	3									
		*****									
44	KK	3R									
45	KM	Route hydrograph from node 2 to node 3									
46	RD										
47	RC	0.08	0.03	0.08	20800	0.0005	106				
48	RX	1000	1874.9	1960.8	1966.1	1992.5	2010.8	2037.1	3000		
49	RY	97	98	100	98	88	88	100	99.4		
		*****									
50	KK	SC-6B									
51	KM	Compute hydrograph for sub-water shed SC-6B									
52	BA	6.58									
53	LS	1.765	60								
54	UD	22.6									
		*****									
55	KK	SC-7D									
56	KM	Compute hydrograph for sub-water shed SC-7D									
57	BA	6.15									
58	LS	4.829	60								
59	UD	25.6									
		*****									

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

60 KK 3R  
 61 KM Route hydrograph from of SC-7D to node 3  
 62 RD  
 63 RC 0.08 0.03 0.08 8000 0.0001 106  
 64 RX 1000 1967.5 1977.9 1985.8 2007 2017.3 2081 3000  
 65 RY 97.2 98 90 84 84 90 98 97  
 \* \*\*\*\*\*

66 KK 3C  
 67 KM Combine three hydrograph at node 3  
 68 HC 3  
 \* \*\*\*\*\*

69 KK 4R  
 70 KM Route hydrograph from node 3 to node 4  
 71 RS 1 STOR -1  
 72 SV 0 114 489 779 1639 2929  
 73 SQ 0 680 1360 1700 2715 4240  
 \*  
 \* 0.08 0.03 0.08 14400 0.0006 103  
 \* 1000 1818.2 1830.9 1843.6 1867 1878.8 1890.6 2855.2  
 \* 89 90 84 78 78 84 90 89  
 \* \*\*\*\*\*

74 KK SC5A subwater-shed  
 75 KM Compute hydrograph for subwater shed SC-5A  
 76 BA 38.43  
 77 LS 2.575 60  
 78 UD 51  
 \* \*\*\*\*\*

79 KK 5ACANA  
 80 KM CANAL CROSSING  
 81 RS 1 ELEV 135 0  
 82 SS 140.67 2000 2.8 1.5  
 83 ST 140.82 2000 2.8 1.5  
 84 SW 2000 2000 2000  
 85 SE 140.96 141.14 141.28  
 86 SV 0 537 5484 7582  
 87 SE 135 140 145 150  
 \* \*\*\*\*\*

88 KK 5AROUT  
 89 KM Route hydrograph TO DOWNSTREAM CANAL  
 90 RD  
 91 RC .06 .06 .06 11900 .0023 140  
 92 RX 0 1500 3140 3690 4560 5650 5885 7950  
 93 RY 140 135 130 125 122.5 125 130 135  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 94      KK   SC5A1 subwater-shed
 95      KM   Compute hydrograph for subwater shed SC-5A1
 96      BA   5.64
 97      LS   1.889      60
 98      UD   14.8
          * *****

 99      KK   5AA1
100      KM   Combine two hydrographs
101      HC   2
          * *****

102      KK   5A1CAN
103      KM   CANAL CROSSING
104      RS   1      ELEV      115      0
105      SS   116.8    1900      2.8      1.5
106      ST   117.2    4050      2.8      1.5
107      SV   0      2705
108      SE   115      120
          * *****

109      KK   5A1RT
110      KM   Route hydrograph TO DOWNSTREAM CANAL
111      RD
112      RC   .06      .06      .06      14900      .0017      110
113      RX   0      2580      4000      5000      6000      9675      10400      10450
114      RY   100      100      95      94      95      100      105      105
          * *****

115      KK   SC5B subwater-shed
116      KM   Compute hydrograph for subwater shed SC-5B
117      BA   9.02
118      LS   2.515      60
119      UD   13
          * *****

120      KK   4C1
121      KM   Combine two hydrographs
122      HC   2
          * *****

123      KK   SC-4A subwater-shed
124      KM   Compute hydrograph for subwater shed SC-4A
125      BA   30.73
126      LS   2.512      60
127      UD   37.3
          * *****

128      KK   4ACANA
129      KM   CANAL CROSSING
130      RS   1      ELEV      160      0
131      SS   171.74    500      2.8      1.5
132      ST   171.83    500      2.8      1.5
133      SW   500      500      500      500      500      500

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
134      SE 171.91    172 172.08 172.17 172.26 172.35
135      SV      0      60  946.5  4419
136      SE      160    165  170    175
* *****

137      KK 4AROUT
138      KM  Route hydrograph TO DOWNSTREAM CANAL
139      RD
140      RC      .06    .06    .06  11300  .003  165
141      RX      0    2500  3000  3500  4000  5300  6000  7650
142      RY     155    155    150    150    155    155    155    155
* *****

143      KK SC-4A1 subwater-shed
144      KM  Compute hydrograph for subwater shed SC-4A1
145      BA      7.34
146      LS  2.158    60
147      UD      10.85
* *****

148      KK SC4AA1
149      KM  Combine two hydrographs
150      HC      2
* *****

151      KK 4A1CAN
152      KM  CANAL CROSSING
153      RS      1      ELEV  140    0
154      SS     141    4300  2.8    1.5
155      ST  141.11  500    2.8    1.5
156      SW     500    500
157      SE  141.33  141.55
158      SV      0    2475
159      SE     140    145
* *****

160      KK 4A1ROU
161      KM  Route hydrograph TO DOWNSTREAM CANAL
162      RD
163      RC      .06    .06    .06  8000  .003  145
164      RX      0    700    1500  1800  2300  2400  2425  2500
165      RY     130  127.5  126.5  130    135    135    135    135
* *****

166      KK SC-4B subwater-shed
167      KM  Compute hydrograph for subwater shed SC-4B
168      BA      5.44
169      LS  3.062    60
170      UD      6.6
* *****
* COMBINE WATERSHEDS SC-4A, 4A1, 4B
    
```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

171 KK SC4AAB  
 172 KM Combine two hydrographs  
 173 HC 2  
 \* \*\*\*\*\*

174 KK 4BCANA  
 175 KM CANAL CROSSING  
 176 RS 1 ELEV 110 0  
 177 SS 113.48 500 2.8 1.5  
 178 ST 113.65 500 2.8 1.5  
 179 SW 500 500 500 500 500  
 180 SE 113.82 113.99 114.15 114.32 114.49 114.66  
 181 SV 0 473.8 2460  
 182 SE 110 115 120  
 \* \*\*\*\*\*

183 KK 4AABRT  
 184 KM Route hydrograph TO DOWNSTREAM CANAL  
 185 RD  
 186 RC .06 .06 .06 10800 .0018 105  
 187 RX 0 1100 2000 2600 3000 3500 4000 5000  
 188 RY 110 105 100 98 100 105 105 105  
 \* \*\*\*\*\*

189 KK SC-4B1 subwater-shed  
 190 KM Compute hydrograph for subwater shed SC-4B1  
 191 BA 6.07  
 192 LS 2.451 60  
 193 UD 12.2  
 \* \*\*\*\*\*

194 KK SC-4  
 195 KM Combine two hydrographs  
 196 HC 2  
 \* \*\*\*\*\*

197 KK 4C2  
 198 KM Combine three hydrographs at node 4  
 199 HC 3  
 \* \*\*\*\*\*

200 KK 5R  
 201 KM Route hydrograph from node 4 to node 5  
 202 RS 1 STOR -1  
 203 SV 0 204 838 1406 3840 6496  
 204 SQ 0 1110 2220 2775 4440 6940  
 \*  
 \* 0.08 0.03 0.08 12800 0.0002 106  
 \* 1000 1101 1113.3 1132.9 1153.4 1166.2 1178.9 3000  
 \* 87.1 82 78 70 70 78 86 86.5  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

205 KK SC-3 SUB-WATER SHED
206 KM Compute hydrograph for subwater shed SC-3
207 BA 56.44
208 LS 2.203 60
209 UD 62.9
* *****

210 KK 5C
211 KM Combine two hydrographs at node 5
212 HC 2
* *****

213 KK 6R
214 KM Route hydrograph from node 5 to node 6
215 RS 2 STOR -1
216 SV 0 428 2369 3646 8785 12983
217 SQ 0 1315 2630 3290 5260 8220
*
* 0.08 0.03 0.08 7200 0.0002 103
* 1000 1891.2 1926.7 1980.9 2018.3 2105 2201.4 3000
* 82 82 86 70 70 88 86 83
* *****

218 KK SC-3A
219 KM Compute hydrograph for subwater shed SC-3A
220 BA 5.87
221 LS 1.917 60
222 UD 59
* *****

223 KK SC-3B
224 KM Compute hydrograph from sub-water shed SC-3B
225 BA 6.71
226 LS 3.075 60
227 UD 34.4
* *****

228 KK 6C
229 KM Combine three hydrographs at node 6
230 HC 3
* *****

231 KK 7R
232 KM Route hydrograph from node 6 to node 7
233 RS 1 STOR -1
234 SV 0 86 166 392 1932 3564
235 SQ 0 1345 2690 3360 5380 8400
*
* 0.08 0.03 0.08 25200 0.0004 103
* 1000 1856.6 1869.7 1896.8 1933.8 1960.1 2757.7 2915.9
* 86 86 78 70 70 86 86 88
* *****
    
```



```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

236      KK      SC-2
237      KM      Compute hydrograph for SC-2
238      BA      11.48
239      LS      5.152      60
240      UD      56.8
          * *****

241      KK      7C
242      KM      Combine hydrograph at node 7
243      HC      2
          * *****

244      KK      8R
245      KM      Route hydrograph from node 7 to node 8
246      RS      2      STOR      -1
247      SV      0      314      1129      1907      4601      9248
248      SQ      0      1390      2780      3475      5560      8690
          *
          * 0.08      0.03      0.08      26400      0.0003      103
          * 1000      1927.4      1937.8      1947.9      2019.1      2035.6      2105.8      2948.1
          * 66      66      60      54      54      62      68      72
          * *****

249      KK      SC-1
250      KM      Compute hydrograph for SC-1
251      BA      7.07
252      LS      1.365      60
253      UD      38.7
          * *****

254      KK      8C1
255      KM      Combine hydrograph at node 8
256      HC      2
          * *****
          * Start calculating hydrograph for the sub water sheds
          * that drain to the South Main drain.
          * *****

257      KK      SC-8
258      KM      Compute hydrograph for subwater shed SC-8
259      BA      19.99
260      LS      1.861      60
261      UD      53.5
          * *****

262      KK      1BR
263      KM      Route hydrograph to node 1B
264      RD
265      RC      0.08      0.03      0.08      27200      0.0003      115
266      RX      1000      1695.7      1973      2003      2010.5      2029.5      2075.5      3000
267      RY      103.1      110      100      90      90      100      108      107
          * *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

268      KK   SM-18
269      KM   Compute hydrograph for sub-water shed SM-18
270      BA   27.11
271      LS   4.165   61.96
272      UD   55.8
* *****

273      KK   1BC1
274      KM   Combine two hydrographs at node 1B
275      HC   2
* *****

276      KK   SM-17
277      KM   Compute hydrograph for sub-water shed SM-17
278      BA   7.03
279      LS   0.834   60
280      UD   36.3
* *****

281      KK   1BC2
282      KM   Combine two hydrographs at node 1B
283      HC   2
* *****

284      KK   2BR
285      KM   Route hydrograph from node 1B to 2B
286      RD
287      RC   0.08   0.03   0.08   14400  0.0007   103
288      RX   1000  1335.2  1343  1354.8  1398.6  1411.9  1420.9  2375.6
289      RY   91    91    88    82    82    88    92    92
* *****

290      KK   SM-16
291      KM   Compute hydrograph for SM-16
292      BA   25.18
293      LS   2.689   60
294      UD   61.6
* *****

295      KK   2BC
296      KM   Combine hydrograph at node 2B
297      HC   2
* *****

298      KK   3BR
299      KM   Route hydrograph from node 2B to node 3B
300      RD
301      RC   0.08   0.03   0.08   10400  0.0008   103
302      RX   1000  1760.1  1781.2  1826.3  1883.8  1920.1  1946.7  2799.8
303      RY   79    84    72    72    84    92    82    82.4
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

304 KK SM-15 SUB-WATER SHED
305 KM Compute hydrograph for SM-15
306 BA 11.1
307 LS 1.378 60
308 UD 40.6
* *****

309 KK 3BC
310 KM Combine hydrograph at node 3B
311 HC 2
* *****

312 KK 4BR
313 KM Route hydrograph from node 3B to 4B
314 RD
315 RC 0.08 0.03 0.08 10400 0.0003 103
316 RX 1000 1962.3 1989.1 2026.6 2053.7 2129 2176 3000
317 RY 72.7 76 60 60 74 86 74 75.6
* *****

318 KK SM-14 SUB-WATER SHED
319 KM Compute hydrograph for SM-14
320 BA 21.6
321 LS 1.666 60
322 UD 69.1
* *****

323 KK 4BC
324 KM Combine hydrograph at node 4B
325 HC 2
* *****

326 KK 8BR
327 KM Route hydrograph from node 4B to node 9
328 RD
329 RC 0.08 0.03 0.08 16000 0.0007 103
330 RX 1000 1885.8 1978.6 2036.9 2065.1 2149.5 2205 3000
331 RY 76 76 54 54 68 82 70 72
* *****

332 KK SM-13
333 KM Compute hydrograph for SM-13
334 BA 22.25
335 LS 4.220 60
336 UD 74.5
* *****

337 KK 8C1
338 KM Combine hydrograph at node 9
339 HC 2
* *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

340      KK      9C2
341      KM      Combine hydrographs from North-West and South drain
342      HC      2
          * *****

343      KK      9R
344      KM      Route hydrograph to the PANCHITA STRUCTURE
345      RD
346      RC      0.08    0.03    0.08    46724  0.0004    103
347      RX      1000   1927.4  1937.8  1947.9  2019.1  2035.6  2105.8  2948.1
348      RY      66     66     60     54     54     62     68     72
          * *****

349      KK      29S SUB-WATER SHED
350      KM      Compute hydrograph for 29S
351      BA      12.28
352      LS      3.021    60
353      UD      25.9
          * *****

354      KK      Com9A
355      KM      Combine two hydrographs at Node 9
356      HC      2
          * *****

357      KK      28S SUB-WATER SHED
358      KM      Compute hydrograph for 28S
359      BA      25.91
360      LS      2.866    60
361      UD      38.6
          * *****

362      KK      Com9B
363      KM      Combine two hydrographs at Node 9
364      HC      2
          * *****

365      KK      Rt10
366      KM      Route hydrograph to Node 10
367      RS      1      STOR      -1
368      SV      0      527.17  816.18  2044.31  5147.32  7902.66  9972.51
369      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

370      KK      DIV2
371      KM      TO WATERSHED SOUTH OF NORTH MAIN
372      DT      DIV2
373      DI      0      7000    65000
374      DQ      0      2000    2000
          * *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

375      KK      27S SUB-WATER SHED
376      KM      Compute hydrograph for 27S
377      BA      12.15
378      LS      2.977  61.92
379      UD      14.7
          * *****

380      KK      Com10A
381      KM      Combine two hydrographs at Node 10
382      HC      2
          * *****

383      KK      26S SUB-WATER SHED
384      KM      Compute hydrograph for 26S
385      BA      10.55
386      LS      2.974  62.54
387      UD      13.6
          * *****

388      KK      24S SUB-WATER SHED
389      KM      Compute hydrograph for 24S
390      BA      3.83
391      LS      2.940  62.11
392      UD      14.7
          * *****

393      KK      Com10B
394      KM      Combine three hydrographs at Node 10
395      HC      3
          * *****

396      KK      Rt11
397      KM      Route hydrograph to Node 11
398      RS      1      STOR      -1
399      SV      0      249.3  385.44  1661.56  3718.66  5233.82  6730.05
400      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

401      KK      22S SUB-WATER SHED
402      KM      Compute hydrograph for 22S
403      BA      7.55
404      LS      3.000  62.90
405      UD      20.4
          * *****

406      KK      Com11A
407      KM      Combine two hydrographs at Node 11
408      HC      2
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

409 KK 20S SUB-WATER SHED
410 KM Compute hydrograph for 20S
411 BA 10.57
412 LS 2.847 60
413 UD 24.0
* *****

414 KK Com11B
415 KM Combine two hydrographs at Node 11
416 HC 2
* *****

417 KK Rt12
418 KM Route hydrograph to Node 12
419 RS 1 STOR -1
420 SV 0 202.5 312.74 870.9 2706.99 3523.96 4130.87
421 SQ 0 1000 2000 4000 6000 8000 10000
* *****

422 KK 18S SUB-WATER SHED
423 KM Compute hydrograph for 18S
424 BA 4.69
425 LS 2.885 60
426 UD 16.5
* *****

427 KK Com12
428 KM Combine two hydrographs at Node 12
429 HC 2
* *****

430 KK Rt13
431 KM Route hydrograph to Node 13
432 RS 1 STOR -1
433 SV 0 71.07 113.63 427.96 987.6 1443.8 1838.89
434 SQ 0 1000 2000 4000 6000 8000 10000
* *****

435 KK 16S SUB-WATER SHED
436 KM Compute hydrograph for 16S
437 BA 9.60
438 LS 3.705 60
439 UD 23.5
* *****

440 KK Com13A
441 KM Combine two hydrographs at Node 13
442 HC 2
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

443 KK 15S SUB-WATER SHED  
 444 KM Compute hydrograph for 15S  
 445 BA 25.08  
 446 LS 3.517 60  
 447 UD 36.4  
 \* \*\*\*\*\*

448 KK Com13B  
 449 KM Combine two hydrographs at Node 13  
 450 HC 2  
 \* \*\*\*\*\*

451 KK Rt14  
 452 KM Route hydrograph to Node 14  
 453 RS 1 STOR -1  
 454 SV 0 325.09 531.58 2194.95 4313.68 5830.17 7281.01  
 455 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

456 KK 13S SUB-WATER SHED  
 457 KM Compute hydrograph for 13S  
 458 BA 19.76  
 459 LS 3.807 60  
 460 UD 32.6  
 \* \*\*\*\*\*

461 KK Com14A  
 462 KM Combine two hydrographs at Node 14  
 463 HC 2  
 \* \*\*\*\*\*

464 KK 14S SUB-WATER SHED  
 465 KM Compute hydrograph for 14S  
 466 BA 9.53  
 467 LS 3.060 60  
 468 UD 22.9  
 \* \*\*\*\*\*

469 KK Com14B  
 470 KM Combine two hydrographs at Node 14  
 471 HC 2  
 \* \*\*\*\*\*

472 KK Rt15  
 473 KM Route hydrograph to Node 15  
 474 RS 1 STOR -1  
 475 SV 0 208.71 319.05 1791.94 3107.58 4264.72 5131.9  
 476 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

477      KK      11S SUB-WATER SHED
478      KM      Compute hydrograph for 11S
479      BA      8.20
480      LS      2.970   61.62
481      UD      12.2
          * *****

482      KK      Com15
483      KM      Combine two hydrographs at Node 15
484      HC      2
          * *****

485      KK      Rt16
486      KM      Route hydrograph to Node 16
487      RS      1      STOR      -1
488      SV      0      197.28   298.23   1677.59   3541.79   4950.66   5984.55
489      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

490      KK      7S SUB-WATER SHED
491      KM      Compute hydrograph for 7S
492      BA      29.41
493      LS      3.141    60
494      UD      38.3
          * *****

495      KK      Com16
496      KM      Combine two hydrographs at Node 16
497      HC      2
          * *****

498      KK      Rt17
499      KM      Route hydrograph to Node 17
500      RS      1      STOR      -1
501      SV      0      432.95   639.58   954.67   1433.05   2543.25   3518.78
502      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

503      KK      6S SUB-WATER SHED
504      KM      Compute hydrograph for S6
505      BA      9.21
506      LS      2.183    60
507      UD      12.9
          * *****

508      KK      Com17
509      KM      Combine two hydrographs at Node 17
510      HC      2
          * *****

```



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

511 KK Rt18  
 512 KM Route hydrograph to Node 18  
 513 RS 1 STOR -1  
 514 SV 0 388.62 558.69 807.92 1617.19 3723.86 4996.12  
 515 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

516 KK 4S SUB-WATER SHED  
 517 KM Compute hydrograph for 4S  
 518 BA 22.35  
 519 LS 2.408 60  
 520 UD 19.6  
 \* \*\*\*\*\*

521 KK Com18A  
 522 KM Combine two hydrographs at Node 18  
 523 HC 2  
 \* \*\*\*\*\*

524 KK 3S SUB-WATER SHED  
 525 KM Compute hydrograph for 3S  
 526 BA 4.49  
 527 LS 1.153 60  
 528 UD 16.0  
 \* \*\*\*\*\*

529 KK Com18B  
 530 KM Combine two hydrographs at Node 18  
 531 HC 2  
 \* \*\*\*\*\*

532 KK Rt19  
 533 KM Route hydrograph to  
 534 RS 1 STOR -1  
 535 SV 0 130.79 184.8 301.29 542.75 727.63 1178.32  
 536 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

537 KK 2S SUB-WATER SHED  
 538 KM Compute hydrograph for S2  
 539 BA 5.35  
 540 LS 0.992 60  
 541 UD 10.0  
 \* \*\*\*\*\*

542 KK Com19A  
 543 KM Combine two hydrographs at Node 19  
 544 HC 2  
 \* \*\*\*\*\*

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

545      KK      1S SUB-WATER SHED
546      KM      Compute hydrograph for 1S
547      BA      7.47
548      LS      1.659      60
549      UD      20.4
          * *****

550      KK      Com19B
551      KM      Combine two hydrographs at Node 19
552      HC      2
          * *****

553      ZZ
```

## SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
5	SC-7A	
	V	
	V	
11	1R	
	.	
17	SC-7B	
	.	
22	1C.....	
	V	
	V	
25	2R	
	.	
31	SC-7C	
	.	
36	SC-6A	
	.	
41	2C.....	
	V	
	V	
44	3R	
	.	
50	SC-6B	
	.	
55	SC-7D	
	.	
	V	
60	3R	
	.	
	.	
66	3C.....	
	V	
	V	
69	4R	
	.	
74	SC5A	
	V	
	V	
79	5ACANA	
	V	
	V	
88	5AROUT	
	.	
94	SC5A1	
	.	
99	5AA1.....	
	V	
	V	
102	5A1CAN	
	V	
	V	
109	5A1RT	
	.	
115	SC5B	
	.	
120	4C1.....	
	.	
123	SC-4A	
	V	
	V	
128	4ACANA	
	V	

	.	.	V	
	.	.	4AROUT	
143	.	.	.	SC-4A1
	.	.	.	.
148	.	.	SC4AA1.....	
	.	.	V	
151	.	.	V	
	.	.	4A1CAN	
	.	.	V	
160	.	.	V	
	.	.	4A1ROU	
	.	.	.	
166	.	.	.	SC-4B
	.	.	.	.
171	.	.	SC4AAB.....	
	.	.	V	
174	.	.	V	
	.	.	4BCANA	
	.	.	V	
183	.	.	V	
	.	.	4AABRT	
	.	.	.	
189	.	.	.	SC-4B1
	.	.	.	.
194	.	.	SC-4.....	
	.	.	.	
197	4C2.....	.	.	
	.	.	V	
200	.	.	V	
	.	.	5R	
	.	.	.	
	.	.	SC-3	
	.	.	.	
210	5C.....	.	.	
	.	.	V	
213	.	.	V	
	.	.	6R	
	.	.	.	
218	.	.	SC-3A	
	.	.	.	
223	.	.	SC-3B	
	.	.	.	
228	6C.....	.	.	
	.	.	V	
231	.	.	V	
	.	.	7R	
	.	.	.	
236	.	.	SC-2	
	.	.	.	
241	7C.....	.	.	
	.	.	V	
244	.	.	V	
	.	.	8R	
	.	.	.	
249	.	.	SC-1	
	.	.	.	
254	8C1.....	.	.	
	.	.	.	
257	.	.	SC-8	
	.	.	V	
	.	.	V	
	.	.	1BR	
	.	.	.	

268	.	.	SM-18
273	.	1BC1.....	.
276	.	.	SM-17
281	.	1BC2.....	.
	.	V	
	.	V	
284	.	2BR	
290	.	.	SM-16
295	.	2BC.....	.
	.	V	
	.	V	
298	.	3BR	
304	.	.	SM-15
309	.	3BC.....	.
	.	V	
	.	V	
312	.	4BR	
318	.	.	SM-14
323	.	4BC.....	.
	.	V	
	.	V	
326	.	8BR	
332	.	.	SM-13
337	.	8C1.....	.
340	.	8C2.....	.
	.	V	
	.	V	
343	.	9R	
349	.	29S	
354	.	Com9A.....	
357	.	28S	
362	.	Com9B.....	
	.	V	
	.	V	
365	.	Rt10	
372	.	----->	DIV2
370	.	DIV2	
375	.	27S	
380	.	Com10A.....	
383	.	26S	



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503 . 6S
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508 Com17.....
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V
V
511 Rt18
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516 . 4S
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521 Com18A.....
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524 . 3S
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529 Com18B.....
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V
V
532 Rt19
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537 . 2S
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542 Com19A.....
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545 . 1S
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550 Com19B.....

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(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	13.	72.00	13.	12.	10.	18.40		
ROUTED TO	1R	12.	81.00	12.	12.	10.	18.40		
HYDROGRAPH AT	SC-7B	44.	37.00	44.	36.	17.	9.82		
2 COMBINED AT	1C	45.	38.00	44.	38.	24.	28.22		
ROUTED TO	2R	42.	46.00	42.	36.	23.	28.22		
HYDROGRAPH AT	SC-7C	97.	44.00	97.	87.	49.	23.00		
HYDROGRAPH AT	SC-6A	159.	67.00	159.	154.	119.	41.66		
3 COMBINED AT	2C	256.	53.00	255.	243.	186.	92.88		
ROUTED TO	3R	255.	55.00	254.	243.	185.	92.88		
HYDROGRAPH AT	SC-6B	271.	37.00	268.	231.	116.	6.58		
HYDROGRAPH AT	SC-7D	40.	42.00	40.	35.	19.	6.15		
ROUTED TO	3R	39.	45.00	38.	34.	19.	6.15		
3 COMBINED AT	3C	482.	44.00	478.	437.	305.	105.61		
ROUTED TO	4R	477.	46.00	473.	434.	305.	105.61		
HYDROGRAPH AT	SC5A	491.	66.00	491.	476.	369.	38.43		
ROUTED TO	5ACANA	418.	82.00	415.	374.	233.	38.43	140.85	82.00
ROUTED TO	5AROUT	417.	86.00	414.	373.	230.	38.43		
HYDROGRAPH AT	SC5A1	329.	29.00	320.	238.	98.	5.64		
2 COMBINED AT	5AA1	418.	86.00	415.	373.	231.	44.07		
ROUTED TO	5AICAN	340.	98.00	334.	279.	171.	44.07	116.96	98.00
ROUTED TO	5AIRT	338.	106.00	330.	273.	169.	44.07		
HYDROGRAPH AT	SC5B	459.	27.00	445.	314.	123.	9.02		
2 COMBINED AT	4C1	459.	27.00	445.	314.	169.	53.09		



+	HYDROGRAPH AT	SC-4A	557.	52.00	556.	524.	350.	30.73		
	ROUTED TO	4ACANA	42.	121.00	42.	39.	27.	30.73		
+									171.84	121.00
	ROUTED TO	4AROUT	42.	126.00	42.	39.	27.	30.73		
+	HYDROGRAPH AT	SC-4A1	502.	25.00	483.	311.	115.	7.34		
+	2 COMBINED AT	SC4AA1	502.	25.00	483.	311.	115.	38.07		
	ROUTED TO	4A1CAN	205.	35.00	179.	89.	32.	38.07		
+									141.07	35.00
	ROUTED TO	4A1ROU	201.	38.00	175.	89.	32.	38.07		
+	HYDROGRAPH AT	SC-4B	368.	21.00	340.	173.	59.	5.44		
+	2 COMBINED AT	SC4AAB	368.	21.00	340.	194.	91.	43.51		
	ROUTED TO	4BCANA	196.	40.00	174.	94.	35.	43.51		
+									113.75	40.00
	ROUTED TO	4AABRT	192.	44.00	169.	93.	35.	43.51		
+	HYDROGRAPH AT	SC-4B1	338.	26.00	326.	223.	86.	6.07		
+	2 COMBINED AT	SC-4	338.	26.00	326.	230.	120.	49.58		
+	3 COMBINED AT	4C2	962.	29.00	947.	826.	531.	208.28		
	ROUTED TO	5R	935.	31.00	919.	815.	529.	208.28		
+	HYDROGRAPH AT	SC-3	663.	77.00	662.	650.	547.	56.44		
+	2 COMBINED AT	5C	1120.	48.00	1113.	1064.	967.	264.72		
	ROUTED TO	6R	1102.	53.00	1097.	1061.	962.	264.72		
+	HYDROGRAPH AT	SC-3A	91.	72.00	91.	89.	73.	5.87		
+	HYDROGRAPH AT	SC-3B	110.	50.00	110.	103.	66.	6.71		
+	3 COMBINED AT	6C	1279.	53.00	1274.	1231.	1094.	277.30		
	ROUTED TO	7R	1278.	54.00	1273.	1231.	1094.	277.30		
+	HYDROGRAPH AT	SC-2	23.	74.00	23.	22.	18.	11.48		
+	2 COMBINED AT	7C	1295.	54.00	1290.	1250.	1111.	288.78		
	ROUTED TO	8R	1289.	57.00	1285.	1248.	1108.	288.78		
+	HYDROGRAPH AT	SC-1	197.	53.00	196.	186.	127.	7.07		

2 COMBINED AT	8C1	1481.	57.00	1476.	1425.	1232.	295.85
HYDROGRAPH AT	SC-8	335.	67.00	335.	325.	258.	19.99
ROUTED TO	1BR	334.	71.00	334.	325.	257.	19.99
HYDROGRAPH AT	SM-18	140.	72.00	140.	137.	110.	27.11
2 COMBINED AT	1BC1	475.	71.00	474.	461.	367.	47.10
HYDROGRAPH AT	SM-17	242.	50.00	242.	227.	149.	7.03
2 COMBINED AT	1BC2	657.	63.00	655.	632.	501.	54.13
ROUTED TO	2BR	657.	64.00	655.	632.	501.	54.13
HYDROGRAPH AT	SM-16	263.	76.00	262.	257.	215.	25.18
2 COMBINED AT	2BC	903.	66.00	901.	874.	711.	79.31
ROUTED TO	3BR	903.	66.00	901.	874.	711.	79.31
HYDROGRAPH AT	SM-15	291.	54.00	290.	277.	193.	11.10
2 COMBINED AT	3BC	1163.	63.00	1161.	1122.	893.	90.41
ROUTED TO	4BR	1163.	64.00	1160.	1121.	892.	90.41
HYDROGRAPH AT	SM-14	300.	82.00	300.	295.	255.	21.60
2 COMBINED AT	4BC	1425.	67.00	1422.	1380.	1134.	112.01
ROUTED TO	8BR	1425.	68.00	1422.	1380.	1133.	112.01
HYDROGRAPH AT	SM-13	80.	90.00	80.	79.	70.	22.25
2 COMBINED AT	8C1	1491.	69.00	1488.	1446.	1198.	134.26
2 COMBINED AT	8C2	2898.	63.00	2894.	2828.	2400.	430.11
ROUTED TO	9R	2896.	66.00	2892.	2825.	2398.	430.11
HYDROGRAPH AT	29S	266.	41.00	263.	235.	128.	12.28
2 COMBINED AT	Com9A	2982.	64.00	2977.	2909.	2482.	442.39
HYDROGRAPH AT	28S	394.	54.00	393.	372.	253.	25.91
2 COMBINED AT	Com9B	3334.	62.00	3328.	3237.	2718.	468.30
ROUTED TO	Rt10	3223.	71.00	3218.	3144.	2693.	468.30
DIVERSION TO	DIV2	921.	71.00	919.	898.	769.	468.30

+	HYDROGRAPH AT	DIV2	2302.	71.00	2298.	2246.	1923.	468.30
+	HYDROGRAPH AT	27S	472.	29.00	460.	343.	141.	12.15
+	2 COMBINED AT	Com10A	2312.	70.00	2308.	2257.	1949.	480.45
+	HYDROGRAPH AT	26S	448.	28.00	436.	314.	125.	10.55
+	HYDROGRAPH AT	24S	157.	29.00	153.	114.	47.	3.83
+	3 COMBINED AT	Com10B	2321.	70.00	2317.	2268.	1980.	494.83
+	ROUTED TO	Rt11	2272.	76.00	2269.	2231.	1978.	494.83
+	HYDROGRAPH AT	22S	227.	35.00	224.	187.	89.	7.55
+	2 COMBINED AT	Com11A	2286.	76.00	2283.	2247.	2020.	502.38
+	HYDROGRAPH AT	20S	268.	39.00	265.	232.	121.	10.57
+	2 COMBINED AT	Com11B	2321.	74.00	2318.	2287.	2108.	512.95
+	ROUTED TO	Rt12	2313.	77.00	2311.	2283.	2107.	512.95
+	HYDROGRAPH AT	18S	168.	31.00	165.	128.	55.	4.69
+	2 COMBINED AT	Com12	2316.	77.00	2314.	2287.	2136.	517.64
+	ROUTED TO	Rt13	2314.	79.00	2312.	2286.	2136.	517.64
+	HYDROGRAPH AT	16S	159.	39.00	158.	138.	71.	9.60
+	2 COMBINED AT	Com13A	2330.	78.00	2328.	2306.	2195.	527.24
+	HYDROGRAPH AT	15S	289.	52.00	287.	270.	178.	25.08
+	2 COMBINED AT	Com13B	2558.	53.00	2556.	2530.	2370.	552.32
+	ROUTED TO	Rt14	2492.	70.00	2491.	2483.	2348.	552.32
+	HYDROGRAPH AT	13S	216.	48.00	215.	199.	124.	19.76
+	2 COMBINED AT	Com14A	2641.	60.00	2639.	2613.	2461.	572.08
+	HYDROGRAPH AT	14S	230.	38.00	227.	196.	100.	9.53
+	2 COMBINED AT	Com14B	2719.	57.00	2717.	2688.	2534.	581.61
+	ROUTED TO	Rt15	2664.	67.00	2663.	2643.	2506.	581.61
+	HYDROGRAPH AT	11S	376.	26.00	364.	250.	96.	8.20
+	2 COMBINED AT	Com15	2668.	66.00	2666.	2647.	2522.	589.81

+	ROUTED TO	Rt16	2635.	76.00	2634.	2620.	2500.	589.81
	HYDROGRAPH AT							
+		7S	390.	54.00	389.	368.	249.	29.41
+	2 COMBINED AT	Com16	2920.	67.00	2917.	2887.	2722.	619.22
+	ROUTED TO	Rt17	2917.	68.00	2915.	2885.	2720.	619.22
+	HYDROGRAPH AT							
+		6S	537.	27.00	521.	365.	142.	9.21
+	2 COMBINED AT	Com17	2923.	68.00	2921.	2892.	2740.	628.43
+	ROUTED TO	Rt18	2922.	69.00	2919.	2891.	2738.	628.43
+	HYDROGRAPH AT							
+		4S	796.	34.00	783.	647.	303.	22.35
+	2 COMBINED AT	Com18A	3104.	43.00	3086.	3035.	2880.	650.78
+	HYDROGRAPH AT							
+		3S	310.	30.00	302.	231.	98.	4.49
+	2 COMBINED AT	Com18B	3243.	42.00	3215.	3110.	2918.	655.27
+	ROUTED TO	Rt19	3237.	43.00	3212.	3108.	2917.	655.27
+	HYDROGRAPH AT							
+		2S	577.	23.00	552.	338.	122.	5.35
+	2 COMBINED AT	Com19A	3292.	42.00	3263.	3135.	2932.	660.62
+	HYDROGRAPH AT							
+		1S	350.	35.00	345.	289.	137.	7.47
+	2 COMBINED AT	Com19B	3576.	41.00	3539.	3321.	3021.	668.09

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME
							PEAK	TIME TO PEAK	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	12.46	4860.00	0.08	60.00	12.46	4860.00	0.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7543E+02 EXCESS=0.0000E+00 OUTFLOW=0.7512E+02 BASIN STORAGE=0.7456E-02 PERCENT ERROR= 0.4									
2R	MANE	60.00	42.29	2760.00	0.12	60.00	42.29	2760.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1795E+03 EXCESS=0.0000E+00 OUTFLOW=0.1788E+03 BASIN STORAGE=0.2367E-01 PERCENT ERROR= 0.3									
3R	MANE	60.00	255.31	3300.00	0.28	60.00	255.31	3300.00	0.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+04 EXCESS=0.0000E+00 OUTFLOW=0.1385E+04 BASIN STORAGE=0.1986E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	38.55	2700.00	0.36	60.00	38.55	2700.00	0.36
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+03 EXCESS=0.0000E+00 OUTFLOW=0.1173E+03 BASIN STORAGE=0.5410E-02 PERCENT ERROR= 0.5									
5AROUT	MANE	39.00	417.48	5148.00	0.78	60.00	417.39	5160.00	0.78
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1606E+04 EXCESS=0.0000E+00 OUTFLOW=0.1606E+04 BASIN STORAGE=0.3599E+00 PERCENT ERROR= 0.0									
5AIRT	MANE	24.00	338.08	6384.00	0.51	60.00	337.86	6360.00	0.51
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1207E+04 EXCESS=0.0000E+00 OUTFLOW=0.1196E+04 BASIN STORAGE=0.1447E+01 PERCENT ERROR= 0.8									
4AROUT	MANE	60.00	42.18	7560.00	0.12	60.00	42.18	7560.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1900E+03 EXCESS=0.0000E+00 OUTFLOW=0.1897E+03 BASIN STORAGE=0.1295E+00 PERCENT ERROR= 0.1									
4A1ROU	MANE	12.00	202.04	2292.00	0.19	60.00	201.49	2280.00	0.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3809E+03 EXCESS=0.0000E+00 OUTFLOW=0.3792E+03 BASIN STORAGE=0.1776E+00 PERCENT ERROR= 0.4									
4AABRT	MANE	24.00	192.22	2640.00	0.17	60.00	192.22	2640.00	0.17
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4037E+03 EXCESS=0.0000E+00 OUTFLOW=0.4036E+03 BASIN STORAGE=0.7820E+00 PERCENT ERROR= -0.2									
1BR	MANE	60.00	334.46	4260.00	1.88	60.00	334.46	4260.00	1.88
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2006E+04 EXCESS=0.0000E+00 OUTFLOW=0.2005E+04 BASIN STORAGE=0.1184E-01 PERCENT ERROR= 0.0									
2BR	MANE	60.00	656.73	3840.00	1.34	60.00	656.73	3840.00	1.34
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3874E+04 EXCESS=0.0000E+00 OUTFLOW=0.3874E+04 BASIN STORAGE=0.6878E-02 PERCENT ERROR= 0.0									
3BR	MANE	53.38	903.19	4003.15	1.34	60.00	903.03	3960.00	1.34
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5681E+04 EXCESS=0.0000E+00 OUTFLOW=0.5681E+04 BASIN STORAGE=0.1608E+00 PERCENT ERROR= 0.0									

4BR MANE 60.00 1162.57 3840.00 1.45 60.00 1162.57 3840.00 1.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7010E+04 EXCESS=0.0000E+00 OUTFLOW=0.7010E+04 BASIN STORAGE=0.2350E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 1424.98 4080.00 1.56 60.00 1424.98 4080.00 1.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9314E+04 EXCESS=0.0000E+00 OUTFLOW=0.9313E+04 BASIN STORAGE=0.7437E+00 PERCENT ERROR= 0.0

9R MANE 60.00 2896.11 3960.00 0.95 60.00 2896.11 3960.00 0.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2170E+05 EXCESS=0.0000E+00 OUTFLOW=0.2170E+05 BASIN STORAGE=0.1060E+02 PERCENT ERROR= 0.0

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	140.85	0.03	1375.	418.	21.00	82.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	116.96	0.00	1060.	340.	0.00	98.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	171.84	0.01	2222.	42.	17.00	121.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.07	0.00	528.	205.	0.00	35.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	113.75	0.10	355.	196.	10.00	40.00	0.00

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**NORTH MAIN**  
**100-YEAR MODEL**



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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/08/01 TIME 09:28:37 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
*      Hidalgo County Flood Insurance Study
*      Job No. 11-00389-002
*      File Name: NM100re.DAT    Revised Existing Conditions
*      100-year Rain-fall
*      *****
*      HEC-1 model for the North-West main drain area
*      Model sequence is as follows:
*      *****
*      revised rainfall from USGS report 98-4044
*      REVISED CN TYPE I ANTECEDANT
*      REVISED LAG BASED ON REVISED CN I
*      IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN
*      ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE
*      SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.
*      ROUTED 5&4 BASINS THROUGH STORAGE
*      MODIFIED PULS ROUTING REACHES 5R-9R
*      CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11
*      DIAGRAM
1      ID    West Main drain area
2      ID    100-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
3      IT    60 1JAN01    0    300
4      IO    5
*      *****
*      Start calculating hydrograph for the sub water sheds
*      that drain to the West Main drain.
*      *****

5      KK    SC-7A SUBWATER SHED
6      KM    Compute hydrograph for sub-water shed SC-7A
7      BA    18.4
8      PH    1                4.68    5.65    6.29    7.51    8.61    9.19
9      LS    5.721    60
10     UD    53.5
*      *****

11     KK    1R
12     KM    Route hydrograph from head water to node 1 using Muskingum-Cunge Method
13     RD
14     RC    0.08    0.03    0.08    19200  0.0002    217
15     RX    1000    2500    2917    2994    3005    3061    4500    5000
16     RY    203.5    202.0    204.4    191.53  191.53    204.5    199.9    199.0
*      *****

17     KK    SC-7B SUBWATER SHED
18     KM    Compute hydrograph for sub-water shed SC-7B
19     BA    9.82
20     LS    5.282    60
21     UD    20.1
*      *****

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RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	176.	69.00	176.	171.	136.	18.40		
ROUTED TO	1R	176.	73.00	175.	170.	135.	18.40		
HYDROGRAPH AT	SC-7B	306.	35.00	302.	252.	120.	9.82		
2 COMBINED AT	1C	336.	37.00	333.	298.	228.	28.22		
ROUTED TO	2R	328.	41.00	325.	293.	226.	28.22		
HYDROGRAPH AT	SC-7C	568.	43.00	563.	508.	286.	23.00		
HYDROGRAPH AT	SC-6A	667.	66.00	666.	645.	499.	41.66		
3 COMBINED AT	2C	1333.	48.00	1328.	1269.	985.	92.88		
ROUTED TO	3R	1329.	52.00	1326.	1268.	984.	92.88		
HYDROGRAPH AT	SC-6B	521.	37.00	515.	444.	223.	6.58		
HYDROGRAPH AT	SC-7D	188.	41.00	186.	165.	89.	6.15		
ROUTED TO	3R	183.	42.00	182.	162.	89.	6.15		
3 COMBINED AT	3C	1858.	45.00	1850.	1744.	1267.	105.61		
ROUTED TO	4R	1688.	54.00	1683.	1624.	1261.	105.61		
HYDROGRAPH AT	SC5A	1085.	65.00	1084.	1051.	816.	38.43		
ROUTED TO	5ACANA	1081.	68.00	1079.	1030.	715.	38.43	141.00	68.00
ROUTED TO	5AROUT	1081.	71.00	1078.	1029.	713.	38.43		
HYDROGRAPH AT	SC5A1	643.	29.00	627.	464.	190.	5.64		
2 COMBINED AT	5AA1	1092.	71.00	1089.	1039.	718.	44.07		
ROUTED TO	5A1CAN	1088.	73.00	1085.	1031.	712.	44.07	117.15	73.00
ROUTED TO	5A1RT	1087.	78.00	1084.	1031.	707.	44.07		
HYDROGRAPH AT	SC5B	995.	27.00	964.	675.	264.	9.02		
2 COMBINED AT	4C1	1089.	78.00	1086.	1034.	708.	53.09		

+	HYDROGRAPH AT	SC-4A	1213.	52.00	1209.	1142.	762.	30.73		
+	ROUTED TO	4ACANA	1012.	64.00	998.	835.	454.	30.73		
+									172.32	64.00
+	ROUTED TO	4AROUT	1011.	66.00	997.	832.	452.	30.73		
+	HYDROGRAPH AT	SC-4A1	1024.	25.00	986.	632.	233.	7.34		
+	2 COMBINED AT	SC4AA1	1024.	25.00	1000.	833.	541.	38.07		
+	ROUTED TO	4A1CAN	1010.	67.00	996.	826.	499.	38.07		
+									141.19	67.00
+	ROUTED TO	4A1ROU	1009.	69.00	994.	821.	495.	38.07		
+	HYDROGRAPH AT	SC-4B	913.	20.00	830.	414.	141.	5.44		
+	2 COMBINED AT	SC4AAB	1193.	29.00	1002.	821.	558.	43.51		
+	ROUTED TO	4BCANA	1180.	30.00	994.	818.	537.	43.51		
+									114.19	30.00
+	ROUTED TO	4AABRT	1145.	32.00	991.	811.	535.	43.51		
+	HYDROGRAPH AT	SC-4B1	725.	26.00	699.	475.	181.	6.07		
+	2 COMBINED AT	SC-4	1667.	32.00	1428.	1024.	672.	49.58		
+	3 COMBINED AT	4C2	3435.	73.00	3386.	2967.	2510.	208.28		
+	ROUTED TO	5R	2814.	84.00	2808.	2710.	2418.	208.28		
+	HYDROGRAPH AT	SC-3	1380.	76.00	1379.	1353.	1138.	56.44		
+	2 COMBINED AT	5C	4175.	82.00	4165.	4026.	3491.	264.72		
+	ROUTED TO	6R	3661.	106.00	3658.	3610.	3291.	264.72		
+	HYDROGRAPH AT	SC-3A	178.	72.00	177.	174.	143.	5.87		
+	HYDROGRAPH AT	SC-3B	264.	49.00	263.	246.	157.	6.71		
+	3 COMBINED AT	6C	3804.	103.00	3801.	3758.	3498.	277.30		
+	ROUTED TO	7R	3748.	110.00	3746.	3708.	3482.	277.30		
+	HYDROGRAPH AT	SC-2	139.	72.00	139.	136.	110.	11.48		
+	2 COMBINED AT	7C	3818.	109.00	3816.	3783.	3579.	288.78		
+	ROUTED TO	8R	3752.	122.00	3750.	3722.	3529.	288.78		
+	HYDROGRAPH AT	SC-1	360.	52.00	359.	340.	231.	7.07		

2 COMBINED AT	8C1	3782.	121.00	3780.	3756.	3614.	295.85
HYDROGRAPH AT	SC-8	654.	67.00	653.	636.	503.	19.99
ROUTED TO	1BR	653.	70.00	652.	634.	503.	19.99
HYDROGRAPH AT	SM-18	479.	70.00	479.	467.	376.	27.11
2 COMBINED AT	1BC1	1133.	70.00	1131.	1101.	879.	47.10
HYDROGRAPH AT	SM-17	420.	50.00	418.	394.	259.	7.03
2 COMBINED AT	1BC2	1445.	63.00	1441.	1393.	1110.	54.13
ROUTED TO	2BR	1445.	64.00	1440.	1393.	1110.	54.13
HYDROGRAPH AT	SM-16	589.	75.00	588.	577.	482.	25.18
2 COMBINED AT	2BC	2002.	67.00	1998.	1942.	1582.	79.31
ROUTED TO	3BR	2002.	67.00	1998.	1942.	1582.	79.31
HYDROGRAPH AT	SM-15	534.	54.00	532.	507.	353.	11.10
2 COMBINED AT	3BC	2473.	64.00	2467.	2390.	1915.	90.41
ROUTED TO	4BR	2471.	65.00	2466.	2388.	1914.	90.41
HYDROGRAPH AT	SM-14	571.	82.00	570.	562.	486.	21.60
2 COMBINED AT	4BC	2978.	67.00	2971.	2887.	2374.	112.01
ROUTED TO	8BR	2978.	68.00	2971.	2887.	2373.	112.01
HYDROGRAPH AT	SM-13	282.	89.00	282.	278.	246.	22.25
2 COMBINED AT	8C1	3218.	69.00	3211.	3125.	2600.	134.26
2 COMBINED AT	8C2	6598.	72.00	6592.	6507.	6021.	430.11
ROUTED TO	9R	6583.	79.00	6576.	6497.	6017.	430.11
HYDROGRAPH AT	29S	634.	41.00	628.	560.	304.	12.28
2 COMBINED AT	Com9A	6671.	78.00	6664.	6585.	6117.	442.39
HYDROGRAPH AT	28S	916.	53.00	914.	866.	588.	25.91
2 COMBINED AT	Com9B	7226.	72.00	7218.	7132.	6566.	468.30
ROUTED TO	Rt10	6720.	91.00	6716.	6664.	6267.	468.30
DIVERSION TO	DIV2	1920.	91.00	1919.	1904.	1791.	468.30

+	HYDROGRAPH AT	DIV2	4800.	91.00	4797.	4760.	4477.	468.30
+	HYDROGRAPH AT	27S	1110.	29.00	1082.	803.	329.	12.15
+	2 COMBINED AT	Com10A	4800.	91.00	4798.	4761.	4483.	480.45
+	HYDROGRAPH AT	26S	1048.	28.00	1021.	732.	291.	10.55
+	HYDROGRAPH AT	24S	363.	29.00	354.	262.	107.	3.83
+	3 COMBINED AT	Com10B	4800.	90.00	4798.	4762.	4488.	494.83
+	ROUTED TO	Rt11	4691.	103.00	4689.	4659.	4445.	494.83
+	HYDROGRAPH AT	22S	529.	35.00	520.	436.	207.	7.55
+	2 COMBINED AT	Com11A	4695.	103.00	4693.	4664.	4454.	502.38
+	HYDROGRAPH AT	20S	615.	39.00	609.	533.	277.	10.57
+	2 COMBINED AT	Com11B	4708.	102.00	4706.	4677.	4479.	512.95
+	ROUTED TO	Rt12	4643.	112.00	4642.	4618.	4450.	512.95
+	HYDROGRAPH AT	18S	388.	31.00	380.	295.	127.	4.69
+	2 COMBINED AT	Com12	4643.	112.00	4642.	4618.	4451.	517.64
+	ROUTED TO	Rt13	4638.	116.00	4636.	4613.	4447.	517.64
+	HYDROGRAPH AT	16S	454.	38.00	449.	391.	202.	9.60
+	2 COMBINED AT	Com13A	4641.	116.00	4640.	4617.	4456.	527.24
+	HYDROGRAPH AT	15S	789.	52.00	787.	740.	488.	25.08
+	2 COMBINED AT	Com13B	5263.	46.00	5249.	5084.	4764.	552.32
+	ROUTED TO	Rt14	4795.	60.00	4791.	4749.	4663.	552.32
+	HYDROGRAPH AT	13S	644.	48.00	641.	595.	369.	19.76
+	2 COMBINED AT	Com14A	5335.	56.00	5327.	5221.	4908.	572.08
+	HYDROGRAPH AT	14S	551.	37.00	545.	471.	239.	9.53
+	2 COMBINED AT	Com14B	5577.	53.00	5569.	5455.	5032.	581.61
+	ROUTED TO	Rt15	5365.	63.00	5357.	5272.	4962.	581.61
+	HYDROGRAPH AT	11S	887.	26.00	855.	584.	223.	8.20
+	2 COMBINED AT	Com15	5378.	63.00	5371.	5286.	4971.	589.81

	ROUTED TO	Rt16	5147.	76.00	5143.	5097.	4905.	589.81
+	HYDROGRAPH AT	7S	968.	53.00	965.	914.	619.	29.41
+	2 COMBINED AT	Com16	5813.	68.00	5805.	5711.	5314.	619.22
+	ROUTED TO	Rt17	5793.	71.00	5785.	5696.	5307.	619.22
+	HYDROGRAPH AT	6S	1101.	27.00	1068.	744.	290.	9.21
+	2 COMBINED AT	Com17	5802.	71.00	5794.	5705.	5318.	628.43
+	ROUTED TO	Rt18	5748.	76.00	5742.	5664.	5304.	628.43
+	HYDROGRAPH AT	4S	1698.	34.00	1669.	1379.	644.	22.35
+	2 COMBINED AT	Com18A	5837.	74.00	5831.	5758.	5458.	650.78
+	HYDROGRAPH AT	3S	553.	30.00	540.	413.	175.	4.49
+	2 COMBINED AT	Com18B	5848.	74.00	5842.	5771.	5547.	655.27
+	ROUTED TO	Rt19	5844.	75.00	5838.	5768.	5542.	655.27
+	HYDROGRAPH AT	2S	1018.	23.00	971.	594.	214.	5.35
+	2 COMBINED AT	Com19A	5868.	36.00	5838.	5768.	5584.	660.62
+	HYDROGRAPH AT	1S	664.	35.00	654.	547.	260.	7.47
+	2 COMBINED AT	Com19B	6522.	36.00	6466.	6021.	5785.	668.09

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT					INTERPOLATED TO COMPUTATION INTERVAL			
		DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	175.66	4380.00	1.08	60.00	175.66	4380.00	1.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1056E+04 EXCESS=0.0000E+00 OUTFLOW=0.1056E+04 BASIN STORAGE=0.1018E-01 PERCENT ERROR= 0.0									
2R	MANE	60.00	327.51	2460.00	1.18	60.00	327.51	2460.00	1.18
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1777E+04 EXCESS=0.0000E+00 OUTFLOW=0.1776E+04 BASIN STORAGE=0.3912E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	1329.41	3120.00	1.48	60.00	1329.41	3120.00	1.48
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7334E+04 EXCESS=0.0000E+00 OUTFLOW=0.7333E+04 BASIN STORAGE=0.3812E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	183.40	2520.00	1.68	60.00	183.40	2520.00	1.68
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5506E+03 EXCESS=0.0000E+00 OUTFLOW=0.5498E+03 BASIN STORAGE=0.5648E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	48.00	1081.04	4272.00	2.44	60.00	1080.84	4260.00	2.44
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5000E+04 EXCESS=0.0000E+00 OUTFLOW=0.5004E+04 BASIN STORAGE=0.4968E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	1087.03	4680.00	2.20	60.00	1087.03	4680.00	2.20
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5164E+04 EXCESS=0.0000E+00 OUTFLOW=0.5163E+04 BASIN STORAGE=0.2022E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	33.00	1011.01	3960.00	1.80	60.00	1011.01	3960.00	1.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2946E+04 EXCESS=0.0000E+00 OUTFLOW=0.2946E+04 BASIN STORAGE=0.1572E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	18.00	1009.21	4140.00	1.89	60.00	1009.21	4140.00	1.89
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3835E+04 EXCESS=0.0000E+00 OUTFLOW=0.3834E+04 BASIN STORAGE=0.2044E+00 PERCENT ERROR= 0.0									
4AABRT	MANE	12.00	1147.06	1932.00	1.88	60.00	1144.65	1920.00	1.88
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4351E+04 EXCESS=0.0000E+00 OUTFLOW=0.4354E+04 BASIN STORAGE=0.8935E+00 PERCENT ERROR= -0.1									
1BR	MANE	60.00	653.28	4200.00	3.67	60.00	653.28	4200.00	3.67
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3916E+04 EXCESS=0.0000E+00 OUTFLOW=0.3915E+04 BASIN STORAGE=0.1222E-01 PERCENT ERROR= 0.0									
2BR	MANE	55.76	1444.76	3847.22	2.99	60.00	1444.66	3840.00	2.99
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8628E+04 EXCESS=0.0000E+00 OUTFLOW=0.8628E+04 BASIN STORAGE=0.1752E-01 PERCENT ERROR= 0.0									
3BR	MANE	39.45	2002.20	4023.79	3.00	60.00	2002.15	4020.00	3.00
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+05 EXCESS=0.0000E+00 OUTFLOW=0.1268E+05 BASIN STORAGE=0.3467E+00 PERCENT ERROR= 0.0									



4BR MANE 47.96 2471.53 3884.43 3.13 60.00 2471.30 3900.00 3.13

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1511E+05 EXCESS=0.0000E+00 OUTFLOW=0.1511E+05 BASIN STORAGE=0.4858E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 2977.54 4080.00 3.26 60.00 2977.54 4080.00 3.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1950E+05 EXCESS=0.0000E+00 OUTFLOW=0.1950E+05 BASIN STORAGE=0.1450E+01 PERCENT ERROR= 0.0

9R MANE 60.00 6582.95 4740.00 2.51 60.00 6582.95 4740.00 2.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5756E+05 EXCESS=0.0000E+00 OUTFLOW=0.5755E+05 BASIN STORAGE=0.2051E+02 PERCENT ERROR= 0.0

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SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	135.00		140.67		140.82	
	STORAGE	0.		1200.		1348.	
	OUTFLOW	0.		0.		325.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.00	0.18	1522.	1081.	64.00	68.00	0.00

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SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	115.00		116.80		117.20	
	STORAGE	0.		974.		1190.	
	OUTFLOW	0.		0.		1346.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	117.15	0.00	1162.	1088.	0.00	73.00	0.00

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SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	160.00		171.74		171.83	
	STORAGE	0.		2155.		2217.	
	OUTFLOW	0.		0.		38.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	172.32	0.49	2555.	1012.	101.00	64.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	140.00		141.00		141.11	
	STORAGE	0.		495.		549.	
	OUTFLOW	0.		0.		439.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.19	0.08	590.	1010.	39.00	67.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	110.00		113.48		113.65	
	STORAGE	0.		330.		346.	
	OUTFLOW	0.		0.		98.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	114.19	0.54	397.	1180.	106.00	30.00	0.00

\*\*\* NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**NORTH MAIN**  
**500-YEAR MODEL**

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/08/01 TIME 10:50:44 *
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*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: NM500re.DAT Revised Existing Conditions  
 \* 500-year Rain-fall  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11  
 \*DIAGRAM

1 ID West Main drain area  
 2 ID 500-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 0.2 6.21 7.66 8.83 10.75 12.35 13.23  
 9 LS 5.721 60  
 10 UD 53.5

\* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0

\* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1

\* \*\*\*\*\*

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	615.	68.00	614.	598.	473.	18.40		
ROUTED TO	1R	614.	71.00	613.	596.	473.	18.40		
HYDROGRAPH AT	SC-7B	939.	35.00	925.	771.	365.	9.82		
2 COMBINED AT	1C	1080.	36.00	1072.	970.	760.	28.22		
ROUTED TO	2R	1059.	43.00	1053.	963.	756.	28.22		
HYDROGRAPH AT	SC-7C	1667.	42.00	1654.	1492.	838.	23.00		
HYDROGRAPH AT	SC-6A	1773.	65.00	1771.	1717.	1327.	41.66		
3 COMBINED AT	2C	3910.	47.00	3889.	3680.	2849.	92.88		
ROUTED TO	3R	3859.	53.00	3843.	3654.	2841.	92.88		
HYDROGRAPH AT	SC-6B	967.	37.00	956.	824.	414.	6.58		
HYDROGRAPH AT	SC-7D	515.	40.00	511.	454.	245.	6.15		
ROUTED TO	3R	507.	41.00	502.	447.	244.	6.15		
3 COMBINED AT	3C	4804.	48.00	4783.	4517.	3425.	105.61		
ROUTED TO	4R	4288.	59.00	4276.	4123.	3315.	105.61		
HYDROGRAPH AT	SC5A	2193.	65.00	2190.	2125.	1649.	38.43		
ROUTED TO	5ACANA	2190.	67.00	2187.	2121.	1587.	38.43	141.13	67.00
ROUTED TO	5AROUT	2191.	69.00	2187.	2121.	1585.	38.43		
HYDROGRAPH AT	SC5A1	1206.	29.00	1176.	871.	357.	5.64		
2 COMBINED AT	5AA1	2218.	67.00	2215.	2155.	1612.	44.07		
ROUTED TO	5A1CAN	2217.	68.00	2214.	2154.	1606.	44.07	117.30	68.00
ROUTED TO	5A1RT	2217.	72.00	2213.	2153.	1602.	44.07		
HYDROGRAPH AT	SC5B	1984.	27.00	1923.	1342.	524.	9.02		
2 COMBINED AT	4C1	2231.	71.00	2228.	2169.	1655.	53.09		

+	HYDROGRAPH AT	SC-4A	2429.	51.00	2422.	2287.	1525.	30.73		
	ROUTED TO									
+		4ACANA	2399.	55.00	2382.	2168.	1250.	30.73		
+									172.70	55.00
	ROUTED TO									
+		4AROUT	2399.	56.00	2381.	2164.	1248.	30.73		
	HYDROGRAPH AT									
+		SC-4A1	1978.	24.00	1899.	1215.	448.	7.34		
	2 COMBINED AT									
+		SC4AA1	2435.	56.00	2418.	2194.	1470.	38.07		
	ROUTED TO									
+		4A1CAN	2431.	56.00	2414.	2190.	1437.	38.07		
+									141.34	56.00
	ROUTED TO									
+		4A1ROU	2429.	58.00	2413.	2187.	1432.	38.07		
	HYDROGRAPH AT									
+		SC-4B	1961.	20.00	1782.	870.	296.	5.44		
	2 COMBINED AT									
+		SC4AAB	3037.	25.00	2585.	2187.	1617.	43.51		
	ROUTED TO									
+		4BCANA	3043.	26.00	2558.	2185.	1599.	43.51		
+									114.67	26.00
	ROUTED TO									
+		4AABRT	2873.	28.00	2545.	2177.	1594.	43.51		
	HYDROGRAPH AT									
+		SC-4B1	1436.	26.00	1385.	937.	358.	6.07		
	2 COMBINED AT									
+		SC-4	4249.	27.00	3822.	2510.	1911.	49.58		
	3 COMBINED AT									
+		4C2	8788.	61.00	8750.	8195.	6657.	208.28		
	ROUTED TO									
+		5R	7553.	77.00	7541.	7374.	6208.	208.28		
	HYDROGRAPH AT									
+		SC-3	2698.	76.00	2695.	2645.	2224.	56.44		
	2 COMBINED AT									
+		5C	10250.	76.00	10236.	10019.	8414.	264.72		
	ROUTED TO									
+		6R	9211.	100.00	9202.	9082.	7945.	264.72		
	HYDROGRAPH AT									
+		SC-3A	334.	72.00	334.	326.	268.	5.87		
	HYDROGRAPH AT									
+		SC-3B	556.	49.00	554.	518.	330.	6.71		
	3 COMBINED AT									
+		6C	9537.	98.00	9528.	9409.	8283.	277.30		
	ROUTED TO									
+		7R	9381.	105.00	9373.	9259.	8188.	277.30		
	HYDROGRAPH AT									
+		SC-2	412.	71.00	412.	402.	326.	11.48		
	2 COMBINED AT									
+		7C	9620.	104.00	9612.	9502.	8433.	288.78		
	ROUTED TO									
+		8R	9271.	120.00	9262.	9129.	8170.	288.78		
	HYDROGRAPH AT									
+		SC-1	648.	52.00	647.	613.	417.	7.07		

+	2 COMBINED AT	8C1	9328.	120.00	9319.	9188.	8248.	295.85
+	HYDROGRAPH AT	SC-8	1229.	67.00	1227.	1194.	946.	19.99
+	ROUTED TO	1BR	1228.	70.00	1226.	1193.	945.	19.99
+	HYDROGRAPH AT	SM-18	1175.	70.00	1174.	1145.	922.	27.11
+	2 COMBINED AT	1BC1	2403.	70.00	2400.	2338.	1867.	47.10
+	HYDROGRAPH AT	SM-17	729.	50.00	726.	684.	449.	7.03
+	2 COMBINED AT	1BC2	2941.	63.00	2932.	2840.	2268.	54.13
+	ROUTED TO	2BR	2940.	64.00	2931.	2840.	2268.	54.13
+	HYDROGRAPH AT	SM-16	1199.	75.00	1198.	1174.	980.	25.18
+	2 COMBINED AT	2BC	4084.	67.00	4076.	3965.	3231.	79.31
+	ROUTED TO	3BR	4082.	68.00	4073.	3963.	3230.	79.31
+	HYDROGRAPH AT	SM-15	963.	54.00	961.	915.	638.	11.10
+	2 COMBINED AT	3BC	4913.	65.00	4901.	4754.	3830.	90.41
+	ROUTED TO	4BR	4854.	69.00	4843.	4711.	3817.	90.41
+	HYDROGRAPH AT	SM-14	1056.	82.00	1055.	1039.	900.	21.60
+	2 COMBINED AT	4BC	5843.	71.00	5833.	5679.	4668.	112.01
+	ROUTED TO	8BR	5841.	71.00	5830.	5677.	4667.	112.01
+	HYDROGRAPH AT	SM-13	704.	88.00	703.	694.	613.	22.25
+	2 COMBINED AT	8C1	6480.	73.00	6469.	6304.	5235.	134.26
+	2 COMBINED AT	8C2	12941.	100.00	12932.	12832.	12150.	430.11
+	ROUTED TO	9R	12900.	107.00	12893.	12802.	12119.	430.11
+	HYDROGRAPH AT	29S	1331.	41.00	1320.	1176.	638.	12.28
+	2 COMBINED AT	Com9A	12932.	107.00	12925.	12836.	12188.	442.39
+	HYDROGRAPH AT	28S	1901.	53.00	1897.	1797.	1220.	25.91
+	2 COMBINED AT	Com9B	13242.	104.00	13236.	13164.	12693.	468.30
+	ROUTED TO	Rt10	13140.	111.00	13135.	13067.	12507.	468.30
+	DIVERSION TO	DIV2	2000.	111.00	2000.	2000.	2000.	468.30



+	HYDROGRAPH AT	DIV2	11140.	111.00	11135.	11067.	10508.	468.30
+	HYDROGRAPH AT	27S	2303.	29.00	2247.	1662.	679.	12.15
+	2 COMBINED AT	Com10A	11140.	111.00	11135.	11067.	10510.	480.45
+	HYDROGRAPH AT	26S	2171.	27.00	2110.	1509.	598.	10.55
+	HYDROGRAPH AT	24S	746.	29.00	728.	538.	220.	3.83
+	3 COMBINED AT	Com10B	11140.	111.00	11135.	11067.	10512.	494.83
+	ROUTED TO	Rt11	11052.	119.00	11047.	10978.	10370.	494.83
+	HYDROGRAPH AT	22S	1089.	35.00	1074.	898.	427.	7.55
+	2 COMBINED AT	Com11A	11052.	119.00	11047.	10979.	10376.	502.38
+	HYDROGRAPH AT	20S	1266.	38.00	1254.	1098.	570.	10.57
+	2 COMBINED AT	Com11B	11062.	118.00	11057.	10990.	10395.	512.95
+	ROUTED TO	Rt12	11045.	122.00	11040.	10973.	10372.	512.95
+	HYDROGRAPH AT	18S	800.	30.00	785.	608.	261.	4.69
+	2 COMBINED AT	Com12	11045.	122.00	11040.	10973.	10372.	517.64
+	ROUTED TO	Rt13	11041.	123.00	11036.	10968.	10363.	517.64
+	HYDROGRAPH AT	16S	1039.	38.00	1027.	895.	460.	9.60
+	2 COMBINED AT	Com13A	11046.	123.00	11041.	10973.	10372.	527.24
+	HYDROGRAPH AT	15S	1774.	51.00	1769.	1665.	1096.	25.08
+	2 COMBINED AT	Com13B	11154.	121.00	11150.	11088.	10525.	552.32
+	ROUTED TO	Rt14	11075.	129.00	11071.	11005.	10438.	552.32
+	HYDROGRAPH AT	13S	1504.	47.00	1497.	1389.	861.	19.76
+	2 COMBINED AT	Com14A	11115.	128.00	11110.	11046.	10498.	572.08
+	HYDROGRAPH AT	14S	1161.	37.00	1148.	993.	503.	9.53
+	2 COMBINED AT	Com14B	11116.	128.00	11111.	11049.	10505.	581.61
+	ROUTED TO	Rt15	11080.	133.00	11076.	11012.	10478.	581.61
+	HYDROGRAPH AT	11S	1846.	26.00	1780.	1207.	461.	8.20
+	2 COMBINED AT	Com15	11080.	133.00	11076.	11012.	10478.	589.81

+	ROUTED TO	Rt16	11030.	139.00	11026.	10962.	10444.	589.81
+	HYDROGRAPH AT	7S	2078.	53.00	2072.	1962.	1327.	29.41
+	2 COMBINED AT	Com16	11410.	65.00	11379.	11046.	10564.	619.22
+	ROUTED TO	Rt17	10992.	147.00	10988.	10933.	10532.	619.22
+	HYDROGRAPH AT	6S	2125.	27.00	2061.	1435.	558.	9.21
+	2 COMBINED AT	Com17	10992.	147.00	10988.	10933.	10532.	628.43
+	ROUTED TO	Rt18	10969.	152.00	10965.	10911.	10512.	628.43
+	HYDROGRAPH AT	4S	3358.	34.00	3304.	2730.	1272.	22.35
+	2 COMBINED AT	Com18A	10969.	152.00	10965.	10911.	10512.	650.78
+	HYDROGRAPH AT	3S	979.	30.00	958.	733.	310.	4.49
+	2 COMBINED AT	Com18B	10969.	152.00	10965.	10911.	10512.	655.27
+	ROUTED TO	Rt19	10964.	154.00	10960.	10906.	10509.	655.27
+	HYDROGRAPH AT	2S	1786.	23.00	1702.	1041.	376.	5.35
+	2 COMBINED AT	Com19A	10964.	154.00	10960.	10906.	10509.	660.62
+	HYDROGRAPH AT	1S	1221.	34.00	1206.	1007.	479.	7.47
+	2 COMBINED AT	Com19B	10964.	154.00	10960.	10906.	10509.	668.09

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME
							PEAK	TIME TO PEAK	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	614.33	4260.00	3.76	60.00	614.33	4260.00	3.76
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3685E+04 EXCESS=0.0000E+00 OUTFLOW=0.3686E+04 BASIN STORAGE=0.8150E-02 PERCENT ERROR= 0.0									
2R	MANE	60.00	1059.05	2580.00	3.91	60.00	1059.05	2580.00	3.91
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5883E+04 EXCESS=0.0000E+00 OUTFLOW=0.5889E+04 BASIN STORAGE=0.2276E-01 PERCENT ERROR= -0.1									
3R	MANE	60.00	3859.20	3180.00	4.26	60.00	3859.20	3180.00	4.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2114E+05 EXCESS=0.0000E+00 OUTFLOW=0.2111E+05 BASIN STORAGE=0.1006E+00 PERCENT ERROR= 0.1									
3R	MANE	60.00	506.73	2460.00	4.60	60.00	506.73	2460.00	4.60
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1509E+04 EXCESS=0.0000E+00 OUTFLOW=0.1507E+04 BASIN STORAGE=0.5237E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	60.00	2190.54	4140.00	5.53	60.00	2190.54	4140.00	5.53
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1132E+05 EXCESS=0.0000E+00 OUTFLOW=0.1133E+05 BASIN STORAGE=0.6137E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	2216.61	4320.00	5.31	60.00	2216.61	4320.00	5.31
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+05 EXCESS=0.0000E+00 OUTFLOW=0.1247E+05 BASIN STORAGE=0.2463E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	39.00	2399.22	3354.00	4.92	60.00	2398.84	3360.00	4.92
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8063E+04 EXCESS=0.0000E+00 OUTFLOW=0.8066E+04 BASIN STORAGE=0.1845E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	33.00	2431.12	3465.00	5.04	60.00	2429.39	3480.00	5.05
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1024E+05 EXCESS=0.0000E+00 OUTFLOW=0.1024E+05 BASIN STORAGE=0.2400E+00 PERCENT ERROR= -0.1									
4AABRT	MANE	15.00	2946.33	1650.00	5.04	60.00	2872.84	1680.00	5.04
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1168E+05 EXCESS=0.0000E+00 OUTFLOW=0.1169E+05 BASIN STORAGE=0.1024E+01 PERCENT ERROR= -0.1									
1BR	MANE	60.00	1227.69	4200.00	6.90	60.00	1227.69	4200.00	6.90
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7357E+04 EXCESS=0.0000E+00 OUTFLOW=0.7358E+04 BASIN STORAGE=0.1004E-01 PERCENT ERROR= 0.0									
2BR	MANE	41.93	2940.39	3848.70	6.12	60.00	2940.11	3840.00	6.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1768E+05 EXCESS=0.0000E+00 OUTFLOW=0.1768E+05 BASIN STORAGE=0.2017E-01 PERCENT ERROR= 0.0									
3BR	MANE	38.71	4081.91	4103.31	6.13	60.00	4081.65	4080.00	6.13
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2592E+05 EXCESS=0.0000E+00 OUTFLOW=0.2592E+05 BASIN STORAGE=0.6771E+00 PERCENT ERROR= 0.0									

4BR MANE 50.47 4853.75 4138.44 6.27 60.00 4853.69 4140.00 6.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3031E+05 EXCESS=0.0000E+00 OUTFLOW=0.3025E+05 BASIN STORAGE=0.9655E+00 PERCENT ERROR= 0.2

8BR MANE 50.80 5841.50 4267.18 6.42 60.00 5840.95 4260.00 6.42

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3836E+05 EXCESS=0.0000E+00 OUTFLOW=0.3836E+05 BASIN STORAGE=0.2689E+01 PERCENT ERROR= 0.0

9R MANE 60.00 12900.26 6420.00 5.55 60.00 12900.26 6420.00 5.55

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1274E+06 EXCESS=0.0000E+00 OUTFLOW=0.1272E+06 BASIN STORAGE=0.4368E+02 PERCENT ERROR= 0.1

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	135.00		140.67		140.82	
	STORAGE	0.		1200.		1348.	
	OUTFLOW	0.		0.		325.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.13	0.31	1656.	2190.	97.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	115.00		116.80		117.20	
	STORAGE	0.		974.		1190.	
	OUTFLOW	0.		0.		1346.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	117.30	0.10	1243.	2217.	47.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	160.00		171.74		171.83	
	STORAGE	0.		2155.		2217.	
	OUTFLOW	0.		0.		38.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	172.70	0.87	2821.	2399.	129.00	55.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	140.00		141.00		141.11	
	STORAGE	0.		495.		549.	
	OUTFLOW	0.		0.		439.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.34	0.23	665.	2431.	78.00	56.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
	ELEVATION	110.00		113.48		113.65	
	STORAGE	0.		330.		346.	
	OUTFLOW	0.		0.		98.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	114.67	1.02	443.	3043.	135.00	26.00	0.00

\*\*\* NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**RAYMONDVILLE**  
**25-YEAR MODEL**

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/19/01 TIME 13:22:04 *
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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X X X X X X
X X XXXXXXX XXXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Ray25RE.DAT Revised Existing Conditions  
 \* 25-year Rain-fall  
 \* \*\*\*\*\*  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11  
 \*DIAGRAM

1 ID 25-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 2 IT 60 1JAN01 0 300  
 3 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the Raymondville drain.  
 \* \*\*\*\*\*

4 KK 29aR SUB-WATER SHED  
 5 KM Compute hydrograph for 29aR  
 6 BA 4.84  
 7 PH 4 3.61 4.29 4.65 5.45 6.22 6.62  
 8 LS 4.007 60  
 9 UD 21.9

\* \*\*\*\*\*

10 KK 29R SUB-WATER SHED  
 11 KM Compute hydrograph for 29R  
 12 BA 18.03  
 13 LS 4.517 60  
 14 UD 31.2

\* \*\*\*\*\*

15 KK Com21  
 16 KM Combine two hydrographs at Node 21  
 17 HC 2

\* \*\*\*\*\*

18 KK 28aR SUB-WATER SHED  
 19 KM Compute hydrograph for 28aR  
 20 BA 2.35  
 21 LS 5.536 60  
 22 UD 12.0

\* \*\*\*\*\*



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

23 KK Com22  
24 KM Combine two hydrographs at Node 22  
25 HC 2

\* \*\*\*\*\*

26 KK Rt23  
27 KM Route hydrograph to Node 23  
\* 1 1  
28 RS 1 STOR -1  
29 SV 0 880.95 2452.54 4345.49 6267.56 8472.52  
30 SQ 0 1000 2000 3000 4000 5000

\* \*\*\*\*\*

31 KK 24R SUB-WATER SHED  
32 KM Compute hydrograph for 24R  
33 BA 22.22  
34 LS 4.088 60  
35 UD 34.4

\* \*\*\*\*\*

36 KK Com23A  
37 KM Combine two hydrographs at Node 23  
38 HC 2

\* \*\*\*\*\*

39 KK 28R SUB-WATER SHED  
40 KM Compute hydrograph for 28R  
41 BA 4.68  
42 LS 7.319 60  
43 UD 15.7  
\* \*\*\*\*\*  
\* Rt24  
\* Route hydrograph to Node 24  
\* 25000 0.0004 0.1 TRAP 40 2  
\* \*\*\*\*\*

44 KK 25R SUB-WATER SHED  
45 KM Compute hydrograph for 25R  
46 BA 8.99  
47 LS 4.347 60  
48 UD 22.3

\* \*\*\*\*\*

49 KK 27R SUB-WATER SHED  
50 KM Compute hydrograph for 27R  
51 BA 23.93  
52 LS 3.830 60  
53 UD 34.1

\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

54 KK Com24  
55 KM Combine three hydrographs  
56 HC 3  
\* \*\*\*\*\*

57 KK Rt25  
58 KM Route hydrograph to Node 25  
59 RD 37000 0.0004 0.1 TRAP 40 2  
\* \*\*\*\*\*

60 KK 22R SUB-WATER SHED  
61 KM Compute hydrograph for 22R  
62 BA 18.04  
63 LS 2.632 61.9  
64 UD 31.1  
\* \*\*\*\*\*

65 KK Com25  
66 KM Combine two hydrographs at Node 25  
67 HC 2  
\* \*\*\*\*\*

68 KK 19R SUB-WATER SHED  
69 KM Compute hydrograph for 19R  
70 BA 11.18  
71 LS 4.714 60  
72 UD 24.8  
\* \*\*\*\*\*

73 KK Com23B  
74 KM Combine three hydrographs at Node 23  
75 HC 3  
\* \*\*\*\*\*

76 KK Rt26A  
77 KM Route hydrograph to La Sal Viejo diversion  
\* 1 1  
78 RS 1 STOR -1  
79 SV 0 31.13 45.65 55.71 91.17 219.83  
80 SQ 0 1000 2000 3000 4000 5000  
\* \*\*\*\*\*

81 KK DIV3  
82 KM Diversion to La Sal Viejo  
83 DT DIV3  
84 DI 0 70 293 1110 2080 3441  
85 DQ 0 0 60 490 800 1025  
\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

86 KK Rt26B  
 87 KM Route hydrograph to Node 26  
 \* 1 1  
 88 RS 1 STOR -1  
 89 SV 0 196.89 297.78 546.45 982.63 1367.28  
 90 SQ 0 1000 2000 3000 4000 5000  
 \* \*\*\*\*\*

91 KK 20R SUB-WATER SHED  
 92 KM Compute hydrograph for 20R  
 93 BA 18.78  
 94 LS 2.990 62.13  
 95 UD 20.6  
 \* \*\*\*\*\*

96 KK Com26  
 97 KM Combine two hydrographs  
 98 HC 2  
 \* \*\*\*\*\*  
 \* DIV4  
 \* Diversion to southern tributary of main Raymondville channel  
 \* DIV4  
 \* 0 8000 10000  
 \* 0 50 50  
 \* \*\*\*\*\*

99 KK Rt27A  
 100 KM Route hydrograph to Node 27  
 \* 1 1  
 101 RS 1 STOR -1  
 102 SV 0 1348.58 4980.12 8035.27 10783.8 14313.8  
 103 SQ 0 1000 2000 3000 4000 5000  
 \* \*\*\*\*\*

104 KK 13R SUB-WATER SHED  
 105 KM Compute hydrograph for 13R  
 106 BA 11.50  
 107 LS 3.032 60  
 108 UD 16.3  
 \* \*\*\*\*\*

109 KK Com27A  
 110 KM Combine two hydrographs at Node 27  
 111 HC 2  
 \* \*\*\*\*\*  
 \* DIV4  
 \* Diversion from main Raymondville channel  
 \* DIV4  
 \* \*\*\*\*\*

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

112      KK   14R   SUB-WATER SHED
113      KM   Compute hydrograph for 14R
114      BA   9.24
115      LS   3.521  64.26
116      UD   22.6
          * *****
          *   Com
          *   Combine two hydrographs
          *     2
          * *****

117      KK   Rt27B
118      KM   Route hydrograph to Node 27
          *     1       1
119      RS   1   STOR   -1
120      SV   0   118.49 170.85 226.03 273.73 485.95 500.0
121      SQ   0   48.6  83.88 129.49 173.38 228.78 20000.0
          * *****

122      KK   Com27B
123      KM   Combine two hydrographs at Node 27
124      HC   2
          * *****

125      KK   Rt28
126      KM   Route hydrograph to Node 28
          *     1       1
127      RS   1   STOR   -1
128      SV   0   312.83 999.33 1918.42 2687.59 3301.82
129      SQ   0   1000   2000   3000   4000   5000
          * *****

130      KK   11R   SUB-WATER SHED
131      KM   Compute hydrograph for 11R
132      BA   10.09
133      LS   3.768  61.13
134      UD   11.0
          * *****

135      KK   Com28A
136      KM   Combine two hydrographs at Node 28
137      HC   2
          * *****

138      KK   8R   SUB-WATER SHED
139      KM   Compute hydrograph for 8R
140      BA   11.62
141      LS   5.671  60.76
142      UD   11.8
          * *****

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1
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

143      KK  Com28B
144      KM  Combine two hydrographs at Node 28
145      HC   2
          * *****

146      KK  Rt29
147      KM  Route hydrograph to Node 29
          *   1       1
148      RS   1   STOR   -1
149      SV   0  449.95 1513.48 2080.16 2620.81 3076.31
150      SQ   0   1000   2000   3000   4000   5000
          * *****

151      KK  10R  SUB-WATER SHED
152      KM  Compute hydrograph for 10R
153      BA  21.47
154      LS  2.724   60
155      UD  19.2
          * *****

156      KK  Com29
157      KM  Combine two hydrographs at Node 29
158      HC   2
          * *****

159      KK  Rt30
160      KM  Route hydrograph to Node 30
          *   1       1
161      RS   1   STOR   -1
162      SV   0  208.42 1163.8 1980.35 2627.06 3136.14
163      SQ   0   1000   2000   3000   4000   5000
          * *****

164      KK  6R  SUB-WATER SHED
165      KM  Compute hydrograph for 6R
166      BA  16.37
167      LS  3.175   60
168      UD  28.0
          * *****

169      KK  Com30A
170      KM  Combine two hydrographs at Node 30
171      HC   2
          * *****

172      KK  4R  SUB-WATER SHED
173      KM  Compute hydrograph for 4R
174      BA  4.73
175      LS  2.992   60
176      UD  15.9
          * *****
    
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

177      KK  Com30B
178      KM  Combine two hydrographs at Node 30
179      HC   2
          * *****

180      KK  Rt31
181      KM  Route hydrograph to Node 31
          *   1       1
182      RS   1   STOR   -1
183      SV   0  555.09 2027.13 2913.81 3589.64 4070.74
184      SQ   0   1000   2000   3000   4000   5000
          * *****

185      KK  2R  SUB-WATER SHED
186      KM  Compute hydrograph for 2R
187      BA   5.58
188      LS  1.806   60
189      UD  11.4
          * *****

190      KK  Com31A
191      KM  Combine two hydrographs at Node 31
192      HC   2
          * *****

193      KK  3R  SUB-WATER SHED
194      KM  Compute hydrograph for 3R
195      BA   4.47
196      LS  2.472   60
197      UD  13.8
          * *****

198      KK  Com31B
199      KM  Combine two hydrographs at Node 31
200      HC   2
          * *****

201      KK  Rt32
202      KM  Route hydrograph to Node 32
          *   1       1
203      RS   1   STOR   -1
204      SV   0 1067.34 3337.22  4909 6271.22 7335.81
205      SQ   0   1000   2000   3000   4000   5000
          * *****

206      KK  1R  SUB-WATER SHED
207      KM  Compute hydrograph for 1R
208      BA  16.89
209      LS  1.395   60
210      UD  19.6
          * *****

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

211      KK   Com32
212      KM   Combine two hydrographs at Node 32
213      HC     2
          * *****

214      KK   DIV3
215      KM   Diversion from Raymondville main channel to La Sal Viejo
216      DR   DIV3
          * *****

217      KK   17R  SUB-WATER SHED
218      KM   Compute hydrograph for 17R
219      BA   6.47
220      LS   2.955      60
221      UD   19.1
          * *****

222      KK   Com33A
223      KM   Combine two hydrographs at La Sal Viejo
224      HC     2
          * *****

225      KK   23R  SUB-WATER SHED
226      KM   Compute hydrograph for 23R
227      BA   94.54
228      LS   2.901      60
229      UD   68.9
          * *****

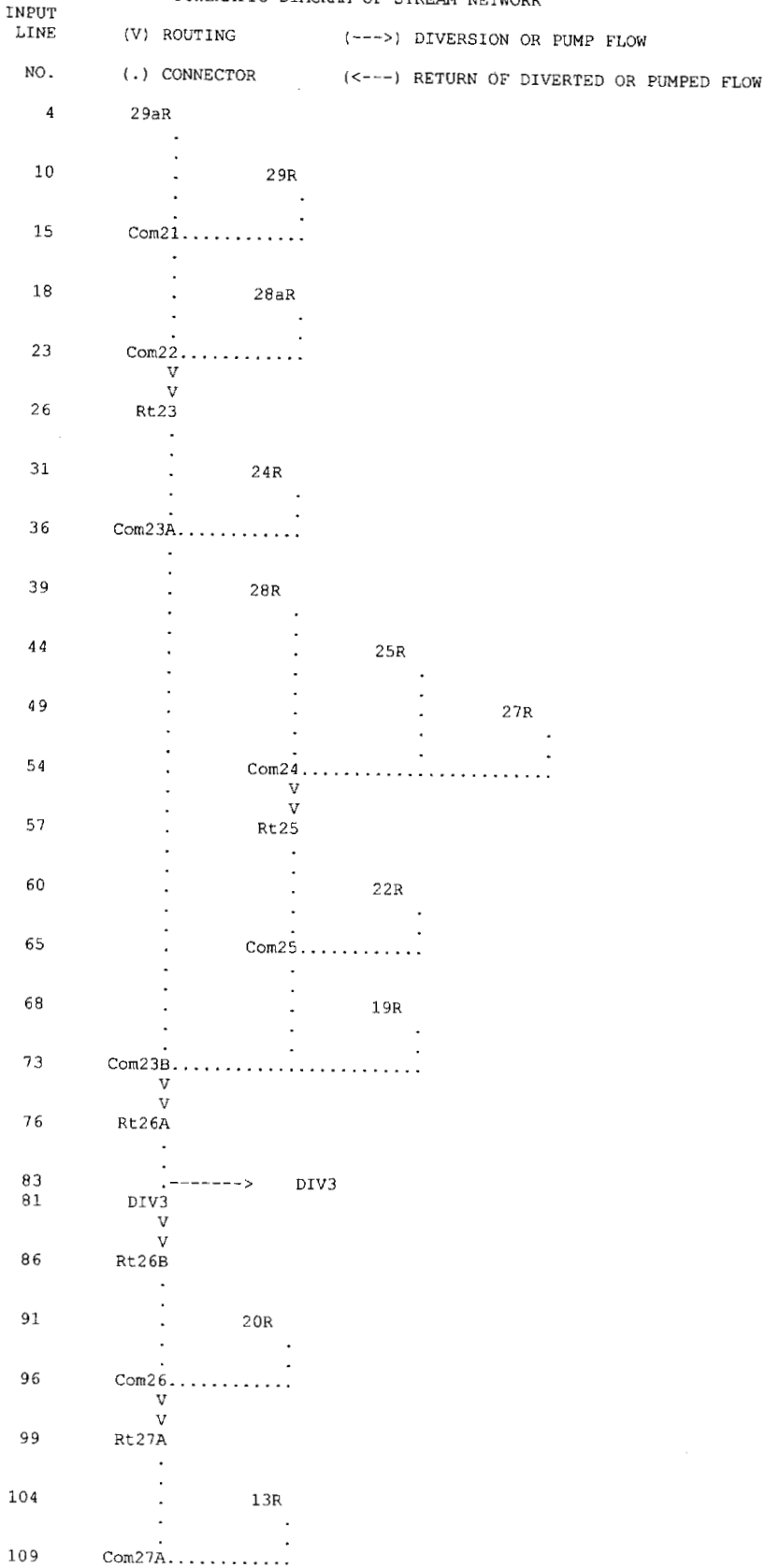
230      KK   Com33B
231      KM   Combine two hydrographs at La Sal Viejo
232      HC     2
          * *****

233      KK   LSV
234      KM   Route hydrograph through La Sal Viejo
          *      1      1
235      RS   1      STOR      -1
236      SV   0      1690      4532      9730      17040      18480      19000
237      SQ   0      163      465      825      1230      1490      1550
          * *****

238      ZZ

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SCHEMATIC DIAGRAM OF STREAM NETWORK





.  
 117 14R  
 . V  
 . V  
 . Rt27B  
 .  
 122 Com27B .....  
 . V  
 . V  
 125 Rt28  
 .  
 130 11R  
 .  
 135 Com28A .....  
 .  
 138 8R  
 .  
 143 Com28B .....  
 . V  
 . V  
 146 Rt29  
 .  
 151 10R  
 .  
 156 Com29 .....  
 . V  
 . V  
 159 Rt30  
 .  
 164 6R  
 .  
 169 Com30A .....  
 .  
 172 4R  
 .  
 177 Com30B .....  
 . V  
 . V  
 180 Rt31  
 .  
 185 2R  
 .  
 190 Com31A .....  
 .  
 193 3R  
 .  
 198 Com31B .....  
 . V  
 . V  
 201 Rt32  
 .  
 206 1R  
 .  
 211 Com32 .....  
 .  
 216 . ←----- DIV3  
 214 . DIV3  
 .  
 . 17R  
 .  
 .

222 . Com33A.....  
 .  
225 . 23R  
 .  
230 . Com33B.....  
 .  
 . V  
233 . V  
 . LSV

(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT	29aR	73.	37.00	72.	61.	31.	4.84		
+	HYDROGRAPH AT	29R	121.	47.00	120.	111.	67.	18.03		
+	2 COMBINED AT	Com21	182.	43.00	180.	164.	97.	22.87		
+	HYDROGRAPH AT	28aR	12.	30.00	12.	8.	3.	2.35		
+	2 COMBINED AT	Com22	186.	42.00	184.	168.	100.	25.22		
+	ROUTED TO	Rt23	156.	52.00	155.	146.	97.	25.22		
+	HYDROGRAPH AT	24R	188.	50.00	187.	175.	112.	22.22		
+	2 COMBINED AT	Com23A	343.	51.00	342.	320.	209.	47.44		
+	HYDROGRAPH AT	28R	0.	1.00	0.	0.	0.	4.68		
+	HYDROGRAPH AT	25R	101.	38.00	100.	86.	43.	8.99		
+	HYDROGRAPH AT	27R	243.	50.00	241.	225.	144.	23.93		
+	3 COMBINED AT	Com24	322.	45.00	320.	295.	186.	37.60		
+	ROUTED TO	Rt25	314.	53.00	312.	289.	183.	37.60		
+	HYDROGRAPH AT	22R	403.	46.00	401.	369.	223.	18.04		
+	2 COMBINED AT	Com25	699.	49.00	695.	638.	397.	55.64		
+	HYDROGRAPH AT	19R	81.	41.00	80.	71.	38.	11.18		
+	3 COMBINED AT	Com23B	1110.	49.00	1103.	1017.	643.	114.26		
+	ROUTED TO	Rt26A	1110.	49.00	1103.	1018.	642.	114.26		
+	DIVERSION TO	DIV3	490.	49.00	487.	441.	247.	114.26		
+	HYDROGRAPH AT	DIV3	620.	49.00	617.	576.	396.	114.26		
+	ROUTED TO	Rt26B	614.	52.00	611.	571.	395.	114.26		
+	HYDROGRAPH AT	20R	529.	35.00	521.	438.	211.	18.78		
+	2 COMBINED AT	Com26	957.	43.00	951.	881.	593.	133.04		
+	ROUTED TO	Rt27A	733.	57.00	731.	705.	543.	133.04		

+	HYDROGRAPH AT	13R	378.	31.00	371.	288.	124.	11.50
+	2 COMBINED AT	Com27A	792.	51.00	790.	773.	635.	144.54
+	HYDROGRAPH AT	14R	200.	37.00	198.	171.	86.	9.24
+	ROUTED TO	Rt27B	127.	50.00	126.	115.	74.	9.24
+	2 COMBINED AT	Com27B	919.	51.00	916.	888.	708.	153.78
+	ROUTED TO	Rt28	909.	55.00	907.	880.	703.	153.78
+	HYDROGRAPH AT	11R	318.	26.00	307.	203.	76.	10.09
+	2 COMBINED AT	Com28A	919.	54.00	917.	895.	750.	163.87
+	HYDROGRAPH AT	8R	42.	30.00	40.	27.	10.	11.62
+	2 COMBINED AT	Com28B	922.	53.00	920.	900.	760.	175.49
+	ROUTED TO	Rt29	910.	58.00	908.	889.	747.	175.49
+	HYDROGRAPH AT	10R	682.	34.00	671.	551.	256.	21.47
+	2 COMBINED AT	Com29	1389.	37.00	1380.	1270.	977.	196.96
+	ROUTED TO	Rt30	1240.	46.00	1237.	1200.	973.	196.96
+	HYDROGRAPH AT	6R	301.	43.00	298.	270.	154.	16.37
+	2 COMBINED AT	Com30A	1537.	44.00	1531.	1464.	1124.	213.33
+	HYDROGRAPH AT	4R	167.	30.00	163.	125.	53.	4.73
+	2 COMBINED AT	Com30B	1607.	43.00	1601.	1536.	1169.	218.06
+	ROUTED TO	Rt31	1380.	57.00	1378.	1351.	1140.	218.06
+	HYDROGRAPH AT	2R	420.	25.00	403.	265.	99.	5.58
+	2 COMBINED AT	Com31A	1389.	56.00	1387.	1364.	1190.	223.64
+	HYDROGRAPH AT	3R	223.	28.00	217.	157.	63.	4.47
+	2 COMBINED AT	Com31B	1404.	55.00	1403.	1384.	1239.	228.11
+	ROUTED TO	Rt32	1249.	75.00	1248.	1237.	1136.	228.11
+	HYDROGRAPH AT	1R	873.	34.00	858.	710.	331.	16.89
+	2 COMBINED AT	Com32	1715.	39.00	1704.	1567.	1368.	245.00
+	HYDROGRAPH AT	DIV3	490.	49.00	487.	441.	247.	0.00

+	HYDROGRAPH AT	17R	195.	34.00	192.	158.	73.	6.47
+	2 COMBINED AT	Com33A	586.	45.00	583.	534.	316.	6.47
+	HYDROGRAPH AT	23R	706.	84.00	705.	695.	601.	94.54
+	2 COMBINED AT	Com33B	962.	59.00	960.	938.	816.	101.01
+	ROUTED TO	LSV	405.	125.00	405.	403.	387.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
 (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO			
						COMPUTATION PEAK	INTERVAL TIME TO PEAK	VOLUME	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
Rt25	MANE	60.00	314.22	3180.00	0.59	60.00	314.22	3180.00	0.59

CONTINUITY SUMMARY (A7-FT) - INFLOW=0.1199E+04 EXCESS=0.0000E+00 OUTFLOW=0.1193E+04 BASIN STORAGE=0.4836E+00 PERCENT ERROR= 0.4

\*\*\* NORMAL END OF H.C-1 \*\*\*

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**RAYMONDVILLE**  
**100-YEAR MODEL**

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/19/01 TIME 14:02:05 *
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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* Hidalgo County Flood Insurance Study
\* Job No. 11-00389-002
\* File Name: Ray100RE.DAT Revised Existing Conditions 100-yr
\* 100-year Rain-fall

\* Model sequence is as follows:
\* revised rainfall from USGS report 98-4044

\* REVISIED CN TYPE I ANTECEDANT
\* REVISIED LAG BASED ON REVISIED CN I
\* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN
\* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE
\* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.
\* ROUTED 5&4 BASINS THROUGH STORAGE
\* MODIFIED PULS ROUTING REACHES 5R-9R
\* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11

\*DIAGRAM

1 ID 100-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
2 IT 60 1JAN01 0 300
3 IO 5

\* Start calculating hydrograph for the sub water sheds
\* that drain to the Raymondville drain.

4 KK 29aR SUB-WATER SHED
5 KM Compute hydrograph for 29aR
6 BA 4.84
7 PH 1 4.68 5.65 6.29 7.51 8.61 9.19
8 LS 4.007 60
9 UD 21.9

10 KK 29R SUB-WATER SHED
11 KM Compute hydrograph for 29R
12 BA 18.03
13 LS 4.517 60
14 UD 31.2

15 KK Com21
16 KM Combine two hydrographs at Node 21
17 MC 2

18 KK 28aR SUB-WATER SHED
19 KM Compute hydrograph for 28aR
20 BA 2.35
21 LS 5.536 60
22 UD 12.0

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

23 KK Com22  
24 KM Combine two hydrographs at Node 22  
25 HC 2

\* \*\*\*\*\*

26 KK Rt23  
27 KM Route hydrograph to Node 23  
28 KO 1 1  
29 RS 1 STOR -1  
30 SV 0 880.95 2452.54 4345.49 6267.56 8472.52  
31 SQ 0 1000 2000 3000 4000 5000

\* \*\*\*\*\*

32 KK 24R SUB-WATER SHED  
33 KM Compute hydrograph for 24R  
34 BA 22.22  
35 LS 4.088 60  
36 UD 34.4

\* \*\*\*\*\*

37 KK Com23A  
38 KM Combine two hydrographs at Node 23  
39 HC 2

\* \*\*\*\*\*

40 KK 28R SUB-WATER SHED  
41 KM Compute hydrograph for 28R  
42 BA 4.68  
43 LS 7.319 60  
44 UD 15.7

\* \*\*\*\*\*

45 KK Rt24  
46 KM Route hydrograph to Node 24  
47 RD 25000 0.0004 0.1 TRAP 40 2

\* \*\*\*\*\*

48 KK 25R SUB-WATER SHED  
49 KM Compute hydrograph for 25R  
50 BA 8.99  
51 LS 4.347 60  
52 UD 22.3

\* \*\*\*\*\*

53 KK 27R SUB-WATER SHED  
54 KM Compute hydrograph for 27R  
55 BA 23.93  
56 LS 3.830 60  
57 UD 34.1

\* \*\*\*\*\*

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	29aR	227.	37.00	224.	192.	95.	4.84		
HYDROGRAPH AT	29R	488.	47.00	485.	447.	271.	18.03		
2 COMBINED AT	Com21	678.	42.00	673.	613.	365.	22.87		
HYDROGRAPH AT	28aR	106.	27.00	102.	70.	27.	2.35		
2 COMBINED AT	Com22	706.	41.00	701.	644.	391.	25.22		
ROUTED TO	Rt23	599.	51.00	596.	561.	376.	25.22		
HYDROGRAPH AT	24R	625.	50.00	623.	582.	372.	22.22		
2 COMBINED AT	Com23A	1224.	50.00	1217.	1142.	748.	47.44		
HYDROGRAPH AT	28R	51.	33.00	50.	38.	16.	4.68		
ROUTED TO	Rt24	47.	44.00	46.	35.	16.	4.68		
HYDROGRAPH AT	25R	366.	37.00	362.	311.	156.	8.99		
HYDROGRAPH AT	27R	733.	50.00	730.	682.	434.	23.93		
3 COMBINED AT	Com24	1071.	44.00	1063.	970.	602.	37.60		
ROUTED TO	Rt25	1050.	49.00	1043.	956.	596.	37.60		
HYDROGRAPH AT	22R	882.	46.00	878.	809.	488.	18.04		
2 COMBINED AT	Com25	1924.	47.00	1908.	1748.	1073.	55.64		
HYDROGRAPH AT	19R	359.	40.00	355.	314.	167.	11.18		
3 COMBINED AT	Com23B	3445.	47.00	3421.	3156.	1983.	114.26		
ROUTED TO	Rt26A	3441.	48.00	3420.	3156.	1983.	114.26		
DIVERSION TO	DIV3	1025.	48.00	1021.	978.	689.	114.26		
HYDROGRAPH AT	DIV3	2416.	48.00	2398.	2178.	1294.	114.26		
ROUTED TO	Rt26B	2372.	50.00	2356.	2170.	1291.	114.26		
HYDROGRAPH AT	20R	1248.	35.00	1229.	1032.	494.	18.78		
2 COMBINED AT	Com26	3114.	43.00	3105.	2882.	1762.	133.04		

-	ROUTED TO	Rt27A	1804.	64.00	1801.	1754.	1492.	133.04
+	HYDROGRAPH AT	13R	907.	30.00	888.	688.	294.	11.50
+	2 COMBINED AT	Com27A	1866.	61.00	1862.	1826.	1655.	144.54
+	HYDROGRAPH AT	14R	526.	37.00	520.	448.	226.	9.24
+	ROUTED TO	Rt27B	666.	42.00	448.	307.	202.	9.24
+	2 COMBINED AT	Com27B	2388.	42.00	2177.	2106.	1858.	153.78
+	ROUTED TO	Rt28	2056.	66.00	2054.	2037.	1822.	153.78
+	HYDROGRAPH AT	11R	934.	25.00	898.	587.	218.	10.09
+	2 COMBINED AT	Com28A	2061.	65.00	2060.	2050.	1905.	163.87
+	HYDROGRAPH AT	8R	480.	27.00	465.	318.	121.	11.62
+	2 COMBINED AT	Com28B	2283.	29.00	2216.	2095.	2001.	175.49
+	ROUTED TO	Rt29	2049.	71.00	2047.	2029.	1903.	175.49
+	HYDROGRAPH AT	10R	1540.	34.00	1516.	1246.	575.	21.47
+	2 COMBINED AT	Com29	3169.	36.00	3149.	2882.	2379.	196.96
+	ROUTED TO	Rt30	2686.	46.00	2677.	2583.	2286.	196.96
+	HYDROGRAPH AT	6R	746.	43.00	740.	670.	381.	16.37
+	2 COMBINED AT	Com30A	3414.	45.00	3399.	3217.	2634.	213.33
+	HYDROGRAPH AT	4R	395.	30.00	385.	295.	125.	4.73
+	2 COMBINED AT	Com30B	3564.	43.00	3547.	3360.	2722.	218.06
+	ROUTED TO	Rt31	3082.	56.00	3072.	2966.	2554.	218.06
+	HYDROGRAPH AT	2R	815.	25.00	782.	512.	192.	5.58
+	2 COMBINED AT	Com31A	3102.	56.00	3092.	2985.	2578.	223.64
+	HYDROGRAPH AT	3R	478.	28.00	465.	335.	133.	4.47
+	2 COMBINED AT	Com31B	3132.	56.00	3122.	3018.	2637.	228.11
+	ROUTED TO	Rt32	2622.	78.00	2620.	2591.	2397.	228.11
+	HYDROGRAPH AT	1R	1608.	34.00	1582.	1307.	608.	16.89
+	2 COMBINED AT	Com32	2856.	36.00	2840.	2678.	2626.	245.00

+	HYDROGRAPH AT	DIV3	1025.	48.00	1021.	978.	689.	0.00
+	HYDROGRAPH AT	17R	458.	33.00	451.	369.	170.	6.47
+	2 COMBINED AT	Com33A	1341.	39.00	1332.	1246.	849.	6.47
+	HYDROGRAPH AT	23R	1709.	83.00	1707.	1681.	1454.	94.54
+	2 COMBINED AT	Com33B	2368.	67.00	2356.	2302.	2039.	101.01
+	ROUTED TO	LSV	873.	129.00	873.	870.	851.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO		VOLUME
							COMPUTATION	INTERVAL	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	PEAK	TIME TO PEAK	(IN)
Rt24	MANE	60.00	46.61	2640.00	0.38	60.00	46.61	2640.00	0.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9694E+02 EXCESS=0.0000E+00 OUTFLOW=0.9480E+02 BASIN STORAGE=0.3377E+00 PERCENT ERROR= 1.9

Rt25	MANE	60.00	1050.06	2940.00	1.93	60.00	1050.06	2940.00	1.93
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3869E+04 EXCESS=0.0000E+00 OUTFLOW=0.3861E+04 BASIN STORAGE=0.5026E+00 PERCENT ERROR= 0.2

\*\*\* NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**  
**REVISED EXISTING CONDITIONS**  
**RAYMONDVILLE**  
**500-YEAR MODEL**

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/19/01 TIME 10:40:23 *
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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Ray500RE.DAT Revised Existing Conditions  
 \* 500-year Rain-fall  
 \* \*\*\*\*\*  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11  
 \* REDUCED FLOWS IN DIVERSION TO LA SAL VIEJA

\*DIAGRAM

1 ID 500-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 2 IT 60 1JAN01 0 300  
 3 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the Raymondville drain.  
 \* \*\*\*\*\*

4 KK 29aR SUB-WATER SHED  
 5 KM Compute hydrograph for 29aR  
 6 BA 4.84  
 7 PH 0.2 6.21 7.66 8.83 10.75 12.35 13.23  
 8 LS 4.007 60  
 9 UD 21.9  
 \* \*\*\*\*\*

10 KK 29R SUB-WATER SHED  
 11 KM Compute hydrograph for 29R  
 12 BA 18.03  
 13 LS 4.517 60  
 14 UD 31.2  
 \* \*\*\*\*\*

15 KK Com21  
 16 KM Combine two hydrographs at Node 21  
 17 HC 2  
 \* \*\*\*\*\*

18 KK 28aR SUB-WATER SHED  
 19 KM Compute hydrograph for 28aR  
 20 BA 2.35  
 21 LS 5.536 60  
 22 UD 12.0  
 \* \*\*\*\*\*

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	29aR	540.	36.00	534.	456.	225.	4.84		
HYDROGRAPH AT	29R	1279.	46.00	1272.	1173.	709.	18.03		
2 COMBINED AT	Com21	1731.	42.00	1720.	1566.	932.	22.87		
HYDROGRAPH AT	28aR	345.	26.00	333.	226.	86.	2.35		
2 COMBINED AT	Com22	1815.	40.00	1804.	1663.	1015.	25.22		
ROUTED TO	Rt23	1414.	53.00	1410.	1355.	975.	25.22		
HYDROGRAPH AT	24R	1527.	49.00	1521.	1422.	908.	22.22		
2 COMBINED AT	Com23A	2929.	50.00	2915.	2766.	1882.	47.44		
HYDROGRAPH AT	28R	359.	31.00	352.	270.	114.	4.68		
ROUTED TO	Rt24	340.	36.00	333.	257.	113.	4.68		
HYDROGRAPH AT	25R	925.	37.00	913.	785.	392.	8.99		
HYDROGRAPH AT	27R	1722.	49.00	1716.	1602.	1018.	23.93		
3 COMBINED AT	Com24	2734.	41.00	2717.	2481.	1515.	37.60		
ROUTED TO	Rt25	2703.	45.00	2684.	2452.	1506.	37.60		
HYDROGRAPH AT	22R	1763.	45.00	1755.	1617.	975.	18.04		
2 COMBINED AT	Com25	4466.	45.00	4439.	4066.	2469.	55.64		
HYDROGRAPH AT	19R	971.	40.00	962.	849.	450.	11.18		
3 COMBINED AT	Com23B	8176.	46.00	8134.	7546.	4789.	114.26		
ROUTED TO	Rt26A	8174.	46.00	8131.	7538.	4789.	114.26		
DIVERSION TO	DIV3	613.	46.00	610.	565.	359.	114.26		
HYDROGRAPH AT	DIV3	7561.	46.00	7521.	6973.	4430.	114.26		
ROUTED TO	Rt26B	7315.	51.00	7276.	6774.	4424.	114.26		
HYDROGRAPH AT	20R	2594.	35.00	2555.	2145.	1026.	18.78		
2 COMBINED AT	Com26	8648.	46.00	8606.	8040.	5392.	133.04		

+	ROUTED TO	Rt27A	4993.	71.00	4986.	4890.	4133.	133.04
+	HYDROGRAPH AT	13R	1915.	30.00	1875.	1447.	618.	11.50
+	2 COMBINED AT	Com27A	5055.	69.00	5049.	4963.	4323.	144.54
+	HYDROGRAPH AT	14R	1146.	37.00	1132.	976.	490.	9.24
+	ROUTED TO	Rt27B	1377.	36.00	1132.	914.	456.	9.24
+	2 COMBINED AT	Com27B	5308.	60.00	5275.	5217.	4768.	153.78
+	ROUTED TO	Rt28	5206.	75.00	5201.	5139.	4608.	153.78
+	HYDROGRAPH AT	11R	2168.	25.00	2085.	1348.	499.	10.09
+	2 COMBINED AT	Com28A	5206.	75.00	5201.	5143.	4663.	163.87
+	HYDROGRAPH AT	8R	1652.	26.00	1597.	1078.	409.	11.62
+	2 COMBINED AT	Com28B	5208.	75.00	5204.	5149.	4866.	175.49
+	ROUTED TO	Rt29	5175.	80.00	5171.	5117.	4759.	175.49
+	HYDROGRAPH AT	10R	3150.	33.00	3103.	2545.	1174.	21.47
+	2 COMBINED AT	Com29	7325.	35.00	7255.	6552.	5671.	196.96
+	ROUTED TO	Rt30	6653.	42.00	6597.	6114.	5492.	196.96
+	HYDROGRAPH AT	6R	1597.	43.00	1586.	1436.	815.	16.37
+	2 COMBINED AT	Com30A	8249.	42.00	8183.	7516.	6213.	213.33
+	HYDROGRAPH AT	4R	825.	30.00	806.	615.	259.	4.73
+	2 COMBINED AT	Com30B	8639.	41.00	8572.	7836.	6367.	218.06
+	ROUTED TO	Rt31	7949.	48.00	7895.	7359.	6161.	218.06
+	HYDROGRAPH AT	2R	1521.	25.00	1461.	955.	357.	5.58
+	2 COMBINED AT	Com31A	8058.	47.00	8004.	7453.	6213.	223.64
+	HYDROGRAPH AT	3R	946.	28.00	921.	661.	263.	4.47
+	2 COMBINED AT	Com31B	8221.	47.00	8162.	7589.	6285.	228.11
+	ROUTED TO	Rt32	6747.	62.00	6732.	6552.	5868.	228.11
+	HYDROGRAPH AT	1R	2905.	34.00	2865.	2365.	1101.	16.89
+	2 COMBINED AT	Com32	7246.	58.00	7225.	7000.	6202.	245.00

-	HYDROGRAPH AT	DIV3	613.	46.00	610.	565.	359.	0.00
+	HYDROGRAPH AT	17R	954.	33.00	939.	768.	353.	6.47
+	2 COMBINED AT	Com33A	1390.	37.00	1376.	1210.	705.	6.47
+	HYDROGRAPH AT	23R	3628.	82.00	3625.	3570.	3089.	94.54
+	2 COMBINED AT	Com33B	3864.	76.00	3858.	3809.	3384.	101.01
+	ROUTED TO	LSV	1540.	136.00	1540.	1532.	1446.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME
							PEAK	TIME TO PEAK	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
Rt24	MANE	57.00	339.66	2166.00	2.69	60.00	339.55	2160.00	2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6788E+03 EXCESS=0.0000E+00 OUTFLOW=0.6721E+03 BASIN STORAGE=0.2698E+00 PERCENT ERROR= 0.9

Rt25	MANE	60.00	2702.75	2700.00	4.83	60.00	2702.75	2700.00	4.83
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9688E+04 EXCESS=0.0000E+00 OUTFLOW=0.9681E+04 BASIN STORAGE=0.5466E+00 PERCENT ERROR= 0.1

\*\*\* NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
10% DIVERSION**

**25-YEAR MODEL**

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/23/01 TIME 14:49:43 *
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 551-1748
*
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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* *****
*   Hidalgo County Flood Insurance Study
*   Job No. 11-00389-002
*   File Name: Deter025.DAT   Proposed with Detention Conditions
*   25-year Rain-fall       Future Development
* *****
*   HEC-1 model for the North-West main drain area
*   Model sequence is as follows:
* *****
*   revised rainfall from USGS report 98-4044
*   REVISED CN TYPE I ANTECEDANT
*   REVISED LAG BASED ON REVISED CN I
*   IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN
*   ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE
*   SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.
*   ROUTED 5&4 BASINS THROUGH STORAGE
*   MODIFIED PULS ROUTING REACHES 5R-9R
*   CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11
*DIAGRAM

```

```

1   ID   West Main drain area
2   ID   25-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
3   IT   60  1JAN01      0      300
4   IO   5

```

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* *****
*   Start calculating hydrograph for the sub water sheds
*   that drain to the West Main drain.
* *****

```

```

5   KK   SC-7A SUBWATER SHED
6   KM   Compute hydrograph for sub-water shed SC-7A
7   BA   18.4
8   PH   4              3.61   4.29   4.65   5.45   6.22   6.62
9   LS   5.721         60
10  UD   53.5

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\* \*\*\*\*\*

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11  KK   1R
12  KM   Route hydrograph from head water to node 1 using Muskingum-Cunge Method
13  RD
14  RC   0.08   0.03   0.08   19200  0.0002  217
15  RX   1000   2500   2917   2994   3005   3061   4500   5000
16  RY   203.5  202.0  204.4  191.53 191.53 204.5  199.9  199.0

```

\* \*\*\*\*\*

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17  KK   SC-7B SUBWATER SHED
18  KM   Compute hydrograph for sub-water shed SC-7B
19  BA   9.82
20  LS   5.282         60
21  UD   20.1

```

\* \*\*\*\*\*



LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
22	KK 1C
23	KM Combine hydrograph from SC-7A and SC-7B, at node 1
24	HC 2 * *****
25	KK 2R
26	KM Route hydrograph from node 1 to node 2
27	RD
28	RC 0.08 0.03 0.08 32000 0.0002 187
29	RX 1000 2500 2977 2994 3005 3032 4500 5000
30	RY 175 173 172 160.91 160.91 174.0 173.0 175.0 * *****
31	KK SC-7C SUBWATER SHED
32	KM Compute hydrograph for sub-water shed SC-7C
33	BA 23
34	LS 5.028 60
35	UD 27.4 * *****
36	KK SC-6A
37	KM Compute hydrograph for sub-water shed SC-6A
38	BA 41.66
39	LS 4.484 60
40	UD 50.5 * *****
41	KK 2C
42	KM Combine hydrograph at node 2
43	HC 3 * *****
44	KK 3R
45	KM Route hydrograph from node 2 to node 3
46	RD
47	RC 0.08 0.03 0.08 20800 0.0005 106
48	RX 1000 1874.9 1960.8 1966.1 1992.5 2010.8 2037.1 3000
49	RY 97 98 100 98 88 88 100 99.4 * *****
50	KK SC-6B
51	KM Compute hydrograph for sub-water shed SC-6B
52	BA 6.58
53	LS 1.765 60
54	UD 22.6 * *****
55	KK SC-7D
56	KM Compute hydrograph for sub-water shed SC-7D
57	BA 6.15
58	LS 4.829 60
59	UD 25.6 * *****

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

60      KK      3R
61      KM      Route hydrograph from of SC-7D to node 3
62      RD
63      RC      0.08      0.03      0.08      8000      0.0001      106
64      RX      1000      1967.5      1977.9      1985.8      2007      2017.3      2081      3000
65      RY      97.2      98      90      84      84      90      98      97
        * *****

66      KK      3C
67      KM      Combine three hydrograph at node 3
68      HC      3
        * *****

69      KK      4R
70      KM      Route hydrograph from node 3 to node 4
71      RS      1      STOR      -1
72      SV      0      114      489      779      1639      2929
73      SQ      0      680      1360      1700      2715      4240
        *
        *      0.08      0.03      0.08      14400      0.0006      103
        *      1000      1818.2      1830.9      1843.6      1867      1878.8      1890.6      2855.2
        *      89      90      84      78      78      84      90      89
        * *****

74      KK      SC5A subwater-shed
75      KM      Compute hydrograph for subwater shed SC-5A
76      BA      38.43
77      LS      2.575      60
78      UD      51
        * *****

79      KK      5ACANA
80      KM      CANAL CROSSING
81      RS      1      ELEV      135      0
82      SS      140.67      2000      2.8      1.5
83      ST      140.82      2000      2.8      1.5
84      SW      2000      2000      2000
85      SE      140.96      141.14      141.28
86      SV      0      537      5484      7582
87      SE      135      140      145      150
        * *****

88      KK      5AROUT
89      KM      Route hydrograph TO DOWNSTREAM CANAL
90      RD
91      RC      .06      .06      .06      11900      .0023      140
92      RX      0      1500      3140      3690      4560      5650      5885      7950
93      RY      140      135      130      125      122.5      125      130      135
        * *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 94      KK  SC5A1  subwater-shed
 95      KM  Compute hydrograph for subwater shed SC-5A1
 96      BA  5.64
 97      LS  1.889      60
 98      UD  14.8
          * *****

 99      KK  5AA1
100      KM  Combine two hydrographs
101      HC  2
          * *****

102      KK  5A1CAN
103      KM  CANAL CROSSING
104      RS  1      ELEV      115      0
105      SS  116.8    1900      2.8      1.5
106      ST  117.2    4050      2.8      1.5
107      SV  0      2705
108      SE  115      120
          * *****

109      KK  5A1RT
110      KM  Route hydrograph TO DOWNSTREAM CANAL
111      RD
112      RC  .06      .06      .06      14900    .0017    110
113      RX  0      2580    4000    5000    6000    9675    10400    10450
114      RY  100     100     95      94      95      100     105     105
          * *****

115      KK  SC5B  subwater-shed
116      KM  Compute hydrograph for subwater shed SC-5B
117      BA  9.02
118      LS  2.515     60
119      UD  13
          * *****

120      KK  4C1
121      KM  Combine two hydrographs
122      HC  2
          * *****

123      KK  SC-4A subwater-shed
124      KM  Compute hydrograph for subwater shed SC-4A
125      BA  30.73
126      LS  2.512     60
127      UD  37.3
          * *****

128      KK  4ACANA
129      KM  CANAL CROSSING
130      RS  1      ELEV      160      0
131      SS  171.74    500      2.8      1.5
132      ST  171.83    500      2.8      1.5
133      SW  500      500      500      500      500      500

```

LINE	ID	1	2	3	4	5	6	7	8	9	10
134	SE	171.91	172	172.08	172.17	172.26	172.35				
135	SV	0	60	946.5	4419						
136	SE	160	165	170	175						
* *****											
137	KK 4AROUT										
138	KM Route hydrograph TO DOWNSTREAM CANAL										
139	RD										
140	RC	.06	.06	.06	11300	.003	165				
141	RX	0	2500	3000	3500	4000	5000	6000	7650		
142	RY	155	155	150	150	155	155	155	155		
* *****											
143	KK SC-4A1 subwater-shed										
144	KM Compute hydrograph for subwater shed SC-4A1										
145	BA 7.34										
146	LS	2.158	60								
147	UD	10.85									
* *****											
148	KK SC4AA1										
149	KM Combine two hydrographs										
150	HC 2										
* *****											
151	KK 4A1CAN										
152	KM CANAL CROSSING										
153	RS	1	ELEV	140	0						
154	SS	141	4300	2.8	1.5						
155	ST	141.11	500	2.8	1.5						
156	SW	500	500								
157	SE	141.33	141.55								
158	SV	0	2475								
159	SE	140	145								
* *****											
160	KK 4A1ROU										
161	KM Route hydrograph TO DOWNSTREAM CANAL										
162	RD										
163	RC	.06	.06	.06	8000	.003	145				
164	RX	0	700	1500	1800	2300	2400	2425	2500		
165	RY	130	127.5	126.5	130	135	135	135	135		
* *****											
166	KK SC-4B subwater-shed										
167	KM Compute hydrograph for subwater shed SC-4B										
168	BA 5.44										
169	LS	3.062	60								
170	UD	6.6									
* *****											
* COMBINE WATERSHEDS SC-4A, 4A1, 4B											

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

171 KK SC4AAB  
 172 KM Combine two hydrographs  
 173 HC 2  
 \* \*\*\*\*\*

174 KK 4BCANA  
 175 KM CANAL CROSSING  
 176 RS 1 ELEV 110 0  
 177 SS 113.48 500 2.8 1.5  
 178 ST 113.65 500 2.8 1.5  
 179 SW 500 500 500 500 500 500  
 180 SE 113.82 113.99 114.15 114.32 114.49 114.66  
 181 SV 0 473.8 2460  
 182 SE 110 115 120  
 \* \*\*\*\*\*

183 KK 4AABRT  
 184 KM Route hydrograph TO DOWNSTREAM CANAL  
 185 RD  
 186 RC .06 .06 .06 10800 .0018 105  
 187 RX 0 1100 2000 2600 3000 3500 4000 5000  
 188 RY 110 105 100 98 100 105 105 105  
 \* \*\*\*\*\*

189 KK SC-4B1 subwater-shed  
 190 KM Compute hydrograph for subwater shed SC-4B1  
 191 BA 6.07  
 192 LS 2.451 60  
 193 UD 12.2  
 \* \*\*\*\*\*

194 KK SC-4  
 195 KM Combine two hydrographs  
 196 HC 2  
 \* \*\*\*\*\*

197 KK 4C2  
 198 KM Combine three hydrographs at node 4  
 199 HC 3  
 \* \*\*\*\*\*

200 KK 5R  
 201 KM Route hydrograph from node 4 to node 5  
 202 RS 1 STOR -1  
 203 SV 0 204 838 1406 3840 6496  
 204 SQ 0 1110 2220 2775 4440 6940  
 \*  
 \* 0.08 0.03 0.08 12800 0.0002 106  
 \* 1000 1101 1113.3 1132.9 1153.4 1166.2 1178.9 3000  
 \* 87.1 82 78 70 70 78 86 86.5  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

205 KK SC-3 SUB-WATER SHED  
 206 KM Compute hydrograph for subwater shed SC-3  
 207 BA 56.44  
 208 LS 2.203 60  
 209 UD 62.9

\* \*\*\*\*\*

210 KK 5C  
 211 KM Combine two hydrographs at node 5  
 212 HC 2

\* \*\*\*\*\*

213 KK DIV1  
 214 KM Diversion to Raymondville Drain  
 215 DT DIV1  
 216 DI 0 15 224 511 1120 2355 4175 7265 10250  
 217 DQ 0 1 2 3 75 250 650 1450 2125

\* \*\*\*\*\*

218 KK 6R  
 219 KM Route hydrograph from node 5 to node 6  
 220 RS 2 STOR -1  
 221 SV 0 428 2369 3646 8785 12983  
 222 SQ 0 1315 2630 3290 5260 8220

\*  
 \* 0.08 0.03 0.08 7200 0.0002 103  
 \* 1000 1891.2 1926.7 1980.9 2018.3 2105 2201.4 3000  
 \* 82 82 86 70 70 88 86 83  
 \* \*\*\*\*\*

223 KK SC-3B  
 224 KM Compute hydrograph from sub-water shed SC-3B  
 225 BA 6.71  
 226 LS 3.075 60  
 227 UD 34.4

\* \*\*\*\*\*

228 KK 6C  
 229 KM Combine two hydrographs at node 6  
 230 HC 2

\* \*\*\*\*\*

231 KK 7R  
 232 KM Route hydrograph from node 6 to node 7  
 233 RS 1 STOR -1  
 234 SV 0 86 166 392 1932 3564  
 235 SQ 0 1345 2690 3360 5380 8400

\*  
 \* 0.08 0.03 0.08 25200 0.0004 103  
 \* 1000 1856.6 1869.7 1896.8 1933.8 1960.1 2757.7 2915.9  
 \* 86 86 78 70 70 86 86 88  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

236 KK SC-2  
 237 KM Compute hydrograph for SC-2  
 238 BA 11.48  
 239 LS 5.152 60  
 240 UD 56.8  
 \* \*\*\*\*\*

241 KK 7C  
 242 KM Combine hydrograph at node 7  
 243 HC 2  
 \* \*\*\*\*\*

244 KK 8R  
 245 KM Route hydrograph from node 7 to node 8  
 246 RS 2 STOR -1  
 247 SV 0 314 1129 1807 4601 9248  
 248 SQ 0 1390 2780 3475 5560 8690  
 \*  
 \* 0.08 0.03 0.08 26400 0.0003 103  
 \* 1000 1927.4 1937.8 1947.9 2019.1 2035.6 2105.8 2948.1  
 \* 66 66 60 54 54 62 68 72  
 \* \*\*\*\*\*

249 KK SC-1  
 250 KM Compute hydrograph for SC-1  
 251 BA 7.07  
 252 LS 1.365 60  
 253 UD 38.7  
 \* \*\*\*\*\*

254 KK 8C1  
 255 KM Combine hydrograph at node 8  
 256 HC 2  
 \* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the South Main drain.  
 \* \*\*\*\*\*

257 KK SC-8  
 258 KM Compute hydrograph for subwater shed SC-8  
 259 BA 19.99  
 260 LS 1.861 68.50  
 261 UD 53.5  
 \* \*\*\*\*\*

262 KK 1BR  
 263 KM Route hydrograph to node 1B  
 264 RD  
 265 RC 0.08 0.03 0.08 27200 0.0003 115  
 266 RX 1000 1695.7 1973 2003 2010.5 2029.5 2075.5 3000  
 267 RY 103.1 110 100 90 90 100 108 107  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

268 KK SM-18
269 KM Compute hydrograph for sub-water shed SM-18
270 BA 27.11
271 LS 4.165 66.14
272 UD 55.8
* *****

273 KK 1BC1
274 KM Combine two hydrographs at node 1B
275 HC 2
* *****

276 KK SM-17
277 KM Compute hydrograph for sub-water shed SM-17
278 BA 7.03
279 LS 0.834 70.51
280 UD 36.3
* *****

281 KK 1BC2
282 KM Combine two hydrographs at node 1B
283 HC 2
* *****

284 KK 2BR
285 KM Route hydrograph from node 1B to 2B
286 RD
287 RC 0.08 0.03 0.08 14400 0.0007 103
288 RX 1000 1335.2 1343 1354.8 1398.6 1411.9 1420.9 2375.6
289 RY 91 91 88 82 82 88 92 92
* *****

290 KK SM-16
291 KM Compute hydrograph for SM-16
292 BA 25.18
293 LS 2.689 60
294 UD 61.6
* *****

295 KK 2BC
296 KM Combine hydrograph at node 2B
297 HC 2
* *****

298 KK 3BR
299 KM Route hydrograph from node 2B to node 3B
300 RD
301 RC 0.08 0.03 0.08 10400 0.0008 103
302 RX 1000 1760.1 1781.2 1826.3 1883.8 1920.1 1946.7 2799.8
303 RY 79 84 72 72 84 92 82 82.4
* *****

```



LINE	ID	1	2	3	4	5	6	7	8	9	10	
304	KK	SM-15 SUB-WATER SHED										
305	KM	Compute hydrograph for SM-15										
306	BA	11.1										
307	LS	1.378          60										
308	UD	40.6										
		* *****										
309	KK	3BC										
310	KM	Combine hydrograph at node 3B										
311	HC	2										
		* *****										
312	KK	4BR										
313	KM	Route hydrograph from node 3B to 4B										
314	RD											
315	RC	0.08	0.03	0.08	10400	0.0003	103					
316	RX	1000	1962.3	1989.1	2026.6	2053.7	2129	2176	3000			
317	RY	72.7	76	60	60	74	86	74	75.6			
		* *****										
318	KK	SM-14 SUB-WATER SHED										
319	KM	Compute hydrograph for SM-14										
320	BA	21.6										
321	LS	1.666          60										
322	UD	69.1										
		* *****										
323	KK	4BC										
324	KM	Combine hydrograph at node 4B										
325	HC	2										
		* *****										
326	KK	8BR										
327	KM	Route hydrograph from node 4B to node 9										
328	RD											
329	RC	0.08	0.03	0.08	16000	0.0007	103					
330	RX	1000	1885.8	1978.6	2036.9	2065.1	2149.5	2205	3000			
331	RY	76	76	54	54	68	82	70	72			
		* *****										
332	KK	SM-13										
333	KM	Compute hydrograph for SM-13										
334	BA	22.25										
335	LS	4.220          60										
336	UD	74.5										
		* *****										
337	KK	8C2										
338	KM	Combine hydrograph at node 9										
339	HC	2										
		* *****										

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

340      KK      8C3
341      KM      Combine hydrographs from North-West and South drain
342      HC      2
          * *****

343      KK      9R
344      KM      Route hydrograph to the PANCHITA STRUCTURE
345      RD
346      RC      0.08    0.03    0.08    46.24    0.0004    103
347      RX      1000  1927.4  1937.8  1947.9  2019.1  2035.6  2105.8  2948.1
348      RY      66      66      60      54      54      62      68      72
          * *****

349      KK      29S SUB-WATER SHED
350      KM      Compute hydrograph for 29S
351      BA      12.28
352      LS      3.021    60
353      UD      25.9
          * *****

354      KK      Com9A
355      KM      Combine two hydrographs at Node 9
356      HC      2
          * *****

357      KK      28S SUB-WATER SHED
358      KM      Compute hydrograph for 28S
359      BA      25.91
360      LS      2.866    60
361      UD      38.6
          * *****

362      KK      Com9B
363      KM      Combine two hydrographs at Node 9
364      HC      2
          * *****

365      KK      Rt10
366      KM      Route hydrograph to Node 10
367      RS      1      STOR      -1
368      SV      0      527.17  816.18  2044.31  5147.32  7902.66  9972.51
369      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

370      KK      DIV2
371      KM      TO WATERSHED SOUTH OF NORTH MAIN
372      DT      DIV2
373      DI      0      7000    65000
374      DQ      0      2000    2000
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

375 KK 27S SUB-WATER SHED  
 376 KM Compute hydrograph for 27S  
 377 BA 12.15  
 378 LS 2.977 61.92  
 379 UD 14.7  
 \* \*\*\*\*\*

380 KK Com10A  
 381 KM Combine two hydrographs at Node 10  
 382 HC 2  
 \* \*\*\*\*\*

383 KK 26S SUB-WATER SHED  
 384 KM Compute hydrograph for 26S  
 385 BA 10.55  
 386 LS 2.974 62.54  
 387 UD 13.6  
 \* \*\*\*\*\*

388 KK 24S SUB-WATER SHED  
 389 KM Compute hydrograph for 24S  
 390 BA 3.83  
 391 LS 2.940 62.11  
 392 UD 14.7  
 \* \*\*\*\*\*

393 KK Com10B  
 394 KM Combine three hydrographs at Node 10  
 395 HC 3  
 \* \*\*\*\*\*

396 KK Rt11  
 397 KM Route hydrograph to Node 11  
 398 RS 1 STOR -1  
 399 SV 0 249.3 385.44 1661.56 3718.66 5233.82 6730.05  
 400 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

401 KK 22S SUB-WATER SHED  
 402 KM Compute hydrograph for 22S  
 403 BA 7.55  
 404 LS 3.000 62.90  
 405 UD 20.4  
 \* \*\*\*\*\*

406 KK Com11A  
 407 KM Combine two hydrographs at Node 11  
 408 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

409 KK 20S SUB-WATER SHED  
 410 KM Compute hydrograph for 20S  
 411 BA 10.57  
 412 LS 2.847 60  
 413 UD 24.0  
 \* \*\*\*\*\*

414 KK Com11B  
 415 KM Combine two hydrographs at Node 11  
 416 HC 2  
 \* \*\*\*\*\*

417 KK Rt12  
 418 KM Route hydrograph to Node 12  
 419 RS 1 STOR -1  
 420 SV 0 202.5 312.74 870.9 2706.99 3523.96 4130.87  
 421 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

422 KK 18S SUB-WATER SHED  
 423 KM Compute hydrograph for 18S  
 424 BA 4.69  
 425 LS 2.885 60  
 426 UD 16.5  
 \* \*\*\*\*\*

427 KK Com12  
 428 KM Combine two hydrographs at Node 12  
 429 HC 2  
 \* \*\*\*\*\*

430 KK Rt13  
 431 KM Route hydrograph to Node 13  
 432 RS 1 STOR -1  
 433 SV 0 71.07 113.63 427.96 987.6 1443.8 1838.89  
 434 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

435 KK 16S SUB-WATER SHED  
 436 KM Compute hydrograph for 16S  
 437 BA 9.60  
 438 LS 3.705 60  
 439 UD 23.5  
 \* \*\*\*\*\*

440 KK Com13A  
 441 KM Combine two hydrographs at Node 13  
 442 HC 2  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

443      KK      15S SUB-WATER SHED
444      KM      Compute hydrograph for 15S
445      BA      25.08
446      LS      3.517      60
447      UD      36.4
* *****

448      KK      Com13B
449      KM      Combine two hydrographs at Node 13
450      HC      2
* *****

451      KK      Rt14
452      KM      Route hydrograph to Node 14
453      RS      1      STOR      -1
454      SV      0      325.09      531.58      2194.95      4313.68      5830.17      7281.01
455      SQ      0      1000      2000      4000      6000      8000      10000
* *****

456      KK      13S SUB-WATER SHED
457      KM      Compute hydrograph for 13S
458      BA      19.76
459      LS      3.807      60
460      UD      32.6
* *****

461      KK      Com14A
462      KM      Combine two hydrographs at Node 14
463      HC      2
* *****

464      KK      14S SUB-WATER SHED
465      KM      Compute hydrograph for 14S
466      BA      9.53
467      LS      3.060      60
468      UD      22.9
* *****

469      KK      Com14B
470      KM      Combine two hydrographs at Node 14
471      HC      2
* *****

472      KK      Rt15
473      KM      Route hydrograph to Node 15
474      RS      1      STOR      -1
475      SV      0      208.71      319.05      1791.94      3107.58      4264.72      5131.9
476      SQ      0      1000      2000      4000      6000      8000      10000
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

477      KK      11S SUB-WATER SHED
478      KM      Compute hydrograph for 11S
479      BA      8.20
480      LS      2.970  61.62
481      UD      12.2
          * *****

482      KK      Com15
483      KM      Combine two hydrographs at Node 15
484      HC      2
          * *****

485      KK      Rt16
486      KM      Route hydrograph to Node 16
487      RS      1      STOR      -1
488      SV      0  197.28  298.23  1677.59  3541.79  4950.66  5984.55
489      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

490      KK      7S SUB-WATER SHED
491      KM      Compute hydrograph for 7S
492      BA      29.41
493      LS      3.141      60
494      UD      38.3
          * *****

495      KK      Com16
496      KM      Combine two hydrographs at Node 16
497      HC      2
          * *****

498      KK      Rt17
499      KM      Route hydrograph to Node 17
500      RS      1      STOR      -1
501      SV      0  432.95  639.58  954.67  1433.05  2543.25  3518.78
502      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

503      KK      6S SUB-WATER SHED
504      KM      Compute hydrograph for S6
505      BA      9.21
506      LS      2.183      60
507      UD      12.9
          * *****

508      KK      Com17
509      KM      Combine two hydrographs at Node 17
510      HC      2
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

511 KK Rt18  
 512 KM Route hydrograph to Node 18  
 513 RS 1 STOR -1  
 514 SV 0 388.62 558.69 807.92 1617.19 3723.86 4996.12  
 515 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

516 KK 4S SUB-WATER SHED  
 517 KM Compute hydrograph for 4S  
 518 BA 22.35  
 519 LS 2.408 60  
 520 UD 19.6  
 \* \*\*\*\*\*

521 KK Com18A  
 522 KM Combine two hydrographs at Node 18  
 523 HC 2  
 \* \*\*\*\*\*

524 KK 3S SUB-WATER SHED  
 525 KM Compute hydrograph for 3S  
 526 BA 4.49  
 527 LS 1.153 60  
 528 UD 16.0  
 \* \*\*\*\*\*

529 KK Com18B  
 530 KM Combine two hydrographs at Node 18  
 531 HC 2  
 \* \*\*\*\*\*

532 KK Rt19  
 533 KM Route hydrograph to  
 534 RS 1 STOR -1  
 535 SV 0 130.79 184.8 301.29 542.75 727.63 1178.32  
 536 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

537 KK 2S SUB-WATER SHED  
 538 KM Compute hydrograph for S2  
 539 BA 5.35  
 540 LS 0.992 60  
 541 UD 10.0  
 \* \*\*\*\*\*

542 KK Com19A  
 543 KM Combine two hydrographs at Node 19  
 544 HC 2  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

545      KK      1S SUB-WATER SHED
546      KM      Compute hydrograph for 1S
547      BA      7.47
548      LS      1.659      60
549      UD      20.4
          * *****

550      KK      Com19B
551      KM      Combine two hydrographs at Node 19
552      HC      2
          * *****
          * Start calculating hydrograph for the sub water sheds
          * that drain to the Raymondville drain.
          * *****

553      KK      DIV1
554      KM      Diversion to Raymondville Drain
555      DR      DIV1
          * *****

556      KK      SC-3A
557      KM      Compute hydrograph for subwater shed SC-3A
558      BA      5.87
559      LS      1.917      60
560      UD      59
          * *****

561      KK      20C
562      KM      Combine two hydrographs at Node 20
563      HC      2
          * *****

564      KK      21R
565      KM      Route hydrograph to
566      RS      1      STOR      -1
567      SV      0      60.46  466.11 1122.68 3117.18 7667.64
568      SQ      0      100      300      500      1000      3000
          * *****

569      KK      29aR SUB-WATER SHED
570      KM      Compute hydrograph for 29aR
571      BA      4.84
572      LS      4.007      60
573      UD      21.9
          * *****

574      KK      Com21A
575      KM      Combine two hydrographs at Node 21
576      HC      2
          * *****

```



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

577 KK 29R SUB-WATER SHED  
 578 KM Compute hydrograph for 29R  
 579 BA 18.03  
 580 LS 4.517 60  
 581 UD 31.2  
 \* \*\*\*\*\*

582 KK Com21B  
 583 KM Combine two hydrographs at Node 21  
 584 HC 2  
 \* \*\*\*\*\*

585 KK 22R  
 586 KM Route hydrograph to  
 587 RS 1 STOR -1  
 588 SV 0 39.74 86.83 124.65 263.48 1229.11  
 589 SQ 0 100 300 500 1000 3000  
 \* \*\*\*\*\*

590 KK 28aR SUB-WATER SHED  
 591 KM Compute hydrograph for 28aR  
 592 BA 2.35  
 593 LS 5.536 60  
 594 UD 12.0  
 \* \*\*\*\*\*

595 KK Com22  
 596 KM Combine two hydrographs at Node 22  
 597 HC 2  
 \* \*\*\*\*\*

598 KK Rt23  
 599 KM Route hydrograph to Node 23  
 600 KO 1 1  
 601 RS 1 STOR -1  
 602 SV 0 1053.64 2827.12 4913.6 7190.13 9699.83 13784.2 18273.0  
 603 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

604 KK 24R SUB-WATER SHED  
 605 KM Compute hydrograph for 24R  
 606 BA 22.22  
 607 LS 4.088 60  
 608 UD 34.4  
 \* \*\*\*\*\*

609 KK Com23A  
 610 KM Combine two hydrographs at Node 23  
 611 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

612 KK 28R SUB-WATER SHED  
 613 KM Compute hydrograph for 28R  
 614 BA 4.68  
 615 LS 7.319 60  
 616 UD 15.7  
 \* \*\*\*\*\*  
 \* Rt24  
 \* Route hydrograph to Node 24  
 \* 25000 0.0004 0.1 TRAP 40 2  
 \* \*\*\*\*\*

617 KK 25R SUB-WATER SHED  
 618 KM Compute hydrograph for 25R  
 619 BA 8.99  
 620 LS 4.347 60  
 621 UD 22.3  
 \* \*\*\*\*\*

622 KK 27R SUB-WATER SHED  
 623 KM Compute hydrograph for 27R  
 624 BA 23.93  
 625 LS 3.830 60  
 626 UD 34.1  
 \* \*\*\*\*\*

627 KK Com24  
 628 KM Combine three hydrographs  
 629 HC 3  
 \* \*\*\*\*\*

630 KK Rt25  
 631 KM Route hydrograph to Node 25  
 632 RD 37000 0.0004 0.1 TRAP 40 2  
 \* \*\*\*\*\*

633 KK 22R SUB-WATER SHED  
 634 KM Compute hydrograph for 22R  
 635 BA 18.04  
 636 LS 2.632 61.9  
 637 UD 31.1  
 \* \*\*\*\*\*

638 KK Com25  
 639 KM Combine two hydrographs at Node 25  
 640 HC 2  
 \* \*\*\*\*\*

641 KK 19R SUB-WATER SHED  
 642 KM Compute hydrograph for 19R  
 643 BA 11.18  
 644 LS 4.714 60  
 645 UD 24.8  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

646 KK Com23B
647 KM Combine three hydrographs at Node 23
648 HC 3

649 KK Rt26A
650 KM Route hydrograph to La Sal Viejo diversion
651 KO 1 1
652 RS 1 STOR -1
653 SV 0 31.13 45.65 55.71 440.39 728.35 1179.82 1531.01
654 SQ 0 1000 2000 3000 4000 5000 7500 10000

655 KK DIV3
656 KM Diversion to La Sal Viejo
657 DT DIV3
658 DI 0 4 89 340 1183 2186 3485 5890
659 DQ 0 0 15 188 679 1150 1700 2800

660 KK Rt26B
661 KM Route hydrograph to Node 26
662 KO 1 1
663 RS 1 STOR -1
664 SV 0 196.89 297.78 546.45 982.63 1367.28 2212.32 2871.48
665 SQ 0 1000 2000 3000 4000 5000 7500 10000

666 KK 20R SUB-WATER SHED
667 KM Compute hydrograph for 20R
668 BA 18.78
669 LS 2.990 62.13
670 UD 20.6

671 KK Com26
672 KM Combine two hydrographs
673 HC 2
\* DIV4
\* Diversion to southern tributary of main Raymondville channel
\* DIV4
\* 0 8000 10000
\* 0 50 50

674 KK Rt27A
675 KM Route hydrograph to Node 27
676 KO 1 1
677 RS 1 STOR -1
678 SV 0 1348.58 4980.12 8035.27 10783.8 14313.8 21699.7 25397.7
679 SQ 0 1000 2000 3000 4000 5000 7500 10000

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

680 KK 13R SUB-WATER SHED  
 681 KM Compute hydrograph for 13R  
 682 BA 11.50  
 683 LS 3.032 60  
 684 UD 16.3

\* \*\*\*\*\*

685 KK Com27A  
 686 KM Combine two hydrographs at Node 27  
 687 HC 2

\* \*\*\*\*\*  
 \* DIV4  
 \* Diversion from main Raymondville channel  
 \* DIV4  
 \* \*\*\*\*\*

688 KK 14R SUB-WATER SHED  
 689 KM Compute hydrograph for 14R  
 690 BA 9.24  
 691 LS 3.521 64.37  
 692 UD 22.6

\* \*\*\*\*\*

\* Com  
 \* Combine two hydrographs  
 \* 2  
 \* \*\*\*\*\*

693 KK Rt27B  
 694 KM Route hydrograph to Node 27  
 695 KO 1 1  
 696 RS 1 STOR -1  
 697 SV 0 118.49 170.85 226.03 273.73 485.95 500.0  
 698 SQ 0 48.6 83.88 129.49 173.38 228.78 20000.0

\* \*\*\*\*\*

699 KK Com27B  
 700 KM Combine two hydrographs at Node 27  
 701 HC 2

\* \*\*\*\*\*

702 KK Rt28  
 703 KM Route hydrograph to Node 28  
 704 KO 1 1  
 705 RS 1 STOR -1  
 706 SV 0 312.83 999.33 1918.42 2687.59 3301.82 4973.7 6268.16  
 707 SQ 0 1000 2000 3000 4000 5000 7500 10000

\* \*\*\*\*\*

708 KK 11R SUB-WATER SHED  
 709 KM Compute hydrograph for 11R  
 710 BA 10.09  
 711 LS 3.768 61.13  
 712 UD 11.0

\* \*\*\*\*\*

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

713      KK  Com28A
714      KM  Combine two hydrographs at Node 28
715      HC   2
          * *****

716      KK   8R  SUB-WATER SHED
717      KM  Compute hydrograph for 8R
718      BA  11.62
719      LS  5.671  61.49
720      UD   11.8
          * *****

721      KK  Com28B
722      KM  Combine two hydrographs at Node 28
723      HC   2
          * *****

724      KK   Rt29
725      KM  Route hydrograph to Node 29
726      KO   1      1
727      RS   1  STOR   -1
728      SV   0  449.95 1513.48 2080.16 2620.81 3076.31 4216.6 5147.07
729      SQ   0  1000  2000   3000   4000   5000   7500  10000
          * *****

730      KK  10R  SUB-WATER SHED
731      KM  Compute hydrograph for 10R
732      BA  21.47
733      LS  2.724   60
734      UD   19.2
          * *****

735      KK  Com29
736      KM  Combine two hydrographs at Node 29
737      HC   2
          * *****

738      KK   Rt30
739      KM  Route hydrograph to Node 30
740      KO   1      1
741      RS   1  STOR   -1
742      SV   0  208.42 1163.8 1980.35 2627.06 3136.14 4076.55 4891.57
743      SQ   0  1000  2000   3000   4000   5000   7500  10000
          * *****

744      KK   6R  SUB-WATER SHED
745      KM  Compute hydrograph for 6R
746      BA  16.37
747      LS  3.175   60
748      UD   28.0
          * *****

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

749      KK  Com30A
750      KM  Combine two hydrographs at Node 30
751      HC   2
          * *****

752      KK   4R  SUB-WATER SHED
753      KM  Compute hydrograph for 4R
754      BA   4.73
755      LS   2.992      60
756      UD   15.9
          * *****

757      KK  Com30B
758      KM  Combine two hydrographs at Node 30
759      HC   2
          * *****

760      KK   Rt31
761      KM  Route hydrograph to Node 31
762      KO   1          1
763      RS   1      STOR      -1
764      SV   0  555.09  2027.13  2913.81  3589.64  4070.74  5120.11  6031.24
765      SQ   0  1000      2000      3000      4000      5000      7500      10000
          * *****

766      KK   2R  SUB-WATER SHED
767      KM  Compute hydrograph for 2R
768      BA   5.58
769      LS   1.806      60
770      UD   11.4
          * *****

771      KK  Com31A
772      KM  Combine two hydrographs at Node 31
773      HC   2
          * *****

774      KK   3R  SUB-WATER SHED
775      KM  Compute hydrograph for 3R
776      BA   4.47
777      LS   2.472      60
778      UD   13.8
          * *****

779      KK  Com31B
780      KM  Combine two hydrographs at Node 31
781      HC   2
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

782 KK Rt32  
 783 KM Route hydrograph to Node 32  
 784 KO 1 1  
 785 RS 1 STOR -1  
 786 SV 0 1067.34 3337.22 4909 6271.22 7335.81 9532.02 11388.7  
 787 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

788 KK 1R SUB-WATER SHED  
 789 KM Compute hydrograph for 1R  
 790 BA 16.89  
 791 LS 1.395 60  
 792 UD 19.6  
 \* \*\*\*\*\*

793 KK Com32  
 794 KM Combine two hydrographs at Node 32  
 795 HC 2  
 \* \*\*\*\*\*

796 KK DIV3  
 797 KM Diversion from Raymondville main channel to La Sal Viejo  
 798 DR DIV3  
 \* \*\*\*\*\*

799 KK 17R SUB-WATER SHED  
 800 KM Compute hydrograph for 17R  
 801 BA 6.47  
 802 LS 2.955 60  
 803 UD 19.1  
 \* \*\*\*\*\*

804 KK Com33A  
 805 KM Combine two hydrographs at La Sal Viejo  
 806 HC 2  
 \* \*\*\*\*\*

807 KK 23R SUB-WATER SHED  
 808 KM Compute hydrograph for 23R  
 809 BA 94.54  
 810 LS 2.901 60  
 811 UD 68.9  
 \* \*\*\*\*\*

812 KK Com33B  
 813 KM Combine two hydrographs at La Sal Viejo  
 814 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

815	KK	LSV							
816	KM	Route hydrograph through La Sal Viejo							
817	KO	1	1						
818	RS	1	STOR	-1					
819	SV	0	1690	4532	9730	17040	18480	19000	
820	SQ	0	163	465	825	1230	1490	1550	
		*							
821	ZZ								



## SCHEMATIC DIAGRAM OF STREAM NETWORK

LINE NO.	(V) ROUTING (.) CONNECTOR	(--->) DIVERSION OR PUMP FLOW (<---) RETURN OF DIVERTED OR PUMPED FLOW
5	SC-7A	
	V	
	V	
11	1R	
	.	
17	.	SC-7B
	.	.
22	1C.....	
	V	
	V	
25	2R	
	.	
31	.	SC-7C
	.	.
36	.	SC-6A
	.	.
41	2C.....	
	V	
	V	
44	3R	
	.	
50	.	SC-6B
	.	.
55	.	SC-7D
	.	V
	.	V
	.	3R
	.	.
66	3C.....	
	V	
	V	
69	4R	
	.	
74	.	SC5A
	.	V
	.	V
79	.	5ACANA
	.	V
	.	V
88	.	5AROUT
	.	.
94	.	SC5A1
	.	.
99	.	5AA1.....
	.	V
	.	V
102	.	5A1CAN
	.	V
	.	V
109	.	5A1RT
	.	.
115	.	SC5B
	.	.
120	.	4C1.....
	.	.
123	.	SC-4A
	.	V
	.	V
	.	4ACANA
	.	V

137	.	.	V	
	.	.	4AROUT	
	.	.	.	
143	.	.	.	SC-4A1
	.	.	.	
148	.	.	SC4AA1	.....
	.	.	V	
	.	.	V	
151	.	.	4A1CAN	
	.	.	V	
	.	.	V	
160	.	.	4A1ROU	
	.	.	.	
166	.	.	.	SC-4B
	.	.	.	
171	.	.	SC4AAB	.....
	.	.	V	
	.	.	V	
174	.	.	4BCANA	
	.	.	V	
	.	.	V	
183	.	.	4AABRT	
	.	.	.	
189	.	.	.	SC-4B1
	.	.	.	
194	.	.	SC-4	.....
	.	.	.	
197	4C2	.....	.	
	.	.	V	
	.	.	V	
200	5R		.	
	.	.	.	
205	.	SC-3	.	
	.	.	.	
210	5C	.....	.	
	.	.	.	
215	----->	DIV1	.	
213	DIV1		V	
	.	.	V	
218	6R		.	
	.	.	.	
223	.	SC-3B	.	
	.	.	.	
228	6C	.....	.	
	.	.	V	
	.	.	V	
231	7R		.	
	.	.	.	
236	.	SC-2	.	
	.	.	.	
241	7C	.....	.	
	.	.	V	
	.	.	V	
244	8R		.	
	.	.	.	
249	.	SC-1	.	
	.	.	.	
254	8C1	.....	.	
	.	.	.	
257	.	SC-8	.	
	.	.	V	
	.	.	V	
262	.	1BR	.	



383	.	26S	
	.	.	
388	.	.	24S
	.	.	
393	Com10B.....		
	V		
	V		
396	Rt11		
	.		
401	.	22S	
	.	.	
406	Com11A.....		
	.		
409	.	20S	
	.	.	
414	Com11B.....		
	V		
	V		
417	Rt12		
	.		
422	.	18S	
	.	.	
427	Com12.....		
	V		
	V		
430	Rt13		
	.		
435	.	16S	
	.	.	
440	Com13A.....		
	.		
443	.	15S	
	.	.	
448	Com13B.....		
	V		
	V		
451	Rt14		
	.		
456	.	13S	
	.	.	
461	Com14A.....		
	.		
464	.	14S	
	.	.	
469	Com14B.....		
	V		
	V		
472	Rt15		
	.		
477	.	11S	
	.	.	
482	Com15.....		
	V		
	V		
485	Rt16		
	.		
490	.	7S	
	.	.	
495	Com16.....		
	V		
	V		

	Rt17	
503	.	6S
508	Com17.....	
	V	
	V	
511	Rt18	
	.	
516	.	4S
	.	
521	Com18A.....	
	.	
524	.	3S
	.	
529	Com18B.....	
	V	
	V	
532	Rt19	
	.	
537	.	2S
	.	
542	Com19A.....	
	.	
545	.	1S
	.	
550	Com19B.....	
	.	
	.	
	←----- DIV1	
	DIV1	
	.	
556	.	SC-3A
	.	
561	20C.....	
	V	
	V	
564	21R	
	.	
569	.	29aR
	.	
574	Com21A.....	
	.	
577	.	29R
	.	
582	Com21B.....	
	V	
	V	
585	22R	
	.	
590	.	28aR
	.	
595	Com22.....	
	V	
	V	
598	Rt23	
	.	
604	.	24R
	.	
	Com23A.....	

```

612 . . . . . 28R
617 . . . . . 25R
622 . . . . . 27R
627 . . . . . Com24.....
        V
        V
630 . . . . . Rt25
633 . . . . . 22R
638 . . . . . Com25.....
641 . . . . . 19R
646 . . . . . Com23B.....
        V
        V
649 . . . . . Rt26A
657 . . . . . ----->  DIV3
655 . . . . . DIV3
        V
        V
660 . . . . . Rt26B
666 . . . . . 20R
671 . . . . . Com26.....
        V
        V
674 . . . . . Rt27A
680 . . . . . 13R
685 . . . . . Com27A.....
688 . . . . . 14R
        V
        V
693 . . . . . Rt27B
699 . . . . . Com27B.....
        V
        V
702 . . . . . Rt28
708 . . . . . 11R
713 . . . . . Com28A.....
716 . . . . . 8R
721 . . . . . Com28B.....
        V
        V
724 . . . . . Rt29
730 . . . . . 10R

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.
.
.
. Com29 .....
. V
. V
738 . Rt30
.
.
. 6R
.
.
749 . Com30A .....
.
.
752 . 4R
.
.
757 . Com30B .....
. V
. V
760 . Rt31
.
.
766 . 2R
.
.
771 . Com31A .....
.
.
774 . 3R
.
.
779 . Com31B .....
. V
. V
782 . Rt32
.
.
788 . 1R
.
.
793 . Com32 .....
.
.
.          <----- DIV3
798 .          DIV3
796 .
.
.          17R
799 .
.
804 . Com33A .....
.
.          23R
807 .
.
812 . Com33B .....
. V
. V
815 . LSV

```

(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION

RUNOFF SUMMARY  
 FLOW IN CUBIC FEET PER SECOND  
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
+	HYDROGRAPH AT								
+		SC-7A	13.	72.00	13.	12.	10.	18.40	
+	ROUTED TO								
+		1R	12.	81.00	12.	12.	10.	18.40	
+	HYDROGRAPH AT								
+		SC-7B	44.	37.00	44.	36.	17.	9.82	
+	2 COMBINED AT								
+		1C	45.	38.00	44.	38.	24.	28.22	
+	ROUTED TO								
+		2R	42.	46.00	42.	36.	23.	28.22	
+	HYDROGRAPH AT								
+		SC-7C	97.	44.00	97.	87.	49.	23.00	
+	HYDROGRAPH AT								
+		SC-6A	159.	67.00	159.	154.	119.	41.66	
+	3 COMBINED AT								
+		2C	256.	53.00	255.	243.	186.	92.88	
+	ROUTED TO								
+		3R	255.	55.00	254.	243.	185.	92.88	
+	HYDROGRAPH AT								
+		SC-6B	271.	37.00	268.	231.	116.	6.58	
+	HYDROGRAPH AT								
+		SC-7D	40.	42.00	40.	35.	19.	6.15	
+	ROUTED TO								
+		3R	39.	45.00	38.	34.	19.	6.15	
+	3 COMBINED AT								
+		3C	482.	44.00	478.	437.	305.	105.61	
+	ROUTED TO								
+		4R	477.	46.00	473.	434.	305.	105.61	
+	HYDROGRAPH AT								
+		SC5A	491.	66.00	491.	476.	369.	38.43	
+	ROUTED TO								
+		5ACANA	418.	82.00	415.	374.	233.	38.43	140.85 82.00
+	ROUTED TO								
+		5AROUT	417.	86.00	414.	373.	230.	38.43	
+	HYDROGRAPH AT								
+		SC5A1	329.	29.00	320.	238.	98.	5.64	
+	2 COMBINED AT								
+		5AA1	418.	86.00	415.	373.	231.	44.07	
+	ROUTED TO								
+		5A1CAN	340.	98.00	334.	279.	171.	44.07	116.96 98.00
+	ROUTED TO								
+		5A1RT	338.	106.00	330.	273.	169.	44.07	
+	HYDROGRAPH AT								
+		SC5B	459.	27.00	445.	314.	123.	9.02	
+	2 COMBINED AT								
+		4C1	459.	27.00	445.	314.	169.	53.09	



+	HYDROGRAPH AT	SC-4A	557.	52.00	556.	524.	350.	30.73		
+	ROUTED TO	4ACANA	42.	121.00	42.	39.	27.	30.73		
+									171.84	121.00
+	ROUTED TO	4AROUT	42.	126.00	42.	39.	27.	30.73		
+	HYDROGRAPH AT	SC-4A1	502.	25.00	483.	311.	115.	7.34		
+	2 COMBINED AT	SC4AA1	502.	25.00	483.	311.	115.	38.07		
+	ROUTED TO	4A1CAN	205.	35.00	179.	89.	32.	38.07		
+									141.07	35.00
+	ROUTED TO	4A1ROU	201.	38.00	175.	89.	32.	38.07		
+	HYDROGRAPH AT	SC-4B	368.	21.00	340.	173.	59.	5.44		
+	2 COMBINED AT	SC4AAB	368.	21.00	340.	194.	91.	43.51		
+	ROUTED TO	4BCANA	196.	40.00	174.	94.	35.	43.51		
+									113.75	40.00
+	ROUTED TO	4AABRT	192.	44.00	169.	93.	35.	43.51		
+	HYDROGRAPH AT	SC-4B1	338.	26.00	326.	223.	86.	6.07		
+	2 COMBINED AT	SC-4	338.	26.00	326.	230.	120.	49.58		
+	3 COMBINED AT	4C2	962.	29.00	947.	826.	531.	208.28		
+	ROUTED TO	5R	935.	31.00	919.	815.	529.	208.28		
+	HYDROGRAPH AT	SC-3	663.	77.00	662.	650.	547.	56.44		
+	2 COMBINED AT	5C	1120.	48.00	1113.	1064.	967.	264.72		
+	DIVERSION TO	DIV1	75.	48.00	74.	68.	57.	264.72		
+	HYDROGRAPH AT	DIV1	1045.	48.00	1039.	996.	910.	264.72		
+	ROUTED TO	6R	1029.	53.00	1025.	993.	905.	264.72		
+	HYDROGRAPH AT	SC-3B	110.	50.00	110.	103.	66.	6.71		
+	2 COMBINED AT	6C	1136.	52.00	1132.	1089.	970.	271.43		
+	ROUTED TO	7R	1136.	53.00	1131.	1089.	970.	271.43		
+	HYDROGRAPH AT	SC-2	23.	74.00	23.	22.	18.	11.48		
+	2 COMBINED AT	7C	1152.	54.00	1148.	1107.	986.	282.91		
+	ROUTED TO	8R	1146.	57.00	1142.	1106.	984.	282.91		

+	HYDROGRAPH AT	SC-1	197.	53.00	196.	186.	127.	7.07
+	2 COMBINED AT	8C1	1341.	56.00	1335.	1288.	1108.	289.98
+	HYDROGRAPH AT	SC-8	410.	67.00	410.	399.	316.	19.99
+	ROUTED TO	1BR	410.	71.00	409.	398.	315.	19.99
+	HYDROGRAPH AT	SM-18	160.	72.00	160.	156.	125.	27.11
+	2 COMBINED AT	1BC1	569.	71.00	569.	553.	440.	47.10
+	HYDROGRAPH AT	SM-17	303.	50.00	302.	285.	187.	7.03
+	2 COMBINED AT	1BC2	799.	62.00	797.	768.	608.	54.13
+	ROUTED TO	2BR	799.	63.00	797.	768.	608.	54.13
+	HYDROGRAPH AT	SM-16	263.	76.00	262.	257.	215.	25.18
+	2 COMBINED AT	2BC	1044.	65.00	1041.	1008.	818.	79.31
+	ROUTED TO	3BR	1043.	66.00	1041.	1008.	817.	79.31
+	HYDROGRAPH AT	SM-15	291.	54.00	290.	277.	193.	11.10
+	2 COMBINED AT	3BC	1306.	63.00	1303.	1259.	1000.	90.41
+	ROUTED TO	4BR	1304.	64.00	1301.	1258.	1000.	90.41
+	HYDROGRAPH AT	SM-14	300.	82.00	300.	295.	255.	21.60
+	2 COMBINED AT	4BC	1565.	66.00	1561.	1515.	1240.	112.01
+	ROUTED TO	8BR	1564.	67.00	1561.	1515.	1240.	112.01
+	HYDROGRAPH AT	SM-13	80.	90.00	80.	79.	70.	22.25
+	2 COMBINED AT	8C2	1630.	68.00	1627.	1580.	1304.	134.26
+	2 COMBINED AT	8C3	2891.	63.00	2886.	2816.	2382.	424.24
+	ROUTED TO	9R	2888.	66.00	2883.	2813.	2380.	424.24
+	HYDROGRAPH AT	29S	266.	41.00	263.	235.	128.	12.28
+	2 COMBINED AT	Com9A	2975.	64.00	2970.	2900.	2465.	436.52
+	HYDROGRAPH AT	28S	394.	54.00	393.	372.	253.	25.91
+	2 COMBINED AT	Com9B	3329.	62.00	3322.	3230.	2701.	462.43
+	ROUTED TO	Rt10	3217.	70.00	3211.	3136.	2676.	462.43

+	DIVERSION TO							
		DIV2	919.	70.00	918.	896.	765.	462.43
+	HYDROGRAPH AT							
		DIV2	2298.	70.00	2294.	2240.	1911.	462.43
+	HYDROGRAPH AT							
		27S	472.	29.00	460.	343.	141.	12.15
+	2 COMBINED AT							
		Com10A	2307.	70.00	2303.	2251.	1937.	474.58
+	HYDROGRAPH AT							
		26S	448.	28.00	436.	314.	125.	10.55
+	HYDROGRAPH AT							
		24S	157.	29.00	153.	114.	47.	3.83
+	3 COMBINED AT							
		Com10B	2316.	69.00	2313.	2263.	1970.	488.96
+	ROUTED TO							
		Rt11	2267.	76.00	2264.	2226.	1967.	488.96
+	HYDROGRAPH AT							
		22S	227.	35.00	224.	187.	89.	7.55
+	2 COMBINED AT							
		Com11A	2281.	76.00	2279.	2242.	2010.	496.51
+	HYDROGRAPH AT							
		20S	268.	39.00	265.	232.	121.	10.57
+	2 COMBINED AT							
		Com11B	2317.	74.00	2315.	2284.	2099.	507.08
+	ROUTED TO							
		Rt12	2310.	77.00	2308.	2279.	2098.	507.08
+	HYDROGRAPH AT							
		18S	168.	31.00	165.	128.	55.	4.69
+	2 COMBINED AT							
		Com12	2313.	77.00	2311.	2284.	2128.	511.77
+	ROUTED TO							
		Rt13	2311.	79.00	2309.	2283.	2128.	511.77
+	HYDROGRAPH AT							
		16S	159.	39.00	158.	138.	71.	9.60
+	2 COMBINED AT							
		Com13A	2327.	78.00	2325.	2303.	2187.	521.37
+	HYDROGRAPH AT							
		15S	289.	52.00	287.	270.	178.	25.08
+	2 COMBINED AT							
		Com13B	2555.	54.00	2553.	2528.	2362.	546.45
+	ROUTED TO							
		Rt14	2491.	71.00	2490.	2482.	2342.	546.45
+	HYDROGRAPH AT							
		13S	216.	48.00	215.	199.	124.	19.76
+	2 COMBINED AT							
		Com14A	2639.	61.00	2636.	2611.	2455.	566.21
+	HYDROGRAPH AT							
		14S	230.	38.00	227.	196.	100.	9.53
+	2 COMBINED AT							
		Com14B	2715.	57.00	2713.	2685.	2529.	575.74
+	ROUTED TO							
		Rt15	2661.	67.00	2660.	2641.	2501.	575.74
+	HYDROGRAPH AT							
		11S	376.	26.00	364.	250.	96.	8.20

+	2 COMBINED AT	Com15	2665.	66.00	2664.	2645.	2518.	583.94
	ROUTED TO	Rt16	2633.	76.00	2632.	2618.	2496.	583.94
+	HYDROGRAPH AT	7S	390.	54.00	389.	368.	249.	29.41
+	2 COMBINED AT	Com16	2917.	67.00	2914.	2884.	2719.	613.35
+	ROUTED TO	Rt17	2914.	68.00	2912.	2882.	2716.	613.35
+	HYDROGRAPH AT	6S	537.	27.00	521.	365.	142.	9.21
+	2 COMBINED AT	Com17	2920.	68.00	2918.	2889.	2737.	622.56
+	ROUTED TO	Rt18	2919.	69.00	2917.	2888.	2735.	622.56
+	HYDROGRAPH AT	4S	796.	34.00	783.	647.	303.	22.35
+	2 COMBINED AT	Com18A	3104.	43.00	3085.	3034.	2878.	644.91
+	HYDROGRAPH AT	3S	310.	30.00	302.	231.	98.	4.49
+	2 COMBINED AT	Com18B	3243.	42.00	3215.	3109.	2916.	649.40
+	ROUTED TO	Rt19	3236.	43.00	3212.	3107.	2915.	649.40
+	HYDROGRAPH AT	2S	577.	23.00	552.	338.	122.	5.35
+	2 COMBINED AT	Com19A	3292.	42.00	3263.	3134.	2930.	654.75
+	HYDROGRAPH AT	1S	350.	35.00	345.	289.	137.	7.47
+	2 COMBINED AT	Com19B	3575.	41.00	3539.	3320.	3019.	662.22
+	HYDROGRAPH AT	DIV1	75.	48.00	74.	68.	57.	0.00
+	HYDROGRAPH AT	SC-3A	91.	72.00	91.	89.	73.	5.87
+	2 COMBINED AT	20C	151.	66.00	150.	148.	124.	5.87
+	ROUTED TO	21R	134.	83.00	134.	132.	120.	5.87
+	HYDROGRAPH AT	29aR	73.	37.00	72.	61.	31.	4.84
+	2 COMBINED AT	Com21A	152.	47.00	150.	144.	137.	10.71
+	HYDROGRAPH AT	29R	121.	47.00	120.	111.	67.	18.03
+	2 COMBINED AT	Com21B	272.	47.00	270.	255.	202.	28.74
+	ROUTED TO	22R	268.	49.00	266.	253.	200.	28.74
+	HYDROGRAPH AT	28aR	12.	30.00	12.	8.	3.	2.35

+	2 COMBINED AT	Com22	270.	49.00	268.	254.	202.	31.09
+	ROUTED TO	Rt23	229.	63.00	229.	222.	190.	31.09
+	HYDROGRAPH AT	24R	188.	50.00	187.	175.	112.	22.22
+	2 COMBINED AT	Com23A	398.	56.00	396.	379.	291.	53.31
+	HYDROGRAPH AT	28R	0.	1.00	0.	0.	0.	4.68
+	HYDROGRAPH AT	25R	101.	38.00	100.	86.	43.	8.99
+	HYDROGRAPH AT	27R	243.	50.00	241.	225.	144.	23.93
+	3 COMBINED AT	Com24	322.	45.00	320.	295.	186.	37.60
+	ROUTED TO	Rt25	314.	53.00	312.	289.	183.	37.60
+	HYDROGRAPH AT	22R	403.	46.00	401.	369.	223.	18.04
+	2 COMBINED AT	Com25	699.	49.00	695.	638.	397.	55.64
+	HYDROGRAPH AT	19R	81.	41.00	80.	71.	38.	11.18
+	3 COMBINED AT	Com23B	1146.	50.00	1140.	1062.	717.	120.13
+	ROUTED TO	Rt26A	1146.	50.00	1140.	1062.	717.	120.13
+	DIVERSION TO	DIV3	658.	50.00	654.	608.	407.	120.13
+	HYDROGRAPH AT	DIV3	489.	50.00	486.	453.	310.	120.13
+	ROUTED TO	Rt26B	484.	53.00	481.	450.	309.	120.13
+	HYDROGRAPH AT	20R	529.	35.00	521.	438.	211.	18.78
+	2 COMBINED AT	Com26	821.	42.00	815.	752.	506.	138.91
+	ROUTED TO	Rt27A	626.	57.00	624.	602.	464.	138.91
+	HYDROGRAPH AT	13R	378.	31.00	371.	288.	124.	11.50
+	2 COMBINED AT	Com27A	694.	48.00	693.	684.	559.	150.41
+	HYDROGRAPH AT	14R	201.	37.00	198.	171.	87.	9.24
+	ROUTED TO	Rt27B	128.	50.00	127.	115.	74.	9.24
+	2 COMBINED AT	Com27B	821.	49.00	819.	795.	632.	159.65
+	ROUTED TO	Rt28	813.	53.00	811.	788.	627.	159.65
+	HYDROGRAPH AT	11R	318.	26.00	307.	203.	76.	10.09

+	2 COMBINED AT	Com28A	827.	51.00	825.	811.	679.	169.74
	HYDROGRAPH AT							
+		8R	43.	30.00	41.	28.	11.	11.62
	2 COMBINED AT	Com28B	831.	50.00	830.	821.	689.	181.36
	ROUTED TO							
+		Rt29	823.	55.00	822.	808.	677.	181.36
	HYDROGRAPH AT							
+		10R	682.	34.00	671.	551.	256.	21.47
	2 COMBINED AT	Com29	1371.	37.00	1362.	1237.	911.	202.83
	ROUTED TO							
+		Rt30	1221.	45.00	1217.	1172.	907.	202.83
	HYDROGRAPH AT							
+		6R	301.	43.00	298.	270.	154.	16.37
	2 COMBINED AT	Com30A	1521.	44.00	1514.	1440.	1059.	219.20
	HYDROGRAPH AT							
+		4R	167.	30.00	163.	125.	53.	4.73
	2 COMBINED AT	Com30B	1594.	42.00	1588.	1517.	1106.	223.93
	ROUTED TO							
+		Rt31	1360.	56.00	1357.	1327.	1080.	223.93
	HYDROGRAPH AT							
+		2R	420.	25.00	403.	265.	99.	5.58
	2 COMBINED AT	Com31A	1371.	55.00	1369.	1343.	1136.	229.51
	HYDROGRAPH AT							
+		3R	223.	28.00	217.	157.	63.	4.47
	2 COMBINED AT	Com31B	1389.	53.00	1388.	1369.	1189.	233.98
	ROUTED TO							
+		Rt32	1227.	71.00	1226.	1212.	1095.	233.98
	HYDROGRAPH AT							
+		1R	873.	34.00	858.	710.	331.	16.89
	2 COMBINED AT	Com32	1714.	39.00	1704.	1566.	1345.	250.87
	HYDROGRAPH AT							
+		DIV3	658.	50.00	654.	608.	407.	0.00
	HYDROGRAPH AT							
+		17R	195.	34.00	192.	158.	73.	6.47
	2 COMBINED AT	Com33A	743.	47.00	739.	692.	470.	6.47
	HYDROGRAPH AT							
+		23R	706.	84.00	705.	695.	601.	94.54
	2 COMBINED AT	Com33B	1145.	61.00	1143.	1120.	980.	101.01
	ROUTED TO							
+		LSV	480.	124.00	480.	478.	462.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME (IN)	
						DT (MIN)	PEAK (CFS)		
1R	MANE	60.00	12.46	4860.00	0.08	60.00	12.46	4860.00	0.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7543E+02 EXCESS=0.0000E+00 OUTFLOW=0.7512E+02 BASIN STORAGE=0.7456E-02 PERCENT ERROR=									0.4
2R	MANE	60.00	42.29	2760.00	0.12	60.00	42.29	2760.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1795E+03 EXCESS=0.0000E+00 OUTFLOW=0.1788E+03 BASIN STORAGE=0.2367E-01 PERCENT ERROR=									0.3
3R	MANE	60.00	255.31	3300.00	0.28	60.00	255.31	3300.00	0.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+04 EXCESS=0.0000E+00 OUTFLOW=0.1385E+04 BASIN STORAGE=0.1986E-01 PERCENT ERROR=									0.0
3R	MANE	60.00	38.55	2700.00	0.36	60.00	38.55	2700.00	0.36
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+03 EXCESS=0.0000E+00 OUTFLOW=0.1173E+03 BASIN STORAGE=0.5410E-02 PERCENT ERROR=									0.5
5AROUT	MANE	39.00	417.48	5148.00	0.78	60.00	417.39	5160.00	0.78
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1606E+04 EXCESS=0.0000E+00 OUTFLOW=0.1606E+04 BASIN STORAGE=0.3599E+00 PERCENT ERROR=									0.0
5AIRT	MANE	24.00	338.08	6384.00	0.51	60.00	337.86	6360.00	0.51
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1207E+04 EXCESS=0.0000E+00 OUTFLOW=0.1196E+04 BASIN STORAGE=0.1447E+01 PERCENT ERROR=									0.8
4AROUT	MANE	60.00	42.18	7560.00	0.12	60.00	42.18	7560.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1900E+03 EXCESS=0.0000E+00 OUTFLOW=0.1897E+03 BASIN STORAGE=0.1295E+00 PERCENT ERROR=									0.1
4A1ROU	MANE	12.00	202.04	2292.00	0.19	60.00	201.49	2280.00	0.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3809E+03 EXCESS=0.0000E+00 OUTFLOW=0.3792E+03 BASIN STORAGE=0.1776E+00 PERCENT ERROR=									0.4
4AABRT	MANE	24.00	192.22	2640.00	0.17	60.00	192.22	2640.00	0.17
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4037E+03 EXCESS=0.0000E+00 OUTFLOW=0.4036E+03 BASIN STORAGE=0.7820E+00 PERCENT ERROR=									-0.2
1BR	MANE	60.00	409.64	4260.00	2.30	60.00	409.64	4260.00	2.30
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2456E+04 EXCESS=0.0000E+00 OUTFLOW=0.2456E+04 BASIN STORAGE=0.7541E-02 PERCENT ERROR=									0.0
2BR	MANE	60.00	798.74	3780.00	1.63	60.00	798.74	3780.00	1.63
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4694E+04 EXCESS=0.0000E+00 OUTFLOW=0.4695E+04 BASIN STORAGE=0.7389E-02 PERCENT ERROR=									0.0
3BR	MANE	49.62	1043.19	3919.96	1.54	60.00	1043.17	3960.00	1.54
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6502E+04 EXCESS=0.0000E+00 OUTFLOW=0.6502E+04 BASIN STORAGE=0.1632E+00 PERCENT ERROR=									0.0

4BR MANE 58.58 1304.45 3808.01 1.62 60.00 1304.41 3840.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7831E+04 EXCESS=0.0000E+00 OUTFLOW=0.7831E+04 BASIN STORAGE=0.2376E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 1564.32 4020.00 1.70 60.00 1564.32 4020.00 1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1013E+05 EXCESS=0.0000E+00 OUTFLOW=0.1013E+05 BASIN STORAGE=0.7430E+00 PERCENT ERROR= 0.0

9R MANE 60.00 2887.71 3960.00 0.95 60.00 2887.71 3960.00 0.95

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2149E+05 EXCESS=0.0000E+00 OUTFLOW=0.2149E+05 BASIN STORAGE=0.9986E+01 PERCENT ERROR= 0.0

Rt25 MANE 60.00 314.22 3180.00 0.59 60.00 314.22 3180.00 0.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1199E+04 EXCESS=0.0000E+00 OUTFLOW=0.1193E+04 BASIN STORAGE=0.4836E+00 PERCENT ERROR= 0.4



SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION SACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
		ELEVATION	135.00	140.67	140.82		
		STORAGE	0.	1200.	1348.		
		OUTFLOW	0.	0.	325.		
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	140.85	0.03	1375.	418.	21.00	82.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
		ELEVATION	115.00	116.80	117.20		
		STORAGE	0.	974.	1190.		
		OUTFLOW	0.	0.	1346.		
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	116.96	0.00	1060.	340.	0.00	98.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
		ELEVATION	160.00	171.74	171.83		
		STORAGE	0.	2155.	2217.		
		OUTFLOW	0.	0.	38.		
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	171.84	0.01	2222.	42.	17.00 *	121.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
		ELEVATION	140.00	141.00	141.11		
		STORAGE	0.	495.	549.		
		OUTFLOW	0.	0.	439.		
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.07	0.00	528.	205.	0.00	35.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
		ELEVATION	110.00	113.48	113.65		
		STORAGE	0.	330.	346.		
		OUTFLOW	0.	0.	98.		
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	113.75	0.10	355.	196.	10.00	40.00	0.00

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
10% DIVERSION**

**100-YEAR MODEL**

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*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/23/01 TIME 14:56:35 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* \*\*\*\*\*  
 \* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Deten100.DAT Proposed with Detention Conditions  
 \* 100-year Rain-fall Future Development  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11

\*DIAGRAM

1 ID West Main drain area  
 2 ID 100-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 1 4.68 5.65 6.29 7.51 8.61 9.19  
 9 LS 5.721 60  
 10 UD 53.5  
 \* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0  
 \* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1  
 \* \*\*\*\*\*

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	176.	69.00	176.	171.	136.	18.40		
ROUTED TO	1R	176.	73.00	175.	170.	135.	18.40		
HYDROGRAPH AT	SC-7B	306.	35.00	302.	252.	120.	9.82		
2 COMBINED AT	1C	336.	37.00	333.	298.	228.	28.22		
ROUTED TO	2R	328.	41.00	325.	293.	226.	28.22		
HYDROGRAPH AT	SC-7C	568.	43.00	563.	508.	286.	23.00		
HYDROGRAPH AT	SC-6A	667.	66.00	666.	645.	499.	41.66		
3 COMBINED AT	2C	1333.	48.00	1328.	1269.	985.	92.88		
ROUTED TO	3R	1329.	52.00	1326.	1268.	984.	92.88		
HYDROGRAPH AT	SC-6B	521.	37.00	515.	444.	223.	6.58		
HYDROGRAPH AT	SC-7D	188.	41.00	186.	165.	89.	6.15		
ROUTED TO	3R	183.	42.00	182.	162.	89.	6.15		
3 COMBINED AT	3C	1858.	45.00	1850.	1744.	1267.	105.61		
ROUTED TO	4R	1688.	54.00	1683.	1624.	1261.	105.61		
HYDROGRAPH AT	SC5A	1085.	65.00	1084.	1051.	816.	38.43		
ROUTED TO	5ACANA	1081.	68.00	1079.	1030.	715.	38.43	141.00	68.00
ROUTED TO	5AROUT	1081.	71.00	1078.	1029.	713.	38.43		
HYDROGRAPH AT	SC5A1	643.	29.00	627.	464.	190.	5.64		
2 COMBINED AT	5AA1	1092.	71.00	1089.	1039.	718.	44.07		
ROUTED TO	5A1CAN	1088.	73.00	1085.	1031.	712.	44.07	117.15	73.00
ROUTED TO	5A1RT	1087.	78.00	1084.	1031.	707.	44.07		
HYDROGRAPH AT	SC5B	995.	27.00	964.	675.	264.	9.02		
2 COMBINED AT	4C1	1089.	78.00	1086.	1034.	708.	53.09		

+	HYDROGRAPH AT	SC-4A	1213.	52.00	1209.	1142.	762.	30.73		
+	ROUTED TO	4ACANA	1012.	64.00	998.	835.	454.	30.73		
+									172.32	64.00
+	ROUTED TO	4AROUT	1011.	66.00	997.	832.	452.	30.73		
+	HYDROGRAPH AT	SC-4A1	1024.	25.00	986.	632.	233.	7.34		
+	2 COMBINED AT	SC4AA1	1024.	25.00	1000.	833.	541.	38.07		
+	ROUTED TO	4A1CAN	1010.	67.00	996.	826.	499.	38.07		
+									141.19	67.00
+	ROUTED TO	4A1ROU	1009.	69.00	994.	821.	495.	38.07		
+	HYDROGRAPH AT	SC-4B	913.	20.00	830.	414.	141.	5.44		
+	2 COMBINED AT	SC4AAB	1193.	29.00	1002.	821.	558.	43.51		
+	ROUTED TO	4BCANA	1180.	30.00	994.	818.	537.	43.51		
+									114.19	30.00
+	ROUTED TO	4AABRT	1145.	32.00	991.	811.	535.	43.51		
+	HYDROGRAPH AT	SC-4B1	725.	26.00	699.	475.	181.	6.07		
+	2 COMBINED AT	SC-4	1667.	32.00	1428.	1024.	672.	49.58		
+	3 COMBINED AT	4C2	3435.	73.00	3386.	2967.	2510.	208.28		
+	ROUTED TO	5R	2814.	84.00	2808.	2710.	2418.	208.28		
+	HYDROGRAPH AT	SC-3	1380.	76.00	1379.	1353.	1138.	56.44		
+	2 COMBINED AT	5C	4175.	82.00	4165.	4026.	3491.	264.72		
+	DIVERSION TO	DIV1	650.	82.00	648.	617.	500.	264.72		
+	HYDROGRAPH AT	DIV1	3525.	82.00	3517.	3409.	2992.	264.72		
+	ROUTED TO	6R	3202.	102.00	3199.	3151.	2863.	264.72		
+	HYDROGRAPH AT	SC-3B	264.	49.00	263.	246.	157.	6.71		
+	2 COMBINED AT	6C	3235.	102.00	3231.	3185.	2945.	271.43		
+	ROUTED TO	7R	3219.	106.00	3216.	3171.	2943.	271.43		
+	HYDROGRAPH AT	SC-2	139.	72.00	139.	136.	110.	11.48		
+	2 COMBINED AT	7C	3301.	104.00	3298.	3256.	3046.	282.91		
+	ROUTED TO	8R	3250.	114.00	3247.	3211.	3017.	282.91		

+	HYDROGRAPH AT	SC-1	360.	52.00	359.	340.	231.	7.07
+	2 COMBINED AT	8C1	3291.	113.00	3288.	3256.	3132.	289.98
+	HYDROGRAPH AT	SC-8	770.	67.00	769.	748.	592.	19.99
+	ROUTED TO	1BR	769.	70.00	768.	747.	591.	19.99
+	HYDROGRAPH AT	SM-18	529.	70.00	529.	515.	415.	27.11
+	2 COMBINED AT	1BC1	1298.	70.00	1296.	1262.	1007.	47.10
+	HYDROGRAPH AT	SM-17	503.	50.00	502.	472.	310.	7.03
+	2 COMBINED AT	1BC2	1675.	63.00	1670.	1614.	1285.	54.13
+	ROUTED TO	2BR	1674.	64.00	1669.	1613.	1284.	54.13
+	HYDROGRAPH AT	SM-16	589.	75.00	588.	577.	482.	25.18
+	2 COMBINED AT	2BC	2228.	66.00	2224.	2160.	1755.	79.31
+	ROUTED TO	3BR	2228.	66.00	2223.	2159.	1755.	79.31
+	HYDROGRAPH AT	SM-15	534.	54.00	532.	507.	353.	11.10
+	2 COMBINED AT	3BC	2703.	64.00	2696.	2610.	2090.	90.41
+	ROUTED TO	4BR	2700.	65.00	2694.	2608.	2088.	90.41
+	HYDROGRAPH AT	SM-14	571.	82.00	570.	562.	486.	21.60
+	2 COMBINED AT	4BC	3206.	67.00	3199.	3106.	2547.	112.01
+	ROUTED TO	8BR	3205.	68.00	3198.	3106.	2547.	112.01
+	HYDROGRAPH AT	SM-13	282.	89.00	282.	278.	246.	22.25
+	2 COMBINED AT	8C2	3444.	69.00	3436.	3343.	2773.	134.26
+	2 COMBINED AT	8C3	6507.	69.00	6497.	6376.	5791.	424.24
+	ROUTED TO	9R	6484.	76.00	6475.	6362.	5786.	424.24
+	HYDROGRAPH AT	29S	634.	41.00	628.	560.	304.	12.28
+	2 COMBINED AT	Com9A	6593.	74.00	6584.	6471.	5904.	436.52
+	HYDROGRAPH AT	28S	916.	53.00	914.	866.	588.	25.91
+	2 COMBINED AT	Com9B	7210.	71.00	7198.	7068.	6377.	462.43
+	ROUTED TO	Rt10	6604.	87.00	6599.	6530.	6080.	462.43

+	DIVERSION TO							
		DIV2	1887.	87.00	1885.	1866.	1737.	462.43
+	HYDROGRAPH AT							
		DIV2	4717.	87.00	4714.	4665.	4343.	462.43
+	HYDROGRAPH AT							
		27S	1110.	29.00	1082.	803.	329.	12.15
+	2 COMBINED AT							
		Com10A	4719.	87.00	4716.	4668.	4352.	474.58
+	HYDROGRAPH AT							
		26S	1048.	28.00	1021.	732.	291.	10.55
+	HYDROGRAPH AT							
		24S	363.	29.00	354.	262.	107.	3.83
+	3 COMBINED AT							
		Com10B	4720.	86.00	4717.	4670.	4360.	488.96
+	ROUTED TO							
		Rt11	4592.	99.00	4590.	4558.	4324.	488.96
+	HYDROGRAPH AT							
		22S	529.	35.00	520.	436.	207.	7.55
+	2 COMBINED AT							
		Com11A	4598.	99.00	4596.	4564.	4337.	496.51
+	HYDROGRAPH AT							
		20S	615.	39.00	609.	533.	277.	10.57
+	2 COMBINED AT							
		Com11B	4615.	98.00	4613.	4582.	4371.	507.08
+	ROUTED TO							
		Rt12	4548.	108.00	4547.	4522.	4348.	507.08
+	HYDROGRAPH AT							
		18S	388.	31.00	380.	295.	127.	4.69
+	2 COMBINED AT							
		Com12	4548.	108.00	4547.	4522.	4350.	511.77
+	ROUTED TO							
		Rt13	4542.	111.00	4540.	4516.	4347.	511.77
+	HYDROGRAPH AT							
		16S	454.	38.00	449.	391.	202.	9.60
+	2 COMBINED AT							
		Com13A	4547.	111.00	4545.	4522.	4361.	521.37
+	HYDROGRAPH AT							
		15S	789.	52.00	787.	740.	488.	25.08
+	2 COMBINED AT							
		Com13B	5262.	46.00	5249.	5085.	4753.	546.45
+	ROUTED TO							
		Rt14	4797.	60.00	4793.	4750.	4646.	546.45
+	HYDROGRAPH AT							
		13S	644.	48.00	641.	595.	369.	19.76
+	2 COMBINED AT							
		Com14A	5336.	56.00	5328.	5222.	4899.	566.21
+	HYDROGRAPH AT							
		14S	551.	37.00	545.	471.	239.	9.53
+	2 COMBINED AT							
		Com14B	5577.	53.00	5569.	5456.	5025.	575.74
+	ROUTED TO							
		Rt15	5365.	63.00	5358.	5272.	4953.	575.74
+	HYDROGRAPH AT							
		11S	887.	26.00	855.	584.	223.	8.20



+	2 COMBINED AT	Com15	5379.	63.00	5372.	5286.	4963.	583.94
+	ROUTED TO	Rt16	5147.	76.00	5144.	5097.	4894.	583.94
+	HYDROGRAPH AT	7S	968.	53.00	965.	914.	619.	29.41
+	2 COMBINED AT	Com16	5813.	68.00	5805.	5711.	5310.	613.35
+	ROUTED TO	Rt17	5793.	71.00	5785.	5696.	5303.	613.35
+	HYDROGRAPH AT	6S	1101.	27.00	1068.	744.	290.	9.21
+	2 COMBINED AT	Com17	5802.	71.00	5794.	5705.	5314.	622.56
+	ROUTED TO	Rt18	5748.	76.00	5742.	5664.	5299.	622.56
+	HYDROGRAPH AT	4S	1698.	34.00	1669.	1379.	644.	22.35
+	2 COMBINED AT	Com18A	5837.	74.00	5831.	5758.	5458.	644.91
+	HYDROGRAPH AT	3S	553.	30.00	540.	413.	175.	4.49
+	2 COMBINED AT	Com18B	5848.	74.00	5842.	5770.	5547.	649.40
+	ROUTED TO	Rt19	5843.	75.00	5838.	5768.	5542.	649.40
+	HYDROGRAPH AT	2S	1018.	23.00	971.	594.	214.	5.35
+	2 COMBINED AT	Com19A	5868.	36.00	5838.	5768.	5584.	654.75
+	HYDROGRAPH AT	1S	664.	35.00	654.	547.	260.	7.47
+	2 COMBINED AT	Com19B	6522.	36.00	6466.	6020.	5785.	662.22
+	HYDROGRAPH AT	DIV1	650.	82.00	648.	617.	500.	0.00
+	HYDROGRAPH AT	SC-3A	178.	72.00	177.	174.	143.	5.87
+	2 COMBINED AT	20C	820.	82.00	818.	782.	641.	5.87
+	ROUTED TO	21R	587.	103.00	586.	577.	515.	5.87
+	HYDROGRAPH AT	29aR	227.	37.00	224.	192.	95.	4.84
+	2 COMBINED AT	Com21A	589.	103.00	589.	580.	523.	10.71
+	HYDROGRAPH AT	29R	488.	47.00	485.	447.	271.	18.03
+	2 COMBINED AT	Com21B	928.	46.00	924.	875.	732.	28.74
+	ROUTED TO	22R	912.	49.00	908.	864.	729.	28.74
+	HYDROGRAPH AT	28aR	106.	27.00	102.	70.	27.	2.35

	2 COMBINED AT	Com22	923.	49.00	919.	875.	737.	31.09
	ROUTED TO							
+		Rt23	799.	62.00	798.	776.	703.	31.09
	HYDROGRAPH AT							
+		24R	625.	50.00	623.	582.	372.	22.22
	2 COMBINED AT							
+		Com23A	1359.	55.00	1355.	1297.	1024.	53.31
	HYDROGRAPH AT							
+		28R	51.	33.00	50.	38.	16.	4.68
	ROUTED TO							
+		Rt24	47.	44.00	46.	35.	16.	4.68
	HYDROGRAPH AT							
+		25R	366.	37.00	362.	311.	156.	8.99
	HYDROGRAPH AT							
+		27R	733.	50.00	730.	682.	434.	23.93
	3 COMBINED AT							
+		Com24	1071.	44.00	1063.	970.	602.	37.60
	ROUTED TO							
+		Rt25	1050.	49.00	1043.	956.	596.	37.60
	HYDROGRAPH AT							
+		22R	882.	46.00	878.	809.	488.	18.04
	2 COMBINED AT							
+		Com25	1924.	47.00	1908.	1748.	1073.	55.64
	HYDROGRAPH AT							
+		19R	359.	40.00	355.	314.	167.	11.18
	3 COMBINED AT							
+		Com23B	3507.	48.00	3488.	3255.	2228.	120.13
	ROUTED TO							
+		Rt26A	3418.	52.00	3404.	3245.	2228.	120.13
	DIVERSION TO							
+		DIV3	1672.	52.00	1666.	1598.	1149.	120.13
	HYDROGRAPH AT							
+		DIV3	1747.	52.00	1739.	1647.	1079.	120.13
	ROUTED TO							
+		Rt26B	1743.	54.00	1735.	1641.	1076.	120.13
	HYDROGRAPH AT							
+		20R	1248.	35.00	1229.	1032.	494.	18.78
	2 COMBINED AT							
+		Com26	2558.	41.00	2521.	2314.	1526.	138.91
	ROUTED TO							
+		Rt27A	1547.	65.00	1543.	1509.	1322.	138.91
	HYDROGRAPH AT							
+		13R	907.	30.00	888.	688.	294.	11.50
	2 COMBINED AT							
+		Com27A	1714.	37.00	1673.	1611.	1486.	150.41
	HYDROGRAPH AT							
+		14R	528.	37.00	521.	449.	226.	9.24
	ROUTED TO							
+		Rt27B	638.	42.00	450.	308.	203.	9.24
	2 COMBINED AT							
+		Com27B	2252.	42.00	2047.	1916.	1689.	159.65
	ROUTED TO							
+		Rt28	1871.	51.00	1866.	1844.	1658.	159.65

+	HYDROGRAPH AT	11R	934.	25.00	898.	587.	218.	10.09
+	2 COMBINED AT	Com28A	1918.	49.00	1914.	1877.	1755.	169.74
+	HYDROGRAPH AT	8R	490.	27.00	474.	325.	124.	11.62
+	2 COMBINED AT	Com28B	2279.	29.00	2206.	2045.	1858.	181.36
+	ROUTED TO	Rt29	1887.	57.00	1886.	1874.	1769.	181.36
+	HYDROGRAPH AT	10R	1540.	34.00	1516.	1246.	575.	21.47
+	2 COMBINED AT	Com29	3160.	35.00	3137.	2859.	2266.	202.83
+	ROUTED TO	Rt30	2667.	46.00	2658.	2550.	2183.	202.83
+	HYDROGRAPH AT	6R	746.	43.00	740.	670.	381.	16.37
+	2 COMBINED AT	Com30A	3398.	44.00	3382.	3191.	2538.	219.20
+	HYDROGRAPH AT	4R	395.	30.00	385.	295.	125.	4.73
+	2 COMBINED AT	Com30B	3552.	43.00	3533.	3337.	2631.	223.93
+	ROUTED TO	Rt31	3053.	56.00	3042.	2928.	2466.	223.93
+	HYDROGRAPH AT	2R	815.	25.00	782.	512.	192.	5.58
+	2 COMBINED AT	Com31A	3073.	56.00	3062.	2951.	2495.	229.51
+	HYDROGRAPH AT	3R	478.	28.00	465.	335.	133.	4.47
+	2 COMBINED AT	Com31B	3105.	55.00	3094.	2986.	2574.	233.98
+	ROUTED TO	Rt32	2574.	75.00	2571.	2536.	2317.	233.98
+	HYDROGRAPH AT	1R	1608.	34.00	1582.	1307.	608.	16.89
+	2 COMBINED AT	Com32	2856.	36.00	2840.	2666.	2590.	250.87
+	HYDROGRAPH AT	DIV3	1672.	52.00	1666.	1598.	1149.	0.00
+	HYDROGRAPH AT	17R	458.	33.00	451.	369.	170.	6.47
+	2 COMBINED AT	Com33A	1876.	40.00	1855.	1805.	1294.	6.47
+	HYDROGRAPH AT	23R	1709.	83.00	1707.	1681.	1454.	94.54
+	2 COMBINED AT	Com33B	2975.	62.00	2956.	2846.	2526.	101.01
+	ROUTED TO	LSV	1039.	137.00	1039.	1037.	1017.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME (IN)	
						DT (MIN)	PEAK (CFS)		
1R	MANE	60.00	175.66	4380.00	1.08	60.00	175.66	4380.00	1.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1056E+04 EXCESS=0.0000E+00 OUTFLOW=0.1056E+04 BASIN STORAGE=0.1018E-01 PERCENT ERROR= 0.0									
2R	MANE	60.00	327.51	2460.00	1.18	60.00	327.51	2460.00	1.18
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1777E+04 EXCESS=0.0000E+00 OUTFLOW=0.1776E+04 BASIN STORAGE=0.3912E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	1329.41	3120.00	1.48	60.00	1329.41	3120.00	1.48
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7334E+04 EXCESS=0.0000E+00 OUTFLOW=0.7333E+04 BASIN STORAGE=0.3812E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	183.40	2520.00	1.68	60.00	183.40	2520.00	1.68
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5506E+03 EXCESS=0.0000E+00 OUTFLOW=0.5498E+03 BASIN STORAGE=0.5648E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	48.00	1081.04	4272.00	2.44	60.00	1080.84	4260.00	2.44
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5000E+04 EXCESS=0.0000E+00 OUTFLOW=0.5004E+04 BASIN STORAGE=0.4968E+00 PERCENT ERROR= -0.1									
5AIRT	MANE	60.00	1087.03	4680.00	2.20	60.00	1087.03	4680.00	2.20
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5164E+04 EXCESS=0.0000E+00 OUTFLOW=0.5163E+04 BASIN STORAGE=0.2022E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	33.00	1011.01	3960.00	1.80	60.00	1011.01	3960.00	1.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2946E+04 EXCESS=0.0000E+00 OUTFLOW=0.2946E+04 BASIN STORAGE=0.1572E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	18.00	1009.21	4140.00	1.89	60.00	1009.21	4140.00	1.89
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3835E+04 EXCESS=0.0000E+00 OUTFLOW=0.3834E+04 BASIN STORAGE=0.2044E+00 PERCENT ERROR= 0.0									
4AABRT	MANE	12.00	1147.06	1932.00	1.88	60.00	1144.65	1920.00	1.88
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4351E+04 EXCESS=0.0000E+00 OUTFLOW=0.4354E+04 BASIN STORAGE=0.8935E+00 PERCENT ERROR= -0.1									
1BR	MANE	60.00	768.80	4200.00	4.32	60.00	768.80	4200.00	4.32
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4607E+04 EXCESS=0.0000E+00 OUTFLOW=0.4607E+04 BASIN STORAGE=0.7847E-02 PERCENT ERROR= 0.0									
2BR	MANE	53.32	1674.43	3838.77	3.45	60.00	1674.37	3840.00	3.45
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9971E+04 EXCESS=0.0000E+00 OUTFLOW=0.9972E+04 BASIN STORAGE=0.1659E-01 PERCENT ERROR= 0.0									
3BR	MANE	38.36	2228.20	3989.46	3.31	60.00	2228.00	3960.00	3.31
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1402E+05 EXCESS=0.0000E+00 OUTFLOW=0.1402E+05 BASIN STORAGE=0.3455E+00 PERCENT ERROR= 0.0									

4BR MANE 46.65 2700.01 3872.27 3.41 60.00 2699.99 3900.00 3.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E+05 EXCESS=0.0000E+00 OUTFLOW=0.1646E+05 BASIN STORAGE=0.4912E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 3204.94 4080.00 3.49 60.00 3204.94 4080.00 3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2084E+05 EXCESS=0.0000E+00 OUTFLOW=0.2084E+05 BASIN STORAGE=0.1453E+01 PERCENT ERROR= 0.0

9R MANE 60.00 6484.02 4560.00 2.38 60.00 6484.02 4560.00 2.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5397E+05 EXCESS=0.0000E+00 OUTFLOW=0.5396E+05 BASIN STORAGE=0.1960E+02 PERCENT ERROR= 0.0

Rt24 MANE 60.00 46.61 2640.00 0.38 60.00 46.61 2640.00 0.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9694E+02 EXCESS=0.0000E+00 OUTFLOW=0.9480E+02 BASIN STORAGE=0.3377E+00 PERCENT ERROR= 1.9

Rt25 MANE 60.00 1050.06 2940.00 1.93 60.00 1050.06 2940.00 1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3869E+04 EXCESS=0.0000E+00 OUTFLOW=0.3861E+04 BASIN STORAGE=0.5026E+00 PERCENT ERROR= 0.2

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.00	0.18	1522.	1081.	64.00	68.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	117.15	0.00	1162.	1088.	0.00	73.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	172.32	0.49	2555.	1012.	101.00	64.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.19	0.08	590.	1010.	39.00	67.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	114.19	0.54	397.	1180.	106.00	30.00	0.00

NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**  
**PROPOSED CONDITIONS**  
**10% DIVERSION**  
**500-YEAR MODEL**

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1*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
*   RUN DATE 05/23/01 TIME 15:11:08 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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X   X   XXXXXXX   XXXXX   X
X   X   X         X     X   XX
X   X   X         X         X
XXXXXXXX XXXX    X         XXXXX X
X   X   X         X         X
X   X   X         X     X   X
X   X   XXXXXXX   XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM



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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
* *****
*   Hidalgo County Flood Insurance Study      Job                      Hid
*   Job No. 11-00389-002      Fil
*   File Name: Deten500.DAT      Proposed with Detention Conditions      500
*   500-year Rain-fall      Future Development      *****
* ***** HEC-1
* HEC-1 model for the North-West main drain area      Model
* Model sequence is as follows: *****
* ***** revise
* revised rainfall from USGS report 98-4044      REVISE
* REVISED CN TYPE I ANTECEDANT      REVISE
* REVISED LAG BASED ON REVISED CN I      IA LOS
* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN ADDITI
* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE      SEE SP
* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.      ROUTED
* ROUTED 564 BASINS THROUGH STORAGE      MODIFI
* MODIFIED PULS ROUTING REACHES 5R-9R      CORREC
* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11
*DIAGRAM
1      ID      West Main drain area
2      ID      500-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
3      IT      60 1JAN01      0      300
4      IO      5
* *****
* Start calculating hydrograph for the sub water sheds
* that drain to the West Main drain.
* *****
5      KK      SC-7A SUBWATER SHED
6      KM      Compute hydrograph for sub-water shed SC-7A
7      BA      18.4
8      PH      0.2      6.21      7.66      8.83      10.75      12.35      13.23
9      LS      5.721      60
10     UD      53.5
* *****
11     KK      1R
12     KM      Route hydrograph from head water to node 1 using Muskingum-Cunge Method
13     RD
14     RC      0.08      0.03      0.08      19200      0.0002      217
15     RX      1000      2500      2917      2994      3005      3061      4500      5000
16     RY      203.5      202.0      204.4      191.53      191.53      204.5      199.9      199.0
* *****
17     KK      SC-7B SUBWATER SHED
18     KM      Compute hydrograph for sub-water shed SC-7B
19     BA      9.82
20     LS      5.282      60
21     UD      20.1
* *****

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RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	615.	68.00	614.	598.	473.	18.40		
ROUTED TO	1R	614.	71.00	613.	596.	473.	18.40		
HYDROGRAPH AT	SC-7B	939.	35.00	925.	771.	365.	9.82		
2 COMBINED AT	1C	1080.	36.00	1072.	970.	760.	28.22		
ROUTED TO	2R	1059.	43.00	1053.	963.	756.	28.22		
HYDROGRAPH AT	SC-7C	1667.	42.00	1654.	1492.	838.	23.00		
HYDROGRAPH AT	SC-6A	1773.	65.00	1771.	1717.	1327.	41.66		
3 COMBINED AT	2C	3910.	47.00	3889.	3680.	2849.	92.88		
ROUTED TO	3R	3859.	53.00	3843.	3654.	2841.	92.88		
HYDROGRAPH AT	SC-6B	967.	37.00	956.	824.	414.	6.58		
HYDROGRAPH AT	SC-7D	515.	40.00	511.	454.	245.	6.15		
ROUTED TO	3R	507.	41.00	502.	447.	244.	6.15		
3 COMBINED AT	3C	4804.	48.00	4783.	4517.	3425.	105.61		
ROUTED TO	4R	4288.	59.00	4276.	4123.	3315.	105.61		
HYDROGRAPH AT	SC5A	2193.	65.00	2190.	2125.	1649.	38.43		
ROUTED TO	5ACANA	2190.	67.00	2187.	2121.	1587.	38.43	141.13	67.00
ROUTED TO	5AROUT	2191.	69.00	2187.	2121.	1585.	38.43		
HYDROGRAPH AT	SC5A1	1206.	29.00	1176.	871.	357.	5.64		
2 COMBINED AT	5AA1	2218.	67.00	2215.	2155.	1612.	44.07		
ROUTED TO	5A1CAN	2217.	68.00	2214.	2154.	1606.	44.07	117.30	68.00
ROUTED TO	5A1RT	2217.	72.00	2213.	2153.	1602.	44.07		
HYDROGRAPH AT	SC5B	1984.	27.00	1923.	1342.	524.	9.02		
2 COMBINED AT	4C1	2231.	71.00	2228.	2169.	1655.	53.09		

	HYDROGRAPH AT	SC-4A	2429.	51.00	2422.	2287.	1525.	30.73		
+	ROUTED TO	4ACANA	2399.	55.00	2382.	2168.	1250.	30.73	172.70	55.00
+	ROUTED TO	4AROUT	2399.	56.00	2381.	2164.	1248.	30.73		
+	HYDROGRAPH AT	SC-4A1	1978.	24.00	1899.	1215.	448.	7.34		
+	2 COMBINED AT	SC4AA1	2435.	56.00	2418.	2194.	1470.	38.07		
+	ROUTED TO	4A1CAN	2431.	56.00	2414.	2190.	1437.	38.07	141.34	56.00
+	ROUTED TO	4A1ROU	2429.	58.00	2413.	2187.	1432.	38.07		
+	HYDROGRAPH AT	SC-4B	1961.	20.00	1782.	870.	296.	5.44		
+	2 COMBINED AT	SC4AAB	3037.	25.00	2585.	2187.	1617.	43.51		
+	ROUTED TO	4BCANA	3043.	26.00	2558.	2185.	1599.	43.51	114.67	26.00
+	ROUTED TO	4AABRT	2873.	28.00	2545.	2177.	1594.	43.51		
+	HYDROGRAPH AT	SC-4B1	1436.	26.00	1385.	937.	358.	6.07		
+	2 COMBINED AT	SC-4	4249.	27.00	3822.	2510.	1911.	49.58		
+	3 COMBINED AT	4C2	8788.	61.00	8750.	8195.	6657.	208.28		
+	ROUTED TO	5R	7553.	77.00	7541.	7374.	6208.	208.28		
+	HYDROGRAPH AT	SC-3	2698.	76.00	2695.	2645.	2224.	56.44		
+	2 COMBINED AT	5C	10250.	76.00	10236.	10019.	8414.	264.72		
+	DIVERSION TO	DIV1	2125.	76.00	2122.	2073.	1702.	264.72		
+	HYDROGRAPH AT	DIV1	8125.	76.00	8114.	7946.	6711.	264.72		
+	ROUTED TO	6R	7493.	96.00	7481.	7321.	6275.	264.72		
+	HYDROGRAPH AT	SC-3B	556.	49.00	554.	518.	330.	6.71		
+	2 COMBINED AT	6C	7583.	95.00	7571.	7413.	6371.	271.43		
+	ROUTED TO	7R	7420.	102.00	7409.	7260.	6301.	271.43		
+	HYDROGRAPH AT	SC-2	412.	71.00	412.	402.	326.	11.48		
+	2 COMBINED AT	7C	7683.	101.00	7672.	7517.	6529.	282.91		
+	ROUTED TO	8R	7222.	119.00	7214.	7104.	6402.	282.91		

+	HYDROGRAPH AT	SC-1	648.	52.00	647.	613.	417.	7.07
+	2 COMBINED AT	8C1	7282.	118.00	7274.	7166.	6475.	289.98
+	HYDROGRAPH AT	SC-8	1392.	67.00	1390.	1352.	1071.	19.99
+	ROUTED TO	1BR	1390.	70.00	1388.	1350.	1070.	19.99
+	HYDROGRAPH AT	SM-18	1262.	70.00	1261.	1230.	990.	27.11
+	2 COMBINED AT	1BC1	2652.	70.00	2649.	2580.	2060.	47.10
+	HYDROGRAPH AT	SM-17	839.	50.00	836.	787.	517.	7.03
+	2 COMBINED AT	1BC2	3271.	63.00	3260.	3158.	2523.	54.13
+	ROUTED TO	2BR	3269.	64.00	3259.	3158.	2522.	54.13
+	HYDROGRAPH AT	SM-16	1199.	75.00	1198.	1174.	980.	25.18
+	2 COMBINED AT	2BC	4412.	67.00	4403.	4281.	3483.	79.31
+	ROUTED TO	3BR	4410.	68.00	4401.	4278.	3482.	79.31
+	HYDROGRAPH AT	SM-15	963.	54.00	961.	915.	638.	11.10
+	2 COMBINED AT	3BC	5237.	65.00	5224.	5068.	4084.	90.41
+	ROUTED TO	4BR	5173.	69.00	5162.	5016.	4069.	90.41
+	HYDROGRAPH AT	SM-14	1056.	82.00	1055.	1039.	900.	21.60
+	2 COMBINED AT	4BC	6165.	71.00	6154.	5991.	4919.	112.01
+	ROUTED TO	8BR	6163.	71.00	6151.	5989.	4917.	112.01
+	HYDROGRAPH AT	SM-13	704.	88.00	703.	694.	613.	22.25
+	2 COMBINED AT	8C2	6802.	73.00	6790.	6619.	5484.	134.26
+	2 COMBINED AT	8C3	11517.	85.00	11512.	11472.	10935.	424.24
+	ROUTED TO	9R	11498.	93.00	11495.	11453.	10906.	424.24
+	HYDROGRAPH AT	29S	1331.	41.00	1320.	1176.	638.	12.28
+	2 COMBINED AT	Com9A	11576.	90.00	11573.	11533.	11017.	436.52
+	HYDROGRAPH AT	28S	1901.	53.00	1897.	1797.	1220.	25.91
+	2 COMBINED AT	Com9B	12335.	77.00	12329.	12252.	11717.	462.43
+	ROUTED TO	Rt10	12088.	93.00	12084.	12022.	11417.	462.43

	DIVERSION TO	DIV2	2000.	93.00	2000.	2000.	2000.	2000.	462.43
+	HYDROGRAPH AT	DIV2	10088.	93.00	10084.	10022.	9417.	462.43	
+	HYDROGRAPH AT	27S	2303.	29.00	2247.	1662.	679.	12.15	
+	2 COMBINED AT	Com10A	10089.	93.00	10085.	10023.	9423.	474.58	
+	HYDROGRAPH AT	26S	2171.	27.00	2110.	1509.	598.	10.55	
+	HYDROGRAPH AT	24S	746.	29.00	728.	538.	220.	3.83	
+	3 COMBINED AT	Com10B	10089.	93.00	10085.	10024.	9429.	488.96	
+	ROUTED TO	Rt11	9924.	105.00	9920.	9861.	9288.	488.96	
+	HYDROGRAPH AT	22S	1089.	35.00	1074.	898.	427.	7.55	
+	2 COMBINED AT	Com11A	9932.	105.00	9927.	9868.	9299.	496.51	
+	HYDROGRAPH AT	20S	1266.	38.00	1254.	1098.	570.	10.57	
+	2 COMBINED AT	Com11B	9953.	105.00	9949.	9890.	9331.	507.08	
+	ROUTED TO	Rt12	9933.	109.00	9929.	9869.	9300.	507.08	
+	HYDROGRAPH AT	18S	800.	30.00	785.	608.	261.	4.69	
+	2 COMBINED AT	Com12	9933.	109.00	9929.	9869.	9301.	511.77	
+	ROUTED TO	Rt13	9925.	111.00	9921.	9861.	9291.	511.77	
+	HYDROGRAPH AT	16S	1039.	38.00	1027.	895.	460.	9.60	
+	2 COMBINED AT	Com13A	9936.	111.00	9932.	9872.	9306.	521.37	
+	HYDROGRAPH AT	15S	1774.	51.00	1769.	1665.	1096.	25.08	
+	2 COMBINED AT	Com13B	10130.	107.00	10126.	10067.	9520.	546.45	
+	ROUTED TO	Rt14	10016.	118.00	10012.	9954.	9465.	546.45	
+	HYDROGRAPH AT	13S	1504.	47.00	1497.	1389.	861.	19.76	
+	2 COMBINED AT	Com14A	10085.	117.00	10081.	10025.	9565.	566.21	
+	HYDROGRAPH AT	14S	1161.	37.00	1148.	993.	503.	9.53	
+	2 COMBINED AT	Com14B	10431.	54.00	10402.	10032.	9595.	575.74	
+	ROUTED TO	Rt15	10113.	60.00	10084.	9998.	9571.	575.74	
+	HYDROGRAPH AT	11S	1846.	26.00	1780.	1207.	461.	8.20	

+	2 COMBINED AT	Com15	10151.	60.00	10123.	9998.	9571.	583.94
	ROUTED TO	Rt16	10010.	128.00	10006.	9954.	9563.	583.94
+	HYDROGRAPH AT	7S	2078.	53.00	2072.	1962.	1327.	29.41
+	2 COMBINED AT	Com16	11410.	65.00	11378.	10969.	10209.	613.35
+	ROUTED TO	Rt17	10854.	74.00	10837.	10634.	10146.	613.35
+	HYDROGRAPH AT	6S	2125.	27.00	2061.	1435.	558.	9.21
+	2 COMBINED AT	Com17	10865.	73.00	10848.	10646.	10151.	622.56
+	ROUTED TO	Rt18	10649.	80.00	10631.	10406.	10072.	622.56
+	HYDROGRAPH AT	4S	3358.	34.00	3304.	2730.	1272.	22.35
+	2 COMBINED AT	Com18A	10765.	80.00	10746.	10509.	10110.	644.91
+	HYDROGRAPH AT	3S	979.	30.00	958.	733.	310.	4.49
+	2 COMBINED AT	Com18B	10776.	80.00	10757.	10518.	10114.	649.40
+	ROUTED TO	Rt19	10746.	82.00	10727.	10496.	10108.	649.40
+	HYDROGRAPH AT	2S	1786.	23.00	1702.	1041.	376.	5.35
+	2 COMBINED AT	Com19A	10746.	82.00	10727.	10496.	10108.	654.75
+	HYDROGRAPH AT	1S	1221.	34.00	1206.	1007.	479.	7.47
+	2 COMBINED AT	Com19B	10850.	36.00	10788.	10536.	10123.	662.22
+	HYDROGRAPH AT	DIV1	2125.	76.00	2122.	2073.	1702.	0.00
+	HYDROGRAPH AT	SC-3A	334.	72.00	334.	326.	268.	5.87
+	2 COMBINED AT	20C	2458.	76.00	2454.	2396.	1971.	5.87
+	ROUTED TO	21R	1869.	101.00	1866.	1834.	1589.	5.87
+	HYDROGRAPH AT	29aR	540.	36.00	534.	456.	225.	4.84
+	2 COMBINED AT	Com21A	1876.	100.00	1874.	1842.	1603.	10.71
+	HYDROGRAPH AT	29R	1279.	46.00	1272.	1173.	709.	18.03
+	2 COMBINED AT	Com21B	2197.	45.00	2186.	2073.	1953.	28.74
+	ROUTED TO	22R	2091.	51.00	2084.	2005.	1933.	28.74
+	HYDROGRAPH AT	28aR	345.	26.00	333.	226.	86.	2.35

+	2 COMBINED AT	Com22	2115.	50.00	2108.	2029.	1941.	31.09
	ROUTED TO							
+		Rt23	1908.	113.00	1907.	1894.	1821.	31.09
	HYDROGRAPH AT							
+		24R	1527.	49.00	1521.	1422.	908.	22.22
	2 COMBINED AT							
+		Com23A	2996.	54.00	2989.	2890.	2459.	53.31
	HYDROGRAPH AT							
+		28R	359.	31.00	352.	270.	114.	4.68
	ROUTED TO							
+		Rt24	340.	36.00	333.	257.	113.	4.68
	HYDROGRAPH AT							
+		25R	925.	37.00	913.	785.	392.	8.99
	HYDROGRAPH AT							
+		27R	1722.	49.00	1716.	1602.	1018.	23.93
	3 COMBINED AT							
+		Com24	2734.	41.00	2717.	2481.	1515.	37.60
	ROUTED TO							
+		Rt25	2703.	45.00	2684.	2452.	1506.	37.60
	HYDROGRAPH AT							
+		22R	1763.	45.00	1755.	1617.	975.	18.04
	2 COMBINED AT							
+		Com25	4466.	45.00	4439.	4066.	2469.	55.64
	HYDROGRAPH AT							
+		19R	971.	40.00	962.	849.	450.	11.18
	3 COMBINED AT							
+		Com23B	8107.	46.00	8068.	7546.	5252.	120.13
	ROUTED TO							
+		Rt26A	8065.	48.00	8021.	7477.	5252.	120.13
	DIVERSION TO							
+		DIV3	313.	48.00	313.	309.	256.	120.13
	HYDROGRAPH AT							
+		DIV3	7752.	48.00	7709.	7168.	4996.	120.13
	ROUTED TO							
+		Rt26B	7488.	53.00	7450.	6974.	4982.	120.13
	HYDROGRAPH AT							
+		20R	2594.	35.00	2555.	2145.	1026.	18.78
	2 COMBINED AT							
+		Com26	8565.	49.00	8528.	8020.	5860.	138.91
	ROUTED TO							
+		Rt27A	5143.	74.00	5136.	5052.	4535.	138.91
	HYDROGRAPH AT							
+		13R	1915.	30.00	1875.	1447.	618.	11.50
	2 COMBINED AT							
+		Com27A	5186.	73.00	5180.	5098.	4613.	150.41
	HYDROGRAPH AT							
+		14R	1148.	37.00	1134.	978.	491.	9.24
	ROUTED TO							
+		Rt27B	1361.	36.00	1134.	916.	457.	9.24
	2 COMBINED AT							
+		Com27B	5406.	73.00	5399.	5318.	4925.	159.65
	ROUTED TO							
+		Rt28	5312.	80.00	5308.	5247.	4835.	159.65

+	HYDROGRAPH AT	11R	2168.	25.00	2085.	1348.	499.	10.09
+	2 COMBINED AT	Com28A	5312.	80.00	5308.	5247.	4852.	169.74
+	HYDROGRAPH AT	8R	1676.	26.00	1620.	1094.	415.	11.62
+	2 COMBINED AT	Com28B	5312.	80.00	5308.	5249.	4895.	181.36
+	ROUTED TO	Rt29	5274.	85.00	5271.	5218.	4873.	181.36
+	HYDROGRAPH AT	10R	3150.	33.00	3103.	2545.	1174.	21.47
+	2 COMBINED AT	Com29	7333.	35.00	7263.	6528.	5683.	202.83
+	ROUTED TO	Rt30	6648.	42.00	6591.	6067.	5521.	202.83
+	HYDROGRAPH AT	6R	1597.	43.00	1586.	1436.	815.	16.37
+	2 COMBINED AT	Com30A	8244.	42.00	8178.	7475.	6229.	219.20
+	HYDROGRAPH AT	4R	825.	30.00	806.	615.	259.	4.73
+	2 COMBINED AT	Com30B	8639.	41.00	8571.	7801.	6378.	223.93
+	ROUTED TO	Rt31	7931.	48.00	7876.	7310.	6184.	223.93
+	HYDROGRAPH AT	2R	1521.	25.00	1461.	955.	357.	5.58
+	2 COMBINED AT	Com31A	8046.	47.00	7985.	7407.	6232.	229.51
+	HYDROGRAPH AT	3R	946.	28.00	921.	661.	263.	4.47
+	2 COMBINED AT	Com31B	8209.	47.00	8149.	7545.	6299.	233.98
+	ROUTED TO	Rt32	6691.	61.00	6676.	6488.	5900.	233.98
+	HYDROGRAPH AT	1R	2905.	34.00	2865.	2365.	1101.	16.89
+	2 COMBINED AT	Com32	7211.	58.00	7190.	6950.	6198.	250.87
+	HYDROGRAPH AT	DIV3	313.	48.00	313.	309.	256.	0.00
+	HYDROGRAPH AT	17R	954.	33.00	939.	768.	353.	6.47
+	2 COMBINED AT	Com33A	1182.	35.00	1174.	1013.	594.	6.47
+	HYDROGRAPH AT	23R	3628.	82.00	3625.	3570.	3089.	94.54
+	2 COMBINED AT	Com33B	3874.	81.00	3871.	3822.	3368.	101.01
+	ROUTED TO	LSV	1544.	139.00	1543.	1536.	1458.	101.01



SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	614.33	4260.00	3.76	60.00	614.33	4260.00	3.76
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3685E+04 EXCESS=0.0000E+00 OUTFLOW=0.3686E+04 BASIN STORAGE=0.8150E-02 PERCENT ERROR= 0.0									
2R	MANE	60.00	1059.05	2580.00	3.91	60.00	1059.05	2580.00	3.91
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5883E+04 EXCESS=0.0000E+00 OUTFLOW=0.5889E+04 BASIN STORAGE=0.2276E-01 PERCENT ERROR= -0.1									
3R	MANE	60.00	3859.20	3180.00	4.26	60.00	3859.20	3180.00	4.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2114E+05 EXCESS=0.0000E+00 OUTFLOW=0.2111E+05 BASIN STORAGE=0.1006E+00 PERCENT ERROR= 0.1									
3R	MANE	60.00	506.73	2460.00	4.60	60.00	506.73	2460.00	4.60
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1509E+04 EXCESS=0.0000E+00 OUTFLOW=0.1507E+04 BASIN STORAGE=0.5237E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	60.00	2190.54	4140.00	5.53	60.00	2190.54	4140.00	5.53
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1132E+05 EXCESS=0.0000E+00 OUTFLOW=0.1133E+05 BASIN STORAGE=0.6137E+00 PERCENT ERROR= -0.1									
5AIRT	MANE	60.00	2216.61	4320.00	5.31	60.00	2216.61	4320.00	5.31
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+05 EXCESS=0.0000E+00 OUTFLOW=0.1247E+05 BASIN STORAGE=0.2463E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	39.00	2399.22	3354.00	4.92	60.00	2398.84	3360.00	4.92
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8063E+04 EXCESS=0.0000E+00 OUTFLOW=0.8066E+04 BASIN STORAGE=0.1845E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	33.00	2431.12	3465.00	5.04	60.00	2429.39	3480.00	5.05
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1024E+05 EXCESS=0.0000E+00 OUTFLOW=0.1024E+05 BASIN STORAGE=0.2400E+00 PERCENT ERROR= -0.1									
4AABRT	MANE	15.00	2946.33	1650.00	5.04	60.00	2872.84	1680.00	5.04
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1168E+05 EXCESS=0.0000E+00 OUTFLOW=0.1169E+05 BASIN STORAGE=0.1024E+01 PERCENT ERROR= -0.1									
1BR	MANE	60.00	1389.67	4200.00	7.81	60.00	1389.67	4200.00	7.81
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8329E+04 EXCESS=0.0000E+00 OUTFLOW=0.8329E+04 BASIN STORAGE=0.1072E-01 PERCENT ERROR= 0.0									
2BR	MANE	39.95	3269.23	3875.55	6.80	60.00	3269.02	3840.00	6.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1964E+05 EXCESS=0.0000E+00 OUTFLOW=0.1964E+05 BASIN STORAGE=0.1748E-01 PERCENT ERROR= 0.0									
3BR	MANE	41.65	4409.98	4081.26	6.59	60.00	4409.93	4080.00	6.59
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2788E+05 EXCESS=0.0000E+00 OUTFLOW=0.2788E+05 BASIN STORAGE=0.7011E+00 PERCENT ERROR= 0.0									

4BR MANE 56.09 5174.19 4151.03 6.68 60.00 5173.48 4140.00 6.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3228E+05 EXCESS=0.0000E+00 OUTFLOW=0.3220E+05 BASIN STORAGE=0.1039E+01 PERCENT ERROR= 0.2

8BR MANE 50.18 6163.49 4265.40 6.75 60.00 6162.93 4260.00 6.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4031E+05 EXCESS=0.0000E+00 OUTFLOW=0.4031E+05 BASIN STORAGE=0.2775E+01 PERCENT ERROR= 0.0

9R MANE 60.00 11497.94 5580.00 5.03 60.00 11497.94 5580.00 5.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1139E+06 EXCESS=0.0000E+00 OUTFLOW=0.1138E+06 BASIN STORAGE=0.4137E+02 PERCENT ERROR= 0.1

Rt24 MANE 57.00 339.66 2166.00 2.69 60.00 339.55 2160.00 2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6788E+03 EXCESS=0.0000E+00 OUTFLOW=0.6721E+03 BASIN STORAGE=0.2698E+00 PERCENT ERROR= 0.9

Rt25 MANE 60.00 2702.75 2700.00 4.83 60.00 2702.75 2700.00 4.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9688E+04 EXCESS=0.0000E+00 OUTFLOW=0.9681E+04 BASIN STORAGE=0.5466E+00 PERCENT ERROR= 0.1

1 — SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.13	0.31	1656.	2190.	97.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	117.30	0.10	1243.	2217.	47.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	172.70	0.87	2821.	2399.	129.00	55.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.34	0.23	665.	2431.	78.00	56.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	114.67	1.02	443.	3043.	135.00	26.00	0.00

\* NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**  
**PROPOSED CONDITIONS**  
**25% DIVERSION**  
**25-YEAR MODEL**

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1*****
FLOOD HYDROGRAPH PACKAGE (HEC-1) *
MAY 1991 *
VERSION 4.0.1E *
Lahey F77L-EM/32 version 5.01 *
Dodson & Associates, Inc. *
RUN DATE 11/12/01 TIME 11:12:25 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* \*\*\*\*\*  
 \* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Deten025.DAT Proposed with Detention Conditions  
 \* 25-year Rain-fall Future Development  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11

\*DIAGRAM

1 ID West Main drain area  
 2 ID 25-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5  
 \* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 4 3.61 4.29 4.65 5.45 6.22 6.62  
 9 LS 5.721 60  
 10 UD 53.5  
 \* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0  
 \* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

22 KK      1C
23 KM      Combine hydrograph from SC-7A and SC-7B, at node 1
24 HC      2
   * *****

25 KK      2R
26 KM      Route hydrograph from node 1 to node 2
27 RD
28 RC      0.08   0.03   0.08   32000  0.0002   187
29 RX      1000   2500   2977   2994   3005   3032   4500   5000
30 RY      175    173    172   160.91  160.91  174.0  173.0  175.0
   * *****

31 KK      SC-7C SUBWATER SHED
32 KM      Compute hydrograph for sub-water shed SC-7C
33 BA      23
34 LS      5.028   60
35 UD      27.4
   * *****

36 KK      SC-6A
37 KM      Compute hydrograph for sub-water shed SC-6A
38 BA      41.66
39 LS      4.484   60
40 UD      50.5
   * *****

41 KK      2C
42 KM      Combine hydrograph at node 2
43 HC      3
   * *****

44 KK      3R
45 KM      Route hydrograph from node 2 to node 3
46 RD
47 RC      0.08   0.03   0.08   20800  0.0005   106
48 RX      1000  1874.9  1960.8  1966.1  1992.5  2010.8  2037.1  3000
49 RY      97     98     100    98      88      88      100    99.4
   * *****

50 KK      SC-6B
51 KM      Compute hydrograph for sub-water shed SC-6B
52 BA      6.58
53 LS      1.765   60
54 UD      22.6
   * *****

55 KK      SC-7D
56 KM      Compute hydrograph for sub-water shed SC-7D
57 BA      6.15
58 LS      4.829   60
59 UD      25.6
   * *****

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

60 KK 3R  
 61 KM Route hydrograph from of SC-7D to node 3  
 62 RD  
 63 RC 0.08 0.03 0.08 8000 0.0001 106  
 64 RX 1000 1967.5 1977.9 1985.8 2007 2017.3 2081 3000  
 65 RY 97.2 98 90 84 84 90 98 97  
 \* \*\*\*\*\*

66 KK 3C  
 67 KM Combine three hydrograph at node 3  
 68 HC 3  
 \* \*\*\*\*\*

69 KK 4R  
 70 KM Route hydrograph from node 3 to node 4  
 71 RS 1 STOR -1  
 72 SV 0 114 489 779 1639 2929  
 73 SQ 0 680 1360 1700 2715 4240  
 \*  
 \* 0.08 0.03 0.08 14400 0.0006 103  
 \* 1000 1818.2 1830.9 1843.6 1867 1878.8 1890.6 2855.2  
 \* 89 90 84 78 78 84 90 89  
 \* \*\*\*\*\*

74 KK SC5A subwater-shed  
 75 KM Compute hydrograph for subwater shed SC-5A  
 76 BA 38.43  
 77 LS 2.575 60  
 78 UD 51  
 \* \*\*\*\*\*

79 KK SACANA  
 80 KM CANAL CROSSING  
 81 RS 1 ELEV 135 0  
 82 SS 140.67 2000 2.8 1.5  
 83 ST 140.82 2000 2.8 1.5  
 84 SW 2000 2000 2000  
 85 SE 140.96 141.14 141.28  
 86 SV 0 537 5484 7582  
 87 SE 135 140 145 150  
 \* \*\*\*\*\*

88 KK SAROUT  
 89 KM Route hydrograph TO DOWNSTREAM CANAL  
 90 RD  
 91 RC .06 .06 .06 11900 .0023 140  
 92 RX 0 1500 3140 3690 4560 5650 5885 7950  
 93 RY 140 135 130 125 122.5 125 130 135  
 \* \*\*\*\*\*



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

94 KK SC5A1 subwater-shed  
 95 KM Compute hydrograph for subwater shed SC-5A1  
 96 BA 5.64  
 97 LS 1.889 60  
 98 UD 14.8  
 \* \*\*\*\*\*

99 KK 5AA1  
 100 KM Combine two hydrographs  
 101 HC 2  
 \* \*\*\*\*\*

102 KK 5A1CAN  
 103 KM CANAL CROSSING  
 104 RS 1 ELEV 115 0  
 105 SS 116.8 1900 2.8 1.5  
 106 ST 117.2 4050 2.8 1.5  
 107 SV 0 2705  
 108 SE 115 120  
 \* \*\*\*\*\*

109 KK 5A1RT  
 110 KM Route hydrograph TO DOWNSTREAM CANAL  
 111 RD  
 112 RC .06 .06 .06 14900 .0017 110  
 113 RX 0 2580 4000 5000 6000 9675 10400 10450  
 114 RY 100 100 95 94 95 100 105 105  
 \* \*\*\*\*\*

115 KK SC5B subwater-shed  
 116 KM Compute hydrograph for subwater shed SC-5B  
 117 BA 9.02  
 118 LS 2.515 60  
 119 UD 13  
 \* \*\*\*\*\*

120 KK 4C1  
 121 KM Combine two hydrographs  
 122 HC 2  
 \* \*\*\*\*\*

123 KK SC-4A subwater-shed  
 124 KM Compute hydrograph for subwater shed SC-4A  
 125 BA 30.73  
 126 LS 2.512 60  
 127 UD 37.3  
 \* \*\*\*\*\*

128 KK 4ACANA  
 129 KM CANAL CROSSING  
 130 RS 1 ELEV 160 0  
 131 SS 171.74 500 2.8 1.5  
 132 ST 171.83 500 2.8 1.5  
 133 SW 500 500 500 500 500 500

1

LINE	ID	1	2	3	4	5	6	7	8	9	10
134	SE	171.91	172	172.08	172.17	172.26	172.35				
135	SV	0	60	946.5	4419						
136	SE	160	165	170	175						
* *****											
137	KK 4AROUT										
138	KM Route hydrograph TO DOWNSTREAM CANAL										
139	RD										
140	RC	.06	.06	.06	11300	.003	165				
141	RX	0	2500	3000	3500	4000	5000	6000	7650		
142	RY	155	155	150	150	155	155	155	155		
* *****											
143	KK SC-4A1 subwater-shed										
144	KM Compute hydrograph for subwater shed SC-4A1										
145	BA	7.34									
146	LS	2.158	60								
147	UD	10.85									
* *****											
148	KK SC4AA1										
149	KM Combine two hydrographs										
150	HC	2									
* *****											
151	KK 4A1CAN										
152	KM CANAL CROSSING										
153	RS	1	ELEV	140	0						
154	SS	141	4300	2.8	1.5						
155	ST	141.11	500	2.8	1.5						
156	SW	500	500								
157	SE	141.33	141.55								
158	SV	0	2475								
159	SE	140	145								
* *****											
160	KK 4A1ROU										
161	KM Route hydrograph TO DOWNSTREAM CANAL										
162	RD										
163	RC	.06	.06	.06	8000	.003	145				
164	RX	0	700	1500	1800	2300	2400	2425	2500		
165	RY	130	127.5	126.5	130	135	135	135	135		
* *****											
166	KK SC-4B subwater-shed										
167	KM Compute hydrograph for subwater shed SC-4B										
168	BA	5.44									
169	LS	3.062	60								
170	UD	6.6									
* *****											
* COMBINE WATERSHEDS SC-4A, 4A1, 4B											

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

171 KK SC4AAB  
172 KM Combine two hydrographs  
173 HC 2

\* \*\*\*\*\*

174 KK 4BCANA  
175 KM CANAL CROSSING  
176 RS 1 ELEV 110 0  
177 SS 113.48 500 2.8 1.5  
178 ST 113.65 500 2.8 1.5  
179 SW 500 500 500 500 500 500  
180 SE 113.82 113.99 114.15 114.32 114.49 114.66  
181 SV 0 473.8 2460  
182 SE 110 115 120

\* \*\*\*\*\*

183 KK 4AABRT  
184 KM Route hydrograph TO DOWNSTREAM CANAL  
185 RD  
186 RC .06 .06 .06 10800 .0018 105  
187 RX 0 1100 2000 2600 3000 3500 4000 5000  
188 RY 110 105 100 98 100 105 105 105

\* \*\*\*\*\*

189 KK SC-4B1 subwater-shed  
190 KM Compute hydrograph for subwater shed SC-4B1  
191 BA 6.07  
192 LS 2.451 60  
193 UD 12.2

\* \*\*\*\*\*

194 KK SC-4  
195 KM Combine two hydrographs  
196 HC 2

\* \*\*\*\*\*

197 KK 4C2  
198 KM Combine three hydrographs at node 4  
199 HC 3

\* \*\*\*\*\*

200 KK 5R  
201 KM Route hydrograph from node 4 to node 5  
202 RS 1 STOR -1  
203 SV 0 204 838 1406 3840 6496  
204 SQ 0 1110 2220 2775 4440 6940  
\*  
\* 0.08 0.03 0.08 12800 0.0002 106  
\* 1000 1101 1113.3 1132.9 1153.4 1166.2 1178.9 3000  
\* 87.1 82 78 70 70 78 86 86.5  
\* \*\*\*\*\*

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

205      KK      SC-3 SUB-WATER SHED
206      KM      Compute hydrograph for subwater shed SC-3
207      BA      56.44
208      LS      2.203      60
209      UD      62.9
* *****

210      KK      5C
211      KM      Combine two hydrographs at node 5
212      HC      2
* *****

213      KK      DIV1
214      KM      Diversion to Raymondville Drain
215      DT      DIV1
216      DI      0      15      224      511      1120      2355      4175      7265      10250
217      DQ      0      4      60      150      335      775      1475      3420      4650
* *****

218      KK      6R
219      KM      Route hydrograph from node 5 to node 6
220      RS      2      STOR      -1
221      SV      0      428      2369      3646      8785      12983
222      SQ      0      1315      2630      3290      5260      8220
*
* 0.08      0.03      0.08      7200      0.0002      103
* 1000      1891.2      1926.7      1980.9      2018.3      2105      2201.4      3000
* 82      82      86      70      70      88      86      83
* *****

223      KK      SC-3B
224      KM      Compute hydrograph from sub-water shed SC-3B
225      BA      6.71
226      LS      3.075      60
227      UD      34.4
* *****

228      KK      6C
229      KM      Combine two hydrographs at node 6
230      HC      2
* *****

231      KK      7R
232      KM      Route hydrograph from node 6 to node 7
233      RS      1      STOR      -1
234      SV      0      86      166      392      1932      3564
235      SQ      0      1345      2690      3360      5380      8400
*
* 0.08      0.03      0.08      25200      0.0004      103
* 1000      1856.6      1869.7      1896.8      1933.8      1960.1      2757.7      2915.9
* 86      86      78      70      70      86      86      88
* *****

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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236      KK      SC-2
237      KM      Compute hydrograph for SC-2
238      BA      11.48
239      LS      5.152      60
240      UD      56.8
          * *****

241      KK      7C
242      KM      Combine hydrograph at node 7
243      HC      2
          * *****

244      KK      8R
245      KM      Route hydrograph from node 7 to node 8
246      RS      2      STOR      -1
247      SV      0      314      1129      1807      4601      9248
248      SQ      0      1390      2780      3475      5560      8690
          *
          *      0.08      0.03      0.08      26400      0.0003      103
          *      1000      1927.4      1937.8      1947.9      2019.1      2035.6      2105.8      2948.1
          *      66      66      60      54      54      62      68      72
          * *****

249      KK      SC-1
250      KM      Compute hydrograph for SC-1
251      BA      7.07
252      LS      1.365      60
253      UD      38.7
          * *****

254      KK      8C1
255      KM      Combine hydrograph at node 8
256      HC      2
          * *****
          * Start calculating hydrograph for the sub water sheds
          * that drain to the South Main drain.
          * *****

257      KK      SC-8
258      KM      Compute hydrograph for subwater shed SC-8
259      BA      19.99
260      LS      1.861      68.50
261      UD      53.5
          * *****

262      KK      1BR
263      KM      Route hydrograph to node 1B
264      RD
265      RC      0.08      0.03      0.08      27200      0.0003      115
266      RX      1000      1695.7      1973      2003      2010.5      2029.5      2075.5      3000
267      RY      103.1      110      100      90      90      100      108      107
          * *****

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

268      KK   SM-18
269      KM   Compute hydrograph for sub-water shed SM-18
270      BA   27.11
271      LS   4.165   66.14
272      UD   55.8
          * *****

273      KK   1BC1
274      KM   Combine two hydrographs at node 1B
275      HC   2
          * *****

276      KK   SM-17
277      KM   Compute hydrograph for sub-water shed SM-17
278      BA   7.03
279      LS   0.834   70.51
280      UD   36.3
          * *****

281      KK   1BC2
282      KM   Combine two hydrographs at node 1B
283      HC   2
          * *****

284      KK   2BR
285      KM   Route hydrograph from node 1B to 2B
286      RD
287      RC   0.08   0.03   0.08   14400  0.0007   103
288      RX   1000  1335.2  1343  1354.8  1398.6  1411.9  1420.9  2375.6
289      RY   91     91     88     82     82     88     92     92
          * *****

290      KK   SM-16
291      KM   Compute hydrograph for SM-16
292      BA   25.18
293      LS   2.689   60
294      UD   61.6
          * *****

295      KK   2BC
296      KM   Combine hydrograph at node 2B
297      HC   2
          * *****

298      KK   3BR
299      KM   Route hydrograph from node 2B to node 3B
300      RD
301      RC   0.08   0.03   0.08   10400  0.0008   103
302      RX   1000  1760.1  1781.2  1826.3  1883.8  1920.1  1946.7  2799.8
303      RY   79     84     72     72     84     92     82     82.4
          * *****

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

304 KK SM-15 SUB-WATER SHED  
 305 KM Compute hydrograph for SM-15  
 306 BA 11.1  
 307 LS 1.378 60  
 308 UD 40.6  
 \* \*\*\*\*\*

309 KK 3BC  
 310 KM Combine hydrograph at node 3B  
 311 HC 2  
 \* \*\*\*\*\*

312 KK 4BR  
 313 KM Route hydrograph from node 3B to 4B  
 314 RD  
 315 RC 0.08 0.03 0.08 10400 0.0003 103  
 316 RX 1000 1962.3 1989.1 2026.6 2053.7 2129 2176 3000  
 317 RY 72.7 76 60 60 74 86 74 75.6  
 \* \*\*\*\*\*

318 KK SM-14 SUB-WATER SHED  
 319 KM Compute hydrograph for SM-14  
 320 BA 21.6  
 321 LS 1.666 60  
 322 UD 69.1  
 \* \*\*\*\*\*

323 KK 4BC  
 324 KM Combine hydrograph at node 4B  
 325 HC 2  
 \* \*\*\*\*\*

326 KK 8BR  
 327 KM Route hydrograph from node 4B to node 9  
 328 RD  
 329 RC 0.08 0.03 0.08 16000 0.0007 103  
 330 RX 1000 1885.8 1978.6 2036.9 2065.1 2149.5 2205 3000  
 331 RY 76 76 54 54 68 82 70 72  
 \* \*\*\*\*\*

332 KK SM-13  
 333 KM Compute hydrograph for SM-13  
 334 BA 22.25  
 335 LS 4.220 60  
 336 UD 74.5  
 \* \*\*\*\*\*

337 KK 8C2  
 338 KM Combine hydrograph at node 9  
 339 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

340 KK 8C3  
 341 KM Combine hydrographs from North-West and South drain  
 342 HC 2  
 \* \*\*\*\*\*  
 343 KK 9R  
 344 KM Route hydrograph to the PANCHITA STRUCTURE  
 345 RD  
 346 RC 0.08 0.03 0.08 46724 0.0004 103  
 347 RK 1000 1927.4 1937.8 1947.9 2019.1 2035.6 2105.8 2948.1  
 348 RY 66 66 60 54 54 62 68 72  
 \* \*\*\*\*\*

349 KK 29S SUB-WATER SHED  
 350 KM Compute hydrograph for 29S  
 351 BA 12.28  
 352 LS 3.021 60  
 353 UD 25.9  
 \* \*\*\*\*\*

354 KK Com9A  
 355 KM Combine two hydrographs at Node 9  
 356 HC 2  
 \* \*\*\*\*\*

357 KK 28S SUB-WATER SHED  
 358 KM Compute hydrograph for 28S  
 359 BA 25.91  
 360 LS 2.866 60  
 361 UD 38.6  
 \* \*\*\*\*\*

362 KK Com9B  
 363 KM Combine two hydrographs at Node 9  
 364 HC 2  
 \* \*\*\*\*\*

365 KK Rt10  
 366 KM Route hydrograph to Node 10  
 367 RS 1 STOR -1  
 368 SV 0 527.17 816.18 2044.31 5147.32 7902.66 9972.51  
 369 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

370 KK DIV2  
 371 KM TO WATERSHED SOUTH OF NORTH MAIN  
 372 DT DIV2  
 373 DI 0 7000 65000  
 374 DQ 0 2000 2000  
 \* \*\*\*\*\*



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

375 KK 27S SUB-WATER SHED
376 KM Compute hydrograph for 27S
377 BA 12.15
378 LS 2.977 61.92
379 UD 14.7
\* \*\*\*\*\*

380 KK Com10A
381 KM Combine two hydrographs at Node 10
382 HC 2
\* \*\*\*\*\*

383 KK 26S SUB-WATER SHED
384 KM Compute hydrograph for 26S
385 BA 10.55
386 LS 2.974 62.54
387 UD 13.6
\* \*\*\*\*\*

388 KK 24S SUB-WATER SHED
389 KM Compute hydrograph for 24S
390 BA 3.83
391 LS 2.940 62.11
392 UD 14.7
\* \*\*\*\*\*

393 KK Com10B
394 KM Combine three hydrographs at Node 10
395 HC 3
\* \*\*\*\*\*

396 KK Rt11
397 KM Route hydrograph to Node 11
398 RS 1 STOR -1
399 SV 0 249.3 385.44 1661.56 3718.66 5233.82 6730.05
400 SQ 0 1000 2000 4000 6000 8000 10000
\* \*\*\*\*\*

401 KK 22S SUB-WATER SHED
402 KM Compute hydrograph for 22S
403 BA 7.55
404 LS 3.000 62.90
405 UD 20.4
\* \*\*\*\*\*

406 KK Com11A
407 KM Combine two hydrographs at Node 11
408 HC 2
\* \*\*\*\*\*

LINE	ID	1	2	3	4	5	6	7	8	9	10
409	KK	20S SUB-WATER SHED									
410	KM	Compute hydrograph for 20S									
411	BA	10.57									
412	LS	2.847	60								
413	UD	24.0									
	*	*****									
414	KK	Com11B									
415	KM	Combine two hydrographs at Node 11									
416	HC	2									
	*	*****									
417	KK	Rt12									
418	KM	Route hydrograph to Node 12									
419	RS	1	STOR	-1							
420	SV	0	202.5	312.74	870.9	2706.99	3523.96	4130.87			
421	SQ	0	1000	2000	4000	6000	8000	10000			
	*	*****									
422	KK	18S SUB-WATER SHED									
423	KM	Compute hydrograph for 18S									
424	BA	4.69									
425	LS	2.885	60								
426	UD	16.5									
	*	*****									
427	KK	Com12									
428	KM	Combine two hydrographs at Node 12									
429	HC	2									
	*	*****									
430	KK	Rt13									
431	KM	Route hydrograph to Node 13									
432	RS	1	STOR	-1							
433	SV	0	71.07	113.63	427.96	987.6	1443.8	1838.89			
434	SQ	0	1000	2000	4000	6000	8000	10000			
	*	*****									
435	KK	16S SUB-WATER SHED									
436	KM	Compute hydrograph for 16S									
437	BA	9.60									
438	LS	3.705	60								
439	UD	23.5									
	*	*****									
440	KK	Com13A									
441	KM	Combine two hydrographs at Node 13									
442	HC	2									
	*	*****									

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

443      KK      15S SUB-WATER SHED
444      KM      Compute hydrograph for 15S
445      BA      25.08
446      LS      3.517      60
447      UD      36.4
          * *****

448      KK      Com13B
449      KM      Combine two hydrographs at Node 13
450      HC      2
          * *****

451      KK      Rt14
452      KM      Route hydrograph to Node 14
453      RS      1      STOR      -1
454      SV      0      325.09      531.58      2194.95      4313.68      5830.17      7281.01
455      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

456      KK      13S SUB-WATER SHED
457      KM      Compute hydrograph for 13S
458      BA      19.76
459      LS      3.807      60
460      UD      32.6
          * *****

461      KK      Com14A
462      KM      Combine two hydrographs at Node 14
463      HC      2
          * *****

464      KK      14S SUB-WATER SHED
465      KM      Compute hydrograph for 14S
466      BA      9.53
467      LS      3.060      60
468      UD      22.9
          * *****

469      KK      Com14B
470      KM      Combine two hydrographs at Node 14
471      HC      2
          * *****

472      KK      Rt15
473      KM      Route hydrograph to Node 15
474      RS      1      STOR      -1
475      SV      0      208.71      319.05      1791.94      3107.58      4264.72      5131.9
476      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

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LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

477 KK 11S SUB-WATER SHED  
 478 KM Compute hydrograph for 11S  
 479 BA 8.20  
 480 LS 2.970 61.62  
 481 UD 12.2

\* \*\*\*\*\*

482 KK Com15  
 483 KM Combine two hydrographs at Node 15  
 484 HC 2

\* \*\*\*\*\*

485 KK Rt16  
 486 KM Route hydrograph to Node 16  
 487 RS 1 STOR -1  
 488 SV 0 197.28 298.23 1677.59 3541.79 4950.66 5984.55  
 489 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

490 KK 7S SUB-WATER SHED  
 491 KM Compute hydrograph for 7S  
 492 BA 29.41  
 493 LS 3.141 60  
 494 UD 38.3

\* \*\*\*\*\*

495 KK Com16  
 496 KM Combine two hydrographs at Node 16  
 497 HC 2

\* \*\*\*\*\*

498 KK Rt17  
 499 KM Route hydrograph to Node 17  
 500 RS 1 STOR -1  
 501 SV 0 432.95 639.58 954.67 1433.05 2543.25 3518.78  
 502 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

503 KK 6S SUB-WATER SHED  
 504 KM Compute hydrograph for S6  
 505 BA 9.21  
 506 LS 2.183 60  
 507 UD 12.9

\* \*\*\*\*\*

508 KK Com17  
 509 KM Combine two hydrographs at Node 17  
 510 HC 2

\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

511 KK Rt18  
 512 KM Route hydrograph to Node 18  
 513 RS 1 STOR -1  
 514 SV 0 388.62 558.69 807.92 1617.19 3723.86 4996.12  
 515 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

516 KK 4S SUB-WATER SHED  
 517 KM Compute hydrograph for 4S  
 518 BA 22.35  
 519 LS 2.408 60  
 520 UD 19.6  
 \* \*\*\*\*\*

521 KK Com18A  
 522 KM Combine two hydrographs at Node 18  
 523 HC 2  
 \* \*\*\*\*\*

524 KK 3S SUB-WATER SHED  
 525 KM Compute hydrograph for 3S  
 526 BA 4.49  
 527 LS 1.153 60  
 528 UD 16.0  
 \* \*\*\*\*\*

529 KK Com18B  
 530 KM Combine two hydrographs at Node 18  
 531 HC 2  
 \* \*\*\*\*\*

532 KK Rt19  
 533 KM Route hydrograph to  
 534 RS 1 STOR -1  
 535 SV 0 130.79 184.8 301.29 542.75 727.63 1178.32  
 536 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

537 KK 2S SUB-WATER SHED  
 538 KM Compute hydrograph for S2  
 539 BA 5.35  
 540 LS 0.992 60  
 541 UD 10.0  
 \* \*\*\*\*\*

542 KK Com19A  
 543 KM Combine two hydrographs at Node 19  
 544 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

545 KK 1S SUB-WATER SHED  
 546 KM Compute hydrograph for 1S  
 547 BA 7.47  
 548 LS 1.659 60  
 549 UD 20.4  
 \* \*\*\*\*\*

550 KK Com19B  
 551 KM Combine two hydrographs at Node 19  
 552 HC 2  
 \* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the Raymondville drain.  
 \* \*\*\*\*\*

553 KK DIV1  
 554 KM Diversion to Raymondville Drain  
 555 DR DIV1  
 \* \*\*\*\*\*

556 KK SC-3A  
 557 KM Compute hydrograph for subwater shed SC-3A  
 558 BA 5.87  
 559 LS 1.917 60  
 560 UD 59  
 \* \*\*\*\*\*

561 KK 20C  
 562 KM Combine two hydrographs at Node 20  
 563 HC 2  
 \* \*\*\*\*\*

564 KK 21R  
 565 KM Route hydrograph to  
 566 RS 1 STOR -1  
 567 SV 0 64.7 144.55 233.22 852.15 4420.77  
 568 SQ 0 100 300 500 1000 3000  
 \* \*\*\*\*\*

569 KK 29aR SUB-WATER SHED  
 570 KM Compute hydrograph for 29aR  
 571 BA 4.84  
 572 LS 4.007 60  
 573 UD 21.9  
 \* \*\*\*\*\*

574 KK Com21A  
 575 KM Combine two hydrographs at Node 21  
 576 HC 2  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

577      KK    29R  SUB-WATER SHED
578      KM    Compute hydrograph for 29R
579      BA    18.03
580      LS    4.517      60
581      UD    31.2
          * *****

582      KK    Com21B
583      KM    Combine two hydrographs at Node 21
584      HC    2
          * *****

585      KK    22R
586      KM    Route hydrograph to
587      RS    1      STOR      -1
588      SV    0      40.43    87.14    124.86    203.76    953.84
589      SQ    0      100      300      500      1000      3000
          * *****
          *

590      KK    28aR SUB-WATER SHED
591      KM    Compute hydrograph for 28aR
592      BA    2.35
593      LS    5.536      60
594      UD    12.0
          * *****

595      KK    Com22
596      KM    Combine two hydrographs at Node 22
597      HC    2
          * *****

598      KK    Rt23
599      KM    Route hydrograph to Node 23
600      KO    1      1
601      RS    1      STOR      -1
602      SV    0      1061.6    3882.31    6218.63    8069.57    10221.7    14071.8    18286.4
603      SQ    0      1000      2000      3000      4000      5000      7500      10000
          * *****

604      KK    24R  SUB-WATER SHED
605      KM    Compute hydrograph for 24R
606      BA    22.22
607      LS    4.088      60
608      UD    34.4
          * *****

609      KK    Com23A
610      KM    Combine two hydrographs at Node 23
611      HC    2
          * *****

```

LINE	ID	1	2	3	4	5	6	7	8	9	10
612	KK	28R	SUB-WATER SHED								
613	KM	Compute hydrograph for 28R									
614	BA	4.68									
615	LS	7.319	60								
616	UD	15.7									
	*	*****									
	*	Rt24									
	*	Route hydrograph to Node 24									
	*	25000	0.0004	0.1	TRAP	40	2				
	*	*****									
617	KK	25R	SUB-WATER SHED								
618	KM	Compute hydrograph for 25R									
619	BA	8.99									
620	LS	4.347	60								
621	UD	22.3									
	*	*****									
622	KK	27R	SUB-WATER SHED								
623	KM	Compute hydrograph for 27R									
624	BA	23.93									
625	LS	3.830	60								
626	UD	34.1									
	*	*****									
627	KK	Com24									
628	KM	Combine three hydrographs									
629	HC	3									
	*	*****									
630	KK	Rt25									
631	KM	Route hydrograph to Node 25									
632	RD	37000	0.0004	0.1	TRAP	40	2				
	*	*****									
633	KK	22R	SUB-WATER SHED								
634	KM	Compute hydrograph for 22R									
635	BA	18.04									
636	LS	2.632	61.9								
637	UD	31.1									
	*	*****									
638	KK	Com25									
639	KM	Combine two hydrographs at Node 25									
640	HC	2									
	*	*****									
641	KK	19R	SUB-WATER SHED								
642	KM	Compute hydrograph for 19R									
643	BA	11.18									
644	LS	4.714	60								
645	UD	24.8									
	*	*****									



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

646 KK Com23B  
 647 KM Combine three hydrographs at Node 23  
 648 HC 3  
 \* \*\*\*\*\*  
 649 KK Rt26A  
 650 KM Route hydrograph to La Sal Viejo diversion  
 651 KO 1 1  
 652 RS 1 STOR -1  
 653 SV 0 31.13 45.65 55.71 440.39 728.35 1179.82 1531.01  
 654 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

655 KK DIV3  
 656 KM Diversion to La Sal Viejo  
 657 DT DIV3  
 658 DI 0 5 114 397 1231 2280 3859  
 659 DQ 0 0 33 210 712 1218 1792  
 \* \*\*\*\*\*

660 KK Rt26B  
 661 KM Route hydrograph to Node 26  
 662 KO 1 1  
 663 RS 1 STOR -1  
 664 SV 0 196.89 297.78 546.45 982.63 1367.28 2212.32 2871.48  
 665 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

666 KK 20R SUB-WATER SHED  
 667 KM Compute hydrograph for 20R  
 668 BA 18.78  
 669 LS 2.990 62.13  
 670 UD 20.6  
 \* \*\*\*\*\*

671 KK Com26  
 672 KM Combine two hydrographs  
 673 HC 2  
 \* \*\*\*\*\*  
 \* DIV4  
 \* Diversion to southern tributary of main Raymondville channel  
 \* DIV4  
 \* 0 8000 10000  
 \* 0 50 50  
 \* \*\*\*\*\*

674 KK Rt27A  
 675 KM Route hydrograph to Node 27  
 676 KO 1 1  
 677 RS 1 STOR -1  
 678 SV 0 1348.58 4980.12 8035.27 10783.8 14313.8 21699.7 25397.7  
 679 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

680      KK   13R  SUB-WATER SHED
681      KM   Compute hydrograph for 13R
682      BA   11.50
683      LS   3.032      60
684      UD   16.3
        * *****

685      KK   Com27A
686      KM   Combine two hydrographs at Node 27
687      HC   2
        * *****
        *   DIV4
        *   Diversion from main Raymondville channel
        *   DIV4
        * *****

688      KK   14R  SUB-WATER SHED
689      KM   Compute hydrograph for 14R
690      BA   9.24
691      LS   3.521      64.37
692      UD   22.6
        * *****
        *   Com
        *   Combine two hydrographs
        *   2
        * *****

693      KK   Rt27B
694      KM   Route hydrograph to Node 27
695      KO   1       1
696      RS   1       STOR      -1
697      SV   0      118.49  170.85  226.03  273.73  485.95  500.0
698      SQ   0      48.6    83.88  129.49  173.38  228.78  20000.0
        * *****

699      KK   Com27B
700      KM   Combine two hydrographs at Node 27
701      HC   2
        * *****

702      KK   Rt28
703      KM   Route hydrograph to Node 28
704      KO   1       1
705      RS   1       STOR      -1
706      SV   0      312.83  999.33  1918.42  2687.59  3301.82  4973.7  6268.16
707      SQ   0      1000    2000    3000    4000    5000    7500    10000
        * *****

708      KK   11R  SUB-WATER SHED
709      KM   Compute hydrograph for 11R
710      BA   10.09
711      LS   3.768      61.13
712      UD   11.0
        * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

713 KK Com28A  
 714 KM Combine two hydrographs at Node 28  
 715 HC 2  
 \* \*\*\*\*\*

716 KK 8R SUB-WATER SHED  
 717 KM Compute hydrograph for 8R  
 718 BA 11.62  
 719 LS 5.671 61.49  
 720 UD 11.8  
 \* \*\*\*\*\*

721 KK Com28B  
 722 KM Combine two hydrographs at Node 28  
 723 HC 2  
 \* \*\*\*\*\*

724 KK Rt29  
 725 KM Route hydrograph to Node 29  
 726 KO 1 1  
 727 RS 1 STOR -1  
 728 SV 0 449.95 1513.48 2080.16 2620.81 3076.31 4216.6 5147.07  
 729 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

730 KK 10R SUB-WATER SHED  
 731 KM Compute hydrograph for 10R  
 732 BA 21.47  
 733 LS 2.724 60  
 734 UD 19.2  
 \* \*\*\*\*\*

735 KK Com29  
 736 KM Combine two hydrographs at Node 29  
 737 HC 2  
 \* \*\*\*\*\*

738 KK Rt30  
 739 KM Route hydrograph to Node 30  
 740 KO 1 1  
 741 RS 1 STOR -1  
 742 SV 0 208.42 1163.8 1980.35 2627.06 3136.14 4076.55 4891.57  
 743 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

744 KK 6R SUB-WATER SHED  
 745 KM Compute hydrograph for 6R  
 746 BA 16.37  
 747 LS 3.175 60  
 748 UD 28.0  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

749 KK Com30A  
750 KM Combine two hydrographs at Node 30  
751 HC 2  
\* \*\*\*\*\*

752 KK 4R SUB-WATER SHED  
753 KM Compute hydrograph for 4R  
754 BA 4.73  
755 LS 2.992 60  
756 UD 15.9  
\* \*\*\*\*\*

757 KK Com30B  
758 KM Combine two hydrographs at Node 30  
759 HC 2  
\* \*\*\*\*\*

760 KK Rt31  
761 KM Route hydrograph to Node 31  
762 KO 1 1  
763 RS 1 STOR -1  
764 SV 0 555.09 2027.13 2913.81 3589.64 4070.74 5120.11 6031.24  
765 SQ 0 1000 2000 3000 4000 5000 7500 10000  
\* \*\*\*\*\*

766 KK 2R SUB-WATER SHED  
767 KM Compute hydrograph for 2R  
768 BA 5.58  
769 LS 1.806 60  
770 UD 11.4  
\* \*\*\*\*\*

771 KK Com31A  
772 KM Combine two hydrographs at Node 31  
773 HC 2  
\* \*\*\*\*\*

774 KK 3R SUB-WATER SHED  
775 KM Compute hydrograph for 3R  
776 BA 4.47  
777 LS 2.472 60  
778 UD 13.8  
\* \*\*\*\*\*

779 KK Com31B  
780 KM Combine two hydrographs at Node 31  
781 HC 2  
\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

782 KK Rt32  
 783 KM Route hydrograph to Node 32  
 784 KO 1 1  
 785 RS 1 STOR -1  
 786 SV 0 1067.13 3337.1 4908.7 6270.41 7335.83 9532.02 11388.6  
 787 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

788 KK 1R SUB-WATER SHED  
 789 KM Compute hydrograph for 1R  
 790 BA 16.89  
 791 LS 1.395 60  
 792 UD 19.6  
 \* \*\*\*\*\*

793 KK Com32  
 794 KM Combine two hydrographs at Node 32  
 795 HC 2  
 \* \*\*\*\*\*

796 KK DIV3  
 797 KM Diversion from Raymondville main channel to La Sal Viejo  
 798 DR DIV3  
 \* \*\*\*\*\*

799 KK 17R SUB-WATER SHED  
 800 KM Compute hydrograph for 17R  
 801 BA 6.47  
 802 LS 2.955 60  
 803 UD 19.1  
 \* \*\*\*\*\*

804 KK Com33A  
 805 KM Combine two hydrographs at La Sal Viejo  
 806 HC 2  
 \* \*\*\*\*\*

807 KK 23R SUB-WATER SHED  
 808 KM Compute hydrograph for 23R  
 809 BA 94.54  
 810 LS 2.901 60  
 811 UD 68.9  
 \* \*\*\*\*\*

812 KK Com33B  
 813 KM Combine two hydrographs at La Sal Viejo  
 814 HC 2  
 \* \*\*\*\*\*

## SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
5	SC-7A	
	V	
	V	
11	1R	
	.	
17	SC-7B	
	.	
22	1C.....	
	V	
	V	
25	2R	
	.	
31	SC-7C	
	.	
36	SC-6A	
	.	
41	2C.....	
	V	
	V	
44	3R	
	.	
50	SC-6B	
	.	
55	SC-7D	
	.	V
	.	V
60	3R	
	.	
66	3C.....	
	V	
	V	
69	4R	
	.	
74	SC5A	
	V	
	V	
79	5ACANA	
	V	
	V	
88	5AROUT	
	.	
94	SC5A1	
	.	
99	5AA1.....	
	V	
	V	
102	5A1CAN	
	V	
	V	
109	5A1RT	
	.	
115	SC5B	
	.	
120	4C1.....	
	.	
123	SC-4A	
	V	
	V	
128	4ACANA	
	V	

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

815	KK	LSV							
816	KM	Route hydrograph through La Sal Viejo							
817	KO	1	1						
818	RS	1	STOR	-1					
819	SV	0	1690	4532	9730	17040	18480	19000	
820	SQ	0	163	465	825	1230	1490	1550	
		*							
821	ZZ								

		V	
		4AROUT	
143			SC-4A1
148		SC4AA1	
		V	
151		4A1CAN	
		V	
160		4A1ROU	
		V	
166			SC-4B
171		SC4AAB	
		V	
174		4BCANA	
		V	
183		4AABRT	
		V	
189			SC-4B1
194		SC-4	
197	4C2		
	V		
200	5R		
			SC-3
210	5C		
215			
213	DIV1		DIV1
	V		
218	6R		
223			SC-3B
228	6C		
	V		
231	7R		
236			SC-2
241	7C		
	V		
244	8R		
249			SC-1
254	8C1		
257			SC-8
			V
262			1BR



268	.	.	SM-18
273	.	1BC1.....	.
276	.	.	SM-17
281	.	1BC2.....	.
	.	V	.
	.	V	.
284	.	2BR	.
290	.	.	SM-16
295	.	2BC.....	.
	.	V	.
	.	V	.
298	.	3BR	.
304	.	.	SM-15
309	.	3BC.....	.
	.	V	.
	.	V	.
312	.	4BR	.
318	.	.	SM-14
323	.	4BC.....	.
	.	V	.
	.	V	.
326	.	8BR	.
332	.	.	SM-13
337	.	8C2.....	.
340	.	8C3.....	.
	.	V	.
	.	V	.
343	.	9R	.
349	.	.	29S
354	.	Com9A.....	.
357	.	.	28S
362	.	Com9B.....	.
	.	V	.
	.	V	.
365	.	Rt10	.
372	.	----->	DIV2
370	.	DIV2	.
375	.	.	27S
380	.	Com10A.....	.

	.	26S	
	.	.	
388	.	.	24S
	.	.	
393	Com10B.....		
	V		
	V		
396	Rt11		
	.		
401	.	22S	
	.	.	
406	Com11A.....		
	.		
409	.	20S	
	.	.	
414	Com11B.....		
	V		
	V		
417	Rt12		
	.		
422	.	18S	
	.	.	
427	Com12.....		
	V		
	V		
430	Rt13		
	.		
435	.	16S	
	.	.	
	Com13A.....		
	.		
443	.	15S	
	.	.	
448	Com13B.....		
	V		
	V		
451	Rt14		
	.		
456	.	13S	
	.	.	
461	Com14A.....		
	.		
464	.	14S	
	.	.	
469	Com14B.....		
	V		
	V		
472	Rt15		
	.		
477	.	11S	
	.	.	
482	Com15.....		
	V		
	V		
485	Rt16		
	.		
490	.	7S	
	.	.	
	Com16.....		
	V		
	V		

498	Rt17	
503	.	6S
508	Com17.....	
	V	
511	Rt18	
516	.	4S
521	Com18A.....	
524	.	3S
529	Com18B.....	
	V	
532	Rt19	
537	.	2S
542	Com19A.....	
545	.	1S
550	Com19B.....	
555	.	<----- DIV1
553	DIV1	
556	.	SC-3A
561	20C.....	
	V	
564	21R	
569	.	29aR
574	Com21A.....	
577	.	29R
582	Com21B.....	
	V	
585	22R	
590	.	28aR
595	Com22.....	
	V	
598	Rt23	
604	.	24R
609	Com23A.....	

		28R	
617			25R
622			27R
627		Com24	
		V	
		V	
630		Rt25	
633			22R
638		Com25	
641			19R
646	Com23B		
	V		
	V		
649	Rt26A		
657		----->	DIV3
655	DIV3		
	V		
	V		
660	Rt26B		
666		20R	
671	Com26		
	V		
	V		
674	Rt27A		
680		13R	
685	Com27A		
688		14R	
		V	
		V	
693		Rt27B	
699	Com27B		
	V		
	V		
702	Rt28		
708		11R	
713	Com28A		
716		8R	
721	Com28B		
	V		
	V		
724	Rt29		
730		10R	

```

735 . . . . . Com29 . . . . .
    . . . . . V
    . . . . . V
738 . . . . . Rt30
    . . . . .
744 . . . . . 6R
    . . . . .
749 . . . . . Com30A . . . . .
    . . . . .
752 . . . . . 4R
    . . . . .
757 . . . . . Com30B . . . . .
    . . . . . V
    . . . . . V
760 . . . . . Rt31
    . . . . .
766 . . . . . 2R
    . . . . .
771 . . . . . Com31A . . . . .
    . . . . .
774 . . . . . 3R
    . . . . .
779 . . . . . Com31B . . . . .
    . . . . . V
    . . . . . V
782 . . . . . Rt32
    . . . . .
788 . . . . . 1R
    . . . . .
793 . . . . . Com32 . . . . .
    . . . . .
798 . . . . . <----- DIV3
796 . . . . . DIV3
    . . . . .
799 . . . . . 17R
    . . . . .
804 . . . . . Com33A . . . . .
    . . . . .
807 . . . . . 23R
    . . . . .
812 . . . . . Com33B . . . . .
    . . . . . V
    . . . . . V
815 . . . . . LSV

```

(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION





+		SC-1	197.	53.00	196.	186.	127.	7.07
+	2 COMBINED AT	8C1	1085.	56.00	1081.	1040.	879.	289.98
	HYDROGRAPH AT							
+		SC-8	410.	67.00	410.	399.	316.	19.99
	ROUTED TO							
+		1BR	410.	71.00	409.	398.	315.	19.99
	HYDROGRAPH AT							
+		SM-18	160.	72.00	160.	156.	125.	27.11
	2 COMBINED AT							
+		1BC1	569.	71.00	569.	553.	440.	47.10
	HYDROGRAPH AT							
+		SM-17	303.	50.00	302.	285.	187.	7.03
	2 COMBINED AT							
+		1BC2	799.	62.00	797.	768.	608.	54.13
	ROUTED TO							
+		2BR	799.	63.00	797.	768.	608.	54.13
	HYDROGRAPH AT							
+		SM-16	263.	76.00	262.	257.	215.	25.18
	2 COMBINED AT							
+		2BC	1044.	65.00	1041.	1008.	818.	79.31
	ROUTED TO							
+		3BR	1043.	66.00	1041.	1008.	817.	79.31
	HYDROGRAPH AT							
+		SM-15	291.	54.00	290.	277.	193.	11.10
	2 COMBINED AT							
+		3BC	1306.	63.00	1303.	1259.	1000.	90.41
	ROUTED TO							
+		4BR	1304.	64.00	1301.	1258.	1000.	90.41
	HYDROGRAPH AT							
+		SM-14	300.	82.00	300.	295.	255.	21.60
	2 COMBINED AT							
+		4BC	1565.	66.00	1561.	1515.	1240.	112.01
	ROUTED TO							
+		8BR	1564.	67.00	1561.	1515.	1240.	112.01
	HYDROGRAPH AT							
+		SM-13	80.	90.00	80.	79.	70.	22.25
	2 COMBINED AT							
+		8C2	1630.	68.00	1627.	1580.	1304.	134.26
	2 COMBINED AT							
+		8C3	2640.	63.00	2636.	2569.	2154.	424.24
	ROUTED TO							
+		9R	2638.	66.00	2633.	2566.	2153.	424.24
	HYDROGRAPH AT							
+		29S	266.	41.00	263.	235.	128.	12.28
	2 COMBINED AT							
+		Com9A	2722.	64.00	2718.	2651.	2235.	436.52
	HYDROGRAPH AT							
+		28S	394.	54.00	393.	372.	253.	25.91
	2 COMBINED AT							
+		Com9B	3074.	62.00	3068.	2981.	2470.	462.43
	ROUTED TO							
+		Rt10	2970.	70.00	2965.	2893.	2447.	462.43
	DIVERSION TO							



+		DIV2	849.	70.00	847.	827.	699.	462.43
	HYDROGRAPH AT							
+		DIV2	2122.	70.00	2118.	2066.	1748.	462.43
	HYDROGRAPH AT							
+		27S	472.	29.00	460.	343.	141.	12.15
	2 COMBINED AT							
+		Com10A	2131.	70.00	2128.	2078.	1774.	474.58
	HYDROGRAPH AT							
+		26S	448.	28.00	436.	314.	125.	10.55
	HYDROGRAPH AT							
+		24S	157.	29.00	153.	114.	47.	3.83
	3 COMBINED AT							
+		Com10B	2140.	69.00	2137.	2089.	1806.	488.96
	ROUTED TO							
+		Rt11	2106.	75.00	2103.	2073.	1805.	488.96
	HYDROGRAPH AT							
+		22S	227.	35.00	224.	187.	89.	7.55
	2 COMBINED AT							
+		Com11A	2121.	74.00	2119.	2092.	1852.	496.51
	HYDROGRAPH AT							
+		20S	268.	39.00	265.	232.	121.	10.57
	2 COMBINED AT							
+		Com11B	2160.	72.00	2159.	2144.	1951.	507.08
	ROUTED TO							
+		Rt12	2157.	75.00	2155.	2139.	1950.	507.08
	HYDROGRAPH AT							
+		18S	168.	31.00	165.	128.	55.	4.69
	2 COMBINED AT							
+		Com12	2160.	74.00	2159.	2146.	1983.	511.77
	ROUTED TO							
+		Rt13	2159.	76.00	2158.	2144.	1983.	511.77
	HYDROGRAPH AT							
+		16S	159.	39.00	158.	138.	71.	9.60
	2 COMBINED AT							
+		Com13A	2180.	73.00	2179.	2171.	2044.	521.37
	HYDROGRAPH AT							
+		15S	289.	52.00	287.	270.	178.	25.08
	2 COMBINED AT							
+		Com13B	2447.	50.00	2443.	2420.	2221.	546.45
	ROUTED TO							
+		Rt14	2386.	68.00	2385.	2370.	2210.	546.45
	HYDROGRAPH AT							
+		13S	216.	48.00	215.	199.	124.	19.76
	2 COMBINED AT							
+		Com14A	2536.	60.00	2534.	2510.	2326.	566.21
	HYDROGRAPH AT							
+		14S	230.	38.00	227.	196.	100.	9.53
	2 COMBINED AT							
+		Com14B	2623.	55.00	2621.	2594.	2406.	575.74
	ROUTED TO							
+		Rt15	2572.	65.00	2570.	2551.	2395.	575.74
	HYDROGRAPH AT							
+		11S	376.	26.00	364.	250.	96.	8.20
	2 COMBINED AT							

+		Com15	2576.	65.00	2575.	2556.	2421.	583.94
+	ROUTED TO							
+		Rt16	2546.	74.00	2545.	2529.	2399.	583.94
+	HYDROGRAPH AT							
+		7S	390.	54.00	389.	368.	249.	29.41
+	2 COMBINED AT							
+		Com16	2850.	65.00	2848.	2819.	2636.	613.35
+	ROUTED TO							
+		Rt17	2848.	67.00	2846.	2817.	2630.	613.35
+	HYDROGRAPH AT							
+		6S	537.	27.00	521.	365.	142.	9.21
+	2 COMBINED AT							
+		Com17	2856.	66.00	2854.	2827.	2657.	622.56
+	ROUTED TO							
+		Rt18	2854.	67.00	2852.	2826.	2653.	622.56
+	HYDROGRAPH AT							
+		4S	796.	34.00	783.	647.	303.	22.35
+	2 COMBINED AT							
+		Com18A	3102.	43.00	3083.	3016.	2809.	644.91
+	HYDROGRAPH AT							
+		3S	310.	30.00	302.	231.	98.	4.49
+	2 COMBINED AT							
+		Com18B	3241.	42.00	3214.	3094.	2849.	649.40
+	ROUTED TO							
+		Rt19	3235.	43.00	3210.	3092.	2848.	649.40
+	HYDROGRAPH AT							
+		2S	577.	23.00	552.	338.	122.	5.35
+	2 COMBINED AT							
+		Com19A	3291.	42.00	3261.	3120.	2865.	654.75
+	HYDROGRAPH AT							
+		1S	350.	35.00	345.	289.	137.	7.47
+	2 COMBINED AT							
+		Com19B	3575.	41.00	3538.	3309.	2961.	662.22
+	HYDROGRAPH AT							
+		DIV1	335.	48.00	333.	318.	289.	0.00
+	HYDROGRAPH AT							
+		SC-3A	91.	72.00	91.	89.	73.	5.87
+	2 COMBINED AT							
+		20C	395.	51.00	395.	392.	354.	5.87
+	ROUTED TO							
+		21R	391.	64.00	391.	387.	349.	5.87
+	HYDROGRAPH AT							
+		29aR	73.	37.00	72.	61.	31.	4.84
+	2 COMBINED AT							
+		Com21A	414.	54.00	413.	408.	374.	10.71
+	HYDROGRAPH AT							
+		29R	121.	47.00	120.	111.	67.	18.03
+	2 COMBINED AT							
+		Com21B	530.	51.00	528.	513.	439.	28.74
+	ROUTED TO							
+		22R	528.	53.00	526.	511.	437.	28.74
+	HYDROGRAPH AT							
+		28aR	12.	30.00	12.	8.	3.	2.35
+	2 COMBINED AT							

+		Com22	529.	53.00	527.	512.	439.	31.09
	ROUTED TO							
+		Rt23	475.	68.00	475.	467.	413.	31.09
	HYDROGRAPH AT							
+		24R	188.	50.00	187.	175.	112.	22.22
	2 COMBINED AT							
+		Com23A	624.	60.00	623.	604.	508.	53.31
	HYDROGRAPH AT							
+		28R	0.	1.00	0.	0.	0.	4.68
	HYDROGRAPH AT							
+		25R	101.	38.00	100.	86.	43.	8.99
	HYDROGRAPH AT							
+		27R	243.	50.00	241.	225.	144.	23.93
	3 COMBINED AT							
+		Com24	322.	45.00	320.	295.	186.	37.60
	ROUTED TO							
+		Rt25	314.	53.00	312.	289.	183.	37.60
	HYDROGRAPH AT							
+		22R	403.	46.00	401.	369.	223.	18.04
	2 COMBINED AT							
+		Com25	699.	49.00	695.	638.	397.	55.64
	HYDROGRAPH AT							
+		19R	81.	41.00	80.	71.	38.	11.18
	3 COMBINED AT							
+		Com23B	1342.	51.00	1336.	1262.	922.	120.13
	ROUTED TO							
+		Rt26A	1341.	52.00	1336.	1262.	922.	120.13
	DIVERSION TO							
+		DIV3	765.	52.00	763.	724.	524.	120.13
	HYDROGRAPH AT							
+		DIV3	576.	52.00	573.	537.	398.	120.13
	ROUTED TO							
+		Rt26B	571.	54.00	568.	533.	397.	120.13
	HYDROGRAPH AT							
+		20R	529.	35.00	521.	438.	211.	18.78
	2 COMBINED AT							
+		Com26	876.	43.00	869.	811.	580.	138.91
	ROUTED TO							
+		Rt27A	682.	59.00	680.	659.	531.	138.91
	HYDROGRAPH AT							
+		13R	378.	31.00	371.	288.	124.	11.50
	2 COMBINED AT							
+		Com27A	732.	53.00	731.	719.	613.	150.41
	HYDROGRAPH AT							
+		14R	201.	37.00	198.	171.	87.	9.24
	ROUTED TO							
+		Rt27B	128.	50.00	127.	115.	74.	9.24
	2 COMBINED AT							
+		Com27B	859.	51.00	857.	834.	687.	159.65
	ROUTED TO							
+		Rt28	851.	55.00	849.	827.	682.	159.65
	HYDROGRAPH AT							
+		11R	318.	26.00	307.	203.	76.	10.09
	2 COMBINED AT							

+		Com28A	861.	54.00	859.	843.	726.	169.74
	HYDROGRAPH AT							
+		8R	43.	30.00	41.	28.	11.	11.62
	2 COMBINED AT							
+		Com28B	864.	53.00	863.	848.	736.	181.36
	ROUTED TO							
+		Rt29	855.	58.00	854.	839.	724.	181.36
	HYDROGRAPH AT							
+		10R	682.	34.00	671.	551.	256.	21.47
	2 COMBINED AT							
+		Com29	1373.	37.00	1364.	1244.	952.	202.83
	ROUTED TO							
+		Rt30	1224.	45.00	1220.	1178.	947.	202.83
	HYDROGRAPH AT							
+		6R	301.	43.00	298.	270.	154.	16.37
	2 COMBINED AT							
+		Com30A	1523.	44.00	1516.	1445.	1098.	219.20
	HYDROGRAPH AT							
+		4R	167.	30.00	163.	125.	53.	4.73
	2 COMBINED AT							
+		Com30B	1595.	42.00	1590.	1520.	1144.	223.93
	ROUTED TO							
+		Rt31	1364.	56.00	1362.	1334.	1116.	223.93
	HYDROGRAPH AT							
+		2R	420.	25.00	403.	265.	99.	5.58
	2 COMBINED AT							
+		Com31A	1374.	55.00	1372.	1348.	1166.	229.51
	HYDROGRAPH AT							
+		3R	223.	28.00	217.	157.	63.	4.47
	2 COMBINED AT							
+		Com31B	1392.	53.00	1390.	1372.	1216.	233.98
	ROUTED TO							
+		Rt32	1234.	73.00	1233.	1221.	1119.	233.98
	HYDROGRAPH AT							
+		1R	873.	34.00	858.	710.	331.	16.89
	2 COMBINED AT							
+		Com32	1714.	39.00	1704.	1566.	1356.	250.87
	HYDROGRAPH AT							
+		DIV3	765.	52.00	763.	724.	524.	0.00
	HYDROGRAPH AT							
+		17R	195.	34.00	192.	158.	73.	6.47
	2 COMBINED AT							
+		Com33A	843.	48.00	841.	800.	580.	6.47
	HYDROGRAPH AT							
+		23R	706.	84.00	705.	695.	601.	94.54
	2 COMBINED AT							
+		Com33B	1285.	61.00	1280.	1254.	1104.	101.01
	ROUTED TO							
+		LSV	527.	129.00	527.	525.	512.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME (IN)	
						DT (MIN)	PEAK (CFS)		
1R	MANE	60.00	12.46	4860.00	0.08	60.00	12.46	4860.00	0.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7543E+02 EXCESS=0.0000E+00 OUTFLOW=0.7512E+02 BASIN STORAGE=0.7456E-02 PERCENT ERROR= 0.4									
2R	MANE	60.00	42.29	2760.00	0.12	60.00	42.29	2760.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1795E+03 EXCESS=0.0000E+00 OUTFLOW=0.1788E+03 BASIN STORAGE=0.2367E-01 PERCENT ERROR= 0.3									
3R	MANE	60.00	255.31	3300.00	0.28	60.00	255.31	3300.00	0.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+04 EXCESS=0.0000E+00 OUTFLOW=0.1385E+04 BASIN STORAGE=0.1986E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	38.55	2700.00	0.36	60.00	38.55	2700.00	0.36
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+03 EXCESS=0.0000E+00 OUTFLOW=0.1173E+03 BASIN STORAGE=0.5410E-02 PERCENT ERROR= 0.5									
5AROUT	MANE	39.00	417.48	5148.00	0.78	60.00	417.39	5160.00	0.78
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1606E+04 EXCESS=0.0000E+00 OUTFLOW=0.1606E+04 BASIN STORAGE=0.3599E+00 PERCENT ERROR= 0.0									
5AIRT	MANE	24.00	338.08	6384.00	0.51	60.00	337.86	6360.00	0.51
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1207E+04 EXCESS=0.0000E+00 OUTFLOW=0.1196E+04 BASIN STORAGE=0.1447E+01 PERCENT ERROR= 0.8									
4AROUT	MANE	60.00	42.18	7560.00	0.12	60.00	42.18	7560.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1900E+03 EXCESS=0.0000E+00 OUTFLOW=0.1897E+03 BASIN STORAGE=0.1295E+00 PERCENT ERROR= 0.1									
4A1ROU	MANE	12.00	202.04	2292.00	0.19	60.00	201.49	2280.00	0.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3809E+03 EXCESS=0.0000E+00 OUTFLOW=0.3792E+03 BASIN STORAGE=0.1776E+00 PERCENT ERROR= 0.4									
4AABRT	MANE	24.00	192.22	2640.00	0.17	60.00	192.22	2640.00	0.17
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4037E+03 EXCESS=0.0000E+00 OUTFLOW=0.4036E+03 BASIN STORAGE=0.7820E+00 PERCENT ERROR= -0.2									
1BR	MANE	60.00	409.64	4260.00	2.30	60.00	409.64	4260.00	2.30
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2456E+04 EXCESS=0.0000E+00 OUTFLOW=0.2456E+04 BASIN STORAGE=0.7541E-02 PERCENT ERROR= 0.0									
2BR	MANE	60.00	798.74	3780.00	1.63	60.00	798.74	3780.00	1.63
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4694E+04 EXCESS=0.0000E+00 OUTFLOW=0.4695E+04 BASIN STORAGE=0.7389E-02 PERCENT ERROR= 0.0									
3BR	MANE	49.62	1043.19	3919.96	1.54	60.00	1043.17	3960.00	1.54
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6502E+04 EXCESS=0.0000E+00 OUTFLOW=0.6502E+04 BASIN STORAGE=0.1632E+00 PERCENT ERROR= 0.0									

4BR MANE 58.58 1304.45 3808.01 1.62 60.00 1304.41 3840.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7831E+04 EXCESS=0.0000E+00 OUTFLOW=0.7831E+04 BASIN STORAGE=0.2376E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 1564.32 4020.00 1.70 60.00 1564.32 4020.00 1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1013E+05 EXCESS=0.0000E+00 OUTFLOW=0.1013E+05 BASIN STORAGE=0.7430E+00 PERCENT ERROR= 0.0

9R MANE 60.00 2637.66 3960.00 0.84 60.00 2637.66 3960.00 0.84

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1907E+05 EXCESS=0.0000E+00 OUTFLOW=0.1907E+05 BASIN STORAGE=0.8702E+01 PERCENT ERROR= 0.0

Rt25 MANE 60.00 314.22 3180.00 0.59 60.00 314.22 3180.00 0.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1199E+04 EXCESS=0.0000E+00 OUTFLOW=0.1193E+04 BASIN STORAGE=0.4836E+00 PERCENT ERROR= 0.4

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM		
	ELEVATION	135.00		140.67		140.82	
	STORAGE	0.		1200.		1348.	
	OUTFLOW	0.		0.		325.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	140.85	0.03	1375.	418.	21.00	82.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM		
	ELEVATION	115.00		116.80		117.20	
	STORAGE	0.		974.		1190.	
	OUTFLOW	0.		0.		1346.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	116.96	0.00	1060.	340.	0.00	98.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM		
	ELEVATION	160.00		171.74		171.83	
	STORAGE	0.		2155.		2217.	
	OUTFLOW	0.		0.		38.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	171.84	0.01	2222.	42.	17.00	121.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM		
	ELEVATION	140.00		141.00		141.11	
	STORAGE	0.		495.		549.	
	OUTFLOW	0.		0.		439.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.07	0.00	528.	205.	0.00	35.00	0.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM		
	ELEVATION	110.00		113.48		113.65	
	STORAGE	0.		330.		346.	
	OUTFLOW	0.		0.		98.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	113.75	0.10	355.	196.	10.00	40.00	0.00

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
25% DIVERSION**

**100-YEAR MODEL**



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1* *****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
*   RUN DATE 11/07/01 TIME 15:29:56 *
* *****

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*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
* *****

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X   X   XXXXXXX   XXXXX   X
X   X   X       X     X   XX
X   X   X       X     X   X
XXXXXXXX XXXX   X       XXXXX X
X   X   X       X     X   X
X   X   X       X     X   X
X   X   XXXXXXX   XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY, DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION

KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* \*\*\*\*\*  
 \* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Deten100.DAT Proposed with Detention Conditions  
 \* 100-year Rain-fall Future Development  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11  
 \*DIAGRAM

1 ID West Main drain area  
 2 ID 100-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 1 4.68 5.65 6.29 7.51 8.61 9.19  
 9 LS 5.721 60  
 10 UD 53.5  
 \* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0  
 \* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1  
 \* \*\*\*\*\*

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	176.	69.00	176.	171.	136.	18.40		
ROUTED TO	1R	176.	73.00	175.	170.	135.	18.40		
HYDROGRAPH AT	SC-7B	306.	35.00	302.	252.	120.	9.82		
2 COMBINED AT	1C	336.	37.00	333.	298.	228.	28.22		
ROUTED TO	2R	328.	41.00	325.	293.	226.	28.22		
HYDROGRAPH AT	SC-7C	568.	43.00	563.	508.	286.	23.00		
HYDROGRAPH AT	SC-6A	667.	66.00	666.	645.	499.	41.66		
3 COMBINED AT	2C	1333.	48.00	1328.	1269.	985.	92.88		
ROUTED TO	3R	1329.	52.00	1326.	1268.	984.	92.88		
HYDROGRAPH AT	SC-6B	521.	37.00	515.	444.	223.	6.58		
HYDROGRAPH AT	SC-7D	188.	41.00	186.	165.	89.	6.15		
ROUTED TO	3R	183.	42.00	182.	162.	89.	6.15		
3 COMBINED AT	3C	1858.	45.00	1850.	1744.	1267.	105.61		
ROUTED TO	4R	1688.	54.00	1683.	1624.	1261.	105.61		
HYDROGRAPH AT	SC5A	1085.	65.00	1084.	1051.	816.	38.43		
ROUTED TO	SACANA	1081.	68.00	1079.	1030.	715.	38.43	141.00	68.00
ROUTED TO	SAROUT	1081.	71.00	1078.	1029.	713.	38.43		
HYDROGRAPH AT	SC5A1	643.	29.00	627.	464.	190.	5.64		
2 COMBINED AT	5AA1	1092.	71.00	1089.	1039.	718.	44.07		
ROUTED TO	5A1CAN	1088.	73.00	1085.	1031.	712.	44.07	117.15	73.00
ROUTED TO	5A1RT	1087.	78.00	1084.	1031.	707.	44.07		
HYDROGRAPH AT	SC5B	995.	27.00	964.	675.	264.	9.02		
2 COMBINED AT	4C1	1089.	78.00	1086.	1034.	708.	53.09		

+	HYDROGRAPH AT	SC-4A	1213.	52.00	1209.	1142.	762.	30.73		
+	ROUTED TO	4ACANA	1012.	64.00	998.	835.	454.	30.73	172.32	64.00
+	ROUTED TO	4AROUT	1011.	66.00	997.	832.	452.	30.73		
+	HYDROGRAPH AT	SC-4A1	1024.	25.00	986.	632.	233.	7.34		
+	2 COMBINED AT	SC4AA1	1024.	25.00	1000.	833.	541.	38.07		
+	ROUTED TO	4A1CAN	1010.	67.00	996.	826.	499.	38.07	141.19	67.00
+	ROUTED TO	4A1ROU	1009.	69.00	994.	821.	495.	38.07		
+	HYDROGRAPH AT	SC-4B	913.	20.00	830.	414.	141.	5.44		
+	2 COMBINED AT	SC4AAB	1193.	29.00	1002.	821.	558.	43.51		
+	ROUTED TO	4BCANA	1180.	30.00	994.	818.	537.	43.51	114.19	30.00
+	ROUTED TO	4AABRT	1145.	32.00	991.	811.	535.	43.51		
+	HYDROGRAPH AT	SC-4B1	725.	26.00	699.	475.	181.	6.07		
+	2 COMBINED AT	SC-4	1667.	32.00	1428.	1024.	672.	49.58		
+	3 COMBINED AT	4C2	3435.	73.00	3386.	2967.	2510.	208.28		
+	ROUTED TO	5R	2814.	84.00	2808.	2710.	2418.	208.28		
+	HYDROGRAPH AT	SC-3	1380.	76.00	1379.	1353.	1138.	56.44		
+	2 COMBINED AT	5C	4175.	82.00	4165.	4026.	3491.	264.72		
+	DIVERSION TO	DIV1	1475.	82.00	1471.	1418.	1212.	264.72		
+	HYDROGRAPH AT	DIV1	2700.	82.00	2694.	2608.	2279.	264.72		
+	ROUTED TO	6R	2509.	99.00	2505.	2459.	2201.	264.72		
+	HYDROGRAPH AT	SC-3B	264.	49.00	263.	246.	157.	6.71		
+	2 COMBINED AT	6C	2546.	98.00	2543.	2499.	2292.	271.43		
+	ROUTED TO	7R	2546.	99.00	2542.	2498.	2292.	271.43		
+	HYDROGRAPH AT	SC-2	139.	72.00	139.	136.	110.	11.48		
+	2 COMBINED AT	7C	2645.	98.00	2642.	2597.	2399.	282.91		
+	ROUTED TO	8R	2622.	104.00	2619.	2578.	2387.	282.91		

+	HYDROGRAPH AT	SC-1	360.	52.00	359.	340.	231.	7.07
+	2 COMBINED AT	8C1	2685.	103.00	2682.	2646.	2532.	289.98
+	HYDROGRAPH AT	SC-8	770.	67.00	769.	748.	592.	19.99
+	ROUTED TO	1BR	769.	70.00	768.	747.	591.	19.99
+	HYDROGRAPH AT	SM-18	529.	70.00	529.	515.	415.	27.11
+	2 COMBINED AT	1BC1	1298.	70.00	1296.	1262.	1007.	47.10
+	HYDROGRAPH AT	SM-17	503.	50.00	502.	472.	310.	7.03
+	2 COMBINED AT	1BC2	1675.	63.00	1670.	1614.	1285.	54.13
+	ROUTED TO	2BR	1674.	64.00	1669.	1613.	1284.	54.13
+	HYDROGRAPH AT	SM-16	589.	75.00	588.	577.	482.	25.18
+	2 COMBINED AT	2BC	2228.	66.00	2224.	2160.	1755.	79.31
+	ROUTED TO	3BR	2228.	66.00	2223.	2159.	1755.	79.31
+	HYDROGRAPH AT	SM-15	534.	54.00	532.	507.	353.	11.10
+	2 COMBINED AT	3BC	2703.	64.00	2696.	2610.	2090.	90.41
+	ROUTED TO	4BR	2700.	65.00	2694.	2608.	2088.	90.41
+	HYDROGRAPH AT	SM-14	571.	82.00	570.	562.	486.	21.60
+	2 COMBINED AT	4BC	3206.	67.00	3199.	3106.	2547.	112.01
+	ROUTED TO	8BR	3205.	68.00	3198.	3106.	2547.	112.01
+	HYDROGRAPH AT	SM-13	282.	89.00	282.	278.	246.	22.25
+	2 COMBINED AT	8C2	3444.	69.00	3436.	3343.	2773.	134.26
+	2 COMBINED AT	8C3	5978.	69.00	5967.	5847.	5269.	424.24
+	ROUTED TO	9R	5966.	74.00	5956.	5841.	5266.	424.24
+	HYDROGRAPH AT	29S	634.	41.00	628.	560.	304.	12.28
+	2 COMBINED AT	Com9A	6086.	73.00	6077.	5967.	5408.	436.52
+	HYDROGRAPH AT	28S	916.	53.00	914.	866.	588.	25.91
+	2 COMBINED AT	Com9B	6747.	69.00	6738.	6614.	5910.	462.43
+	ROUTED TO	Rt10	6149.	84.00	6144.	6076.	5638.	462.43

+	DIVERSION TO							
		DIV2	1757.	84.00	1755.	1736.	1611.	462.43
+	HYDROGRAPH AT							
		DIV2	4392.	84.00	4388.	4340.	4027.	462.43
+	HYDROGRAPH AT							
		27S	1110.	29.00	1082.	803.	329.	12.15
+	2 COMBINED AT							
		Com10A	4396.	84.00	4393.	4345.	4041.	474.58
+	HYDROGRAPH AT							
		26S	1048.	28.00	1021.	732.	291.	10.55
+	HYDROGRAPH AT							
		24S	363.	29.00	354.	262.	107.	3.83
+	3 COMBINED AT							
		Com10B	4398.	84.00	4395.	4348.	4056.	488.96
+	ROUTED TO							
		Rt11	4292.	95.00	4290.	4263.	4028.	488.96
+	HYDROGRAPH AT							
		22S	529.	35.00	520.	436.	207.	7.55
+	2 COMBINED AT							
		Com11A	4299.	95.00	4297.	4271.	4049.	496.51
+	HYDROGRAPH AT							
		20S	615.	39.00	609.	533.	277.	10.57
+	2 COMBINED AT							
		Com11B	4321.	93.00	4319.	4294.	4111.	507.08
+	ROUTED TO							
		Rt12	4273.	103.00	4271.	4252.	4103.	507.08
+	HYDROGRAPH AT							
		18S	388.	31.00	380.	295.	127.	4.69
+	2 COMBINED AT							
		Com12	4273.	103.00	4271.	4252.	4111.	511.77
+	ROUTED TO							
		Rt13	4268.	106.00	4267.	4248.	4109.	511.77
+	HYDROGRAPH AT							
		16S	454.	38.00	449.	391.	202.	9.60
+	2 COMBINED AT							
		Com13A	4459.	43.00	4449.	4302.	4191.	521.37
+	HYDROGRAPH AT							
		15S	789.	52.00	787.	740.	488.	25.08
+	2 COMBINED AT							
		Com13B	5205.	45.00	5191.	5026.	4650.	546.45
+	ROUTED TO							
		Rt14	4741.	60.00	4737.	4691.	4536.	546.45
+	HYDROGRAPH AT							
		13S	644.	48.00	641.	595.	369.	19.76
+	2 COMBINED AT							
		Com14A	5288.	56.00	5280.	5171.	4810.	566.21
+	HYDROGRAPH AT							
		14S	551.	37.00	545.	471.	239.	9.53
+	2 COMBINED AT							
		Com14B	5536.	53.00	5528.	5412.	4946.	575.74
+	ROUTED TO							
		Rt15	5320.	63.00	5313.	5224.	4869.	575.74
+	HYDROGRAPH AT							
		11S	887.	26.00	855.	584.	223.	8.20

+	2 COMBINED AT	Com15	5333.	62.00	5327.	5239.	4881.	583.94
+	ROUTED TO	Rt16	5100.	76.00	5096.	5048.	4810.	583.94
+	HYDROGRAPH AT	7S	968.	53.00	965.	914.	619.	29.41
+	2 COMBINED AT	Com16	5778.	68.00	5771.	5675.	5249.	613.35
+	ROUTED TO	Rt17	5758.	71.00	5751.	5659.	5242.	613.35
+	HYDROGRAPH AT	6S	1101.	27.00	1068.	744.	290.	9.21
+	2 COMBINED AT	Com17	5767.	71.00	5760.	5669.	5255.	622.56
+	ROUTED TO	Rt18	5713.	76.00	5707.	5628.	5240.	622.56
+	HYDROGRAPH AT	4S	1698.	34.00	1669.	1379.	644.	22.35
+	2 COMBINED AT	Com18A	5805.	74.00	5799.	5726.	5429.	644.91
+	HYDROGRAPH AT	3S	553.	30.00	540.	413.	175.	4.49
+	2 COMBINED AT	Com18B	5816.	73.00	5810.	5739.	5521.	649.40
+	ROUTED TO	Rt19	5813.	75.00	5807.	5736.	5516.	649.40
+	HYDROGRAPH AT	2S	1018.	23.00	971.	594.	214.	5.35
+	2 COMBINED AT	Com19A	5868.	36.00	5831.	5736.	5560.	654.75
+	HYDROGRAPH AT	1S	664.	35.00	654.	547.	260.	7.47
+	2 COMBINED AT	Com19B	6522.	36.00	6466.	6020.	5762.	662.22
+	HYDROGRAPH AT	DIV1	1475.	82.00	1471.	1418.	1212.	0.00
+	HYDROGRAPH AT	SC-3A	178.	72.00	177.	174.	143.	5.87
+	2 COMBINED AT	20C	1645.	82.00	1641.	1582.	1353.	5.87
+	ROUTED TO	21R	1443.	97.00	1441.	1416.	1258.	5.87
+	HYDROGRAPH AT	29aR	227.	37.00	224.	192.	95.	4.84
+	2 COMBINED AT	Com21A	1447.	96.00	1445.	1421.	1278.	10.71
+	HYDROGRAPH AT	29R	488.	47.00	485.	447.	271.	18.03
+	2 COMBINED AT	Com21B	1552.	51.00	1550.	1512.	1468.	28.74
+	ROUTED TO	22R	1532.	56.00	1529.	1494.	1460.	28.74
+	HYDROGRAPH AT	28aR	106.	27.00	102.	70.	27.	2.35

+	2 COMBINED AT	Com22	1536.	55.00	1533.	1499.	1463.	31.09
	ROUTED TO	Rt23	1395.	112.00	1395.	1386.	1329.	31.09
+	HYDROGRAPH AT	24R	625.	50.00	623.	582.	372.	22.22
+	2 COMBINED AT	Com23A	1705.	57.00	1703.	1671.	1545.	53.31
+	HYDROGRAPH AT	28R	51.	33.00	50.	38.	16.	4.68
+	ROUTED TO	Rt24	47.	44.00	46.	35.	16.	4.68
+	HYDROGRAPH AT	25R	366.	37.00	362.	311.	156.	8.99
+	HYDROGRAPH AT	27R	733.	50.00	730.	682.	434.	23.93
+	3 COMBINED AT	Com24	1071.	44.00	1063.	970.	602.	37.60
+	ROUTED TO	Rt25	1050.	49.00	1043.	956.	596.	37.60
+	HYDROGRAPH AT	22R	882.	46.00	878.	809.	488.	18.04
+	2 COMBINED AT	Com25	1924.	47.00	1908.	1748.	1073.	55.64
+	HYDROGRAPH AT	19R	359.	40.00	355.	314.	167.	11.18
+	3 COMBINED AT	Com23B	3863.	48.00	3839.	3593.	2678.	120.13
+	ROUTED TO	Rt26A	3742.	53.00	3728.	3546.	2678.	120.13
+	DIVERSION TO	DIV3	1750.	53.00	1744.	1678.	1345.	120.13
+	HYDROGRAPH AT	DIV3	1993.	53.00	1983.	1868.	1333.	120.13
+	ROUTED TO	Rt26B	1988.	54.00	1979.	1865.	1329.	120.13
+	HYDROGRAPH AT	20R	1248.	35.00	1229.	1032.	494.	18.78
+	2 COMBINED AT	Com26	2637.	40.00	2625.	2488.	1740.	138.91
+	ROUTED TO	Rt27A	1666.	69.00	1663.	1630.	1461.	138.91
+	HYDROGRAPH AT	13R	907.	30.00	888.	688.	294.	11.50
+	2 COMBINED AT	Com27A	1728.	37.00	1701.	1679.	1589.	150.41
+	HYDROGRAPH AT	14R	528.	37.00	521.	449.	226.	9.24
+	ROUTED TO	Rt27B	638.	42.00	450.	308.	203.	9.24
+	2 COMBINED AT	Com27B	2271.	42.00	2071.	1956.	1792.	159.65
+	ROUTED TO	Rt28	1907.	68.00	1906.	1900.	1758.	159.65



+	HYDROGRAPH AT	11R	934.	25.00	898.	587.	218.	10.09
+	2 COMBINED AT	Com28A	1940.	49.00	1937.	1919.	1828.	169.74
+	HYDROGRAPH AT	8R	490.	27.00	474.	325.	124.	11.62
+	2 COMBINED AT	Com28B	2280.	29.00	2208.	2053.	1924.	181.36
+	ROUTED TO	Rt29	1913.	68.00	1913.	1910.	1833.	181.36
+	HYDROGRAPH AT	10R	1540.	34.00	1516.	1246.	575.	21.47
+	2 COMBINED AT	Com29	3161.	35.00	3139.	2863.	2311.	202.83
+	ROUTED TO	Rt30	2670.	46.00	2661.	2555.	2223.	202.83
+	HYDROGRAPH AT	6R	746.	43.00	740.	670.	381.	16.37
+	2 COMBINED AT	Com30A	3400.	45.00	3385.	3195.	2573.	219.20
+	HYDROGRAPH AT	4R	395.	30.00	385.	295.	125.	4.73
+	2 COMBINED AT	Com30B	3554.	43.00	3535.	3341.	2663.	223.93
+	ROUTED TO	Rt31	3058.	56.00	3047.	2935.	2498.	223.93
+	HYDROGRAPH AT	2R	815.	25.00	782.	512.	192.	5.58
+	2 COMBINED AT	Com31A	3078.	56.00	3067.	2957.	2523.	229.51
+	HYDROGRAPH AT	3R	478.	28.00	465.	335.	133.	4.47
+	2 COMBINED AT	Com31B	3109.	55.00	3099.	2992.	2593.	233.98
+	ROUTED TO	Rt32	2584.	76.00	2581.	2549.	2348.	233.98
+	HYDROGRAPH AT	1R	1608.	34.00	1582.	1307.	608.	16.89
+	2 COMBINED AT	Com32	2856.	36.00	2840.	2666.	2600.	250.87
+	HYDROGRAPH AT	DIV3	1750.	53.00	1744.	1678.	1345.	0.00
+	HYDROGRAPH AT	17R	458.	33.00	451.	369.	170.	6.47
+	2 COMBINED AT	Com33A	1909.	48.00	1905.	1872.	1474.	6.47
+	HYDROGRAPH AT	23R	1709.	83.00	1707.	1681.	1454.	94.54
+	2 COMBINED AT	Com33B	3103.	67.00	3099.	3020.	2747.	101.01
+	ROUTED TO	LSV	1158.	149.00	1158.	1155.	1132.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	175.66	4380.00	1.08	60.00	175.66	4380.00	1.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1056E+04 EXCESS=0.0000E+00 OUTFLOW=0.1056E+04 BASIN STORAGE=0.1018E-01 PERCENT ERROR= 0.0									
2R	MANE	60.00	327.51	2460.00	1.18	60.00	327.51	2460.00	1.18
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1777E+04 EXCESS=0.0000E+00 OUTFLOW=0.1776E+04 BASIN STORAGE=0.3912E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	1329.41	3120.00	1.48	60.00	1329.41	3120.00	1.48
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7334E+04 EXCESS=0.0000E+00 OUTFLOW=0.7333E+04 BASIN STORAGE=0.3812E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	183.40	2520.00	1.68	60.00	183.40	2520.00	1.68
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5506E+03 EXCESS=0.0000E+00 OUTFLOW=0.5498E+03 BASIN STORAGE=0.5648E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	48.00	1081.04	4272.00	2.44	60.00	1080.84	4260.00	2.44
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5000E+04 EXCESS=0.0000E+00 OUTFLOW=0.5004E+04 BASIN STORAGE=0.4968E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	1087.03	4680.00	2.20	60.00	1087.03	4680.00	2.20
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5164E+04 EXCESS=0.0000E+00 OUTFLOW=0.5163E+04 BASIN STORAGE=0.2022E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	33.00	1011.01	3960.00	1.80	60.00	1011.01	3960.00	1.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2946E+04 EXCESS=0.0000E+00 OUTFLOW=0.2946E+04 BASIN STORAGE=0.1572E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	18.00	1009.21	4140.00	1.89	60.00	1009.21	4140.00	1.89
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3835E+04 EXCESS=0.0000E+00 OUTFLOW=0.3834E+04 BASIN STORAGE=0.2044E+00 PERCENT ERROR= 0.0									
4AABRT	MANE	12.00	1147.06	1932.00	1.88	60.00	1144.65	1920.00	1.88
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4351E+04 EXCESS=0.0000E+00 OUTFLOW=0.4354E+04 BASIN STORAGE=0.8935E+00 PERCENT ERROR= -0.1									
1BR	MANE	60.00	768.80	4200.00	4.32	60.00	768.80	4200.00	4.32
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4607E+04 EXCESS=0.0000E+00 OUTFLOW=0.4607E+04 BASIN STORAGE=0.7847E-02 PERCENT ERROR= 0.0									
2BR	MANE	53.32	1674.43	3838.77	3.45	60.00	1674.37	3840.00	3.45
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9971E+04 EXCESS=0.0000E+00 OUTFLOW=0.9972E+04 BASIN STORAGE=0.1659E-01 PERCENT ERROR= 0.0									
3BR	MANE	38.36	2228.20	3989.46	3.31	60.00	2228.00	3960.00	3.31
INIVITY SUMMARY (AC-FT) - INFLOW=0.1402E+05 EXCESS=0.0000E+00 OUTFLOW=0.1402E+05 BASIN STORAGE=0.3455E+00 PERCENT ERROR= 0.0									

4BR MANE 46.65 2700.01 3872.27 3.41 60.00 2699.99 3900.00 3.41

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E+05 EXCESS=0.0000E+00 OUTFLOW=0.1646E+05 BASIN STORAGE=0.4912E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 3204.94 4080.00 3.49 60.00 3204.94 4080.00 3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2084E+05 EXCESS=0.0000E+00 OUTFLOW=0.2084E+05 BASIN STORAGE=0.1453E+01 PERCENT ERROR= 0.0

9R MANE 60.00 5965.77 4440.00 2.09 60.00 5965.77 4440.00 2.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4731E+05 EXCESS=0.0000E+00 OUTFLOW=0.4731E+05 BASIN STORAGE=0.1721E+02 PERCENT ERROR= 0.0

Rt24 MANE 60.00 46.61 2640.00 0.38 60.00 46.61 2640.00 0.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9694E+02 EXCESS=0.0000E+00 OUTFLOW=0.9480E+02 BASIN STORAGE=0.3377E+00 PERCENT ERROR= 1.9

Rt25 MANE 60.00 1050.06 2940.00 1.93 60.00 1050.06 2940.00 1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3869E+04 EXCESS=0.0000E+00 OUTFLOW=0.3861E+04 BASIN STORAGE=0.5026E+00 PERCENT ERROR= 0.2

1 - SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE			SPILLWAY CREST		TOP OF DAM	
	ELEVATION	135.00		140.67		140.82	
	STORAGE	0.		1200.		1348.	
	OUTFLOW	0.		0.		325.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.00	0.18	1522.	1081.	64.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE			SPILLWAY CREST		TOP OF DAM	
	ELEVATION	115.00		116.80		117.20	
	STORAGE	0.		974.		1190.	
	OUTFLOW	0.		0.		1346.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	117.15	0.00	1162.	1088.	0.00	73.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE			SPILLWAY CREST		TOP OF DAM	
	ELEVATION	160.00		171.74		171.83	
	STORAGE	0.		2155.		2217.	
	OUTFLOW	0.		0.		38.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	172.32	0.49	2555.	1012.	101.00	64.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE			SPILLWAY CREST		TOP OF DAM	
	ELEVATION	140.00		141.00		141.11	
	STORAGE	0.		495.		549.	
	OUTFLOW	0.		0.		439.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	141.19	0.08	590.	1010.	39.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1	INITIAL VALUE			SPILLWAY CREST		TOP OF DAM	
	ELEVATION	110.00		113.48		113.65	
	STORAGE	0.		330.		346.	
	OUTFLOW	0.		0.		98.	
RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	114.19	0.54	397.	1180.	106.00	30.00	0.00

NORMAL END OF HEC-1 \*\*\*

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
25% DIVERSION**

**500-YEAR MODEL**

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1 *****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
*   RUN DATE 11/12/01 TIME 13:29:38 *
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*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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X   X  XXXXXXXX  XXXXX      X
X   X  X        X   X      XX
X   X  X        X           X
XXXXXXX XXXX   X           XXXXX X
X   X  X        X           X
X   X  X        X   X      X
X   X  XXXXXXXX  XXXXX      XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* \*\*\*\*\*  
 \* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Deten500.DAT Proposed with Detention Conditions  
 \* 500-year Rain-fall Future Development  
 \* \*\*\*\*\*

\* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*

\* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11

\*DIAGRAM

1 ID West Main drain area  
 2 ID 500-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 0.2 6.21 7.66 8.83 10.75 12.35 13.23  
 9 LS 5.721 60  
 10 UD 53.5

\* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0

\* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1

\* \*\*\*\*\*







+		SC-1	648.	52.00	647.	613.	417.	7.07
+	2 COMBINED AT							
+		8C1	4893.	122.00	4891.	4854.	4601.	289.98
+	HYDROGRAPH AT							
+		SC-8	1392.	67.00	1390.	1352.	1071.	19.99
+	ROUTED TO							
+		1BR	1390.	70.00	1388.	1350.	1070.	19.99
+	HYDROGRAPH AT							
+		SM-18	1262.	70.00	1261.	1230.	990.	27.11
+	2 COMBINED AT							
+		1BC1	2652.	70.00	2649.	2580.	2060.	47.10
+	HYDROGRAPH AT							
+		SM-17	839.	50.00	836.	787.	517.	7.03
+	2 COMBINED AT							
+		1BC2	3271.	63.00	3260.	3158.	2523.	54.13
+	ROUTED TO							
+		2BR	3269.	64.00	3259.	3158.	2522.	54.13
+	HYDROGRAPH AT							
+		SM-16	1199.	75.00	1198.	1174.	980.	25.18
+	2 COMBINED AT							
+		2BC	4412.	67.00	4403.	4281.	3483.	79.31
+	ROUTED TO							
+		3BR	4410.	68.00	4401.	4278.	3482.	79.31
+	HYDROGRAPH AT							
+		SM-15	963.	54.00	961.	915.	638.	11.10
+	2 COMBINED AT							
+		3BC	5237.	65.00	5224.	5068.	4084.	90.41
+	ROUTED TO							
+		4BR	5173.	69.00	5162.	5016.	4069.	90.41
+	HYDROGRAPH AT							
+		SM-14	1056.	82.00	1055.	1039.	900.	21.60
+	2 COMBINED AT							
+		4BC	6165.	71.00	6154.	5991.	4919.	112.01
+	ROUTED TO							
+		8BR	6163.	71.00	6151.	5989.	4917.	112.01
+	HYDROGRAPH AT							
+		SM-13	704.	88.00	703.	694.	613.	22.25
+	2 COMBINED AT							
+		8C2	6802.	73.00	6790.	6619.	5484.	134.26
+	2 COMBINED AT							
+		8C3	10858.	73.00	10848.	10692.	9655.	424.24
+	ROUTED TO							
+		9R	10798.	82.00	10787.	10636.	9626.	424.24
+	HYDROGRAPH AT							
+		29S	1331.	41.00	1320.	1176.	638.	12.28
+	2 COMBINED AT							
+		Com9A	10949.	81.00	10939.	10790.	9811.	436.52
+	HYDROGRAPH AT							
+		28S	1901.	53.00	1897.	1797.	1220.	25.91
+	2 COMBINED AT							
+		Com9B	11949.	74.00	11937.	11770.	10721.	462.43
+	ROUTED TO							
+		Rt.10	11514.	87.00	11503.	11344.	10289.	462.43
+	DIVERSION TO							



+		Com15	10123.	60.00	10095.	9753.	9278.	583.94
	ROUTED TO							
+		Rt16	9694.	68.00	9673.	9414.	9177.	583.94
	HYDROGRAPH AT							
+		7S	2078.	53.00	2072.	1962.	1327.	29.41
	2 COMBINED AT							
+		Com16	11383.	65.00	11351.	10934.	9982.	613.35
	ROUTED TO							
+		Rt17	10828.	73.00	10810.	10600.	9915.	613.35
	HYDROGRAPH AT							
+		6S	2125.	27.00	2061.	1435.	558.	9.21
	2 COMBINED AT							
+		Com17	10840.	73.00	10823.	10612.	9923.	622.56
	ROUTED TO							
+		Rt18	10615.	80.00	10594.	10352.	9803.	622.56
	HYDROGRAPH AT							
+		4S	3358.	34.00	3304.	2730.	1272.	22.35
	2 COMBINED AT							
+		Com18A	10731.	79.00	10712.	10460.	9863.	644.91
	HYDROGRAPH AT							
+		3S	979.	30.00	958.	733.	310.	4.49
	2 COMBINED AT							
+		Com18B	10743.	79.00	10723.	10471.	9869.	649.40
	ROUTED TO							
+		Rt19	10712.	82.00	10692.	10446.	9859.	649.40
	HYDROGRAPH AT							
+		2S	1786.	23.00	1702.	1041.	376.	5.35
	2 COMBINED AT							
+		Com19A	10712.	82.00	10692.	10446.	9859.	654.75
	HYDROGRAPH AT							
+		1S	1221.	34.00	1206.	1007.	479.	7.47
	2 COMBINED AT							
+		Com19B	10850.	36.00	10788.	10486.	9883.	662.22
	HYDROGRAPH AT							
+		DIV1	4650.	76.00	4644.	4555.	3845.	0.00
	HYDROGRAPH AT							
+		SC-3A	334.	72.00	334.	326.	268.	5.87
	2 COMBINED AT							
+		20C	4983.	76.00	4976.	4878.	4114.	5.87
	ROUTED TO							
+		21R	4512.	92.00	4506.	4424.	3775.	5.87
	HYDROGRAPH AT							
+		29aR	540.	36.00	534.	456.	225.	4.84
	2 COMBINED AT							
+		Com21A	4526.	92.00	4520.	4439.	3803.	10.71
	HYDROGRAPH AT							
+		29R	1279.	46.00	1272.	1173.	709.	18.03
	2 COMBINED AT							
+		Com21B	4711.	89.00	4707.	4633.	4129.	28.74
	ROUTED TO							
+		22R	4675.	94.00	4670.	4599.	4112.	28.74
	HYDROGRAPH AT							
+		28aR	345.	26.00	333.	226.	86.	2.35
	2 COMBINED AT							

+		Com22	4675.	94.00	4670.	4599.	4114.	31.09
	ROUTED TO							
+		Rt23	4145.	113.00	4142.	4095.	3713.	31.09
	HYDROGRAPH AT							
+		24R	1527.	49.00	1521.	1422.	908.	22.22
	2 COMBINED AT							
+		Com23A	4264.	110.00	4262.	4222.	3911.	53.31
	HYDROGRAPH AT							
+		28R	359.	31.00	352.	270.	114.	4.68
	ROUTED TO							
+		Rt24	340.	36.00	333.	257.	113.	4.68
	HYDROGRAPH AT							
+		25R	925.	37.00	913.	785.	392.	8.99
	HYDROGRAPH AT							
+		27R	1722.	49.00	1716.	1602.	1018.	23.93
	3 COMBINED AT							
+		Com24	2734.	41.00	2717.	2481.	1515.	37.60
	ROUTED TO							
+		Rt25	2703.	45.00	2684.	2452.	1506.	37.60
	HYDROGRAPH AT							
+		22R	1763.	45.00	1755.	1617.	975.	18.04
	2 COMBINED AT							
+		Com25	4466.	45.00	4439.	4066.	2469.	55.64
	HYDROGRAPH AT							
+		19R	971.	40.00	962.	849.	450.	11.18
	3 COMBINED AT							
+		Com23B	8322.	47.00	8281.	7810.	6131.	120.13
	ROUTED TO							
+		Rt26A	8280.	48.00	8240.	7753.	6094.	120.13
	DIVERSION TO							
+		DIV3	349.	48.00	348.	337.	273.	120.13
	HYDROGRAPH AT							
+		DIV3	7931.	48.00	7892.	7416.	5821.	120.13
	ROUTED TO							
+		Rt26B	7719.	53.00	7675.	7243.	5774.	120.13
	HYDROGRAPH AT							
+		20R	2594.	35.00	2555.	2145.	1026.	18.78
	2 COMBINED AT							
+		Com26	8759.	50.00	8724.	8251.	6442.	138.91
	ROUTED TO							
+		Rt27A	5426.	78.00	5421.	5368.	5116.	138.91
	HYDROGRAPH AT							
+		13R	1915.	30.00	1875.	1447.	618.	11.50
	2 COMBINED AT							
+		Com27A	5455.	77.00	5451.	5396.	5143.	150.41
	HYDROGRAPH AT							
+		14R	1148.	37.00	1134.	978.	491.	9.24
	ROUTED TO							
+		Rt27B	1361.	36.00	1134.	916.	457.	9.24
	2 COMBINED AT							
+		Com27B	5667.	76.00	5662.	5601.	5308.	159.65
	ROUTED TO							
		Rt28	5581.	85.00	5578.	5533.	5277.	159.65
	HYDROGRAPH AT							

+		11R	2168.	25.00	2085.	1348.	499.	10.09
+	2 COMBINED AT							
+		Com28A	5581.	85.00	5578.	5533.	5280.	169.74
+	HYDROGRAPH AT							
+		8R	1676.	26.00	1620.	1094.	415.	11.62
+	2 COMBINED AT							
+		Com28B	5581.	85.00	5578.	5533.	5283.	181.36
+	ROUTED TO							
+		Rt29	5549.	91.00	5547.	5506.	5272.	181.36
+	HYDROGRAPH AT							
+		10R	3150.	33.00	3103.	2545.	1174.	21.47
+	2 COMBINED AT							
+		Com29	7345.	35.00	7274.	6549.	5808.	202.83
+	ROUTED TO							
+		Rt30	6663.	42.00	6607.	6096.	5667.	202.83
+	HYDROGRAPH AT							
+		6R	1597.	43.00	1586.	1436.	815.	16.37
+	2 COMBINED AT							
+		Com30A	8259.	42.00	8193.	7501.	6359.	219.20
+	HYDROGRAPH AT							
+		4R	825.	30.00	806.	615.	259.	4.73
+	2 COMBINED AT							
+		Com30B	8653.	41.00	8585.	7826.	6499.	223.93
+	ROUTED TO							
+		Rt31	7950.	48.00	7896.	7340.	6322.	223.93
+	HYDROGRAPH AT							
+		2R	1521.	25.00	1461.	955.	357.	5.58
+	2 COMBINED AT							
+		Com31A	8064.	47.00	8005.	7435.	6364.	229.51
+	HYDROGRAPH AT							
+		3R	946.	28.00	921.	661.	263.	4.47
+	2 COMBINED AT							
+		Com31B	8227.	47.00	8167.	7573.	6426.	233.98
+	ROUTED TO							
+		Rt32	6722.	62.00	6707.	6527.	6049.	233.98
+	HYDROGRAPH AT							
+		1R	2905.	34.00	2865.	2365.	1101.	16.89
+	2 COMBINED AT							
+		Com32	7234.	58.00	7213.	6981.	6303.	250.87
+	HYDROGRAPH AT							
+		DIV3	349.	48.00	348.	337.	273.	0.00
+	HYDROGRAPH AT							
+		17R	954.	33.00	939.	768.	353.	6.47
+	2 COMBINED AT							
+		Com33A	1172.	37.00	1149.	994.	592.	6.47
+	HYDROGRAPH AT							
+		23R	3628.	82.00	3625.	3570.	3089.	94.54
+	2 COMBINED AT							
+		Com33B	3878.	81.00	3876.	3833.	3391.	101.01
+	ROUTED TO							
+		LSV	1554.	139.00	1553.	1545.	1466.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ID	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	614.33	4260.00	3.76	60.00	614.33	4260.00	3.76
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3685E+04 EXCESS=0.0000E+00 OUTFLOW=0.3686E+04 BASIN STORAGE=0.8150E-02 PERCENT ERROR= 0.0									
2R	MANE	60.00	1059.05	2580.00	3.91	60.00	1059.05	2580.00	3.91
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5883E+04 EXCESS=0.0000E+00 OUTFLOW=0.5889E+04 BASIN STORAGE=0.2276E-01 PERCENT ERROR= -0.1									
3R	MANE	60.00	3859.20	3180.00	4.26	60.00	3859.20	3180.00	4.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2114E+05 EXCESS=0.0000E+00 OUTFLOW=0.2111E+05 BASIN STORAGE=0.1006E+00 PERCENT ERROR= 0.1									
3R	MANE	60.00	506.73	2460.00	4.60	60.00	506.73	2460.00	4.60
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1509E+04 EXCESS=0.0000E+00 OUTFLOW=0.1507E+04 BASIN STORAGE=0.5237E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	60.00	2190.54	4140.00	5.53	60.00	2190.54	4140.00	5.53
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1132E+05 EXCESS=0.0000E+00 OUTFLOW=0.1133E+05 BASIN STORAGE=0.6137E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	2216.61	4320.00	5.31	60.00	2216.61	4320.00	5.31
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+05 EXCESS=0.0000E+00 OUTFLOW=0.1247E+05 BASIN STORAGE=0.2463E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	39.00	2399.22	3354.00	4.92	60.00	2398.84	3360.00	4.92
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8063E+04 EXCESS=0.0000E+00 OUTFLOW=0.8066E+04 BASIN STORAGE=0.1845E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	33.00	2431.12	3465.00	5.04	60.00	2429.39	3480.00	5.05
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1024E+05 EXCESS=0.0000E+00 OUTFLOW=0.1024E+05 BASIN STORAGE=0.2400E+00 PERCENT ERROR= -0.1									
4AABRT	MANE	15.00	2946.33	1650.00	5.04	60.00	2872.84	1680.00	5.04
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1168E+05 EXCESS=0.0000E+00 OUTFLOW=0.1169E+05 BASIN STORAGE=0.1024E+01 PERCENT ERROR= -0.1									
1BR	MANE	60.00	1389.67	4200.00	7.81	60.00	1389.67	4200.00	7.81
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8329E+04 EXCESS=0.0000E+00 OUTFLOW=0.8329E+04 BASIN STORAGE=0.1072E-01 PERCENT ERROR= 0.0									
2BR	MANE	39.95	3269.23	3875.55	6.80	60.00	3269.02	3840.00	6.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1964E+05 EXCESS=0.0000E+00 OUTFLOW=0.1964E+05 BASIN STORAGE=0.1748E-01 PERCENT ERROR= 0.0									
3BR	MANE	41.65	4409.98	4081.26	6.59	60.00	4409.93	4080.00	6.59
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2788E+05 EXCESS=0.0000E+00 OUTFLOW=0.2788E+05 BASIN STORAGE=0.7011E+00 PERCENT ERROR= 0.0									

4BR	MANE	56.09	5174.19	4151.03	6.68	60.00	5173.48	4140.00	6.68
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3228E+05 EXCESS=0.0000E+00 OUTFLOW=0.3220E+05 BASIN STORAGE=0.1039E+01 PERCENT ERROR= 0.2									
8BR	MANE	50.18	6163.49	4265.40	6.75	60.00	6162.93	4260.00	6.75
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4031E+05 EXCESS=0.0000E+00 OUTFLOW=0.4031E+05 BASIN STORAGE=0.2775E+01 PERCENT ERROR= 0.0									
9R	MANE	60.00	10797.99	4920.00	4.23	60.00	10797.99	4920.00	4.23
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9587E+05 EXCESS=0.0000E+00 OUTFLOW=0.9575E+05 BASIN STORAGE=0.3504E+02 PERCENT ERROR= 0.1									
Rt24	MANE	57.00	339.66	2166.00	2.69	60.00	339.55	2160.00	2.69
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6788E+03 EXCESS=0.0000E+00 OUTFLOW=0.6721E+03 BASIN STORAGE=0.2698E+00 PERCENT ERROR= 0.9									
Rt25	MANE	60.00	2702.75	2700.00	4.83	60.00	2702.75	2700.00	4.83
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9688E+04 EXCESS=0.0000E+00 OUTFLOW=0.9681E+04 BASIN STORAGE=0.5466E+00 PERCENT ERROR= 0.1									



1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.13	0.31	1656.	2190.	97.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	117.30	0.10	1243.	2217.	47.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	172.70	0.87	2821.	2399.	129.00	55.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.34	0.23	665.	2431.	78.00	56.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	114.67	1.02	443.	3043.	135.00	26.00	0.00

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
50% DIVERSION**

**25-YEAR MODEL**

```

1 *****
FLOOD HYDROGRAPH PACKAGE (HEC-1) *
MAY 1991 *
VERSION 4.0.1E *
Lahey F77L-EM/32 version 5.01 *
Dodson & Associates, Inc. *
RUN DATE 05/23/01 TIME 17:30:09 *
*****

```

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*
*****

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X X XXXXXXX XXXXX X
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X X X X X
X X X X X
X X XXXXXXX XXXXX XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

* *****
* Hidalgo County Flood Insurance Study
* Job No. 11-00389-002
* File Name: Deten025.DAT Proposed with Detention Conditions
* 25-year Rain-fall Future Development
* *****

```

```

* HEC-1 model for the North-West main drain area
* Model sequence is as follows:
* *****

```

```

* revised rainfall from USGS report 98-4044
* REVISED CN TYPE I ANTECEDANT
* REVISED LAG BASED ON REVISED CN I
* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN
* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE
* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.
* ROUTED S&4 BASINS THROUGH STORAGE
* MODIFIED PULS ROUTING REACHES 5R-9R
* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11
*DIAGRAM

```

```

1 ID West Main drain area
2 ID 25-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
3 IT 60 1JAN01 0 300
4 IO 5

```

```

* *****
* Start calculating hydrograph for the sub water sheds
* that drain to the West Main drain.
* *****

```

```

5 KK SC-7A SUBWATER SHED
6 KM Compute hydrograph for sub-water shed SC-7A
7 BA 18.4
8 PH 4 3.61 4.29 4.65 5.45 6.22 6.62
9 LS 5.721 60
10 UD 53.5

```

\* \*\*\*\*\*

```

11 KK 1R
12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method
13 RD
14 RC 0.08 0.03 0.08 19200 0.0002 217
15 RX 1000 2500 2917 2994 3005 3061 4500 5000
16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0

```

\* \*\*\*\*\*

```

17 KK SC-7B SUBWATER SHED
18 KM Compute hydrograph for sub-water shed SC-7B
19 BA 9.82
20 LS 5.282 60
21 UD 20.1

```

\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

22      KK      1C
23      KM      Combine hydrograph from SC-7A and SC-7B, at node 1
24      HC      2
      * *****

25      KK      2R
26      KM      Route hydrograph from node 1 to node 2
27      RD
28      RC      0.08      0.03      0.08      32000      0.0002      187
29      RX      1000      2500      2977      2994      3005      3032      4500      5000
30      RY      175      173      172      160.91      160.91      174.0      173.0      175.0
      * *****

31      KK      SC-7C SUBWATER SHED
32      KM      Compute hydrograph for sub-water shed SC-7C
33      BA      23
34      LS      5.028      60
35      UD      27.4
      * *****

36      KK      SC-6A
37      KM      Compute hydrograph for sub-water shed SC-6A
38      BA      41.66
39      LS      4.484      60
40      UD      50.5
      * *****

41      KK      2C
42      KM      Combine hydrograph at node 2
43      HC      3
      * *****

44      KK      3R
45      KM      Route hydrograph from node 2 to node 3
46      RD
47      RC      0.08      0.03      0.08      20800      0.0005      106
48      RX      1000      1874.9      1960.8      1966.1      1992.5      2010.8      2037.1      3000
49      RY      97      98      100      98      88      88      100      99.4
      * *****

50      KK      SC-6B
51      KM      Compute hydrograph for sub-water shed SC-6B
52      BA      6.58
53      LS      1.765      60
54      UD      22.6
      * *****

55      KK      SC-7D
56      KM      Compute hydrograph for sub-water shed SC-7D
57      BA      6.15
58      LS      4.829      60
59      UD      25.6
      * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

60 KK 3R  
 61 KM Route hydrograph from of SC-7D to node 3  
 62 RD  
 63 RC 0.08 0.03 0.08 8000 0.0001 106  
 64 RX 1000 1967.5 1977.9 1985.8 2007 2017.3 2081 3000  
 65 RY 97.2 98 90 84 84 90 98 97  
 \* \*\*\*\*\*

66 KK 3C  
 67 KM Combine three hydrograph at node 3  
 68 HC 3  
 \* \*\*\*\*\*

69 KK 4R  
 70 KM Route hydrograph from node 3 to node 4  
 71 RS 1 STOR -1  
 72 SV 0 114 489 779 1639 2929  
 73 SQ 0 680 1360 1700 2715 4240  
 \*  
 \* 0.08 0.03 0.08 14400 0.0006 103  
 \* 1000 1818.2 1830.9 1843.6 1867 1878.8 1890.6 2855.2  
 \* 89 90 84 78 78 84 90 89  
 \* \*\*\*\*\*

74 KK SC5A subwater-shed  
 75 KM Compute hydrograph for subwater shed SC-5A  
 76 BA 38.43  
 77 LS 2.575 60  
 78 UD 51  
 \* \*\*\*\*\*

79 KK 5ACANA  
 80 KM CANAL CROSSING  
 81 RS 1 ELEV 135 0  
 82 SS 140.67 2000 2.8 1.5  
 83 ST 140.82 2000 2.8 1.5  
 84 SW 2000 2000 2000  
 85 SE 140.96 141.14 141.28  
 86 SV 0 537 5484 7582  
 87 SE 135 140 145 150  
 \* \*\*\*\*\*

88 KK 5AROUT  
 89 KM Route hydrograph TO DOWNSTREAM CANAL  
 90 RD  
 91 RC .06 .06 .06 11900 .0023 140  
 92 RX 0 1500 3140 3690 4560 5650 5885 7950  
 93 RY 140 135 130 125 122.5 125 130 135  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

94 KK SC5A1 subwater-shed  
 95 KM Compute hydrograph for subwater shed SC-5A1  
 96 BA 5.64  
 97 LS 1.889 60  
 98 UD 14.8  
 \* \*\*\*\*\*

99 KK 5AA1  
 100 KM Combine two hydrographs  
 101 HC 2  
 \* \*\*\*\*\*

102 KK 5A1CAN  
 103 KM CANAL CROSSING  
 104 RS 1 ELEV 115 0  
 105 SS 116.8 1900 2.8 1.5  
 106 ST 117.2 4050 2.8 1.5  
 107 SV 0 2705  
 108 SE 115 120  
 \* \*\*\*\*\*

109 KK 5A1RT  
 110 KM Route hydrograph TO DOWNSTREAM CANAL  
 111 RD  
 112 RC .06 .06 .06 14900 .0017 110  
 113 RX 0 2580 4000 5000 6000 9675 10400 10450  
 114 RY 100 100 95 94 95 100 105 105  
 \* \*\*\*\*\*

115 KK SC5B subwater-shed  
 116 KM Compute hydrograph for subwater shed SC-5B  
 117 BA 9.02  
 118 LS 2.515 60  
 119 UD 13  
 \* \*\*\*\*\*

120 KK 4C1  
 121 KM Combine two hydrographs  
 122 HC 2  
 \* \*\*\*\*\*

123 KK SC-4A subwater-shed  
 124 KM Compute hydrograph for subwater shed SC-4A  
 125 BA 30.73  
 126 LS 2.512 60  
 127 UD 37.3  
 \* \*\*\*\*\*

128 KK 4ACANA  
 129 KM CANAL CROSSING  
 130 RS 1 ELEV 160 0  
 131 SS 171.74 500 2.8 1.5  
 132 ST 171.83 500 2.8 1.5  
 133 SW 500 500 500 500 500

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

134 SE 171.91 172 172.08 172.17 172.26 172.35  
 135 SV 0 60 946.5 4419  
 136 SE 160 165 170 175

\* \*\*\*\*\*

137 KK 4AROUT  
 138 KM Route hydrograph TO DOWNSTREAM CANAL  
 139 RD  
 140 RC .06 .06 .06 11300 .003 165  
 141 RX 0 2500 3000 3500 4000 5000 6000 7650  
 142 RY 155 155 150 150 155 155 155 155

\* \*\*\*\*\*

143 KK SC-4A1 subwater-shed  
 144 KM Compute hydrograph for subwater shed SC-4A1  
 145 BA 7.34  
 146 LS 2.158 60  
 147 UD 10.85

\* \*\*\*\*\*

148 KK SC4AA1  
 149 KM Combine two hydrographs  
 150 HC 2

\* \*\*\*\*\*

151 KK 4A1CAN  
 152 KM CANAL CROSSING  
 153 RS 1 ELEV 140 0  
 154 SS 141 4300 2.8 1.5  
 155 ST 141.11 500 2.8 1.5  
 156 SW 500 500  
 157 SE 141.33 141.55  
 158 SV 0 2475  
 159 SE 140 145

\* \*\*\*\*\*

160 KK 4A1ROU  
 161 KM Route hydrograph TO DOWNSTREAM CANAL  
 162 RD  
 163 RC .06 .06 .06 8000 .003 145  
 164 RX 0 700 1500 1800 2300 2400 2425 2500  
 165 RY 130 127.5 126.5 130 135 135 135 135

\* \*\*\*\*\*

166 KK SC-4B subwater-shed  
 167 KM Compute hydrograph for subwater shed SC-4B  
 168 BA 5.44  
 169 LS 3.062 60  
 170 UD 6.6

\* \*\*\*\*\*

\* COMBINE WATERSHEDS SC-4A, 4A1, 4B



LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

171 KK SC4AAB  
 172 KM Combine two hydrographs  
 173 HC 2  
 \* \*\*\*\*\*

174 KK 4BCANA  
 175 KM CANAL CROSSING  
 176 RS 1 ELEV 110 0  
 177 SS 113.48 500 2.8 1.5  
 178 ST 113.65 500 2.8 1.5  
 179 SW 500 500 500 500 500 500  
 180 SE 113.82 113.99 114.15 114.32 114.49 114.66  
 181 SV 0 473.8 2460  
 182 SE 110 115 120  
 \* \*\*\*\*\*

183 KK 4AABRT  
 184 KM Route hydrograph TO DOWNSTREAM CANAL  
 185 RD  
 186 RC .06 .06 .06 10800 .0018 105  
 187 RX 0 1100 2000 2600 3000 3500 4000 5000  
 188 RY 110 105 100 98 100 105 105 105  
 \* \*\*\*\*\*

189 KK SC-4B1 subwater-shed  
 190 KM Compute hydrograph for subwater shed SC-4B1  
 191 BA 6.07  
 192 LS 2.451 60  
 193 UD 12.2  
 \* \*\*\*\*\*

194 KK SC-4  
 195 KM Combine two hydrographs  
 196 HC 2  
 \* \*\*\*\*\*

197 KK 4C2  
 198 KM Combine three hydrographs at node 4  
 199 HC 3  
 \* \*\*\*\*\*

200 KK 5R  
 201 KM Route hydrograph from node 4 to node 5  
 202 RS 1 STOR -1  
 203 SV 0 204 838 1406 3840 6496  
 204 SQ 0 1110 2220 2775 4440 6940  
 \*  
 \* 0.08 0.03 0.08 12800 0.0002 106  
 \* 1000 1101 1113.3 1132.9 1153.4 1166.2 1178.9 3000  
 \* 87.1 82 78 70 70 78 86 86.5  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

205 KK SC-3 SUB-WATER SHED  
 206 KM Compute hydrograph for subwater shed SC-3  
 207 BA 56.44  
 208 LS 2.203 60  
 209 UD 62.9  
 \* \*\*\*\*\*

210 KK 5C  
 211 KM Combine two hydrographs at node 5  
 212 HC 2  
 \* \*\*\*\*\*

213 KK DIV1  
 214 KM Diversion to Raymondville Drain  
 215 DT DIV1  
 216 DI 0 15 224 511 1120 2355 4175 7265 10250  
 217 DQ 0 9 114 265 570 1175 2200 4050 6250  
 \* \*\*\*\*\*

218 KK 6R  
 219 KM Route hydrograph from node 5 to node 6  
 220 RS 2 STOR -1  
 221 SV 0 428 2369 3646 8785 12983  
 222 SQ 0 1315 2630 3290 5260 8220  
 \*  
 \* 0.08 0.03 0.08 7200 0.0002 103  
 \* 1000 1891.2 1926.7 1980.9 2018.3 2105 2201.4 3000  
 \* 82 82 86 70 70 88 86 83  
 \* \*\*\*\*\*

223 KK SC-3B  
 224 KM Compute hydrograph from sub-water shed SC-3B  
 225 BA 6.71  
 226 LS 3.075 60  
 227 UD 34.4  
 \* \*\*\*\*\*

228 KK 6C  
 229 KM Combine two hydrographs at node 6  
 230 HC 2  
 \* \*\*\*\*\*

231 KK 7R  
 232 KM Route hydrograph from node 6 to node 7  
 233 RS 1 STOR -1  
 234 SV 0 86 166 392 1932 3564  
 235 SQ 0 1345 2690 3360 5380 8400  
 \*  
 \* 0.08 0.03 0.08 25200 0.0004 103  
 \* 1000 1856.6 1869.7 1896.8 1933.8 1960.1 2757.7 2915.9  
 \* 86 86 78 70 70 86 86 88  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

236 KK SC-2
237 KM Compute hydrograph for SC-2
238 BA 11.48
239 LS 5.152 60
240 UD 56.8
* *****

241 KK 7C
242 KM Combine hydrograph at node 7
243 HC 2
* *****

244 KK 8R
245 KM Route hydrograph from node 7 to node 8
246 RS 2 STOR -1
247 SV 0 314 1129 1807 4601 9248
248 SQ 0 1390 2780 3475 5560 8690
*
* 0.08 0.03 0.08 26400 0.0003 103
* 1000 1927.4 1937.8 1947.9 2019.1 2035.6 2105.8 2948.1
* 66 66 60 54 54 62 68 72
* *****

249 KK SC-1
250 KM Compute hydrograph for SC-1
251 BA 7.07
252 LS 1.365 60
253 UD 38.7
* *****

254 KK 8C1
255 KM Combine hydrograph at node 8
256 HC 2
* *****
* Start calculating hydrograph for the sub water sheds
* that drain to the South Main drain.
* *****

257 KK SC-8
258 KM Compute hydrograph for subwater shed SC-8
259 BA 19.99
260 LS 1.861 68.50
261 UD 53.5
* *****

262 KK 1BR
263 KM Route hydrograph to node 1B
264 RD
265 RC 0.08 0.03 0.08 27200 0.0003 115
266 RX 1000 1695.7 1973 2003 2010.5 2029.5 2075.5 3000
267 RY 103.1 110 100 90 90 100 108 107
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

268      KK   SM-18
269      KM   Compute hydrograph for sub-water shed SM-18
270      BA   27.11
271      LS   4.165   66.14
272      UD   55.8
          * *****

273      KK   1BC1
274      KM   Combine two hydrographs at node 1B
275      HC   2
          * *****

276      KK   SM-17
277      KM   Compute hydrograph for sub-water shed SM-17
278      BA   7.03
279      LS   0.834   70.51
280      UD   36.3
          * *****

281      KK   1BC2
282      KM   Combine two hydrographs at node 1B
283      HC   2
          * *****

284      KK   2BR
285      KM   Route hydrograph from node 1B to 2B
286      RD
287      RC   0.08   0.03   0.08   14400   0.0007   103
288      RX   1000  1335.2  1343  1354.8  1398.6  1411.9  1420.9  2375.6
289      RY   91    91    88    82    82    88    92    92
          * *****

290      KK   SM-16
291      KM   Compute hydrograph for SM-16
292      BA   25.18
293      LS   2.689   60
294      UD   61.6
          * *****

295      KK   2BC
296      KM   Combine hydrograph at node 2B
297      HC   2
          * *****

298      KK   3BR
299      KM   Route hydrograph from node 2B to node 3B
300      RD
301      RC   0.08   0.03   0.08   10400   0.0008   103
302      RX   1000  1760.1  1781.2  1826.3  1883.8  1920.1  1946.7  2799.8
303      RY   79    84    72    72    84    92    82    82.4
          * *****

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```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

304      KK   SM-15 SUB-WATER SHED
305      KM   Compute hydrograph for SM-15
306      BA   11.1
307      LS   1.378      60
308      UD   40.6
* *****

309      KK   3BC
310      KM   Combine hydrograph at node 3B
311      HC   2
* *****

312      KK   4BR
313      KM   Route hydrograph from node 3B to 4B
314      RD
315      RC   0.08      0.03      0.08      10400      0.0003      103
316      RX   1000      1962.3      1989.1      2026.6      2053.7      2129      2176      3000
317      RY   72.7      76      60      60      74      86      74      75.6
* *****

318      KK   SM-14 SUB-WATER SHED
319      KM   Compute hydrograph for SM-14
320      BA   21.6
321      LS   1.666      60
322      UD   69.1
* *****

323      KK   4BC
324      KM   Combine hydrograph at node 4B
325      HC   2
* *****

326      KK   8BR
327      KM   Route hydrograph from node 4B to node 9
328      RD
329      RC   0.08      0.03      0.08      16000      0.0007      103
330      RX   1000      1885.8      1978.6      2036.9      2065.1      2149.5      2205      3000
331      RY   76      76      54      54      68      82      70      72
* *****

332      KK   SM-13
333      KM   Compute hydrograph for SM-13
334      BA   22.25
335      LS   4.220      60
336      UD   74.5
* *****

337      KK   8C2
338      KM   Combine hydrograph at node 9
339      HC   2
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

340 KK 8C3  
 341 KM Combine hydrographs from North-West and South drain  
 342 HC 2  
 \* \*\*\*\*\*

343 KK 9R  
 344 KM Route hydrograph to the PANCHITA STRUCTURE  
 345 RD  
 346 RC 0.08 0.03 0.08 46724 0.0004 103  
 347 RX 1000 1927.4 1937.8 1947.9 2019.1 2035.6 2105.8 2948.1  
 348 RY 66 66 60 54 54 62 68 72  
 \* \*\*\*\*\*

349 KK 29S SUB-WATER SHED  
 350 KM Compute hydrograph for 29S  
 351 BA 12.28  
 352 LS 3.021 60  
 353 UD 25.9  
 \* \*\*\*\*\*

354 KK Com9A  
 355 KM Combine two hydrographs at Node 9  
 356 HC 2  
 \* \*\*\*\*\*

357 KK 28S SUB-WATER SHED  
 358 KM Compute hydrograph for 28S  
 359 BA 25.91  
 360 LS 2.866 60  
 361 UD 38.6  
 \* \*\*\*\*\*

362 KK Com9B  
 363 KM Combine two hydrographs at Node 9  
 364 HC 2  
 \* \*\*\*\*\*

365 KK Rt10  
 366 KM Route hydrograph to Node 10  
 367 RS 1 STOR -1  
 368 SV 0 527.17 816.18 2044.31 5147.32 7902.66 9972.51  
 369 SQ 0 1000 2000 4000 6000 8000 10000  
 \* \*\*\*\*\*

370 KK DIV2  
 371 KM TO WATERSHED SOUTH OF NORTH MAIN  
 372 DT DIV2  
 373 DI 0 7000 65000  
 374 DQ 0 2000 2000  
 \* \*\*\*\*\*

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

375      KK      27S SUB-WATER SHED
376      KM      Compute hydrograph for 27S
377      BA      12.15
378      LS      2.977   61.92
379      UD      14.7
          * *****

380      KK      Com10A
381      KM      Combine two hydrographs at Node 10
382      HC      2
          * *****

383      KK      26S SUB-WATER SHED
384      KM      Compute hydrograph for 26S
385      BA      10.55
386      LS      2.974   62.54
387      UD      13.6
          * *****

388      KK      24S SUB-WATER SHED
389      KM      Compute hydrograph for 24S
390      BA      3.83
391      LS      2.940   62.11
392      UD      14.7
          * *****

393      KK      Com10B
394      KM      Combine three hydrographs at Node 10
395      HC      3
          * *****

396      KK      Rt11
397      KM      Route hydrograph to Node 11
398      RS      1      STOR      -1
399      SV      0      249.3   385.44 1661.56 3718.66 5233.82 6730.05
400      SQ      0      1000    2000    4000    6000    8000    10000
          * *****

401      KK      22S SUB-WATER SHED
402      KM      Compute hydrograph for 22S
403      BA      7.55
404      LS      3.000   62.90
405      UD      20.4
          * *****

406      KK      Com11A
407      KM      Combine two hydrographs at Node 11
408      HC      2
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

409 KK 20S SUB-WATER SHED  
 410 KM Compute hydrograph for 20S  
 411 BA 10.57  
 412 LS 2.847 60  
 413 UD 24.0

\* \*\*\*\*\*

414 KK Com11B  
 415 KM Combine two hydrographs at Node 11  
 416 HC 2

\* \*\*\*\*\*

417 KK Rt12  
 418 KM Route hydrograph to Node 12  
 419 RS 1 STOR -1  
 420 SV 0 202.5 312.74 870.9 2706.99 3523.96 4130.87  
 421 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

422 KK 18S SUB-WATER SHED  
 423 KM Compute hydrograph for 18S  
 424 BA 4.69  
 425 LS 2.885 60  
 426 UD 16.5

\* \*\*\*\*\*

427 KK Com12  
 428 KM Combine two hydrographs at Node 12  
 429 HC 2

\* \*\*\*\*\*

430 KK Rt13  
 431 KM Route hydrograph to Node 13  
 432 RS 1 STOR -1  
 433 SV 0 71.07 113.63 427.96 987.6 1443.8 1838.89  
 434 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

435 KK 16S SUB-WATER SHED  
 436 KM Compute hydrograph for 16S  
 437 BA 9.60  
 438 LS 3.705 60  
 439 UD 23.5

\* \*\*\*\*\*

440 KK Com13A  
 441 KM Combine two hydrographs at Node 13  
 442 HC 2

\* \*\*\*\*\*



```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

443      KK      15S SUB-WATER SHED
444      KM      Compute hydrograph for 15S
445      BA      25.08
446      LS      3.517      60
447      UD      36.4
          * *****

448      KK      Com13B
449      KM      Combine two hydrographs at Node 13
450      HC      2
          * *****

451      KK      Rt14
452      KM      Route hydrograph to Node 14
453      RS      1      STOR      -1
454      SV      0      325.09      531.58      2194.95      4313.68      5830.17      7281.01
455      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

456      KK      13S SUB-WATER SHED
457      KM      Compute hydrograph for 13S
458      BA      19.76
459      LS      3.807      60
460      UD      32.6
          * *****

461      KK      Com14A
462      KM      Combine two hydrographs at Node 14
463      HC      2
          * *****

464      KK      14S SUB-WATER SHED
465      KM      Compute hydrograph for 14S
466      BA      9.53
467      LS      3.060      60
468      UD      22.9
          * *****

469      KK      Com14B
470      KM      Combine two hydrographs at Node 14
471      HC      2
          * *****

472      KK      Rt15
473      KM      Route hydrograph to Node 15
474      RS      1      STOR      -1
475      SV      0      208.71      319.05      1791.94      3107.58      4264.72      5131.9
476      SQ      0      1000      2000      4000      6000      8000      10000
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

477 KK 11S SUB-WATER SHED  
 478 KM Compute hydrograph for 11S  
 479 BA 8.20  
 480 LS 2.970 61.62  
 481 UD 12.2

\* \*\*\*\*\*

482 KK Com15  
 483 KM Combine two hydrographs at Node 15  
 484 HC 2

\* \*\*\*\*\*

485 KK Rt16  
 486 KM Route hydrograph to Node 16  
 487 RS 1 STOR -1  
 488 SV 0 197.28 298.23 1677.59 3541.79 4950.66 5984.55  
 489 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

490 KK 7S SUB-WATER SHED  
 491 KM Compute hydrograph for 7S  
 492 BA 29.41  
 493 LS 3.141 60  
 494 UD 38.3

\* \*\*\*\*\*

495 KK Com16  
 496 KM Combine two hydrographs at Node 16  
 497 HC 2

\* \*\*\*\*\*

498 KK Rt17  
 499 KM Route hydrograph to Node 17  
 500 RS 1 STOR -1  
 501 SV 0 432.95 639.58 954.67 1433.05 2543.25 3518.78  
 502 SQ 0 1000 2000 4000 6000 8000 10000

\* \*\*\*\*\*

503 KK 6S SUB-WATER SHED  
 504 KM Compute hydrograph for S6  
 505 BA 9.21  
 506 LS 2.183 60  
 507 UD 12.9

\* \*\*\*\*\*

508 KK Com17  
 509 KM Combine two hydrographs at Node 17  
 510 HC 2

\* \*\*\*\*\*

LINE	ID	1	2	3	4	5	6	7	8	9	10
511	KK	Rt18									
512	KM	Route hydrograph to Node 18									
513	RS	1	STOR	-1							
514	SV	0	388.62	558.69	807.92	1617.19	3723.86	4996.12			
515	SQ	0	1000	2000	4000	6000	8000	10000			
		* *****									
516	KK	4S SUB-WATER SHED									
517	KM	Compute hydrograph for 4S									
518	BA	22.35									
519	LS	2.408	60								
520	UD	19.6									
		* *****									
521	KK	Com18A									
522	KM	Combine two hydrographs at Node 18									
523	HC	2									
		* *****									
524	KK	3S SUB-WATER SHED									
525	KM	Compute hydrograph for 3S									
526	BA	4.49									
527	LS	1.153	60								
528	UD	16.0									
		* *****									
529	KK	Com18B									
530	KM	Combine two hydrographs at Node 18									
531	HC	2									
		* *****									
532	KK	Rt19									
533	KM	Route hydrograph to									
534	RS	1	STOR	-1							
535	SV	0	130.79	184.8	301.29	542.75	727.63	1178.32			
536	SQ	0	1000	2000	4000	6000	8000	10000			
		* *****									
537	KK	2S SUB-WATER SHED									
538	KM	Compute hydrograph for S2									
539	BA	5.35									
540	LS	0.992	60								
541	UD	10.0									
		* *****									
542	KK	Com19A									
543	KM	Combine two hydrographs at Node 19									
544	HC	2									
		* *****									

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

545 KK 1S SUB-WATER SHED
546 KM Compute hydrograph for 1S
547 BA 7.47
548 LS 1.659 60
549 UD 20.4

\* \*\*\*\*\*

550 KK Com19B
551 KM Combine two hydrographs at Node 19
552 HC 2

\* \*\*\*\*\*
\* Start calculating hydrograph for the sub water sheds
\* that drain to the Raymondville drain.
\* \*\*\*\*\*

553 KK DIV1
554 KM Diversion to Raymondville Drain
555 DR DIV1

\* \*\*\*\*\*

556 KK SC-3A
557 KM Compute hydrograph for subwater shed SC-3A
558 BA 5.87
559 LS 1.917 60
560 UD 59

\* \*\*\*\*\*

561 KK 20C
562 KM Combine two hydrographs at Node 20
563 HC 2

\* \*\*\*\*\*

564 KK 21R
565 KM Route hydrograph to
566 RS 1 STOR -1
567 SV 0 61.09 135.31 196.91 329.32 1303.22
568 SQ 0 100 300 500 1000 3000

\* \*\*\*\*\*

569 KK 29aR SUB-WATER SHED
570 KM Compute hydrograph for 29aR
571 BA 4.84
572 LS 4.007 60
573 UD 21.9

\* \*\*\*\*\*

574 KK Com21A
575 KM Combine two hydrographs at Node 21
576 HC 2

\* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

577 KK 29R SUB-WATER SHED  
 578 KM Compute hydrograph for 29R  
 579 BA 18.03  
 580 LS 4.517 60  
 581 UD 31.2  
 \* \*\*\*\*\*

582 KK Com21B  
 583 KM Combine two hydrographs at Node 21  
 584 HC 2  
 \* \*\*\*\*\*

585 KK 22R  
 586 KM Route hydrograph to  
 587 RS 1 STOR -1  
 588 SV 0 36.12 82.09 122.03 206.52 546.55  
 589 SQ 0 100 300 500 1000 3000  
 \* \*\*\*\*\*

590 KK 28aR SUB-WATER SHED  
 591 KM Compute hydrograph for 28aR  
 592 BA 2.35  
 593 LS 5.536 60  
 594 UD 12.0  
 \* \*\*\*\*\*

595 KK Com22  
 596 KM Combine two hydrographs at Node 22  
 597 HC 2  
 \* \*\*\*\*\*

598 KK Rt23  
 599 KM Route hydrograph to Node 23  
 600 KO 1 1  
 601 RS 1 STOR -1  
 602 SV 0 1107.98 2893.97 4987.59 7268.44 9794.66 13889.2 18359.2 24697.5  
 603 SQ 0 1000 2000 3000 4000 5000 7500 10000 15900  
 \* \*\*\*\*\*

604 KK 24R SUB-WATER SHED  
 605 KM Compute hydrograph for 24R  
 606 BA 22.22  
 607 LS 4.088 60  
 608 UD 34.4  
 \* \*\*\*\*\*

609 KK Com23A  
 610 KM Combine two hydrographs at Node 23  
 611 HC 2  
 \* \*\*\*\*\*

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

```

612      KK  28R  SUB-WATER SHED
613      KM  Compute hydrograph for 28R
614      BA   4.68
615      LS  7.319      60
616      UD   15.7
        * *****
        *   Rt24
        *   Route hydrograph to Node 24
        * 25000 0.0004   0.1      TRAP      40      2
        * *****

617      KK  25R  SUB-WATER SHED
618      KM  Compute hydrograph for 25R
619      BA   8.99
620      LS  4.347      60
621      UD   22.3
        * *****

622      KK  27R  SUB-WATER SHED
623      KM  Compute hydrograph for 27R
624      BA  23.93
625      LS  3.830      60
626      UD   34.1
        * *****

627      KK  Com24
628      KM  Combine three hydrographs
629      HC    3
        * *****

630      KK  Rt25
631      KM  Route hydrograph to Node 25
632      RD 37000 0.0004   0.1      TRAP      40      2
        * *****

633      KK  22R  SUB-WATER SHED
634      KM  Compute hydrograph for 22R
635      BA  18.04
636      LS  2.632      61.9
637      UD   31.1
        * *****

638      KK  Com25
639      KM  Combine two hydrographs at Node 25
640      HC    2
        * *****

641      KK  19R  SUB-WATER SHED
642      KM  Compute hydrograph for 19R
643      BA  11.18
644      LS  4.714      60
645      UD   24.8
        * *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

646      KK  Com23B
647      KM  Combine three hydrographs at Node 23
648      HC   3
          * *****

649      KK  Rt26A
650      KM  Route hydrograph to La Sal Viejo diversion
651      KO   1       1
652      RS   1       STOR       -1
653      SV   0    31.13   45.65   55.71   440.39   728.35   1179.82   1531.01   2099.78
654      SQ   0    1000    2000    3000    4000    5000    7500    10000    15000
          * *****

655      KK  DIV3
656      KM  Diversion to La Sal Viejo
657      DT  DIV3
658      DI   0       7       152      484      1406      2611
659      DQ   0       0       55       255      800      1335
          * *****

660      KK  Rt26B
661      KM  Route hydrograph to Node 26
662      KO   1       1
663      RS   1       STOR       -1
664      SV   0    196.89   297.78   546.45   982.63   1367.28   2212.32   2871.48
665      SQ   0    1000    2000    3000    4000    5000    7500    10000
          * *****

666      KK  20R  SUB-WATER SHED
667      KM  Compute hydrograph for 20R
668      BA  18.78
669      LS  2.990   62.13
670      UD  20.6
          * *****

671      KK  Com26
672      KM  Combine two hydrographs
673      HC   2
          * *****
          *   DIV4
          *   Diversion to southern tributary of main Raymondville channel
          *   DIV4
          *   0      8000   10000
          *   0      50     50
          * *****

674      KK  Rt27A
675      KM  Route hydrograph to Node 27
676      KO   1       1
677      RS   1       STOR       -1
678      SV   0  1348.58  4980.12  8035.27  10783.8  14313.8  21699.7  25397.7
679      SQ   0    1000    2000    3000    4000    5000    7500    10000
          * *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

680 KK 13R SUB-WATER SHED  
 681 KM Compute hydrograph for 13R  
 682 BA 11.50  
 683 LS 3.032 60  
 684 UD 16.3  
 \* \*\*\*\*\*

685 KK Com27A  
 686 KM Combine two hydrographs at Node 27  
 687 HC 2  
 \* \*\*\*\*\*  
 \* DIV4  
 \* Diversion from main Raymondville channel  
 \* DIV4  
 \* \*\*\*\*\*

688 KK 14R SUB-WATER SHED  
 689 KM Compute hydrograph for 14R  
 690 BA 9.24  
 691 LS 3.521 64.37  
 692 UD 22.6  
 \* \*\*\*\*\*  
 \* Com  
 \* Combine two hydrographs  
 \* 2  
 \* \*\*\*\*\*

693 KK Rt27B  
 694 KM Route hydrograph to Node 27  
 695 KO 1 1  
 696 RS 1 STOR -1  
 697 SV 0 118.49 170.85 226.03 273.73 485.95 500.0  
 698 SQ 0 48.6 83.88 129.49 173.38 228.78 20000.0  
 \* \*\*\*\*\*

699 KK Com27B  
 700 KM Combine two hydrographs at Node 27  
 701 HC 2  
 \* \*\*\*\*\*

702 KK Rt28  
 703 KM Route hydrograph to Node 28  
 704 KO 1 1  
 705 RS 1 STOR -1  
 706 SV 0 312.83 999.33 1918.42 2687.59 3301.82 4973.7 6268.16  
 707 SQ 0 1000 2000 3000 4000 5000 7500 10000  
 \* \*\*\*\*\*

708 KK 11R SUB-WATER SHED  
 709 KM Compute hydrograph for 11R  
 710 BA 10.09  
 711 LS 3.768 61.13  
 712 UD 11.0  
 \* \*\*\*\*\*



```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

713      KK  Com28A
714      KM  Combine two hydrographs at Node 28
715      HC   2
          * *****

716      KK   8R  SUB-WATER SHED
717      KM  Compute hydrograph for 8R
718      BA  11.62
719      LS  5.671  61.49
720      UD  11.8
          * *****

721      KK  Com28B
722      KM  Combine two hydrographs at Node 28
723      HC   2
          * *****

724      KK   Rt29
725      KM  Route hydrograph to Node 29
726      KO   1      1
727      RS   1      STOR      -1
728      SV   0  449.95 1513.48 2080.16 2620.81 3076.31 4216.6 5147.07
729      SQ   0  1000  2000  3000  4000  5000  7500  10000
          * *****

730      KK  10R  SUB-WATER SHED
731      KM  Compute hydrograph for 10R
732      BA  21.47
733      LS  2.724  60
734      UD  19.2
          * *****

735      KK  Com29
736      KM  Combine two hydrographs at Node 29
737      HC   2
          * *****

738      KK   Rt30
739      KM  Route hydrograph to Node 30
740      KO   1      1
741      RS   1      STOR      -1
742      SV   0  208.42 1163.8 1980.35 2627.06 3136.14 4076.55 4891.57
743      SQ   0  1000  2000  3000  4000  5000  7500  10000
          * *****

744      KK   6R  SUB-WATER SHED
745      KM  Compute hydrograph for 6R
746      BA  16.37
747      LS  3.175  60
748      UD  28.0
          * *****

```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

749      KK  Com30A
750      KM  Combine two hydrographs at Node 30
751      HC      2
          * *****

752      KK  4R  SUB-WATER SHED
753      KM  Compute hydrograph for 4R
754      BA  4.73
755      LS  2.992      60
756      UD  15.9
          * *****

757      KK  Com30B
758      KM  Combine two hydrographs at Node 30
759      HC      2
          * *****

760      KK  Rt31
761      KM  Route hydrograph to Node 31
762      KO  1      1
763      RS  1      STOR      -1
764      SV  0  555.09  2027.13  2913.81  3589.64  4070.74  5120.11  6031.24
765      SQ  0  1000      2000      3000      4000      5000      7500      10000
          * *****

766      KK  2R  SUB-WATER SHED
767      KM  Compute hydrograph for 2R
768      BA  5.58
769      LS  1.806      60
770      UD  11.4
          * *****

771      KK  Com31A
772      KM  Combine two hydrographs at Node 31
773      HC      2
          * *****

774      KK  3R  SUB-WATER SHED
775      KM  Compute hydrograph for 3R
776      BA  4.47
777      LS  2.472      60
778      UD  13.8
          * *****

779      KK  Com31B
780      KM  Combine two hydrographs at Node 31
781      HC      2
          * *****
    
```

```

LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

782      KK      Rt32
783      KM      Route hydrograph to Node 32
784      KO      1      1
785      RS      1      STOR      -1
786      SV      0 1067.34 3337.22      4909 6271.22 7335.81 9532.02 11388.7
787      SQ      0      1000      2000      3000      4000      5000      7500      10000
* *****

788      KK      1R      SUB-WATER SHED
789      KM      Compute hydrograph for 1R
790      BA      16.89
791      LS      1.395      60
792      UD      19.6
* *****

793      KK      Com32
794      KM      Combine two hydrographs at Node 32
795      HC      2
* *****

796      KK      DIV3
797      KM      Diversion from Raymondville main channel to La Sal Viejo
798      DR      DIV3
* *****

799      KK      17R      SUB-WATER SHED
800      KM      Compute hydrograph for 17R
801      BA      6.47
802      LS      2.955      60
803      UD      19.1
* *****

804      KK      Com33A
805      KM      Combine two hydrographs at La Sal Viejo
806      HC      2
* *****

807      KK      23R      SUB-WATER SHED
808      KM      Compute hydrograph for 23R
809      BA      94.54
810      LS      2.901      60
811      UD      68.9
* *****

812      KK      Com33B
813      KM      Combine two hydrographs at La Sal Viejo
814      HC      2
* *****

```

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

815	KK	LSV							
816	KM	Route hydrograph through La Sal Viejo							
817	KO	1	1						
818	RS	1	STOR	-1					
819	SV	0	1690	4532	9730	17040	18480	19000	
820	SQ	0	163	465	825	1230	1490	1550	
	*								
821	ZZ								

## SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
5	SC-7A	
	V	
	V	
11	1R	
	.	
17	.	SC-7B
	.	.
22	1C.....	.
	V	
	V	
25	2R	
	.	
31	.	SC-7C
	.	.
36	.	SC-6A
	.	.
41	2C.....	.
	V	
	V	
44	3R	
	.	
50	.	SC-6B
	.	.
55	.	SC-7D
	.	V
60	.	V
	.	3R
	.	.
66	3C.....	.
	V	
	V	
69	4R	
	.	
74	.	SC5A
	.	V
	.	V
79	.	5ACANA
	.	V
	.	V
88	.	5AROUT
	.	.
94	.	SC5A1
	.	.
99	.	5AA1.....
	.	V
	.	V
102	.	5A1CAN
	.	V
	.	V
109	.	5A1RT
	.	.
115	.	SC5B
	.	.
120	.	4C1.....
	.	.
123	.	SC-4A
	.	V
	.	V
128	.	4ACANA
	.	V

	.	.	V	
	.	.	4AROUT	
	.	.	.	
143	.	.	.	SC-4A1
	.	.	.	.
148	.	.	SC4AA1.....	
	.	.	V	
	.	.	V	
151	.	.	4A1CAN	
	.	.	V	
	.	.	V	
160	.	.	4A1ROU	
	.	.	.	
166	.	.	.	SC-4B
	.	.	.	.
171	.	.	SC4AAB.....	
	.	.	V	
	.	.	V	
174	.	.	4BCANA	
	.	.	V	
	.	.	V	
183	.	.	4AABRT	
	.	.	.	
189	.	.	.	SC-4B1
	.	.	.	.
194	.	.	SC-4.....	
	.	.	.	
197	4C2.....	.	.	
	V	.	.	
	V	.	.	
200	5R	.	.	
	.	.	.	
	.	SC-3	.	
	.	.	.	
210	5C.....	.	.	
	.	.	.	
215	----->	DIV1	.	
213	DIV1	.	.	
	V	.	.	
	V	.	.	
218	6R	.	.	
	.	.	.	
223	.	SC-3B	.	
	.	.	.	
228	6C.....	.	.	
	V	.	.	
	V	.	.	
231	7R	.	.	
	.	.	.	
236	.	SC-2	.	
	.	.	.	
241	7C.....	.	.	
	V	.	.	
	V	.	.	
244	8R	.	.	
	.	.	.	
249	.	SC-1	.	
	.	.	.	
254	8C1.....	.	.	
	.	.	.	
257	.	SC-8	.	
	.	V	.	
	.	V	.	
262	.	1BR	.	

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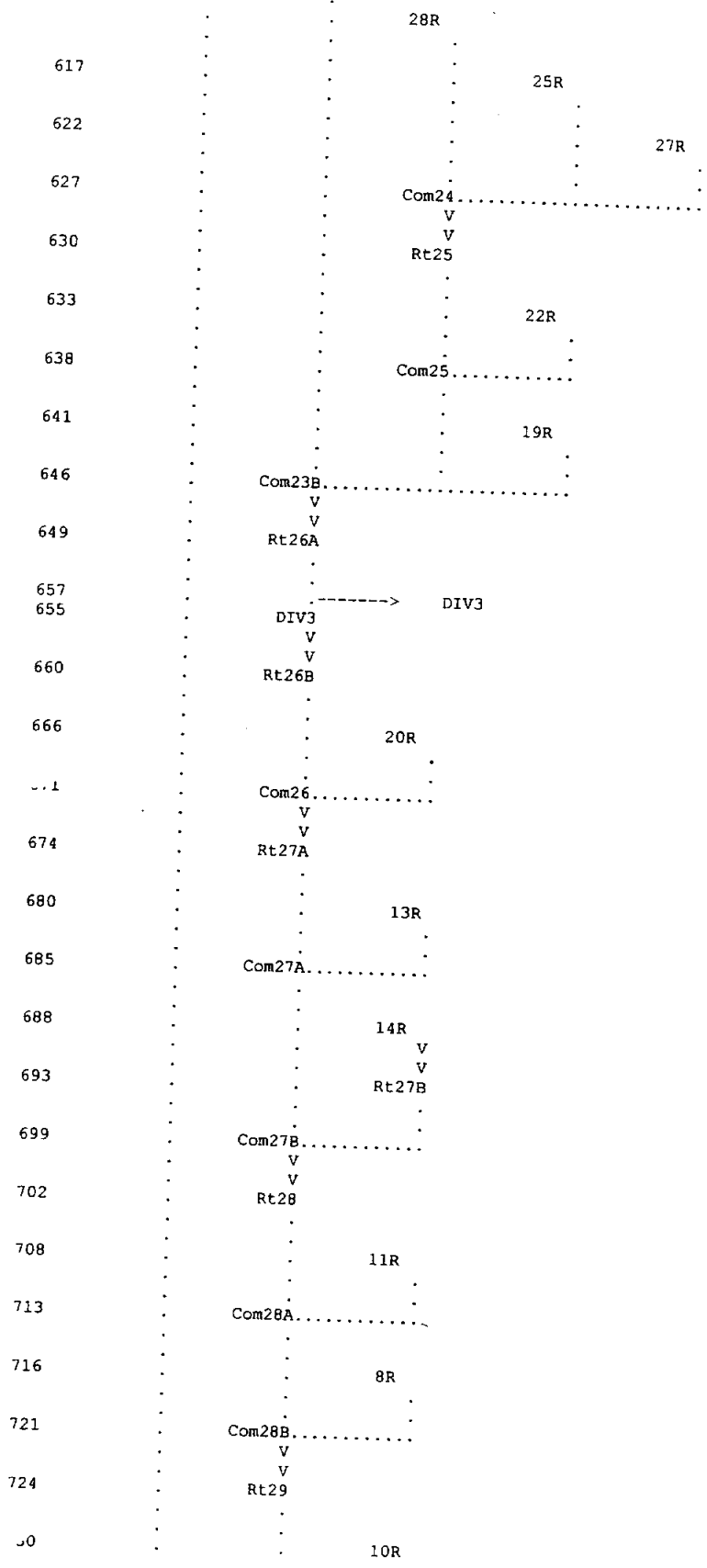
268 . . . SM-18
. . .
273 . 1BC1.....
. . .
276 . . . SM-17
. . .
281 . 1BC2.....
. . .
284 . 2BR
. . .
290 . . . SM-16
. . .
295 . 2BC.....
. . .
298 . 3BR
. . .
304 . . . SM-15
. . .
309 . 3BC.....
. . .
312 . 4BR
. . .
318 . . . SM-14
. . .
323 . 4BC.....
. . .
326 . 8BR
. . .
332 . . . SM-13
. . .
337 . 8C2.....
. . .
340 . 8C3.....
. . .
343 . 9R
. . .
349 . 29S
. . .
354 . Com9A.....
. . .
357 . 28S
. . .
362 . Com9B.....
. . .
365 . Rt.10
. . .
372 . -----> DIV2
370 . DIV2
. . .
375 . 27S
. . .
380 . Com10A.....
. . .

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3	.	26S	
	.	.	
388	.	.	24S
	.	.	
393	Com10B.....		
	V		
	V		
396	Rt11		
	.		
401	.	22S	
	.	.	
406	Com11A.....		
	.		
409	.	20S	
	.	.	
414	Com11B.....		
	V		
	V		
417	Rt12		
	.		
422	.	18S	
	.	.	
427	Com12.....		
	V		
	V		
430	Rt13		
	.		
435	.	16S	
	.	.	
	Com13A.....		
	.		
443	.	15S	
	.	.	
448	Com13B.....		
	V		
	V		
451	Rt14		
	.		
456	.	13S	
	.	.	
461	Com14A.....		
	.		
464	.	14S	
	.	.	
469	Com14B.....		
	V		
	V		
472	Rt15		
	.		
477	.	11S	
	.	.	
482	Com15.....		
	V		
	V		
485	Rt16		
	.		
490	.	7S	
	.	.	
	Com16.....		
	V		
	V		



498	Rt17	.	.
	.	.	.
503	.	6S	.
	.	.	.
508	Com17.....	.	.
	V	.	.
	V	.	.
511	Rt18	.	.
	.	.	.
516	.	4S	.
	.	.	.
521	Com18A.....	.	.
	.	.	.
524	.	3S	.
	.	.	.
529	Com18B.....	.	.
	V	.	.
	V	.	.
532	Rt19	.	.
	.	.	.
537	.	2S	.
	.	.	.
542	Com19A.....	.	.
	.	.	.
545	.	1S	.
	.	.	.
550	Com19B.....	.	.
	.	.	.
555	.	<----- DIV1	.
553	DIV1	.	.
	.	.	.
556	.	SC-3A	.
	.	.	.
561	20C.....	.	.
	V	.	.
	V	.	.
564	21R	.	.
	.	.	.
569	.	29aR	.
	.	.	.
574	Com21A.....	.	.
	.	.	.
577	.	29R	.
	.	.	.
582	Com21B.....	.	.
	V	.	.
	V	.	.
585	22R	.	.
	.	.	.
590	.	28aR	.
	.	.	.
595	Com22.....	.	.
	V	.	.
	V	.	.
598	Rt23	.	.
	.	.	.
604	.	24R	.
	.	.	.
609	Com23A.....	.	.
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735 . . . . . Com29 .....
      . . . . . V
      . . . . . V
738 . . . . . Rt30
      . . . . .
744 . . . . . 6R
      . . . . .
749 . . . . . Com30A .....
      . . . . .
752 . . . . . 4R
      . . . . .
757 . . . . . Com30B .....
      . . . . . V
      . . . . . V
760 . . . . . Rt31
      . . . . .
766 . . . . . 2R
      . . . . .
771 . . . . . Com31A .....
      . . . . .
774 . . . . . 3R
      . . . . .
779 . . . . . Com31B .....
      . . . . . V
      . . . . . V
782 . . . . . Rt32
      . . . . .
788 . . . . . 1R
      . . . . .
793 . . . . . Com32 .....
      . . . . .
798 . . . . . <----- DIV3
796 . . . . . DIV3
      . . . . .
799 . . . . . 17R
      . . . . .
804 . . . . . Com33A .....
      . . . . .
807 . . . . . 23R
      . . . . .
812 . . . . . Com33B .....
      . . . . . V
      . . . . . V
815 . . . . . LSV

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(\*\*\*) RUNOFF ALSO COMPUTED AT THIS LOCATION

RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	13.	72.00	13.	12.	10.	18.40		
ROUTED TO	1R	12.	81.00	12.	12.	10.	18.40		
HYDROGRAPH AT	SC-7B	44.	37.00	44.	36.	17.	9.82		
2 COMBINED AT	1C	45.	38.00	44.	38.	24.	28.22		
ROUTED TO	2R	42.	46.00	42.	36.	23.	28.22		
HYDROGRAPH AT	SC-7C	97.	44.00	97.	87.	49.	23.00		
HYDROGRAPH AT	SC-6A	159.	67.00	159.	154.	119.	41.66		
3 COMBINED AT	2C	256.	53.00	255.	243.	186.	92.88		
ROUTED TO	3R	255.	55.00	254.	243.	185.	92.88		
HYDROGRAPH AT	SC-6B	271.	37.00	268.	231.	116.	6.58		
HYDROGRAPH AT	SC-7D	40.	42.00	40.	35.	19.	6.15		
ROUTED TO	3R	39.	45.00	38.	34.	19.	6.15		
3 COMBINED AT	3C	482.	44.00	478.	437.	305.	105.61		
ROUTED TO	4R	477.	46.00	473.	434.	305.	105.61		
HYDROGRAPH AT	SC5A	491.	66.00	491.	476.	369.	38.43		
ROUTED TO	5ACANA	418.	82.00	415.	374.	233.	38.43	140.85	82.00
ROUTED TO	5AROUT	417.	86.00	414.	373.	230.	38.43		
HYDROGRAPH AT	SC5A1	329.	29.00	320.	238.	98.	5.64		
2 COMBINED AT	5AA1	418.	86.00	415.	373.	231.	44.07		
ROUTED TO	5A1CAN	340.	98.00	334.	279.	171.	44.07	116.96	98.00
ROUTED TO	5A1RT	338.	106.00	330.	273.	169.	44.07		
HYDROGRAPH AT	SC5B	459.	27.00	445.	314.	123.	9.02		
2 COMBINED AT	4C1	459.	27.00	445.	314.	169.	53.09		

+	HYDROGRAPH AT	SC-4A	557.	52.00	556.	524.	350.	30.73		
	ROUTED TO	4ACANA	42.	121.00	42.	39.	27.	30.73		
+									171.84	121.00
+	ROUTED TO	4AROUT	42.	126.00	42.	39.	27.	30.73		
+	HYDROGRAPH AT	SC-4A1	502.	25.00	483.	311.	115.	7.34		
+	2 COMBINED AT	SC4AA1	502.	25.00	483.	311.	115.	38.07		
+	ROUTED TO	4A1CAN	205.	35.00	179.	89.	32.	38.07		
+									141.07	35.00
+	ROUTED TO	4A1ROU	201.	38.00	175.	89.	32.	38.07		
+	HYDROGRAPH AT	SC-4B	368.	21.00	340.	173.	59.	5.44		
+	2 COMBINED AT	SC4AAB	368.	21.00	340.	194.	91.	43.51		
+	ROUTED TO	4BCANA	196.	40.00	174.	94.	35.	43.51		
+									113.75	40.00
+	ROUTED TO	4AABRT	192.	44.00	169.	93.	35.	43.51		
+	HYDROGRAPH AT	SC-4B1	338.	26.00	326.	223.	86.	6.07		
+	2 COMBINED AT	SC-4	338.	26.00	326.	230.	120.	49.58		
+	3 COMBINED AT	4C2	962.	29.00	947.	826.	531.	208.28		
+	ROUTED TO	5R	935.	31.00	919.	815.	529.	208.28		
+	HYDROGRAPH AT	SC-3	663.	77.00	662.	650.	547.	56.44		
+	2 COMBINED AT	5C	1120.	48.00	1113.	1064.	967.	264.72		
+	DIVERSION TO	DIV1	570.	48.00	566.	542.	493.	264.72		
+	HYDROGRAPH AT	DIV1	550.	48.00	546.	522.	474.	264.72		
+	ROUTED TO	6R	541.	53.00	539.	520.	471.	264.72		
+	HYDROGRAPH AT	SC-3B	110.	50.00	110.	103.	66.	6.71		
+	2 COMBINED AT	6C	649.	52.00	645.	618.	536.	271.43		
+	ROUTED TO	7R	648.	53.00	645.	618.	536.	271.43		
+	HYDROGRAPH AT	SC-2	23.	74.00	23.	22.	18.	11.48		
+	2 COMBINED AT	7C	665.	53.00	662.	635.	552.	282.91		
+	ROUTED TO	8R	661.	56.00	658.	634.	551.	282.91		

+	HYDROGRAPH AT	SC-1	197.	53.00	196.	186.	127.	7.07
+	2 COMBINED AT	8C1	856.	55.00	852.	818.	676.	289.98
+	HYDROGRAPH AT	SC-8	410.	67.00	410.	399.	316.	19.99
+	ROUTED TO	1BR	410.	71.00	409.	398.	315.	19.99
+	HYDROGRAPH AT	SM-18	160.	72.00	160.	156.	125.	27.11
+	2 COMBINED AT	1BC1	569.	71.00	569.	553.	440.	47.10
+	HYDROGRAPH AT	SM-17	303.	50.00	302.	285.	187.	7.03
+	2 COMBINED AT	1BC2	799.	62.00	797.	768.	608.	54.13
+	ROUTED TO	2BR	799.	63.00	797.	768.	608.	54.13
+	HYDROGRAPH AT	SM-16	263.	76.00	262.	257.	215.	25.18
+	2 COMBINED AT	2BC	1044.	65.00	1041.	1008.	818.	79.31
+	ROUTED TO	3BR	1043.	66.00	1041.	1008.	817.	79.31
+	HYDROGRAPH AT	SM-15	291.	54.00	290.	277.	193.	11.10
+	2 COMBINED AT	3BC	1306.	63.00	1303.	1259.	1000.	90.41
+	ROUTED TO	4BR	1304.	64.00	1301.	1258.	1000.	90.41
+	HYDROGRAPH AT	SM-14	300.	82.00	300.	295.	255.	21.60
+	2 COMBINED AT	4BC	1565.	66.00	1561.	1515.	1240.	112.01
+	ROUTED TO	8BR	1564.	67.00	1561.	1515.	1240.	112.01
+	HYDROGRAPH AT	SM-13	80.	90.00	80.	79.	70.	22.25
+	2 COMBINED AT	8C2	1630.	68.00	1627.	1580.	1304.	134.26
+	2 COMBINED AT	8C3	2416.	64.00	2412.	2348.	1954.	424.24
+	ROUTED TO	9R	2414.	67.00	2409.	2345.	1952.	424.24
+	HYDROGRAPH AT	29S	266.	41.00	263.	235.	128.	12.28
+	2 COMBINED AT	Com9A	2496.	65.00	2492.	2428.	2032.	436.52
+	HYDROGRAPH AT	28S	394.	54.00	393.	372.	253.	25.91
+	2 COMBINED AT	Com9B	2845.	63.00	2839.	2756.	2265.	462.43
+	ROUTED TO	Rt10	2750.	70.00	2745.	2677.	2243.	462.43

+	DIVERSION TO	DIV2	786.	70.00	784.	765.	641.	462.43
+	HYDROGRAPH AT	DIV2	1964.	70.00	1961.	1912.	1602.	462.43
+	HYDROGRAPH AT	27S	472.	29.00	460.	343.	141.	12.15
+	2 COMBINED AT	Com10A	1974.	70.00	1970.	1923.	1627.	474.58
+	HYDROGRAPH AT	26S	448.	28.00	436.	314.	125.	10.55
+	HYDROGRAPH AT	24S	157.	29.00	153.	114.	47.	3.83
+	3 COMBINED AT	Com10B	1983.	69.00	1980.	1935.	1658.	488.96
+	ROUTED TO	Rt11	1980.	71.00	1977.	1933.	1658.	488.96
+	HYDROGRAPH AT	22S	227.	35.00	224.	187.	89.	7.55
+	2 COMBINED AT	Com11A	2001.	70.00	1998.	1957.	1718.	496.51
+	HYDROGRAPH AT	20S	268.	39.00	265.	232.	121.	10.57
+	2 COMBINED AT	Com11B	2053.	68.00	2050.	2016.	1823.	507.08
+	ROUTED TO	Rt12	2046.	71.00	2044.	2014.	1821.	507.08
+	HYDROGRAPH AT	18S	168.	31.00	165.	128.	55.	4.69
+	2 COMBINED AT	Com12	2051.	71.00	2049.	2023.	1857.	511.77
+	ROUTED TO	Rt13	2049.	73.00	2047.	2023.	1857.	511.77
+	HYDROGRAPH AT	16S	159.	39.00	158.	138.	71.	9.60
+	2 COMBINED AT	Com13A	2074.	71.00	2073.	2060.	1919.	521.37
+	HYDROGRAPH AT	15S	289.	52.00	287.	270.	178.	25.08
+	2 COMBINED AT	Com13B	2351.	51.00	2343.	2311.	2096.	546.45
+	ROUTED TO	Rt14	2282.	68.00	2282.	2268.	2085.	546.45
+	HYDROGRAPH AT	13S	216.	48.00	215.	199.	124.	19.76
+	2 COMBINED AT	Com14A	2440.	59.00	2439.	2413.	2203.	566.21
+	HYDROGRAPH AT	14S	230.	38.00	227.	196.	100.	9.53
+	2 COMBINED AT	Com14B	2533.	54.00	2530.	2506.	2285.	575.74
+	ROUTED TO	Rt15	2487.	63.00	2486.	2466.	2281.	575.74
+	HYDROGRAPH AT	11S	376.	26.00	364.	250.	96.	8.20

+	2 COMBINED AT	Com15	2493.	63.00	2492.	2474.	2315.	583.94
	ROUTED TO							
+		Rt16	2466.	71.00	2465.	2449.	2309.	583.94
	HYDROGRAPH AT							
+		7S	390.	54.00	389.	368.	249.	29.41
	2 COMBINED AT							
+		Com16	2790.	62.00	2788.	2760.	2553.	613.35
	ROUTED TO							
+		Rt17	2788.	64.00	2786.	2758.	2536.	613.35
	HYDROGRAPH AT							
+		6S	537.	27.00	521.	365.	142.	9.21
	2 COMBINED AT							
+		Com17	2798.	63.00	2796.	2772.	2573.	622.56
	ROUTED TO							
+		Rt18	2797.	65.00	2795.	2770.	2565.	622.56
	HYDROGRAPH AT							
+		4S	796.	34.00	783.	647.	303.	22.35
	2 COMBINED AT							
+		Com18A	3101.	43.00	3082.	3000.	2738.	644.91
	HYDROGRAPH AT							
+		3S	310.	30.00	302.	231.	98.	4.49
	2 COMBINED AT							
+		Com18B	3240.	42.00	3212.	3080.	2783.	649.40
	ROUTED TO							
+		Rt19	3234.	43.00	3209.	3079.	2782.	649.40
	HYDROGRAPH AT							
+		2S	577.	23.00	552.	338.	122.	5.35
	2 COMBINED AT							
+		Com19A	3290.	42.00	3260.	3108.	2803.	654.75
	HYDROGRAPH AT							
+		1S	350.	35.00	345.	289.	137.	7.47
	2 COMBINED AT							
+		Com19B	3574.	41.00	3537.	3300.	2907.	662.22
	HYDROGRAPH AT							
+		DIV1	570.	48.00	566.	542.	493.	0.00
	HYDROGRAPH AT							
+		SC-3A	91.	72.00	91.	89.	73.	5.87
	2 COMBINED AT							
+		20C	629.	50.00	627.	615.	558.	5.87
	ROUTED TO							
+		21R	621.	55.00	620.	612.	553.	5.87
	HYDROGRAPH AT							
+		29aR	73.	37.00	72.	61.	31.	4.84
	2 COMBINED AT							
+		Com21A	656.	52.00	654.	638.	579.	10.71
	HYDROGRAPH AT							
+		29R	121.	47.00	120.	111.	67.	18.03
	2 COMBINED AT							
+		Com21B	773.	51.00	770.	742.	645.	28.74
	ROUTED TO							
+		22R	769.	53.00	766.	741.	642.	28.74
	HYDROGRAPH AT							
+		28aR	12.	30.00	12.	8.	3.	2.35



+	2 COMBINED AT	Com22	770.	53.00	767.	742.	644.	31.09
	ROUTED TO							
+		Rt23	688.	69.00	687.	677.	604.	31.09
	HYDROGRAPH AT							
+		24R	188.	50.00	187.	175.	112.	22.22
	2 COMBINED AT							
+		Com23A	831.	62.00	829.	807.	696.	53.31
	HYDROGRAPH AT							
+		28R	0.	1.00	0.	0.	0.	4.68
	HYDROGRAPH AT							
+		25R	101.	38.00	100.	86.	43.	8.99
	HYDROGRAPH AT							
+		27R	243.	50.00	241.	225.	144.	23.93
	3 COMBINED AT							
+		Com24	322.	45.00	320.	295.	186.	37.60
	ROUTED TO							
+		Rt25	314.	53.00	312.	289.	183.	37.60
	HYDROGRAPH AT							
+		22R	403.	46.00	401.	369.	223.	18.04
	2 COMBINED AT							
+		Com25	699.	49.00	695.	638.	397.	55.64
	HYDROGRAPH AT							
+		19R	81.	41.00	80.	71.	38.	11.18
	3 COMBINED AT							
+		Com23B	1523.	53.00	1518.	1445.	1103.	120.13
	ROUTED TO							
+		Rt26A	1523.	53.00	1518.	1445.	1103.	120.13
	DIVERSION TO							
+		DIV3	852.	53.00	850.	815.	618.	120.13
	HYDROGRAPH AT							
+		DIV3	671.	53.00	668.	630.	485.	120.13
	ROUTED TO							
+		Rt26B	666.	55.00	663.	626.	484.	120.13
	HYDROGRAPH AT							
+		20R	529.	35.00	521.	438.	211.	18.78
	2 COMBINED AT							
+		Com26	942.	43.00	935.	881.	656.	138.91
	ROUTED TO							
+		Rt27A	749.	61.00	747.	726.	601.	138.91
	HYDROGRAPH AT							
+		13R	378.	31.00	371.	288.	124.	11.50
	2 COMBINED AT							
+		Com27A	787.	57.00	786.	771.	672.	150.41
	HYDROGRAPH AT							
+		14R	201.	37.00	198.	171.	87.	9.24
	ROUTED TO							
+		Rt27B	128.	50.00	127.	115.	74.	9.24
	2 COMBINED AT							
+		Com27B	908.	54.00	906.	884.	746.	159.65
	ROUTED TO							
+		Rt28	900.	58.00	899.	877.	741.	159.65
	HYDROGRAPH AT							
+		11R	318.	26.00	307.	203.	76.	10.09

	2 COMBINED AT	Com28A	907.	57.00	906.	887.	777.	169.74
+	HYDROGRAPH AT	8R	43.	30.00	41.	28.	11.	11.62
+	2 COMBINED AT	Com28B	909.	56.00	908.	891.	787.	181.36
+	ROUTED TO	Rt29	899.	61.00	898.	882.	775.	181.36
+	HYDROGRAPH AT	10R	682.	34.00	671.	551.	256.	21.47
+	2 COMBINED AT	Com29	1375.	37.00	1366.	1253.	995.	202.83
+	ROUTED TO	Rt30	1227.	45.00	1224.	1186.	990.	202.83
+	HYDROGRAPH AT	6R	301.	43.00	298.	270.	154.	16.37
+	2 COMBINED AT	Com30A	1526.	44.00	1519.	1451.	1140.	219.20
+	HYDROGRAPH AT	4R	167.	30.00	163.	125.	53.	4.73
+	2 COMBINED AT	Com30B	1597.	43.00	1591.	1524.	1184.	223.93
+	ROUTED TO	Rt31	1369.	57.00	1367.	1341.	1154.	223.93
+	HYDROGRAPH AT	2R	420.	25.00	403.	265.	99.	5.58
+	2 COMBINED AT	Com31A	1379.	56.00	1377.	1354.	1198.	229.51
+	HYDROGRAPH AT	3R	223.	28.00	217.	157.	63.	4.47
+	2 COMBINED AT	Com31B	1395.	54.00	1394.	1376.	1245.	233.98
+	ROUTED TO	Rt32	1242.	75.00	1242.	1231.	1144.	233.98
+	HYDROGRAPH AT	1R	873.	34.00	858.	710.	331.	16.89
+	2 COMBINED AT	Com32	1714.	39.00	1703.	1566.	1367.	250.87
+	HYDROGRAPH AT	DIV3	852.	53.00	850.	815.	618.	0.00
+	HYDROGRAPH AT	17R	195.	34.00	192.	158.	73.	6.47
+	2 COMBINED AT	Com33A	923.	48.00	921.	885.	670.	6.47
+	HYDROGRAPH AT	23R	706.	84.00	705.	695.	601.	94.54
+	2 COMBINED AT	Com33B	1390.	62.00	1386.	1358.	1202.	101.01
+	ROUTED TO	LSV	567.	132.00	567.	565.	552.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	12.46	4860.00	0.08	60.00	12.46	4860.00	0.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7543E+02 EXCESS=0.0000E+00 OUTFLOW=0.7512E+02 BASIN STORAGE=0.7456E-02 PERCENT ERROR= 0.4									
2R	MANE	60.00	42.29	2760.00	0.12	60.00	42.29	2760.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1795E+03 EXCESS=0.0000E+00 OUTFLOW=0.1788E+03 BASIN STORAGE=0.2367E-01 PERCENT ERROR= 0.3									
3R	MANE	60.00	255.31	3300.00	0.28	60.00	255.31	3300.00	0.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1385E+04 EXCESS=0.0000E+00 OUTFLOW=0.1385E+04 BASIN STORAGE=0.1986E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	38.55	2700.00	0.36	60.00	38.55	2700.00	0.36
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+03 EXCESS=0.0000E+00 OUTFLOW=0.1173E+03 BASIN STORAGE=0.5410E-02 PERCENT ERROR= 0.5									
5AROUT	MANE	39.00	417.48	5148.00	0.78	60.00	417.39	5160.00	0.78
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1606E+04 EXCESS=0.0000E+00 OUTFLOW=0.1606E+04 BASIN STORAGE=0.3599E+00 PERCENT ERROR= 0.0									
5A1RT	MANE	24.00	338.08	6384.00	0.51	60.00	337.86	6360.00	0.51
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1207E+04 EXCESS=0.0000E+00 OUTFLOW=0.1196E+04 BASIN STORAGE=0.1447E+01 PERCENT ERROR= 0.8									
4AROUT	MANE	60.00	42.18	7560.00	0.12	60.00	42.18	7560.00	0.12
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1900E+03 EXCESS=0.0000E+00 OUTFLOW=0.1897E+03 BASIN STORAGE=0.1295E+00 PERCENT ERROR= 0.1									
4A1ROU	MANE	12.00	202.04	2292.00	0.19	60.00	201.49	2280.00	0.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3809E+03 EXCESS=0.0000E+00 OUTFLOW=0.3792E+03 BASIN STORAGE=0.1776E+00 PERCENT ERROR= 0.4									
4AABRT	MANE	24.00	192.22	2640.00	0.17	60.00	192.22	2640.00	0.17
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4037E+03 EXCESS=0.0000E+00 OUTFLOW=0.4036E+03 BASIN STORAGE=0.7820E+00 PERCENT ERROR= -0.2									
1BR	MANE	60.00	409.64	4260.00	2.30	60.00	409.64	4260.00	2.30
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2456E+04 EXCESS=0.0000E+00 OUTFLOW=0.2456E+04 BASIN STORAGE=0.7541E-02 PERCENT ERROR= 0.0									
2BR	MANE	60.00	798.74	3780.00	1.63	60.00	798.74	3780.00	1.63
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4694E+04 EXCESS=0.0000E+00 OUTFLOW=0.4695E+04 BASIN STORAGE=0.7389E-02 PERCENT ERROR= 0.0									
3BR	MANE	49.62	1043.19	3919.96	1.54	60.00	1043.17	3960.00	1.54
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6502E+04 EXCESS=0.0000E+00 OUTFLOW=0.6502E+04 BASIN STORAGE=0.1632E+00 PERCENT ERROR= 0.0									

4BR MANE 58.58 1304.45 3808.01 1.62 60.00 1304.41 3840.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7831E+04 EXCESS=0.0000E+00 OUTFLOW=0.7831E+04 BASIN STORAGE=0.2376E+00 PERCENT ERROR= 0.0

8BR MANE 60.00 1564.32 4020.00 1.70 60.00 1564.32 4020.00 1.70

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1013E+05 EXCESS=0.0000E+00 OUTFLOW=0.1013E+05 BASIN STORAGE=0.7430E+00 PERCENT ERROR= 0.0

9R MANE 60.00 2413.67 4020.00 0.75 60.00 2413.67 4020.00 0.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1695E+05 EXCESS=0.0000E+00 OUTFLOW=0.1695E+05 BASIN STORAGE=0.6562E+01 PERCENT ERROR= 0.0

Rt25 MANE 60.00 314.22 3180.00 0.59 60.00 314.22 3180.00 0.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1199E+04 EXCESS=0.0000E+00 OUTFLOW=0.1193E+04 BASIN STORAGE=0.4836E+00 PERCENT ERROR= 0.4

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM			
	ELEVATION	135.00		140.67		140.82		
	STORAGE	0.		1200.		1348.		
	OUTFLOW	0.		0.		325.		
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	140.85	0.03	1375.	418.	21.00	82.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM			
	ELEVATION	115.00		116.80		117.20		
	STORAGE	0.		974.		1190.		
	OUTFLOW	0.		0.		1346.		
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	116.96	0.00	1060.	340.	0.00	98.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM			
	ELEVATION	160.00		171.74		171.83		
	STORAGE	0.		2155.		2217.		
	OUTFLOW	0.		0.		38.		
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	171.84	0.01	2222.	42.	17.00	121.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM			
	ELEVATION	140.00		141.00		141.11		
	STORAGE	0.		495.		549.		
	OUTFLOW	0.		0.		439.		
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.07	0.00	528.	205.	0.00	35.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....	INITIAL VALUE		SPILLWAY CREST		TOP OF DAM			
	ELEVATION	110.00		113.48		113.65		
	STORAGE	0.		330.		346.		
	OUTFLOW	0.		0.		98.		
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	113.75	0.10	355.	196.	10.00	40.00	0.00

**HEC-1 MODEL**

**PROPOSED CONDITIONS  
50% DIVERSION**

**100-YEAR MODEL**

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1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/24/01 TIME 08:33:16 *
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*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY, DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION

KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

\* \*\*\*\*\*  
 \* Hidalgo County Flood Insurance Study  
 \* Job No. 11-00389-002  
 \* File Name: Deten100.DAT Proposed with Detention Conditions  
 \* 100-year Rain-fall Future Development  
 \* \*\*\*\*\*  
 \* HEC-1 model for the North-West main drain area  
 \* Model sequence is as follows:  
 \* \*\*\*\*\*  
 \* revised rainfall from USGS report 98-4044  
 \* REVISED CN TYPE I ANTECEDANT  
 \* REVISED LAG BASED ON REVISED CN I  
 \* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN  
 \* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE  
 \* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.  
 \* ROUTED 5&4 BASINS THROUGH STORAGE  
 \* MODIFIED PULS ROUTING REACHES 5R-9R  
 \* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11

\*DIAGRAM

1 ID West Main drain area  
 2 ID 100-year Rain-fall adjusted for area; Lag Time calculated using SCS Method  
 3 IT 60 1JAN01 0 300  
 4 IO 5

\* \*\*\*\*\*  
 \* Start calculating hydrograph for the sub water sheds  
 \* that drain to the West Main drain.  
 \* \*\*\*\*\*

5 KK SC-7A SUBWATER SHED  
 6 KM Compute hydrograph for sub-water shed SC-7A  
 7 BA 18.4  
 8 PH 1 4.68 5.65 6.29 7.51 8.61 9.19  
 9 LS 5.721 60  
 10 UD 53.5  
 \* \*\*\*\*\*

11 KK 1R  
 12 KM Route hydrograph from head water to node 1 using Muskingum-Cunge Method  
 13 RD  
 14 RC 0.08 0.03 0.08 19200 0.0002 217  
 15 RX 1000 2500 2917 2994 3005 3061 4500 5000  
 16 RY 203.5 202.0 204.4 191.53 191.53 204.5 199.9 199.0  
 \* \*\*\*\*\*

17 KK SC-7B SUBWATER SHED  
 18 KM Compute hydrograph for sub-water shed SC-7B  
 19 BA 9.82  
 20 LS 5.282 60  
 21 UD 20.1  
 \* \*\*\*\*\*



RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	176.	69.00	176.	171.	136.	18.40		
ROUTED TO	1R	176.	73.00	175.	170.	135.	18.40		
HYDROGRAPH AT	SC-7B	306.	35.00	302.	252.	120.	9.82		
2 COMBINED AT	1C	336.	37.00	333.	298.	228.	28.22		
ROUTED TO	2R	328.	41.00	325.	293.	226.	28.22		
HYDROGRAPH AT	SC-7C	568.	43.00	563.	508.	286.	23.00		
HYDROGRAPH AT	SC-6A	667.	66.00	666.	645.	499.	41.66		
3 COMBINED AT	2C	1333.	48.00	1328.	1269.	985.	92.88		
ROUTED TO	3R	1329.	52.00	1326.	1268.	984.	92.88		
HYDROGRAPH AT	SC-6B	521.	37.00	515.	444.	223.	6.58		
HYDROGRAPH AT	SC-7D	188.	41.00	186.	165.	89.	6.15		
ROUTED TO	3R	183.	42.00	182.	162.	89.	6.15		
3 COMBINED AT	3C	1858.	45.00	1850.	1744.	1267.	105.61		
ROUTED TO	4R	1688.	54.00	1683.	1624.	1261.	105.61		
HYDROGRAPH AT	SC5A	1085.	65.00	1084.	1051.	816.	38.43		
ROUTED TO	5ACANA	1081.	68.00	1079.	1030.	715.	38.43	141.00	68.00
ROUTED TO	5AROUT	1081.	71.00	1078.	1029.	713.	38.43		
HYDROGRAPH AT	SC5A1	643.	29.00	627.	464.	190.	5.64		
2 COMBINED AT	5AA1	1092.	71.00	1089.	1039.	718.	44.07		
ROUTED TO	5A1CAN	1088.	73.00	1085.	1031.	712.	44.07	117.15	73.00
ROUTED TO	5A1RT	1087.	78.00	1084.	1031.	707.	44.07		
HYDROGRAPH AT	SC5B	995.	27.00	964.	675.	264.	9.02		
2 COMBINED AT	4C1	1089.	78.00	1086.	1034.	708.	53.09		

+	HYDROGRAPH AT	SC-4A	1213.	52.00	1209.	1142.	762.	30.73		
+	ROUTED TO	4ACANA	1012.	64.00	998.	835.	454.	30.73	172.32	64.00
+	ROUTED TO	4AROUT	1011.	66.00	997.	832.	452.	30.73		
+	HYDROGRAPH AT	SC-4A1	1024.	25.00	986.	632.	233.	7.34		
+	2 COMBINED AT	SC4AA1	1024.	25.00	1000.	833.	541.	38.07		
+	ROUTED TO	4A1CAN	1010.	67.00	996.	826.	499.	38.07	141.19	67.00
+	ROUTED TO	4A1ROU	1009.	69.00	994.	821.	495.	38.07		
+	HYDROGRAPH AT	SC-4B	913.	20.00	830.	414.	141.	5.44		
+	2 COMBINED AT	SC4AAB	1193.	29.00	1002.	821.	558.	43.51		
+	ROUTED TO	4BCANA	1180.	30.00	994.	818.	537.	43.51	114.19	30.00
+	ROUTED TO	4AABRT	1145.	32.00	991.	811.	535.	43.51		
+	HYDROGRAPH AT	SC-4B1	725.	26.00	699.	475.	181.	6.07		
+	2 COMBINED AT	SC-4	1667.	32.00	1428.	1024.	672.	49.58		
+	3 COMBINED AT	4C2	3435.	73.00	3386.	2967.	2510.	208.28		
+	ROUTED TO	5R	2814.	84.00	2808.	2710.	2418.	208.28		
+	HYDROGRAPH AT	SC-3	1380.	76.00	1379.	1353.	1138.	56.44		
+	2 COMBINED AT	5C	4175.	82.00	4165.	4026.	3491.	264.72		
+	DIVERSION TO	DIV1	2200.	82.00	2194.	2116.	1815.	264.72		
+	HYDROGRAPH AT	DIV1	1975.	82.00	1970.	1910.	1676.	264.72		
+	ROUTED TO	6R	1840.	99.00	1838.	1805.	1633.	264.72		
+	HYDROGRAPH AT	SC-3B	264.	49.00	263.	246.	157.	6.71		
+	2 COMBINED AT	6C	1878.	98.00	1876.	1846.	1738.	271.43		
+	ROUTED TO	7R	1878.	99.00	1876.	1846.	1738.	271.43		
+	HYDROGRAPH AT	SC-2	139.	72.00	139.	136.	110.	11.48		
+	2 COMBINED AT	7C	1979.	97.00	1977.	1947.	1847.	282.91		
+	ROUTED TO	8R	1964.	103.00	1962.	1935.	1840.	282.91		

+	HYDROGRAPH AT	SC-1	360.	52.00	359.	340.	231.	7.07
+	2 COMBINED AT	8C1	2106.	63.00	2104.	2076.	2013.	289.98
+	HYDROGRAPH AT	SC-8	770.	67.00	769.	748.	592.	19.99
+	ROUTED TO	1BR	769.	70.00	768.	747.	591.	19.99
+	HYDROGRAPH AT	SM-18	529.	70.00	529.	515.	415.	27.11
+	2 COMBINED AT	1BC1	1298.	70.00	1296.	1262.	1007.	47.10
+	HYDROGRAPH AT	SM-17	503.	50.00	502.	472.	310.	7.03
+	2 COMBINED AT	1BC2	1675.	53.00	1670.	1614.	1285.	54.13
+	ROUTED TO	2BR	1674.	64.00	1669.	1613.	1284.	54.13
+	HYDROGRAPH AT	SM-16	589.	75.00	588.	577.	482.	25.18
+	2 COMBINED AT	2BC	2228.	66.00	2224.	2160.	1755.	79.31
+	ROUTED TO	3BR	2228.	66.00	2223.	2159.	1755.	79.31
+	HYDROGRAPH AT	SM-15	534.	54.00	532.	507.	353.	11.10
+	2 COMBINED AT	3BC	2703.	64.00	2696.	2610.	2090.	90.41
+	ROUTED TO	4BR	2700.	65.00	2694.	2608.	2088.	90.41
+	HYDROGRAPH AT	SM-14	571.	82.00	570.	562.	486.	21.60
+	2 COMBINED AT	4BC	3206.	67.00	3199.	3106.	2547.	112.01
+	ROUTED TO	8BR	3205.	68.00	3198.	3106.	2547.	112.01
+	HYDROGRAPH AT	SM-13	282.	89.00	282.	278.	246.	22.25
+	2 COMBINED AT	8C2	3444.	69.00	3436.	3343.	2773.	134.26
+	2 COMBINED AT	8C3	5531.	68.00	5522.	5401.	4783.	424.24
+	ROUTED TO	9R	5525.	72.00	5516.	5397.	4781.	424.24
+	HYDROGRAPH AT	29S	634.	41.00	628.	560.	304.	12.28
+	2 COMBINED AT	Com9A	5665.	70.00	5657.	5548.	4945.	436.52
+	HYDROGRAPH AT	28S	916.	53.00	914.	866.	588.	25.91
+	2 COMBINED AT	Com9B	6384.	66.00	6376.	6253.	5469.	462.43
+	ROUTED TO	Rt10	5786.	81.00	5781.	5710.	5246.	462.43

+	DIVERSION TO							
		DIV2	1653.	81.00	1652.	1631.	1499.	462.43
+	HYDROGRAPH AT							
		DIV2	4133.	81.00	4129.	4078.	3747.	462.43
+	HYDROGRAPH AT							
		27S	1110.	29.00	1082.	803.	329.	12.15
+	2 COMBINED AT							
		Com10A	4140.	81.00	4136.	4086.	3770.	474.58
+	HYDROGRAPH AT							
		26S	1048.	28.00	1021.	732.	291.	10.55
+	HYDROGRAPH AT							
		24S	363.	29.00	354.	262.	107.	3.83
+	3 COMBINED AT							
		Com10B	4145.	80.00	4141.	4091.	3800.	488.96
+	ROUTED TO							
		Rt11	4064.	89.00	4062.	4035.	3771.	488.96
+	HYDROGRAPH AT							
		22S	529.	35.00	520.	436.	207.	7.55
+	2 COMBINED AT							
		Com11A	4076.	89.00	4074.	4048.	3805.	496.51
+	HYDROGRAPH AT							
		20S	615.	39.00	609.	533.	277.	10.57
+	2 COMBINED AT							
		Com11B	4109.	87.00	4108.	4084.	3933.	507.08
+	ROUTED TO							
		Rt12	4077.	95.00	4076.	4059.	3926.	507.08
+	HYDROGRAPH AT							
		18S	388.	31.00	380.	295.	127.	4.69
+	2 COMBINED AT							
		Com12	4078.	94.00	4077.	4061.	3964.	511.77
+	ROUTED TO							
		Rt13	4074.	97.00	4073.	4058.	3961.	511.77
+	HYDROGRAPH AT							
		16S	454.	38.00	449.	391.	202.	9.60
+	2 COMBINED AT							
		Com13A	4409.	43.00	4396.	4237.	4092.	521.37
+	HYDROGRAPH AT							
		15S	789.	52.00	787.	740.	488.	25.08
+	2 COMBINED AT							
		Com13B	5142.	45.00	5128.	4959.	4559.	546.45
+	ROUTED TO							
		Rt14	4678.	60.00	4674.	4626.	4442.	546.45
+	HYDROGRAPH AT							
		13S	644.	48.00	641.	595.	369.	19.76
+	2 COMBINED AT							
		Com14A	5229.	56.00	5221.	5115.	4731.	566.21
+	HYDROGRAPH AT							
		14S	551.	37.00	545.	471.	239.	9.53
+	2 COMBINED AT							
		Com14B	5486.	52.00	5479.	5362.	4875.	575.74
+	ROUTED TO							
		Rt15	5268.	63.00	5261.	5171.	4793.	575.74
+	HYDROGRAPH AT							
		11S	887.	26.00	855.	584.	223.	8.20

+	2 COMBINED AT	Com15	5283.	62.00	5276.	5186.	4807.	583.94
+	ROUTED TO	Rt16	5049.	75.00	5045.	4996.	4734.	583.94
+	HYDROGRAPH AT	7S	968.	53.00	965.	914.	619.	29.41
+	2 COMBINED AT	Com16	5739.	67.00	5732.	5635.	5192.	613.35
+	ROUTED TO	Rt17	5719.	71.00	5711.	5619.	5185.	613.35
+	HYDROGRAPH AT	6S	1101.	27.00	1068.	744.	290.	9.21
+	2 COMBINED AT	Com17	5728.	70.00	5721.	5629.	5200.	622.56
+	ROUTED TO	Rt18	5675.	75.00	5668.	5587.	5185.	622.56
+	HYDROGRAPH AT	4S	1698.	34.00	1669.	1379.	644.	22.35
+	2 COMBINED AT	Com18A	5770.	73.00	5764.	5690.	5399.	644.91
+	HYDROGRAPH AT	3S	553.	30.00	540.	413.	175.	4.49
+	2 COMBINED AT	Com18B	5782.	73.00	5776.	5704.	5493.	649.40
+	ROUTED TO	Rt19	5778.	74.00	5772.	5701.	5488.	649.40
+	HYDROGRAPH AT	2S	1018.	23.00	971.	594.	214.	5.35
+	2 COMBINED AT	Com19A	5868.	36.00	5831.	5701.	5533.	654.75
+	HYDROGRAPH AT	1S	664.	35.00	654.	547.	260.	7.47
+	2 COMBINED AT	Com19B	6522.	36.00	6466.	6019.	5738.	662.22
+	HYDROGRAPH AT	DIV1	2200.	82.00	2194.	2116.	1815.	0.00
+	HYDROGRAPH AT	SC-3A	178.	72.00	177.	174.	143.	5.87
+	2 COMBINED AT	20C	2370.	82.00	2364.	2280.	1956.	5.87
+	ROUTED TO	21R	2308.	88.00	2303.	2235.	1935.	5.87
+	HYDROGRAPH AT	29aR	227.	37.00	224.	192.	95.	4.84
+	2 COMBINED AT	Com21A	2315.	88.00	2311.	2244.	1978.	10.71
+	HYDROGRAPH AT	29R	488.	47.00	485.	447.	271.	18.03
+	2 COMBINED AT	Com21B	2401.	87.00	2397.	2331.	2204.	28.74
+	ROUTED TO	22R	2395.	89.00	2390.	2327.	2200.	28.74
+	HYDROGRAPH AT	28aR	106.	27.00	102.	70.	27.	2.35

+	2 COMBINED AT	Com22	2395.	89.00	2390.	2327.	2205.	31.09
+	ROUTED TO	Rt23	2187.	102.00	2185.	2159.	2001.	31.09
+	HYDROGRAPH AT	24R	625.	50.00	623.	582.	372.	22.22
+	2 COMBINED AT	Com23A	2298.	63.00	2295.	2255.	2218.	53.31
+	HYDROGRAPH AT	28R	51.	33.00	50.	38.	16.	4.68
+	ROUTED TO	Rt24	47.	44.00	46.	35.	16.	4.68
+	HYDROGRAPH AT	25R	366.	37.00	362.	311.	156.	8.99
+	HYDROGRAPH AT	27R	733.	50.00	730.	682.	434.	23.93
+	3 COMBINED AT	Com24	1071.	44.00	1063.	970.	602.	37.60
+	ROUTED TO	Rt25	1050.	49.00	1043.	956.	596.	37.60
+	HYDROGRAPH AT	22R	882.	46.00	878.	809.	488.	18.04
+	2 COMBINED AT	Com25	1924.	47.00	1908.	1748.	1073.	55.64
+	HYDROGRAPH AT	19R	359.	40.00	355.	314.	167.	11.18
+	3 COMBINED AT	Com23B	4255.	50.00	4238.	4042.	3268.	120.13
+	ROUTED TO	Rt26A	4167.	55.00	4153.	3975.	3268.	120.13
+	DIVERSION TO	DIV3	1990.	55.00	1984.	1910.	1611.	120.13
+	HYDROGRAPH AT	DIV3	2177.	55.00	2169.	2066.	1657.	120.13
+	ROUTED TO	Rt26B	2155.	58.00	2148.	2063.	1654.	120.13
+	HYDROGRAPH AT	20R	1248.	35.00	1229.	1032.	494.	18.78
+	2 COMBINED AT	Com26	2704.	43.00	2696.	2605.	2015.	138.91
+	ROUTED TO	Rt27A	1789.	75.00	1788.	1768.	1646.	138.91
+	HYDROGRAPH AT	13R	907.	30.00	888.	688.	294.	11.50
+	2 COMBINED AT	Com27A	1810.	73.00	1809.	1791.	1714.	150.41
+	HYDROGRAPH AT	14R	528.	37.00	521.	449.	226.	9.24
+	ROUTED TO	Rt27B	638.	42.00	450.	308.	203.	9.24
+	2 COMBINED AT	Com27B	2291.	42.00	2094.	1997.	1913.	159.65
+	ROUTED TO	Rt28	1991.	76.00	1990.	1975.	1879.	159.65

+	HYDROGRAPH AT	11R	934.	25.00	898.	587.	218.	10.09
+	2 COMBINED AT	Com28A	1991.	76.00	1990.	1976.	1908.	169.74
+	HYDROGRAPH AT	8R	490.	27.00	474.	325.	124.	11.62
+	2 COMBINED AT	Com28B	2281.	29.00	2209.	2062.	1993.	181.36
+	ROUTED TO	Rt29	1974.	83.00	1973.	1965.	1911.	181.36
+	HYDROGRAPH AT	10R	1540.	34.00	1516.	1246.	575.	21.47
+	2 COMBINED AT	Com29	3163.	35.00	3141.	2867.	2352.	202.83
+	ROUTED TO	Rt30	2674.	46.00	2665.	2561.	2263.	202.83
+	HYDROGRAPH AT	6R	746.	43.00	740.	670.	381.	16.37
+	2 COMBINED AT	Com30A	3404.	45.00	3388.	3200.	2606.	219.20
+	HYDROGRAPH AT	4R	395.	30.00	385.	295.	125.	4.73
+	2 COMBINED AT	Com30B	3556.	43.00	3538.	3345.	2693.	223.93
+	ROUTED TO	Rt31	3064.	56.00	3052.	2942.	2532.	223.93
+	HYDROGRAPH AT	2R	815.	25.00	782.	512.	192.	5.58
+	2 COMBINED AT	Com31A	3083.	56.00	3073.	2964.	2553.	229.51
+	HYDROGRAPH AT	3R	478.	28.00	465.	335.	133.	4.47
+	2 COMBINED AT	Com31B	3115.	55.00	3104.	2998.	2610.	233.98
+	ROUTED TO	Rt32	2593.	76.00	2590.	2560.	2381.	233.98
+	HYDROGRAPH AT	1R	1608.	34.00	1582.	1307.	608.	16.89
+	2 COMBINED AT	Com32	2856.	36.00	2840.	2666.	2608.	250.87
+	HYDROGRAPH AT	DIV3	1990.	55.00	1984.	1910.	1611.	0.00
+	HYDROGRAPH AT	17R	458.	33.00	451.	369.	170.	6.47
+	2 COMBINED AT	Com33A	2121.	52.00	2114.	2052.	1725.	6.47
+	HYDROGRAPH AT	23R	1709.	83.00	1707.	1681.	1454.	94.54
+	2 COMBINED AT	Com33B	3380.	67.00	3376.	3328.	3038.	101.01
+	ROUTED TO	LSV	1302.	144.00	1301.	1291.	1238.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL			VOLUME (IN)
						DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	
1R	MANE	60.00	175.66	4380.00	1.08	60.00	175.66	4380.00	1.08
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1056E+04 EXCESS=0.0000E+00 OUTFLOW=0.1056E+04 BASIN STORAGE=0.1018E-01 PERCENT ERROR= 0.0									
2R	MANE	60.00	327.51	2460.00	1.18	60.00	327.51	2460.00	1.18
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1777E+04 EXCESS=0.0000E+00 OUTFLOW=0.1776E+04 BASIN STORAGE=0.3912E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	1329.41	3120.00	1.48	60.00	1329.41	3120.00	1.48
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7334E+04 EXCESS=0.0000E+00 OUTFLOW=0.7333E+04 BASIN STORAGE=0.3812E-01 PERCENT ERROR= 0.0									
3R	MANE	60.00	183.40	2520.00	1.68	60.00	183.40	2520.00	1.68
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5506E+03 EXCESS=0.0000E+00 OUTFLOW=0.5498E+03 BASIN STORAGE=0.5648E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	48.00	1081.04	4272.00	2.44	60.00	1080.84	4260.00	2.44
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5000E+04 EXCESS=0.0000E+00 OUTFLOW=0.5004E+04 BASIN STORAGE=0.4968E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	1087.03	4680.00	2.20	60.00	1087.03	4680.00	2.20
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5164E+04 EXCESS=0.0000E+00 OUTFLOW=0.5163E+04 BASIN STORAGE=0.2022E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	33.00	1011.01	3960.00	1.80	60.00	1011.01	3960.00	1.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2946E+04 EXCESS=0.0000E+00 OUTFLOW=0.2946E+04 BASIN STORAGE=0.1572E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	18.00	1009.21	4140.00	1.89	60.00	1009.21	4140.00	1.89
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3835E+04 EXCESS=0.0000E+00 OUTFLOW=0.3834E+04 BASIN STORAGE=0.2044E+00 PERCENT ERROR= 0.0									
4AABRT	MANE	12.00	1147.06	1932.00	1.88	60.00	1144.65	1920.00	1.88
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4351E+04 EXCESS=0.0000E+00 OUTFLOW=0.4354E+04 BASIN STORAGE=0.8935E+00 PERCENT ERROR= -0.1									
1BR	MANE	60.00	768.80	4200.00	4.32	60.00	768.80	4200.00	4.32
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4607E+04 EXCESS=0.0000E+00 OUTFLOW=0.4607E+04 BASIN STORAGE=0.7847E-02 PERCENT ERROR= 0.0									
2BR	MANE	53.32	1674.43	3838.77	3.45	60.00	1674.37	3840.00	3.45
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9971E+04 EXCESS=0.0000E+00 OUTFLOW=0.9972E+04 BASIN STORAGE=0.1659E-01 PERCENT ERROR= 0.0									
3BR	MANE	38.36	2228.20	3989.46	3.31	60.00	2228.00	3960.00	3.31
INUITY SUMMARY (AC-FT) - INFLOW=0.1402E+05 EXCESS=0.0000E+00 OUTFLOW=0.1402E+05 BASIN STORAGE=0.3455E+00 PERCENT ERROR= 0.0									



4BR	MANE	46.65	2700.01	3872.27	3.41	60.00	2699.99	3900.00	3.41
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1646E+05 EXCESS=0.0000E+00 OUTFLOW=0.1646E+05 BASIN STORAGE=0.4912E+00 PERCENT ERROR= 0.0									
8BR	MANE	60.00	3204.94	4080.00	3.49	60.00	3204.94	4080.00	3.49
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2084E+05 EXCESS=0.0000E+00 OUTFLOW=0.2084E+05 BASIN STORAGE=0.1453E+01 PERCENT ERROR= 0.0									
9R	MANE	60.00	5525.39	4320.00	1.84	60.00	5525.39	4320.00	1.84
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4170E+05 EXCESS=0.0000E+00 OUTFLOW=0.4170E+05 BASIN STORAGE=0.1368E+02 PERCENT ERROR= 0.0									
Rt24	MANE	60.00	46.61	2640.00	0.38	60.00	46.61	2640.00	0.38
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9694E+02 EXCESS=0.0000E+00 OUTFLOW=0.9480E+02 BASIN STORAGE=0.3377E+00 PERCENT ERROR= 1.9									
Rt25	MANE	60.00	1050.06	2940.00	1.93	60.00	1050.06	2940.00	1.93
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3869E+04 EXCESS=0.0000E+00 OUTFLOW=0.3861E+04 BASIN STORAGE=0.5026E+00 PERCENT ERROR= 0.2									

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.00	0.18	1522.	1081.	64.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	117.15	0.00	1162.	1088.	0.00	73.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	172.32	0.49	2555.	1012.	101.00	64.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4AICAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.19	0.08	590.	1010.	39.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	114.19	0.54	397.	1180.	106.00	30.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.00	0.18	1522.	1081.	64.00	68.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	117.15	0.00	1162.	1088.	0.00	73.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	172.32	0.49	2555.	1012.	101.00	64.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	141.19	0.08	590.	1010.	39.00	67.00	0.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
	1.00	114.19	0.54	397.	1180.	106.00	30.00	0.00

**HEC-1 MODEL**  
**PROPOSED CONDITIONS**  
**50% DIVERSION**  
**500-YEAR MODEL**

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* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* Lahey F77L-EM/32 version 5.01 *
* Dodson & Associates, Inc. *
* RUN DATE 05/24/01 TIME 08:54:46 *
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* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
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XXXXXXXX LXXX   X       XXXXX X
X   X  X       X       X
X   X  X       X   X   X
X   X  XXXXXXX  XXXXX   XXX

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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION  
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,  
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION  
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
* *****
* Hidalgo County Flood Insurance Study
* Job No. 11-00389-002
* File Name: Deten500.DAT      Proposed with Detention Conditions
* 500-year Rain-fall          Future Development
* *****
* HEC-1 model for the North-West main drain area
* Model sequence is as follows:
* *****
* revised rainfall from USGS report 98-4044
* REVISED CN TYPE I ANTECEDANT
* REVISED LAG BASED ON REVISED CN I
* IA LOSSES CALCULATED BASED ON 3" HEAVY CROP, 1" RURAL, 0" URBAN
* ADDITION MAJOR DEPRESSION STORAGE ADDED WHERE APPLICABLE
* SEE SPREADSHEET LANDUSE-SOIL-CN-IA.XLS FOR IA CALCS.
* ROUTED 5&4 BASINS THROUGH STORAGE
* MODIFIED PULS ROUTING REACHES 5R-9R
* CORRECTED DA FOR SM-18 FROM 37.73 TO 27.11
*DIAGRAM
1         ID  West Main drain area
2         ID  500-year Rain-fall adjusted for area; Lag Time calculated using SCS Method
3         IT   60 1JAN01      0      300
4         IO   5
* *****
* Start calculating hydrograph for the sub water sheds
* that drain to the West Main drain.
* *****

5         KK  SC-7A SUBWATER SHED
6         KM  Compute hydrograph for sub-water shed SC-7A
7         BA  18.4
8         PH  0.2                6.21   7.66   8.83   10.75  12.35  13.23
9         LS  5.721      60
10        UD  53.5
* *****

11        KK  1R
12        KM  Route hydrograph from head water to node 1 using Muskingum-Cunge Method
13        RD
14        RC  0.08   0.03   0.08   19200  0.0002   217
15        RX  1000   2500   2917   2994   3005   3061   4500   5000
16        RY  203.5  202.0  204.4  191.53 191.53  204.5  199.9  199.0
* *****

17        KK  SC-7B SUBWATER SHED
18        KM  Compute hydrograph for sub-water shed SC-7B
19        BA  9.82
20        LS  5.282      60
21        UD  20.1
* *****

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RUNOFF SUMMARY  
FLOW IN CUBIC FEET PER SECOND  
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SC-7A	615.	68.00	614.	598.	473.	18.40		
ROUTED TO	1R	614.	71.00	613.	596.	473.	18.40		
HYDROGRAPH AT	SC-7B	939.	35.00	925.	771.	365.	9.82		
2 COMBINED AT	1C	1080.	36.00	1072.	970.	760.	28.22		
ROUTED TO	2R	1059.	43.00	1053.	963.	756.	28.22		
HYDROGRAPH AT	SC-7C	1667.	42.00	1654.	1492.	838.	23.00		
HYDROGRAPH AT	SC-6A	1773.	65.00	1771.	1717.	1327.	41.66		
3 COMBINED AT	2C	3910.	47.00	3889.	3680.	2849.	92.88		
ROUTED TO	3R	3859.	53.00	3843.	3654.	2841.	92.88		
HYDROGRAPH AT	SC-6B	967.	37.00	956.	824.	414.	6.58		
HYDROGRAPH AT	SC-7D	515.	40.00	511.	454.	245.	6.15		
ROUTED TO	3R	507.	41.00	502.	447.	244.	6.15		
3 COMBINED AT	3C	4804.	48.00	4783.	4517.	3425.	105.61		
ROUTED TO	4R	4288.	59.00	4276.	4123.	3315.	105.61		
HYDROGRAPH AT	SC5A	2193.	65.00	2190.	2125.	1649.	38.43		
ROUTED TO	5ACANA	2190.	67.00	2187.	2121.	1587.	38.43	141.13	67.00
ROUTED TO	5AROUT	2191.	69.00	2187.	2121.	1585.	38.43		
HYDROGRAPH AT	SC5A1	1206.	29.00	1176.	871.	357.	5.64		
2 COMBINED AT	5AA1	2218.	67.00	2215.	2155.	1612.	44.07		
ROUTED TO	5A1CAN	2217.	68.00	2214.	2154.	1606.	44.07	117.30	68.00
ROUTED TO	5A1RT	2217.	72.00	2213.	2153.	1602.	44.07		
HYDROGRAPH AT	SC5B	1984.	27.00	1923.	1342.	524.	9.02		
2 COMBINED AT	4C1	2231.	71.00	2228.	2169.	1655.	53.09		

+	HYDROGRAPH AT	SC-4A	2429.	51.00	2422.	2287.	1525.	30.73		
	ROUTED TO	4ACANA	2399.	55.00	2382.	2168.	1250.	30.73		
+									172.70	55.00
+	ROUTED TO	4AROUT	2399.	56.00	2381.	2164.	1248.	30.73		
+	HYDROGRAPH AT	SC-4A1	1978.	24.00	1899.	1215.	448.	7.34		
+	2 COMBINED AT	SC4AA1	2435.	56.00	2418.	2194.	1470.	38.07		
+	ROUTED TO	4A1CAN	2431.	56.00	2414.	2190.	1437.	38.07		
+									141.34	56.00
+	ROUTED TO	4A1ROU	2429.	58.00	2413.	2187.	1432.	38.07		
+	HYDROGRAPH AT	SC-4B	1961.	20.00	1782.	870.	296.	5.44		
+	2 COMBINED AT	SC4AAB	3037.	25.00	2585.	2187.	1617.	43.51		
+	ROUTED TO	4BCANA	3043.	26.00	2558.	2185.	1599.	43.51		
+									114.67	26.00
+	ROUTED TO	4AABRT	2873.	28.00	2545.	2177.	1594.	43.51		
+	HYDROGRAPH AT	SC-4B1	1436.	26.00	1385.	937.	358.	6.07		
+	2 COMBINED AT	SC-4	4249.	27.00	3822.	2510.	1911.	49.58		
+	3 COMBINED AT	4C2	8788.	61.00	8750.	8195.	6657.	208.28		
+	ROUTED TO	5R	7553.	77.00	7541.	7374.	6208.	208.28		
+	HYDROGRAPH AT	SC-3	2698.	76.00	2695.	2645.	2224.	56.44		
+	2 COMBINED AT	5C	10250.	76.00	10236.	10019.	8414.	264.72		
+	DIVERSION TO	DIV1	6250.	76.00	6239.	6079.	4927.	264.72		
+	HYDROGRAPH AT	DIV1	4000.	76.00	3996.	3939.	3487.	264.72		
+	ROUTED TO	6R	3637.	104.00	3635.	3604.	3334.	264.72		
+	HYDROGRAPH AT	SC-3B	556.	49.00	554.	518.	330.	6.71		
+	2 COMBINED AT	6C	3703.	101.00	3701.	3675.	3462.	271.43		
+	ROUTED TO	7R	3665.	109.00	3663.	3639.	3451.	271.43		
+	HYDROGRAPH AT	SC-2	412.	71.00	412.	402.	326.	11.48		
+	2 COMBINED AT	7C	3903.	100.00	3901.	3882.	3729.	282.91		
+	ROUTED TO	8R	3856.	116.00	3855.	3839.	3684.	282.91		



+	HYDROGRAPH AT	SC-1	648.	52.00	647.	613.	417.	7.07
+	2 COMBINED AT	8C1	3932.	111.00	3931.	3920.	3835.	289.98
+	HYDROGRAPH AT	SC-8	1392.	67.00	1390.	1352.	1071.	19.99
+	ROUTED TO	1BR	1390.	70.00	1388.	1350.	1070.	19.99
+	HYDROGRAPH AT	SM-18	1262.	70.00	1261.	1230.	990.	27.11
+	2 COMBINED AT	1BC1	2652.	70.00	2649.	2580.	2060.	47.10
+	HYDROGRAPH AT	SM-17	839.	50.00	836.	787.	517.	7.03
+	2 COMBINED AT	1BC2	3271.	63.00	3260.	3158.	2523.	54.13
+	ROUTED TO	2BR	3269.	64.00	3259.	3158.	2522.	54.13
+	HYDROGRAPH AT	SM-16	1199.	75.00	1198.	1174.	980.	25.18
+	2 COMBINED AT	2BC	4412.	67.00	4403.	4281.	3483.	79.31
+	ROUTED TO	3BR	4410.	68.00	4401.	4278.	3482.	79.31
+	HYDROGRAPH AT	SM-15	963.	54.00	961.	915.	638.	11.10
+	2 COMBINED AT	3BC	5237.	65.00	5224.	5068.	4084.	90.41
+	ROUTED TO	4BR	5173.	69.00	5162.	5016.	4069.	90.41
+	HYDROGRAPH AT	SM-14	1056.	82.00	1055.	1039.	900.	21.60
+	2 COMBINED AT	4BC	6165.	71.00	6154.	5991.	4919.	112.01
+	ROUTED TO	8BR	6163.	71.00	6151.	5989.	4917.	112.01
+	HYDROGRAPH AT	SM-13	704.	88.00	703.	694.	613.	22.25
+	2 COMBINED AT	8C2	6802.	73.00	6790.	6619.	5484.	134.26
+	2 COMBINED AT	8C3	10544.	74.00	10531.	10350.	9166.	424.24
+	ROUTED TO	9R	10480.	82.00	10467.	10295.	9138.	424.24
+	HYDROGRAPH AT	29S	1331.	41.00	1320.	1176.	638.	12.28
+	2 COMBINED AT	Com9A	10632.	81.00	10620.	10455.	9355.	436.52
+	HYDROGRAPH AT	28S	1901.	53.00	1897.	1797.	1220.	25.91
+	2 COMBINED AT	Com9B	11630.	74.00	11619.	11463.	10336.	462.43
+	ROUTED TO	Rt10	11187.	86.00	11174.	10997.	9849.	462.43

DIVERSION TO	DIV2	2000.	86.00	2000.	2000.	2000.	462.43
+ HYDROGRAPH AT	DIV2	9187.	86.00	9174.	8997.	7849.	462.43
+ HYDROGRAPH AT	27S	2303.	29.00	2247.	1662.	679.	12.15
+ 2 COMBINED AT	Com10A	9192.	86.00	9179.	9004.	7866.	474.58
+ HYDROGRAPH AT	26S	2171.	27.00	2110.	1509.	598.	10.55
+ HYDROGRAPH AT	24S	746.	29.00	728.	538.	220.	3.83
+ 3 COMBINED AT	Com10B	9194.	86.00	9181.	9009.	7884.	488.96
+ ROUTED TO	Rt11	8878.	96.00	8868.	8720.	7757.	488.96
+ HYDROGRAPH AT	22S	1089.	35.00	1074.	898.	427.	7.55
+ 2 COMBINED AT	Com11A	8892.	96.00	8881.	8734.	7781.	496.51
+ HYDROGRAPH AT	20S	1266.	38.00	1254.	1098.	570.	10.57
+ 2 COMBINED AT	Com11B	8932.	95.00	8921.	8778.	7846.	507.08
+ ROUTED TO	Rt12	8884.	99.00	8874.	8728.	7827.	507.08
+ HYDROGRAPH AT	18S	800.	30.00	785.	608.	261.	4.69
+ 2 COMBINED AT	Com12	8885.	99.00	8874.	8729.	7831.	511.77
+ ROUTED TO	Rt13	8865.	102.00	8855.	8710.	7825.	511.77
+ HYDROGRAPH AT	16S	1039.	38.00	1027.	895.	460.	9.60
+ 2 COMBINED AT	Com13A	8884.	102.00	8874.	8730.	7861.	521.37
+ HYDROGRAPH AT	15S	1774.	51.00	1769.	1665.	1096.	25.08
+ 2 COMBINED AT	Com13B	9450.	47.00	9404.	9018.	8612.	546.45
+ ROUTED TO	Rt14	8984.	108.00	8976.	8868.	8450.	546.45
+ HYDROGRAPH AT	13S	1504.	47.00	1497.	1389.	861.	19.76
+ 2 COMBINED AT	Com14A	9869.	55.00	9839.	9461.	8968.	566.21
+ HYDROGRAPH AT	14S	1161.	37.00	1148.	993.	503.	9.53
+ 2 COMBINED AT	Com14B	10371.	54.00	10342.	9947.	9172.	575.74
+ ROUTED TO	Rt15	10050.	60.00	10021.	9670.	9086.	575.74
+ HYDROGRAPH AT	11S	1846.	26.00	1780.	1207.	461.	8.20

+	2 COMBINED AT	Com15	10088.	60.00	10060.	9713.	9102.	583.94
	ROUTED TO							
+		Rt16	9657.	68.00	9635.	9364.	8988.	583.94
	HYDROGRAPH AT							
+		7S	2078.	53.00	2072.	1962.	1327.	29.41
	2 COMBINED AT							
+		Com16	11350.	65.00	11318.	10895.	9827.	613.35
	ROUTED TO							
+		Rt17	10798.	73.00	10780.	10563.	9759.	613.35
	HYDROGRAPH AT							
+		6S	2125.	27.00	2061.	1435.	558.	9.21
	2 COMBINED AT							
+		Com17	10810.	73.00	10793.	10577.	9768.	622.56
	ROUTED TO							
+		Rt18	10577.	80.00	10556.	10300.	9640.	622.56
	HYDROGRAPH AT							
+		4S	3358.	34.00	3304.	2730.	1272.	22.35
	2 COMBINED AT							
+		Com18A	10695.	79.00	10673.	10411.	9708.	644.91
	HYDROGRAPH AT							
+		3S	979.	30.00	958.	733.	310.	4.49
	2 COMBINED AT							
+		Com18B	10706.	79.00	10684.	10421.	9715.	649.40
	ROUTED TO							
+		Rt19	10673.	82.00	10653.	10394.	9706.	649.40
	HYDROGRAPH AT							
+		2S	1786.	23.00	1702.	1041.	376.	5.35
	2 COMBINED AT							
+		Com19A	10673.	82.00	10653.	10394.	9706.	654.75
	HYDROGRAPH AT							
+		1S	1221.	34.00	1206.	1007.	479.	7.47
	2 COMBINED AT							
+		Com19B	10850.	36.00	10788.	10437.	9855.	662.22
	HYDROGRAPH AT							
+		DIV1	6250.	76.00	6239.	6079.	4927.	0.00
	HYDROGRAPH AT							
+		SC-3A	334.	72.00	334.	326.	268.	5.87
	2 COMBINED AT							
+		20C	6583.	76.00	6571.	6403.	5195.	5.87
	ROUTED TO							
+		21R	6177.	87.00	6168.	6028.	5075.	5.87
	HYDROGRAPH AT							
+		29aR	540.	36.00	534.	456.	225.	4.84
	2 COMBINED AT							
+		Com21A	6197.	87.00	6188.	6050.	5121.	10.71
	HYDROGRAPH AT							
+		29R	1279.	46.00	1272.	1173.	709.	18.03
	2 COMBINED AT							
+		Com21B	6434.	85.00	6424.	6296.	5568.	28.74
	ROUTED TO							
+		22R	6408.	88.00	6399.	6274.	5556.	28.74
	HYDROGRAPH AT							
+		28aR	345.	26.00	333.	226.	86.	2.35

+	2 COMBINED AT	Com22	6408.	88.00	6399.	6274.	5561.	31.09
+	ROUTED TO	Rt23	5594.	106.00	5587.	5495.	4951.	31.09
+	HYDROGRAPH AT	24R	1527.	49.00	1521.	1422.	908.	22.22
+	2 COMBINED AT	Com23A	5757.	104.00	5751.	5664.	5235.	53.31
+	HYDROGRAPH AT	28R	359.	31.00	352.	270.	114.	4.68
+	ROUTED TO	Rt24	340.	36.00	333.	257.	113.	4.68
+	HYDROGRAPH AT	25R	925.	37.00	913.	785.	392.	8.99
+	HYDROGRAPH AT	27R	1722.	49.00	1716.	1602.	1018.	23.93
+	3 COMBINED AT	Com24	2734.	41.00	2717.	2481.	1515.	37.60
+	ROUTED TO	Rt25	2703.	45.00	2684.	2452.	1506.	37.60
+	HYDROGRAPH AT	22R	1763.	45.00	1755.	1617.	975.	18.04
+	2 COMBINED AT	Com25	4466.	45.00	4439.	4066.	2469.	55.64
+	HYDROGRAPH AT	19R	971.	40.00	962.	849.	450.	11.18
+	3 COMBINED AT	Com23B	9289.	48.00	9253.	8807.	7352.	120.13
+	ROUTED TO	Rt26A	9253.	50.00	9218.	8769.	7326.	120.13
+	DIVERSION TO	DIV3	335.	50.00	334.	316.	258.	120.13
+	HYDROGRAPH AT	DIV3	8918.	50.00	8884.	8453.	7068.	120.13
+	ROUTED TO	Rt26B	8763.	54.00	8728.	8294.	7010.	120.13
+	HYDROGRAPH AT	20R	2594.	35.00	2555.	2145.	1026.	18.78
+	2 COMBINED AT	Com26	9738.	51.00	9697.	9203.	7529.	138.91
+	ROUTED TO	Rt27A	6256.	88.00	6255.	6236.	6095.	138.91
+	HYDROGRAPH AT	13R	1915.	30.00	1875.	1447.	618.	11.50
+	2 COMBINED AT	Com27A	6269.	86.00	6267.	6246.	6108.	150.41
+	HYDROGRAPH AT	14R	1148.	37.00	1134.	978.	491.	9.24
+	ROUTED TO	Rt27B	1361.	36.00	1134.	916.	457.	9.24
+	2 COMBINED AT	Com27B	6459.	84.00	6456.	6418.	6228.	159.65
+	ROUTED TO	Rt28	6391.	94.00	6388.	6359.	6190.	159.65

+	HYDROGRAPH AT	11R	2168.	25.00	2085.	1348.	499.	10.09
+	2 COMBINED AT	Com28A	6391.	94.00	6388.	6359.	6190.	169.74
+	HYDROGRAPH AT	8R	1676.	26.00	1620.	1094.	415.	11.62
+	2 COMBINED AT	Com28B	6391.	94.00	6388.	6359.	6190.	181.36
+	ROUTED TO	Rt29	6363.	101.00	6361.	6338.	6174.	181.36
+	HYDROGRAPH AT	10R	3150.	33.00	3103.	2545.	1174.	21.47
+	2 COMBINED AT	Com29	7349.	35.00	7279.	6566.	6197.	202.83
+	ROUTED TO	Rt30	6671.	42.00	6615.	6344.	6189.	202.83
+	HYDROGRAPH AT	6R	1597.	43.00	1586.	1436.	815.	16.37
+	2 COMBINED AT	Com30A	8267.	42.00	8201.	7532.	6688.	219.20
+	HYDROGRAPH AT	4R	825.	30.00	806.	615.	259.	4.73
+	2 COMBINED AT	Com30B	8659.	41.00	8592.	7852.	6808.	223.93
+	ROUTED TO	Rt31	7963.	48.00	7910.	7379.	6662.	223.93
+	HYDROGRAPH AT	2R	1521.	25.00	1461.	955.	357.	5.58
+	2 COMBINED AT	Com31A	8075.	47.00	8019.	7472.	6696.	229.51
+	HYDROGRAPH AT	3R	946.	28.00	921.	661.	263.	4.47
+	2 COMBINED AT	Com31B	8238.	47.00	8179.	7607.	6746.	233.98
+	ROUTED TO	Rt32	6765.	62.00	6751.	6604.	6425.	233.98
+	HYDROGRAPH AT	1R	2905.	34.00	2865.	2365.	1101.	16.89
+	2 COMBINED AT	Com32	7259.	58.00	7239.	7029.	6601.	250.87
+	HYDROGRAPH AT	DIV3	335.	50.00	334.	316.	258.	0.00
+	HYDROGRAPH AT	17R	954.	33.00	939.	768.	353.	6.47
+	2 COMBINED AT	Com33A	1107.	36.00	1097.	958.	570.	6.47
+	HYDROGRAPH AT	23R	3628.	82.00	3625.	3570.	3089.	94.54
+	2 COMBINED AT	Com33B	3875.	81.00	3872.	3824.	3384.	101.01
+	ROUTED TO	LSV	1547.	139.00	1546.	1539.	1456.	101.01

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING  
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL			
						DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
1R	MANE	60.00	614.33	4260.00	3.76	60.00	614.33	4260.00	3.76
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3685E+04 EXCESS=0.0000E+00 OUTFLOW=0.3686E+04 BASIN STORAGE=0.8150E-02 PERCENT ERROR= 0.0									
2R	MANE	60.00	1059.05	2580.00	3.91	60.00	1059.05	2580.00	3.91
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5883E+04 EXCESS=0.0000E+00 OUTFLOW=0.5889E+04 BASIN STORAGE=0.2276E-01 PERCENT ERROR= -0.1									
3R	MANE	60.00	3859.20	3180.00	4.26	60.00	3859.20	3180.00	4.26
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2114E+05 EXCESS=0.0000E+00 OUTFLOW=0.2111E+05 BASIN STORAGE=0.1006E+00 PERCENT ERROR= 0.1									
3R	MANE	60.00	506.73	2460.00	4.60	60.00	506.73	2460.00	4.60
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1509E+04 EXCESS=0.0000E+00 OUTFLOW=0.1507E+04 BASIN STORAGE=0.5237E-02 PERCENT ERROR= 0.1									
5AROUT	MANE	60.00	2190.54	4140.00	5.53	60.00	2190.54	4140.00	5.53
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1132E+05 EXCESS=0.0000E+00 OUTFLOW=0.1133E+05 BASIN STORAGE=0.6137E+00 PERCENT ERROR= -0.1									
5A1RT	MANE	60.00	2216.61	4320.00	5.31	60.00	2216.61	4320.00	5.31
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1248E+05 EXCESS=0.0000E+00 OUTFLOW=0.1247E+05 BASIN STORAGE=0.2463E+01 PERCENT ERROR= 0.0									
4AROUT	MANE	39.00	2399.22	3354.00	4.92	60.00	2398.84	3360.00	4.92
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8063E+04 EXCESS=0.0000E+00 OUTFLOW=0.8066E+04 BASIN STORAGE=0.1845E+00 PERCENT ERROR= 0.0									
4A1ROU	MANE	33.00	2431.12	3465.00	5.04	60.00	2429.39	3480.00	5.05
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1024E+05 EXCESS=0.0000E+00 OUTFLOW=0.1024E+05 BASIN STORAGE=0.2400E+00 PERCENT ERROR= -0.1									
4AABRT	MANE	15.00	2946.33	1650.00	5.04	60.00	2872.84	1680.00	5.04
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1168E+05 EXCESS=0.0000E+00 OUTFLOW=0.1169E+05 BASIN STORAGE=0.1024E+01 PERCENT ERROR= -0.1									
1BR	MANE	60.00	1389.67	4200.00	7.81	60.00	1389.67	4200.00	7.81
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8329E+04 EXCESS=0.0000E+00 OUTFLOW=0.8329E+04 BASIN STORAGE=0.1072E-01 PERCENT ERROR= 0.0									
2BR	MANE	39.95	3269.23	3875.55	6.80	60.00	3269.02	3840.00	6.80
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1964E+05 EXCESS=0.0000E+00 OUTFLOW=0.1964E+05 BASIN STORAGE=0.1748E-01 PERCENT ERROR= 0.0									
3BR	MANE	41.65	4409.98	4081.26	6.59	60.00	4409.93	4080.00	6.59
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2788E+05 EXCESS=0.0000E+00 OUTFLOW=0.2788E+05 BASIN STORAGE=0.7011E+00 PERCENT ERROR= 0.0									

4BR MANE 56.09 5174.19 4151.03 6.68 60.00 5173.48 4140.00 6.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3228E+05 EXCESS=0.0000E+00 OUTFLOW=0.3220E+05 BASIN STORAGE=0.1039E+01 PERCENT ERROR= 0.2

8BR MANE 50.18 6163.49 4265.40 6.75 60.00 6162.93 4260.00 6.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4031E+05 EXCESS=0.0000E+00 OUTFLOW=0.4031E+05 BASIN STORAGE=0.2775E+01 PERCENT ERROR= 0.0

9R MANE 60.00 10479.90 4920.00 3.78 60.00 10479.90 4920.00 3.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8556E+05 EXCESS=0.0000E+00 OUTFLOW=0.8545E+05 BASIN STORAGE=0.2913E+02 PERCENT ERROR= 0.1

Rt24 MANE 57.00 339.66 2166.00 2.69 60.00 339.55 2160.00 2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6788E+03 EXCESS=0.0000E+00 OUTFLOW=0.6721E+03 BASIN STORAGE=0.2698E+00 PERCENT ERROR= 0.9

Rt25 MANE 60.00 2702.75 2700.00 4.83 60.00 2702.75 2700.00 4.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9688E+04 EXCESS=0.0000E+00 OUTFLOW=0.9681E+04 BASIN STORAGE=0.5466E+00 PERCENT ERROR= 0.1

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SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	135.00	140.67	140.82				
	STORAGE	0.	1200.	1348.				
	OUTFLOW	0.	0.	325.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.13	0.31	1656.	2190.	97.00	67.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 5A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	115.00	116.80	117.20				
	STORAGE	0.	974.	1190.				
	OUTFLOW	0.	0.	1346.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	117.30	0.10	1243.	2217.	47.00	68.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4ACANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	160.00	171.74	171.83				
	STORAGE	0.	2155.	2217.				
	OUTFLOW	0.	0.	38.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	172.70	0.87	2821.	2399.	129.00	55.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4A1CAN  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	140.00	141.00	141.11				
	STORAGE	0.	495.	549.				
	OUTFLOW	0.	0.	439.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	141.34	0.23	665.	2431.	78.00	56.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 4BCANA  
 (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....		INITIAL VALUE	SPILLWAY CREST	TOP OF DAM				
	ELEVATION	110.00	113.48	113.65				
	STORAGE	0.	330.	346.				
	OUTFLOW	0.	0.	98.				
	RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1	1.00	114.67	1.02	443.	3043.	135.00	26.00	0.00



**HEC-RAS MODEL**  
**REVISED EXISTING CONDITIONS**  
**NORTH MAIN**

HEC-RAS Plan: NM Rev Ex

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 4	331370	335.00	96.81	103.31	99.54	103.40	0.000493	2.31	144.91	34.47	0.20
reach 4	331370	478.00	96.81	104.54	100.14	104.64	0.000483	2.52	189.93	39.02	0.20
reach 4	331370	654.00	96.81	105.84	100.76	105.95	0.000463	2.68	243.66	43.84	0.20
reach 4	331370	1228.00	96.81	108.89	102.32	109.04	0.000447	3.11	394.80	55.17	0.20
reach 4	330227	335.00	96.76	102.82	99.07	102.89	0.000402	2.11	158.44	37.34	0.18
reach 4	330227	478.00	96.76	104.06	99.59	104.14	0.000390	2.30	207.44	41.76	0.18
reach 4	330227	654.00	96.76	105.38	100.15	105.47	0.000371	2.46	265.69	46.47	0.18
reach 4	330227	1228.00	96.76	108.44	101.58	108.57	0.000367	2.89	424.87	57.33	0.19
reach 4	330128	335.00	96.76	102.78	98.98	102.85	0.000408	2.17	154.19	34.45	0.18
reach 4	330128	478.00	96.76	104.01	99.50	104.10	0.000412	2.40	198.94	38.12	0.19
reach 4	330128	654.00	96.76	105.33	100.06	105.44	0.000412	2.59	252.59	43.25	0.19
reach 4	330128	1228.00	96.76	108.38	101.51	108.53	0.000425	3.05	402.56	55.11	0.20
reach 4	330078	335.00	96.76	102.76	98.98	102.83	0.000414	2.18	153.45	34.39	0.18
reach 4	330078	478.00	96.76	103.99	99.50	104.08	0.000416	2.41	198.11	38.04	0.19
reach 4	330078	654.00	96.76	105.31	100.05	105.42	0.000418	2.60	251.65	43.17	0.19
reach 4	330078	1228.00	96.76	108.36	101.51	108.51	0.000428	3.06	401.32	55.03	0.20
reach 4	329975	335.00	97.01	102.63	99.70	102.76	0.000898	2.90	115.38	30.45	0.26
reach 4	329975	478.00	97.01	103.87	100.29	104.02	0.000809	3.07	155.85	34.86	0.26
reach 4	329975	654.00	97.01	105.20	100.92	105.36	0.000722	3.19	205.14	39.57	0.25
reach 4	329975	1228.00	97.01	108.25	102.51	108.45	0.000644	3.59	342.28	50.40	0.24
reach 4	328000	335.00	95.26	101.68	97.59	101.74	0.000328	1.97	169.98	38.11	0.16
reach 4	328000	478.00	95.26	102.97	98.11	103.04	0.000320	2.15	222.34	42.63	0.17
reach 4	328000	654.00	95.26	104.37	98.67	104.45	0.000304	2.29	285.21	47.49	0.16
reach 4	328000	1228.00	95.26	107.44	100.13	107.56	0.000316	2.74	447.54	58.19	0.17
reach 4	326000	335.00	94.56	100.95	97.09	101.02	0.000390	2.08	160.96	38.16	0.18
reach 4	326000	478.00	94.56	102.29	97.63	102.37	0.000359	2.22	215.50	43.44	0.18
reach 4	326000	654.00	94.56	103.74	98.21	103.82	0.000323	2.31	282.65	49.17	0.17
reach 4	326000	1228.00	94.56	106.80	99.67	106.92	0.000322	2.72	451.73	61.26	0.18
reach 4	324083	335.00	94.05	100.36	96.12	100.41	0.000265	1.79	187.02	41.77	0.15
reach 4	324083	478.00	94.05	101.74	96.62	101.80	0.000248	1.92	248.37	47.05	0.15
reach 4	324083	654.00	94.05	103.24	97.15	103.31	0.000226	2.02	323.46	52.81	0.14
reach 4	324083	1228.00	94.05	106.29	98.55	106.38	0.000242	2.45	501.97	64.44	0.15
reach 4	324005	335.00	94.05	100.33	96.12	100.38	0.000269	1.80	186.11	41.68	0.15
reach 4	324005	478.00	94.05	101.72	96.62	101.78	0.000250	1.93	247.41	46.98	0.15
reach 4	324005	654.00	94.05	103.22	97.15	103.29	0.000228	2.03	322.49	52.74	0.14
reach 4	324005	1228.00	94.05	106.27	98.55	106.36	0.000244	2.45	500.70	64.37	0.15
reach 4	322000	335.00	93.17	99.74	95.54	99.80	0.000314	1.93	173.47	38.96	0.16
reach 4	322000	478.00	93.17	101.17	96.08	101.24	0.000286	2.05	232.95	44.33	0.16
reach 4	322000	654.00	93.17	102.73	96.65	102.80	0.000255	2.13	306.72	50.20	0.15
reach 4	322000	1228.00	93.17	105.73	98.13	105.84	0.000278	2.59	474.20	61.47	0.16
reach 4	320965	335.00	93.05	99.33	95.53	99.41	0.000465	2.27	147.42	34.33	0.19
reach 4	320965	478.00	93.05	100.80	96.11	100.89	0.000404	2.37	201.63	39.38	0.18
reach 4	320965	654.00	93.05	102.41	96.71	102.50	0.000346	2.43	269.28	44.89	0.17
reach 4	320965	1228.00	93.05	105.37	98.26	105.50	0.000376	2.94	417.40	55.08	0.19
reach 4	320873	335.00	93.05	99.28	95.53	99.36	0.000479	2.30	145.86	34.17	0.20
reach 4	320873	478.00	93.05	100.76	96.11	100.85	0.000413	2.39	200.08	39.24	0.19
reach 4	320873	654.00	93.05	102.37	96.71	102.46	0.000351	2.44	267.79	44.77	0.18
reach 4	320873	1228.00	93.05	105.33	98.26	105.47	0.000380	2.96	415.40	54.97	0.19
reach 4	320000	335.00	92.95	98.90	95.23	98.97	0.000428	2.15	155.79	37.72	0.19
reach 4	320000	478.00	92.95	100.44	95.76	100.52	0.000345	2.19	218.69	43.64	0.17
reach 4	320000	654.00	92.95	102.11	96.32	102.19	0.000282	2.20	296.84	50.03	0.16
reach 4	320000	1228.00	92.95	105.05	97.78	105.16	0.000304	2.67	460.72	61.36	0.17
reach 4	318000	335.00	91.12	98.20	93.63	98.26	0.000297	1.92	174.45	37.27	0.16
reach 4	318000	478.00	91.12	99.87	94.22	99.93	0.000251	1.98	241.56	43.22	0.15
reach 4	318000	654.00	91.12	101.63	94.83	101.69	0.000214	2.02	323.29	49.52	0.14
reach 4	318000	1228.00	91.12	104.50	96.38	104.60	0.000262	2.56	479.89	59.75	0.16
reach 4	317530	335.00	91.23	98.05	93.88	98.11	0.000332	1.94	172.91	40.69	0.17
reach 4	317530	478.00	91.23	99.75	94.45	99.81	0.000255	1.92	248.55	48.33	0.15
reach 4	317530	654.00	91.23	101.54	95.04	101.59	0.000203	1.91	342.02	56.36	0.14
reach 4	317530	1228.00	91.23	104.39	96.52	104.48	0.000231	2.36	521.23	69.17	0.15

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl.
reach 4	317452	335.00	91.23	98.02	93.88	98.08	0.000337	1.95	171.81	40.57	0.17
reach 4	317452	478.00	91.23	99.73	94.45	99.79	0.000257	1.93	247.56	48.24	0.15
reach 4	317452	654.00	91.23	101.52	95.04	101.58	0.000204	1.92	341.11	56.29	0.14
reach 4	317452	1228.00	91.23	104.37	96.53	104.46	0.000233	2.36	519.94	69.09	0.15
reach 4	317000	335.00	90.93	97.87	93.55	97.93	0.000341	2.02	166.19	36.82	0.17
reach 4	317000	478.00	90.93	99.60	94.14	99.67	0.000270	2.03	235.75	43.22	0.15
reach 4	317000	654.00	90.93	101.42	94.75	101.48	0.000222	2.04	320.05	49.88	0.14
reach 4	317000	1228.00	90.93	104.24	96.29	104.34	0.000271	2.58	475.68	60.29	0.16
reach 3 (south)	315798	335.00	90.87	97.53	93.00	97.58	0.000251	1.80	186.56	39.13	0.14
reach 3 (south)	315798	478.00	90.87	99.34	93.52	99.39	0.000200	1.82	262.88	45.22	0.13
reach 3 (south)	315798	654.00	90.87	101.19	94.07	101.25	0.000169	1.85	352.62	51.46	0.12
reach 3 (south)	315798	1228.00	90.87	104.00	95.51	104.07	0.000183	2.20	754.96	225.58	0.13
reach 3 (south)	315434	335.00	90.87	97.45	92.80	97.49	0.000182	1.53	218.30	46.71	0.13
reach 3 (south)	315434	478.00	90.87	99.29	93.27	99.32	0.000140	1.54	310.96	54.28	0.11
reach 3 (south)	315434	654.00	90.87	101.15	93.78	101.19	0.000116	1.56	419.50	61.98	0.11
reach 3 (south)	315434	1228.00	90.87	104.03	95.11	104.04	0.000016	0.66	4023.24	1192.26	0.04
reach 3 (south)	315287	475.00	90.32	97.36	93.19	97.44	0.000415	2.32	204.71	43.03	0.19
reach 3 (south)	315287	760.00	90.32	99.17	94.02	99.28	0.000413	2.63	288.81	49.73	0.19
reach 3 (south)	315287	1133.00	90.32	101.01	94.90	101.15	0.000415	2.93	386.71	56.54	0.20
reach 3 (south)	315287	2403.00	90.32	103.70	97.14	104.00	0.000718	4.34	553.73	67.64	0.27
reach 3 (south)	314000	475.00	89.95	96.75	92.72	96.85	0.000509	2.54	186.84	39.58	0.21
reach 3 (south)	314000	760.00	89.95	98.56	93.60	98.69	0.000506	2.88	264.32	45.97	0.21
reach 3 (south)	314000	1133.00	89.95	100.40	94.53	100.55	0.000507	3.19	354.66	52.45	0.22
reach 3 (south)	314000	2403.00	89.95	102.47	96.90	102.87	0.001081	5.10	470.94	59.76	0.32
reach 3 (south)	313862	475.00	89.95	96.67	92.72	96.78	0.000532	2.58	183.81	39.31	0.21
reach 3 (south)	313862	760.00	89.95	98.48	93.60	98.62	0.000524	2.91	260.83	45.70	0.21
reach 3 (south)	313862	1133.00	89.95	100.32	94.53	100.48	0.000523	3.23	350.66	52.18	0.22
reach 3 (south)	313862	2403.00	89.95	102.30	96.90	102.72	0.001124	5.21	460.98	59.17	0.33
reach 3 (south)	312000	475.00	89.03	95.84	91.56	95.92	0.000398	2.31	205.88	42.14	0.18
reach 3 (south)	312000	760.00	89.03	97.65	92.39	97.75	0.000408	2.64	287.86	48.38	0.19
reach 3 (south)	312000	1133.00	89.03	99.47	93.28	99.81	0.000418	2.97	381.92	54.73	0.20
reach 3 (south)	312000	2403.00	89.03	102.44	95.55	102.44	0.000028	0.88	8189.70	3241.72	0.05
reach 3 (south)	311185	475.00	88.28	95.65	90.51	95.68	0.000189	1.68	282.08	54.34	0.13
reach 3 (south)	311185	760.00	88.28	97.45	91.25	97.51	0.000203	1.96	387.42	62.22	0.14
reach 3 (south)	311185	1133.00	88.28	99.28	92.06	99.35	0.000215	2.23	507.97	70.16	0.15
reach 3 (south)	311185	2403.00	88.28	102.42	94.11	102.42	0.000039	1.08	7110.73	3583.75	0.06
reach 3 (south)	311119	475.00	88.28	95.63	90.51	95.68	0.000190	1.69	281.38	54.28	0.13
reach 3 (south)	311119	760.00	88.28	97.44	91.25	97.50	0.000204	1.97	386.56	62.16	0.14
reach 3 (south)	311119	1133.00	88.28	99.26	92.06	99.34	0.000217	2.23	508.94	70.09	0.15
reach 3 (south)	311119	2403.00	88.28	102.41	94.10	102.42	0.000039	1.08	7101.52	3583.63	0.06
reach 3 (south)	310000	475.00	88.03	95.39	90.29	95.45	0.000225	1.86	254.90	46.78	0.14
reach 3 (south)	310000	760.00	88.03	97.17	91.06	97.24	0.000253	2.21	343.27	52.66	0.15
reach 3 (south)	310000	1133.00	88.03	98.96	91.90	99.06	0.000279	2.56	442.85	58.51	0.18
reach 3 (south)	310000	2403.00	88.03	102.36	94.09	102.37	0.000058	1.27	6265.52	3203.69	0.08
reach 3 (south)	308000	475.00	87.73	94.92	89.99	94.97	0.000248	1.93	246.00	46.03	0.15
reach 3 (south)	308000	760.00	87.73	96.63	90.76	96.71	0.000282	2.31	329.66	51.65	0.16
reach 3 (south)	308000	1133.00	87.73	98.36	91.60	98.47	0.000314	2.67	423.89	57.32	0.17
reach 3 (south)	308000	2403.00	87.73	102.22	93.80	102.23	0.000076	1.55	5487.00	3497.48	0.09
reach 3 (south)	307236	475.00	87.73	94.65	90.34	94.73	0.000407	2.32	205.16	42.53	0.19
reach 3 (south)	307236	760.00	87.73	96.33	91.19	96.44	0.000438	2.69	282.16	49.08	0.20
reach 3 (south)	307236	1133.00	87.73	98.03	92.11	98.18	0.000463	3.05	371.34	55.60	0.21
reach 3 (south)	307236	2403.00	87.73	101.87	94.40	102.07	0.000993	3.63	661.54	140.13	0.29
reach 3 (south)	307136	475.00	87.73	94.61	90.34	94.69	0.000417	2.34	203.32	42.36	0.19
reach 3 (south)	307136	760.00	87.73	96.28	91.19	96.40	0.000448	2.72	279.86	48.90	0.20
reach 3 (south)	307136	1133.00	87.73	97.98	92.11	98.13	0.000473	3.07	368.56	55.43	0.21
reach 3 (south)	307136	2403.00	87.73	101.76	94.39	101.97	0.001038	3.72	645.88	136.33	0.30
reach 3 (south)	306000	475.00	86.38	94.08	89.72	94.18	0.000482	2.49	190.44	39.79	0.20
reach 3 (south)	306000	760.00	86.38	95.71	90.69	95.84	0.000532	2.92	260.17	45.99	0.22
reach 3 (south)	306000	1133.00	86.38	97.37	91.70	97.54	0.000569	3.32	341.70	52.33	0.23

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 3 (south)	306000	2403.00	86.38	100.62	94.14	100.94	0.000783	4.51	532.29	64.91	0.28
reach 3 (south)	304000	475.00	86.39	93.23	88.93	93.31	0.000394	2.29	207.18	42.58	0.18
reach 3 (south)	304000	760.00	86.39	94.73	89.76	94.85	0.000461	2.76	275.20	47.84	0.20
reach 3 (south)	304000	1133.00	86.39	96.30	90.66	96.46	0.000514	3.20	354.43	53.28	0.22
reach 3 (south)	304000	2403.00	86.39	98.94	92.94	99.29	0.000871	4.73	507.63	62.48	0.29
reach 3 (south)	302338	475.00	86.39	92.53	88.87	92.61	0.000450	2.24	212.20	51.95	0.20
reach 3 (south)	302338	760.00	86.39	93.95	89.64	94.06	0.000484	2.60	291.93	60.09	0.21
reach 3 (south)	302338	1133.00	86.39	95.48	90.47	95.61	0.000491	2.90	390.62	68.92	0.21
reach 3 (south)	302338	2403.00	86.39	98.78	92.49	98.79	0.000103	1.11	4699.52	2114.24	0.10
reach 3 (south)	302274	475.00	86.39	92.47	89.15	92.57	0.000711	2.59	183.41	50.74	0.24
reach 3 (south)	302274	760.00	86.39	93.89	89.98	94.02	0.000677	2.91	260.83	58.07	0.24
reach 3 (south)	302274	1133.00	86.39	95.42	90.87	95.58	0.000638	3.19	355.62	66.03	0.24
reach 3 (south)	302274	2403.00	86.39	98.75	93.02	98.78	0.000174	1.97	3443.77	2006.82	0.13
reach 3 (south)	301922	475.00	86.39	92.32	88.43	92.39	0.000347	2.08	228.09	50.60	0.17
reach 3 (south)	301922	760.00	86.39	93.73	89.13	93.83	0.000398	2.50	303.56	56.37	0.19
reach 3 (south)	301922	1133.00	86.39	95.26	89.89	95.38	0.000429	2.87	394.11	62.54	0.20
reach 3 (south)	301922	2403.00	86.39	98.66	91.86	98.71	0.000203	2.21	2857.75	1827.50	0.14
reach 3 (south)	301915	475.00	86.39	92.32	88.42	92.38	0.000336	2.06	230.74	50.87	0.17
reach 3 (south)	301915	760.00	86.39	93.73	89.11	93.82	0.000387	2.48	306.39	56.44	0.19
reach 3 (south)	301915	1133.00	86.39	95.25	89.85	95.37	0.000419	2.86	396.65	62.37	0.20
reach 3 (south)	301915	2403.00	86.39	98.67	91.81	98.69	0.000144	1.70	3968.16	2413.90	0.12
reach 3 (south)	301865	475.00	86.39	92.30	88.42	92.36	0.000340	2.07	229.86	50.80	0.17
reach 3 (south)	301865	760.00	86.39	93.71	89.11	93.80	0.000391	2.49	305.24	56.36	0.19
reach 3 (south)	301865	1133.00	86.39	95.23	89.85	95.35	0.000423	2.87	395.28	62.27	0.20
reach 3 (south)	301865	2403.00	86.39	98.66	91.81	98.69	0.000146	1.71	3949.61	2410.13	0.12
reach 3 (south)	301721	475.00	86.39	92.19	88.80	92.30	0.000605	2.61	181.73	43.21	0.22
reach 3 (south)	301721	760.00	86.39	93.58	89.59	93.72	0.000678	3.09	245.70	49.21	0.24
reach 3 (south)	301721	1133.00	86.39	95.08	90.44	95.27	0.000707	3.49	324.69	55.74	0.25
reach 3 (south)	301721	2403.00	86.39	98.54	92.60	98.64	0.000454	3.12	1812.74	1255.05	0.21
reach 3 (south)	301655	475.00	86.39	92.15	88.80	92.26	0.000623	2.64	179.88	43.02	0.23
reach 3 (south)	301655	760.00	86.39	93.53	89.59	93.68	0.000697	3.12	243.32	49.00	0.25
reach 3 (south)	301655	1133.00	86.39	95.03	90.44	95.22	0.000724	3.52	321.85	55.52	0.26
reach 3 (south)	301655	2403.00	86.39	98.52	92.60	98.61	0.000562	2.95	1793.50	1254.23	0.23
reach 3 (south)	300000	475.00	86.39	90.58	88.49	90.77	0.001396	3.49	136.19	39.45	0.33
reach 3 (south)	300000	760.00	86.39	91.81	89.21	92.07	0.001423	4.05	187.45	43.50	0.34
reach 3 (south)	300000	1133.00	86.39	93.36	90.00	93.66	0.001269	4.38	258.51	48.48	0.33
reach 3 (south)	300000	2403.00	86.39	96.79	92.07	97.24	0.001267	5.42	443.67	59.53	0.35
reach 3 (south)	299385	475.00	86.39	89.10	88.15	89.42	0.003807	4.59	103.46	42.74	0.52
reach 3 (south)	299385	760.00	86.39	90.83	88.77	91.10	0.001765	4.16	182.54	48.12	0.38
reach 3 (south)	299385	1133.00	86.39	92.63	89.48	92.90	0.001181	4.14	273.82	53.10	0.32
reach 3 (south)	299385	2403.00	86.39	96.10	91.34	96.51	0.001091	5.09	471.77	61.17	0.32
reach 3 (south)	299378	Inline Weir									
reach 3 (south)	299365	475.00	83.41	89.09	85.66	89.19	0.000583	2.61	181.94	41.13	0.22
reach 3 (south)	299365	760.00	83.41	90.82	86.42	90.96	0.000557	2.94	258.14	46.63	0.22
reach 3 (south)	299365	1133.00	83.41	92.62	87.25	92.79	0.000544	3.26	347.14	52.32	0.22
reach 3 (south)	299365	2403.00	83.41	96.08	89.41	96.38	0.000707	4.40	545.86	63.11	0.26
reach 3 (south)	299000	475.00	81.06	88.72	83.49	88.76	0.000184	1.68	282.09	53.14	0.13
reach 3 (south)	299000	760.00	81.06	90.43	84.24	90.50	0.000209	2.00	379.38	60.15	0.14
reach 3 (south)	299000	1133.00	81.06	92.22	85.05	92.31	0.000226	2.30	493.48	67.43	0.15
reach 3 (south)	299000	2403.00	81.06	95.53	87.13	95.70	0.000341	3.25	738.81	80.91	0.19
reach 3 (south)	297659	475.00	81.21	88.66	83.52	88.70	0.000158	1.54	309.29	60.49	0.12
reach 3 (south)	297659	760.00	81.21	90.38	84.23	90.43	0.000171	1.81	419.01	67.55	0.13
reach 3 (south)	297659	1133.00	81.21	92.16	84.99	92.23	0.000182	2.07	546.27	74.92	0.14
reach 3 (south)	297659	2403.00	81.21	95.45	86.92	95.58	0.000274	2.95	815.32	89.06	0.17
reach 3 (south)	297557	475.00	81.21	88.65	83.52	88.68	0.000159	1.54	308.30	60.43	0.12
reach 3 (south)	297557	760.00	81.21	90.36	84.23	90.41	0.000173	1.82	417.80	67.47	0.13
reach 3 (south)	297557	1133.00	81.21	92.15	84.99	92.21	0.000183	2.08	544.84	74.84	0.14
reach 3 (south)	297557	2403.00	81.21	95.42	86.92	95.55	0.000276	2.96	812.73	88.93	0.17

HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
reach 3 (south)	298000	475.00	80.22	88.44	82.52	88.47	0.000121	1.45	327.82	58.13	0.11
reach 3 (south)	298000	760.00	80.22	90.11	83.27	90.16	0.000148	1.78	426.63	61.94	0.12
reach 3 (south)	298000	1133.00	80.22	91.87	84.08	91.94	0.000171	2.10	540.78	68.06	0.13
reach 3 (south)	298000	2403.00	80.22	95.06	86.06	95.16	0.000219	2.71	1687.36	1159.98	0.15
reach 3 (south)	294000	475.00	80.54	88.13	83.06	88.18	0.000173	1.62	292.99	56.26	0.13
reach 3 (south)	294000	760.00	80.54	89.78	83.80	89.82	0.000198	1.95	388.94	61.95	0.14
reach 3 (south)	294000	1133.00	80.54	91.47	84.59	91.55	0.000218	2.27	499.91	67.94	0.15
reach 3 (south)	294000	2403.00	80.54	94.42	86.53	94.60	0.000364	3.35	718.56	78.63	0.20
reach 3 (south)	292000	475.00	80.24	87.82	82.42	87.85	0.000148	1.51	315.45	60.34	0.12
reach 3 (south)	292000	760.00	80.24	89.39	83.14	89.45	0.000173	1.83	414.70	65.73	0.13
reach 3 (south)	292000	1133.00	80.24	91.06	83.92	91.13	0.000192	2.14	529.27	71.45	0.14
reach 3 (south)	292000	2403.00	80.24	93.72	85.89	93.88	0.000351	3.29	730.81	80.56	0.19
reach 3 (south)	290823	475.00	80.24	87.83	82.44	87.87	0.000171	1.61	294.70	58.53	0.12
reach 3 (south)	290823	760.00	80.24	89.16	83.17	89.22	0.000208	1.96	386.90	63.47	0.14
reach 3 (south)	290823	1133.00	80.24	90.80	83.96	90.89	0.000233	2.28	497.24	70.89	0.15
reach 3 (south)	290823	2403.00	80.24	93.38	85.95	93.49	0.000292	2.87	1402.80	528.80	0.17
reach 3 (south)	290745	475.00	80.24	87.61	82.44	87.65	0.000172	1.62	293.93	58.47	0.12
reach 3 (south)	290745	760.00	80.24	89.15	83.17	89.21	0.000209	1.97	385.84	63.40	0.14
reach 3 (south)	290745	1133.00	80.24	90.79	83.96	90.87	0.000234	2.28	495.91	70.80	0.15
reach 3 (south)	290745	2403.00	80.24	93.36	85.96	93.46	0.000320	2.86	1389.97	527.59	0.18
reach 3 (south)	290000	475.00	80.24	87.50	82.16	87.54	0.000140	1.50	315.87	57.25	0.11
reach 3 (south)	290000	760.00	80.24	89.01	82.83	89.06	0.000178	1.87	406.14	62.58	0.13
reach 3 (south)	290000	1133.00	80.24	90.63	83.56	90.70	0.000204	2.21	512.14	68.31	0.14
reach 3 (south)	290000	2403.00	80.24	92.99	85.49	93.19	0.000413	3.51	683.77	76.69	0.21
reach 3 (south)	288232	475.00	80.38	87.23	82.29	87.27	0.000163	1.56	304.29	59.37	0.12
reach 3 (south)	288232	760.00	80.38	88.67	82.94	88.73	0.000203	1.93	394.26	65.63	0.14
reach 3 (south)	288232	1133.00	80.38	90.24	83.66	90.32	0.000230	2.25	502.70	72.45	0.15
reach 3 (south)	288232	2403.00	80.38	92.58	85.55	92.63	0.000196	2.33	2905.76	2377.11	0.14
reach 3 (south)	288165	475.00	80.38	87.21	82.29	87.25	0.000165	1.57	303.05	59.28	0.12
reach 3 (south)	288165	760.00	80.38	88.66	82.95	88.71	0.000204	1.93	393.35	65.57	0.14
reach 3 (south)	288165	1133.00	80.38	90.23	83.66	90.30	0.000231	2.26	501.55	72.38	0.15
reach 3 (south)	288165	2403.00	80.38	92.57	85.55	92.63	0.000198	2.34	2885.68	2369.97	0.14
reach 3 (south)	288000	475.00	80.38	87.17	82.37	87.22	0.000211	1.77	267.72	51.19	0.14
reach 3 (south)	288000	760.00	80.38	88.60	83.07	88.67	0.000268	2.21	344.55	56.16	0.16
reach 3 (south)	288000	1133.00	80.38	90.15	83.83	90.26	0.000307	2.60	436.02	61.55	0.17
reach 3 (south)	288000	2403.00	80.38	92.57	85.84	92.58	0.000152	1.31	4689.62	3044.41	0.11
reach 3 (south)	286897	903.00	80.37	86.75	82.67	86.85	0.000434	2.52	358.29	71.38	0.20
reach 3 (south)	286897	1384.00	80.37	88.09	83.39	88.23	0.000506	3.02	458.47	77.91	0.22
reach 3 (south)	286897	2002.00	80.37	89.59	84.21	89.77	0.000544	3.45	580.13	84.82	0.23
reach 3 (south)	286897	4084.00	80.37	92.16	86.33	92.29	0.000440	3.43	2954.35	2064.92	0.21
reach 3 (south)	286000	903.00	80.36	86.25	82.75	86.38	0.000625	2.94	307.52	64.05	0.24
reach 3 (south)	286000	1384.00	80.36	87.49	83.49	87.69	0.000739	3.55	390.11	69.03	0.26
reach 3 (south)	286000	2002.00	80.36	88.93	84.31	89.18	0.000791	4.06	493.33	74.65	0.28
reach 3 (south)	286000	4084.00	80.36	91.47	86.47	91.75	0.000800	4.71	2132.37	2196.68	0.29
reach 3 (south)	284529	903.00	80.36	83.15	82.83	83.99	0.009383	7.35	122.92	50.29	0.83
reach 3 (south)	284529	1384.00	80.36	84.69	83.59	85.39	0.004752	6.73	205.73	57.18	0.63
reach 3 (south)	284529	2002.00	80.36	86.59	84.43	87.19	0.002709	6.20	322.75	65.98	0.49
reach 3 (south)	284529	4084.00	80.36	90.30	86.62	90.38	0.000981	3.21	2811.23	2093.93	0.29
reach 3 (south)	284517	Inline Weir									
reach 3 (south)	284500	903.00	74.78	82.83	77.50	82.91	0.000299	2.36	383.36	62.77	0.17
reach 3 (south)	284500	1384.00	74.78	84.68	78.34	84.80	0.000323	2.73	506.22	69.65	0.18
reach 3 (south)	284500	2002.00	74.78	86.58	79.25	86.73	0.000345	3.10	645.01	76.69	0.19
reach 3 (south)	284500	4084.00	74.78	90.29	81.63	90.36	0.000471	2.66	3164.35	2092.02	0.21
reach 3 (south)	284287	903.00	74.78	82.74	77.63	82.84	0.000360	2.55	353.94	58.57	0.18
reach 3 (south)	284287	1384.00	74.78	84.59	78.48	84.72	0.000387	2.96	468.01	65.09	0.19
reach 3 (south)	284287	2002.00	74.78	86.47	79.44	86.65	0.000413	3.35	597.04	71.74	0.20
reach 3 (south)	284287	4084.00	74.78	89.87	81.89	90.17	0.002045	4.34	940.60	267.10	0.41
reach 3 (south)	284201	903.00	74.78	82.70	77.62	82.80	0.000366	2.57	351.65	58.43	0.18
reach 3 (south)	284201	1384.00	74.78	84.55	78.48	84.68	0.000393	2.97	465.34	64.94	0.20

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 3 (south)	284201	2002.00	74.78	86.43	79.44	86.61	0.000419	3.37	593.96	71.59	0.21
reach 3 (south)	284201	4084.00	74.78	89.64	81.89	89.99	0.001955	4.73	864.16	207.68	0.41
reach 3 (south)	284000	903.00	73.32	82.65	76.89	82.73	0.000298	2.32	389.02	64.43	0.17
reach 3 (south)	284000	1384.00	73.32	84.49	77.98	84.60	0.000318	2.69	513.77	70.98	0.18
reach 3 (south)	284000	2002.00	73.32	86.38	79.16	86.52	0.000338	3.06	653.65	77.54	0.19
reach 3 (south)	284000	4084.00	73.32	89.47	81.45	89.79	0.000560	4.48	910.66	88.32	0.25
reach 3 (south)	282000	903.00	73.33	82.15	76.09	82.22	0.000222	2.12	425.26	64.74	0.15
reach 3 (south)	282000	1384.00	73.33	83.93	76.93	84.03	0.000260	2.53	546.51	71.48	0.16
reach 3 (south)	282000	2002.00	73.33	85.75	77.85	85.89	0.000294	2.93	683.43	78.38	0.17
reach 3 (south)	282000	4084.00	73.33	88.33	80.24	88.65	0.000580	4.55	897.54	88.10	0.25
reach 3 (south)	280327	903.00	73.32	81.70	76.21	81.79	0.000295	2.34	385.16	62.92	0.17
reach 3 (south)	280327	1384.00	73.32	83.41	77.08	83.53	0.000340	2.78	498.49	69.94	0.18
reach 3 (south)	280327	2002.00	73.32	85.17	78.03	85.33	0.000377	3.19	628.16	77.18	0.20
reach 3 (south)	280327	4084.00	73.32	87.63	80.46	87.78	0.000417	3.61	2508.25	1262.45	0.21
reach 3 (south)	280263	903.00	73.32	81.68	76.22	81.77	0.000298	2.35	383.93	62.84	0.17
reach 3 (south)	280263	1384.00	73.32	83.39	77.08	83.51	0.000343	2.79	496.90	69.84	0.18
reach 3 (south)	280263	2002.00	73.32	85.15	78.03	85.31	0.000381	3.20	626.20	77.08	0.20
reach 3 (south)	280263	4084.00	73.32	87.60	80.46	87.75	0.000428	3.65	2466.83	1261.93	0.21
reach 3 (south)	280000	903.00	73.32	81.61	76.11	81.69	0.000290	2.34	385.26	61.80	0.17
reach 3 (south)	280000	1384.00	73.32	83.30	76.96	83.42	0.000339	2.80	494.87	68.03	0.18
reach 3 (south)	280000	2002.00	73.32	85.04	77.90	85.21	0.000381	3.23	619.41	74.48	0.20
reach 3 (south)	280000	4084.00	73.32	87.48	80.32	87.64	0.000410	3.71	2464.67	1202.43	0.21
reach 3 (south)	278000	903.00	73.32	80.84	76.35	80.96	0.000480	2.79	323.11	58.70	0.21
reach 3 (south)	278000	1384.00	73.32	82.40	77.25	82.57	0.000543	3.30	419.77	64.84	0.23
reach 3 (south)	278000	2002.00	73.32	84.04	78.20	84.26	0.000593	3.76	531.77	71.67	0.24
reach 3 (south)	278000	4084.00	73.32	86.89	80.62	86.96	0.000265	2.85	3781.54	1732.83	0.17
reach 3 (south)	276000	903.00	74.04	79.64	76.44	79.79	0.000733	3.10	291.15	62.82	0.25
reach 3 (south)	276000	1384.00	74.04	81.10	77.16	81.30	0.000751	3.58	386.87	68.12	0.26
reach 3 (south)	276000	2002.00	74.04	82.67	77.98	82.92	0.000759	4.01	498.66	73.94	0.27
reach 3 (south)	276000	4084.00	74.04	85.36	80.12	85.86	0.001540	5.66	721.64	109.43	0.39
reach 3 (south)	275122	903.00	74.04	78.27	76.70	78.65	0.002714	4.93	183.01	53.02	0.47
reach 3 (south)	275122	1384.00	74.04	79.88	77.48	80.28	0.001965	5.03	275.41	60.45	0.41
reach 3 (south)	275122	2002.00	74.04	81.54	78.35	81.98	0.001595	5.27	380.03	65.75	0.39
reach 3 (south)	275122	4084.00	74.04	83.82	80.59	84.36	0.001878	6.41	1363.52	1485.05	0.43
reach 3 (south)	275113	Inline Weir									
reach 3 (south)	275102	903.00	70.28	78.27	72.94	78.35	0.000324	2.41	375.42	63.03	0.17
reach 3 (south)	275102	1384.00	70.28	79.88	73.78	80.00	0.000376	2.88	481.16	68.46	0.19
reach 3 (south)	275102	2002.00	70.28	81.54	74.70	81.71	0.000425	3.34	599.96	74.57	0.21
reach 3 (south)	275102	4084.00	70.28	83.81	77.18	84.13	0.000792	4.74	1583.29	1542.64	0.29
reach 3 (south)	274837	903.00	70.28	78.27	72.00	78.30	0.000077	1.28	703.95	107.41	0.09
reach 3 (south)	274837	1384.00	70.28	79.90	72.55	79.93	0.000094	1.56	884.43	115.09	0.10
reach 3 (south)	274837	2002.00	70.28	81.57	73.16	81.62	0.000109	1.85	1083.42	122.35	0.11
reach 3 (south)	274837	4084.00	70.28	83.87	74.81	83.96	0.000166	2.54	3171.42	2383.96	0.14
reach 3 (south)	274000	903.00	70.28	78.12	72.68	78.19	0.000229	2.08	433.32	70.35	0.15
reach 3 (south)	274000	1384.00	70.28	79.70	73.43	79.80	0.000276	2.52	549.41	76.68	0.17
reach 3 (south)	274000	2002.00	70.28	81.34	74.25	81.47	0.000319	2.94	680.10	83.46	0.18
reach 3 (south)	274000	4084.00	70.28	83.56	76.43	83.74	0.000422	3.75	2792.61	3469.64	0.21
reach 3 (south)	272412	903.00	70.28	77.79	72.47	77.85	0.000200	1.92	469.71	78.64	0.14
reach 3 (south)	272412	1384.00	70.28	79.30	73.15	79.39	0.000241	2.33	593.81	85.29	0.16
reach 3 (south)	272412	2002.00	70.28	80.88	73.91	80.99	0.000278	2.73	733.31	92.20	0.17
reach 3 (south)	272412	4084.00	70.28	82.59	75.92	82.91	0.000657	4.55	898.06	99.70	0.27
reach 3 (south)	271000	1163.00	70.27	77.30	72.82	77.42	0.000440	2.80	415.21	70.32	0.20
reach 3 (south)	271000	1740.00	70.27	78.70	73.58	78.88	0.000519	3.36	517.16	74.81	0.23
reach 3 (south)	271000	2473.00	70.27	80.17	74.41	80.40	0.000594	3.93	630.05	79.55	0.25
reach 3 (south)	271000	4913.00	70.27	82.29	76.64	82.34	0.000211	2.59	5275.87	2528.04	0.15
reach 3 (south)	269920	1163.00	70.27	76.39	73.37	76.66	0.001242	4.16	279.53	57.16	0.33
reach 3 (south)	269920	1740.00	70.27	77.60	74.25	77.98	0.001444	4.95	351.59	61.71	0.37
reach 3 (south)	269920	2473.00	70.27	78.88	75.21	79.39	0.001613	5.70	433.54	66.48	0.39
reach 3 (south)	269920	4913.00	70.27	81.80	77.73	81.93	0.000846	3.86	3032.34	2073.85	0.28



HFC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 3 (south)	269788	1163.00	70.27	76.19	73.37	76.48	0.001399	4.34	268.18	56.41	0.35
reach 3 (south)	269788	1740.00	70.27	77.36	74.25	77.78	0.001631	5.17	336.87	60.81	0.39
reach 3 (south)	269788	2473.00	70.27	78.60	75.21	79.16	0.001822	5.96	415.27	65.45	0.42
reach 3 (south)	269788	4913.00	70.27	81.64	77.73	81.81	0.001026	4.23	2722.36	1785.55	0.31
reach 3 (south)	269131	1163.00	70.27	73.45	73.16	74.47	0.009774	8.12	143.30	51.78	0.86
reach 3 (south)	269131	1740.00	70.27	74.56	73.98	75.70	0.007695	8.57	203.12	56.18	0.79
reach 3 (south)	269131	2473.00	70.27	76.28	74.87	77.29	0.004701	8.10	305.45	62.97	0.65
reach 3 (south)	269131	4913.00	70.27	78.56	77.24	80.34	0.005729	10.69	459.43	71.66	0.74
reach 3 (south)	269121	Inline Weir									
reach 3 (south)	269108	1163.00	65.34	72.97	68.34	73.13	0.000571	3.22	361.12	59.02	0.23
reach 3 (south)	269108	1740.00	65.34	74.55	69.22	74.78	0.000653	3.79	459.27	64.66	0.25
reach 3 (south)	269108	2473.00	65.34	76.27	70.20	76.56	0.000709	4.30	575.78	71.17	0.27
reach 3 (south)	269108	4913.00	65.34	78.56	72.81	79.23	0.001383	6.56	749.43	80.94	0.38
reach 3 (south)	268000	1163.00	65.34	72.34	68.20	72.48	0.000584	3.09	376.53	69.01	0.23
reach 3 (south)	268000	1740.00	65.34	73.86	69.02	74.06	0.000632	3.58	486.69	75.60	0.25
reach 3 (south)	268000	2473.00	65.34	75.55	69.93	75.79	0.000646	3.98	620.58	82.90	0.26
reach 3 (south)	268000	4913.00	65.34	76.85	72.27	77.54	0.001667	6.71	732.55	89.92	0.41
reach 3 (south)	266698	1163.00	65.32	71.36	68.10	71.55	0.000898	3.54	328.96	68.48	0.28
reach 3 (south)	266698	1740.00	65.32	72.83	68.90	73.08	0.000903	4.00	434.93	75.20	0.29
reach 3 (south)	266698	2473.00	65.32	74.54	69.76	74.83	0.000849	4.34	570.23	82.99	0.29
reach 3 (south)	266698	4913.00	65.32	75.77	72.02	75.96	0.000780	4.45	3616.03	3338.32	0.28
reach 3 (south)	266688	Inline Weir									
reach 3 (south)	266679	1163.00	61.46	71.35	64.34	71.41	0.000154	1.93	601.74	81.07	0.13
reach 3 (south)	266679	1740.00	61.46	72.83	65.13	72.92	0.000204	2.40	725.64	86.84	0.15
reach 3 (south)	266679	2473.00	61.46	74.53	65.99	74.66	0.000241	2.81	879.53	93.80	0.16
reach 3 (south)	266679	4913.00	61.46	75.76	68.27	75.91	0.000359	3.60	3980.37	3349.77	0.20
reach 3 (south)	266000	1163.00	59.80	71.28	62.65	71.32	0.000091	1.61	723.97	85.99	0.10
reach 3 (south)	266000	1740.00	59.80	72.73	63.46	72.79	0.000129	2.04	852.55	91.61	0.12
reach 3 (south)	266000	2473.00	59.80	74.42	64.37	74.51	0.000160	2.43	1094.96	802.82	0.13
reach 3 (south)	266000	4913.00	59.80	75.56	66.69	75.69	0.000289	3.28	4179.72	3291.04	0.17
reach 3 (south)	265565	1163.00	59.80	71.21	63.32	71.27	0.000149	1.91	608.16	81.30	0.12
reach 3 (south)	265565	1740.00	59.80	72.83	64.27	72.72	0.000205	2.39	728.72	88.47	0.15
reach 3 (south)	265565	2473.00	59.80	74.35	65.28	74.44	0.000191	2.47	2008.38	1971.73	0.14
reach 3 (south)	265565	4913.00	59.80	75.50	67.84	75.57	0.000214	2.72	5931.51	3897.41	0.15
reach 3 (south)	265509	1163.00	59.80	71.21	63.33	71.26	0.000150	1.91	607.47	81.26	0.12
reach 3 (south)	265509	1740.00	59.80	72.62	64.27	72.71	0.000206	2.39	727.68	88.41	0.15
reach 3 (south)	265509	2473.00	59.80	74.34	65.28	74.42	0.000193	2.48	1983.26	1955.35	0.14
reach 3 (south)	265509	4913.00	59.80	75.49	67.84	75.55	0.000217	2.74	5878.74	3896.96	0.15
reach 3 (south)	264000	1163.00	59.75	71.01	62.81	71.06	0.000120	1.80	645.15	78.57	0.11
reach 3 (south)	264000	1740.00	59.75	72.34	63.67	72.42	0.000174	2.31	753.15	83.52	0.14
reach 3 (south)	264000	2473.00	59.75	74.17	64.59	74.21	0.000096	1.84	4108.78	3197.76	0.10
reach 3 (south)	264000	4913.00	59.75	75.27	67.02	75.29	0.000127	1.89	8050.39	3856.73	0.11
reach 3 (south)	262000	1163.00	59.40	70.76	62.47	70.81	0.000127	1.85	628.72	76.50	0.11
reach 3 (south)	262000	1740.00	59.40	71.97	63.37	72.06	0.000192	2.40	723.93	81.05	0.14
reach 3 (south)	262000	2473.00	59.40	73.68	64.34	73.78	0.000766	2.82	942.47	275.00	0.25
reach 3 (south)	262000	4913.00	59.40	75.00	66.85	75.01	0.000148	1.32	7127.26	3299.23	0.11
reach 3 (south)	260000	1425.00	59.40	70.45	62.84	70.50	0.000194	1.84	773.53	136.75	0.14
reach 3 (south)	260000	2109.00	59.40	71.51	63.75	71.59	0.000264	2.26	1002.69	471.97	0.16
reach 3 (south)	260000	2978.00	59.40	72.98	64.73	73.05	0.000226	2.21	1991.47	714.84	0.15
reach 3 (south)	260000	5843.00	59.40	74.70	67.21	74.73	0.000206	1.96	6120.48	2285.26	0.14
reach 3 (south)	258000	1425.00	58.66	70.14	61.86	70.20	0.000121	1.87	760.00	89.08	0.11
reach 3 (south)	258000	2109.00	58.66	71.04	62.70	71.13	0.000200	2.51	841.08	92.44	0.15
reach 3 (south)	258000	2978.00	58.66	72.43	63.61	72.57	0.000255	3.00	1276.66	1011.78	0.17
reach 3 (south)	258000	5843.00	58.66	74.20	66.02	74.29	0.000242	3.13	5727.49	3314.34	0.17
reach 3 (south)	256681	1425.00	58.71	69.96	62.02	70.02	0.000143	1.97	724.62	90.38	0.12
reach 3 (south)	256681	2109.00	58.71	70.73	62.90	70.84	0.000242	2.65	795.64	93.88	0.16
reach 3 (south)	256681	2978.00	58.71	72.07	63.86	72.21	0.000288	3.06	1363.10	856.04	0.18
reach 3 (south)	256681	5843.00	58.71	74.04	66.33	74.05	0.000115	1.34	9930.84	3966.75	0.10

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 3 (south)	259121	1425.00	58.27	69.95	60.62	69.97	0.000038	1.12	1274.05	138.12	0.06
reach 3 (south)	258121	2109.00	58.27	70.72	61.20	70.76	0.000065	1.53	1381.33	141.56	0.09
reach 3 (south)	256121	2978.00	58.27	72.01	61.86	72.07	0.000155	1.85	1609.00	2479.74	0.13
reach 3 (south)	258121	5843.00	58.27	74.02	63.61	74.02	0.000039	0.99	12539.39	3684.17	0.06
reach 3 (south)	255591	1425.00	58.07	69.88	61.50	69.93	0.000135	1.71	833.95	124.27	0.12
reach 3 (south)	255591	2109.00	58.07	70.64	62.36	70.70	0.000183	2.06	1414.54	2983.22	0.14
reach 3 (south)	255591	2978.00	58.07	71.91	63.28	71.97	0.000194	2.06	2327.78	3395.88	0.14
reach 3 (south)	255591	5843.00	58.07	74.01	65.67	74.01	0.000018	0.66	17321.26	3508.17	0.04
reach 3 (south)	254845	1425.00	58.07	69.79	61.29	69.84	0.000106	1.75	812.21	96.43	0.11
reach 3 (south)	254845	2109.00	58.07	70.57	62.12	70.59	0.000106	1.18	3862.23	4053.55	0.10
reach 3 (south)	254845	2978.00	58.07	71.89	63.03	71.89	0.000051	0.85	6651.01	4238.62	0.07
reach 3 (south)	254845	5843.00	58.07	74.00	65.42	74.00	0.000010	0.47	23260.32	4329.93	0.03
reach 3 (south)	254785	1425.00	58.07	69.78	61.29	69.83	0.000107	1.76	811.38	96.39	0.11
reach 3 (south)	254785	2109.00	58.07	70.56	62.12	70.57	0.000108	1.19	3834.51	4052.88	0.10
reach 3 (south)	254785	2978.00	58.07	71.88	63.03	71.89	0.000052	0.85	6632.42	4237.53	0.07
reach 3 (south)	254785	5843.00	58.07	74.00	65.42	74.00	0.000010	0.47	23246.90	4329.89	0.03
reach 3 (south)	254000	1425.00	58.07	69.68	61.35	69.74	0.000136	1.98	718.55	83.82	0.12
reach 3 (south)	254000	2109.00	58.07	70.54	62.24	70.54	0.000018	0.65	8662.17	4113.44	0.04
reach 3 (south)	254000	2978.00	58.07	71.86	63.21	71.86	0.000012	0.52	12870.13	4244.76	0.03
reach 3 (south)	254000	5843.00	58.07	73.99	65.75	73.99	0.000011	0.60	19805.86	4274.18	0.04
reach 3 (south)	252000	1425.00	58.08	69.37	61.62	69.43	0.000169	2.11	675.96	86.09	0.13
reach 3 (south)	252000	2109.00	58.08	70.51	62.58	70.51	0.000021	0.64	8227.39	5955.35	0.04
reach 3 (south)	252000	2978.00	58.08	71.84	63.57	71.85	0.000012	0.55	12192.58	5964.52	0.04
reach 3 (south)	252000	5843.00	58.08	73.96	66.14	73.97	0.000013	0.64	18487.35	5975.41	0.04
reach 3 (south)	250860	1425.00	57.32	69.17	60.70	69.21	0.000208	1.64	867.72	190.92	0.14
reach 3 (south)	250860	2109.00	57.32	70.47	61.62	70.48	0.000040	0.78	4940.71	4955.38	0.06
reach 3 (south)	250860	2978.00	57.32	71.83	62.60	71.83	0.000027	0.76	6981.10	4960.71	0.05
reach 3 (south)	250860	5843.00	57.32	73.94	65.15	73.95	0.000033	0.95	10192.95	4981.55	0.06
reach 3 (south)	250000	1491.00	57.29	69.07	60.15	69.11	0.000076	1.53	974.61	110.80	0.09
reach 3 (south)	250000	2247.00	57.29	70.44	60.99	70.45	0.000053	0.90	5041.45	4998.80	0.07
reach 3 (south)	250000	3218.00	57.29	71.81	61.92	71.81	0.000031	0.78	7968.90	5055.11	0.06
reach 3 (south)	250000	6480.00	57.29	73.93	64.31	73.93	0.000006	0.41	30167.74	5097.39	0.03
reach 3 (south)	248746	1491.00	57.29	68.92	60.69	68.98	0.000140	1.96	759.33	93.34	0.12
reach 3 (south)	248746	2247.00	57.29	70.31	61.67	70.35	0.000220	1.74	2052.75	3902.57	0.14
reach 3 (south)	248746	3218.00	57.29	71.73	62.72	71.76	0.000127	1.56	3388.75	3914.81	0.11
reach 3 (south)	248746	6480.00	57.29	73.92	65.44	73.93	0.000012	0.59	21961.06	3932.69	0.04
reach 3 (south)	248519	1491.00	57.29	68.89	60.69	68.95	0.000141	1.97	756.31	93.19	0.12
reach 3 (south)	248519	2247.00	57.29	70.27	61.67	70.31	0.000235	1.75	2010.22	3902.19	0.15
reach 3 (south)	248519	3218.00	57.29	71.71	62.72	71.74	0.000130	1.55	3366.07	3914.60	0.11
reach 3 (south)	248519	6480.00	57.29	73.91	65.44	73.92	0.000012	0.59	21924.09	3932.61	0.04
reach 3 (south)	248000	1491.00	57.30	68.81	61.10	68.88	0.000165	2.10	709.89	89.64	0.13
reach 3 (south)	248000	2247.00	57.30	70.24	62.08	70.25	0.000058	1.22	4753.11	3879.46	0.08
reach 3 (south)	248000	3218.00	57.30	71.70	63.12	71.70	0.000034	0.96	7611.33	3962.09	0.06
reach 3 (south)	248000	6480.00	57.30	73.90	65.83	73.91	0.000013	0.65	22104.27	4016.43	0.04
reach 3 (south)	247476	1491.00	57.30	68.46	64.89	68.66	0.001712	3.64	410.03	118.42	0.34
reach 3 (south)	247476	2247.00	57.30	70.22	67.20	70.22	0.000060	0.76	4832.71	3896.50	0.07
reach 3 (south)	247476	3218.00	57.30	71.68	67.80	71.69	0.000036	0.72	7574.62	4064.07	0.05
reach 3 (south)	247476	6480.00	57.30	73.90	69.60	73.90	0.000018	0.63	20468.70	4202.09	0.04
reach 3 (south)	247400	1491.00	57.30	68.35	64.86	68.54	0.001602	3.46	430.79	129.12	0.33
reach 3 (south)	247400	2247.00	57.30	70.21	67.07	70.22	0.000060	0.77	4819.49	3897.99	0.07
reach 3 (south)	247400	3218.00	57.30	71.68	67.69	71.69	0.000036	0.72	7552.86	4056.01	0.05
reach 3 (south)	247400	6480.00	57.30	73.89	69.35	73.89	0.000018	0.63	20395.58	4194.11	0.04
reach 3 (south)	246000	1491.00	57.05	67.88	60.43	67.95	0.000175	2.11	706.87	93.08	0.13
reach 3 (south)	246000	2247.00	57.05	70.09	61.40	70.12	0.000084	1.52	2899.81	3497.82	0.09
reach 3 (south)	246000	3218.00	57.05	71.60	62.43	71.62	0.000068	1.43	4265.00	3550.64	0.09
reach 3 (south)	246000	6480.00	57.05	73.86	65.09	73.86	0.000015	0.77	19653.10	3566.11	0.04
reach 3 (south)	244000	1491.00	57.05	67.32	61.20	67.45	0.000375	2.85	522.82	77.06	0.19
reach 3 (south)	244000	2247.00	57.05	69.64	62.30	69.80	0.000361	3.15	713.88	87.69	0.19
reach 3 (south)	244000	3218.00	57.05	71.40	63.46	71.44	0.000120	1.96	3535.11	5915.13	0.11



HEC-RAS Plan: NIM Rev. Ex (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
reach 3 (south)	244000	6480.00	57.05	73.83	66.42	73.83	0.000007	0.42	31924.09	6012.72	0.03
reach 3 (south)	242500	1491.00	56.61	66.77	60.83	66.90	0.000362	2.85	523.78	75.14	0.19
reach 3 (south)	242500	2247.00	56.61	69.11	61.85	69.26	0.000352	3.16	710.56	84.75	0.19
reach 3 (south)	242500	3218.00	56.61	70.92	62.94	71.12	0.000398	3.63	1121.14	3854.38	0.21
reach 3 (south)	242500	6480.00	56.61	73.80	65.79	73.81	0.000043	1.28	14287.53	3758.38	0.07
reach 3 (south)	241505	1491.00	56.61	66.44	60.16	66.55	0.000325	2.75	542.66	75.19	0.18
reach 3 (south)	241505	2247.00	56.61	68.78	61.17	68.93	0.000325	3.08	729.75	84.67	0.18
reach 3 (south)	241506	3218.00	56.61	70.52	62.27	70.73	0.000393	3.64	883.67	91.74	0.21
reach 3 (south)	241505	6480.00	56.61	73.14	65.16	73.65	0.000799	5.69	1138.07	845.00	0.30
reach 3 (south)	240950	1491.00	56.61	66.25	60.33	68.37	0.000350	2.78	540.46	79.77	0.19
reach 3 (south)	240950	2247.00	56.61	68.60	61.33	68.74	0.000333	3.03	741.01	90.96	0.19
reach 3 (south)	240950	3218.00	56.61	70.31	62.41	70.51	0.000396	3.56	903.42	98.80	0.21
reach 3 (south)	240950	6480.00	56.61	72.70	65.18	73.19	0.000822	5.62	1153.00	334.48	0.31
reach 3 (south)	240919	1491.00	56.61	66.24	60.33	68.36	0.000352	2.78	539.55	79.71	0.19
reach 3 (south)	240919	2247.00	56.61	68.59	61.33	68.73	0.000334	3.04	740.02	90.92	0.19
reach 3 (south)	240919	3218.00	56.61	70.30	62.41	70.49	0.000397	3.57	902.14	98.74	0.21
reach 3 (south)	240919	6480.00	56.61	72.67	65.18	73.17	0.000828	5.64	1149.74	330.38	0.31
reach 3 (south)	240000	1491.00	55.47	66.05	58.95	66.12	0.000177	2.14	696.69	89.77	0.14
reach 3 (south)	240000	2247.00	55.47	68.40	59.81	68.49	0.000184	2.45	918.97	99.29	0.14
reach 3 (south)	240000	3218.00	55.47	70.07	60.78	70.20	0.000234	2.95	1089.94	106.04	0.16
reach 3 (south)	240000	6480.00	55.47	72.14	63.31	72.51	0.000560	4.92	1318.22	114.43	0.26
reach 3 (south)	239550	1491.00	55.23	65.97	58.75	68.04	0.000180	2.16	691.45	89.70	0.14
reach 3 (south)	239550	2247.00	55.23	68.32	59.66	68.41	0.000188	2.46	914.16	99.99	0.14
reach 3 (south)	239550	3218.00	55.23	69.96	60.67	70.09	0.000240	2.97	1084.23	107.18	0.16
reach 3 (south)	239550	6480.00	55.23	71.86	63.26	72.25	0.000595	5.00	1296.25	115.35	0.26
reach 3 (south)	239468	1491.00	55.23	65.95	58.78	68.02	0.000181	2.16	690.08	89.64	0.14
reach 3 (south)	239468	2247.00	55.23	68.30	59.66	68.39	0.000189	2.46	912.58	99.92	0.14
reach 3 (south)	239468	3218.00	55.23	69.94	60.66	70.07	0.000242	2.97	1082.03	107.09	0.16
reach 3 (south)	239468	6480.00	55.23	71.81	63.26	72.20	0.000603	5.02	1290.12	115.13	0.26
reach 3 (south)	238000	1491.00	54.74	65.70	58.30	65.77	0.000166	2.12	704.24	87.71	0.13
reach 3 (south)	238000	2247.00	54.74	68.03	59.22	68.12	0.000178	2.44	919.02	96.51	0.14
reach 3 (south)	238000	3218.00	54.74	69.58	60.17	69.72	0.000237	3.00	1073.40	102.40	0.16
reach 3 (south)	238000	6480.00	54.74	71.63	62.77	71.68	0.000166	2.43	7047.71	2502.24	0.14
reach 3 (south)	237265	1491.00	54.61	65.59	57.95	65.65	0.000161	2.10	709.32	86.97	0.13
reach 3 (south)	237265	2247.00	54.61	67.91	58.87	68.00	0.000175	2.44	921.65	95.86	0.14
reach 3 (south)	237265	3218.00	54.61	69.42	59.88	69.56	0.000242	3.01	1072.58	115.44	0.16
reach 3 (south)	237265	6480.00	54.61	71.60	62.52	71.61	0.000060	1.29	10977.43	2956.20	0.08
reach 3 (south)	236620	1491.00	54.53	65.49	57.84	65.55	0.000146	1.99	748.59	93.35	0.12
reach 3 (south)	236620	2247.00	54.53	67.80	58.72	67.88	0.000157	2.30	975.99	103.09	0.13
reach 3 (south)	236620	3218.00	54.53	69.27	59.68	69.40	0.000214	2.84	1132.02	109.26	0.16
reach 3 (south)	236620	6480.00	54.53	71.57	62.23	71.58	0.000039	1.21	11647.63	2257.05	0.07
reach 3 (south)	236000	1491.00	54.54	65.38	57.84	65.45	0.000170	2.13	700.04	88.09	0.13
reach 3 (south)	236000	2247.00	54.54	67.68	58.78	67.77	0.000184	2.46	914.26	97.85	0.14
reach 3 (south)	236000	3218.00	54.54	69.11	59.80	69.25	0.000251	3.04	1058.27	103.80	0.17
reach 3 (south)	236000	6480.00	54.54	71.54	62.47	71.56	0.000087	1.61	8522.80	2213.59	0.10
reach 3 (south)	235490	1491.00	54.49	65.26	58.02	65.35	0.000223	2.38	627.29	81.58	0.15
reach 3 (south)	235490	2247.00	54.49	67.55	59.04	67.67	0.000238	2.72	825.85	91.64	0.16
reach 3 (south)	235490	3218.00	54.49	68.91	60.14	69.09	0.000417	3.36	959.05	119.42	0.21
reach 3 (south)	235490	6480.00	54.49	71.44	62.99	71.48	0.000313	2.12	4753.28	1464.33	0.17
reach 3 (south)	235442	1491.00	54.49	65.25	58.02	65.34	0.000224	2.38	626.39	81.53	0.15
reach 3 (south)	235442	2247.00	54.49	67.54	59.04	67.66	0.000239	2.72	824.77	91.58	0.16
reach 3 (south)	235442	3218.00	54.49	68.89	60.14	69.07	0.000418	3.36	956.52	118.94	0.21
reach 3 (south)	235442	6480.00	54.49	71.42	62.99	71.46	0.000310	2.23	4724.92	1454.61	0.17
reach 3 (south)	234280	1491.00	53.37	65.15	56.15	65.19	0.000070	1.50	993.07	109.53	0.09
reach 3 (south)	234280	2247.00	53.37	67.43	56.94	67.48	0.000082	1.79	1253.70	118.81	0.10
reach 3 (south)	234280	3218.00	53.37	68.58	57.78	68.67	0.000253	2.31	1394.46	213.56	0.16
reach 3 (south)	234280	6480.00	53.37	71.11	60.07	71.16	0.000222	2.13	5724.02	2396.10	0.15
reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001840	1.80	22.17	21.96	0.32
reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002309	2.65	37.74	24.66	0.38

HEC-RAS Plan - NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000289	1.56	120.39	35.69	0.15
reach 2	157900	515.00	90.87	97.21	93.55	97.32	0.000598	2.69	191.50	42.97	0.22
reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.67	0.81
reach 2	157788	100.00	90.87	92.32	91.74	92.45	0.003557	2.98	33.55	25.31	0.46
reach 2	157788	188.00	90.87	95.38	92.18	95.41	0.000255	1.51	124.54	34.56	0.14
reach 2	157788	515.00	90.87	97.15	93.35	97.26	0.000589	2.67	192.68	42.38	0.22
reach 2	157777	Inline Weir									
reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002107	2.10	19.02	16.29	0.34
reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	70.04	26.04	0.15
reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.27	38.00	0.09
reach 2	157707	515.00	88.33	97.14	91.83	97.22	0.000300	2.13	241.70	44.87	0.16
reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000557	1.34	29.87	18.33	0.18
reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000159	1.10	91.08	28.84	0.11
reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000068	0.94	199.71	41.36	0.08
reach 2	157442	515.00	87.38	97.09	91.01	97.15	0.000209	1.86	277.49	48.25	0.14
reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000661	1.42	28.13	17.94	0.20
reach 2	157290	100.00	87.38	92.23	88.88	92.25	0.000164	1.11	90.16	28.71	0.11
reach 2	157290	188.00	87.38	95.35	89.49	95.36	0.000068	0.94	199.14	41.31	0.08
reach 2	157290	515.00	87.38	97.05	91.01	97.11	0.000213	1.87	275.50	48.09	0.14
reach 2	156900	40.00	87.38	89.39	88.06	89.41	0.000375	1.10	36.36	22.49	0.15
reach 2	156900	100.00	87.38	92.18	88.52	92.20	0.000090	0.88	113.39	32.71	0.08
reach 2	156900	188.00	87.38	95.32	89.03	95.33	0.000044	0.80	234.20	44.25	0.06
reach 2	156900	515.00	87.38	96.99	90.35	97.04	0.000148	1.64	313.20	50.38	0.12
reach 2	155952	40.00	87.33	88.97	87.94	88.99	0.000534	1.16	34.46	26.20	0.18
reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000057	0.70	142.09	42.09	0.07
reach 2	155952	188.00	87.33	95.30	88.80	95.31	0.000028	0.62	301.56	58.14	0.05
reach 2	155952	515.00	87.33	96.90	89.97	96.92	0.000089	1.29	400.72	66.18	0.09
reach 2	155846	40.00	87.31	88.91	87.84	88.93	0.000559	1.23	32.50	23.06	0.18
reach 2	155846	100.00	87.31	92.12	88.28	92.13	0.000071	0.81	123.96	33.82	0.07
reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000038	0.76	246.36	43.17	0.06
reach 2	155846	515.00	87.31	96.88	90.02	96.92	0.000135	1.62	318.27	47.82	0.11
reach 2	155779	40.00	87.31	88.89	87.70	88.90	0.000231	0.82	48.93	33.31	0.12
reach 2	155779	100.00	87.31	92.11	88.02	92.12	0.000032	0.58	171.34	42.65	0.05
reach 2	155779	188.00	87.31	95.29	88.39	95.30	0.000019	0.59	321.11	51.44	0.04
reach 2	155779	515.00	87.31	96.87	89.38	96.90	0.000073	1.27	405.84	55.80	0.08
reach 2	155696	40.00	87.31	88.85	87.78	88.87	0.000438	1.09	36.84	26.04	0.16
reach 2	155696	100.00	87.31	92.09	88.16	92.10	0.000056	0.73	136.06	35.25	0.07
reach 2	155696	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	263.09	44.43	0.05
reach 2	155696	515.00	87.31	96.85	89.76	96.89	0.000119	1.53	336.46	48.95	0.10
reach 2	154900	40.00	86.57	88.64	87.06	88.65	0.000174	0.81	49.30	26.99	0.11
reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000036	0.63	158.88	37.28	0.05
reach 2	154900	188.00	86.57	95.25	87.90	95.26	0.000023	0.64	293.65	46.94	0.05
reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000092	1.40	368.51	51.52	0.09
reach 2	153295	40.00	85.60	88.44	86.21	88.44	0.000102	0.71	56.05	24.56	0.08
reach 2	153295	100.00	85.60	92.00	86.68	92.01	0.000031	0.61	164.24	36.17	0.05
reach 2	153295	188.00	85.60	95.23	87.20	95.23	0.000022	0.63	298.53	47.19	0.04
reach 2	153295	515.00	85.60	96.63	88.55	96.66	0.000093	1.40	367.99	52.05	0.09
reach 2	153200	40.00	85.60	88.42	86.21	88.43	0.000104	0.72	55.73	24.52	0.08
reach 2	153200	100.00	85.60	91.99	86.68	92.00	0.000031	0.61	163.84	36.13	0.05
reach 2	153200	188.00	85.60	95.22	87.20	95.23	0.000022	0.63	298.13	47.16	0.04
reach 2	153200	515.00	85.60	96.61	88.54	96.64	0.000094	1.40	367.01	51.98	0.09
reach 2	152900	40.00	85.22	88.40	85.96	88.41	0.000056	0.56	71.40	28.98	0.06
reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.42	40.41	0.04
reach 2	152900	188.00	85.22	95.21	86.82	95.22	0.000015	0.55	342.89	50.85	0.04
reach 2	152900	515.00	85.22	96.59	88.03	96.61	0.000067	1.24	416.09	55.31	0.08
reach 2	150900	40.00	84.97	88.32	85.46	88.33	0.000030	0.44	90.50	32.99	0.05
reach 2	150900	100.00	84.97	91.96	85.85	91.96	0.000013	0.43	233.32	45.65	0.03
reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.33	56.94	0.03
reach 2	150900	515.00	84.97	96.48	87.43	96.50	0.000048	1.08	475.60	61.49	0.07

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude #/Chl
reach 2	150837	40.00	84.27	88.31	85.01	88.32	0.000015	0.34	117.37	37.88	0.03
reach 2	150837	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.59	52.08	0.03
reach 2	150837	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.31	65.38	0.03
reach 2	150837	515.00	84.27	96.48	86.81	96.49	0.000046	0.92	560.13	91.93	0.07
reach 2	150569	40.00	84.27	88.30	85.01	88.31	0.000015	0.34	117.01	37.84	0.03
reach 2	150569	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.39	52.07	0.03
reach 2	150569	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.08	65.36	0.03
reach 2	150569	515.00	84.27	96.47	86.81	96.49	0.000046	0.92	559.85	91.82	0.07
reach 2	148900	40.00	84.27	88.28	84.79	88.28	0.000020	0.39	102.08	32.41	0.04
reach 2	148900	100.00	84.27	91.94	85.20	91.94	0.000011	0.41	244.31	45.31	0.03
reach 2	148900	188.00	84.27	95.18	85.67	95.18	0.000010	0.46	409.56	56.76	0.03
reach 2	148900	515.00	84.27	96.39	86.90	96.41	0.000046	1.07	481.07	61.05	0.07
reach 2	147986	40.00	83.76	88.25	84.95	88.25	0.000071	0.67	59.34	20.39	0.07
reach 2	147986	100.00	83.76	91.93	85.61	91.93	0.000034	0.65	154.17	31.16	0.05
reach 2	147986	188.00	83.76	95.16	86.29	95.17	0.000027	0.69	270.99	41.27	0.05
reach 2	147986	515.00	83.76	96.30	87.99	96.34	0.000130	1.61	319.98	45.39	0.11
reach 2	147814	40.00	83.76	88.24	84.77	88.24	0.000043	0.54	73.50	24.63	0.08
reach 2	147814	100.00	83.76	91.91	85.35	91.92	0.000021	0.53	187.18	37.17	0.04
reach 2	147814	188.00	83.76	95.15	85.97	95.16	0.000017	0.58	325.37	48.14	0.04
reach 2	147814	515.00	83.76	96.29	87.51	96.32	0.000083	1.35	382.22	51.99	0.09
reach 2	146900	40.00	83.26	88.22	84.07	88.22	0.000018	0.39	103.26	30.02	0.04
reach 2	146900	100.00	83.26	91.90	84.58	91.91	0.000011	0.42	237.64	42.95	0.03
reach 2	146900	188.00	83.26	95.14	85.14	95.15	0.000010	0.48	395.27	54.33	0.03
reach 2	146900	515.00	83.26	96.23	86.55	96.25	0.000052	1.13	456.37	58.14	0.07
reach 2	145333	40.00	83.11	88.20	83.73	88.21	0.000012	0.33	119.78	32.30	0.03
reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.26	45.26	0.03
reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.38	57.84	0.03
reach 2	145333	515.00	83.11	96.16	86.06	96.17	0.000044	1.05	490.54	61.67	0.07
reach 2	145285	40.00	83.11	88.20	83.73	88.20	0.000012	0.33	119.68	32.29	0.03
reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.16	45.25	0.03
reach 2	145285	188.00	83.11	95.13	84.73	95.13	0.000008	0.44	429.26	57.83	0.03
reach 2	145285	515.00	83.11	96.16	86.06	96.17	0.000030	0.87	1054.27	2238.51	0.05
reach 2	144900	40.00	83.06	88.20	83.56	88.20	0.000007	0.27	148.86	37.64	0.02
reach 2	144900	100.00	83.06	91.89	83.95	91.89	0.000006	0.32	310.90	49.67	0.02
reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	567.27	502.99	0.02
reach 2	144900	515.00	83.06	96.15	85.56	96.16	0.000019	0.73	1732.43	2334.90	0.04
reach 2	144259	482.00	78.00	88.13	80.37	88.16	0.000061	1.34	360.80	49.92	0.09
reach 2	144259	1051.00	78.00	91.79	81.85	91.85	0.000079	1.88	563.82	61.86	0.10
reach 2	144259	1858.00	78.00	94.96	83.44	95.08	0.000097	2.51	779.87	73.70	0.12
reach 2	144259	4804.00	78.00	95.35	87.38	95.92	0.000562	6.15	1415.18	7572.20	0.29
reach 2	144227	Culvert									
reach 2	144196	482.00	78.00	88.02	80.37	88.05	0.000064	1.36	355.36	49.61	0.09
reach 2	144196	1051.00	78.00	91.21	81.85	91.27	0.000096	2.00	528.41	59.69	0.11
reach 2	144196	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.59	67.09	0.15
reach 2	144196	4804.00	78.00	95.37	87.38	95.90	0.000537	6.02	1658.62	7701.40	0.29
reach 2	143786	482.00	80.00	87.94	83.00	88.00	0.000187	1.94	248.09	47.51	0.15
reach 2	143786	1051.00	80.00	91.10	84.46	91.20	0.000198	2.53	417.05	59.31	0.16
reach 2	143786	1858.00	80.00	93.03	85.96	93.23	0.000287	3.55	538.14	68.46	0.20
reach 2	143786	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8068.40	8954.70	0.20
reach 2	142844	482.00	80.00	87.79	82.81	87.84	0.000183	1.83	262.86	49.58	0.14
reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000177	2.41	437.26	61.04	0.15
reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.36	67.81	0.20
reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11671.33	9169.28	0.14
reach 2	142821	Bridge									
reach 2	142771	482.00	80.00	87.76	82.51	87.81	0.000161	1.84	261.99	48.57	0.14
reach 2	142771	1051.00	80.00	90.91	83.97	91.00	0.000181	2.43	433.45	60.04	0.16
reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.68	66.21	0.20
reach 2	142771	4804.00	80.00	95.18	89.25	95.30	0.000237	3.76	8203.60	8923.78	0.19

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	141205	482.00	80.00	87.53	82.36	87.58	0.000145	1.77	272.76	49.55	0.13
reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.37	443.29	59.97	0.15
reach 2	141205	1858.00	80.00	92.34	85.15	92.52	0.000273	3.43	549.61	65.68	0.20
reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000124	2.73	11457.95	8885.98	0.14
reach 2	140152	482.00	80.00	87.35	82.62	87.40	0.000197	1.94	248.60	50.32	0.15
reach 2	140152	1051.00	80.00	90.44	84.06	90.54	0.000209	2.47	425.33	63.81	0.17
reach 2	140152	1858.00	80.00	92.02	85.54	92.22	0.000327	3.55	531.08	70.59	0.22
reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11250.31	9009.02	0.14
reach 2	140137	Bridge									
reach 2	140107	482.00	78.00	87.35	80.62	87.38	0.000085	1.45	331.99	54.31	0.10
reach 2	140107	1051.00	78.00	90.44	82.15	90.51	0.000117	2.02	519.49	66.81	0.13
reach 2	140107	1858.00	78.00	91.90	83.72	92.04	0.000209	3.03	620.74	72.71	0.17
reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.35	11296.26	6548.76	0.12
reach 2	138870	482.00	78.00	87.25	80.28	87.29	0.000065	1.69	361.08	56.20	0.10
reach 2	138870	1051.00	78.00	90.28	81.68	90.38	0.000109	2.65	548.37	67.45	0.13
reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.61	72.06	0.20
reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.82	13700.91	8905.81	0.12
reach 2	137387	482.00	78.00	87.15	80.28	87.20	0.000068	1.72	355.60	55.96	0.10
reach 2	137387	1051.00	78.00	90.12	81.69	90.22	0.000115	2.69	537.79	67.04	0.14
reach 2	137387	1858.00	78.00	91.14	83.26	91.39	0.000264	4.32	608.19	70.85	0.21
reach 2	137387	4804.00	78.00	94.27	87.47	94.51	0.000311	5.42	4575.03	8308.73	0.24
reach 2	137364	482.00	78.00	87.15	80.28	87.19	0.000068	1.72	355.28	55.93	0.10
reach 2	137364	1051.00	78.00	90.11	81.69	90.22	0.000115	2.69	537.67	67.03	0.14
reach 2	137364	1858.00	78.00	91.13	83.26	91.39	0.000265	4.33	607.87	70.83	0.21
reach 2	137364	4804.00	78.00	94.26	87.48	94.51	0.000312	5.43	4563.84	8303.70	0.24
reach 2	137349	Bridge									
reach 2	137334	482.00	78.00	87.13	80.28	87.17	0.000069	1.72	354.31	55.87	0.10
reach 2	137334	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.29	67.01	0.14
reach 2	137334	1858.00	78.00	91.12	83.26	91.38	0.000266	4.33	606.89	70.78	0.21
reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000551	7.05	2876.99	7117.16	0.32
reach 2	137249	482.00	78.00	87.11	80.54	87.17	0.000091	1.97	321.81	53.05	0.12
reach 2	137249	1051.00	78.00	90.07	82.09	90.19	0.000150	3.06	495.32	64.54	0.16
reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.81	67.93	0.24
reach 2	137249	4804.00	78.00	92.13	88.26	93.82	0.001686	11.41	809.88	3621.48	0.54
reach 2	137150	482.00	78.00	87.11	80.41	87.16	0.000079	1.84	335.50	53.87	0.11
reach 2	137150	1051.00	78.00	90.06	81.88	90.17	0.000132	2.88	510.68	64.90	0.15
reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.65	573.11	68.37	0.23
reach 2	137150	4804.00	78.00	92.02	87.85	93.64	0.001563	10.97	647.28	2234.58	0.52
reach 2	135957	482.00	78.00	87.04	80.18	87.07	0.000062	1.63	366.26	57.19	0.10
reach 2	135957	1051.00	78.00	89.94	81.52	90.03	0.000107	2.58	547.64	67.86	0.13
reach 2	135957	1858.00	78.00	90.78	83.04	90.96	0.000210	3.79	1407.39	1304.57	0.19
reach 2	135957	4804.00	78.00	91.91	87.09	92.27	0.000527	6.37	3729.60	5772.06	0.30
reach 2	135841	482.00	78.00	87.02	80.23	87.06	0.000067	1.69	355.41	55.85	0.10
reach 2	135841	1051.00	78.00	89.91	81.60	90.01	0.000115	2.67	531.89	66.36	0.14
reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000248	4.10	1169.48	1398.07	0.20
reach 2	135841	4804.00	78.00	91.81	87.27	92.21	0.000586	6.67	3810.45	6047.65	0.32
reach 2	135233	482.00	78.00	86.99	80.32	87.03	0.000065	1.57	345.49	55.16	0.10
reach 2	135233	1051.00	78.00	89.86	81.73	89.95	0.000107	2.46	519.20	66.05	0.13
reach 2	135233	1858.00	78.00	90.68	83.13	90.78	0.000151	3.05	2890.57	3641.48	0.16
reach 2	135233	4804.00	78.00	92.01	86.96	92.02	0.000053	1.93	17280.26	9206.37	0.09
reach 2	134690	482.00	78.00	86.97	80.04	87.00	0.000046	1.32	405.74	63.79	0.08
reach 2	134690	1051.00	78.00	89.83	81.31	89.89	0.000069	1.99	954.34	599.69	0.11
reach 2	134690	1858.00	78.00	90.66	82.63	90.71	0.000084	2.30	4715.88	8803.10	0.12
reach 2	134690	4804.00	78.00	91.99	86.09	92.00	0.000040	1.71	19102.96	9814.01	0.08
reach 2	134647	Bridge									
reach 2	134606	482.00	78.00	86.93	81.96	86.98	0.000131	2.00	315.52	70.67	0.13
reach 2	134606	1051.00	78.00	89.73	83.30	89.81	0.000139	2.59	1323.64	1882.37	0.15

HFC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	134806	1858.00	78.00	90.62	84.81	90.66	0.000107	2.41	5381.87	8770.38	0.13
reach 2	134806	4804.00	78.00	91.98	90.78	91.98	0.000041	1.62	19783.72	9801.71	0.08
reach 2	134537	482.00	78.00	86.94	80.04	86.96	0.000048	1.33	403.38	63.64	0.08
reach 2	134537	1051.00	78.00	89.74	81.31	89.80	0.000072	2.03	900.38	576.61	0.11
reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000094	2.42	4452.60	8741.38	0.12
reach 2	134537	4804.00	78.00	91.97	86.09	91.98	0.000041	1.73	18864.88	9795.55	0.08
reach 2	132334	962.00	78.00	86.66	81.36	86.68	0.000265	2.84	349.74	58.35	0.19
reach 2	132334	1985.00	78.00	89.10	83.16	89.37	0.000384	4.21	703.52	2249.81	0.24
reach 2	132334	3435.00	78.00	90.23	84.98	90.31	0.000203	3.30	6625.34	8434.55	0.18
reach 2	132334	8788.00	78.00	91.81	90.51	91.83	0.000095	2.47	21607.26	9888.58	0.12
reach 2	131888	962.00	78.00	86.39	81.34	86.51	0.000258	2.75	380.50	62.17	0.19
reach 2	131888	1985.00	78.00	89.01	83.09	89.15	0.000236	3.27	1966.14	2856.94	0.19
reach 2	131888	3435.00	78.00	90.10	84.81	90.18	0.000187	3.13	5848.84	7588.23	0.17
reach 2	131888	8788.00	78.00	91.74	89.89	91.76	0.000111	2.66	19457.73	8710.44	0.13
reach 2	130701	962.00	78.00	86.31	80.24	86.34	0.000092	1.66	1080.75	281.05	0.11
reach 2	130701	1985.00	78.00	88.94	81.50	88.98	0.000098	2.13	2249.58	1528.71	0.12
reach 2	130701	3435.00	78.00	89.96	82.88	90.01	0.000136	2.68	4800.63	3202.29	0.15
reach 2	130701	8788.00	78.00	91.62	86.50	91.65	0.000124	2.83	17549.71	8475.86	0.14
reach 2	130046	962.00	78.00	86.09	81.30	86.23	0.000316	2.98	330.86	57.47	0.20
reach 2	130046	1985.00	78.00	88.67	83.09	88.88	0.000318	3.73	1713.24	3364.18	0.22
reach 2	130046	3435.00	78.00	89.86	84.88	89.92	0.000162	2.88	6689.79	8126.85	0.16
reach 2	130046	8788.00	78.00	91.57	89.69	91.58	0.000067	2.05	24095.44	9357.44	0.10
reach 2	128081	962.00	78.00	85.46	81.03	85.60	0.000353	2.99	325.37	228.23	0.21
reach 2	128081	1985.00	78.00	88.10	82.73	88.26	0.000295	3.48	1816.00	3248.76	0.21
reach 2	128081	3435.00	78.00	89.58	84.47	89.62	0.000145	2.71	6876.43	6754.34	0.15
reach 2	128081	8788.00	78.00	91.47	89.09	91.48	0.000045	1.89	27756.66	9648.55	0.09
reach 2	128032	962.00	78.00	85.44	81.04	85.58	0.000358	3.01	323.71	221.01	0.22
reach 2	128032	1985.00	78.00	88.09	82.72	88.24	0.000301	3.51	1780.12	3217.16	0.21
reach 2	128032	3435.00	78.00	89.57	84.47	89.62	0.000146	2.72	6863.87	6782.86	0.15
reach 2	128032	8788.00	78.00	91.46	89.09	91.47	0.000045	1.68	27794.44	9665.02	0.09
reach 2	126984	962.00	78.00	85.15	79.87	85.26	0.000254	2.87	363.40	1381.45	0.18
reach 2	126984	1985.00	78.00	87.96	81.51	88.01	0.000129	2.41	3283.33	4129.46	0.14
reach 2	126984	3435.00	78.00	89.48	83.42	89.50	0.000075	2.02	8467.31	6565.35	0.11
reach 2	126984	8788.00	78.00	91.43	88.13	91.43	0.000027	1.36	31773.90	9075.80	0.07
reach 2	126599	962.00	78.00	85.05	79.66	85.16	0.000260	2.66	363.50	60.86	0.18
reach 2	126599	1985.00	78.00	87.71	81.48	87.92	0.000325	3.75	853.82	1092.83	0.22
reach 2	126599	3435.00	78.00	89.37	83.39	89.45	0.000174	3.07	5628.81	6484.71	0.16
reach 2	126599	8788.00	78.00	91.41	89.23	91.42	0.000054	1.92	24983.61	8899.17	0.09
reach 2	125586	962.00	78.00	84.74	79.68	84.86	0.000309	2.83	341.39	57.91	0.20
reach 2	125586	1985.00	78.00	87.36	81.48	87.57	0.000356	3.84	983.59	1062.33	0.23
reach 2	125586	3435.00	78.00	89.16	83.38	89.26	0.000200	3.25	4638.60	4124.19	0.18
reach 2	125586	8788.00	78.00	91.32	88.82	91.35	0.000095	2.54	20250.96	9258.82	0.13
reach 2	124578	962.00	78.00	84.47	79.24	84.59	0.000245	2.73	363.48	60.77	0.18
reach 2	124578	1985.00	78.00	86.95	81.00	87.21	0.000369	4.10	528.92	71.06	0.24
reach 2	124578	3435.00	78.00	88.76	82.77	88.99	0.000341	4.44	2548.92	2089.75	0.23
reach 2	124578	8788.00	78.00	91.02	89.11	91.17	0.000342	5.02	9279.09	5512.17	0.24
reach 2	124380	962.00	78.00	84.38	79.51	84.52	0.000317	3.03	327.70	58.70	0.21
reach 2	124380	1985.00	78.00	86.88	81.36	87.12	0.000391	4.16	856.78	465.20	0.24
reach 2	124380	3435.00	78.00	88.64	83.15	88.90	0.000412	4.79	2027.73	2453.48	0.25
reach 2	124380	8788.00	78.00	91.03	88.79	91.09	0.000195	3.76	13340.29	5766.41	0.18
reach 2	124036	962.00	78.00	84.28	79.38	84.42	0.000315	3.02	327.89	55.98	0.20
reach 2	124036	1985.00	78.00	86.74	81.22	86.99	0.000408	4.22	796.13	433.00	0.25
reach 2	124036	3435.00	78.00	88.48	83.03	88.76	0.000445	4.95	1883.78	2329.74	0.26
reach 2	124036	8788.00	78.00	90.95	88.75	91.02	0.000211	3.91	12819.64	5654.62	0.19
reach 2	122198	962.00	78.00	83.69	79.14	83.83	0.000339	2.99	327.40	58.52	0.21
reach 2	122198	1985.00	78.00	86.21	80.87	86.35	0.000278	3.39	1583.54	991.11	0.20
reach 2	122198	3435.00	78.00	88.16	82.63	88.23	0.000169	3.02	4601.98	2081.88	0.16
reach 2	122198	8788.00	78.00	90.62	87.29	90.67	0.000178	3.56	11406.85	5480.68	0.17
reach 2	120752	962.00	78.00	82.95	79.42	83.16	0.000652	3.72	260.25	52.62	0.28



HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	120752	1985.00	76.00	85.24	81.24	85.88	0.000825	5.32	392.68	62.68	0.34
reach 2	120752	3435.00	76.00	87.69	83.02	87.87	0.000374	4.31	3037.73	1839.54	0.24
reach 2	120752	8788.00	76.00	90.28	87.94	90.37	0.000254	4.14	8731.15	3162.87	0.21
reach 2	120467	962.00	76.00	82.78	79.23	82.98	0.000613	3.58	269.68	54.50	0.28
reach 2	120467	1985.00	76.00	85.04	80.99	85.44	0.000783	5.14	403.52	64.30	0.33
reach 2	120467	3435.00	76.00	87.39	82.74	87.72	0.000563	5.22	2046.33	1719.70	0.29
reach 2	120467	8788.00	76.00	90.23	88.05	90.30	0.000223	3.89	10676.46	4506.03	0.19
reach 2	119740	962.00	76.00	81.93	79.23	82.22	0.001096	4.28	224.98	50.81	0.36
reach 2	119740	1985.00	76.00	83.90	80.98	84.47	0.001366	6.08	333.32	59.36	0.42
reach 2	119740	3435.00	76.00	86.71	82.74	87.11	0.000741	5.71	1944.89	3098.36	0.33
reach 2	119740	8788.00	76.00	90.17	87.55	90.18	0.000060	2.01	20382.73	7491.48	0.10
reach 2	119730	962.00	72.00	82.05	75.11	82.10	0.000087	1.85	559.95	85.60	0.11
reach 2	119730	1985.00	72.00	84.11	76.74	84.25	0.000169	2.99	792.17	1259.42	0.16
reach 2	119730	3435.00	72.00	86.81	78.35	87.00	0.000195	3.75	1756.36	3268.87	0.18
reach 2	119730	8788.00	72.00	90.16	82.35	90.18	0.000043	2.06	21424.16	7559.13	0.09
reach 2	118784	962.00	72.00	81.98	75.11	82.03	0.000089	1.86	554.42	84.30	0.11
reach 2	118784	1985.00	72.00	84.03	76.74	84.12	0.000132	2.63	1642.26	3170.79	0.14
reach 2	118784	3435.00	72.00	86.79	78.35	86.84	0.000086	2.49	5008.58	4469.97	0.12
reach 2	118784	8788.00	72.00	90.14	84.20	90.15	0.000018	1.34	27730.06	5213.15	0.06
reach 2	118781	962.00	70.00	81.98	73.45	82.03	0.000074	1.80	571.27	78.58	0.10
reach 2	118781	1985.00	70.00	84.02	75.48	84.11	0.000121	2.62	1642.12	758.32	0.14
reach 2	118781	3435.00	70.00	86.78	77.48	86.84	0.000090	2.62	4726.93	1900.55	0.12
reach 2	118781	8788.00	70.00	90.09	83.99	90.14	0.000084	2.91	12279.11	2720.20	0.12
reach 2	118735	Culvert									
reach 2	118709	962.00	70.00	80.96		81.02	0.000111	2.03	493.78	73.22	0.13
reach 2	118709	1985.00	70.00	84.00		84.09	0.000122	2.62	1627.14	750.45	0.14
reach 2	118709	3435.00	70.00	86.77		86.84	0.000091	2.62	4712.55	1898.92	0.12
reach 2	118709	8788.00	70.00	90.09		90.13	0.000085	2.92	12267.99	2716.14	0.12
reach 2	118635	962.00	72.00	80.94		81.01	0.000130	2.10	476.60	75.70	0.14
reach 2	118635	1985.00	72.00	83.99		84.08	0.000125	2.60	1612.21	668.95	0.14
reach 2	118635	3435.00	72.00	86.76		86.82	0.000087	2.53	4851.78	1950.15	0.12
reach 2	118635	8788.00	72.00	90.07		90.12	0.000080	2.81	12490.05	2718.08	0.12
reach 2	118513	962.00	72.00	80.93		80.99	0.000124	2.08	490.54	100.43	0.13
reach 2	118513	1985.00	72.00	83.98		84.07	0.000121	2.57	1628.41	661.54	0.14
reach 2	118513	3435.00	72.00	86.75		86.81	0.000088	2.56	4776.77	1925.50	0.12
reach 2	118513	8788.00	72.00	90.06		90.11	0.000082	2.85	12352.58	2692.14	0.12
reach 2	117690	1120.00	70.00	80.80	73.75	80.90	0.000153	2.59	470.33	66.07	0.15
reach 2	117690	2355.00	70.00	83.69	75.82	83.94	0.000262	4.07	687.63	87.13	0.21
reach 2	117690	4175.00	70.00	86.13	77.91	86.65	0.000435	5.92	1038.22	1016.27	0.27
reach 2	117690	10250.00	70.00	89.89	83.24	90.02	0.000195	4.62	9850.92	6059.24	0.19
reach 2	117193	1120.00	70.00	80.73	73.66	80.83	0.000151	2.58	465.01	67.68	0.15
reach 2	117193	2355.00	70.00	83.58	75.71	83.83	0.000259	4.03	691.37	88.11	0.20
reach 2	117193	4175.00	70.00	86.02	77.76	86.45	0.000385	5.56	1280.70	358.67	0.26
reach 2	117193	10250.00	70.00	89.14	83.27	89.82	0.000646	8.19	4307.53	3655.54	0.34
reach 2	116403	1120.00	70.00	80.65	74.20	80.74	0.000150	2.48	505.04	84.99	0.15
reach 2	116403	2355.00	70.00	83.46	76.04	83.67	0.000241	3.80	870.01	263.18	0.20
reach 2	116403	4175.00	70.00	85.89	77.98	86.21	0.000316	4.94	1772.66	577.82	0.23
reach 2	116403	10250.00	70.00	88.95	82.86	89.43	0.000502	7.11	5733.58	3572.68	0.30
reach 2	116161	1120.00	70.00	80.63	73.29	80.71	0.000109	2.20	579.67	97.55	0.13
reach 2	116161	2355.00	70.00	83.44	75.16	83.61	0.000182	3.40	992.56	291.09	0.17
reach 2	116161	4175.00	70.00	85.87	77.13	86.12	0.000241	4.42	1964.42	604.49	0.20
reach 2	116161	10250.00	70.00	88.88	82.12	89.29	0.000417	6.59	6082.57	3569.03	0.28
reach 2	115322	1120.00	70.00	80.55	74.01	80.61	0.000104	2.17	1139.94	607.93	0.13
reach 2	115322	2355.00	70.00	83.44	75.78	83.48	0.000075	2.21	3510.92	1070.37	0.11
reach 2	115322	4175.00	70.00	85.91	77.95	85.96	0.000078	2.55	7550.37	2935.18	0.12
reach 2	115322	10250.00	70.00	89.06	82.27	89.08	0.000051	2.35	20058.50	5894.25	0.10
reach 2	115218	1120.00	70.00	80.56	73.19	80.61	0.000078	1.96	1154.27	553.34	0.11
reach 2	115218	2355.00	70.00	83.44	74.98	83.48	0.000068	2.17	3440.00	1061.46	0.11
reach 2	115218	4175.00	70.00	85.91	77.05	85.95	0.000073	2.53	7453.72	2922.61	0.11

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	115218	10250.00	70.00	89.06	82.15	89.06	0.000050	2.38	20099.48	5892.28	0.10
reach 2	115057	1120.00	70.00	80.57	73.09	80.59	0.000042	1.45	2556.96	1260.49	0.08
reach 2	115057	2355.00	70.00	83.45	74.83	83.46	0.000024	1.29	8002.13	2635.63	0.06
reach 2	115057	4175.00	70.00	85.92	76.81	85.93	0.000017	1.21	17188.59	4842.84	0.05
reach 2	115057	10250.00	70.00	89.06	80.91	89.06	0.000015	1.30	33342.05	7337.03	0.05
reach 2	114848	1120.00	70.00	80.56	72.89	80.57	0.000029	1.15	3583.17	2459.09	0.07
reach 2	114848	2355.00	70.00	83.45	74.60	83.45	0.000012	0.90	10730.14	4711.53	0.05
reach 2	114848	4175.00	70.00	85.92	76.48	85.92	0.000009	0.88	20459.21	8439.06	0.04
reach 2	114848	10250.00	70.00	89.06	80.65	89.06	0.000011	1.07	37400.36	14594.10	0.04
reach 2	114615	1120.00	70.00	80.55	72.77	80.56	0.000036	1.29	3101.22	2490.32	0.07
reach 2	114615	2355.00	70.00	83.44	74.43	83.45	0.000012	0.89	10927.72	4695.13	0.04
reach 2	114615	4175.00	70.00	85.91	76.24	85.91	0.000009	0.86	21008.43	8243.88	0.04
reach 2	114615	10250.00	70.00	89.05	81.02	89.05	0.000010	1.04	38793.52	13777.24	0.04
reach 2	114600	Bridge									
reach 2	114585	1120.00	70.00	80.53	72.77	80.55	0.000037	1.30	3070.78	2476.98	0.07
reach 2	114585	2355.00	70.00	83.43	74.43	83.43	0.000012	0.89	10932.74	4682.27	0.04
reach 2	114585	4175.00	70.00	85.89	76.24	85.89	0.000009	0.86	20996.15	8205.90	0.04
reach 2	114585	10250.00	70.00	89.04	80.96	89.04	0.000010	1.04	38922.55	13759.86	0.04
reach 2	114500	1120.00	70.00	80.53	72.77	80.54	0.000037	1.30	3090.66	2475.46	0.07
reach 2	114500	2355.00	70.00	83.42	74.43	83.42	0.000012	0.88	11176.56	4720.19	0.04
reach 2	114500	4175.00	70.00	85.88	76.24	85.88	0.000008	0.84	21386.25	8193.25	0.04
reach 2	114500	10250.00	70.00	89.04	80.95	89.04	0.000010	1.02	39623.96	13754.07	0.04
reach 2	113500	1120.00	70.00	80.44	72.96	80.49	0.000081	1.90	1492.63	2388.87	0.11
reach 2	113500	2355.00	70.00	83.40	74.73	83.41	0.000014	0.95	11076.91	4704.43	0.05
reach 2	113500	4175.00	70.00	85.87	76.63	85.87	0.000008	0.81	22069.90	9042.66	0.04
reach 2	113500	10250.00	70.00	89.02	81.70	89.03	0.000010	1.01	41870.76	13688.59	0.04
reach 2	112500	1120.00	70.00	80.37	72.77	80.42	0.000078	1.88	1040.95	1459.77	0.11
reach 2	112500	2355.00	70.00	83.39	74.42	83.40	0.000021	1.16	9765.32	4711.17	0.06
reach 2	112500	4175.00	70.00	85.86	76.26	85.87	0.000008	0.82	23471.39	9047.48	0.04
reach 2	112500	10250.00	70.00	89.01	81.89	89.02	0.000008	0.94	46598.46	13655.35	0.04
reach 2	111500	1120.00	70.00	80.30	72.86	80.34	0.000087	1.72	1671.82	1440.02	0.10
reach 2	111500	2355.00	70.00	83.37	74.56	83.38	0.000017	1.04	11175.18	4752.26	0.05
reach 2	111500	4175.00	70.00	85.86	76.43	85.86	0.000007	0.78	26068.16	7729.34	0.04
reach 2	111500	10250.00	70.00	89.00	81.57	89.00	0.000007	0.87	50950.34	12622.53	0.04
reach 2	108769	1120.00	70.00	80.07	72.83	80.12	0.000089	1.92	621.55	143.91	0.12
reach 2	108769	2355.00	70.00	83.24	74.59	83.29	0.000074	2.16	3181.19	1494.17	0.11
reach 2	108769	4175.00	70.00	85.81	76.38	85.82	0.000030	1.56	16336.82	9840.92	0.07
reach 2	108769	10250.00	70.00	88.96	82.69	88.98	0.000012	1.13	46960.51	14520.20	0.05
reach 2	108564	1120.00	70.00	80.04	72.80	80.10	0.000090	1.96	601.31	80.88	0.12
reach 2	108564	2355.00	70.00	83.11	74.44	83.24	0.000140	2.97	1100.09	769.12	0.15
reach 2	108564	4175.00	70.00	85.80	76.25	85.81	0.000032	1.63	16035.83	9811.38	0.08
reach 2	108564	10250.00	70.00	88.97	80.54	88.98	0.000012	1.12	47381.85	14508.52	0.05
reach 2	108524	Bridge									
reach 2	108484	1120.00	70.00	80.01	72.80	80.07	0.000091	1.96	598.90	80.75	0.12
reach 2	108484	2355.00	70.00	83.05	74.44	83.19	0.000142	2.99	1062.47	627.31	0.15
reach 2	108484	4175.00	70.00	85.77	76.25	85.78	0.000033	1.66	15820.83	9756.16	0.08
reach 2	108484	10250.00	70.00	88.95	80.53	88.95	0.000012	1.12	47357.70	14473.46	0.05
reach 2	108424	1120.00	70.00	80.00	72.80	80.06	0.000091	1.97	598.09	80.71	0.12
reach 2	108424	2355.00	70.00	83.04	74.45	83.17	0.000143	3.00	1052.97	586.09	0.15
reach 2	108424	4175.00	70.00	85.76	76.25	85.78	0.000034	1.67	15796.03	9744.01	0.08
reach 2	108424	10250.00	70.00	88.94	80.53	88.95	0.000012	1.12	47435.68	14461.78	0.05
reach 2	108200	1120.00	70.00	79.96	72.76	80.04	0.000093	1.98	590.68	78.62	0.12
reach 2	108200	2355.00	70.00	83.00	74.42	83.14	0.000145	3.01	1157.43	915.80	0.15
reach 2	108200	4175.00	70.00	85.74	76.23	85.76	0.000033	1.66	14885.94	9350.32	0.08
reach 2	108200	10250.00	70.00	88.94	80.54	88.94	0.000013	1.20	43315.35	14346.88	0.05
reach 2	107200	1120.00	70.00	79.89	72.61	79.95	0.000084	1.89	617.12	80.90	0.11
reach 2	107200	2355.00	70.00	82.88	74.20	82.99	0.000126	2.81	1572.29	1634.47	0.14
reach 2	107200	4175.00	70.00	85.71	75.97	85.72	0.000029	1.55	15740.72	9089.36	0.07

HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	107200	10250.00	70.00	88.92	80.11	88.92	0.000012	1.13	45584.89	13699.43	0.05
reach 2	105420	1279.00	70.00	79.72	72.84	79.78	0.000095	1.98	671.19	90.81	0.12
reach 2	105420	2215.00	70.00	82.70	73.93	82.78	0.000091	2.35	2030.28	2222.72	0.12
reach 2	105420	3804.00	70.00	85.67	75.41	85.68	0.000017	1.19	16206.87	8959.16	0.05
reach 2	105420	9537.00	70.00	88.90	79.16	88.91	0.000011	1.10	40256.02	13674.25	0.05
reach 2	105350	1279.00	70.00	79.67	73.08	79.76	0.000137	2.46	572.39	78.99	0.14
reach 2	105350	2215.00	70.00	82.64	74.28	82.77	0.000133	2.93	1904.99	1868.71	0.15
reach 2	105350	3804.00	70.00	85.67	75.90	85.68	0.000023	1.41	15974.91	9088.56	0.06
reach 2	105350	9537.00	70.00	88.90	83.00	88.90	0.000012	1.17	41251.13	13666.22	0.05
reach 2	105335	Bridge									
reach 2	105320	1279.00	70.00	79.66	73.08	79.75	0.000137	2.46	571.32	78.93	0.14
reach 2	106320	2215.00	70.00	82.50	74.28	82.64	0.000147	3.06	1640.61	1822.67	0.16
reach 2	106320	3804.00	70.00	85.65	75.90	85.66	0.000023	1.42	15820.29	9063.43	0.06
reach 2	105320	9537.00	70.00	88.88	80.31	88.88	0.000012	1.18	40974.19	13642.14	0.05
reach 2	105235	1279.00	70.00	79.65	73.08	79.74	0.000138	2.47	570.49	78.89	0.14
reach 2	105235	2215.00	70.00	82.49	74.28	82.63	0.000148	3.07	1519.34	1638.35	0.16
reach 2	105235	3804.00	70.00	85.65	75.90	85.66	0.000025	1.46	15209.36	8958.34	0.07
reach 2	105235	9537.00	70.00	88.87	80.31	88.88	0.000013	1.21	39766.94	13561.20	0.05
reach 2	104800	1279.00	70.00	79.58	73.02	79.67	0.000140	2.48	570.21	80.00	0.15
reach 2	104800	2215.00	70.00	82.40	74.25	82.56	0.000165	3.23	846.36	178.02	0.17
reach 2	104800	3804.00	70.00	85.61	75.86	85.64	0.000042	1.92	12029.56	6722.35	0.09
reach 2	104800	9537.00	70.00	88.87	80.29	88.87	0.000015	1.31	39919.15	9833.11	0.05
reach 2	104146	1279.00	70.00	79.50		79.58	0.000126	2.34	602.56	84.88	0.14
reach 2	104146	2215.00	70.00	82.31		82.45	0.000146	3.03	867.26	125.28	0.16
reach 2	104146	3804.00	70.00	85.55		85.60	0.000062	2.32	8818.18	5780.24	0.11
reach 2	104146	9537.00	70.00	88.86		88.87	0.000019	1.48	36756.38	9918.13	0.06
reach 2	104116	1279.00	70.00	79.50		79.58	0.000126	2.34	602.23	84.86	0.14
reach 2	104116	2215.00	70.00	82.31		82.45	0.000146	3.03	866.70	125.15	0.16
reach 2	104116	3804.00	70.00	85.55		85.60	0.000062	2.33	8806.15	5776.18	0.11
reach 2	104116	9537.00	70.00	88.86		88.86	0.000020	1.49	36702.59	9914.87	0.06
reach 2	103006	1279.00	70.00	79.36		79.45	0.000133	2.38	590.83	84.21	0.14
reach 2	103006	2215.00	70.00	82.15		82.29	0.000153	3.07	847.42	120.47	0.16
reach 2	103006	3804.00	70.00	85.48		85.53	0.000067	2.40	8401.69	5637.99	0.11
reach 2	103006	9537.00	70.00	88.84		88.85	0.000020	1.49	36539.13	9904.98	0.06
reach 2	102913	1279.00	70.00	79.35		79.44	0.000137	2.42	577.37	81.12	0.14
reach 2	102913	2215.00	70.00	82.14		82.29	0.000157	3.11	822.76	114.67	0.16
reach 2	102913	3804.00	70.00	85.45		85.52	0.000085	2.71	6114.98	3428.64	0.12
reach 2	102913	9537.00	70.00	88.83		88.85	0.000033	1.92	29458.25	9041.95	0.08
reach 2	102850	1279.00	70.00	79.34	72.84	79.43	0.000134	2.39	589.28	84.12	0.14
reach 2	102850	2215.00	70.00	82.13	74.02	82.27	0.000154	3.08	845.03	119.88	0.16
reach 2	102850	3804.00	70.00	85.46	75.58	85.51	0.000068	2.43	8293.27	5600.36	0.11
reach 2	102850	9537.00	70.00	88.83	79.86	88.84	0.000020	1.50	36422.11	9897.89	0.06
reach 2	102835	Bridge									
reach 2	102820	1279.00	70.00	79.33		79.42	0.000134	2.39	588.17	84.05	0.14
reach 2	102820	2215.00	70.00	82.12		82.26	0.000155	3.08	843.20	119.42	0.16
reach 2	102820	3804.00	70.00	85.41		85.47	0.000072	2.49	8003.17	5498.42	0.11
reach 2	102820	9537.00	70.00	88.81		88.82	0.000020	1.51	36237.58	9886.89	0.06
reach 2	102600	1279.00	70.00	79.28		79.38	0.000160	2.59	534.25	74.38	0.15
reach 2	102600	2215.00	70.00	82.05		82.22	0.000185	3.35	754.45	102.85	0.17
reach 2	102600	3804.00	70.00	85.27		85.42	0.000147	3.53	4070.27	3722.22	0.16
reach 2	102600	9537.00	70.00	88.79		88.81	0.000041	2.16	27285.12	8999.14	0.09
reach 2	101500	1279.00	70.00	79.11		79.21	0.000161	2.57	541.62	77.98	0.15
reach 2	101500	2215.00	70.00	81.85		82.01	0.000183	3.30	770.84	89.09	0.17
reach 2	101500	3804.00	70.00	84.96		85.21	0.000214	4.20	1851.96	1198.51	0.19
reach 2	101500	9537.00	70.00	88.72		88.75	0.000059	2.57	22938.82	8252.42	0.11
reach 2	100000	1279.00	70.00	78.84		78.94	0.000189	2.55	515.71	77.65	0.16
reach 2	100000	2215.00	70.00	81.57		81.73	0.000198	3.20	740.37	87.35	0.18
reach 2	100000	3804.00	70.00	84.62		84.88	0.000232	4.13	1128.07	204.67	0.20



HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	100000	9537.00	70.00	88.45		88.60	0.000178	4.26	12212.40	6282.08	0.18
reach 2	99900	1279.00	70.00	78.82		78.92	0.000179	2.50	525.55	78.24	0.16
reach 2	99900	2215.00	70.00	81.54		81.70	0.000189	3.15	752.24	88.24	0.17
reach 2	99900	3804.00	70.00	84.60		84.85	0.000224	4.07	1133.55	182.30	0.20
reach 2	99900	9537.00	70.00	88.45		88.58	0.000162	4.11	12685.89	6302.70	0.17
reach 2	99708	1279.00	70.00	78.78		78.88	0.000183	2.48	531.67	82.88	0.16
reach 2	99708	2215.00	70.00	81.50		81.65	0.000187	3.09	772.37	94.41	0.17
reach 2	99708	3804.00	70.00	84.57		84.80	0.000216	3.97	1141.08	148.25	0.19
reach 2	99708	9537.00	70.00	88.40		88.55	0.000181	4.30	11452.59	5838.12	0.18
reach 2	99592	1279.00	70.00	78.74		78.85	0.000220	2.73	480.43	72.35	0.18
reach 2	99592	2215.00	70.00	81.44		81.62	0.000231	3.43	688.53	81.67	0.19
reach 2	99592	3804.00	70.00	84.48		84.77	0.000270	4.42	1034.43	135.68	0.21
reach 2	99592	9537.00	70.00	88.35		88.53	0.000215	4.68	11039.22	5917.77	0.20
reach 2	99550	1279.00	70.00	78.74	72.91	78.83	0.000201	2.42	528.64	78.58	0.18
reach 2	99550	2215.00	70.00	81.47	74.10	81.60	0.000218	2.92	758.21	89.82	0.18
reach 2	99550	3804.00	70.00	84.54	75.70	84.73	0.000245	3.57	1150.23	222.76	0.19
reach 2	99550	9537.00	70.00	88.39	79.83	88.49	0.000160	3.55	10721.75	4096.01	0.17
reach 2	99335	Bridge									
reach 2	99520	1279.00	70.00	78.73	72.91	78.82	0.000202	2.43	527.25	78.51	0.18
reach 2	99520	2215.00	70.00	81.43	74.10	81.57	0.000221	2.93	755.16	89.68	0.18
reach 2	99520	3804.00	70.00	84.50	75.70	84.70	0.000248	3.58	1144.17	220.62	0.20
reach 2	99520	9537.00	70.00	88.29	79.82	88.40	0.000172	3.66	10325.12	4046.59	0.17
reach 2	99507	1279.00	70.00	78.72		78.81	0.000202	2.43	527.03	78.50	0.17
reach 2	99507	2215.00	70.00	81.43		81.57	0.000221	2.93	754.89	89.67	0.18
reach 2	99507	3804.00	70.00	84.50		84.70	0.000247	3.57	1191.95	220.59	0.19
reach 2	99507	9537.00	70.00	88.28		88.40	0.000172	3.67	10307.93	4044.43	0.17
reach 2	98900	1295.00	70.00	78.60		78.70	0.000195	2.53	522.39	79.34	0.17
reach 2	98900	2258.00	70.00	81.28		81.44	0.000203	3.18	760.39	99.67	0.18
reach 2	98900	3818.00	70.00	84.29		84.54	0.000232	4.06	1100.62	180.27	0.20
reach 2	98900	9620.00	70.00	88.01		88.27	0.000284	5.13	8446.21	4324.92	0.22
reach 2	97900	1295.00	70.00	78.40		78.50	0.000198	2.53	522.85	81.50	0.17
reach 2	97900	2258.00	70.00	81.08		81.24	0.000203	3.16	765.23	103.17	0.18
reach 2	97900	3818.00	70.00	84.07		84.31	0.000229	4.01	1120.50	167.60	0.20
reach 2	97900	9620.00	70.00	87.75		88.00	0.000260	5.06	8032.77	3798.06	0.22
reach 2	95000	1295.00	68.00	77.95		78.03	0.000124	2.29	592.98	80.00	0.14
reach 2	95000	2258.00	68.00	80.57		80.71	0.000155	3.04	824.80	109.27	0.16
reach 2	95000	3818.00	68.00	83.45		83.68	0.000195	3.96	1264.52	187.31	0.18
reach 2	95000	9620.00	68.00	86.39		86.96	0.000457	6.87	4651.52	2531.95	0.29
reach 2	94730	1295.00	68.00	77.92		78.01	0.000135	2.37	571.62	77.48	0.14
reach 2	94730	2258.00	68.00	80.51		80.66	0.000169	3.15	785.40	87.54	0.17
reach 2	94730	3818.00	68.00	83.36		83.62	0.000221	4.19	1050.10	98.23	0.20
reach 2	94730	9620.00	68.00	86.35		86.82	0.000409	6.47	5940.96	3442.79	0.28
reach 2	94655	1295.00	68.00	77.91	70.96	77.99	0.000120	2.28	599.30	79.56	0.13
reach 2	94655	2258.00	68.00	80.51	72.20	80.64	0.000151	3.00	834.90	103.81	0.16
reach 2	94655	3818.00	68.00	83.37	73.82	83.60	0.000193	3.94	1231.01	211.12	0.18
reach 2	94655	9620.00	68.00	86.31	77.97	86.79	0.000401	6.43	5549.66	3040.93	0.27
reach 2	94635	Bridge									
reach 2	94620	1295.00	68.00	77.88		77.96	0.000122	2.26	597.02	79.45	0.13
reach 2	94620	2258.00	68.00	80.48		80.62	0.000152	3.01	831.79	103.31	0.16
reach 2	94620	3818.00	68.00	83.32		83.55	0.000196	3.95	1220.46	205.48	0.18
reach 2	94620	9620.00	68.00	85.78		86.42	0.000524	7.19	4103.20	2400.84	0.31
reach 2	94530	1295.00	68.00	77.87		77.95	0.000122	2.27	596.27	79.41	0.13
reach 2	94530	2258.00	68.00	80.47		80.60	0.000153	3.01	830.54	103.11	0.16
reach 2	94530	3818.00	68.00	83.30		83.54	0.000197	3.96	1217.21	203.72	0.18
reach 2	94530	9620.00	68.00	85.70		86.38	0.000547	7.33	3912.20	2342.86	0.32
reach 2	92150	1295.00	68.00	77.52	71.27	77.62	0.000184	2.50	522.54	75.17	0.16
reach 2	92150	2258.00	68.00	80.04	72.60	80.21	0.000210	3.23	746.82	101.98	0.18
reach 2	92150	3818.00	68.00	82.77	74.31	83.04	0.000257	4.19	1079.97	138.81	0.21

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	92150	9620.00	68.00	85.14	78.55	85.36	0.000294	5.03	6656.17	5326.72	0.23
reach 2	92135	Bridge									
reach 2	92120	1295.00	68.00	77.50	71.27	77.60	0.000186	2.51	521.11	75.09	0.16
reach 2	92120	2258.00	68.00	80.01	72.60	80.18	0.000212	3.24	743.69	101.51	0.18
reach 2	92120	3818.00	68.00	82.75	74.31	83.01	0.000259	4.20	1076.50	138.58	0.21
reach 2	92120	9620.00	68.00	84.96	78.55	85.19	0.000306	5.09	6740.08	4943.15	0.23
reach 2	91139	1295.00	68.00	77.31	71.27	77.41	0.000203	2.57	506.58	74.26	0.17
reach 2	91139	2258.00	68.00	79.79	72.60	79.96	0.000230	3.32	721.23	99.28	0.19
reach 2	91139	3818.00	68.00	82.47	74.31	82.75	0.000280	4.31	1038.14	136.08	0.22
reach 2	91139	9620.00	68.00	84.64	78.55	84.88	0.000336	5.26	7489.50	4537.83	0.24
reach 2	91050	1295.00	68.00	77.29	71.26	77.39	0.000205	2.58	504.54	73.92	0.17
reach 2	91050	2258.00	68.00	79.77	72.61	79.94	0.000232	3.34	714.75	95.81	0.19
reach 2	91050	3818.00	68.00	82.44	74.30	82.72	0.000285	4.34	1027.79	137.78	0.22
reach 2	91050	9620.00	68.00	84.60	78.55	84.85	0.000346	5.32	7416.68	4498.27	0.25
reach 2	88641	1295.00	68.00	76.76	71.12	76.87	0.000235	2.65	489.81	74.39	0.18
reach 2	88641	2258.00	68.00	79.18	72.41	79.36	0.000260	3.41	681.83	84.76	0.20
reach 2	88641	3818.00	68.00	81.80	74.07	82.04	0.000277	4.15	1552.38	617.06	0.21
reach 2	88641	9620.00	68.00	84.04	78.19	84.16	0.000220	4.15	9402.06	17228.00	0.19
reach 2	88488	1295.00	68.00	76.72	71.15	76.83	0.000247	2.70	480.59	73.45	0.18
reach 2	88488	2258.00	68.00	79.13	72.44	79.31	0.000271	3.46	681.40	98.96	0.20
reach 2	88488	3818.00	68.00	81.76	74.11	82.00	0.000271	4.09	1763.86	977.39	0.21
reach 2	88488	9620.00	68.00	83.96	78.31	84.12	0.000268	4.56	8235.70	14365.20	0.21
reach 2	88300	1295.00	68.00	76.67	71.12	76.79	0.000245	2.69	481.46	73.23	0.18
reach 2	88300	2258.00	68.00	79.08	72.40	79.26	0.000270	3.46	679.69	97.36	0.20
reach 2	88300	3818.00	68.00	81.69	74.05	81.94	0.000287	4.21	1493.09	695.96	0.22
reach 2	88300	9620.00	68.00	83.83	78.24	84.05	0.000344	5.15	5998.59	13063.85	0.24
reach 2	87300	1295.00	68.00	76.40	71.11	76.52	0.000280	2.81	460.52	71.36	0.19
reach 2	87300	2258.00	68.00	78.78	72.41	78.98	0.000297	3.56	717.07	181.40	0.21
reach 2	87300	3818.00	68.00	81.49	74.06	81.66	0.000228	3.72	2469.24	1495.73	0.19
reach 2	87300	9620.00	68.00	83.68	78.84	83.76	0.000178	3.68	11173.63	14594.10	0.17
reach 2	85942	1295.00	68.00	75.89	71.32	76.05	0.000432	3.25	397.91	67.24	0.24
reach 2	85942	2258.00	68.00	78.24	72.67	78.49	0.000430	4.05	570.19	88.98	0.25
reach 2	85942	3818.00	68.00	80.94	74.38	81.25	0.000391	4.66	1707.65	1281.90	0.25
reach 2	85942	9620.00	68.00	83.28	78.71	83.44	0.000312	4.74	9843.07	18360.77	0.23
reach 2	85850	1295.00	68.00	75.86	71.35	76.02	0.000443	3.27	396.57	68.16	0.24
reach 2	85850	2258.00	68.00	78.20	72.72	78.45	0.000436	4.04	570.17	88.67	0.25
reach 2	85850	3818.00	68.00	80.89	74.43	81.22	0.000417	4.78	1423.06	1297.91	0.26
reach 2	85850	9620.00	68.00	83.09	78.71	83.39	0.000497	5.91	6321.29	18231.14	0.29
reach 2	85835	Bridge									
reach 2	85820	1295.00	68.00	75.80	71.35	75.97	0.000456	3.30	392.40	67.89	0.24
reach 2	85820	2258.00	68.00	78.13	72.72	78.39	0.000448	4.08	564.59	91.14	0.25
reach 2	85820	3818.00	68.00	80.79	74.43	81.13	0.000430	4.83	1439.56	1370.86	0.26
reach 2	85820	9620.00	68.00	82.77	78.84	83.15	0.000608	6.43	5618.05	17961.96	0.32
reach 2	85783	1295.00	68.00	75.77	71.35	75.94	0.000461	3.31	390.73	67.78	0.24
reach 2	85783	2258.00	68.00	78.11	72.72	78.37	0.000452	4.09	562.31	86.40	0.25
reach 2	85783	3818.00	68.00	80.74	74.43	81.10	0.000452	4.94	1275.47	1294.05	0.27
reach 2	85783	9620.00	68.00	82.57	78.71	83.08	0.000765	7.13	4792.70	17707.23	0.36
reach 2	83100	1295.00	66.00	74.94	69.36	75.06	0.000256	2.77	468.83	72.05	0.19
reach 2	83100	2258.00	66.00	77.22	70.72	77.42	0.000298	3.62	644.02	82.00	0.21
reach 2	83100	3818.00	66.00	79.74	72.44	80.07	0.000354	4.64	1109.57	517.07	0.24
reach 2	83100	9620.00	66.00	82.51	76.66	82.53	0.000066	2.30	20131.26	18497.83	0.11
reach 2	82100	1295.00	66.00	74.55	69.71	74.75	0.000365	3.61	397.04	65.98	0.23
reach 2	82100	2258.00	66.00	76.69	71.08	77.04	0.000473	4.84	548.32	349.48	0.27
reach 2	82100	3818.00	66.00	78.96	72.91	79.57	0.000646	6.49	732.13	2141.24	0.33
reach 2	82100	9620.00	66.00	82.47	77.93	82.48	0.000044	2.00	24872.69	17965.43	0.09
reach 2	82000	1295.00	66.00	74.51	69.71	74.71	0.000371	3.63	394.42	65.79	0.23
reach 2	82000	2258.00	66.00	76.63	71.08	76.99	0.000482	4.87	544.26	339.60	0.27
reach 2	82000	3818.00	66.00	78.88	72.91	79.50	0.000662	6.54	725.40	2058.87	0.33

HEC-RAS Plan - NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	82000	9620.00	66.00	82.47	77.93	82.48	0.000044	2.00	24872.69	17965.43	0.09
reach 2	81100	1295.00	66.00	74.13	69.46	74.36	0.000418	3.95	391.43	255.11	0.25
reach 2	81100	2258.00	66.00	76.09	70.93	76.51	0.000573	5.38	544.26	655.26	0.30
reach 2	81100	3818.00	66.00	78.15	72.86	78.85	0.000785	7.14	901.26	1371.33	0.36
reach 2	81100	9620.00	66.00	79.89	79.58	82.13	0.002407	13.69	1536.51	3137.10	0.65
reach 2	80100	1295.00	66.00	73.79	69.27	73.96	0.000352	3.37	461.29	93.78	0.22
reach 2	80100	2258.00	66.00	75.66	70.63	75.96	0.000463	4.51	666.08	126.49	0.26
reach 2	80100	3818.00	66.00	77.82	72.28	78.09	0.000607	5.88	1054.08	794.59	0.31
reach 2	80100	9620.00	66.00	79.04	78.44	79.95	0.001371	9.59	3035.70	991.91	0.48
reach 2	79100	1295.00	66.00	73.27	69.47	73.51	0.000558	3.99	345.11	245.02	0.28
reach 2	79100	2258.00	66.00	74.89	70.78	75.35	0.000789	5.50	455.45	346.14	0.34
reach 2	79100	3818.00	66.00	76.30	72.51	77.19	0.001263	7.75	711.43	1418.60	0.44
reach 2	79100	9620.00	66.00	78.01	78.01	78.56	0.001202	8.43	4012.74	10257.41	0.44
reach 2	77548	1295.00	66.00	72.58	68.77	72.74	0.000420	3.28	408.68	78.91	0.24
reach 2	77548	2258.00	66.00	73.86	69.93	74.19	0.000657	4.68	514.16	85.39	0.31
reach 2	77548	3818.00	66.00	73.86	71.34	74.82	0.001872	7.90	514.62	85.42	0.52
reach 2	77548	9620.00	66.00	76.14	75.33	76.24	0.000426	4.53	11997.15	7327.13	0.26
reach 2	77538	1295.00	62.00	72.61	65.46	72.70	0.000129	2.40	580.27	78.53	0.14
reach 2	77538	2258.00	62.00	73.92	66.86	74.12	0.000247	3.63	687.02	84.36	0.20
reach 2	77538	3818.00	62.00	74.05	68.54	74.81	0.000676	6.06	698.01	2666.43	0.33
reach 2	77538	9620.00	62.00	76.10	73.00	76.22	0.000316	4.65	12523.94	10384.67	0.23
reach 2	77419	1295.00	62.00	72.60	65.46	72.69	0.000129	2.40	579.52	78.48	0.14
reach 2	77419	2258.00	62.00	73.89	66.86	74.09	0.000249	3.64	684.43	84.22	0.20
reach 2	77419	3818.00	62.00	73.96	68.54	74.53	0.000897	6.11	690.22	84.53	0.33
reach 2	77419	9620.00	62.00	75.67	73.04	76.13	0.000821	7.33	5794.17	6617.80	0.37
reach 2	77357	1295.00	62.00	72.61	65.15	72.67	0.000107	2.09	632.18	82.34	0.12
reach 2	77357	2258.00	62.00	73.92	66.44	74.07	0.000201	3.16	743.69	2571.32	0.18
reach 2	77357	3818.00	62.00	74.02	68.11	74.46	0.000558	5.29	754.64	2665.36	0.29
reach 2	77357	9620.00	62.00	75.82	74.61	76.03	0.000449	5.30	7054.58	6793.72	0.27
reach 2	77343	Bridge									
reach 2	77329	1295.00	62.00	72.59	65.15	72.66	0.000107	2.09	631.09	82.28	0.13
reach 2	77329	2258.00	62.00	73.89	66.44	74.06	0.000203	3.17	741.43	2272.26	0.18
reach 2	77329	3818.00	62.00	74.03	68.11	74.31	0.000423	4.61	2224.60	2325.09	0.26
reach 2	77329	9620.00	62.00	75.56	72.22	75.86	0.000567	5.87	6638.41	6355.86	0.30
reach 2	77179	1295.00	60.10	72.59	63.37	72.64	0.000075	1.86	709.04	82.27	0.10
reach 2	77179	2258.00	60.10	73.89	64.78	74.01	0.000149	2.86	819.16	2326.40	0.15
reach 2	77179	3818.00	60.10	74.05	66.83	74.22	0.000252	3.74	3178.41	2332.03	0.20
reach 2	77179	9620.00	60.10	75.57	71.11	75.76	0.000388	5.08	7911.75	6598.83	0.25
reach 2	77143	Culvert									
reach 2	77107	1295.00	60.10	70.74	63.37	70.82	0.000151	2.30	563.86	74.20	0.14
reach 2	77107	2258.00	60.10	72.38	64.78	72.55	0.000245	3.32	691.51	81.34	0.19
reach 2	77107	3818.00	60.10	73.84	66.63	74.21	0.000432	4.85	815.52	2326.07	0.26
reach 2	77107	9620.00	60.10	75.54	71.11	75.74	0.000399	5.12	7809.20	6539.52	0.25
reach 2	76585	1295.00	60.00	70.67	63.26	70.74	0.000114	2.16	612.70	80.29	0.13
reach 2	76585	2258.00	60.00	72.28	64.61	72.43	0.000195	3.16	747.35	87.19	0.17
reach 2	76585	3818.00	60.00	73.66	66.31	74.00	0.000362	4.69	872.27	2277.10	0.24
reach 2	76585	9620.00	60.00	75.17	70.50	75.48	0.000483	5.93	7299.88	10013.14	0.29
reach 2	76000	1295.00	60.00	70.59	63.26	70.67	0.000123	2.24	598.96	95.08	0.13
reach 2	76000	2258.00	60.00	72.15	64.60	72.31	0.000211	3.27	765.58	639.17	0.18
reach 2	76000	3818.00	60.00	73.43	66.32	73.78	0.000388	4.80	1120.00	3808.71	0.25
reach 2	76000	9620.00	60.00	75.11	70.74	75.22	0.000242	4.15	11957.31	10876.23	0.20
reach 2	75929	1295.00	60.00	70.58	63.39	70.66	0.000126	2.38	593.54	101.69	0.14
reach 2	75929	2258.00	60.00	72.11	64.78	72.30	0.000224	3.51	784.74	1333.36	0.19
reach 2	75929	3818.00	60.00	73.55	66.46	73.70	0.000211	3.70	4171.54	4309.54	0.19
reach 2	75929	9620.00	60.00	75.16	71.16	75.18	0.000085	2.56	24289.95	11243.12	0.12
reach 2	75866	1295.00	60.00	70.57	63.33	70.66	0.000125	2.38	584.03	88.46	0.14
reach 2	75866	2258.00	60.00	72.08	64.69	72.28	0.000233	3.58	808.26	1984.79	0.19
reach 2	75866	3818.00	60.00	73.57	66.39	73.68	0.000175	3.38	4841.92	4399.83	0.17

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	75868	9620.00	60.00	75.16	73.55	75.18	0.000084	2.54	24129.61	10809.99	0.12
reach 2	75852	Bridge									
reach 2	75838	1295.00	60.00	70.54	63.33	70.63	0.000127	2.39	581.68	88.02	0.14
reach 2	75838	2258.00	60.00	72.05	64.69	72.25	0.000236	3.60	781.37	1921.73	0.19
reach 2	75838	3818.00	60.00	73.26	66.39	73.54	0.000338	4.63	1974.78	4228.20	0.24
reach 2	75838	9620.00	60.00	75.12	71.01	75.15	0.000087	2.58	23770.27	10785.72	0.12
reach 2	75752	1295.00	60.00	70.53	63.33	70.62	0.000127	2.39	580.84	87.85	0.14
reach 2	75752	2258.00	60.00	72.04	64.68	72.24	0.000238	3.61	762.39	1873.14	0.19
reach 2	75752	3818.00	60.00	73.23	66.39	73.51	0.000345	4.67	1941.17	4044.82	0.24
reach 2	75752	9620.00	60.00	74.97	71.01	75.10	0.000285	4.64	9400.76	10262.49	0.22
reach 2	75000	1295.00	60.00	70.44	63.23	70.53	0.000125	2.36	702.07	459.82	0.14
reach 2	75000	2258.00	60.00	71.94	64.58	72.05	0.000165	3.01	1856.94	1083.36	0.16
reach 2	75000	3818.00	60.00	73.19	66.26	73.28	0.000159	3.17	5021.76	4419.91	0.16
reach 2	75000	9620.00	60.00	74.91	73.31	74.95	0.000113	2.92	17452.66	10150.96	0.14
reach 2	74000	1295.00	60.00	70.29	63.70	70.39	0.000167	2.49	620.09	510.63	0.15
reach 2	74000	2258.00	60.00	71.82	65.10	71.90	0.000150	2.65	3165.84	2863.61	0.15
reach 2	74000	3818.00	60.00	73.12	66.85	73.15	0.000093	2.26	7480.13	4280.78	0.12
reach 2	74000	9620.00	60.00	74.79	72.34	74.83	0.000131	2.96	13273.82	13286.69	0.15
reach 2	73000	1481.00	60.00	70.09	63.48	70.21	0.000185	2.81	552.17	73.03	0.17
reach 2	73000	2423.00	60.00	71.43	64.73	71.67	0.000308	3.98	653.20	77.85	0.22
reach 2	73000	3782.00	60.00	72.65	66.18	72.96	0.000392	4.84	2407.95	3238.72	0.25
reach 2	73000	9328.00	60.00	74.46	70.47	74.62	0.000348	5.02	9239.74	11474.63	0.24
reach 2	72857	1481.00	60.00	70.07	63.43	70.18	0.000177	2.75	565.40	75.24	0.16
reach 2	72857	2423.00	60.00	71.40	64.66	71.63	0.000295	3.89	669.12	80.25	0.21
reach 2	72857	3782.00	60.00	72.59	66.10	72.91	0.000395	4.84	2219.19	2800.89	0.25
reach 2	72857	9328.00	60.00	74.34	70.31	74.56	0.000419	5.49	8187.83	10935.94	0.27
reach 2	72794	1481.00	60.00	70.04	63.61	70.17	0.000208	2.95	532.57	191.43	0.17
reach 2	72794	2423.00	60.00	71.38	64.89	71.62	0.000318	4.01	856.38	292.53	0.22
reach 2	72794	3782.00	60.00	72.62	66.37	72.87	0.000347	4.53	3328.01	3881.83	0.24
reach 2	72794	9328.00	60.00	74.40	73.17	74.50	0.000269	4.38	11166.20	13898.70	0.21
reach 2	72780	Bridge									
reach 2	72766	1481.00	60.00	70.02	63.61	70.16	0.000210	2.96	529.08	190.05	0.18
reach 2	72766	2423.00	60.00	71.35	64.89	71.59	0.000322	4.03	847.87	290.32	0.22
reach 2	72766	3782.00	60.00	72.23	66.37	72.65	0.000538	5.50	1852.67	3577.22	0.29
reach 2	72766	9328.00	60.00	74.28	73.17	74.41	0.000301	4.61	10619.80	13692.14	0.22
reach 2	72680	1481.00	60.00	70.00	63.61	70.14	0.000211	2.97	526.00	188.82	0.18
reach 2	72680	2423.00	60.00	71.32	64.89	71.56	0.000325	4.04	840.11	288.30	0.22
reach 2	72680	3782.00	60.00	72.13	66.37	72.60	0.000587	5.71	1511.12	3502.93	0.30
reach 2	72680	9328.00	60.00	74.25	73.17	74.38	0.000311	4.68	10478.87	13638.46	0.23
reach 2	71500	1481.00	60.00	69.73	63.60	69.88	0.000227	3.17	521.27	73.14	0.19
reach 2	71500	2423.00	60.00	71.25	64.82	71.30	0.000109	2.44	5024.89	3830.87	0.13
reach 2	71500	3782.00	60.00	72.26	66.28	72.28	0.000074	2.13	8987.54	4013.77	0.11
reach 2	71500	9328.00	60.00	74.15	71.31	74.17	0.000084	2.52	17231.14	12166.12	0.12
reach 2	70221	1481.00	60.00	69.59	63.44	69.65	0.000121	2.30	2094.35	1605.24	0.14
reach 2	70221	2423.00	60.00	71.16	64.64	71.19	0.000060	1.81	5454.92	3621.56	0.10
reach 2	70221	3782.00	60.00	72.17	66.07	72.19	0.000061	1.93	7792.13	3687.29	0.10
reach 2	70221	9328.00	60.00	74.05	70.48	74.07	0.000080	2.44	18811.40	12532.79	0.12
reach 2	70158	1481.00	60.00	69.55	63.19	69.64	0.000149	2.43	1013.77	609.73	0.15
reach 2	70158	2423.00	60.00	71.12	64.35	71.17	0.000102	2.26	4013.77	3825.05	0.13
reach 2	70158	3782.00	60.00	72.15	65.72	72.18	0.000092	2.28	6565.82	3975.94	0.12
reach 2	70158	9328.00	60.00	74.04	71.09	74.06	0.000087	2.47	18088.38	12704.06	0.12
reach 2	70144	Bridge									
reach 2	70130	1481.00	60.00	69.52	63.19	69.61	0.000151	2.45	995.98	599.89	0.15
reach 2	70130	2423.00	60.00	71.07	64.35	71.12	0.000108	2.32	3878.36	3819.09	0.13
reach 2	70130	3782.00	60.00	72.10	65.72	72.14	0.000095	2.32	6453.11	3966.37	0.12
reach 2	70130	9328.00	60.00	74.01	71.04	74.04	0.000088	2.49	17940.77	12663.29	0.12
reach 2	70044	1481.00	60.00	69.52	63.18	69.60	0.000152	2.45	990.37	596.76	0.15

HFC-RAS Plan - NIM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	70044	2423.00	60.00	71.05	64.35	71.10	0.000110	2.34	3631.44	3817.02	0.13
reach 2	70044	3782.00	60.00	72.08	65.72	72.12	0.000097	2.34	6407.70	3962.50	0.12
reach 2	70044	9328.00	60.00	74.01	71.04	74.03	0.000089	2.49	17894.81	12650.54	0.12
reach 2	70000	1481.00	60.00	69.51	63.08	69.60	0.000149	2.44	829.44	504.62	0.15
reach 2	70000	2423.00	60.00	71.03	64.21	71.10	0.000122	2.47	3278.65	3600.48	0.14
reach 2	70000	3782.00	60.00	72.07	65.53	72.12	0.000112	2.52	5751.11	3957.07	0.13
reach 2	70000	9328.00	60.00	74.00	71.14	74.03	0.000095	2.59	17139.90	12531.41	0.13
reach 2	68000	1481.00	60.00	69.36	62.89	69.45	0.000145	2.40	693.19	414.61	0.15
reach 2	68000	2423.00	60.00	70.89	63.97	70.97	0.000131	2.55	2898.63	4455.13	0.14
reach 2	68000	3782.00	60.00	71.94	65.24	72.00	0.000123	2.64	5239.88	4708.68	0.14
reach 2	68000	9328.00	60.00	73.93	71.07	73.95	0.000061	2.07	19870.76	13187.75	0.10
reach 2	68000	1481.00	60.00	69.10		69.25	0.000277	3.15	486.66	72.29	0.20
reach 2	68000	2423.00	60.00	70.52		70.75	0.000362	4.03	1272.01	1433.36	0.23
reach 2	68000	3782.00	60.00	71.62		71.80	0.000328	4.14	3237.67	2181.63	0.23
reach 2	68000	9328.00	60.00	73.70		73.83	0.000323	4.64	9273.63	3622.54	0.23
reach 2	66518	1481.00	60.00	68.70		68.85	0.000290	3.14	485.45	74.19	0.20
reach 2	66518	2423.00	60.00	70.26		70.34	0.000192	2.90	3085.88	2409.89	0.17
reach 2	66518	3782.00	60.00	71.43		71.48	0.000132	2.60	6572.48	3431.20	0.14
reach 2	66518	9328.00	60.00	73.49		73.53	0.000127	2.89	15183.17	4924.89	0.15
reach 2	66456	1481.00	60.00	68.68	63.40	68.84	0.000292	3.15	484.27	74.12	0.20
reach 2	66456	2423.00	60.00	70.24	64.60	70.33	0.000194	2.91	3059.56	2399.25	0.17
reach 2	66456	3782.00	60.00	71.43	66.02	71.48	0.000132	2.61	6566.80	3430.06	0.14
reach 2	66456	9328.00	60.00	73.49	70.60	73.53	0.000127	2.89	15170.73	4923.06	0.15
reach 2	66442	Bridge									
reach 2	66428	1481.00	60.00	68.53		68.69	0.000313	3.21	472.89	73.48	0.21
reach 2	66428	2423.00	60.00	70.16		70.26	0.000212	3.02	2863.36	2318.42	0.18
reach 2	66428	3782.00	60.00	71.38		71.43	0.000140	2.67	6378.02	3392.05	0.15
reach 2	66428	9328.00	60.00	73.45		73.48	0.000131	2.93	14965.35	4892.79	0.15
reach 2	66342	1481.00	60.00	68.50		68.66	0.000317	3.22	471.02	73.38	0.21
reach 2	66342	2423.00	60.00	70.07		70.22	0.000294	3.54	1879.30	1531.46	0.21
reach 2	66342	3782.00	60.00	71.28		71.39	0.000234	3.43	4461.74	2655.84	0.19
reach 2	66342	9328.00	60.00	73.39		73.46	0.000212	3.72	11720.05	4229.31	0.19
reach 2	65921*	1481.00	60.00	68.35		68.52	0.000340	3.29	459.87	72.85	0.22
reach 2	65921*	2423.00	60.00	69.91		70.09	0.000326	3.73	1686.70	1488.31	0.22
reach 2	65921*	3782.00	60.00	71.17		71.29	0.000252	3.54	4108.22	2338.42	0.20
reach 2	65921*	9328.00	60.00	73.30		73.37	0.000228	3.83	11308.46	4183.21	0.19
reach 2	65500	1481.00	60.00	68.18		68.36	0.000368	3.38	454.63	147.95	0.23
reach 2	65500	2423.00	60.00	69.79		69.95	0.000318	3.60	1997.01	1858.12	0.22
reach 2	65500	3782.00	60.00	71.10		71.18	0.000197	3.12	4868.73	2491.36	0.17
reach 2	65500	9328.00	60.00	73.22		73.28	0.000202	3.59	11213.05	3533.87	0.18
reach 2	65133.3*	1481.00	60.00	67.99		68.20	0.000476	3.67	410.35	70.36	0.25
reach 2	65133.3*	2423.00	60.00	69.42		69.78	0.000631	4.83	711.68	1048.17	0.30
reach 2	65133.3*	3782.00	60.00	70.83		71.06	0.000458	4.59	2727.65	1896.23	0.26
reach 2	65133.3*	9328.00	60.00	73.03		73.17	0.000401	4.94	8292.33	3209.56	0.26
reach 2	64766.6*	1481.00	60.00	67.80		68.02	0.000544	3.84	391.11	67.77	0.27
reach 2	64766.6*	2423.00	60.00	69.12		69.53	0.000766	5.17	485.45	74.56	0.33
reach 2	64766.6*	3782.00	60.00	70.39	66.40	70.83	0.000791	5.82	1679.88	1382.68	0.34
reach 2	64766.6*	9328.00	60.00	72.65		72.97	0.000732	6.51	5831.67	2592.98	0.34
reach 2	64400	1481.00	60.00	67.61	63.46	67.83	0.000533	3.82	391.21	65.70	0.27
reach 2	64400	2423.00	60.00	68.84	64.70	69.26	0.000791	5.24	474.75	70.30	0.33
reach 2	64400	3782.00	60.00	69.56	66.13	70.41	0.001422	7.45	526.41	539.77	0.45
reach 2	64400	9328.00	60.00	72.00	71.44	72.61	0.001228	8.21	4052.56	1784.49	0.44
reach 2	62879	1481.00	58.00	67.33	61.86	67.39	0.000164	2.26	1763.61	2686.46	0.15
reach 2	62879	2423.00	58.00	68.78	63.15	68.79	0.000113	2.12	3509.84	4445.46	0.13
reach 2	62879	3782.00	58.00	69.68	64.66	69.72	0.000130	2.44	4874.43	5453.75	0.14
reach 2	62879	9328.00	58.00	71.81	68.00	71.87	0.000189	3.37	9125.43	9687.83	0.17
reach 2	62817	1481.00	58.00	67.35	61.73	67.37	0.000053	1.39	3406.92	4418.91	0.09
reach 2	62817	2423.00	58.00	68.77	63.02	68.78	0.000044	1.42	5442.44	5834.18	0.08
reach 2	62817	3782.00	58.00	69.69	65.21	69.70	0.000058	1.73	6860.75	6695.41	0.10

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	62617	9328.00	58.00	71.81	66.87	71.84	0.000114	2.75	10680.16	10958.68	0.14
reach 2	62603	Bridge									
reach 2	62789	1481.00	58.00	67.34	61.73	67.35	0.000050	1.34	3558.35	4402.14	0.08
reach 2	62799	2423.00	58.00	68.75	63.02	68.77	0.000041	1.37	5663.34	5819.25	0.08
reach 2	62789	3782.00	58.00	69.67	65.19	69.68	0.000055	1.67	7123.11	6678.53	0.09
reach 2	62789	9328.00	58.00	71.79	66.77	71.82	0.000107	2.65	11062.29	10948.90	0.13
reach 2	62703	1481.00	58.00	67.33	61.73	67.34	0.000045	1.28	3793.54	4399.61	0.08
reach 2	62703	2423.00	58.00	68.75	63.02	68.76	0.000037	1.30	5993.77	5814.79	0.08
reach 2	62703	3782.00	58.00	69.67	65.17	69.68	0.000049	1.59	7522.54	6677.01	0.09
reach 2	62703	9328.00	58.00	71.79	66.68	71.81	0.000097	2.53	11652.76	10947.42	0.13
reach 2	62600	1481.00	58.00	67.33	61.73	67.33	0.000018	0.82	6340.40	3469.22	0.05
reach 2	62600	2423.00	58.00	68.75	63.02	68.75	0.000016	0.85	9504.37	4402.26	0.05
reach 2	62600	3782.00	58.00	69.67	65.00	69.67	0.000021	1.04	11649.27	4994.49	0.06
reach 2	62600	9328.00	58.00	71.78	65.90	71.79	0.000042	1.67	17821.54	9136.04	0.08
reach 2	61620	1481.00	58.00	67.32	61.77	67.32	0.000013	0.74	7010.34	9521.80	0.04
reach 2	61620	2423.00	58.00	68.72	63.83	68.73	0.000014	0.83	10780.26	11082.55	0.05
reach 2	61620	3782.00	58.00	69.65	64.27	69.66	0.000017	0.98	14232.03	12407.03	0.05
reach 2	61620	9328.00	58.00	71.76	65.25	71.76	0.000029	1.44	22081.93	13286.90	0.07
reach 2	61584	1481.00	58.00	67.25	61.59	67.30	0.000131	2.20	2280.17	9371.97	0.14
reach 2	61584	2423.00	58.00	68.70	62.80	68.72	0.000060	1.67	6647.94	11730.04	0.10
reach 2	61584	3782.00	58.00	69.64	64.21	69.65	0.000050	1.62	10147.83	12577.40	0.09
reach 2	61584	9328.00	58.00	71.75	68.26	71.76	0.000058	1.96	18014.55	13285.40	0.10
reach 2	61570	Bridge									
reach 2	61556	1481.00	58.00	67.19	61.59	67.25	0.000140	2.26	2168.15	9316.81	0.14
reach 2	61556	2423.00	58.00	68.68	62.80	68.70	0.000062	1.69	6555.91	11707.75	0.10
reach 2	61556	3782.00	58.00	69.62	64.21	69.63	0.000052	1.64	10068.95	12558.30	0.09
reach 2	61556	9328.00	58.00	71.73	68.21	71.75	0.000058	1.97	17945.26	13281.31	0.10
reach 2	61443	1481.00	58.00	67.21	61.59	67.22	0.000021	0.93	6466.92	8461.63	0.06
reach 2	61443	2423.00	58.00	68.68	62.77	68.68	0.000018	0.96	10500.96	9683.85	0.05
reach 2	61443	3782.00	58.00	69.62	64.86	69.62	0.000021	1.10	14715.05	11970.17	0.06
reach 2	61443	9328.00	58.00	71.73	66.15	71.73	0.000028	1.42	24973.95	13280.32	0.07
reach 2	60700	1481.00	58.10	67.20	61.66	67.21	0.000012	0.70	10259.48	9741.40	0.04
reach 2	60700	2423.00	58.10	68.66	62.85	68.66	0.000007	0.59	18582.99	11402.59	0.03
reach 2	60700	3782.00	58.10	69.60	64.85	69.60	0.000008	0.66	25057.09	12455.40	0.03
reach 2	60700	9328.00	58.10	71.71	65.96	71.72	0.000011	0.87	40154.66	13277.22	0.04
reach 2	58982	1481.00	58.00	67.08	61.57	67.14	0.000152	2.33	2276.96	6771.82	0.15
reach 2	58982	2423.00	58.00	68.63	62.80	68.64	0.000046	1.45	9084.63	10178.06	0.08
reach 2	58982	3782.00	58.00	69.57	64.21	69.58	0.000033	1.31	14939.25	11085.44	0.07
reach 2	58982	9328.00	58.00	71.69	67.86	71.69	0.000028	1.36	29683.63	11838.02	0.07
reach 2	58909	1481.00	58.00	66.93	61.64	67.10	0.000321	3.33	492.59	3943.76	0.21
reach 2	58909	2423.00	58.00	68.54	62.95	68.62	0.000174	2.78	3884.89	7310.01	0.16
reach 2	58909	3782.00	58.00	69.53	64.40	69.56	0.000120	2.47	7997.18	8810.86	0.14
reach 2	58909	9328.00	58.00	71.68	68.89	71.69	0.000071	2.16	19946.25	10335.10	0.11
reach 2	58897	Bridge									
reach 2	58865	1481.00	58.00	66.79	61.64	66.97	0.000342	3.39	460.22	3819.82	0.22
reach 2	58865	2423.00	58.00	68.45	62.95	68.54	0.000194	2.92	3587.13	7155.74	0.17
reach 2	58865	3782.00	58.00	69.48	64.40	69.52	0.000127	2.54	7759.25	8749.12	0.14
reach 2	58865	9328.00	58.00	71.66	68.88	71.67	0.000072	2.18	19821.52	10332.05	0.11
reach 2	58787	1481.00	58.00	66.77	61.64	66.93	0.000315	3.25	749.46	3802.43	0.21
reach 2	58787	2423.00	58.00	68.46	62.95	68.51	0.000128	2.37	4971.03	7395.80	0.14
reach 2	58787	3782.00	58.00	69.47	64.40	69.49	0.000083	2.05	10004.86	9190.67	0.11
reach 2	58787	9328.00	58.00	71.66	68.50	71.67	0.000049	1.79	23513.50	10266.36	0.09
reach 2	57900	1481.00	58.00	66.75	61.47	66.77	0.000071	1.55	3509.02	3525.87	0.10
reach 2	57900	2423.00	58.00	68.43	62.70	68.44	0.000033	1.21	7982.50	5712.74	0.07
reach 2	57900	3782.00	58.00	69.44	64.12	69.45	0.000031	1.27	12673.81	7891.10	0.07
reach 2	57900	9328.00	58.00	71.61	66.72	71.62	0.000038	1.59	26491.91	10223.31	0.08
reach 2	55821	1481.00	58.00	66.62	61.59	66.63	0.000066	1.57	4490.94	4193.04	0.10



HFC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	55821	2423.00	58.00	68.39	62.79	68.39	0.000017	0.91	14108.63	9318.01	0.05
reach 2	55821	3782.00	58.00	69.42	64.23	69.42	0.000013	0.84	21142.04	9731.97	0.05
reach 2	55821	9328.00	58.00	71.57	66.67	71.57	0.000015	1.02	35989.99	10235.78	0.05
reach 2	55758	1481.00	58.00	66.61	61.53	66.63	0.000060	1.50	4987.37	4885.15	0.09
reach 2	55758	2423.00	58.00	68.38	62.73	68.38	0.000013	0.78	15388.85	9291.90	0.04
reach 2	55758	3782.00	58.00	69.41	64.15	69.41	0.000010	0.76	22404.15	9690.09	0.04
reach 2	55758	9328.00	58.00	71.57	66.67	71.57	0.000013	0.97	37122.86	10181.75	0.05
reach 2	55744	Bridge									
reach 2	55730	1481.00	58.00	66.55	61.53	66.59	0.000117	2.07	2623.54	3414.36	0.13
reach 2	55730	2423.00	58.00	68.36	62.73	68.37	0.000034	1.28	9575.19	8592.83	0.07
reach 2	55730	3782.00	58.00	69.40	64.15	69.40	0.000026	1.19	15695.17	9808.78	0.06
reach 2	55730	9328.00	58.00	71.55	67.14	71.56	0.000025	1.34	30276.80	10779.38	0.07
reach 2	55644	1481.00	58.00	66.55	61.52	66.58	0.000087	1.79	3398.90	2932.67	0.11
reach 2	55644	2423.00	58.00	68.35	62.73	68.36	0.000024	1.08	11221.99	8011.97	0.06
reach 2	55644	3782.00	58.00	69.39	64.15	69.39	0.000019	1.03	17857.63	9174.38	0.06
reach 2	55644	9328.00	58.00	71.55	66.79	71.55	0.000020	1.19	33519.02	10163.50	0.06
reach 2	54900	1481.00	58.00	66.51	61.26	66.53	0.000050	1.37	5324.97	4241.14	0.09
reach 2	54900	2423.00	58.00	68.34	62.42	68.34	0.000012	0.77	14727.98	6178.92	0.04
reach 2	54900	3782.00	58.00	69.38	63.79	69.38	0.000011	0.79	20860.82	7215.47	0.04
reach 2	54900	9328.00	58.00	71.54	66.48	71.54	0.000015	1.05	34117.76	8125.51	0.05
reach 2	53165	1481.00	58.00	66.41	61.36	66.42	0.000069	1.49	3658.78	2090.14	0.10
reach 2	53165	2423.00	58.00	68.31	62.52	68.31	0.000028	1.12	8710.92	3251.22	0.07
reach 2	53165	3782.00	58.00	69.35	64.74	69.35	0.000030	1.24	12468.82	3973.81	0.07
reach 2	53165	9328.00	58.00	71.49	66.29	71.50	0.000040	1.62	22014.04	6722.74	0.08
reach 2	53128	1481.00	58.00	66.34	61.24	66.40	0.000163	2.42	1741.32	1411.97	0.15
reach 2	53128	2423.00	58.00	68.29	62.37	68.31	0.000056	1.65	6450.52	3349.62	0.09
reach 2	53128	3782.00	58.00	69.34	63.67	69.35	0.000050	1.67	10351.98	4103.28	0.09
reach 2	53128	9328.00	58.00	71.48	67.34	71.50	0.000055	1.97	20225.85	6841.97	0.10
reach 2	53114	Bridge									
reach 2	53100	1481.00	58.00	66.29	61.24	66.37	0.000172	2.47	1707.88	1501.00	0.16
reach 2	53100	2423.00	58.00	68.27	62.37	68.29	0.000050	1.56	7359.46	4058.18	0.09
reach 2	53100	3782.00	58.00	69.32	63.67	69.33	0.000041	1.51	11988.60	4763.23	0.08
reach 2	53100	9328.00	58.00	71.47	67.35	71.48	0.000042	1.74	23396.40	8333.35	0.09
reach 2	52987	1481.00	58.00	66.27	61.24	66.35	0.000175	2.49	1677.19	1472.62	0.16
reach 2	52987	2423.00	58.00	68.26	62.37	68.28	0.000051	1.57	7321.04	4051.82	0.09
reach 2	52987	3782.00	58.00	69.32	63.67	69.33	0.000041	1.52	11951.12	4757.94	0.08
reach 2	52987	9328.00	58.00	71.46	67.35	71.47	0.000043	1.74	23348.29	8329.06	0.09
reach 2	52500	1481.00	58.00	66.19	61.20	66.26	0.000175	2.49	1943.81	2218.70	0.16
reach 2	52500	2423.00	58.00	68.25	62.34	68.26	0.000038	1.36	8544.65	4137.48	0.08
reach 2	52500	3782.00	58.00	69.30	63.66	69.31	0.000032	1.34	13251.71	4796.33	0.07
reach 2	52500	9328.00	58.00	71.44	67.08	71.45	0.000036	1.59	24671.42	8320.17	0.08
reach 2	50599	1481.00	56.00	65.72	59.77	65.87	0.000245	3.10	503.03	72.67	0.19
reach 2	50599	2423.00	56.00	67.84	61.07	68.08	0.000299	3.97	738.73	347.03	0.22
reach 2	50599	3782.00	56.00	68.77	62.54	69.13	0.000444	5.13	2048.53	2817.05	0.27
reach 2	50599	9328.00	56.00	71.25	66.88	71.32	0.000170	3.62	13862.62	8257.65	0.17
reach 2	50550	1481.00	56.00	65.72	59.55	65.85	0.000228	2.84	527.52	73.71	0.18
reach 2	50550	2423.00	56.00	67.88	60.83	68.06	0.000241	3.43	1334.62	1525.34	0.19
reach 2	50550	3782.00	56.00	68.93	62.28	69.07	0.000222	3.52	4531.19	3904.89	0.19
reach 2	50550	9328.00	56.00	71.27	69.11	71.30	0.000107	2.77	15547.24	8769.42	0.13
reach 2	50536	Bridge									
reach 2	50522	1481.00	56.00	65.69	59.55	65.81	0.000232	2.85	525.01	73.57	0.18
reach 2	50522	2423.00	56.00	67.74	60.83	67.92	0.000264	3.55	1125.50	1281.78	0.20
reach 2	50522	3782.00	56.00	68.77	62.28	68.94	0.000267	3.82	3920.49	3739.14	0.20
reach 2	50522	9328.00	56.00	71.23	66.32	71.26	0.000110	2.81	15356.38	8758.91	0.14
reach 2	50423	1481.00	56.00	65.67	59.55	65.80	0.000233	2.86	523.59	73.49	0.18
reach 2	50423	2423.00	56.00	67.71	60.83	67.90	0.000267	3.57	1095.86	1243.40	0.20
reach 2	50423	3782.00	56.00	68.74	62.28	68.92	0.000277	3.88	3798.88	3705.57	0.21
reach 2	50423	9328.00	56.00	71.22	66.32	71.25	0.000111	2.82	15311.40	8753.96	0.14

HFC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 2	49400	1481.00	56.00	65.40	59.58	65.53	0.000255	2.90	514.92	75.71	0.19
reach 2	49400	2423.00	56.00	67.45	60.82	67.62	0.000253	3.40	1871.31	3653.51	0.20
reach 2	49400	3782.00	56.00	68.63	62.28	68.68	0.000132	2.65	6984.18	4794.81	0.14
reach 2	49400	9328.00	56.00	71.15	66.20	71.17	0.000054	1.97	21345.20	8433.63	0.10
reach 2	48450	1481.00	56.00	65.09	59.73	65.26	0.000301	3.25	474.35	73.44	0.21
reach 2	48450	2423.00	56.00	67.45	61.03	67.47	0.000054	1.65	7842.98	5110.39	0.09
reach 2	48450	3782.00	56.00	68.60	62.48	68.61	0.000033	1.38	14051.53	5962.57	0.07
reach 2	48450	9328.00	56.00	71.13	67.15	71.13	0.000023	1.31	30316.44	9632.87	0.06
reach 1	233824	2982.00	53.37	64.94	57.52	65.10	0.000317	3.15	946.99	106.14	0.19
reach 1	233824	4760.00	53.37	67.22	58.81	67.39	0.000320	3.49	2418.47	1565.47	0.19
reach 1	233824	6671.00	53.37	68.45	60.20	68.56	0.000249	3.22	4807.04	2124.19	0.17
reach 1	233824	12932.00	53.37	71.05	63.55	71.09	0.000150	2.45	11102.37	2672.38	0.13
reach 1	232833	2982.00	53.37	64.68	57.15	64.81	0.000258	2.86	1041.42	116.03	0.17
reach 1	232833	4760.00	53.37	67.00	58.46	67.11	0.000222	2.95	3348.00	2260.45	0.16
reach 1	232833	6671.00	53.37	68.30	59.65	68.36	0.000140	2.48	6605.94	2627.19	0.13
reach 1	232833	12932.00	53.37	70.95	62.75	70.98	0.000083	2.13	14214.99	3099.89	0.10
reach 1	232775	2982.00	53.37	64.66	57.15	64.79	0.000259	2.87	1039.62	115.97	0.17
reach 1	232775	4760.00	53.37	66.98	58.46	67.09	0.000225	2.97	3304.99	2235.45	0.16
reach 1	232775	6671.00	53.37	68.29	59.65	68.35	0.000141	2.49	6572.46	2625.02	0.13
reach 1	232775	12932.00	53.37	70.94	62.75	70.97	0.000083	2.14	14179.66	3099.05	0.10
reach 1	232000	2982.00	53.37	64.48	57.02	64.59	0.000237	2.76	1605.29	1392.04	0.16
reach 1	232000	4760.00	53.37	66.95	58.30	66.97	0.000075	1.52	8164.94	3787.99	0.09
reach 1	232000	6671.00	53.37	68.27	59.48	68.28	0.000041	1.21	13410.16	4069.12	0.07
reach 1	232000	12932.00	53.37	70.92	62.59	70.92	0.000026	1.10	24647.12	4469.26	0.06
reach 1	230198	2982.00	52.60	64.08	56.15	64.19	0.000216	2.67	1117.00	120.26	0.15
reach 1	230198	4760.00	52.60	66.78	57.39	66.82	0.000093	2.01	7555.58	5806.87	0.10
reach 1	230198	6671.00	52.60	68.20	58.53	68.21	0.000033	1.29	16447.26	6275.20	0.06
reach 1	230198	12932.00	52.60	70.89	61.56	70.89	0.000016	0.93	33359.13	6300.00	0.04
reach 1	230130	2982.00	52.60	64.05	56.15	64.16	0.000217	2.68	1114.28	120.17	0.15
reach 1	230130	4760.00	52.60	66.77	57.39	66.81	0.000094	2.02	7490.06	5783.71	0.11
reach 1	230130	6671.00	52.60	68.20	58.53	68.21	0.000033	1.29	16421.65	6275.17	0.06
reach 1	230130	12932.00	52.60	70.89	61.56	70.89	0.000016	0.93	33331.35	6300.00	0.04
reach 1	230000	2982.00	52.60	64.01	56.24	64.13	0.000236	2.78	1073.69	116.77	0.16
reach 1	230000	4760.00	52.60	66.75	57.51	66.79	0.000115	1.97	6985.53	5522.12	0.11
reach 1	230000	6671.00	52.60	68.19	58.70	68.20	0.000038	1.22	15754.62	6146.07	0.07
reach 1	230000	12932.00	52.60	70.87	61.80	70.88	0.000017	0.93	32283.24	6187.75	0.05
reach 1	228819	2982.00	52.61	63.77	55.99	63.87	0.000204	2.58	1154.86	126.43	0.15
reach 1	228819	4760.00	52.61	66.50	57.17	66.61	0.000192	2.83	2947.39	2279.59	0.15
reach 1	228819	6671.00	52.61	68.10	58.28	68.14	0.000082	1.97	10079.13	5506.69	0.10
reach 1	228819	12932.00	52.61	70.84	61.20	70.85	0.000032	1.22	25309.02	5631.75	0.06
reach 1	227802	2982.00	52.61	63.40	56.41	63.56	0.000323	3.13	952.66	109.58	0.19
reach 1	227802	4760.00	52.61	66.07	57.73	66.28	0.000363	3.72	1534.81	928.38	0.20
reach 1	227802	6671.00	52.61	67.94	58.95	67.98	0.000161	2.24	8612.59	6198.52	0.13
reach 1	227802	12932.00	52.61	70.80	62.12	70.80	0.000033	1.12	26450.03	6286.70	0.06
reach 1	226000	2982.00	52.41	62.86	56.13	63.02	0.000345	3.19	935.72	109.88	0.19
reach 1	226000	4760.00	52.41	65.44	57.42	65.67	0.000399	3.87	1231.35	119.92	0.21
reach 1	226000	6671.00	52.41	67.19	58.61	67.52	0.000495	4.61	1447.86	144.94	0.24
reach 1	226000	12932.00	52.41	70.49	61.76	70.66	0.000398	4.10	6711.71	2227.88	0.22
reach 1	224978	2982.00	52.41	62.56	55.81	62.69	0.000291	2.91	1023.59	122.13	0.18
reach 1	224978	4760.00	52.41	65.09	57.00	65.29	0.000335	3.54	1346.22	132.74	0.20
reach 1	224978	6671.00	52.41	66.76	58.10	67.04	0.000416	4.22	1639.39	247.43	0.22
reach 1	224978	12932.00	52.41	69.77	61.04	70.15	0.000553	5.38	4111.21	1467.28	0.26
reach 1	224934	2982.00	52.41	62.55	55.81	62.68	0.000292	2.92	1021.89	122.07	0.18
reach 1	224934	4760.00	52.41	65.07	57.00	65.27	0.000336	3.54	1344.04	132.67	0.20
reach 1	224934	6671.00	52.41	66.74	58.10	67.02	0.000419	4.23	1634.01	244.57	0.22
reach 1	224934	12932.00	52.41	69.74	61.04	70.12	0.000562	5.41	4064.53	1458.84	0.26
reach 1	223155	2982.00	52.35	61.89	55.92	62.06	0.000409	3.30	904.42	115.95	0.21
reach 1	223155	4760.00	52.35	64.27	57.16	64.50	0.000570	3.84	1348.99	339.85	0.25
reach 1	223155	6671.00	52.35	65.91	58.29	66.15	0.000546	4.13	2003.93	462.68	0.25



HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	223155	12932.00	52.35	68.64	61.29	68.96	0.000734	5.05	3629.05	915.74	0.29
reach 1	222000	2982.00	52.03	61.38	55.67	61.56	0.000456	3.45	865.09	112.41	0.22
reach 1	222000	4760.00	52.03	63.62	56.92	63.88	0.000507	4.10	1391.06	553.56	0.24
reach 1	222000	6671.00	52.03	65.31	58.07	65.48	0.000577	3.78	2781.78	1031.39	0.25
reach 1	222000	12932.00	52.03	68.20	61.10	68.32	0.000369	3.55	6395.44	1449.61	0.20
reach 1	220735	2982.00	51.94	60.70	55.56	60.91	0.000580	3.73	799.92	111.03	0.24
reach 1	220735	4760.00	51.94	62.81	56.82	63.13	0.000682	4.56	1044.12	120.56	0.27
reach 1	220735	6671.00	51.94	64.08	57.98	64.56	0.000896	5.55	1201.23	126.31	0.32
reach 1	220735	12932.00	51.94	66.77	61.01	67.43	0.001571	7.01	3129.74	1735.80	0.42
reach 1	220633	2982.00	51.94	60.63	55.56	60.85	0.000595	3.76	792.80	110.74	0.25
reach 1	220633	4760.00	51.94	62.73	56.82	63.06	0.000700	4.60	1034.86	120.21	0.28
reach 1	220633	6671.00	51.94	63.97	57.98	64.46	0.000925	5.62	1188.02	125.83	0.32
reach 1	220633	12932.00	51.94	66.29	61.02	67.22	0.001975	8.01	2368.04	1452.48	0.47
reach 1	220295	2982.00	51.84	60.47	55.23	60.66	0.000498	3.49	854.50	116.84	0.23
reach 1	220295	4760.00	51.84	62.54	56.40	62.83	0.000595	4.31	1104.93	125.23	0.26
reach 1	220295	6671.00	51.84	63.73	57.48	64.16	0.000793	5.28	1362.37	445.84	0.30
reach 1	220295	12932.00	51.84	66.22	60.39	66.59	0.000984	5.70	4413.74	1939.91	0.33
reach 1	219330	2982.00	51.58	60.15	54.49	60.27	0.000303	2.76	1079.30	145.42	0.18
reach 1	219330	4760.00	51.58	62.17	55.49	62.35	0.000368	3.45	1380.88	153.73	0.20
reach 1	219330	6671.00	51.58	63.21	56.41	63.50	0.000518	4.32	1543.79	158.04	0.24
reach 1	219330	12932.00	51.58	65.07	58.89	65.84	0.000948	6.36	3129.79	1420.71	0.34
reach 1	218000	2982.00	51.24	59.77	53.94	59.88	0.000273	2.66	1121.65	147.79	0.17
reach 1	218000	4760.00	51.24	61.70	54.92	61.87	0.000346	3.37	1413.07	155.16	0.20
reach 1	218000	6671.00	51.24	62.62	55.82	62.85	0.000443	4.00	2451.54	1526.14	0.23
reach 1	218000	12932.00	51.24	64.46	58.25	64.68	0.000505	4.59	5956.26	2392.05	0.24
reach 1	216808	2982.00	51.24	59.26	54.40	59.44	0.000516	3.40	877.77	129.68	0.23
reach 1	216808	4760.00	51.24	61.13	55.51	61.36	0.000548	3.94	1830.54	1649.82	0.24
reach 1	216808	6671.00	51.24	62.16	56.53	62.32	0.000435	3.72	3939.59	2258.60	0.22
reach 1	216808	12932.00	51.24	64.14	61.73	64.22	0.000305	3.33	9370.38	3146.41	0.19
reach 1	216752	2982.00	51.24	59.23	54.40	59.41	0.000523	3.41	873.65	129.52	0.23
reach 1	216752	4760.00	51.24	61.09	55.51	61.33	0.000564	3.99	1765.60	1615.36	0.25
reach 1	216752	6671.00	51.24	62.13	56.53	62.29	0.000450	3.77	3662.80	2247.66	0.22
reach 1	216752	12932.00	51.24	64.12	61.75	64.20	0.000310	3.35	9310.38	3140.73	0.19
reach 1	216000	2982.00	51.25	58.69	54.46	58.94	0.000745	3.99	747.20	112.83	0.27
reach 1	216000	4760.00	51.25	60.59	55.60	60.86	0.000695	4.40	1880.12	1711.17	0.27
reach 1	216000	6671.00	51.25	61.83	56.68	61.95	0.000431	3.58	4206.77	2012.02	0.22
reach 1	216000	12932.00	51.25	63.90	61.35	63.96	0.000332	2.90	8881.52	2524.00	0.19
reach 1	214269	2982.00	51.25	57.69	53.89	57.84	0.000520	3.13	951.78	160.36	0.23
reach 1	214269	4760.00	51.25	59.54	54.56	59.77	0.000560	3.79	1276.01	438.83	0.24
reach 1	214269	6671.00	51.25	60.97	55.39	61.17	0.000483	3.87	2733.27	1262.65	0.23
reach 1	214269	12932.00	51.25	63.15	57.62	63.33	0.000447	4.19	5682.20	1509.77	0.23
reach 1	212822	2982.00	51.25	55.44	54.24	56.14	0.004207	6.74	442.54	113.43	0.60
reach 1	212822	4760.00	51.25	57.31	55.33	58.12	0.003065	7.19	661.82	120.54	0.54
reach 1	212822	6671.00	51.25	58.74	56.32	59.72	0.002919	7.95	863.59	356.79	0.54
reach 1	212822	12932.00	51.25	60.90	60.34	62.06	0.003077	9.46	2127.84	773.74	0.58
reach 1	212818	Inline Weir									
reach 1	212769	2982.00	44.29	55.43	47.99	55.55	0.000250	2.83	1054.65	116.70	0.17
reach 1	212769	4760.00	44.29	57.31	49.23	57.50	0.000335	3.57	1651.69	540.71	0.20
reach 1	212769	6671.00	44.29	58.73	50.37	58.95	0.000366	3.96	2456.17	630.68	0.21
reach 1	212769	12932.00	44.29	60.90	53.39	61.22	0.000552	5.24	3947.14	756.00	0.26
reach 1	211780	2982.00	43.36	55.31	46.55	55.37	0.000121	2.06	1859.68	963.63	0.12
reach 1	211780	4760.00	43.36	57.22	47.67	57.27	0.000107	2.09	4468.36	1765.73	0.11
reach 1	211780	6671.00	43.36	58.67	48.70	58.71	0.000096	1.88	7466.63	2343.94	0.11
reach 1	211780	12932.00	43.36	60.90	51.43	60.93	0.000091	1.92	13842.12	3279.41	0.10
reach 1	210419	2982.00	43.36	55.05	47.05	55.16	0.000207	2.59	1423.60	1534.63	0.15
reach 1	210419	4760.00	43.36	57.10	48.34	57.13	0.000102	1.81	6323.73	2841.35	0.11
reach 1	210419	6671.00	43.36	58.60	49.51	58.61	0.000063	1.24	11478.48	4049.63	0.08
reach 1	210419	12932.00	43.36	60.84	52.56	60.85	0.000045	1.15	21380.37	4588.39	0.07

HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	209041	2982.00	43.31	54.76	46.86	54.87	0.000211	2.63	1135.14	123.88	0.15
reach 1	209041	4760.00	43.31	56.73	48.09	56.91	0.000298	3.41	1519.67	706.93	0.19
reach 1	209041	6671.00	43.31	58.29	49.23	58.45	0.000283	3.53	3468.24	1750.83	0.18
reach 1	209041	12932.00	43.31	60.69	52.22	60.77	0.000185	3.08	11385.48	4854.52	0.15
reach 1	208000	2982.00	43.31	54.53	46.81	54.64	0.000223	2.70	1104.03	120.28	0.16
reach 1	208000	4760.00	43.31	56.39	48.03	56.59	0.000329	3.56	1350.47	237.82	0.19
reach 1	208000	6671.00	43.31	57.85	49.16	58.08	0.000539	3.94	2617.26	1878.64	0.24
reach 1	208000	12932.00	43.31	60.57	52.18	60.60	0.000188	2.20	14000.40	6247.51	0.14
reach 1	207786	2982.00	43.31	54.49	46.84	54.60	0.000223	2.64	1131.08	129.07	0.16
reach 1	207786	4760.00	43.31	56.34	48.08	56.52	0.000331	3.43	1495.92	668.25	0.19
reach 1	207786	6671.00	43.31	57.81	49.21	57.97	0.000327	3.46	3824.83	2958.01	0.19
reach 1	207786	12932.00	43.31	60.55	52.18	60.57	0.000121	1.82	16515.56	5954.41	0.11
reach 1	207730	2982.00	43.31	54.48	46.84	54.59	0.000224	2.64	1129.41	129.00	0.16
reach 1	207730	4760.00	43.31	56.31	48.08	56.49	0.000334	3.45	1477.33	655.42	0.19
reach 1	207730	6671.00	43.31	57.80	49.21	57.96	0.000328	3.47	3796.68	2878.98	0.19
reach 1	207730	12932.00	43.31	60.54	52.18	60.56	0.000122	1.83	16474.24	5948.10	0.11
reach 1	206000	2982.00	43.32	54.18	46.71	54.25	0.000166	2.30	2655.64	2461.48	0.14
reach 1	206000	4760.00	43.32	56.27	47.91	56.28	0.000045	1.22	10232.20	3968.75	0.07
reach 1	206000	6671.00	43.32	57.81	49.01	57.81	0.000023	0.91	16381.33	4022.04	0.05
reach 1	206000	12932.00	43.32	60.48	51.94	60.49	0.000018	0.85	27822.20	4424.58	0.05
reach 1	204471	2982.00	43.17	53.79	46.70	53.92	0.000276	2.90	1027.79	118.25	0.17
reach 1	204471	4760.00	43.17	55.89	47.94	56.11	0.000368	3.70	1285.59	126.58	0.20
reach 1	204471	6671.00	43.17	57.41	49.06	57.69	0.000537	4.29	1860.72	653.71	0.25
reach 1	204471	12932.00	43.17	60.14	52.09	60.39	0.000592	4.81	5166.49	1880.81	0.26
reach 1	203192	2982.00	43.15	53.54	46.10	53.63	0.000174	2.31	1293.22	150.41	0.14
reach 1	203192	4760.00	43.15	55.58	47.15	55.71	0.000230	2.92	1686.77	201.26	0.16
reach 1	203192	6671.00	43.15	56.96	48.13	57.16	0.000306	3.57	1983.99	271.53	0.19
reach 1	203192	12932.00	43.15	59.27	50.72	59.67	0.000569	5.28	3367.76	902.45	0.27
reach 1	202000	2982.00	42.72	53.30	45.86	53.40	0.000203	2.55	1171.35	129.94	0.15
reach 1	202000	4760.00	42.72	55.23	46.97	55.41	0.000287	3.33	1470.53	412.83	0.18
reach 1	202000	6671.00	42.72	56.51	48.00	56.73	0.000420	3.84	2335.50	871.83	0.22
reach 1	202000	12932.00	42.72	58.76	50.77	58.98	0.000488	4.46	5138.66	1704.73	0.24
reach 1	201981	2982.00	42.72	53.29	45.87	53.39	0.000198	2.48	1200.37	136.44	0.15
reach 1	201981	4760.00	42.72	55.22	46.97	55.38	0.000277	3.23	1499.33	333.95	0.18
reach 1	201981	6671.00	42.72	56.50	47.99	56.71	0.000339	3.77	2451.66	1020.34	0.20
reach 1	201981	12932.00	42.72	58.75	50.74	58.95	0.000404	4.35	5758.61	1909.35	0.22
reach 1	201917	2982.00	42.72	53.28	45.87	53.38	0.000198	2.49	1199.15	136.40	0.15
reach 1	201917	4760.00	42.72	55.21	46.98	55.37	0.000278	3.24	1495.15	327.93	0.18
reach 1	201917	6671.00	42.72	56.48	48.00	56.69	0.000341	3.78	2434.44	1016.13	0.20
reach 1	201917	12932.00	42.72	58.73	50.74	58.94	0.000410	4.37	5717.76	1907.52	0.22
reach 1	201322	2982.00	42.52	53.16	45.65	53.26	0.000195	2.51	1187.71	130.39	0.15
reach 1	201322	4760.00	42.52	55.04	46.75	55.21	0.000281	3.31	1438.59	862.82	0.18
reach 1	201322	6671.00	42.52	56.20	47.79	56.47	0.000405	4.17	1599.07	1011.19	0.22
reach 1	201322	12932.00	42.52	57.74	50.54	58.52	0.001217	7.08	1825.55	1229.38	0.38
reach 1	200876	2982.00	42.52	53.00	46.06	53.11	0.000267	2.74	1089.68	135.53	0.17
reach 1	200876	4760.00	42.52	54.88	47.27	55.03	0.000305	3.20	2153.32	938.58	0.19
reach 1	200876	6671.00	42.52	56.07	48.39	56.19	0.000401	3.23	3368.40	1188.53	0.21
reach 1	200876	12932.00	42.52	57.75	51.28	57.87	0.000606	3.49	5970.99	1852.59	0.25
reach 1	200030	2982.00	42.52	52.83	45.77	52.95	0.000247	2.75	1086.33	124.70	0.16
reach 1	200030	4760.00	42.52	54.73	46.94	54.86	0.000258	3.09	2396.15	859.05	0.17
reach 1	200030	6671.00	42.52	56.05	48.01	56.07	0.000074	1.76	12232.63	6285.29	0.09
reach 1	200030	12932.00	42.52	57.75	50.86	57.76	0.000051	1.58	23108.63	6506.78	0.08
reach 1	199964	2982.00	42.52	52.81	45.77	52.93	0.000248	2.75	1084.20	124.63	0.16
reach 1	199964	4760.00	42.52	54.71	46.94	54.84	0.000260	3.10	2380.20	856.68	0.17
reach 1	199964	6671.00	42.52	56.04	48.00	56.06	0.000074	1.76	12200.53	6284.42	0.09
reach 1	199964	12932.00	42.52	57.74	50.86	57.76	0.000051	1.58	23086.37	6506.36	0.08
reach 1	198000	2982.00	42.52	52.36	45.61	52.46	0.000224	2.59	1680.63	1307.94	0.16
reach 1	198000	4760.00	42.52	54.60	46.71	54.62	0.000050	1.37	10017.67	4498.98	0.08
reach 1	198000	6671.00	42.52	55.97	47.74	55.98	0.000027	1.03	19164.30	7681.32	0.06
reach 1	198000	12932.00	42.52	57.69	50.81	57.69	0.000023	0.96	32490.47	7802.17	0.05

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	197381	2982.00	42.52	52.19	45.65	52.31	0.000268	2.75	1134.37	342.12	0.17
reach 1	197381	4760.00	42.52	54.55	46.76	54.58	0.000098	1.88	6810.40	3678.33	0.11
reach 1	197381	6671.00	42.52	55.95	47.79	55.96	0.000048	1.40	13464.90	5945.61	0.08
reach 1	197381	12932.00	42.52	57.67	50.54	57.68	0.000036	1.34	27380.28	8926.46	0.07
reach 1	197333	2982.00	42.52	52.18	45.66	52.30	0.000269	2.75	1130.07	335.91	0.17
reach 1	197333	4760.00	42.52	54.51	46.77	54.57	0.000149	2.32	5253.13	3572.15	0.13
reach 1	197333	6671.00	42.52	55.94	47.79	55.96	0.000065	1.63	11960.57	5909.32	0.09
reach 1	197333	12932.00	42.52	57.66	50.54	57.67	0.000046	1.47	25894.90	8926.33	0.07
reach 1	196000	2982.00	42.53	51.76	45.70	51.90	0.000332	2.98	1002.35	142.84	0.19
reach 1	196000	4760.00	42.53	54.09	46.82	54.27	0.000348	3.47	1924.58	1772.84	0.20
reach 1	196000	6671.00	42.53	55.78	47.88	55.83	0.000167	2.33	7501.10	4212.66	0.14
reach 1	196000	12932.00	42.53	57.56	50.81	57.58	0.000109	1.90	16602.11	6635.06	0.11
reach 1	194500	2982.00	42.53	51.10	45.88	51.29	0.000506	3.50	851.03	117.21	0.23
reach 1	194500	4760.00	42.53	53.32	47.06	53.60	0.000573	4.24	1121.67	126.51	0.25
reach 1	194500	6671.00	42.53	55.03	48.15	55.36	0.000600	4.71	2338.93	3339.52	0.26
reach 1	194500	12932.00	42.53	57.29	51.06	57.35	0.000237	2.86	11777.09	4670.84	0.16
reach 1	194434	2982.00	42.53	51.06	45.88	51.25	0.000514	3.52	846.83	117.06	0.23
reach 1	194434	4760.00	42.53	53.28	47.06	53.56	0.000581	4.26	1116.48	126.34	0.25
reach 1	194434	6671.00	42.53	54.98	48.15	55.32	0.000625	4.80	2150.00	3082.48	0.27
reach 1	194434	12932.00	42.53	57.28	51.06	57.33	0.000241	2.88	11697.62	4667.16	0.16
reach 1	194000	2982.00	42.44	50.84	45.75	51.03	0.000511	3.48	857.55	120.60	0.23
reach 1	194000	4760.00	42.44	53.03	46.92	53.30	0.000575	4.20	1132.02	130.13	0.25
reach 1	194000	6671.00	42.44	54.89	47.98	55.05	0.000444	3.68	4100.76	3684.96	0.22
reach 1	194000	12932.00	42.44	57.22	50.82	57.24	0.000148	2.07	14290.36	4489.56	0.13
reach 1	192000	2982.00	42.24	49.55	45.43	49.79	0.000763	3.97	751.75	117.30	0.28
reach 1	192000	4760.00	42.24	51.58	46.56	51.93	0.000829	4.77	1000.95	148.44	0.30
reach 1	192000	6671.00	42.24	53.47	47.61	53.82	0.000874	4.93	1902.56	1039.32	0.31
reach 1	192000	12932.00	42.24	56.86	50.42	56.91	0.000193	2.59	10681.12	2899.84	0.15
reach 1	190533	2982.00	42.24	46.68	45.50	47.48	0.004545	7.20	413.95	100.87	0.63
reach 1	190533	4760.00	42.24	49.11	46.68	49.89	0.002629	7.11	669.67	109.40	0.51
reach 1	190533	6671.00	42.24	50.83	47.74	51.76	0.002400	7.73	863.31	115.66	0.50
reach 1	190533	12932.00	42.24	54.61	50.64	56.04	0.003189	9.60	1347.21	5210.66	0.59
reach 1	190528	Inline Weir									
reach 1	190513	2982.00	38.26	46.67	41.63	46.89	0.000571	3.73	799.89	108.70	0.24
reach 1	190513	4760.00	38.26	49.10	42.83	49.40	0.000607	4.43	1073.64	116.80	0.26
reach 1	190513	6671.00	38.26	50.82	43.96	51.24	0.000710	5.21	1279.60	122.04	0.28
reach 1	190513	12932.00	38.26	54.60	46.93	55.41	0.001337	7.21	1793.68	5214.35	0.39
reach 1	190000	2982.00	38.26	46.41	41.47	46.60	0.000528	3.50	852.87	122.05	0.23
reach 1	190000	4760.00	38.26	48.84	42.60	49.10	0.000539	4.10	1161.93	132.37	0.24
reach 1	190000	6671.00	38.26	50.53	43.67	50.88	0.000625	4.79	1391.45	3900.44	0.27
reach 1	190000	12932.00	38.26	54.04	46.44	54.73	0.001175	6.69	1932.61	5392.30	0.37
reach 1	189032	2982.00	38.26	45.80	41.51	46.01	0.000690	3.74	796.35	126.85	0.26
reach 1	189032	4760.00	38.26	48.25	42.85	48.53	0.000642	4.23	1124.86	140.72	0.26
reach 1	189032	6671.00	38.26	49.86	43.67	50.23	0.000734	4.91	1357.91	3503.84	0.29
reach 1	189032	12932.00	38.26	52.69	46.41	53.47	0.001443	7.07	1829.08	4978.86	0.41
reach 1	188975	2982.00	38.26	45.75	41.51	45.97	0.000705	3.77	790.77	126.60	0.27
reach 1	188975	4760.00	38.26	48.21	42.85	48.49	0.000651	4.25	1119.20	140.49	0.27
reach 1	188975	6671.00	38.26	49.81	43.68	50.19	0.000745	4.94	1350.92	3443.64	0.29
reach 1	188975	12932.00	38.26	52.58	46.41	53.38	0.001475	7.15	1808.18	4967.89	0.41
reach 1	188000	2312.00	37.63	45.29	41.06	45.40	0.000424	2.66	869.81	158.40	0.20
reach 1	188000	3448.00	37.63	47.91	41.78	48.02	0.000275	2.64	1308.44	173.20	0.17
reach 1	188000	4800.00	37.63	49.51	42.49	49.65	0.000291	3.02	1589.98	1724.87	0.18
reach 1	188000	11140.00	37.63	51.76	45.14	52.24	0.000777	5.57	1999.93	5437.72	0.30
reach 1	187869	2312.00	37.63	45.16	40.76	45.33	0.000534	3.27	706.04	113.36	0.23
reach 1	187869	3448.00	37.63	47.79	41.59	47.97	0.000402	3.38	1020.22	124.44	0.21
reach 1	187869	4800.00	37.63	49.35	42.45	49.60	0.000461	3.93	1220.06	131.03	0.23
reach 1	187869	11140.00	37.63	51.16	45.65	52.06	0.001467	7.61	1464.00	138.65	0.41
reach 1	187694	2312.00	34.85	45.15	38.47	45.25	0.000235	2.56	902.68	110.42	0.16

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Mfn Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	187694	3448.00	34.85	47.77	39.35	47.90	0.000226	2.86	1205.02	120.19	0.16
reach 1	187694	4800.00	34.85	49.33	40.25	49.52	0.000286	3.44	1396.88	128.05	0.18
reach 1	187694	11140.00	34.85	51.07	43.51	51.80	0.001007	6.87	1621.41	132.52	0.35
reach 1	188000	2312.00	34.04	44.88	37.08	44.95	0.000136	2.05	1129.47	129.28	0.12
reach 1	188000	3448.00	34.04	47.46	37.91	47.54	0.000184	2.32	1488.38	178.21	0.14
reach 1	188000	4800.00	34.04	49.21	38.78	49.23	0.000079	1.57	7479.00	4127.32	0.09
reach 1	188000	11140.00	34.04	51.29	41.93	51.31	0.000064	1.56	16099.34	4159.86	0.09
reach 1	184000	2312.00	34.09	44.63	36.80	44.69	0.000130	2.03	1141.41	127.88	0.12
reach 1	184000	3448.00	34.09	47.14	37.60	47.23	0.000136	2.34	1473.71	136.63	0.13
reach 1	184000	4800.00	34.09	48.88	38.44	49.00	0.000184	2.73	2312.51	2776.70	0.15
reach 1	184000	11140.00	34.09	51.08	41.54	51.12	0.000155	2.43	11225.34	4106.14	0.13
reach 1	182000	2312.00	33.49	44.37	36.24	44.43	0.000123	2.00	1158.84	127.27	0.12
reach 1	182000	3448.00	33.49	46.87	37.06	46.95	0.000132	2.32	1488.38	136.62	0.12
reach 1	182000	4800.00	33.49	48.65	37.91	48.69	0.000110	1.96	5829.80	3979.21	0.11
reach 1	182000	11140.00	33.49	50.89	41.07	50.91	0.000074	1.69	15211.95	4128.80	0.09
reach 1	180000	2312.00	33.44	44.11	36.26	44.18	0.000136	2.08	1113.97	124.65	0.12
reach 1	180000	3448.00	33.44	46.59	37.09	46.68	0.000145	2.40	1434.51	134.04	0.13
reach 1	180000	4800.00	33.44	48.30	37.95	48.42	0.000167	2.76	2273.28	2769.69	0.14
reach 1	180000	11140.00	33.44	50.65	41.10	50.69	0.000152	2.41	11385.73	4118.49	0.13
reach 1	178120	2312.00	33.43	43.73	36.85	43.84	0.000246	2.57	900.71	115.30	0.16
reach 1	178120	3448.00	33.43	46.20	37.82	46.33	0.000243	2.87	1201.31	128.53	0.17
reach 1	178120	4800.00	33.43	47.82	38.81	48.00	0.000298	3.39	1416.83	137.24	0.19
reach 1	178120	11140.00	33.43	50.26	42.32	50.38	0.000239	3.31	9263.76	4109.68	0.17
reach 1	178059	2312.00	33.43	43.72	36.85	43.83	0.000247	2.57	899.67	115.25	0.16
reach 1	178059	3448.00	33.43	46.19	37.82	46.32	0.000244	2.87	1200.19	128.49	0.17
reach 1	178059	4800.00	33.43	47.81	38.81	47.99	0.000298	3.39	1415.34	137.18	0.19
reach 1	178059	11140.00	33.43	50.25	42.33	50.34	0.000243	3.33	9197.51	4108.96	0.17
reach 1	178000	2312.00	33.28	43.73	36.31	43.81	0.000169	2.25	1029.20	120.26	0.14
reach 1	178000	3448.00	33.28	46.20	37.18	46.30	0.000176	2.58	1337.87	130.04	0.14
reach 1	178000	4800.00	33.28	47.82	38.07	47.96	0.000221	3.09	1553.79	136.46	0.16
reach 1	178000	11140.00	33.28	50.27	41.33	50.31	0.000164	2.34	11506.46	4170.22	0.14
reach 1	178000	2312.00	33.44	43.37	36.36	43.45	0.000190	2.31	1000.26	123.25	0.14
reach 1	178000	3448.00	33.44	45.83	37.22	45.93	0.000191	2.62	1317.04	134.25	0.15
reach 1	178000	4800.00	33.44	47.31	38.11	47.46	0.000289	3.15	1525.85	181.65	0.18
reach 1	178000	11140.00	33.44	49.93	41.35	49.98	0.000168	2.51	11464.48	5025.19	0.14
reach 1	174282	2312.00	32.56	43.10	35.52	43.17	0.000136	2.06	1122.69	126.50	0.12
reach 1	174282	3448.00	32.56	45.56	36.32	45.64	0.000143	2.39	1442.43	134.29	0.13
reach 1	174282	4800.00	32.56	46.89	37.14	47.02	0.000217	2.95	1626.66	150.95	0.16
reach 1	174282	11140.00	32.56	49.39	40.19	49.57	0.000408	3.95	7494.36	6768.33	0.22
reach 1	173031	2312.00	32.46	42.90	35.42	42.98	0.000167	2.23	1034.75	121.41	0.13
reach 1	173031	3448.00	32.46	45.34	36.29	45.45	0.000176	2.56	1344.72	132.61	0.14
reach 1	173031	4800.00	32.46	46.58	37.20	46.73	0.000244	3.17	1511.91	138.25	0.17
reach 1	173031	11140.00	32.46	49.00	40.48	49.13	0.000280	3.70	9686.19	7833.67	0.18
reach 1	172979	2312.00	32.46	42.89	35.42	42.97	0.000168	2.24	1033.67	121.37	0.14
reach 1	172979	3448.00	32.46	45.33	36.29	45.44	0.000176	2.57	1343.48	132.57	0.14
reach 1	172979	4800.00	32.46	46.56	37.20	46.72	0.000245	3.18	1510.09	138.19	0.17
reach 1	172979	11140.00	32.46	48.97	40.48	49.11	0.000289	3.75	9499.25	7833.01	0.19
reach 1	172000	2312.00	32.46	42.74	35.32	42.81	0.000161	2.20	1052.82	122.78	0.13
reach 1	172000	3448.00	32.46	45.17	36.16	45.27	0.000167	2.53	1361.81	131.25	0.14
reach 1	172000	4800.00	32.46	46.33	37.03	46.49	0.000237	3.16	1516.73	135.29	0.17
reach 1	172000	11140.00	32.46	48.76	40.25	48.83	0.000245	2.98	11386.82	7729.58	0.17
reach 1	170000	2312.00	32.45	42.42	35.14	42.50	0.000153	2.14	1078.37	125.20	0.13
reach 1	170000	3448.00	32.45	44.84	35.92	44.94	0.000161	2.48	1392.78	134.85	0.14
reach 1	170000	4800.00	32.45	45.82	36.76	45.97	0.000277	3.13	1535.90	157.69	0.18
reach 1	170000	11140.00	32.45	47.25	39.81	47.86	0.001104	6.27	1777.45	182.10	0.35
reach 1	168000	2312.00	32.50	42.08	35.27	42.16	0.000187	2.28	1013.87	125.39	0.14
reach 1	168000	3448.00	32.50	44.48	36.07	44.58	0.000199	2.55	1655.08	1133.06	0.15
reach 1	168000	4800.00	32.50	45.35	36.93	45.43	0.000240	2.58	4198.27	3997.49	0.16
reach 1	168000	11140.00	32.50	46.66	40.02	46.72	0.000274	2.93	9575.83	4508.30	0.17

HEC-RAS Plan NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	167722	2312.00	32.50	42.01	35.33	42.10	0.000209	2.41	961.10	119.12	0.15
reach 1	167722	3448.00	32.50	44.41	36.16	44.52	0.000210	2.73	1369.72	967.78	0.15
reach 1	167722	4800.00	32.50	45.24	37.03	45.36	0.000241	3.04	3518.19	4695.47	0.17
reach 1	167722	11140.00	32.50	46.61	40.22	46.65	0.000256	2.57	12463.74	7450.03	0.16
reach 1	167842	2312.00	32.50	41.99	35.33	42.08	0.000210	2.41	959.03	119.06	0.15
reach 1	167842	3448.00	32.50	44.39	36.17	44.51	0.000211	2.74	1355.05	917.54	0.15
reach 1	167842	4800.00	32.50	45.20	37.04	45.33	0.000250	3.09	3364.50	4590.12	0.17
reach 1	167842	11140.00	32.50	46.58	40.22	46.63	0.000263	2.65	12252.92	7401.15	0.17
reach 1	166600	2312.00	32.51	41.62	35.38	41.71	0.000239	2.45	942.54	126.81	0.16
reach 1	166600	3448.00	32.51	43.98	36.21	44.09	0.000308	2.70	1275.69	180.29	0.18
reach 1	166600	4800.00	32.51	44.72	37.09	44.84	0.000362	3.02	3201.93	5426.15	0.20
reach 1	166600	11140.00	32.51	46.25	40.24	46.28	0.000168	2.24	14882.63	7849.61	0.14
reach 1	164000	2312.00	31.68	41.23	34.37	41.30	0.000174	2.19	1055.67	132.29	0.14
reach 1	164000	3448.00	31.68	43.51	35.16	43.58	0.000204	2.30	2044.65	1967.52	0.15
reach 1	164000	4800.00	31.68	44.38	35.99	44.42	0.000126	1.88	7505.31	6951.80	0.12
reach 1	164000	11140.00	31.68	46.05	39.03	46.07	0.000070	1.50	20361.99	7847.62	0.09
reach 1	163662	2312.00	31.34	41.17	34.03	41.24	0.000181	2.16	1071.71	129.21	0.13
reach 1	163662	3448.00	31.34	43.42	34.84	43.51	0.000228	2.40	1895.63	1495.44	0.15
reach 1	163662	4800.00	31.34	44.32	35.67	44.36	0.000190	1.99	5819.22	4966.11	0.14
reach 1	163662	11140.00	31.34	46.03	38.73	46.05	0.000109	1.74	15706.21	6000.00	0.11
reach 1	163605	2312.00	31.34	41.16	34.04	41.23	0.000182	2.16	1070.50	129.17	0.13
reach 1	163605	3448.00	31.34	43.41	34.84	43.50	0.000227	2.40	1876.71	1467.92	0.15
reach 1	163605	4800.00	31.34	44.31	35.67	44.35	0.000193	2.01	5758.96	4947.10	0.14
reach 1	163605	11140.00	31.34	46.02	38.74	46.04	0.000110	1.74	15667.78	6000.00	0.11
reach 1	162000	2312.00	31.35	40.88	34.07	40.96	0.000182	2.23	1038.69	131.67	0.14
reach 1	162000	3448.00	31.35	43.28	34.86	43.30	0.000087	1.31	7352.56	5500.12	0.08
reach 1	162000	4800.00	31.35	44.21	35.72	44.22	0.000040	1.02	13299.41	7095.38	0.07
reach 1	162000	11140.00	31.35	45.94	38.79	45.94	0.000032	1.01	26539.79	7866.64	0.06
reach 1	160000	2312.00	31.35	40.55	33.80	40.62	0.000156	2.08	1112.10	138.79	0.13
reach 1	160000	3448.00	31.35	43.01	34.53	43.08	0.000176	2.19	2443.84	2756.15	0.14
reach 1	160000	4800.00	31.35	44.05	35.29	44.09	0.000116	1.87	6963.30	6037.63	0.11
reach 1	160000	11140.00	31.35	45.84	38.18	45.85	0.000067	1.55	20079.33	7836.28	0.09
reach 1	158000	2312.00	31.36	40.17	34.00	40.25	0.000213	2.33	991.66	132.23	0.15
reach 1	158000	3448.00	31.36	42.55	34.77	42.66	0.000257	2.59	1329.72	174.17	0.17
reach 1	158000	4800.00	31.36	43.78	35.57	43.82	0.000150	2.03	6190.15	5479.62	0.13
reach 1	158000	11140.00	31.36	45.70	38.55	45.71	0.000070	1.51	19985.62	7864.00	0.09
reach 1	157191	2312.00	31.36	39.86	34.08	40.06	0.000265	2.57	900.73	121.77	0.17
reach 1	157191	3448.00	31.36	42.32	34.89	42.45	0.000252	2.67	1199.85	131.12	0.17
reach 1	157191	4800.00	31.36	43.49	35.73	43.65	0.000291	3.27	2678.11	3537.34	0.18
reach 1	157191	11140.00	31.36	45.62	38.84	45.64	0.000107	2.13	17107.67	8000.00	0.11
reach 1	157140	2312.00	31.36	39.94	34.08	40.05	0.000267	2.57	899.01	121.72	0.17
reach 1	157140	3448.00	31.36	42.31	34.68	42.44	0.000253	2.68	1198.09	131.06	0.17
reach 1	157140	4800.00	31.36	43.48	35.72	43.63	0.000295	3.29	2616.41	3467.09	0.18
reach 1	157140	11140.00	31.36	45.61	38.84	45.64	0.000108	2.14	17061.31	8000.00	0.11
reach 1	156000	2312.00	31.36	39.62	34.00	39.73	0.000287	2.63	879.16	120.96	0.17
reach 1	156000	3448.00	31.36	41.99	34.79	42.12	0.000303	2.93	1177.05	143.24	0.18
reach 1	156000	4800.00	31.36	43.21	35.63	43.29	0.000265	2.67	4177.16	3932.18	0.17
reach 1	156000	11140.00	31.36	45.52	38.69	45.53	0.000079	1.64	19335.42	7829.67	0.09
reach 1	154644	2312.00	31.37	39.23	33.87	39.34	0.000291	2.61	884.85	124.22	0.17
reach 1	154644	3448.00	31.37	41.61	34.62	41.74	0.000263	2.90	1188.23	131.21	0.17
reach 1	154644	4800.00	31.37	42.66	35.40	42.86	0.000366	3.62	1327.43	134.29	0.20
reach 1	154644	11140.00	31.37	45.27	38.35	45.34	0.000285	3.11	11040.79	7787.51	0.18
reach 1	153231	2312.00	31.03	38.74	33.86	38.87	0.000388	2.86	807.06	124.13	0.20
reach 1	153231	3448.00	31.03	41.18	34.66	41.33	0.000323	3.07	1123.88	135.27	0.19
reach 1	153231	4800.00	31.03	42.04	35.48	42.28	0.000467	3.86	1242.37	139.28	0.23
reach 1	153231	11140.00	31.03	44.31	38.50	44.66	0.001140	5.42	4963.23	6045.35	0.35
reach 1	152561	2312.00	31.03	38.44	33.82	38.58	0.000462	3.05	757.52	121.12	0.22
reach 1	152561	3448.00	31.03	40.94	34.64	41.10	0.000367	3.20	1076.42	134.00	0.20
reach 1	152561	4800.00	31.03	41.68	35.48	41.94	0.000549	4.08	1177.04	137.81	0.25
reach 1	152561	11140.00	31.03	43.51	38.61	43.89	0.001237	5.71	4650.19	4529.06	0.36



HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	152553	Inline Weir									
reach 1	152515	2312.00	28.25	38.43	31.02	38.50	0.000155	2.15	1076.17	126.59	0.13
reach 1	152515	3448.00	28.25	40.93	31.85	41.02	0.000158	2.45	1404.86	136.81	0.13
reach 1	152515	4800.00	28.25	41.67	32.70	41.82	0.000250	3.18	1507.27	139.84	0.17
reach 1	152515	11140.00	28.25	43.50	35.84	43.76	0.000839	4.67	5216.23	4870.49	0.30
reach 1	152000	2312.00	28.25	38.35	31.07	38.43	0.000166	2.20	1052.15	126.16	0.13
reach 1	152000	3448.00	28.25	40.85	31.91	40.94	0.000168	2.50	1380.38	137.05	0.14
reach 1	152000	4800.00	28.25	41.52	32.79	41.69	0.000273	3.26	1474.29	141.63	0.18
reach 1	152000	11140.00	28.25	43.29	35.97	43.43	0.000418	3.87	8121.17	7804.74	0.22
reach 1	151600	2312.00	28.25	38.29	30.91	38.36	0.000150	2.14	1081.29	124.15	0.13
reach 1	151600	3448.00	28.25	40.78	31.71	40.88	0.000155	2.46	1400.86	132.34	0.13
reach 1	151600	4800.00	28.25	41.42	32.54	41.58	0.000253	3.23	1485.95	134.44	0.17
reach 1	151600	11140.00	28.25	43.18	35.63	43.29	0.000268	3.45	10319.07	7993.31	0.18
reach 1	151516	2312.00	28.25	38.28	30.91	38.35	0.000151	2.14	1079.68	124.10	0.13
reach 1	151516	3448.00	28.25	40.77	31.70	40.87	0.000156	2.46	1399.09	132.30	0.13
reach 1	151516	4800.00	28.25	41.40	32.53	41.56	0.000254	3.24	1482.97	134.37	0.17
reach 1	151516	11140.00	28.25	43.16	35.63	43.26	0.000277	3.52	10088.04	7992.92	0.18
reach 1	150000	2286.00	27.92	38.04	30.79	38.11	0.000167	2.19	1043.59	126.49	0.13
reach 1	150000	3412.00	27.92	40.51	31.63	40.61	0.000189	2.48	1400.07	364.26	0.15
reach 1	150000	4695.00	27.92	40.95	32.48	41.11	0.000355	3.20	1672.84	767.50	0.20
reach 1	150000	11052.00	27.92	42.16	35.67	42.53	0.000929	5.42	4431.17	4007.48	0.32
reach 1	148000	2286.00	27.14	37.73	30.07	37.80	0.000144	2.08	1096.52	128.06	0.13
reach 1	148000	3412.00	27.14	40.31	30.90	40.34	0.000085	1.57	5355.44	4497.45	0.10
reach 1	148000	4695.00	27.14	40.69	31.74	40.72	0.000105	1.78	7373.11	6312.75	0.11
reach 1	148000	11052.00	27.14	41.91	34.96	41.93	0.000112	1.95	16721.81	7844.37	0.11
reach 1	147159	2286.00	27.14	37.62	29.94	37.68	0.000132	2.01	1138.40	131.30	0.12
reach 1	147159	3412.00	27.14	40.25	30.73	40.26	0.000093	1.16	7611.93	7965.51	0.09
reach 1	147159	4695.00	27.14	40.62	31.53	40.63	0.000086	1.12	10584.86	7993.28	0.09
reach 1	147159	11052.00	27.14	41.84	34.63	41.85	0.000076	1.20	20354.35	8000.00	0.09
reach 1	147111	2286.00	27.14	37.61	29.94	37.67	0.000132	2.01	1137.55	131.27	0.12
reach 1	147111	3412.00	27.14	40.24	30.74	40.26	0.000094	1.17	7571.22	7964.86	0.09
reach 1	147111	4695.00	27.14	40.62	31.53	40.63	0.000087	1.12	10550.59	7993.19	0.09
reach 1	147111	11052.00	27.14	41.84	34.63	41.85	0.000076	1.21	20324.84	8000.00	0.09
reach 1	146000	2286.00	27.13	37.45	29.99	37.52	0.000152	2.12	1078.61	127.20	0.13
reach 1	146000	3412.00	27.13	40.07	30.80	40.13	0.000141	2.02	3384.39	3986.93	0.12
reach 1	146000	4695.00	27.13	40.54	31.62	40.55	0.000052	1.25	11696.38	7815.52	0.08
reach 1	146000	11052.00	27.13	41.76	34.78	41.77	0.000061	1.42	21247.21	7835.40	0.08
reach 1	144000	2286.00	27.12	37.11	30.01	37.19	0.000174	2.24	1021.13	122.76	0.14
reach 1	144000	3412.00	27.12	39.67	30.85	39.77	0.000225	2.47	1484.50	637.89	0.15
reach 1	144000	4695.00	27.12	40.39	31.66	40.41	0.000097	1.68	8368.17	7792.34	0.10
reach 1	144000	11052.00	27.12	41.60	34.86	41.62	0.000097	1.78	17859.22	7826.61	0.10
reach 1	143233	2286.00	27.12	36.98	30.01	37.06	0.000179	2.24	1018.53	125.36	0.14
reach 1	143233	3412.00	27.12	39.50	30.83	39.59	0.000235	2.50	1366.25	176.14	0.16
reach 1	143233	4695.00	27.12	40.34	31.65	40.34	0.000074	1.08	10804.00	7794.98	0.08
reach 1	143233	11052.00	27.12	41.55	34.84	41.55	0.000076	1.15	20444.44	8000.00	0.09
reach 1	143179	2286.00	27.12	36.97	30.01	37.05	0.000180	2.25	1017.28	125.32	0.14
reach 1	143179	3412.00	27.12	39.48	30.83	39.58	0.000235	2.50	1363.98	175.72	0.16
reach 1	143179	4695.00	27.12	40.33	31.65	40.34	0.000074	1.08	10769.31	7792.98	0.08
reach 1	143179	11052.00	27.12	41.54	34.84	41.55	0.000076	1.18	20408.98	8000.00	0.09
reach 1	142000	2286.00	27.13	36.72	30.16	36.81	0.000223	2.42	944.38	122.52	0.15
reach 1	142000	3412.00	27.13	39.17	31.01	39.28	0.000267	2.68	1271.00	162.18	0.17
reach 1	142000	4695.00	27.13	40.14	31.88	40.20	0.000188	2.30	4998.31	4003.03	0.14
reach 1	142000	11052.00	27.13	41.47	35.13	41.48	0.000046	1.19	23449.96	7852.45	0.07
reach 1	141221	2286.00	26.68	36.55	29.69	36.64	0.000205	2.39	957.90	118.78	0.15
reach 1	141221	3412.00	26.68	39.05	30.57	39.08	0.000190	1.65	3888.40	2786.93	0.13
reach 1	141221	4695.00	26.68	40.06	31.43	40.08	0.000109	1.35	7436.02	4153.31	0.10
reach 1	141221	11052.00	26.68	41.45	34.74	41.46	0.000026	0.76	28730.84	8000.00	0.05
reach 1	141154	2286.00	26.68	36.54	29.69	36.63	0.000206	2.39	956.21	118.72	0.15

HEC-RAS Plan - NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	141154	3412.00	26.68	38.98	30.57	39.06	0.000393	2.32	1471.69	2688.87	0.19
reach 1	141154	4695.00	26.68	40.06	31.43	40.07	0.000110	1.34	7425.07	4183.41	0.10
reach 1	141154	11052.00	26.68	41.45	34.73	41.46	0.000026	0.76	28716.89	8000.00	0.05
reach 1	140000	2286.00	26.64	36.30	29.52	36.39	0.000210	2.42	945.60	116.74	0.15
reach 1	140000	3412.00	26.64	38.64	30.38	38.72	0.000228	2.46	2324.88	1992.35	0.16
reach 1	140000	4695.00	26.64	39.89	31.23	39.93	0.000143	1.93	6011.26	3881.73	0.12
reach 1	140000	11052.00	26.64	41.42	34.52	41.42	0.000035	1.03	26024.17	7887.96	0.06
reach 1	138000	2286.00	25.62	35.94	28.53	36.02	0.000162	2.19	1045.58	123.85	0.13
reach 1	138000	3412.00	25.62	38.16	29.37	38.27	0.000228	2.54	1344.70	180.44	0.16
reach 1	138000	4695.00	25.62	39.41	30.21	39.53	0.000279	2.84	2469.75	2508.34	0.17
reach 1	138000	11052.00	25.62	41.32	33.47	41.33	0.000058	1.40	21344.85	7847.57	0.08
reach 1	136000	2321.00	25.62	35.62	28.35	35.70	0.000158	2.17	1070.98	125.11	0.13
reach 1	136000	3436.00	25.62	37.77	29.12	37.87	0.000176	2.55	1347.77	133.19	0.14
reach 1	136000	4708.00	25.62	38.81	29.91	38.97	0.000280	3.16	1489.23	151.32	0.18
reach 1	136000	11062.00	25.62	41.16	33.02	41.18	0.000103	1.84	16202.89	7777.48	0.11
reach 1	135932	2321.00	25.63	35.62	28.40	35.69	0.000159	2.17	1070.62	126.37	0.13
reach 1	135932	3436.00	25.63	37.78	29.18	37.86	0.000176	2.55	1349.75	134.21	0.14
reach 1	135932	4708.00	25.63	38.80	29.98	38.98	0.000246	3.18	1491.55	138.01	0.17
reach 1	135932	11062.00	25.63	41.16	33.08	41.18	0.000095	1.97	16115.26	7687.04	0.11
reach 1	135888	2321.00	25.63	35.61	28.40	35.68	0.000159	2.17	1069.70	126.34	0.13
reach 1	135888	3436.00	25.63	37.75	29.18	37.85	0.000176	2.55	1348.67	134.18	0.14
reach 1	135888	4708.00	25.63	38.79	29.98	38.95	0.000247	3.16	1490.14	137.98	0.17
reach 1	135888	11062.00	25.63	41.15	33.08	41.17	0.000096	1.97	16077.55	7675.90	0.11
reach 1	134000	2321.00	25.63	35.26	28.74	35.35	0.000199	2.34	992.23	124.14	0.15
reach 1	134000	3436.00	25.63	37.35	29.55	37.45	0.000253	2.68	1456.01	683.31	0.16
reach 1	134000	4708.00	25.63	38.29	30.31	38.41	0.000312	2.95	2517.34	1571.19	0.18
reach 1	134000	11062.00	25.63	40.87	33.38	40.92	0.000198	2.62	11718.78	6840.83	0.15
reach 1	132000	2316.00	25.57	34.86	28.33	34.94	0.000202	2.31	1002.34	130.04	0.15
reach 1	132000	3430.00	25.57	36.87	29.12	36.98	0.000221	2.69	1273.17	139.64	0.16
reach 1	132000	4643.00	25.57	37.61	29.88	37.78	0.000322	3.37	1377.54	478.47	0.19
reach 1	132000	11045.00	25.57	39.64	33.00	40.17	0.001017	6.02	2486.07	2484.09	0.34
reach 1	130750	2316.00	25.57	34.57	28.36	34.67	0.000236	2.48	935.67	122.60	0.16
reach 1	130750	3430.00	25.57	36.55	29.16	36.68	0.000258	2.89	1186.22	130.65	0.17
reach 1	130750	4643.00	25.57	37.15	29.92	37.33	0.000421	3.49	1680.38	780.72	0.21
reach 1	130750	11045.00	25.57	38.26	33.11	38.83	0.001267	6.51	2787.34	1921.21	0.38
reach 1	130698	2316.00	25.57	34.56	28.36	34.68	0.000236	2.48	934.04	122.55	0.16
reach 1	130698	3430.00	25.57	36.54	29.16	36.67	0.000259	2.90	1184.35	130.59	0.17
reach 1	130698	4643.00	25.57	37.13	29.92	37.32	0.000423	3.50	1689.94	746.90	0.21
reach 1	130698	11045.00	25.57	38.17	33.11	38.78	0.001345	6.66	2649.53	1815.70	0.39
reach 1	129441	2316.00	24.36	34.30	27.39	34.39	0.000189	2.33	995.67	119.82	0.14
reach 1	129441	3430.00	24.36	36.26	28.19	36.38	0.000218	2.77	1236.79	126.63	0.16
reach 1	129441	4643.00	24.36	37.14	28.97	37.14	0.000036	1.17	11603.59	4865.01	0.06
reach 1	129441	11045.00	24.36	38.30	32.21	38.32	0.000073	1.60	17817.94	5740.78	0.09
reach 1	128185	2316.00	24.36	34.08	27.06	34.16	0.000170	2.22	1041.46	123.72	0.14
reach 1	128185	3430.00	24.36	36.00	27.84	36.11	0.000199	2.67	1284.93	130.13	0.15
reach 1	128185	4643.00	24.36	37.04	28.59	37.06	0.000092	1.56	6356.50	3708.23	0.10
reach 1	128185	11045.00	24.36	38.09	31.71	38.13	0.000220	2.48	9023.47	3986.39	0.15
reach 1	128137	2316.00	24.36	34.07	27.07	34.15	0.000170	2.23	1039.70	123.67	0.14
reach 1	128137	3430.00	24.36	35.99	27.84	36.10	0.000200	2.67	1282.76	130.07	0.15
reach 1	128137	4643.00	24.36	37.04	28.59	37.06	0.000092	1.56	6345.67	3707.48	0.10
reach 1	128137	11045.00	24.36	38.07	31.71	38.12	0.000223	2.49	8978.29	3984.23	0.15
reach 1	128000	2316.00	24.36	34.04	27.17	34.12	0.000182	2.26	1022.68	125.74	0.14
reach 1	128000	3430.00	24.36	35.95	27.97	36.07	0.000248	2.68	1278.26	153.81	0.16
reach 1	128000	4643.00	24.36	36.86	28.73	37.02	0.000373	3.24	1486.49	381.36	0.20
reach 1	128000	11045.00	24.36	38.04	31.89	38.08	0.000204	2.54	9116.06	3957.00	0.15
reach 1	126275	2316.00	24.02	33.74	26.97	33.82	0.000170	2.17	1066.03	132.92	0.14
reach 1	126275	3430.00	24.02	35.60	27.76	35.70	0.000180	2.50	1859.30	1291.51	0.14
reach 1	126275	4643.00	24.02	36.44	28.52	36.52	0.000210	2.64	3721.51	3301.73	0.15
reach 1	126275	11045.00	24.02	37.44	31.54	37.58	0.000424	4.01	7757.04	4715.08	0.22

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	126253	2316.00	24.02	33.73	26.97	33.81	0.000170	2.18	1064.54	132.89	0.14
reach 1	126253	3430.00	24.02	35.60	27.76	35.70	0.000180	2.51	1855.97	1288.47	0.14
reach 1	126253	4643.00	24.02	36.43	28.52	36.52	0.000211	2.64	3705.09	3294.68	0.15
reach 1	126253	11045.00	24.02	37.42	31.54	37.58	0.000429	4.03	7704.83	4700.76	0.22
reach 1	126194	2316.00	24.02	33.71	27.13	33.80	0.000218	2.43	954.91	121.62	0.15
reach 1	126194	3430.00	24.02	35.61	27.96	35.67	0.000149	2.15	3603.29	2604.91	0.13
reach 1	126194	4643.00	24.02	36.47	28.75	36.49	0.000104	1.69	7774.12	4960.22	0.11
reach 1	126194	11045.00	24.02	37.49	32.02	37.52	0.000174	2.37	13373.43	5966.32	0.14
reach 1	126142	2316.00	24.02	33.69	27.13	33.78	0.000220	2.43	952.65	121.54	0.15
reach 1	126142	3430.00	24.02	35.61	27.96	35.66	0.000150	2.15	3587.31	2597.03	0.13
reach 1	126142	4643.00	24.02	36.47	28.75	36.49	0.000104	1.69	7762.88	4957.95	0.11
reach 1	126142	11045.00	24.02	37.48	32.02	37.51	0.000176	2.38	13304.38	5974.73	0.14
reach 1	126000	2316.00	24.02	33.67	26.85	33.75	0.000180	2.24	1033.11	127.68	0.14
reach 1	126000	3430.00	24.02	35.60	27.63	35.64	0.000125	1.81	4024.96	2340.22	0.11
reach 1	126000	4643.00	24.02	36.46	28.39	36.47	0.000053	1.24	10098.30	5629.04	0.08
reach 1	126000	11045.00	24.02	37.47	31.51	37.49	0.000113	1.92	15803.37	7014.70	0.11
reach 1	124278	2316.00	23.63	33.29	26.76	33.39	0.000236	2.54	912.85	114.25	0.16
reach 1	124278	3430.00	23.63	35.18	27.60	35.32	0.000273	3.02	1135.07	1389.94	0.17
reach 1	124278	4643.00	23.63	36.10	28.41	36.27	0.000329	3.47	1956.64	4889.40	0.19
reach 1	124278	11045.00	23.63	37.00	31.75	37.13	0.000479	3.94	8541.59	6851.99	0.23
reach 1	124185	2316.00	23.63	33.27	26.71	33.37	0.000231	2.52	918.97	113.67	0.16
reach 1	124185	3430.00	23.63	35.15	27.54	35.29	0.000269	3.01	1137.92	1154.44	0.17
reach 1	124185	4643.00	23.63	36.16	28.34	36.22	0.000193	2.36	5305.60	5762.99	0.14
reach 1	124185	11045.00	23.63	36.99	31.70	37.07	0.000369	3.44	9506.18	6816.52	0.20
reach 1	124085	2316.00	23.63	33.26	26.74	33.36	0.000236	2.55	908.49	112.42	0.16
reach 1	124085	3430.00	23.63	35.12	27.56	35.28	0.000277	3.05	1123.22	1850.26	0.17
reach 1	124085	4643.00	23.63	36.15	28.39	36.20	0.000173	2.30	5661.61	5572.47	0.14
reach 1	124085	11045.00	23.63	36.96	31.70	37.04	0.000347	3.46	9776.45	6580.99	0.20
reach 1	124000	2316.00	23.63	33.24	26.74	33.34	0.000233	2.50	926.32	117.70	0.16
reach 1	124000	3430.00	23.63	35.14	27.59	35.22	0.000207	2.51	2603.55	2184.85	0.15
reach 1	124000	4643.00	23.63	36.14	28.39	36.18	0.000165	2.02	5753.54	4824.52	0.13
reach 1	124000	11045.00	23.63	36.93	31.70	37.01	0.000366	3.20	9536.09	6448.53	0.20
reach 1	122908	2316.00	23.63	32.99	26.64	33.08	0.000228	2.44	951.07	124.45	0.16
reach 1	122908	3430.00	23.63	34.83	27.45	34.96	0.000261	2.89	1187.73	2156.91	0.17
reach 1	122908	4643.00	23.63	35.71	28.22	35.91	0.000363	3.55	1306.20	6157.65	0.20
reach 1	122908	11045.00	23.63	36.73	31.43	36.76	0.000138	2.29	15447.93	7217.26	0.13
reach 1	122857	2316.00	23.63	32.98	26.64	33.07	0.000229	2.44	949.57	124.40	0.16
reach 1	122857	3430.00	23.63	34.82	27.45	34.95	0.000262	2.89	1185.90	2140.96	0.17
reach 1	122857	4643.00	23.63	35.69	28.22	35.88	0.000366	3.56	1302.63	3034.94	0.20
reach 1	122857	11045.00	23.63	36.73	31.43	36.76	0.000139	2.30	15393.25	7209.32	0.13
reach 1	122000	2316.00	23.45	32.79	26.44	32.88	0.000218	2.41	961.47	123.11	0.15
reach 1	122000	3430.00	23.45	34.61	27.24	34.73	0.000247	2.84	1399.22	857.61	0.17
reach 1	122000	4643.00	23.45	35.65	27.98	35.68	0.000110	1.85	7409.63	5566.79	0.11
reach 1	122000	11045.00	23.45	36.57	31.13	36.61	0.000206	2.47	12839.63	7044.44	0.15
reach 1	120000	2316.00	23.41	32.33	26.14	32.43	0.000236	2.46	941.15	124.03	0.16
reach 1	120000	3430.00	23.41	34.07	26.93	34.21	0.000277	2.95	1163.09	131.49	0.17
reach 1	120000	4643.00	23.41	35.08	27.71	35.28	0.000408	3.57	1299.97	147.57	0.21
reach 1	120000	11045.00	23.41	36.20	30.85	36.23	0.000179	2.26	12294.02	5879.62	0.14
reach 1	118000	2316.00	23.26	31.83	26.00	31.93	0.000265	2.56	904.67	122.56	0.17
reach 1	118000	3430.00	23.26	33.47	26.78	33.61	0.000315	3.09	1110.87	128.94	0.19
reach 1	118000	4643.00	23.26	34.16	27.53	34.39	0.000482	3.86	1201.61	136.98	0.23
reach 1	118000	11045.00	23.26	35.49	30.66	35.62	0.000559	3.98	7187.45	4658.59	0.25
reach 1	116000	2330.00	23.27	31.26	25.90	31.37	0.000297	2.62	888.54	126.99	0.17
reach 1	116000	3439.00	23.27	32.82	26.64	32.97	0.000332	3.08	1539.08	2560.77	0.19
reach 1	116000	4641.00	23.27	33.43	27.35	33.54	0.000353	2.95	3840.26	4133.23	0.19
reach 1	116000	11046.00	23.27	34.66	30.35	34.72	0.000355	3.08	9844.99	5757.21	0.19
reach 1	114000	2330.00	21.89	30.77	24.65	30.86	0.000214	2.36	991.56	154.16	0.15
reach 1	114000	3439.00	21.89	32.38	25.39	32.44	0.000192	2.22	3747.18	4262.20	0.14
reach 1	114000	4641.00	21.89	33.08	26.09	33.12	0.000130	1.91	7245.13	5628.86	0.12
reach 1	114000	11046.00	21.89	34.22	29.06	34.25	0.000159	2.27	14065.04	6337.06	0.13



HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	113338	2330.00	21.88	30.62	24.72	30.71	0.000241	2.44	954.48	129.89	0.18
reach 1	113338	3439.00	21.88	32.14	25.47	32.28	0.000294	2.97	1157.12	2337.88	0.18
reach 1	113338	4641.00	21.88	32.73	26.19	32.95	0.000438	3.75	1238.17	4939.89	0.22
reach 1	113338	11046.00	21.88	34.15	29.22	34.16	0.000110	1.73	16434.29	6915.53	0.11
reach 1	113284	2330.00	21.88	30.61	24.66	30.69	0.000227	2.38	977.99	132.19	0.15
reach 1	113284	3439.00	21.88	32.13	25.40	32.28	0.000280	2.90	1183.98	3038.90	0.17
reach 1	113284	4641.00	21.88	32.72	26.11	32.93	0.000417	3.67	1265.77	5120.41	0.22
reach 1	113284	11046.00	21.88	34.11	29.09	34.15	0.000217	2.65	12883.52	6938.89	0.16
reach 1	112824	2330.00	22.02	30.40	24.96	30.51	0.000329	2.75	848.09	122.61	0.18
reach 1	112824	3439.00	22.02	31.87	25.76	32.04	0.000400	3.32	1066.50	457.07	0.21
reach 1	112824	4641.00	22.02	32.49	26.53	32.63	0.000412	3.37	3335.19	4314.52	0.21
reach 1	112824	11046.00	22.02	33.95	29.71	33.99	0.000296	2.57	11907.16	6700.87	0.17
reach 1	112820	Inline Weir									
reach 1	112804	2330.00	20.05	30.39	22.94	30.46	0.000164	2.20	1057.15	124.67	0.13
reach 1	112804	3439.00	20.05	31.86	23.76	31.98	0.000222	2.76	1283.23	419.10	0.16
reach 1	112804	4641.00	20.05	32.48	24.55	32.60	0.000266	2.95	3584.55	4304.40	0.17
reach 1	112804	11046.00	20.05	33.94	27.83	33.98	0.000254	2.59	12068.98	6672.65	0.16
reach 1	112000	2330.00	20.06	30.29	22.92	30.36	0.000166	2.21	1053.01	124.66	0.13
reach 1	112000	3439.00	20.06	31.72	23.73	31.84	0.000246	2.74	1467.12	1081.54	0.16
reach 1	112000	4641.00	20.06	32.35	24.53	32.42	0.000236	2.50	4692.47	4515.58	0.16
reach 1	112000	11046.00	20.06	33.81	27.81	33.84	0.000199	2.35	13082.06	6505.03	0.15
reach 1	110000	2641.00	19.82	29.86	22.92	29.96	0.000227	2.58	1025.24	122.13	0.16
reach 1	110000	3856.00	19.82	31.22	23.78	31.31	0.000259	2.66	2401.00	1135.08	0.17
reach 1	110000	5335.00	19.82	31.91	24.69	31.97	0.000214	2.47	4342.02	1701.84	0.15
reach 1	110000	11115.00	19.82	33.48	27.57	33.51	0.000142	2.06	15821.56	7700.97	0.12
reach 1	108000	2641.00	19.53	29.41	22.56	29.51	0.000226	2.56	1031.27	123.60	0.16
reach 1	108000	3856.00	19.53	30.93	23.41	30.98	0.000123	2.05	5562.28	4909.86	0.12
reach 1	108000	5335.00	19.53	31.72	24.31	31.74	0.000083	1.71	9520.52	5153.76	0.10
reach 1	108000	11115.00	19.53	33.33	27.12	33.34	0.000069	1.48	18871.92	6341.11	0.09
reach 1	107887	2641.00	19.53	29.33		29.43	0.000242	2.58	1023.54	128.00	0.16
reach 1	107887	3856.00	19.53	30.75		30.90	0.000321	3.18	1211.60	140.92	0.19
reach 1	107887	5335.00	19.53	31.40		31.66	0.000501	4.09	1312.54	172.48	0.24
reach 1	107887	11115.00	19.53	33.04		33.27	0.000710	4.72	7668.85	9140.62	0.28
reach 1	107800	2641.00	19.53	29.31		29.41	0.000244	2.59	1021.37	127.90	0.16
reach 1	107800	3856.00	19.53	30.72		30.88	0.000323	3.19	1206.36	140.07	0.19
reach 1	107800	5335.00	19.53	31.37		31.63	0.000507	4.11	1306.35	170.14	0.24
reach 1	107800	11115.00	19.53	32.24	27.17	33.14	0.001821	7.67	1860.85	3211.44	0.45
reach 1	108000	2641.00	19.52	28.90	22.49	29.01	0.000262	2.68	984.73	122.96	0.17
reach 1	108000	3856.00	19.52	30.09	23.32	30.26	0.000464	3.37	1144.26	156.50	0.22
reach 1	108000	5335.00	19.52	30.72	24.23	30.81	0.000453	2.95	4331.62	5318.64	0.21
reach 1	108000	11115.00	19.52	31.77	27.03	31.82	0.000340	2.79	12385.31	9474.78	0.19
reach 1	104000	2641.00	18.67	28.37	22.04	28.48	0.000265	2.69	982.02	123.15	0.17
reach 1	104000	3856.00	18.67	29.80	22.88	29.82	0.000108	1.61	5648.41	2788.73	0.11
reach 1	104000	5335.00	18.67	30.39	23.76	30.40	0.000109	1.55	7903.67	3679.28	0.11
reach 1	104000	11115.00	18.67	31.31	26.53	31.33	0.000179	2.13	11551.20	4250.36	0.14
reach 1	102398	2641.00	18.36	27.93	21.50	28.05	0.000277	2.75	961.00	120.83	0.17
reach 1	102398	3856.00	18.36	29.34	22.37	29.52	0.000362	3.39	1135.91	1759.89	0.20
reach 1	102398	5335.00	18.36	30.08	23.29	30.15	0.000223	2.74	6911.87	10825.00	0.16
reach 1	102398	11115.00	18.36	31.03	26.19	31.06	0.000164	2.30	17688.60	11400.00	0.14
reach 1	102314	2641.00	18.36	27.91	21.50	28.02	0.000279	2.76	958.16	120.74	0.17
reach 1	102314	3856.00	18.36	29.31	22.37	29.49	0.000365	3.41	1131.97	1677.12	0.20
reach 1	102314	5335.00	18.36	30.06	23.29	30.14	0.000233	2.80	6678.73	10473.32	0.16
reach 1	102314	11115.00	18.36	31.01	26.19	31.04	0.000170	2.34	17450.77	11400.00	0.14
reach 1	102000	2641.00	18.36	27.84	21.29	27.94	0.000223	2.62	1047.29	127.30	0.15
reach 1	102000	3856.00	18.36	29.32	22.09	29.38	0.000176	2.20	4586.44	4505.23	0.14
reach 1	102000	5335.00	18.36	30.04	22.93	30.07	0.000136	1.88	10192.72	10766.35	0.12
reach 1	102000	11115.00	18.36	30.98	25.60	30.99	0.000105	1.75	20305.81	10777.83	0.11
reach 1	100000	2641.00	18.35	27.29	21.37	27.42	0.000309	2.82	936.83	123.67	0.18

HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	100000	3856.00	18.35	28.67	22.19	28.86	0.000399	3.47	1110.80	129.36	0.21
reach 1	100000	5335.00	18.35	29.19	23.08	29.51	0.000761	4.49	1266.99	747.91	0.28
reach 1	100000	11115.00	18.35	30.51	25.89	30.60	0.000457	3.50	10950.69	10727.58	0.22
reach 1	98000	2641.00	17.13	26.79	20.26	28.89	0.000220	2.48	1237.12	1044.89	0.15
reach 1	98000	3856.00	17.13	28.19	21.07	28.25	0.000211	2.21	3438.96	1977.12	0.15
reach 1	98000	5335.00	17.13	28.66	21.91	28.71	0.000208	2.26	5370.80	3274.67	0.15
reach 1	98000	11115.00	17.13	29.89	24.59	29.94	0.000239	2.61	11174.62	5322.98	0.16
reach 1	97100	2641.00	16.79	26.59	20.16	26.68	0.000235	2.48	1064.76	164.85	0.16
reach 1	97100	3856.00	16.79	27.93	20.98	28.03	0.000262	2.72	2537.22	2363.69	0.17
reach 1	97100	5335.00	16.79	28.43	21.83	28.50	0.000258	2.60	5172.56	4318.38	0.17
reach 1	97100	11115.00	16.79	29.68	24.52	29.71	0.000254	2.51	12559.95	7512.49	0.16
reach 1	97052	2641.00	16.79	26.58	20.16	26.67	0.000237	2.48	1063.12	164.81	0.16
reach 1	97052	3856.00	16.79	27.92	20.97	28.02	0.000265	2.74	2502.38	2339.62	0.17
reach 1	97052	5335.00	16.79	28.42	21.83	28.49	0.000267	2.60	5116.76	4284.31	0.17
reach 1	97052	11115.00	16.79	29.66	24.53	29.70	0.000262	2.48	12474.72	7483.63	0.17
reach 1	96000	2641.00	16.79	26.31	19.89	26.42	0.000246	2.60	1016.10	127.19	0.16
reach 1	96000	3856.00	16.79	27.64	20.70	27.72	0.000289	2.49	3296.57	3223.27	0.17
reach 1	96000	5335.00	16.79	28.34	21.56	28.35	0.000063	1.20	12278.79	7396.80	0.08
reach 1	96000	11115.00	16.79	29.57	24.31	29.57	0.000062	1.28	22909.91	9920.57	0.08
reach 1	94000	2641.00	16.80	25.99	19.82	26.04	0.000136	1.91	1813.83	316.86	0.12
reach 1	94000	3856.00	16.80	27.23	20.61	27.28	0.000160	2.23	2804.69	1908.31	0.13
reach 1	94000	5335.00	16.80	28.10	21.49	28.15	0.000172	2.25	5321.20	3854.96	0.14
reach 1	94000	11115.00	16.80	29.39	24.22	29.40	0.000124	1.84	17843.21	9465.85	0.11
reach 1	92434	2641.00	16.79	25.64	19.58	25.75	0.000267	2.66	993.96	128.01	0.17
reach 1	92434	3856.00	16.79	26.73	20.37	26.91	0.000381	3.39	1144.90	300.14	0.20
reach 1	92434	5335.00	16.79	27.47	21.21	27.72	0.000506	4.08	2053.75	2129.04	0.24
reach 1	92434	11115.00	16.79	28.79	23.87	29.02	0.000622	4.83	6917.94	5343.36	0.27
reach 1	92376	2641.00	16.79	25.62	19.58	25.73	0.000269	2.66	991.91	127.96	0.17
reach 1	92376	3856.00	16.79	26.71	20.37	26.89	0.000384	3.40	1138.64	240.85	0.20
reach 1	92376	5335.00	16.79	27.44	21.21	27.69	0.000519	4.12	1977.13	2042.34	0.24
reach 1	92376	11115.00	16.79	28.72	23.87	28.97	0.000671	5.00	6565.89	5095.28	0.28
reach 1	92000	2641.00	16.79	25.51	19.61	25.63	0.000292	2.76	956.21	123.82	0.18
reach 1	92000	3856.00	16.79	26.54	20.40	26.73	0.000424	3.55	1099.73	263.10	0.21
reach 1	92000	5335.00	16.79	27.19	21.26	27.47	0.000599	4.38	1750.84	1706.22	0.26
reach 1	92000	11115.00	16.79	28.44	23.96	28.69	0.000833	5.09	6548.97	5781.66	0.30
reach 1	91033	2641.00	16.48	25.19	19.68	25.32	0.000349	2.90	911.29	126.70	0.19
reach 1	91033	3856.00	16.48	26.08	20.49	26.29	0.000505	3.69	1324.48	1725.40	0.23
reach 1	91033	5335.00	16.48	26.65	21.36	26.88	0.000597	4.15	2628.40	2821.03	0.25
reach 1	91033	11115.00	16.48	27.65	24.08	27.89	0.000822	5.15	6339.00	4608.90	0.30
reach 1	91030	Inline Weir									
reach 1	91000	2641.00	14.79	25.18	17.94	25.27	0.000206	2.48	1067.05	126.07	0.15
reach 1	91000	3856.00	14.79	26.07	18.80	26.23	0.000310	3.18	1697.07	2348.83	0.19
reach 1	91000	5335.00	14.79	26.64	19.72	26.80	0.000363	3.53	3582.66	4272.09	0.20
reach 1	91000	11115.00	14.79	27.64	22.63	27.76	0.000448	4.10	9506.59	7583.87	0.23
reach 1	90000	2641.00	14.79	25.02	17.69	25.09	0.000150	2.16	1888.59	1251.32	0.13
reach 1	90000	3856.00	14.79	25.93	18.51	25.99	0.000149	2.26	4505.88	3849.05	0.13
reach 1	90000	5335.00	14.79	26.50	19.38	26.55	0.000150	2.33	7010.70	4986.84	0.13
reach 1	90000	11115.00	14.79	27.36	22.14	27.41	0.000271	2.75	12086.43	6764.63	0.17
reach 1	88000	2641.00	14.78	24.76	17.74	24.80	0.000132	1.98	3082.84	3057.74	0.12
reach 1	88000	3856.00	14.78	25.73	18.57	25.75	0.000088	1.67	7144.44	5277.90	0.10
reach 1	88000	5335.00	14.78	26.30	19.46	26.32	0.000086	1.58	10521.61	6588.83	0.10
reach 1	88000	11115.00	14.78	26.94	22.26	26.96	0.000179	2.12	15221.95	8076.13	0.14
reach 1	87169	2641.00	14.78	24.55	17.84	24.65	0.000237	2.59	1018.75	1646.86	0.16
reach 1	87169	3856.00	14.78	25.42	18.68	25.61	0.000373	3.41	1129.48	5666.92	0.20
reach 1	87169	5335.00	14.78	25.82	19.58	26.13	0.000626	4.52	1179.89	6374.46	0.26
reach 1	87169	11115.00	14.78	26.79	22.40	26.82	0.000163	2.44	15332.53	8103.26	0.14
reach 1	87084	2641.00	14.78	24.53	17.84	24.63	0.000239	2.60	1016.15	1637.44	0.16
reach 1	87084	3856.00	14.78	25.39	18.68	25.57	0.000378	3.43	1125.19	5606.00	0.20
reach 1	87084	5335.00	14.78	25.76	19.58	26.08	0.000638	4.55	1172.36	6289.40	0.27

HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	87064	11115.00	14.78	26.77	22.40	26.81	0.000166	2.46	15213.05	8077.01	0.14
reach 1	86000	2641.00	14.31	24.35	17.36	24.41	0.000153	2.11	2403.61	2191.50	0.13
reach 1	86000	3856.00	14.31	25.28	18.19	25.31	0.000127	1.85	5496.71	3891.10	0.12
reach 1	86000	5335.00	14.31	25.67	19.09	25.70	0.000147	2.04	7198.31	4842.02	0.13
reach 1	86000	11115.00	14.31	26.56	21.87	26.60	0.000214	2.52	12558.56	7120.40	0.15
reach 1	84000	2668.00	13.56	24.00	16.51	24.08	0.000173	2.34	1141.71	127.67	0.14
reach 1	84000	3887.00	13.56	25.05	17.32	25.08	0.000100	1.88	5476.96	9090.32	0.11
reach 1	84000	5378.00	13.56	25.41	18.20	25.44	0.000116	1.97	8836.45	9326.84	0.11
reach 1	84000	11080.00	13.56	26.22	20.91	26.24	0.000149	2.08	16479.58	9643.59	0.13
reach 1	82000	2668.00	12.94	23.64	16.03	23.73	0.000180	2.39	1114.30	123.92	0.14
reach 1	82000	3887.00	12.94	24.80	16.88	24.85	0.000137	2.02	5243.05	4403.34	0.12
reach 1	82000	5378.00	12.94	25.06	17.80	25.12	0.000228	2.52	6767.91	10717.51	0.16
reach 1	82000	11080.00	12.94	25.84	20.61	25.87	0.000231	2.27	15224.12	10807.67	0.15
reach 1	81854	2668.00	12.94	23.64	15.92	23.71	0.000157	2.21	1206.07	148.59	0.13
reach 1	81854	3887.00	12.94	24.68	16.74	24.81	0.000239	2.87	1352.92	5939.69	0.16
reach 1	81854	5378.00	12.94	25.02	17.61	25.09	0.000169	2.60	7045.40	11287.18	0.15
reach 1	81854	11080.00	12.94	25.81	20.29	25.85	0.000181	2.63	16010.82	11365.93	0.15
reach 1	81817	2668.00	12.94	23.63	15.92	23.71	0.000157	2.21	1205.24	146.01	0.13
reach 1	81817	3887.00	12.94	24.67	16.74	24.80	0.000239	2.88	1351.59	5781.71	0.16
reach 1	81817	5378.00	12.94	25.01	17.61	25.08	0.000192	2.62	6956.27	11286.89	0.15
reach 1	81817	11080.00	12.94	25.80	20.29	25.84	0.000186	2.66	15851.94	11363.54	0.15
reach 1	80000	2668.00	12.93	23.29	15.99	23.38	0.000201	2.48	1075.33	123.29	0.15
reach 1	80000	3887.00	12.93	24.23	16.84	24.35	0.000258	2.85	3075.68	5088.13	0.17
reach 1	80000	5378.00	12.93	24.43	17.74	24.58	0.000428	3.48	4224.96	6551.03	0.21
reach 1	80000	11080.00	12.93	25.27	20.55	25.35	0.000394	3.48	12044.02	10722.74	0.21
reach 1	78000	2668.00	12.96	22.82	16.07	22.92	0.000265	2.61	1184.78	766.57	0.17
reach 1	78000	3887.00	12.96	23.61	16.93	23.72	0.000386	2.88	2828.53	3406.06	0.20
reach 1	78000	5378.00	12.96	23.90	17.87	23.94	0.000227	2.21	7445.38	7123.62	0.15
reach 1	78000	11080.00	12.96	24.67	20.72	24.70	0.000263	2.53	13862.62	9661.04	0.17
reach 1	78000	2668.00	12.94	22.29	15.91	22.40	0.000259	2.67	1015.30	681.25	0.17
reach 1	78000	3887.00	12.94	23.03	16.73	23.10	0.000244	2.49	4536.97	5922.47	0.16
reach 1	76000	5378.00	12.94	23.28	17.63	23.35	0.000311	2.78	6046.81	6532.27	0.18
reach 1	76000	11080.00	12.94	24.00	20.36	24.06	0.000397	3.10	11406.48	8312.73	0.20
reach 1	74000	2668.00	11.86	21.79	15.07	21.90	0.000249	2.64	1012.29	129.76	0.16
reach 1	74000	3887.00	11.86	22.55	15.95	22.62	0.000235	2.43	4899.95	6866.73	0.16
reach 1	74000	5378.00	11.86	22.84	16.88	22.87	0.000184	2.19	9074.85	9596.82	0.14
reach 1	74000	11080.00	11.86	23.37	19.69	23.40	0.000268	2.69	14164.50	9631.44	0.17
reach 1	72000	2668.00	10.58	21.36	13.83	21.45	0.000202	2.33	1146.65	146.94	0.15
reach 1	72000	3887.00	10.58	22.07	14.69	22.14	0.000231	2.41	4591.51	8010.77	0.16
reach 1	72000	5378.00	10.58	22.42	15.60	22.47	0.000216	2.38	7392.60	8014.19	0.15
reach 1	72000	11080.00	10.58	23.10	18.36	23.11	0.000089	1.60	20921.31	10762.97	0.10
reach 1	70000	2668.00	10.48	20.95	13.58	21.05	0.000197	2.46	1162.68	973.73	0.15
reach 1	70000	3887.00	10.48	21.52	14.45	21.62	0.000283	2.76	3465.40	5131.00	0.17
reach 1	70000	5378.00	10.48	21.79	15.37	21.89	0.000398	3.12	4946.57	6093.17	0.20
reach 1	70000	11080.00	10.48	22.75	18.20	22.80	0.000321	2.97	11432.06	6862.81	0.19
reach 1	69760	2668.00	10.48	20.92	13.48	21.00	0.000170	2.25	1183.42	3504.42	0.14
reach 1	69760	3887.00	10.48	21.39	14.29	21.54	0.000310	3.11	1248.72	7199.77	0.19
reach 1	69760	5378.00	10.48	21.80	15.16	21.82	0.000095	1.76	10792.03	8407.84	0.10
reach 1	69760	11080.00	10.48	22.74	17.86	22.75	0.000099	1.88	19099.44	8941.39	0.11
reach 1	69693	2668.00	10.48	20.90	13.48	20.96	0.000172	2.26	1180.39	3463.87	0.14
reach 1	69693	3887.00	10.48	21.36	14.29	21.51	0.000312	3.12	1245.64	7134.20	0.19
reach 1	69693	5378.00	10.48	21.79	15.15	21.81	0.000096	1.77	10735.31	8394.57	0.10
reach 1	69693	11080.00	10.48	22.73	17.86	22.75	0.000100	1.89	19038.40	8939.81	0.11
reach 1	68373	2920.00	10.48	20.86	13.69	20.86	0.000036	0.92	9854.83	7248.54	0.06
reach 1	68373	4267.00	10.48	21.38	14.55	21.38	0.000028	0.84	16279.57	10765.14	0.05
reach 1	68373	5813.00	10.48	21.73	15.39	21.73	0.000029	0.89	20044.12	10779.69	0.06
reach 1	68373	11410.00	10.48	22.66	17.66	22.66	0.000034	1.03	30126.83	10815.41	0.06
reach 1	67000	2920.00	10.28	20.75	13.57	20.77	0.000082	1.58	6215.05	6346.18	0.09
reach 1	67000	4267.00	10.28	21.30	14.49	21.31	0.000066	1.33	11071.23	9368.03	0.08

HFC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	67000	5813.00	10.28	21.65	15.41	21.66	0.000068	1.27	14359.64	9430.38	0.08
reach 1	67000	11410.00	10.28	22.59	18.13	22.59	0.000067	1.32	23227.78	9458.67	0.08
reach 1	68000	2920.00	10.28	20.62	13.73	20.66	0.000151	1.99	4219.30	5155.21	0.13
reach 1	68000	4267.00	10.28	21.22	14.67	21.24	0.000096	1.53	9360.15	8050.53	0.10
reach 1	68000	5813.00	10.28	21.57	15.62	21.58	0.000098	1.45	12180.74	8086.19	0.10
reach 1	68000	11410.00	10.28	22.52	18.40	22.52	0.000094	1.46	19822.23	8109.21	0.10
reach 1	65430	2920.00	10.28	20.41	13.69	20.54	0.000295	2.90	1008.32	5092.74	0.18
reach 1	65430	4267.00	10.28	21.17	14.64	21.18	0.000093	1.64	9895.89	9457.22	0.10
reach 1	65430	5813.00	10.28	21.52	15.58	21.53	0.000093	1.54	13388.77	10453.84	0.10
reach 1	65430	11410.00	10.28	22.47	18.38	22.48	0.000075	1.47	24296.12	11800.00	0.09
reach 1	65374	2920.00	10.28	20.39	13.69	20.52	0.000297	2.90	1006.18	5057.59	0.18
reach 1	65374	4267.00	10.28	21.16	14.64	21.18	0.000093	1.66	9822.27	9433.97	0.10
reach 1	65374	5813.00	10.28	21.51	15.58	21.52	0.000093	1.57	13323.98	10436.47	0.10
reach 1	65374	11410.00	10.28	22.46	18.37	22.47	0.000075	1.50	24241.77	11800.00	0.09
reach 1	64000	2920.00	10.18	19.97	13.35	20.08	0.000332	2.73	1071.46	157.03	0.18
reach 1	64000	4267.00	10.18	20.99	14.21	21.02	0.000140	1.83	6562.86	4997.62	0.12
reach 1	64000	5813.00	10.18	21.42	15.08	21.43	0.000054	1.17	16356.01	10359.41	0.08
reach 1	64000	11410.00	10.18	22.38	17.68	22.39	0.000053	1.24	27148.75	11636.78	0.08
reach 1	62000	2920.00	10.03	19.15	13.25	19.29	0.000475	3.00	973.27	162.61	0.22
reach 1	62000	4267.00	10.03	20.76	14.15	20.78	0.000103	1.57	7124.50	5034.83	0.10
reach 1	62000	5813.00	10.03	21.26	15.04	21.28	0.000102	1.62	10013.67	6477.68	0.10
reach 1	62000	11410.00	10.03	22.21	17.66	22.23	0.000130	1.95	16905.28	7673.85	0.12
reach 1	60000	2920.00	9.59	18.23	12.81	18.40	0.000417	3.24	902.18	120.31	0.21
reach 1	60000	4267.00	9.59	20.30	13.69	20.42	0.000387	3.01	3142.92	4934.87	0.20
reach 1	60000	5813.00	9.59	20.91	14.57	20.97	0.000271	2.57	7270.11	8447.08	0.17
reach 1	60000	11410.00	9.59	21.89	17.18	21.91	0.000192	2.29	16401.09	10139.41	0.14
reach 1	58000	2920.00	9.33	17.10	12.83	17.33	0.000701	3.85	757.78	116.03	0.27
reach 1	58000	4267.00	9.33	19.13	13.72	19.42	0.000648	4.26	1001.70	123.64	0.26
reach 1	58000	5813.00	9.33	20.80	14.60	20.62	0.000119	1.92	11888.65	10802.44	0.11
reach 1	58000	11410.00	9.33	21.67	17.27	21.67	0.000079	1.45	23621.97	11215.90	0.09
reach 1	57448	2920.00	9.38	16.66	12.80	16.91	0.000825	3.99	731.24	120.64	0.29
reach 1	57448	4267.00	9.38	18.76	13.68	19.04	0.000706	4.29	994.32	130.39	0.27
reach 1	57448	5813.00	9.38	20.32	14.56	20.49	0.000460	3.79	3815.76	4759.87	0.23
reach 1	57448	11410.00	9.38	21.52	17.16	21.59	0.000300	3.25	12061.20	8906.78	0.18
reach 1	57404	2920.00	9.38	16.62	12.79	16.87	0.000842	4.02	726.27	120.45	0.29
reach 1	57404	4267.00	9.38	18.72	13.68	19.01	0.000716	4.31	989.82	130.23	0.28
reach 1	57404	5813.00	9.38	20.28	14.56	20.47	0.000484	3.88	3640.46	4582.79	0.23
reach 1	57404	11410.00	9.38	21.50	17.16	21.57	0.000308	3.30	11883.52	8838.26	0.19
reach 1	56867	2920.00	9.80	16.23	12.56	16.44	0.000739	3.65	800.06	139.66	0.27
reach 1	56867	4267.00	9.80	18.42	13.32	18.65	0.000573	3.82	1117.79	149.93	0.25
reach 1	56867	5813.00	9.80	20.04	14.10	20.22	0.000431	3.62	3070.15	2442.65	0.22
reach 1	56867	11410.00	9.80	21.16	16.41	21.34	0.000595	4.36	5976.79	2955.76	0.26
reach 1	56865	Inline Weir									
reach 1	56857	2920.00	7.31	16.22	10.17	16.33	0.000268	2.67	1095.43	141.95	0.17
reach 1	56857	4267.00	7.31	18.42	10.97	18.56	0.000266	3.01	1418.02	151.72	0.17
reach 1	56857	5813.00	7.31	20.04	11.77	20.17	0.000240	3.09	3395.95	2442.06	0.17
reach 1	56857	11410.00	7.31	21.14	14.16	21.32	0.000394	4.14	6254.00	2925.11	0.22
reach 1	56000	2920.00	6.74	16.02	9.60	16.12	0.000225	2.52	1157.59	142.00	0.16
reach 1	56000	4267.00	6.74	18.22	10.37	18.34	0.000229	2.88	1502.07	242.12	0.16
reach 1	56000	5813.00	6.74	19.79	11.16	19.95	0.000257	3.27	2049.95	396.38	0.17
reach 1	56000	11410.00	6.74	20.95	13.62	21.03	0.000238	3.11	8135.10	2738.38	0.17
reach 1	54000	2920.00	6.00	15.62	8.81	15.71	0.000185	2.34	1246.99	147.34	0.14
reach 1	54000	4267.00	6.00	17.78	9.57	17.89	0.000220	2.71	1576.69	169.90	0.16
reach 1	54000	5813.00	6.00	19.26	10.33	19.41	0.000285	3.16	1840.37	190.82	0.18
reach 1	54000	11410.00	6.00	20.61	12.64	20.65	0.000147	2.44	12036.90	4526.34	0.13
reach 1	52275	2923.00	5.83	15.30	8.55	15.38	0.000190	2.34	1249.36	151.79	0.14
reach 1	52275	4261.00	5.83	17.40	9.30	17.51	0.000221	2.68	1588.19	175.68	0.16
reach 1	52275	5802.00	5.83	18.74	10.09	18.90	0.000316	3.15	1844.38	210.60	0.19
reach 1	52275	10992.00	5.83	20.38	12.24	20.42	0.000136	2.16	13560.31	10324.29	0.12

HFC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	51585	2923.00	5.69	15.12	8.68	15.23	0.000260	2.69	1087.09	135.30	0.17
reach 1	51585	4281.00	5.69	17.19	9.51	17.34	0.000274	3.10	1376.53	143.59	0.18
reach 1	51585	5802.00	5.69	18.43	10.37	18.65	0.000394	3.70	1566.48	162.67	0.21
reach 1	51585	10992.00	5.69	20.24	12.73	20.32	0.000216	3.05	12450.32	8971.28	0.18
reach 1	51519	2923.00	5.69	15.10	8.68	15.21	0.000262	2.69	1084.67	135.22	0.17
reach 1	51519	4281.00	5.69	17.17	9.51	17.32	0.000276	3.10	1373.85	143.54	0.18
reach 1	51519	5802.00	5.69	18.41	10.37	18.62	0.000397	3.71	1561.99	162.67	0.21
reach 1	51519	10992.00	5.69	20.23	12.73	20.30	0.000220	3.08	12303.79	8910.64	0.16
reach 1	50000	2923.00	5.58	14.73	8.42	14.83	0.000235	2.52	1160.53	148.96	0.18
reach 1	50000	4281.00	5.58	16.74	9.20	16.87	0.000313	2.85	1496.06	198.07	0.18
reach 1	50000	5802.00	5.58	18.18	9.99	18.23	0.000151	2.18	4724.94	1438.84	0.13
reach 1	50000	10992.00	5.58	20.12	12.21	20.13	0.000060	1.53	18496.57	5872.02	0.08
reach 1	48000	2923.00	4.89	14.29	7.71	14.38	0.000214	2.35	1242.18	164.33	0.15
reach 1	48000	4281.00	4.89	16.17	8.46	16.29	0.000264	2.68	1591.20	202.84	0.17
reach 1	48000	5802.00	4.89	17.88	9.23	17.93	0.000144	2.19	4044.99	923.03	0.13
reach 1	48000	10992.00	4.89	19.97	11.36	19.99	0.000084	1.87	18248.76	8780.13	0.10
reach 1	47232	2923.00	4.94	14.06	8.02	14.18	0.000295	2.77	1056.82	139.55	0.18
reach 1	47232	4281.00	4.94	15.89	8.86	16.05	0.000329	3.22	1321.85	150.10	0.19
reach 1	47232	5802.00	4.94	17.52	9.69	17.73	0.000404	3.67	1580.42	171.84	0.21
reach 1	47232	10992.00	4.94	19.87	12.04	19.91	0.000154	2.37	13059.64	6091.23	0.13
reach 1	46000	2923.00	4.90	13.73	7.80	13.83	0.000266	2.62	1173.60	176.29	0.17
reach 1	46000	4281.00	4.90	15.55	8.59	15.67	0.000273	2.95	1789.56	614.24	0.17
reach 1	46000	5802.00	4.90	17.22	9.41	17.33	0.000225	2.91	3038.19	813.45	0.18
reach 1	46000	10992.00	4.90	19.75	11.70	19.77	0.000075	1.74	18112.12	7682.60	0.09
reach 1	44000	2923.00	4.68	13.19	7.35	13.30	0.000267	2.62	1115.02	147.46	0.17
reach 1	44000	4281.00	4.68	14.95	8.10	15.10	0.000297	3.09	1380.68	154.28	0.18
reach 1	44000	5802.00	4.68	16.55	8.87	16.74	0.000384	3.53	1641.47	181.24	0.21
reach 1	44000	10992.00	4.68	19.53	11.02	19.57	0.000134	2.29	12524.35	5790.96	0.12
reach 1	43141	2923.00	4.68	12.96	7.31	13.07	0.000274	2.62	1117.46	151.98	0.17
reach 1	43141	4281.00	4.68	14.70	8.04	14.84	0.000303	3.07	1387.45	159.02	0.18
reach 1	43141	5802.00	4.68	16.24	8.79	16.43	0.000341	3.54	1673.15	328.58	0.20
reach 1	43141	10992.00	4.68	19.47	10.89	19.51	0.000134	2.21	13116.65	6340.46	0.12
reach 1	42941	2923.00	4.24	12.93	7.10	13.02	0.000243	2.44	1198.22	166.31	0.18
reach 1	42941	4281.00	4.24	14.65	7.83	14.78	0.000266	2.85	1492.56	174.52	0.17
reach 1	42941	5802.00	4.24	16.19	8.56	16.36	0.000296	3.28	1795.53	322.40	0.19
reach 1	42941	10992.00	4.24	19.44	10.62	19.49	0.000246	2.38	10362.11	6424.09	0.16
reach 1	42938	Inline Weir									
reach 1	42932	2923.00	3.60	12.92	6.12	12.99	0.000151	2.08	1405.39	172.57	0.13
reach 1	42932	4281.00	3.60	14.65	6.82	14.74	0.000176	2.49	1708.68	179.23	0.14
reach 1	42932	5802.00	3.60	16.18	7.53	16.32	0.000206	2.91	2017.85	310.56	0.16
reach 1	42932	10992.00	3.60	19.43	9.53	19.48	0.000217	2.42	10270.86	6373.37	0.15
reach 1	42386	2923.00	3.60	12.89	5.60	12.93	0.000083	1.59	1843.06	217.71	0.10
reach 1	42386	4281.00	3.60	14.60	6.16	14.66	0.000099	1.92	2220.83	223.67	0.11
reach 1	42386	5802.00	3.60	16.14	6.74	16.21	0.000116	2.26	2567.19	227.44	0.12
reach 1	42386	10992.00	3.60	19.36	8.40	19.43	0.000105	2.44	10565.37	5732.12	0.12
reach 1	42313	2923.00	3.60	12.88	5.60	12.92	0.000083	1.59	1840.88	217.68	0.10
reach 1	42313	4281.00	3.60	14.59	6.16	14.65	0.000099	1.92	2218.18	223.64	0.11
reach 1	42313	5802.00	3.60	16.12	6.74	16.20	0.000117	2.26	2564.02	227.40	0.12
reach 1	42313	10992.00	3.60	19.35	8.40	19.42	0.000105	2.44	10530.12	5718.14	0.12
reach 1	42000	2923.00	3.60	12.86	5.52	12.89	0.000075	1.52	1920.13	223.46	0.09
reach 1	42000	4281.00	3.60	14.56	6.06	14.61	0.000090	1.85	2306.30	229.46	0.10
reach 1	42000	5802.00	3.60	16.09	6.62	16.16	0.000108	2.18	2681.29	234.86	0.11
reach 1	42000	10992.00	3.60	19.29	8.21	19.38	0.000120	2.84	9478.61	6535.18	0.12
reach 1	40000	2923.00	3.15	12.70	5.17	12.74	0.000072	1.50	1952.51	228.03	0.09
reach 1	40000	4281.00	3.15	14.38	5.72	14.43	0.000087	1.82	2334.90	231.47	0.10
reach 1	40000	5802.00	3.15	15.88	6.29	15.95	0.000105	2.16	2685.71	236.03	0.11
reach 1	40000	10992.00	3.15	18.94	7.89	19.09	0.000169	3.13	4650.62	2999.76	0.15
reach 1	38000	2923.00	3.14	12.55	5.08	12.59	0.000073	1.50	1942.96	225.60	0.09



HEC-RAS Plan- NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	38000	4261.00	3.14	14.19	5.63	14.24	0.000090	1.84	2317.41	232.22	0.10
reach 1	38000	5802.00	3.14	15.66	6.20	15.74	0.000108	2.18	2663.29	237.32	0.11
reach 1	38000	10992.00	3.14	18.56	7.81	18.73	0.000189	3.27	3364.60	246.55	0.16
reach 1	36000	2923.00	3.15	12.39	5.13	12.43	0.000083	1.58	1845.12	217.20	0.10
reach 1	36000	4261.00	3.15	13.98	5.69	14.04	0.000102	1.94	2196.30	222.82	0.11
reach 1	36000	5802.00	3.15	15.41	6.26	15.50	0.000124	2.30	2518.14	227.92	0.12
reach 1	36000	10992.00	3.15	18.12	7.89	18.31	0.000225	3.49	3149.04	237.61	0.17
reach 1	34000	2923.00	3.16	12.21	5.23	12.25	0.000095	1.65	1774.90	220.28	0.10
reach 1	34000	4261.00	3.16	13.76	5.80	13.82	0.000116	2.01	2122.78	227.31	0.12
reach 1	34000	5802.00	3.16	15.14	6.39	15.23	0.000140	2.38	2440.01	231.92	0.13
reach 1	34000	10992.00	3.16	17.62	8.06	17.83	0.000259	3.63	3025.65	240.40	0.18
reach 1	32548	2923.00	3.16	12.06	5.30	12.11	0.000101	1.69	1728.60	216.60	0.11
reach 1	32548	4261.00	3.16	13.58	5.89	13.65	0.000124	2.07	2061.86	221.62	0.12
reach 1	32548	5802.00	3.16	14.93	6.48	15.02	0.000151	2.46	2362.39	226.07	0.13
reach 1	32548	10992.00	3.16	17.20	8.13	17.43	0.000292	3.81	2885.66	233.61	0.19
reach 1	32504	2923.00	3.16	12.06	5.30	12.10	0.000102	1.69	1727.62	216.58	0.11
reach 1	32504	4261.00	3.16	13.58	5.89	13.64	0.000124	2.07	2060.63	221.61	0.12
reach 1	32504	5802.00	3.16	14.92	6.48	15.01	0.000151	2.46	2360.86	226.04	0.13
reach 1	32504	10992.00	3.16	17.19	8.13	17.42	0.000293	3.81	2882.53	233.57	0.19
reach 1	32000	2923.00	3.16	12.01	5.19	12.05	0.000092	1.63	1794.48	221.27	0.10
reach 1	32000	4261.00	3.16	13.52	5.74	13.58	0.000115	2.00	2132.58	226.71	0.11
reach 1	32000	5802.00	3.16	14.85	6.30	14.94	0.000140	2.38	2437.08	231.50	0.13
reach 1	32000	10992.00	3.16	17.05	7.90	17.26	0.000307	3.70	2972.41	261.15	0.19
reach 1	30000	2923.00	2.92	11.84	4.88	11.87	0.000085	1.58	1845.37	222.78	0.10
reach 1	30000	4261.00	2.92	13.30	5.43	13.36	0.000108	1.96	2174.97	227.34	0.11
reach 1	30000	5802.00	2.92	14.58	5.98	14.66	0.000135	2.35	2467.55	231.30	0.13
reach 1	30000	10992.00	2.92	16.51	7.57	16.69	0.000257	3.56	4631.40	3022.67	0.18
reach 1	29585	3104.00	2.90	11.79	5.02	11.83	0.000108	1.76	1759.85	216.40	0.11
reach 1	29585	4305.00	2.90	13.24	5.53	13.31	0.000124	2.07	2079.52	221.80	0.12
reach 1	29585	5837.00	2.90	14.51	6.10	14.60	0.000153	2.47	2362.37	226.47	0.13
reach 1	29585	10969.00	2.90	16.32	7.70	16.56	0.000328	3.95	2779.83	4687.42	0.20
reach 1	29523	3104.00	2.90	11.78	5.02	11.83	0.000108	1.77	1758.38	216.37	0.11
reach 1	29523	4305.00	2.90	13.24	5.53	13.30	0.000124	2.07	2077.79	221.77	0.12
reach 1	29523	5837.00	2.90	14.50	6.10	14.59	0.000154	2.47	2360.16	226.43	0.13
reach 1	29523	10969.00	2.90	16.30	7.70	16.54	0.000330	3.95	2774.83	4682.65	0.20
reach 1	28000	3104.00	2.90	11.61	5.03	11.66	0.000109	1.75	1774.30	223.05	0.11
reach 1	28000	4305.00	2.90	13.05	5.54	13.11	0.000124	2.05	2097.68	227.62	0.12
reach 1	28000	5837.00	2.90	14.26	6.10	14.36	0.000154	2.46	2376.44	231.49	0.14
reach 1	28000	10969.00	2.90	16.05	7.69	16.14	0.000175	2.86	8316.27	3654.83	0.15
reach 1	26000	3104.00	2.90	11.37	5.04	11.42	0.000125	1.83	1691.68	219.83	0.12
reach 1	26000	4305.00	2.90	12.77	5.55	12.84	0.000142	2.15	2003.68	225.23	0.13
reach 1	26000	5837.00	2.90	13.95	6.12	14.04	0.000170	2.48	2771.55	689.08	0.14
reach 1	26000	10969.00	2.90	15.55	7.74	15.69	0.000304	3.32	6400.69	4605.90	0.19
reach 1	24000	3104.00	2.90	11.11	4.93	11.16	0.000127	1.83	1697.44	222.65	0.12
reach 1	24000	4305.00	2.90	12.48	5.41	12.55	0.000142	2.09	2471.99	1207.89	0.13
reach 1	24000	5837.00	2.90	13.65	5.96	13.72	0.000147	2.18	4280.29	1816.29	0.13
reach 1	24000	10969.00	2.90	15.49	7.52	15.49	0.000034	1.12	23954.01	8125.62	0.06
reach 1	22000	3104.00	2.90	10.84	4.92	10.90	0.000137	1.87	1658.59	222.69	0.12
reach 1	22000	4305.00	2.90	12.17	5.39	12.24	0.000156	2.20	1964.21	239.07	0.13
reach 1	22000	5837.00	2.90	13.27	5.93	13.37	0.000195	2.64	2243.17	322.78	0.15
reach 1	22000	10969.00	2.90	15.10	7.48	15.32	0.000348	3.89	3790.55	1505.58	0.20
reach 1	20000	3104.00	2.23	10.56	4.53	10.62	0.000144	1.93	1610.45	215.16	0.12
reach 1	20000	4305.00	2.23	11.84	5.03	11.92	0.000168	2.28	1889.45	220.05	0.14
reach 1	20000	5837.00	2.23	12.84	5.59	12.96	0.000219	2.76	2111.72	223.87	0.16
reach 1	20000	10969.00	2.23	14.14	7.19	14.47	0.000516	4.56	2406.41	228.84	0.25
reach 1	19889	3104.00	2.23	10.54	4.62	10.60	0.000157	1.99	1561.50	212.54	0.13
reach 1	19889	4305.00	2.23	11.82	5.14	11.91	0.000182	2.34	1836.78	217.90	0.14
reach 1	19889	5837.00	2.23	12.82	5.72	12.94	0.000235	2.84	2055.46	221.57	0.16
reach 1	19889	10969.00	2.23	14.06	7.36	14.40	0.000559	4.69	2376.48	484.17	0.26

HEC-RAS Plan: NM Rev Ex (Continued)

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
reach 1	19835	3104.00	2.23	10.53	4.62	10.59	0.000157	1.99	1559.65	212.50	0.13
reach 1	19835	4305.00	2.23	11.81	5.14	11.90	0.000182	2.35	1834.56	217.86	0.14
reach 1	19835	5837.00	2.23	12.80	5.72	12.93	0.000237	2.84	2052.49	221.52	0.16
reach 1	19835	10969.00	2.23	14.03	7.35	14.37	0.000565	4.71	2361.18	442.34	0.26
reach 1	18000	3104.00	2.22	10.23	4.53	10.30	0.000168	2.03	1527.86	211.95	0.13
reach 1	18000	4305.00	2.22	11.46	5.04	11.55	0.000197	2.40	1790.69	216.68	0.15
reach 1	18000	5837.00	2.22	12.34	5.60	12.47	0.000269	2.92	2278.06	1944.81	0.17
reach 1	18000	10969.00	2.22	12.99	7.21	13.29	0.000598	4.61	4626.38	5124.56	0.26
reach 1	16000	3104.00	2.22	9.87	4.30	9.94	0.000182	2.09	1483.04	208.47	0.14
reach 1	16000	4305.00	2.22	11.03	4.81	11.13	0.000217	2.49	1728.29	212.92	0.15
reach 1	16000	5837.00	2.22	12.20	5.38	12.21	0.00062	1.41	11935.73	6914.24	0.08
reach 1	16000	10969.00	2.22	12.74	7.00	12.77	0.000114	1.92	15708.82	6932.99	0.11
reach 1	14000	3104.00	2.03	9.51	4.07	9.57	0.000181	2.07	1496.51	212.55	0.14
reach 1	14000	4305.00	2.03	10.60	4.56	10.69	0.000220	2.49	1729.83	215.78	0.15
reach 1	14000	5837.00	2.03	11.85	5.12	11.98	0.000263	2.91	2003.73	224.81	0.17
reach 1	14000	10969.00	2.03	12.50	6.70	12.53	0.000124	1.99	15138.14	6925.74	0.12
reach 1	12000	3104.00	1.79	9.10	3.96	9.18	0.000216	2.20	1408.88	208.61	0.15
reach 1	12000	4305.00	1.79	10.10	4.46	10.21	0.000268	2.66	1617.83	212.04	0.17
reach 1	12000	5837.00	1.79	11.25	5.03	11.40	0.000316	3.13	1864.49	216.01	0.19
reach 1	12000	10969.00	1.79	12.42	6.63	12.42	0.000027	0.90	34411.74	13721.68	0.05
reach 1	10000	3243.00	1.80	8.58	3.99	8.67	0.000296	2.46	1317.18	209.92	0.17
reach 1	10000	4358.00	1.80	9.46	4.45	9.59	0.000352	2.90	1504.03	213.75	0.19
reach 1	10000	5848.00	1.80	10.46	5.00	10.64	0.000472	3.39	1725.56	241.00	0.22
reach 1	10000	10969.00	1.80	11.78	6.59	12.22	0.001024	5.31	2063.84	262.21	0.33
reach 1	8000	3292.00	1.73	7.80	3.99	7.93	0.000470	2.89	1139.10	202.36	0.21
reach 1	8000	4458.00	1.73	8.50	4.48	8.69	0.000593	3.48	1281.23	204.75	0.25
reach 1	8000	5868.00	1.73	9.20	5.01	9.46	0.000734	4.12	1425.21	207.20	0.28
reach 1	8000	10964.00	1.73	11.00	11.00	11.08	0.000310	3.06	10500.89	6877.30	0.19
reach 1	6000	3292.00	1.77	6.86	3.68	6.97	0.000488	2.66	1307.37	296.77	0.21
reach 1	6000	4458.00	1.77	7.23	4.11	7.40	0.000699	3.34	1416.98	301.04	0.26
reach 1	6000	5868.00	1.77	7.43	4.58	7.69	0.001072	4.23	1475.75	303.30	0.32
reach 1	6000	10964.00	1.77	7.67	5.93	8.51	0.003223	7.53	1550.88	306.19	0.56
reach 1	4056	3292.00	1.84	5.80	3.41	5.90	0.000621	2.53	1303.69	352.71	0.23
reach 1	4056	4458.00	1.84	6.15	3.74	6.22	0.000611	2.42	4854.15	16474.10	0.21
reach 1	4056	5868.00	1.84	6.37	4.10	6.41	0.000408	2.24	8558.89	16860.39	0.19
reach 1	4056	10964.00	1.84	6.86	5.20	6.89	0.000303	2.07	17213.01	17807.57	0.17
reach 1	4024	3292.00	1.84	5.79	3.41	5.89	0.000629	2.53	1298.72	352.65	0.23
reach 1	4024	4458.00	1.84	6.13	3.74	6.21	0.000532	2.47	4658.12	16453.64	0.22
reach 1	4024	5868.00	1.84	6.36	4.10	6.41	0.000421	2.27	8399.90	16844.12	0.19
reach 1	4024	10964.00	1.84	6.86	5.19	6.89	0.000303	2.07	17213.01	17807.57	0.17
reach 1	2000	3576.00	1.72	4.16	2.81	4.25	0.001056	2.41	1484.29	642.56	0.28
reach 1	2000	4920.00	1.72	4.43	3.05	4.56	0.001398	2.97	1654.04	644.18	0.33
reach 1	2000	6522.00	1.72	4.68	3.32	4.88	0.001803	3.59	1816.57	645.72	0.38
reach 1	2000	10964.00	1.72	5.14	3.93	5.56	0.003084	5.18	2115.82	648.54	0.51
reach 1	0.	3576.00	1.41	3.59	1.98	3.80	0.000155	0.77	6747.25	7371.93	0.10
reach 1	0.	4920.00	1.41	3.85	2.12	3.85	0.000155	0.84	8654.40	7648.04	0.10
reach 1	0.	6522.00	1.41	4.10	2.26	4.11	0.000155	0.90	10901.75	10307.77	0.11
reach 1	0.	10964.00	1.41	4.64	2.64	4.65	0.000155	1.04	16503.61	10723.46	0.11

**HEC-RAS MODEL  
REVISED EXISTING CONDITIONS  
RAYMONDVILLE**



HEC-RAS Plan: Ray - RevEx

River	Reach	River Sta	Q Total (cfs)	Min Ch.El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
La Sal Vieja	Reach 1	15060	586.00	24.30	31.66	26.12	31.69	0.000157	1.46	402.89	69.44	0.11
La Sal Vieja	Reach 1	15060	982.00	24.30	34.25	26.83	34.29	0.000146	1.65	595.67	79.79	0.11
La Sal Vieja	Reach 1	15060	1341.00	24.30	36.98	27.39	37.02	0.000108	1.62	828.83	90.72	0.09
La Sal Vieja	Reach 1	15080	1390.00	24.30	42.49	27.46	42.51	0.000025	1.01	1377.14	2473.49	0.05
La Sal Vieja	Reach 1	15050	586.00	24.30	31.65	26.12	31.69	0.000158	1.46	402.28	69.41	0.11
La Sal Vieja	Reach 1	15050	982.00	24.30	34.24	26.83	34.29	0.000146	1.65	595.46	79.77	0.11
La Sal Vieja	Reach 1	15050	1341.00	24.30	36.98	27.39	37.02	0.000108	1.62	828.41	90.70	0.09
La Sal Vieja	Reach 1	15050	1390.00	24.30	42.49	27.47	42.51	0.000025	1.01	1377.08	2473.02	0.05
La Sal Vieja	Reach 1	15020	Culvert									
La Sal Vieja	Reach 1	15010	586.00	24.30	30.07	26.12	30.13	0.000377	1.97	297.21	63.07	0.16
La Sal Vieja	Reach 1	15010	982.00	24.30	32.12	26.83	32.20	0.000354	2.26	434.90	71.27	0.16
La Sal Vieja	Reach 1	15010	1341.00	24.30	33.68	27.39	33.78	0.000337	2.43	551.42	77.53	0.16
La Sal Vieja	Reach 1	15010	1390.00	24.30	39.44	27.47	39.47	0.000058	1.31	1064.15	100.56	0.07
La Sal Vieja	Reach 1	15000	586.00	24.30	30.06		30.12	0.000379	1.97	296.84	63.05	0.16
La Sal Vieja	Reach 1	15000	982.00	24.30	32.11		32.19	0.000355	2.26	434.54	71.25	0.16
La Sal Vieja	Reach 1	15000	1341.00	24.30	33.68		33.77	0.000338	2.43	551.06	77.51	0.16
La Sal Vieja	Reach 1	15000	1390.00	24.30	39.44		39.47	0.000058	1.31	1064.09	100.56	0.07
La Sal Vieja	Reach 1	12500	586.00	23.30	29.13		29.19	0.000364	1.95	300.94	63.30	0.16
La Sal Vieja	Reach 1	12500	982.00	23.30	31.25		31.32	0.000334	2.21	444.15	71.79	0.16
La Sal Vieja	Reach 1	12500	1341.00	23.30	32.86		32.95	0.000315	2.37	565.18	78.24	0.16
La Sal Vieja	Reach 1	12500	1390.00	23.30	39.32		39.34	0.000047	1.20	1153.76	104.07	0.06
La Sal Vieja	Reach 1	9650	586.00	22.16	28.14		28.19	0.000332	1.89	310.71	63.92	0.15
La Sal Vieja	Reach 1	9650	982.00	22.16	30.35		30.42	0.000299	2.13	461.89	72.77	0.15
La Sal Vieja	Reach 1	9650	1341.00	22.16	32.02		32.10	0.000281	2.28	588.73	79.44	0.15
La Sal Vieja	Reach 1	9650	1390.00	22.16	39.20		39.22	0.000036	1.10	1262.64	108.18	0.06
La Sal Vieja	Reach 1	7500	586.00	21.30	27.47		27.52	0.000297	1.81	322.87	64.66	0.14
La Sal Vieja	Reach 1	7500	982.00	21.30	29.75		29.81	0.000267	2.04	480.76	73.80	0.14
La Sal Vieja	Reach 1	7500	1341.00	21.30	31.45		31.53	0.000252	2.19	612.18	80.61	0.14
La Sal Vieja	Reach 1	7500	1390.00	21.30	39.13		39.14	0.000030	1.03	1348.69	111.31	0.05
La Sal Vieja	Reach 1	4100	586.00	19.94	26.60		26.64	0.000225	1.65	355.13	66.64	0.13
La Sal Vieja	Reach 1	4100	982.00	19.94	28.96		29.01	0.000210	1.88	523.16	76.06	0.13
La Sal Vieja	Reach 1	4100	1341.00	19.94	30.69		30.76	0.000203	2.03	661.45	83.02	0.13
La Sal Vieja	Reach 1	4100	1390.00	19.94	39.04		39.05	0.000023	0.93	1493.56	116.40	0.05
La Sal Vieja	Reach 1	1000	586.00	18.70	26.02	20.52	26.06	0.000160	1.46	400.17	69.29	0.11
La Sal Vieja	Reach 1	1000	982.00	18.70	28.40	21.23	28.44	0.000160	1.71	575.92	78.79	0.11
La Sal Vieja	Reach 1	1000	1341.00	18.70	30.14	21.79	30.20	0.000160	1.86	719.77	85.78	0.11
La Sal Vieja	Reach 1	1000	1390.00	18.70	39.00	21.87	39.01	0.000010	0.69	4567.38	1082.00	0.03
raymondville	Reach 8	231612	343.00	40.87	49.31		49.34	0.000207	1.51	226.85	43.76	0.12
raymondville	Reach 8	231612	711.00	40.87	52.22		52.28	0.000238	1.92	371.27	55.41	0.13
raymondville	Reach 8	231612	1224.00	40.87	54.50		54.55	0.000183	1.95	1041.83	554.64	0.12
raymondville	Reach 8	231612	2929.00	40.87	58.06		58.08	0.000076	1.59	3710.77	937.40	0.08
raymondville	Reach 8	227684	343.00	40.09	48.51		48.55	0.000198	1.49	230.93	44.27	0.11
raymondville	Reach 8	227684	711.00	40.09	51.28		51.33	0.000243	1.93	368.47	55.32	0.13
raymondville	Reach 8	227684	1224.00	40.09	53.53		53.63	0.000312	2.43	503.58	64.35	0.15
raymondville	Reach 8	227684	2929.00	40.09	57.54		57.61	0.000209	2.49	2047.48	623.49	0.13
raymondville	Reach 8	225004	343.00	39.55	47.97		48.00	0.000210	1.52	225.88	43.67	0.12
raymondville	Reach 8	225004	711.00	39.55	50.58		50.65	0.000271	2.01	353.88	54.14	0.14
raymondville	Reach 8	225004	1224.00	39.55	52.61		52.72	0.000372	2.59	471.81	62.25	0.17
raymondville	Reach 8	225004	2929.00	39.55	56.47		56.70	0.000615	3.92	828.14	428.40	0.22
raymondville	Reach 8	222418	343.00	39.03	47.42		47.46	0.000213	1.53	224.73	43.56	0.12
raymondville	Reach 8	222418	711.00	39.03	50.37		50.38	0.000052	0.99	1589.71	849.59	0.06
raymondville	Reach 8	222418	1224.00	39.03	52.55		52.56	0.000019	0.71	3699.01	1072.12	0.04
raymondville	Reach 8	222418	2929.00	39.03	56.53		56.53	0.000013	0.72	9324.68	2049.41	0.03
raymondville	Reach 8	220780	343.00	38.71	47.07		47.11	0.000216	1.54	223.32	43.43	0.12
raymondville	Reach 8	220780	711.00	38.71	50.16		50.22	0.000229	1.89	376.84	55.80	0.13
raymondville	Reach 8	220780	1224.00	38.71	52.38		52.47	0.000301	2.40	510.44	64.67	0.15
raymondville	Reach 8	220780	2929.00	38.71	56.23		56.44	0.000539	3.71	788.73	80.05	0.21
raymondville	Reach 8	217688	343.00	38.09	46.39		46.43	0.000222	1.55	221.37	43.27	0.12
raymondville	Reach 8	217688	711.00	38.09	49.44		49.50	0.000237	1.91	371.98	55.47	0.13
raymondville	Reach 8	217688	1224.00	38.09	51.38		51.48	0.000341	2.51	487.06	63.23	0.16
raymondville	Reach 8	217688	2929.00	38.09	54.12		54.41	0.000813	4.33	706.67	344.95	0.25
raymondville	Reach 8	215481	343.00	37.65	45.89		45.93	0.000230	1.57	218.36	42.98	0.12
raymondville	Reach 8	215481	711.00	37.65	48.91		48.97	0.000247	1.94	366.06	55.04	0.13
raymondville	Reach 8	215481	1224.00	37.65	50.67		50.75	0.000316	2.44	706.79	533.40	0.15
raymondville	Reach 8	215481	2929.00	37.65	53.61		53.65	0.000164	2.18	2817.40	971.44	0.12

HFC-PAS Plan - Rev. RevEx (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	213503	343.00	37.25	45.45		45.49	0.000219	1.54	222.55	43.56	0.12
raymondville	Reach 8	213503	711.00	37.25	48.43		48.48	0.000241	1.92	369.84	55.46	0.13
raymondville	Reach 8	213503	1224.00	37.25	50.10		50.16	0.000276	2.23	875.02	547.58	0.14
raymondville	Reach 8	213503	2929.00	37.25	53.35		53.37	0.000114	1.80	3135.84	862.42	0.10
raymondville	Reach 8	211886	343.00	36.93	45.09		45.13	0.000230	1.57	218.28	43.08	0.12
raymondville	Reach 8	211886	711.00	36.93	48.03		48.09	0.000255	1.96	370.83	377.56	0.13
raymondville	Reach 8	211886	1224.00	36.93	49.87		49.89	0.000105	1.39	1990.30	1174.18	0.09
raymondville	Reach 8	211886	2929.00	36.93	53.30		53.30	0.000020	0.77	8379.23	2259.16	0.04
raymondville	Reach 8	210380	343.00	36.53	44.74		44.78	0.000243	1.80	214.01	42.82	0.13
raymondville	Reach 8	210380	711.00	36.53	47.63		47.69	0.000270	2.01	354.12	54.19	0.14
raymondville	Reach 8	210380	1224.00	36.63	49.50		49.60	0.000393	2.85	462.22	61.86	0.17
raymondville	Reach 8	210380	2929.00	36.63	52.91		53.19	0.000752	4.21	696.37	75.33	0.24
raymondville	Reach 8	210328	343.00	-8.62	44.72		44.78	0.000243	1.80	213.91	42.61	0.13
raymondville	Reach 8	210328	711.00	-8.62	47.62		47.68	0.000271	2.01	353.90	54.18	0.14
raymondville	Reach 8	210328	1224.00	36.62	49.47		49.58	0.000394	2.85	461.52	61.81	0.17
raymondville	Reach 8	210328	2929.00	36.62	52.88		53.16	0.000756	4.21	694.91	75.25	0.24
raymondville	Reach 8	208056	343.00	36.16	44.15		44.19	0.000251	1.62	211.43	42.45	0.13
raymondville	Reach 8	208056	711.00	36.16	46.98		47.04	0.000285	2.05	347.33	53.75	0.14
raymondville	Reach 8	208056	1224.00	36.16	48.48		48.81	0.000468	2.83	432.80	59.77	0.19
raymondville	Reach 8	208056	2929.00	36.16	50.48		50.91	0.001345	5.23	560.23	67.76	0.32
raymondville	Reach 8	205823	343.00	35.72	43.56		43.60	0.000281	1.69	202.70	41.54	0.14
raymondville	Reach 8	205823	711.00	35.72	46.33		46.39	0.000299	2.07	422.16	325.33	0.14
raymondville	Reach 8	205823	1224.00	35.72	47.86		47.90	0.000215	1.98	1213.97	1068.14	0.13
raymondville	Reach 8	205823	2929.00	35.72	50.36		50.37	0.000070	1.37	6473.43	3421.68	0.08
raymondville	Reach 8	203593	343.00	35.27	42.88		42.93	0.000325	1.79	191.84	40.43	0.14
raymondville	Reach 8	203593	711.00	35.27	45.57		45.65	0.000368	2.25	315.34	51.21	0.16
raymondville	Reach 8	203593	1224.00	35.27	46.98		47.14	0.000611	3.13	391.81	56.86	0.21
raymondville	Reach 8	203593	2929.00	35.27	49.70		49.95	0.000888	4.36	1354.82	1580.64	0.26
raymondville	Reach 8	202982	343.00	35.14	42.67		42.72	0.000341	1.62	188.55	40.10	0.15
raymondville	Reach 8	202982	711.00	35.14	45.33		45.41	0.000387	2.30	309.66	50.77	0.16
raymondville	Reach 8	202982	1224.00	35.14	46.56		46.73	0.000686	3.26	375.10	55.68	0.22
raymondville	Reach 8	202982	2929.00	35.14	48.80		49.14	0.001850	5.89	497.16	63.85	0.37
raymondville	Reach 8	200600	343.00	34.67	41.74		41.80	0.000446	2.01	170.67	38.28	0.17
raymondville	Reach 8	200600	711.00	34.67	44.44		44.52	0.000373	2.25	479.29	517.62	0.16
raymondville	Reach 8	200600	1224.00	34.67	46.09		46.11	0.000122	1.52	1940.48	1200.04	0.10
raymondville	Reach 8	200600	2929.00	34.67	48.60		48.81	0.000054	1.22	5500.25	1669.66	0.07
raymondville	Reach 8	200550	343.00	34.66	41.72		41.78	0.000448	2.01	170.33	38.24	0.17
raymondville	Reach 8	200550	711.00	34.66	44.43		44.51	0.000375	2.26	474.80	515.79	0.16
raymondville	Reach 8	200550	1224.00	34.66	46.08		46.10	0.000124	1.52	1931.66	1198.47	0.10
raymondville	Reach 8	200550	2929.00	34.66	48.60		48.61	0.000054	1.22	5496.14	1668.66	0.07
raymondville	Reach 8	198245	343.00	34.20	40.31		40.41	0.000828	2.53	135.71	34.43	0.22
raymondville	Reach 8	198245	711.00	34.20	43.27		43.39	0.000651	2.79	254.98	46.25	0.21
raymondville	Reach 8	198245	1224.00	34.20	45.56		45.64	0.000374	2.57	940.27	811.64	0.17
raymondville	Reach 8	198245	2929.00	34.20	48.44		48.45	0.000085	1.53	4879.08	1909.23	0.08
raymondville	Reach 8	196303	343.00	31.67	39.45		39.49	0.000296	1.73	198.65	41.10	0.14
raymondville	Reach 8	196303	711.00	31.67	42.48		42.55	0.000297	2.08	341.91	53.25	0.14
raymondville	Reach 8	196303	1224.00	31.67	44.82		44.92	0.000360	2.56	477.35	62.60	0.16
raymondville	Reach 8	196303	2929.00	31.67	48.14		48.19	0.000239	2.38	2504.40	1046.69	0.14
raymondville	Reach 8	194636	343.00	31.17	38.95		39.00	0.000295	1.72	198.98	41.13	0.14
raymondville	Reach 8	194636	711.00	31.17	41.99		42.06	0.000296	2.08	342.24	53.27	0.14
raymondville	Reach 8	194636	1224.00	31.17	44.21		44.31	0.000372	2.59	498.94	307.34	0.17
raymondville	Reach 8	194636	2929.00	31.17	47.88		47.88	0.000140	1.84	3384.89	1241.93	0.11
raymondville	Reach 8	193324	343.00	30.77	38.57	33.50	38.61	0.000293	1.72	199.56	41.19	0.14
raymondville	Reach 8	193324	711.00	30.77	41.60	34.85	41.67	0.000294	2.07	342.94	53.32	0.14
raymondville	Reach 8	193324	1224.00	30.77	43.70	36.22	43.81	0.000389	2.64	463.96	61.74	0.17
raymondville	Reach 8	193324	2929.00	30.77	47.24	39.19	47.51	0.000722	4.14	707.25	75.88	0.24
raymondville	Reach 8	192642	343.00	30.57	38.37	33.30	38.41	0.000293	1.72	199.58	41.19	0.14
raymondville	Reach 8	192642	711.00	30.57	41.40	34.85	41.47	0.000294	2.07	342.90	53.32	0.14
raymondville	Reach 8	192642	1224.00	30.57	43.43	36.02	43.54	0.000398	2.66	459.81	61.46	0.17
raymondville	Reach 8	192642	2929.00	30.57	46.70	38.99	46.99	0.000796	4.30	681.76	74.53	0.25
raymondville	Reach 8	191137	343.00	30.12	37.93		37.97	0.000291	1.71	200.05	41.24	0.14
raymondville	Reach 8	191137	711.00	30.12	40.96		41.02	0.000293	2.07	343.32	53.35	0.14
raymondville	Reach 8	191137	1224.00	30.12	42.81		42.93	0.000424	2.73	448.96	60.76	0.18
raymondville	Reach 8	191137	2929.00	30.12	45.24		45.60	0.001079	4.82	608.22	70.47	0.29

HEC-RAS Plan - Ray - Ray Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	188880	343.00	29.38	37.22		37.27	0.000296	1.70	201.37	41.38	0.14
raymondville	Reach 8	188880	711.00	29.38	40.31		40.36	0.000248	1.91	497.43	343.70	0.13
raymondville	Reach 8	188880	1224.00	29.38	42.38		42.40	0.000119	1.49	1614.50	736.99	0.09
raymondville	Reach 8	188880	2929.00	29.38	45.03		45.04	0.000072	1.41	4250.86	1211.31	0.08
raymondville	Reach 8	187150	343.00	28.92	36.79		36.83	0.000281	1.89	202.55	41.48	0.14
raymondville	Reach 8	187150	711.00	28.92	39.89		39.96	0.000277	2.03	350.61	53.91	0.14
raymondville	Reach 8	187150	1224.00	28.92	41.99		42.09	0.000370	2.59	472.41	62.29	0.17
raymondville	Reach 8	187150	2929.00	28.92	44.45		44.75	0.000896	4.47	798.80	471.29	0.26
raymondville	Reach 8	187100	343.00	28.91	36.77		36.82	0.000282	1.70	202.36	41.47	0.14
raymondville	Reach 8	187100	711.00	28.91	39.88		39.94	0.000278	2.03	350.37	53.89	0.14
raymondville	Reach 8	187100	1224.00	28.91	41.97		42.07	0.000371	2.59	471.86	62.28	0.17
raymondville	Reach 8	187100	2929.00	28.91	44.40		44.71	0.000919	4.51	775.40	466.08	0.27
raymondville	Reach 8	184550	343.00	28.14	36.07		36.11	0.000272	1.67	205.07	41.72	0.13
raymondville	Reach 8	184550	711.00	28.14	39.18		39.25	0.000269	2.01	359.33	109.07	0.14
raymondville	Reach 8	184550	1224.00	28.14	41.76		41.76	0.000052	1.07	2893.53	1615.54	0.06
raymondville	Reach 8	184550	2929.00	28.14	44.45		44.45	0.000021	0.82	8834.52	2681.91	0.04
raymondville	Reach 8	184500	343.00	28.13	36.06		36.10	0.000273	1.67	204.91	41.70	0.13
raymondville	Reach 8	184500	711.00	28.13	39.17		39.23	0.000270	2.01	358.46	105.09	0.14
raymondville	Reach 8	184500	1224.00	28.13	41.75		41.76	0.000052	1.07	2889.67	1613.48	0.06
raymondville	Reach 8	184500	2929.00	28.13	44.45		44.45	0.000021	0.82	8832.23	2681.41	0.04
raymondville	Reach 8	183033	343.00	27.66	35.64	30.39	35.68	0.000265	1.66	207.01	41.91	0.13
raymondville	Reach 8	183033	711.00	27.66	38.75	31.74	38.81	0.000264	1.99	357.03	54.37	0.14
raymondville	Reach 8	183033	1224.00	27.66	41.54	33.11	41.61	0.000216	2.15	770.81	349.75	0.13
raymondville	Reach 8	183033	2929.00	27.66	44.30	36.08	44.37	0.000209	2.54	2228.49	721.08	0.13
raymondville	Reach 8	181219	343.00	27.11	35.17		35.21	0.000254	1.63	210.40	42.23	0.13
raymondville	Reach 8	181219	711.00	27.11	38.28		38.34	0.000256	1.97	361.41	54.70	0.13
raymondville	Reach 8	181219	1224.00	27.11	41.14		41.20	0.000230	2.18	709.70	306.90	0.13
raymondville	Reach 8	181219	2929.00	27.11	43.96		44.01	0.000183	2.34	2707.15	1095.84	0.12
raymondville	Reach 8	179129	343.00	26.49	34.65		34.69	0.000240	1.60	214.86	42.65	0.13
raymondville	Reach 8	179129	711.00	26.49	37.76		37.82	0.000246	1.94	366.70	55.08	0.13
raymondville	Reach 8	179129	1224.00	26.49	40.79		40.83	0.000137	1.71	1524.92	1367.89	0.10
raymondville	Reach 8	179129	2929.00	26.49	43.88		43.88	0.000025	0.89	8279.53	2655.02	0.05
raymondville	Reach 8	178000	343.00	26.15	34.39	28.89	34.43	0.000231	1.57	218.09	42.95	0.12
raymondville	Reach 8	178000	711.00	26.15	37.49	30.23	37.54	0.000239	1.92	370.39	55.35	0.13
raymondville	Reach 8	178000	1224.00	26.15	40.56	31.60	40.63	0.000227	2.18	581.38	206.50	0.13
raymondville	Reach 8	178000	2929.00	26.15	43.73	34.57	43.81	0.000227	2.70	2056.78	2198.01	0.14
raymondville	Reach 8	177727	343.00	26.07	34.33	28.80	34.36	0.000228	1.57	218.87	43.03	0.12
raymondville	Reach 8	177727	711.00	26.07	37.42	30.15	37.48	0.000238	1.92	371.27	55.41	0.13
raymondville	Reach 8	177727	1224.00	26.07	40.49	31.52	40.57	0.000227	2.18	577.72	171.42	0.13
raymondville	Reach 8	177727	2929.00	26.07	43.66	34.49	43.75	0.000233	2.73	2010.31	2149.80	0.14
raymondville	Reach 8	175705	343.00	25.46	33.89	28.19	33.92	0.000209	1.52	226.24	43.70	0.12
raymondville	Reach 8	175705	711.00	25.46	36.96	29.54	37.01	0.000225	1.87	379.26	55.98	0.13
raymondville	Reach 8	175705	1224.00	25.46	40.04	30.91	40.11	0.000223	2.14	571.37	87.64	0.13
raymondville	Reach 8	175705	2929.00	25.46	43.19	33.88	43.27	0.000236	2.67	2041.28	823.00	0.14
raymondville	Reach 8	175125	343.00	25.28	33.77	28.01	33.80	0.000202	1.50	228.93	43.95	0.12
raymondville	Reach 8	175125	711.00	25.28	36.83	29.36	36.88	0.000220	1.86	382.16	56.19	0.13
raymondville	Reach 8	175125	1224.00	25.28	39.91	30.73	39.98	0.000219	2.13	574.57	68.53	0.13
raymondville	Reach 8	175125	2929.00	25.28	43.04	33.70	43.13	0.000254	2.75	1931.32	800.42	0.15
raymondville	Reach 8	173785	343.00	24.88	33.50		33.54	0.000189	1.46	234.95	44.50	0.11
raymondville	Reach 8	173785	711.00	24.88	36.54		36.59	0.000211	1.83	388.30	56.63	0.12
raymondville	Reach 8	173785	1224.00	24.88	39.62		39.69	0.000212	2.10	582.07	68.97	0.13
raymondville	Reach 8	173785	2929.00	24.88	42.62		42.74	0.000319	3.11	1548.66	685.19	0.16
raymondville	Reach 8	171741	343.00	24.27	33.15		33.18	0.000166	1.39	246.36	45.51	0.11
raymondville	Reach 8	171741	711.00	24.27	36.13		36.18	0.000195	1.78	399.75	57.43	0.12
raymondville	Reach 8	171741	1224.00	24.27	39.21		39.27	0.000199	2.06	595.61	69.75	0.12
raymondville	Reach 8	171741	2929.00	24.27	42.20		42.25	0.000175	2.28	2961.04	1585.35	0.12
raymondville	Reach 8	171691	343.00	24.25	33.14		33.17	0.000165	1.39	246.85	45.54	0.11
raymondville	Reach 8	171691	711.00	24.25	36.12		36.17	0.000195	1.78	400.25	57.45	0.12
raymondville	Reach 8	171691	1224.00	24.25	39.20		39.26	0.000199	2.05	596.18	69.77	0.12
raymondville	Reach 8	171691	2929.00	24.25	42.19		42.24	0.000176	2.29	2945.25	1584.31	0.12
raymondville	Reach 8	169710	343.00	23.66	32.84		32.86	0.000144	1.32	260.15	46.70	0.10
raymondville	Reach 8	169710	711.00	23.66	35.75		35.80	0.000179	1.72	413.25	58.36	0.11
raymondville	Reach 8	169710	1224.00	23.66	38.82		38.88	0.000186	2.00	611.15	70.63	0.12
raymondville	Reach 8	169710	2929.00	23.66	41.91		41.95	0.000125	1.95	3527.89	1626.35	0.10
raymondville	Reach 8	168304	1110.00	23.63	32.47		32.54	0.000266	2.10	527.81	77.38	0.14

HEC-RAS Plan-View-RevE (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	168304	2080.00	23.63	35.28		35.40	0.000334	2.73	760.85	88.61	0.16
raymondville	Reach 8	168304	3441.00	23.63	38.27		38.44	0.000380	3.30	1043.54	100.57	0.18
raymondville	Reach 8	168304	8176.00	23.63	41.52		41.82	0.000294	3.32	7888.40	5924.35	0.16
raymondville	Reach 8	167456	1110.00	23.54	32.24		32.31	0.000282	2.15	516.59	76.79	0.15
raymondville	Reach 8	167456	2080.00	23.54	34.98		35.10	0.000357	2.80	742.39	87.77	0.17
raymondville	Reach 8	167456	3441.00	23.54	37.93		38.10	0.000407	3.38	1018.23	99.55	0.19
raymondville	Reach 8	167456	8176.00	23.54	41.31		41.39	0.000249	3.05	8414.74	5679.14	0.15
raymondville	Reach 8	166128	1110.00	23.41	31.83		31.91	0.000318	2.24	495.71	75.69	0.15
raymondville	Reach 8	166128	2080.00	23.41	34.46		34.80	0.000407	2.94	708.55	86.21	0.18
raymondville	Reach 8	166128	3441.00	23.41	37.33		37.53	0.000462	3.54	972.48	97.69	0.20
raymondville	Reach 8	166128	8176.00	23.41	40.88		40.99	0.000350	3.56	7354.70	6000.00	0.18
raymondville	Reach 8	166078	1110.00	23.40	31.82		31.90	0.000318	2.24	495.25	75.67	0.15
raymondville	Reach 8	166078	2080.00	23.40	34.44		34.58	0.000409	2.94	707.61	86.17	0.18
raymondville	Reach 8	166078	3441.00	23.40	37.31		37.50	0.000484	3.54	971.10	97.64	0.20
raymondville	Reach 8	166078	8176.00	23.40	40.85		40.98	0.000363	3.62	7205.65	6000.00	0.18
raymondville	reach 2	164919	620.00	22.94	31.65		31.67	0.000088	1.20	517.25	76.82	0.08
raymondville	reach 2	164919	1280.00	22.94	34.20		34.25	0.000144	1.78	726.90	87.06	0.11
raymondville	reach 2	164919	2416.00	22.94	37.00		37.09	0.000219	2.45	985.76	98.24	0.14
raymondville	reach 2	164919	7561.00	22.94	40.37		40.51	0.000460	3.58	4313.86	3387.27	0.20
raymondville	reach 2	164431.*	620.00	22.89	31.60		31.63	0.000088	1.20	517.75	76.84	0.08
raymondville	reach 2	164431.*	1280.00	22.89	34.13		34.18	0.000148	1.77	725.00	87.59	0.11
raymondville	reach 2	164431.*	2416.00	22.89	36.88		36.97	0.000233	2.44	988.34	104.12	0.14
raymondville	reach 2	164431.*	7561.00	22.89	40.16		40.29	0.000434	3.49	4652.82	3753.77	0.19
raymondville	reach 2	163943.*	620.00	22.85	31.56		31.58	0.000088	1.20	517.70	76.86	0.08
raymondville	reach 2	163943.*	1280.00	22.85	34.06		34.11	0.000146	1.77	722.36	86.87	0.11
raymondville	reach 2	163943.*	2416.00	22.85	36.76		36.86	0.000242	2.47	1006.42	104.06	0.14
raymondville	reach 2	163943.*	7561.00	22.85	40.01		40.09	0.000329	2.98	5568.11	4207.53	0.17
raymondville	reach 2	163456	620.00	22.80	31.52	24.63	31.54	0.000087	1.20	518.21	76.88	0.08
raymondville	reach 2	163456	1280.00	22.80	33.99	25.71	34.04	0.000147	1.78	720.38	86.78	0.11
raymondville	reach 2	163456	2416.00	22.80	36.64	27.14	36.74	0.000233	2.50	964.78	917.31	0.14
raymondville	reach 2	163456	7561.00	22.80	39.92	31.47	39.95	0.000188	2.17	7873.28	3617.23	0.13
raymondville	reach 2	161457	620.00	22.59	31.35		31.37	0.000088	1.19	521.25	77.03	0.08
raymondville	reach 2	161457	1280.00	22.59	33.68		33.73	0.000152	1.80	712.08	86.38	0.11
raymondville	reach 2	161457	2416.00	22.59	36.35		36.39	0.000128	1.85	2246.24	1635.01	0.10
raymondville	reach 2	161457	7561.00	22.59	39.83		39.84	0.000025	0.97	13449.41	4751.52	0.05
raymondville	reach 2	159438	620.00	22.38	31.18		31.20	0.000084	1.18	524.33	77.19	0.08
raymondville	reach 2	159438	1280.00	22.38	33.37		33.42	0.000158	1.82	702.76	85.94	0.11
raymondville	reach 2	159438	2416.00	22.38	35.92		36.03	0.000254	2.58	935.51	96.17	0.15
raymondville	reach 2	159438	7561.00	22.38	39.68		39.73	0.000183	2.54	8040.60	5970.46	0.13
raymondville	reach 2	157410	620.00	22.18	31.01		31.03	0.000083	1.18	526.84	77.31	0.08
raymondville	reach 2	157410	1280.00	22.18	33.04		33.09	0.000165	1.85	691.75	85.43	0.11
raymondville	reach 2	157410	2416.00	22.18	35.37		35.48	0.000280	2.68	902.27	94.77	0.15
raymondville	reach 2	157410	7561.00	22.18	38.35		38.92	0.001177	6.12	1603.85	1976.95	0.32
raymondville	reach 2	157293.*	620.00	22.17	31.00		31.02	0.000083	1.18	526.67	77.31	0.08
raymondville	reach 2	157293.*	1280.00	22.17	33.02		33.07	0.000165	1.85	690.88	85.39	0.11
raymondville	reach 2	157293.*	2416.00	22.17	35.34		35.45	0.000283	2.69	899.66	94.66	0.15
raymondville	reach 2	157293.*	7561.00	22.17	38.24		38.76	0.001228	6.00	1844.23	2423.93	0.33
raymondville	reach 2	157176.*	620.00	22.16	30.99		31.01	0.000083	1.18	526.71	77.32	0.08
raymondville	reach 2	157176.*	1280.00	22.16	33.00		33.05	0.000166	1.85	690.06	85.35	0.11
raymondville	reach 2	157176.*	2416.00	22.16	35.30		35.41	0.000285	2.69	897.11	94.56	0.15
raymondville	reach 2	157176.*	7561.00	22.16	38.17		38.59	0.001158	5.56	2311.17	2917.63	0.31
raymondville	reach 2	157059.*	620.00	22.14	30.98		31.00	0.000083	1.18	527.46	77.35	0.08
raymondville	reach 2	157059.*	1280.00	22.14	32.98		33.03	0.000166	1.86	689.98	85.34	0.11
raymondville	reach 2	157059.*	2416.00	22.14	35.26		35.37	0.000301	2.69	899.50	99.67	0.16
raymondville	reach 2	157059.*	7561.00	22.14	38.15		38.44	0.000833	4.83	3385.20	4819.56	0.27
raymondville	reach 2	156942.*	620.00	22.13	30.97		30.99	0.000083	1.18	527.51	77.36	0.08
raymondville	reach 2	156942.*	1280.00	22.13	32.96		33.01	0.000170	1.85	690.35	87.02	0.12
raymondville	reach 2	156942.*	2416.00	22.13	35.22		35.34	0.000296	2.68	901.00	98.84	0.16
raymondville	reach 2	156942.*	7561.00	22.13	38.22		38.32	0.000362	3.35	6046.82	6000.00	0.18
raymondville	reach 2	156825	620.00	22.12	30.96		30.98	0.000083	1.18	527.53	77.36	0.08
raymondville	reach 2	156825	1280.00	22.12	32.94		32.99	0.000167	1.86	688.29	85.27	0.12
raymondville	reach 2	156825	2416.00	22.12	35.19		35.30	0.000291	2.71	890.19	94.26	0.16
raymondville	reach 2	156825	7561.00	22.12	38.23		38.27	0.000170	2.39	8453.14	6000.00	0.12
raymondville	reach 2	155106	620.00	21.94	30.81		30.83	0.000082	1.17	529.96	77.48	0.08
raymondville	reach 2	155106	1280.00	21.94	32.84		32.70	0.000174	1.89	678.51	84.81	0.12

HEC-RAS Plan-Rev-RevEx (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	155108	2416.00	21.94	34.65		34.77	0.000324	2.82	856.79	92.83	0.18
raymondville	reach 2	155108	7561.00	21.94	37.62		37.78	0.000515	4.05	4441.15	4167.36	0.21
raymondville	reach 2	153062	620.00	21.73	30.65		30.67	0.000080	1.16	533.39	77.66	0.08
raymondville	reach 2	153062	1290.00	21.73	32.27		32.33	0.000184	1.92	665.13	84.17	0.12
raymondville	reach 2	153062	2416.00	21.73	33.92		34.06	0.000380	2.99	808.89	90.75	0.18
raymondville	reach 2	153062	7561.00	21.73	37.09		37.14	0.000199	2.58	5816.18	2350.51	0.13
raymondville	reach 2	151635	620.00	21.59	30.52		30.54	0.000080	1.16	534.74	77.73	0.08
raymondville	reach 2	151635	1290.00	21.59	32.00		32.06	0.000193	1.96	654.14	83.65	0.12
raymondville	reach 2	151635	2416.00	21.59	33.32		33.47	0.000439	3.15	767.69	88.91	0.19
raymondville	reach 2	151635	7561.00	21.59	36.58		36.71	0.000464	3.84	3792.46	1820.58	0.20
raymondville	reach 2	150792	957.00	21.50	30.38		30.43	0.000195	1.80	530.85	77.52	0.12
raymondville	reach 2	150792	1830.00	21.50	31.67		31.80	0.000430	2.89	634.06	82.88	0.18
raymondville	reach 2	150792	3114.00	21.50	32.63		32.92	0.000889	4.35	715.17	86.52	0.27
raymondville	reach 2	150792	8648.00	21.50	35.85		36.13	0.000969	5.33	3708.06	3282.83	0.29
raymondville	reach 2	149670	792.00	21.30	30.20		30.24	0.000132	1.49	532.34	77.61	0.10
raymondville	reach 2	149670	1290.00	21.30	31.34		31.41	0.000224	2.07	623.23	82.16	0.13
raymondville	reach 2	149670	1866.00	21.30	32.04		32.16	0.000365	2.74	682.04	84.97	0.17
raymondville	reach 2	149670	5055.00	21.30	34.36		34.86	0.001277	5.68	889.32	94.23	0.33
raymondville	reach 2	149620	792.00	21.29	30.19		30.23	0.000132	1.49	532.81	77.82	0.10
raymondville	reach 2	149620	1290.00	21.29	31.33		31.39	0.000225	2.07	623.13	82.15	0.13
raymondville	reach 2	149620	1866.00	21.29	32.02		32.14	0.000366	2.74	681.32	84.94	0.17
raymondville	reach 2	149620	5055.00	21.29	34.29		34.80	0.001300	5.72	883.75	93.99	0.33
raymondville	reach 2	147620	792.00	21.09	29.92		29.95	0.000136	1.50	526.64	77.32	0.10
raymondville	reach 2	147620	1290.00	21.09	31.20		31.20	0.000050	0.98	3708.08	2964.84	0.06
raymondville	reach 2	147620	1866.00	21.09	31.96		31.96	0.000031	0.81	6005.10	3042.74	0.05
raymondville	reach 2	147620	5055.00	21.09	34.55		34.55	0.000014	0.65	17637.27	5378.64	0.04
raymondville	reach 2	145620	792.00	20.88	29.64		29.68	0.000140	1.52	521.36	77.03	0.10
raymondville	reach 2	145620	1290.00	20.88	31.09		31.10	0.000058	1.06	3420.20	2971.78	0.07
raymondville	reach 2	145620	1866.00	20.88	31.89		31.90	0.000033	0.84	5857.78	3043.03	0.05
raymondville	reach 2	145620	5055.00	20.88	34.52		34.52	0.000014	0.66	17655.26	5639.46	0.04
raymondville	reach 2	142669	792.00	20.57	29.22		29.25	0.000147	1.54	512.64	76.58	0.11
raymondville	reach 2	142669	1290.00	20.57	30.76		30.82	0.000213	2.03	635.47	82.75	0.13
raymondville	reach 2	142669	1866.00	20.57	31.59		31.69	0.000332	2.65	705.35	86.06	0.16
raymondville	reach 2	142669	5055.00	20.57	33.90		34.36	0.001166	5.49	969.34	214.22	0.31
raymondville	reach 2	142619	792.00	20.57	29.21		29.25	0.000147	1.55	512.07	76.55	0.11
raymondville	reach 2	142619	1290.00	20.57	30.75		30.81	0.000213	2.03	634.57	82.71	0.13
raymondville	reach 2	142619	1866.00	20.57	31.57		31.68	0.000334	2.65	703.87	85.99	0.16
raymondville	reach 2	142619	5055.00	20.57	33.83		34.30	0.001190	5.53	955.85	205.50	0.32
raymondville	reach 2	140677	792.00	20.38	28.91		28.95	0.000155	1.57	503.54	76.11	0.11
raymondville	reach 2	140677	1290.00	20.38	30.39		30.44	0.000180	1.85	1291.95	1834.36	0.12
raymondville	reach 2	140677	1866.00	20.38	31.33		31.35	0.000102	1.46	3062.87	1920.28	0.09
raymondville	reach 2	140677	5055.00	20.38	33.92		33.93	0.000055	1.19	10142.63	3886.72	0.07
raymondville	reach 2	138658	792.00	20.17	28.59		28.63	0.000162	1.60	495.12	75.66	0.11
raymondville	reach 2	138658	1290.00	20.17	29.94		30.01	0.000249	2.15	600.97	81.07	0.14
raymondville	reach 2	138658	1866.00	20.17	31.08		31.11	0.000146	1.75	2919.79	3401.47	0.11
raymondville	reach 2	138658	5055.00	20.17	33.85		33.85	0.000025	0.89	14418.70	5042.01	0.05
raymondville	reach 2	138000	792.00	20.10	28.48		28.52	0.000165	1.61	492.25	75.51	0.11
raymondville	reach 2	138000	1290.00	20.10	29.77		29.84	0.000258	2.18	592.99	80.67	0.14
raymondville	reach 2	138000	1866.00	20.10	30.84		30.95	0.000365	2.74	681.48	84.95	0.17
raymondville	reach 2	138000	5055.00	20.10	33.25	26.93	33.73	0.001220	5.58	1084.54	1593.70	0.32
raymondville	reach 2	137950	792.00	20.10	28.47		28.51	0.000165	1.61	491.62	75.48	0.11
raymondville	reach 2	137950	1290.00	20.10	29.75		29.83	0.000260	2.18	591.92	80.62	0.14
raymondville	reach 2	137950	1866.00	20.10	30.82		30.93	0.000368	2.74	679.86	84.87	0.17
raymondville	reach 2	137950	5055.00	20.10	33.17	26.93	33.66	0.001264	5.66	976.49	1112.23	0.32
raymondville	reach 2	136663	792.00	20.09	28.24		28.29	0.000182	1.67	475.38	74.61	0.12
raymondville	reach 2	136663	1290.00	20.09	29.39		29.47	0.000298	2.29	563.47	79.19	0.15
raymondville	reach 2	136663	1866.00	20.09	30.51		30.56	0.000215	2.10	2428.70	3586.71	0.13
raymondville	reach 2	136663	5055.00	20.09	33.43		33.44	0.000022	0.83	15767.02	5307.60	0.04
raymondville	reach 2	134669	792.00	19.96	27.92		27.95	0.000149	1.49	910.72	1066.29	0.11
raymondville	reach 2	134669	1290.00	19.96	29.30		29.30	0.000032	0.79	4782.12	3999.67	0.05
raymondville	reach 2	134669	1866.00	19.96	30.49		30.49	0.000011	0.51	11196.12	6000.00	0.03
raymondville	reach 2	134669	5055.00	19.96	33.43		33.43	0.000004	0.38	28809.45	6000.00	0.02
raymondville	reach 2	132609	792.00	19.75	27.84		27.85	0.000022	0.64	2970.96	1537.98	0.04
raymondville	reach 2	132609	1290.00	19.75	29.26		29.26	0.000012	0.52	7793.34	4797.08	0.03
raymondville	reach 2	132609	1866.00	19.75	30.48		30.48	0.000005	0.38	14154.25	5982.05	0.02



HEC-RAS Plan-View-Rep-Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	132909	5055.00	19.75	33.42		33.42	0.000003	0.34	31778.30	6000.00	0.02
raymondville	reach 2	129500	792.00	19.43	27.77		27.77	0.000039	0.85	2104.13	1208.36	0.06
raymondville	reach 2	129500	1290.00	19.43	29.22		29.22	0.000021	0.70	5068.14	3957.19	0.04
raymondville	reach 2	129500	1866.00	19.43	30.47		30.47	0.000009	0.50	10404.40	4609.84	0.03
raymondville	reach 2	129500	5055.00	19.43	33.41		33.41	0.000005	0.46	25383.79	5348.18	0.02
raymondville	reach 2	129450	792.00	19.43	27.76		27.77	0.000039	0.85	2101.72	1205.69	0.06
raymondville	reach 2	129450	1290.00	19.43	29.22		29.22	0.000021	0.70	5063.94	3958.92	0.04
raymondville	reach 2	129450	1866.00	19.43	30.46		30.46	0.000009	0.51	10357.99	4604.72	0.03
raymondville	reach 2	129450	5055.00	19.43	33.40		33.40	0.000005	0.46	25337.92	5348.54	0.02
raymondville	reach 2	127700	792.00	19.25	27.68		27.69	0.000061	1.07	1409.58	723.02	0.07
raymondville	reach 2	127700	1290.00	19.25	29.17		29.18	0.000041	0.99	2870.87	1155.58	0.06
raymondville	reach 2	127700	1866.00	19.25	30.43		30.43	0.000034	0.99	4847.51	2658.80	0.05
raymondville	reach 2	127700	5055.00	19.25	33.39		33.39	0.000013	0.73	17639.93	4636.40	0.04
raymondville	reach 2	126465	792.00	19.12	27.58		27.59	0.000097	1.08	977.43	415.30	0.08
raymondville	reach 2	126465	1290.00	19.12	29.10		29.12	0.000075	1.13	1897.35	1091.45	0.08
raymondville	reach 2	126465	1866.00	19.12	30.38		30.39	0.000047	1.00	5199.81	4490.87	0.06
raymondville	reach 2	126465	5055.00	19.12	33.38		33.38	0.000009	0.55	21962.13	6000.00	0.03
raymondville	reach 2	124374	792.00	18.91	27.46		27.47	0.000038	0.85	2296.26	1850.96	0.05
raymondville	reach 2	124374	1290.00	18.91	29.05		29.05	0.000014	0.59	5967.45	2861.75	0.03
raymondville	reach 2	124374	1866.00	18.91	30.36		30.36	0.000007	0.46	11109.09	4217.48	0.03
raymondville	reach 2	124374	5055.00	18.91	33.37		33.37	0.000005	0.47	24889.32	5151.49	0.02
raymondville	reach 2	124318	792.00	18.90	27.46		27.46	0.000041	0.73	2294.88	1650.65	0.05
raymondville	reach 2	124318	1290.00	18.90	29.04		29.05	0.000014	0.51	5944.92	2847.20	0.03
raymondville	reach 2	124318	1866.00	18.90	30.35		30.35	0.000007	0.41	11069.72	4218.06	0.02
raymondville	reach 2	124318	5055.00	18.90	33.36		33.37	0.000005	0.43	24645.84	5141.97	0.02
raymondville	reach 2	122094	792.00	18.67	27.41		27.41	0.000022	0.80	2928.72	1525.32	0.04
raymondville	reach 2	122094	1290.00	18.67	29.02		29.02	0.000011	0.49	5574.23	1795.59	0.03
raymondville	reach 2	122094	1866.00	18.67	30.34		30.35	0.000009	0.48	8849.53	3683.54	0.03
raymondville	reach 2	122094	5055.00	18.67	33.36		33.36	0.000007	0.53	22283.46	5150.94	0.03
raymondville	reach 2	121688.*	792.00	18.63	27.37		27.40	0.000124	1.41	777.12	817.83	0.10
raymondville	reach 2	121688.*	1290.00	18.63	28.99		29.00	0.000055	1.07	2739.16	1525.90	0.07
raymondville	reach 2	121688.*	1866.00	18.63	30.33		30.34	0.000024	0.76	6459.85	3301.85	0.05
raymondville	reach 2	121688.*	5055.00	18.63	33.35		33.36	0.000012	0.67	18835.65	5014.07	0.03
raymondville	reach 2	121283.*	792.00	18.59	27.33		27.36	0.000119	1.40	716.12	277.23	0.09
raymondville	reach 2	121283.*	1290.00	18.59	28.94		28.97	0.000119	1.55	1714.17	1510.55	0.10
raymondville	reach 2	121283.*	1866.00	18.59	30.33		30.33	0.000041	0.99	5006.46	3099.91	0.06
raymondville	reach 2	121283.*	5055.00	18.59	33.35		33.36	0.000018	0.80	16421.52	5156.93	0.04
raymondville	reach 2	120877.*	792.00	18.55	27.30		27.32	0.000112	1.36	805.42	381.12	0.09
raymondville	reach 2	120877.*	1290.00	18.55	28.93		28.94	0.000065	1.16	2688.82	1847.97	0.07
raymondville	reach 2	120877.*	1866.00	18.55	30.32		30.33	0.000026	0.79	5484.43	2121.86	0.05
raymondville	reach 2	120877.*	5055.00	18.55	33.35		33.35	0.000017	0.76	15422.12	4512.90	0.04
raymondville	reach 2	120472.*	792.00	18.51	27.27		27.29	0.000085	1.18	1249.07	950.79	0.08
raymondville	reach 2	120472.*	1290.00	18.51	28.93		28.93	0.000033	0.83	3818.51	2034.07	0.05
raymondville	reach 2	120472.*	1866.00	18.51	30.32		30.32	0.000018	0.67	6840.33	2708.39	0.04
raymondville	reach 2	120472.*	5055.00	18.51	33.35		33.35	0.000012	0.62	15869.79	3219.76	0.03
raymondville	reach 2	120067	792.00	18.47	27.26	20.61	27.27	0.000048	0.89	2027.29	1485.54	0.06
raymondville	reach 2	120067	1290.00	18.47	28.92	21.40	28.93	0.000017	0.59	5032.02	2086.00	0.04
raymondville	reach 2	120067	1866.00	18.47	30.32	22.16	30.32	0.000010	0.49	8914.74	3044.69	0.03
raymondville	reach 2	120067	5055.00	18.47	33.35	28.62	33.35	0.000008	0.50	18147.75	3050.75	0.03
raymondville	reach 2	119652.*	792.00	18.43	27.25	20.57	27.25	0.000049	0.90	1921.74	1309.40	0.06
raymondville	reach 2	119652.*	1290.00	18.43	28.92	21.36	28.92	0.000018	0.62	4893.93	2082.96	0.04
raymondville	reach 2	119652.*	1866.00	18.43	30.32	22.12	30.32	0.000011	0.51	8679.23	3044.78	0.03
raymondville	reach 2	119652.*	5055.00	18.43	33.35	26.61	33.35	0.000008	0.52	17917.44	3074.97	0.03
raymondville	reach 2	119237.*	792.00	18.38	27.23	20.52	27.24	0.000050	0.92	1873.71	1284.07	0.06
raymondville	reach 2	119237.*	1290.00	18.38	28.92	21.31	28.92	0.000019	0.65	4752.74	2079.02	0.04
raymondville	reach 2	119237.*	1866.00	18.38	30.32	22.07	30.32	0.000011	0.54	8442.64	3044.86	0.03
raymondville	reach 2	119237.*	5055.00	18.38	33.35	26.57	33.35	0.000008	0.54	18609.91	3834.81	0.03
raymondville	reach 2	118822.*	792.00	18.34	27.22	20.48	27.23	0.000050	0.94	1831.34	1245.74	0.06
raymondville	reach 2	118822.*	1290.00	18.34	28.91	21.27	28.92	0.000020	0.68	4669.20	2188.97	0.04
raymondville	reach 2	118822.*	1866.00	18.34	30.31	22.03	30.32	0.000012	0.57	8550.50	3355.10	0.03
raymondville	reach 2	118822.*	5055.00	18.34	33.34	26.53	33.35	0.000007	0.54	20727.33	5268.97	0.03
raymondville	reach 2	118407	792.00	18.30	27.21	20.44	27.22	0.000045	0.93	1983.81	1431.75	0.06
raymondville	reach 2	118407	1290.00	18.30	28.91	21.23	28.91	0.000016	0.65	5181.69	2335.34	0.04
raymondville	reach 2	118407	1866.00	18.30	30.31	21.99	30.31	0.000010	0.55	9568.33	3921.35	0.03
raymondville	reach 2	118407	5055.00	18.30	33.34	26.51	33.34	0.000006	0.51	23886.33	6000.00	0.02

HFC-RAS Plan - Rev. Rev. Ex. (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	118184.*	792.00	18.28	27.20		27.21	0.000046	0.92	1964.05	1445.14	0.06
raymondville	reach 2	118184.*	1290.00	18.28	28.90		28.91	0.000017	0.84	5185.95	2429.02	0.04
raymondville	reach 2	118184.*	1866.00	18.28	30.31		30.31	0.000010	0.56	9486.04	3928.64	0.03
raymondville	reach 2	118184.*	5055.00	18.28	33.34		33.34	0.000006	0.52	22669.47	5194.77	0.03
raymondville	reach 2	117962.*	792.00	18.25	27.19		27.19	0.000047	0.91	1940.89	1462.61	0.06
raymondville	reach 2	117962.*	1290.00	18.25	28.90		28.90	0.000017	0.83	5193.94	2461.74	0.04
raymondville	reach 2	117962.*	1866.00	18.25	30.31		30.31	0.000009	0.52	9394.96	3503.40	0.03
raymondville	reach 2	117962.*	5055.00	18.25	33.34		33.34	0.000007	0.52	22140.55	4704.94	0.03
raymondville	reach 2	117739.*	792.00	18.23	27.17		27.18	0.000049	0.91	1915.05	1484.27	0.06
raymondville	reach 2	117739.*	1290.00	18.23	28.90		28.90	0.000017	0.82	5203.43	2482.76	0.04
raymondville	reach 2	117739.*	1866.00	18.23	30.31		30.31	0.000009	0.50	9384.48	3324.08	0.03
raymondville	reach 2	117739.*	5055.00	18.23	33.34		33.34	0.000006	0.50	21917.97	4364.71	0.02
raymondville	reach 2	117517.*	792.00	18.20	27.16		27.17	0.000052	0.91	1892.14	1510.83	0.06
raymondville	reach 2	117517.*	1290.00	18.20	28.89		28.90	0.000017	0.61	5215.78	2485.46	0.04
raymondville	reach 2	117517.*	1866.00	18.20	30.30		30.31	0.000009	0.48	9386.62	3293.01	0.03
raymondville	reach 2	117517.*	5055.00	18.20	33.34		33.34	0.000006	0.50	21755.10	4308.43	0.02
raymondville	reach 2	117295	792.00	18.18	27.15		27.16	0.000056	0.91	1867.54	1530.10	0.06
raymondville	reach 2	117295	1290.00	18.18	28.89		28.89	0.000017	0.59	5240.10	2448.90	0.04
raymondville	reach 2	117295	1866.00	18.18	30.30		30.30	0.000009	0.47	9392.14	3260.07	0.03
raymondville	reach 2	117295	5055.00	18.18	33.34		33.34	0.000007	0.49	21599.64	4281.11	0.02
raymondville	reach 2	114850	792.00	17.93	26.92		26.95	0.000128	1.47	538.90	77.94	0.10
raymondville	reach 2	114850	1290.00	17.93	28.74		28.79	0.000170	1.88	687.56	85.23	0.12
raymondville	reach 2	114850	1866.00	17.93	30.15		30.24	0.000224	2.30	826.62	278.18	0.14
raymondville	reach 2	114850	5055.00	17.93	33.27		33.29	0.000107	1.83	7454.04	3926.46	0.10
raymondville	reach 2	114401.*	792.00	17.88	26.86		26.89	0.000128	1.44	551.11	83.27	0.10
raymondville	reach 2	114401.*	1290.00	17.88	28.67		28.72	0.000168	1.82	710.35	92.52	0.12
raymondville	reach 2	114401.*	1866.00	17.88	30.06		30.14	0.000219	2.21	846.99	187.87	0.13
raymondville	reach 2	114401.*	5055.00	17.88	33.25		33.26	0.000050	1.28	10730.54	4625.27	0.07
raymondville	reach 2	113953.*	792.00	17.84	26.79		26.82	0.000133	1.41	560.25	89.73	0.10
raymondville	reach 2	113953.*	1290.00	17.84	28.60		26.85	0.000170	1.76	733.85	102.07	0.12
raymondville	reach 2	113953.*	1866.00	17.84	29.98		30.04	0.000194	2.03	1282.32	1585.45	0.13
raymondville	reach 2	113953.*	5055.00	17.84	33.25		33.25	0.000025	0.91	14167.56	4760.99	0.05
raymondville	reach 2	113504.*	792.00	17.79	26.72		26.75	0.000143	1.39	569.40	99.15	0.10
raymondville	reach 2	113504.*	1290.00	17.79	28.53		28.57	0.000161	1.65	975.92	1007.67	0.11
raymondville	reach 2	113504.*	1866.00	17.79	29.96		29.98	0.000077	1.29	3585.11	2902.66	0.08
raymondville	reach 2	113504.*	5055.00	17.79	33.24		33.24	0.000014	0.69	17384.10	4688.65	0.04
raymondville	reach 2	113056.*	792.00	17.75	26.66		26.68	0.000161	1.35	615.98	313.82	0.11
raymondville	reach 2	113056.*	1290.00	17.75	28.51		28.52	0.000084	1.05	2567.81	1720.50	0.07
raymondville	reach 2	113056.*	1866.00	17.75	29.96		29.96	0.000025	0.75	6287.94	3188.01	0.05
raymondville	reach 2	113056.*	5055.00	17.75	33.23		33.23	0.000008	0.54	20303.26	4572.04	0.03
raymondville	reach 2	112608	792.00	17.70	26.62		26.63	0.000079	0.95	1508.26	1168.26	0.07
raymondville	reach 2	112608	1290.00	17.70	28.50		26.50	0.000022	0.62	4754.33	2448.98	0.04
raymondville	reach 2	112608	1866.00	17.70	29.95		29.95	0.000010	0.47	8963.99	3234.12	0.03
raymondville	reach 2	112608	5055.00	17.70	33.23		33.23	0.000006	0.44	22928.57	4431.63	0.02
raymondville	reach 2	112513.*	792.00	17.69	26.60		26.63	0.000147	1.32	682.21	380.73	0.10
raymondville	reach 2	112513.*	1290.00	17.69	28.48		28.49	0.000050	0.94	2978.33	1852.57	0.06
raymondville	reach 2	112513.*	1866.00	17.69	29.94		29.95	0.000019	0.66	7122.41	3353.00	0.04
raymondville	reach 2	112513.*	5055.00	17.69	33.22		33.22	0.000007	0.50	21833.05	4754.45	0.03
raymondville	reach 2	112419.*	792.00	17.69	26.58		26.61	0.000139	1.39	570.73	97.57	0.10
raymondville	reach 2	112419.*	1290.00	17.69	28.45		28.48	0.000123	1.50	1407.05	1308.61	0.10
raymondville	reach 2	112419.*	1866.00	17.69	29.93		29.94	0.000043	1.01	5069.91	3455.28	0.06
raymondville	reach 2	112419.*	5055.00	17.69	33.21		33.21	0.000009	0.58	21059.76	5453.20	0.03
raymondville	reach 2	112324.*	792.00	17.68	26.57		26.60	0.000132	1.43	553.03	86.25	0.10
raymondville	reach 2	112324.*	1290.00	17.68	28.42		28.47	0.000168	1.79	722.59	96.70	0.12
raymondville	reach 2	112324.*	1866.00	17.68	29.89		29.93	0.000118	1.66	2779.05	3477.08	0.10
raymondville	reach 2	112324.*	5055.00	17.68	33.20		33.21	0.000011	0.62	20512.40	5726.60	0.03
raymondville	reach 2	112230	792.00	17.67	26.55		26.58	0.000133	1.49	530.89	77.53	0.10
raymondville	reach 2	112230	1290.00	17.67	28.40		28.45	0.000175	1.89	680.81	84.91	0.12
raymondville	reach 2	112230	1866.00	17.67	29.83		29.91	0.000229	2.31	806.09	90.62	0.14
raymondville	reach 2	112230	5055.00	17.67	33.20		33.20	0.000013	0.87	20004.18	6000.00	0.03
raymondville	reach 2	110608	792.00	17.50	26.34		26.37	0.000136	1.50	527.45	77.35	0.10
raymondville	reach 2	110608	1290.00	17.50	28.12		28.17	0.000182	1.92	671.27	84.46	0.12
raymondville	reach 2	110608	1866.00	17.50	29.44		29.52	0.000245	2.37	786.39	89.75	0.14
raymondville	reach 2	110608	5055.00	17.50	33.18		33.18	0.000013	0.68	19896.93	6000.00	0.03

HEC-RAS Plan - Rev - Rev Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	144530	200.00	21.30	32.26		32.26	0.000004	0.29	700.57	85.84	0.02
raymondville	reach 3 (south)	144530	342.00	21.30	34.48		34.48	0.000006	0.38	901.13	94.72	0.02
raymondville	reach 3 (south)	144530	526.00	21.30	36.54		36.54	0.000002	0.23	6448.70	3516.52	0.01
raymondville	reach 3 (south)	144530	1146.00	21.30	39.17		39.17	0.000001	0.17	15705.66	3516.52	0.01
raymondville	reach 3 (south)	144230	200.00	21.30	32.26		32.26	0.000004	0.29	700.47	85.84	0.02
raymondville	reach 3 (south)	144230	342.00	21.30	34.48		34.48	0.000006	0.38	900.97	94.72	0.02
raymondville	reach 3 (south)	144230	526.00	21.30	36.54		36.54	0.000002	0.23	6446.97	3516.52	0.01
raymondville	reach 3 (south)	144230	1146.00	21.30	39.17		39.17	0.000001	0.17	15704.93	3516.52	0.01
raymondville	reach 3 (south)	144030	200.00	26.10	32.21	27.56	32.25	0.000175	1.64	122.18	44.45	0.12
raymondville	reach 3 (south)	144030	342.00	26.10	34.41	28.18	34.47	0.000183	2.06	166.07	53.23	0.13
raymondville	reach 3 (south)	144030	526.00	26.10	36.43	28.87	36.53	0.000210	2.55	206.49	61.30	0.14
raymondville	reach 3 (south)	144030	1146.00	26.10	39.11	30.76	39.17	0.000171	1.89	874.69	2554.83	0.12
raymondville	reach 3 (south)	144020	200.00	26.10	32.21	27.56	32.25	0.000175	1.64	122.17	44.45	0.12
raymondville	reach 3 (south)	144020	342.00	26.10	34.40	28.18	34.47	0.000184	2.06	166.03	53.22	0.13
raymondville	reach 3 (south)	144020	526.00	26.10	36.43	28.87	36.53	0.000210	2.55	206.45	61.30	0.14
raymondville	reach 3 (south)	144020	1146.00	26.10	39.11	30.76	39.16	0.000171	1.89	870.85	2554.83	0.12
raymondville	reach 3 (south)	144005	Culvert									
raymondville	reach 3 (south)	143990	200.00	26.10	31.92	27.56	31.97	0.000205	1.72	116.38	43.29	0.13
raymondville	reach 3 (south)	143990	342.00	26.10	33.74	28.18	33.82	0.000242	2.24	152.74	50.56	0.14
raymondville	reach 3 (south)	143990	526.00	26.10	34.80	28.87	34.94	0.000372	3.02	173.92	54.60	0.18
raymondville	reach 3 (south)	143990	1146.00	26.10	35.85	30.76	36.39	0.001208	5.86	194.90	58.99	0.33
raymondville	reach 3 (south)	143980	200.00	26.10	31.93		31.95	0.000133	1.08	184.77	43.34	0.09
raymondville	reach 3 (south)	143980	342.00	26.10	33.77		33.79	0.000136	1.26	270.81	50.66	0.10
raymondville	reach 3 (south)	143980	526.00	26.10	34.85		34.89	0.000190	1.60	327.98	54.96	0.12
raymondville	reach 3 (south)	143980	1146.00	26.10	36.04		36.17	0.000537	2.89	396.64	59.76	0.20
raymondville	reach 3 (south)	141900	200.00	25.82	31.66		31.68	0.000133	1.08	184.90	43.35	0.09
raymondville	reach 3 (south)	141900	342.00	25.82	33.48		33.51	0.000136	1.26	270.70	50.65	0.10
raymondville	reach 3 (south)	141900	526.00	25.82	34.62		34.63	0.000080	1.08	2332.52	3993.73	0.08
raymondville	reach 3 (south)	141900	1146.00	25.82	36.00		36.01	0.000024	0.67	9311.63	5688.44	0.04
raymondville	reach 3 (south)	140581	200.00	25.65	31.49		31.51	0.000133	1.08	185.00	43.36	0.09
raymondville	reach 3 (south)	140581	342.00	25.65	33.31		33.34	0.000132	1.24	372.24	694.90	0.09
raymondville	reach 3 (south)	140581	526.00	25.65	34.55		34.56	0.000051	0.87	2763.99	3154.80	0.06
raymondville	reach 3 (south)	140581	1146.00	25.65	35.96		35.96	0.000022	0.64	8919.97	5247.93	0.04
raymondville	reach 3 (south)	139474	200.00	25.51	31.34		31.36	0.000134	1.08	184.88	43.33	0.09
raymondville	reach 3 (south)	139474	342.00	25.51	33.17		33.19	0.000135	1.26	296.25	386.69	0.10
raymondville	reach 3 (south)	139474	526.00	25.51	34.48		34.49	0.000057	0.91	2536.86	3003.26	0.06
raymondville	reach 3 (south)	139474	1146.00	25.51	35.95		35.95	0.000022	0.68	8757.43	5213.19	0.04
raymondville	reach 3 (south)	138076	200.00	25.32	31.15		31.16	0.000134	1.08	184.41	43.30	0.09
raymondville	reach 3 (south)	138076	342.00	25.32	32.96		32.99	0.000137	1.27	269.66	50.57	0.10
raymondville	reach 3 (south)	138076	526.00	25.32	34.39		34.40	0.000064	0.97	2265.78	2806.80	0.07
raymondville	reach 3 (south)	138076	1146.00	25.32	35.91		35.91	0.000023	0.67	8559.19	5166.94	0.04
raymondville	reach 3 (south)	138026	200.00	25.14	30.95		30.97	0.000135	1.09	183.71	43.24	0.09
raymondville	reach 3 (south)	138026	342.00	25.14	32.76		32.78	0.000139	1.27	268.46	50.47	0.10
raymondville	reach 3 (south)	138026	526.00	25.14	34.28		34.29	0.000073	1.03	1991.99	2592.78	0.07
raymondville	reach 3 (south)	138026	1146.00	25.14	35.67		35.67	0.000024	0.69	8374.54	5120.69	0.04
raymondville	reach 3 (south)	136620	200.00	24.96	30.75		30.77	0.000137	1.09	182.97	43.16	0.09
raymondville	reach 3 (south)	136620	342.00	24.96	32.55		32.58	0.000141	1.28	267.20	50.36	0.10
raymondville	reach 3 (south)	136620	526.00	24.96	34.16		34.18	0.000097	1.18	1426.41	1908.82	0.08
raymondville	reach 3 (south)	136620	1146.00	24.96	35.82		35.83	0.000032	0.78	7192.22	4656.41	0.05
raymondville	reach 3 (south)	135048	200.00	24.75	30.55		30.56	0.000137	1.09	183.12	43.19	0.09
raymondville	reach 3 (south)	135048	342.00	24.75	32.33		32.36	0.000141	1.28	266.73	50.35	0.10
raymondville	reach 3 (south)	135048	526.00	24.75	33.99		34.01	0.000116	1.29	1032.94	1426.18	0.09
raymondville	reach 3 (south)	135048	1146.00	24.75	35.76		35.76	0.000045	0.92	5643.69	3741.49	0.06
raymondville	reach 3 (south)	133745	200.00	24.58	30.36		30.38	0.000138	1.10	182.28	43.11	0.09
raymondville	reach 3 (south)	133745	342.00	24.58	32.15		32.17	0.000143	1.29	265.94	50.28	0.10
raymondville	reach 3 (south)	133745	526.00	24.58	33.83		33.85	0.000127	1.35	628.61	1199.35	0.10
raymondville	reach 3 (south)	133745	1146.00	24.58	35.69		35.69	0.000049	0.95	5394.36	3652.64	0.06
raymondville	reach 3 (south)	132244	200.00	24.39	30.14		30.16	0.000141	1.10	181.22	43.01	0.09
raymondville	reach 3 (south)	132244	342.00	24.39	31.93		31.95	0.000145	1.29	264.36	50.15	0.10
raymondville	reach 3 (south)	132244	526.00	24.39	33.62		33.65	0.000141	1.42	621.44	912.82	0.10
raymondville	reach 3 (south)	132244	1146.00	24.39	35.82		35.83	0.000048	0.94	5937.20	4813.09	0.06
raymondville	reach 3 (south)	130592	200.00	24.17	29.92		29.93	0.000141	1.11	180.93	42.96	0.09
raymondville	reach 3 (south)	130592	342.00	24.17	31.69		31.72	0.000146	1.30	263.87	50.09	0.10
raymondville	reach 3 (south)	130592	526.00	24.17	33.38		33.41	0.000154	1.49	353.79	56.84	0.11
raymondville	reach 3 (south)	130592	1146.00	24.17	35.56		35.57	0.000030	0.78	6583.44	6500.00	0.05



HEC-RAS Plan-View-RevEx (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	129120	200.00	23.98	29.71		29.73	0.000143	1.11	180.11	42.91	0.10
raymondville	reach 3 (south)	129120	342.00	23.98	31.48		31.50	0.000148	1.30	282.35	49.99	0.10
raymondville	reach 3 (south)	129120	526.00	23.98	33.15		33.18	0.000157	1.50	351.47	56.67	0.11
raymondville	reach 3 (south)	129120	1146.00	23.98	35.51		35.51	0.000033	0.82	8229.57	6500.00	0.05
raymondville	reach 3 (south)	127894	200.00	23.79	29.50		29.52	0.000145	1.12	179.29	42.83	0.10
raymondville	reach 3 (south)	127894	342.00	23.79	31.26		31.29	0.000150	1.31	261.03	49.88	0.10
raymondville	reach 3 (south)	127894	526.00	23.79	32.92		32.95	0.000160	1.51	349.16	56.51	0.11
raymondville	reach 3 (south)	127894	1146.00	23.79	35.45		35.46	0.000036	0.86	7875.85	6500.00	0.05
raymondville	reach 3 (south)	126200	200.00	23.60	29.28		29.30	0.000148	1.12	178.07	42.72	0.10
raymondville	reach 3 (south)	126200	342.00	23.60	31.03		31.06	0.000153	1.32	259.24	49.74	0.10
raymondville	reach 3 (south)	126200	526.00	23.60	32.68		32.71	0.000164	1.52	346.24	56.30	0.11
raymondville	reach 3 (south)	126200	1146.00	23.60	35.40		35.40	0.000039	0.90	7522.26	6500.00	0.06
raymondville	reach 3 (south)	128152	200.00	23.59	29.27		29.29	0.000148	1.12	178.18	42.73	0.10
raymondville	reach 3 (south)	128152	342.00	23.59	31.03		31.05	0.000153	1.32	259.35	49.75	0.10
raymondville	reach 3 (south)	128152	526.00	23.59	32.67		32.70	0.000164	1.52	346.34	56.31	0.11
raymondville	reach 3 (south)	128152	1146.00	23.59	35.39		35.40	0.000039	0.90	7509.89	6500.00	0.06
raymondville	reach 3 (south)	124435	200.00	23.37	29.01		29.03	0.000151	1.13	176.62	42.58	0.10
raymondville	reach 3 (south)	124435	342.00	23.37	30.76		30.79	0.000156	1.33	257.08	49.56	0.10
raymondville	reach 3 (south)	124435	526.00	23.37	32.38		32.42	0.000168	1.54	342.64	56.05	0.11
raymondville	reach 3 (south)	124435	1146.00	23.37	35.33		35.33	0.000043	0.95	7089.92	6500.00	0.06
raymondville	reach 3 (south)	123138	200.00	23.20	28.82		28.84	0.000154	1.14	175.41	42.47	0.10
raymondville	reach 3 (south)	123138	342.00	23.20	30.56		30.58	0.000159	1.34	255.34	49.42	0.10
raymondville	reach 3 (south)	123138	526.00	23.20	32.16		32.20	0.000172	1.55	339.75	55.84	0.11
raymondville	reach 3 (south)	123138	1146.00	23.20	35.28		35.27	0.000048	1.01	6666.98	6500.00	0.06
raymondville	reach 3 (south)	121829	200.00	23.01	28.57		28.59	0.000180	1.16	173.15	42.25	0.10
raymondville	reach 3 (south)	121829	342.00	23.01	30.31		30.33	0.000165	1.36	252.34	49.18	0.11
raymondville	reach 3 (south)	121829	526.00	23.01	31.89		31.92	0.000179	1.57	335.09	55.50	0.11
raymondville	reach 3 (south)	121829	1146.00	23.01	35.18		35.19	0.000055	1.08	6137.53	6500.00	0.07
raymondville	reach 3 (south)	120128	200.00	22.81	28.33		28.35	0.000165	1.17	171.31	42.08	0.10
raymondville	reach 3 (south)	120128	342.00	22.81	30.05		30.08	0.000169	1.37	249.85	48.98	0.11
raymondville	reach 3 (south)	120128	526.00	22.81	31.61		31.65	0.000185	1.59	331.00	55.21	0.11
raymondville	reach 3 (south)	120128	1146.00	22.81	35.08		35.10	0.000065	1.17	5547.25	6500.00	0.07
raymondville	reach 3 (south)	120078	200.00	22.80	28.32		28.34	0.000164	1.17	171.38	42.08	0.10
raymondville	reach 3 (south)	120078	342.00	22.80	30.05		30.07	0.000169	1.37	249.92	48.98	0.11
raymondville	reach 3 (south)	120078	526.00	22.80	31.60		31.64	0.000185	1.59	331.04	55.21	0.11
raymondville	reach 3 (south)	120078	1146.00	22.80	35.08		35.09	0.000065	1.18	5523.77	6500.00	0.07
raymondville	reach 3 (south)	118101	200.00	22.55	27.98		28.01	0.000175	1.19	167.74	41.74	0.10
raymondville	reach 3 (south)	118101	342.00	22.55	29.70		29.73	0.000178	1.39	245.28	48.60	0.11
raymondville	reach 3 (south)	118101	526.00	22.55	31.22		31.26	0.000196	1.62	323.89	54.69	0.12
raymondville	reach 3 (south)	118101	1146.00	22.55	34.93		34.94	0.000084	1.33	4555.78	6212.73	0.08
raymondville	reach 3 (south)	118051	200.00	22.54	27.98		28.00	0.000174	1.19	167.79	41.74	0.10
raymondville	reach 3 (south)	118051	342.00	22.54	29.69		29.72	0.000178	1.39	245.33	48.61	0.11
raymondville	reach 3 (south)	118051	526.00	22.54	31.21		31.25	0.000196	1.62	323.90	54.69	0.12
raymondville	reach 3 (south)	118051	1146.00	22.54	34.92		34.94	0.000084	1.34	4528.80	6195.16	0.08
raymondville	reach 3 (south)	116902	200.00	22.39	27.77		27.79	0.000181	1.21	165.51	41.52	0.11
raymondville	reach 3 (south)	116902	342.00	22.39	29.48		29.51	0.000184	1.41	242.49	48.37	0.11
raymondville	reach 3 (south)	116902	526.00	22.39	30.98		31.02	0.000204	1.65	319.48	54.37	0.12
raymondville	reach 3 (south)	116902	1146.00	22.39	34.81		34.83	0.000099	1.44	3878.37	5759.30	0.09
raymondville	reach 3 (south)	114860	200.00	22.13	27.38		27.41	0.000198	1.25	160.22	41.01	0.11
raymondville	reach 3 (south)	114860	342.00	22.13	29.10		29.13	0.000197	1.45	236.34	47.86	0.11
raymondville	reach 3 (south)	114860	526.00	22.13	30.55		30.60	0.000221	1.70	310.29	53.69	0.12
raymondville	reach 3 (south)	114860	1146.00	22.13	34.54		34.59	0.000151	1.76	1911.54	2554.83	0.11
raymondville	reach 3 (south)	113007	200.00	21.88	26.99		27.02	0.000219	1.29	154.59	40.46	0.12
raymondville	reach 3 (south)	113007	342.00	21.88	28.71		28.75	0.000212	1.49	230.12	47.34	0.12
raymondville	reach 3 (south)	113007	526.00	21.88	30.12		30.17	0.000241	1.75	300.68	52.97	0.13
raymondville	reach 3 (south)	113007	1146.00	21.88	34.18		34.25	0.000223	2.09	548.54	69.20	0.13
raymondville	reach 3 (south)	112058	200.00	21.76	26.78		26.80	0.000236	1.33	150.69	40.07	0.12
raymondville	reach 3 (south)	112058	342.00	21.76	28.51		28.54	0.000223	1.51	225.98	46.99	0.12
raymondville	reach 3 (south)	112058	526.00	21.76	29.88		29.93	0.000255	1.79	294.52	52.50	0.13
raymondville	reach 3 (south)	112058	1146.00	21.76	33.96		34.03	0.000230	2.11	541.88	68.81	0.13
raymondville	reach 3 (south)	112008	200.00	21.75	26.77		26.79	0.000236	1.33	150.61	40.06	0.12
raymondville	reach 3 (south)	112008	342.00	21.75	28.50		28.53	0.000223	1.51	225.92	46.98	0.12
raymondville	reach 3 (south)	112008	526.00	21.75	29.87		29.92	0.000255	1.79	294.36	52.49	0.13
raymondville	reach 3 (south)	112008	1146.00	21.75	33.95		34.02	0.000230	2.12	541.76	68.80	0.13

MEC-RAS Plan - Ray - Ray Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	110270	200.00	21.53	26.31		26.35	0.000281	1.41	141.48	39.14	0.13
raymondville	reach 3 (south)	110270	342.00	21.53	26.08		26.12	0.000250	1.58	216.91	46.21	0.13
raymondville	reach 3 (south)	110270	526.00	21.53	29.39		29.45	0.000290	1.87	280.99	51.46	0.14
raymondville	reach 3 (south)	110270	1146.00	21.53	33.53		33.61	0.000247	2.17	528.20	68.01	0.14
raymondville	reach 1	108185	919.00	17.51	26.13		26.17	0.000143	1.54	596.80	88.55	0.10
raymondville	reach 1	108185	1436.00	17.51	27.88		27.91	0.000178	1.90	755.21	95.43	0.12
raymondville	reach 1	108185	2061.00	17.51	29.09		29.17	0.000240	2.35	875.72	100.36	0.14
raymondville	reach 1	108185	5206.00	17.51	32.84		33.10	0.000525	4.07	1280.60	115.37	0.22
raymondville	reach 1	109050	919.00	17.49	26.11		26.15	0.000143	1.54	596.68	88.55	0.10
raymondville	reach 1	109050	1436.00	17.49	27.83		27.89	0.000178	1.90	754.63	95.42	0.12
raymondville	reach 1	109050	2061.00	17.49	29.05		29.14	0.000241	2.36	874.45	100.31	0.14
raymondville	reach 1	109050	5206.00	17.49	32.77		33.03	0.000532	4.09	1274.36	115.16	0.22
raymondville	reach 1	108145	919.00	17.35	26.06		26.09	0.000136	1.52	604.19	88.88	0.10
raymondville	reach 1	108145	1436.00	17.35	27.78		27.81	0.000174	1.89	761.29	95.89	0.12
raymondville	reach 1	108145	2061.00	17.35	28.95		29.04	0.000238	2.35	874.46	100.47	0.14
raymondville	reach 1	108145	5206.00	17.35	32.54		32.80	0.000544	4.12	1294.26	114.80	0.22
raymondville	reach 1	107740	919.00	17.35	26.00		26.04	0.000142	1.53	599.09	88.65	0.10
raymondville	reach 1	107740	1436.00	17.35	27.89		27.74	0.000178	1.90	754.38	95.40	0.12
raymondville	reach 1	107740	2061.00	17.35	28.85		28.94	0.000246	2.37	868.43	100.07	0.14
raymondville	reach 1	107740	5206.00	17.35	32.30		32.57	0.000576	4.21	1236.83	113.84	0.23
raymondville	reach 1	106578	919.00	17.16	25.64	19.48	25.87	0.000140	1.53	601.44	88.78	0.10
raymondville	reach 1	106578	1436.00	17.16	27.48	20.14	27.54	0.000179	1.91	752.68	95.33	0.12
raymondville	reach 1	106578	2061.00	17.16	28.56	20.84	28.65	0.000254	2.40	858.24	99.68	0.14
raymondville	reach 1	106578	5206.00	17.16	31.54	23.49	31.85	0.000671	4.44	1173.04	111.58	0.24
raymondville	reach 1	106370	919.00	17.13	25.81	19.44	25.84	0.000137	1.51	610.53	91.00	0.10
raymondville	reach 1	106370	1436.00	17.13	27.44	20.11	27.50	0.000175	1.88	765.11	96.01	0.12
raymondville	reach 1	106370	2061.00	17.13	28.51	20.80	28.60	0.000249	2.36	872.24	102.59	0.14
raymondville	reach 1	106370	5206.00	17.13	31.41	23.46	31.71	0.000685	4.38	1187.49	115.00	0.24
raymondville	reach 1	105922.*	919.00	17.06	25.75	19.37	25.78	0.000137	1.51	608.87	90.45	0.10
raymondville	reach 1	105922.*	1436.00	17.06	27.38	20.04	27.42	0.000177	1.89	760.49	97.25	0.12
raymondville	reach 1	105922.*	2061.00	17.06	28.39	20.73	28.48	0.000255	2.39	862.55	101.57	0.14
raymondville	reach 1	105922.*	5206.00	17.06	31.08	23.40	31.39	0.000729	4.52	1151.69	114.17	0.25
raymondville	reach 1	105474.*	919.00	16.99	25.68	19.30	25.72	0.000138	1.51	607.35	89.91	0.10
raymondville	reach 1	105474.*	1436.00	16.99	27.28	19.97	27.34	0.000179	1.90	756.06	96.51	0.12
raymondville	reach 1	105474.*	2061.00	16.99	28.27	20.66	28.36	0.000281	2.42	853.17	100.59	0.15
raymondville	reach 1	105474.*	5206.00	16.99	30.71	23.33	31.05	0.000603	4.68	1111.85	112.28	0.26
raymondville	reach 1	105026.*	919.00	16.91	25.62	19.23	25.66	0.000137	1.51	606.67	89.42	0.10
raymondville	reach 1	105026.*	1436.00	16.91	27.20	19.89	27.25	0.000180	1.91	752.58	95.83	0.12
raymondville	reach 1	105026.*	2061.00	16.91	28.14	20.59	28.23	0.000267	2.44	844.65	99.67	0.15
raymondville	reach 1	105026.*	5206.00	16.91	30.30	23.26	30.67	0.000674	4.67	1069.62	108.48	0.27
raymondville	reach 1	104578	919.00	16.84	25.58	19.16	25.80	0.000137	1.52	605.44	88.94	0.10
raymondville	reach 1	104578	1436.00	16.84	27.12	19.82	27.17	0.000182	1.92	748.58	95.16	0.12
raymondville	reach 1	104578	2061.00	16.84	28.02	20.52	28.11	0.000274	2.47	836.09	98.77	0.15
raymondville	reach 1	104578	5206.00	16.84	29.85	23.19	30.25	0.000983	5.08	1023.86	106.10	0.29
raymondville	reach 1	102128	919.00	16.43	25.16		25.19	0.000202	1.49	656.78	424.99	0.12
raymondville	reach 1	102128	1436.00	16.43	26.80		26.82	0.000109	1.33	1881.59	1113.50	0.09
raymondville	reach 1	102128	2061.00	16.43	27.72		27.73	0.000090	1.32	3030.72	1392.92	0.09
raymondville	reach 1	102128	5206.00	16.43	29.44		29.46	0.000129	1.81	7239.06	3357.74	0.11
raymondville	reach 1	100615	919.00	16.19	24.93	18.49	24.96	0.000119	1.37	671.72	105.00	0.10
raymondville	reach 1	100615	1436.00	16.19	26.85	19.15	26.68	0.000087	1.37	1789.69	1014.06	0.09
raymondville	reach 1	100615	2061.00	16.19	27.58	19.82	27.60	0.000080	1.42	3105.62	1687.83	0.08
raymondville	reach 1	100615	5206.00	16.19	29.28	22.35	29.29	0.000104	1.81	7752.40	3455.63	0.10
raymondville	reach 1	100117	919.00	16.10	24.86	18.42	24.90	0.000135	1.51	609.07	89.10	0.10
raymondville	reach 1	100117	1436.00	16.10	26.60	19.08	26.82	0.000125	1.42	1619.23	904.99	0.10
raymondville	reach 1	100117	2061.00	16.10	27.53	19.79	27.55	0.000112	1.47	2613.78	1312.10	0.09
raymondville	reach 1	100117	5206.00	16.10	29.19	22.45	29.23	0.000183	2.03	6854.67	4241.21	0.12
raymondville	reach 1	98117	919.00	15.78	24.60		24.64	0.000132	1.50	614.52	89.34	0.10
raymondville	reach 1	98117	1436.00	15.78	26.48		26.49	0.000039	0.80	4617.86	3526.71	0.06
raymondville	reach 1	98117	2061.00	15.78	27.47		27.47	0.000018	0.60	8496.19	4395.42	0.04
raymondville	reach 1	98117	5206.00	15.78	29.14		29.14	0.000019	0.70	16828.41	5486.63	0.04
raymondville	reach 1	96117	919.00	15.45	24.34		24.38	0.000128	1.48	620.89	89.63	0.10
raymondville	reach 1	96117	1436.00	15.45	26.33		26.35	0.000138	1.33	1916.13	1991.27	0.10
raymondville	reach 1	96117	2061.00	15.45	27.40		27.41	0.000067	1.05	4736.73	3591.08	0.07
raymondville	reach 1	96117	5206.00	15.45	29.08		29.09	0.000049	1.04	11910.45	5513.50	0.06
raymondville	reach 1	95341	919.00	15.32	24.26		24.29	0.000100	1.25	736.00	116.82	0.09

HEC-RAS Plan - Ray - Ray Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	95341	1436.00	15.32	26.23		26.26	0.000107	1.32	1549.20	1399.62	0.09
raymondville	reach 1	95341	2061.00	15.32	27.34		27.36	0.000076	1.23	3783.21	3274.52	0.08
raymondville	reach 1	95341	5206.00	15.32	29.03		29.04	0.000060	1.25	11231.12	5638.90	0.07
raymondville	reach 1	94117	919.00	15.12	24.12		24.15	0.000122	1.46	630.30	90.05	0.10
raymondville	reach 1	94117	1436.00	15.12	26.06		26.10	0.000163	1.62	1161.33	995.65	0.11
raymondville	reach 1	94117	2061.00	15.12	27.21		27.24	0.000126	1.58	2608.87	2043.50	0.10
raymondville	reach 1	94117	5206.00	15.12	28.92		28.94	0.000119	1.77	7567.25	3651.02	0.10
raymondville	reach 1	92117	919.00	14.79	23.88	17.11	23.91	0.000118	1.44	638.71	90.42	0.10
raymondville	reach 1	92117	1436.00	14.79	25.71	17.77	25.75	0.000184	1.69	930.46	336.39	0.12
raymondville	reach 1	92117	2061.00	14.79	26.89	18.48	26.93	0.000175	1.85	1587.84	685.65	0.12
raymondville	reach 1	92117	5206.00	14.79	28.47	21.14	28.56	0.000335	2.90	3812.19	2093.85	0.17
raymondville	reach 1	90057	919.00	14.45	23.65		23.68	0.000113	1.42	648.07	90.83	0.09
raymondville	reach 1	90057	1436.00	14.45	25.30		25.35	0.000205	1.74	903.25	453.40	0.12
raymondville	reach 1	90057	2061.00	14.45	26.56		26.60	0.000148	1.68	2395.73	2084.02	0.11
raymondville	reach 1	90057	5206.00	14.45	28.10		28.12	0.000136	1.82	7950.36	4843.02	0.11
raymondville	reach 1	90018	919.00	14.45	23.64		23.67	0.000113	1.42	647.66	90.81	0.09
raymondville	reach 1	90018	1436.00	14.45	25.30		25.34	0.000206	1.75	899.51	451.78	0.12
raymondville	reach 1	90018	2061.00	14.45	26.56		26.59	0.000149	1.68	2380.49	2081.85	0.11
raymondville	reach 1	90018	5206.00	14.45	28.09		28.12	0.000137	1.83	7921.71	4842.45	0.11
raymondville	reach 1	88117	919.00	14.14	23.43		23.46	0.000109	1.40	656.76	91.21	0.09
raymondville	reach 1	88117	1436.00	14.14	24.96		25.01	0.000150	1.79	800.85	97.33	0.11
raymondville	reach 1	88117	2061.00	14.14	26.24		26.29	0.000174	1.79	2530.51	4247.17	0.12
raymondville	reach 1	88117	5206.00	14.14	27.93		27.94	0.000071	1.32	10921.82	5609.10	0.08
raymondville	reach 1	86117	1389.00	13.81	23.04		23.11	0.000254	2.13	651.19	90.97	0.14
raymondville	reach 1	86117	2200.00	13.81	24.37		24.50	0.000385	2.83	776.11	96.31	0.18
raymondville	reach 1	86117	3169.00	13.81	25.72	18.54	25.79	0.000327	2.38	3159.39	3311.68	0.16
raymondville	reach 1	86117	7325.00	13.81	27.78		27.79	0.000078	1.39	13680.06	6000.00	0.08
raymondville	reach 1	84790	1389.00	13.59	22.70		22.77	0.000264	2.15	645.82	91.84	0.14
raymondville	reach 1	84790	2200.00	13.59	23.83		23.96	0.000427	2.92	752.37	96.56	0.18
raymondville	reach 1	84790	3169.00	13.59	24.99		25.20	0.000591	3.65	867.50	101.41	0.22
raymondville	reach 1	84790	7325.00	13.59	26.67	21.33	27.42	0.001836	6.98	1211.30	2097.03	0.40
raymondville	reach 1	84693.8*	1389.00	13.57	22.67		22.74	0.000269	2.15	647.41	93.96	0.14
raymondville	reach 1	84693.8*	2200.00	13.57	23.78		23.91	0.000437	2.91	755.09	99.43	0.19
raymondville	reach 1	84693.8*	3169.00	13.57	24.93		25.14	0.000604	3.63	872.67	105.08	0.22
raymondville	reach 1	84693.8*	7325.00	13.57	26.50	21.32	27.24	0.001883	6.93	1358.32	2818.57	0.40
raymondville	reach 1	84597.7*	1389.00	13.56	22.64		22.71	0.000276	2.15	645.79	95.34	0.15
raymondville	reach 1	84597.7*	2200.00	13.56	23.74		23.87	0.000453	2.92	753.68	101.88	0.19
raymondville	reach 1	84597.7*	3169.00	13.56	24.86		25.07	0.000629	3.63	872.42	108.62	0.23
raymondville	reach 1	84597.7*	7325.00	13.56	26.33	21.31	27.05	0.001943	6.87	1555.68	3507.09	0.40
raymondville	reach 1	84501.5*	1389.00	13.54	22.61		22.69	0.000281	2.16	642.34	95.35	0.15
raymondville	reach 1	84501.5*	2200.00	13.54	23.69		23.82	0.000471	2.94	749.18	103.48	0.19
raymondville	reach 1	84501.5*	3169.00	13.54	24.80		25.00	0.000663	3.65	868.29	111.84	0.23
raymondville	reach 1	84501.5*	7325.00	13.54	26.20	21.29	26.84	0.001914	6.64	1980.44	4307.33	0.40
raymondville	reach 1	84405.4*	1389.00	13.53	22.59		22.66	0.000278	2.18	637.84	92.74	0.15
raymondville	reach 1	84405.4*	2200.00	13.53	23.64		23.78	0.000489	2.97	741.38	103.52	0.20
raymondville	reach 1	84405.4*	3169.00	13.53	24.72		24.93	0.000710	3.69	858.75	114.53	0.24
raymondville	reach 1	84405.4*	7325.00	13.53	26.18		26.62	0.001528	5.83	2927.61	4335.30	0.36
raymondville	reach 1	84309.2*	1389.00	13.51	22.56		22.64	0.000273	2.18	636.16	90.56	0.15
raymondville	reach 1	84309.2*	2200.00	13.51	23.60		23.74	0.000484	3.00	733.11	99.53	0.19
raymondville	reach 1	84309.2*	3169.00	13.51	24.64		24.86	0.000758	3.75	845.79	115.78	0.24
raymondville	reach 1	84309.2*	7325.00	13.51	26.17		26.43	0.001151	4.95	3877.77	4352.98	0.31
raymondville	reach 1	84213.1*	1389.00	13.50	22.53		22.61	0.000275	2.19	634.12	90.36	0.15
raymondville	reach 1	84213.1*	2200.00	13.50	23.55		23.69	0.000464	3.02	728.01	94.44	0.19
raymondville	reach 1	84213.1*	3169.00	13.50	24.57		24.79	0.000775	3.82	829.25	111.72	0.25
raymondville	reach 1	84213.1*	7325.00	13.50	26.13		26.32	0.000953	4.39	4751.39	5477.18	0.28
raymondville	reach 1	84117	1389.00	13.48	22.51		22.58	0.000276	2.19	632.84	90.16	0.15
raymondville	reach 1	84117	2200.00	13.48	23.50		23.65	0.000469	3.04	724.68	94.15	0.19
raymondville	reach 1	84117	3169.00	13.48	24.49		24.72	0.000685	3.87	819.54	98.09	0.24
raymondville	reach 1	84117	7325.00	13.48	26.10		26.21	0.000721	3.72	5780.31	6000.00	0.24
raymondville	reach 1	83617.*	1389.00	13.40	22.36		22.44	0.000287	2.22	626.43	90.54	0.15
raymondville	reach 1	83617.*	2200.00	13.40	23.25		23.40	0.000506	3.10	709.03	94.61	0.20
raymondville	reach 1	83617.*	3169.00	13.40	24.06		24.30	0.001069	3.94	874.34	549.23	0.28
raymondville	reach 1	83617.*	7325.00	13.40	25.71		25.84	0.000739	3.85	5212.38	4432.26	0.24
raymondville	reach 1	83117.*	1389.00	13.31	22.21		22.28	0.000300	2.24	621.43	91.97	0.15
raymondville	reach 1	83117.*	2200.00	13.31	22.97		23.11	0.000718	3.06	792.21	432.23	0.23

HEC-RAS Plan-View- RayEx (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	83117.*	3169.00	13.31	23.59		23.79	0.000929	3.74	1177.68	893.50	0.26
raymondville	reach 1	83117.*	7325.00	13.31	25.30		25.45	0.000795	4.07	4699.27	4406.91	0.26
raymondville	reach 1	82617.*	1389.00	13.23	22.05		22.12	0.000358	2.08	800.46	511.85	0.16
raymondville	reach 1	82617.*	2200.00	13.23	22.70		22.80	0.000501	2.86	1177.52	651.70	0.19
raymondville	reach 1	82617.*	3169.00	13.23	23.26		23.39	0.000629	3.17	1695.69	1089.55	0.22
raymondville	reach 1	82617.*	7325.00	13.23	24.99		25.10	0.000585	3.58	4631.19	2286.74	0.22
raymondville	reach 1	82117	1389.00	13.15	21.94		21.98	0.000199	1.64	1280.67	649.04	0.12
raymondville	reach 1	82117	2200.00	13.15	22.54		22.60	0.000294	2.14	1813.83	1085.17	0.15
raymondville	reach 1	82117	3169.00	13.15	23.05		23.12	0.000384	2.57	2387.07	1340.93	0.17
raymondville	reach 1	82117	7325.00	13.15	24.78		24.85	0.000394	3.03	5430.33	2275.64	0.18
raymondville	reach 1	80117	1389.00	12.82	21.72		21.72	0.000083	0.98	3408.97	3099.06	0.08
raymondville	reach 1	80117	2200.00	12.82	22.32		22.32	0.000074	0.99	5554.86	4009.05	0.07
raymondville	reach 1	80117	3169.00	12.82	22.85		22.85	0.000063	0.97	7708.90	4113.93	0.07
raymondville	reach 1	80117	7325.00	12.82	24.64		24.64	0.000042	0.94	17143.74	5895.73	0.06
raymondville	reach 1	79415	1389.00	12.71	21.54		21.82	0.000296	2.26	615.42	89.36	0.15
raymondville	reach 1	79415	2200.00	12.71	22.02		22.19	0.000618	3.34	658.35	91.28	0.22
raymondville	reach 1	79415	3169.00	12.71	22.38		22.71	0.001112	4.58	691.82	92.74	0.30
raymondville	reach 1	79415	7325.00	12.71	22.85	20.46	24.39	0.004977	9.95	735.89	94.82	0.63
raymondville	reach 1	78117	1389.00	12.50	21.39		21.40	0.000094	1.11	3473.96	4036.81	0.06
raymondville	reach 1	78117	2200.00	12.50	21.92		21.93	0.000074	1.04	5625.58	4088.78	0.07
raymondville	reach 1	78117	3169.00	12.50	22.37		22.38	0.000072	1.08	7854.53	4624.87	0.07
raymondville	reach 1	78117	7325.00	12.50	23.82		23.63	0.000073	1.23	14201.73	5831.49	0.08
raymondville	reach 1	76117	1389.00	12.17	21.27		21.28	0.000048	0.80	4723.56	4196.91	0.06
raymondville	reach 1	76117	2200.00	12.17	21.82		21.82	0.000041	0.79	7040.78	4250.73	0.06
raymondville	reach 1	76117	3169.00	12.17	22.27		22.27	0.000044	0.85	9049.08	4888.31	0.06
raymondville	reach 1	76117	7325.00	12.17	23.50		23.51	0.000056	1.07	15525.56	6000.00	0.07
raymondville	reach 1	74240	1389.00	11.86	21.18		21.19	0.000047	0.80	4536.56	4233.45	0.06
raymondville	reach 1	74240	2200.00	11.86	21.74		21.75	0.000041	0.79	6929.38	4302.53	0.06
raymondville	reach 1	74240	3169.00	11.86	22.18		22.19	0.000044	0.86	8924.07	4854.36	0.06
raymondville	reach 1	74240	7325.00	11.86	23.40		23.40	0.000056	1.08	15313.35	6000.00	0.07
raymondville	reach 1	74117	1389.00	11.84	21.18		21.18	0.000048	0.80	4513.01	4232.70	0.06
raymondville	reach 1	74117	2200.00	11.84	21.74		21.74	0.000041	0.80	6909.03	4301.89	0.06
raymondville	reach 1	74117	3169.00	11.84	22.18		22.18	0.000045	0.87	8898.84	4853.86	0.06
raymondville	reach 1	74117	7325.00	11.84	23.39		23.40	0.000056	1.09	15273.27	6000.00	0.07
raymondville	reach 1	71592	1389.00	11.42	21.06		21.08	0.000049	0.83	4528.95	4152.33	0.06
raymondville	reach 1	71592	2200.00	11.42	21.66		21.66	0.000041	0.80	6947.12	4209.20	0.06
raymondville	reach 1	71592	3169.00	11.42	22.09		22.10	0.000048	0.89	8814.56	4845.86	0.06
raymondville	reach 1	71592	7325.00	11.42	23.28		23.28	0.000082	1.15	14736.36	6000.00	0.07
raymondville	reach 1	69075	1537.00	11.01	20.91		20.92	0.000083	1.08	3643.34	3353.93	0.08
raymondville	reach 1	69075	2345.00	11.01	21.53		21.54	0.000058	0.96	6528.21	4920.14	0.07
raymondville	reach 1	69075	3414.00	11.01	21.95		21.96	0.000059	1.02	8620.80	4972.86	0.07
raymondville	reach 1	69075	8249.00	11.01	23.10		23.11	0.000074	1.26	15462.82	6000.00	0.08
raymondville	reach 1	66802	1537.00	10.64	20.86		20.70	0.000100	1.19	3563.79	4277.09	0.09
raymondville	reach 1	66802	2345.00	10.64	21.39		21.40	0.000055	0.94	6941.84	5142.22	0.06
raymondville	reach 1	66802	3414.00	10.64	21.82		21.82	0.000055	0.99	9123.93	5183.33	0.07
raymondville	reach 1	66802	8249.00	10.64	22.92		22.93	0.000074	1.26	15596.62	6000.00	0.08
raymondville	reach 1	64802	1537.00	10.31	20.39		20.42	0.000196	1.63	2198.89	3887.01	0.12
raymondville	reach 1	64802	2345.00	10.31	21.26		21.27	0.000076	1.12	5986.83	5436.26	0.08
raymondville	reach 1	64802	3414.00	10.31	21.68		21.69	0.000072	1.13	8291.39	5477.84	0.08
raymondville	reach 1	64802	8249.00	10.31	22.75		22.76	0.000091	1.40	14531.16	6000.00	0.09
raymondville	reach 1	62802	1537.00	9.98	19.92		19.99	0.000237	2.15	716.48	93.80	0.14
raymondville	reach 1	62802	2345.00	9.98	21.10		21.11	0.000077	1.13	6284.31	6000.00	0.08
raymondville	reach 1	62802	3414.00	9.98	21.54		21.55	0.000067	1.09	8912.84	6000.00	0.07
raymondville	reach 1	62802	8249.00	9.98	22.58		22.58	0.000083	1.34	15109.03	6000.00	0.08
raymondville	reach 1	61180	1537.00	9.65	19.42		19.49	0.000252	2.19	700.86	93.12	0.14
raymondville	reach 1	61180	2345.00	9.65	20.74		20.83	0.000302	2.58	1636.74	2299.88	0.16
raymondville	reach 1	61180	3414.00	9.65	21.17		21.25	0.000478	2.75	2903.17	3515.55	0.19
raymondville	reach 1	61180	8249.00	9.65	22.21		22.26	0.000418	2.84	8098.05	6000.00	0.18
raymondville	reach 1	61130	1537.00	9.64	19.41		19.48	0.000252	2.19	700.81	93.11	0.14
raymondville	reach 1	61130	2345.00	9.64	20.73		20.82	0.000303	2.58	1621.20	2278.28	0.16
raymondville	reach 1	61130	3414.00	9.64	21.15		21.24	0.000493	2.79	2839.69	3480.26	0.19
raymondville	reach 1	61130	8249.00	9.64	22.18		22.23	0.000441	2.91	7912.51	6000.00	0.19
raymondville	reach 1	60777	1537.00	9.58	19.32		19.39	0.000255	2.20	697.83	93.00	0.14
raymondville	reach 1	60777	2345.00	9.58	20.72		20.74	0.000125	1.41	5090.23	6000.00	0.10
raymondville	reach 1	60777	3414.00	9.58	21.13		21.14	0.000104	1.34	7558.46	6000.00	0.09

HEC-RAS Plan - Ray - Ray Ex (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	60777	8249.00	9.58	22.13		22.14	0.000116	1.55	13564.91	6000.00	0.10
raymondville	reach 1	58788	1537.00	9.26	18.78		18.86	0.000277	2.27	677.99	92.14	0.15
raymondville	reach 1	58786	2345.00	9.26	20.23		20.31	0.000409	2.47	2182.93	6000.00	0.18
raymondville	reach 1	58786	3414.00	9.26	20.85		20.87	0.000187	1.78	5871.70	6000.00	0.12
raymondville	reach 1	58788	8249.00	9.26	21.85		21.87	0.000168	1.85	11911.83	6000.00	0.12
raymondville	reach 1	56896	1537.00	8.92	18.17		18.25	0.000310	2.36	652.60	91.03	0.18
raymondville	reach 1	56896	2345.00	8.92	19.24		19.39	0.000478	3.12	752.54	95.32	0.20
raymondville	reach 1	56896	3414.00	8.92	19.86	13.86	20.14	0.000814	4.20	812.79	97.82	0.26
raymondville	reach 1	56896	8249.00	8.92	21.26		21.31	0.000450	2.92	8312.61	6000.00	0.19
raymondville	reach 1	56844	1537.00	8.91	18.15		18.24	0.000310	2.36	652.02	91.01	0.16
raymondville	reach 1	56844	2345.00	8.91	19.21		19.36	0.000481	3.12	751.05	95.26	0.20
raymondville	reach 1	56844	3414.00	8.91	19.83		20.10	0.000821	4.21	810.37	97.72	0.26
raymondville	reach 1	56844	8249.00	8.91	21.23		21.29	0.000475	2.99	8139.19	6000.00	0.19
raymondville	reach 1	58186.2*	1537.00	8.83	18.00		18.08	0.000319	2.38	645.46	90.71	0.16
raymondville	reach 1	58186.2*	2345.00	8.83	19.02		19.14	0.000415	2.88	1255.98	1021.90	0.18
raymondville	reach 1	58186.2*	3414.00	8.83	19.62		19.76	0.000507	3.29	2003.04	1344.91	0.20
raymondville	reach 1	58186.2*	8249.00	8.83	21.04		21.08	0.000392	2.70	8580.96	6000.00	0.18
raymondville	reach 1	55688.5*	1537.00	8.75	17.92		17.96	0.000185	1.81	1557.05	1001.07	0.12
raymondville	reach 1	55688.5*	2345.00	8.75	18.98		19.01	0.000146	1.72	2826.62	1316.87	0.11
raymondville	reach 1	55688.5*	3414.00	8.75	19.57		19.60	0.000175	1.94	3705.99	2903.41	0.12
raymondville	reach 1	55688.5*	8249.00	8.75	20.90		20.93	0.000251	2.15	9435.89	5563.71	0.14
raymondville	reach 1	55210.7*	1537.00	8.67	17.89		17.90	0.000057	1.01	3071.78	1275.15	0.07
raymondville	reach 1	55210.7*	2345.00	8.67	18.96		18.97	0.000049	1.00	4470.53	1348.46	0.06
raymondville	reach 1	55210.7*	3414.00	8.67	19.54		19.55	0.000066	1.19	5711.85	3344.63	0.07
raymondville	reach 1	55210.7*	8249.00	8.67	20.82		20.83	0.000148	1.65	11055.10	4720.42	0.11
raymondville	reach 1	54733	1607.00	8.59	17.73	11.77	17.83	0.000353	2.50	843.11	90.61	0.17
raymondville	reach 1	54733	2449.00	8.59	18.72	12.66	18.89	0.000559	3.33	734.73	94.57	0.21
raymondville	reach 1	54733	3564.00	8.59	19.10	13.66	19.44	0.001030	4.62	771.35	96.11	0.29
raymondville	reach 1	54733	8639.00	8.59	20.45	17.13	20.65	0.001324	4.83	4843.90	4363.60	0.32
raymondville	reach 1	54238.*	1607.00	8.51	17.55		17.65	0.000373	2.53	637.57	219.45	0.17
raymondville	reach 1	54238.*	2449.00	8.51	18.52		18.61	0.000503	2.83	1684.42	1793.81	0.19
raymondville	reach 1	54238.*	3564.00	8.51	18.86		18.97	0.000653	3.12	2361.10	2095.28	0.22
raymondville	reach 1	54238.*	8639.00	8.51	20.01		20.12	0.000807	3.89	5183.68	2905.98	0.25
raymondville	reach 1	53743.*	1607.00	8.43	17.47		17.50	0.000188	1.55	2073.09	1704.27	0.12
raymondville	reach 1	53743.*	2449.00	8.43	18.47		18.48	0.000110	1.33	4029.05	2193.22	0.09
raymondville	reach 1	53743.*	3564.00	8.43	18.78		18.80	0.000159	1.65	4734.46	2315.46	0.11
raymondville	reach 1	53743.*	8639.00	8.43	19.82		19.86	0.000320	2.57	7387.76	2809.03	0.16
raymondville	reach 1	53248.*	1607.00	8.35	17.46		17.46	0.000039	0.77	4433.10	2123.34	0.05
raymondville	reach 1	53248.*	2449.00	8.35	18.46		18.46	0.000030	0.75	6687.40	2390.04	0.05
raymondville	reach 1	53248.*	3564.00	8.35	18.76		18.76	0.000051	1.00	7410.81	2569.14	0.06
raymondville	reach 1	53248.*	8639.00	8.35	19.74		19.76	0.000133	1.75	10101.97	2909.80	0.11
raymondville	reach 1	52753	1389.00	8.27	17.45		17.45	0.000008	0.38	7063.10	2290.55	0.03
raymondville	reach 1	52753	2042.00	8.27	18.45		18.45	0.000008	0.42	9517.39	2653.38	0.03
raymondville	reach 1	52753	3102.00	8.27	18.74		18.75	0.000015	0.58	10317.12	2740.13	0.04
raymondville	reach 1	52753	8058.00	8.27	19.71		19.72	0.000055	1.18	13095.29	3021.10	0.07
raymondville	reach 1	52344.3*	1389.00	8.20	17.43		17.44	0.000014	0.47	5900.59	2330.22	0.03
raymondville	reach 1	52344.3*	2042.00	8.20	18.44		18.44	0.000012	0.48	8440.36	2678.48	0.03
raymondville	reach 1	52344.3*	3102.00	8.20	18.73		18.74	0.000022	0.66	9244.53	2763.16	0.04
raymondville	reach 1	52344.3*	8058.00	8.20	19.68		19.69	0.000072	1.30	11985.67	3055.04	0.08
raymondville	reach 1	51935.7*	1389.00	8.13	17.42		17.42	0.000023	0.57	4897.95	2296.78	0.04
raymondville	reach 1	51935.7*	2042.00	8.13	18.43		18.43	0.000017	0.54	7393.52	2660.51	0.04
raymondville	reach 1	51935.7*	3102.00	8.13	18.71		18.72	0.000030	0.74	8170.29	2752.33	0.05
raymondville	reach 1	51935.7*	8058.00	8.13	19.63		19.65	0.000097	1.43	10848.24	3082.61	0.09
raymondville	reach 1	51527.1*	1389.00	8.07	17.41		17.41	0.000034	0.64	4180.64	1899.70	0.05
raymondville	reach 1	51527.1*	2042.00	8.07	18.42		18.42	0.000024	0.60	6409.40	2521.71	0.04
raymondville	reach 1	51527.1*	3102.00	8.07	18.70		18.70	0.000041	0.81	7131.60	2664.76	0.06
raymondville	reach 1	51527.1*	8058.00	8.07	19.58		19.59	0.000132	1.59	9677.61	3105.48	0.10
raymondville	reach 1	51118.5*	1389.00	8.00	17.40		17.40	0.000027	0.69	4137.86	1627.73	0.05
raymondville	reach 1	51118.5*	2042.00	8.00	18.41		18.41	0.000023	0.69	5890.07	1832.41	0.04
raymondville	reach 1	51118.5*	3102.00	8.00	18.68		18.68	0.000044	0.95	6392.38	1938.49	0.06
raymondville	reach 1	51118.5*	8058.00	8.00	19.51		19.53	0.000175	1.71	8495.25	3005.75	0.12
raymondville	reach 1	50710	1389.00	7.93	17.29	10.86	17.36	0.000241	2.09	663.17	91.49	0.14
raymondville	reach 1	50710	2042.00	7.93	18.25	11.59	18.37	0.000362	2.71	752.81	95.33	0.17
raymondville	reach 1	50710	3102.00	7.93	18.35	12.62	18.61	0.000806	4.07	762.62	95.74	0.25
raymondville	reach 1	50710	8058.00	7.93	19.44	16.12	19.46	0.000168	1.96	7971.13	2103.35	0.12

HEC-RAS Plan: Ray - RayEx (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	50306.0*	1389.00	7.88	17.19	10.79	17.28	0.000245	2.10	659.89	91.34	0.14
raymondville	reach 1	50306.0*	2042.00	7.86	18.10	11.52	18.21	0.000374	2.74	744.57	94.98	0.17
raymondville	reach 1	50306.0*	3102.00	7.86	18.48	12.55	18.49	0.000048	1.00	6243.12	1929.48	0.08
raymondville	reach 1	50306.0*	8058.00	7.86	19.37	16.05	19.39	0.000165	1.94	8060.28	2133.42	0.12
raymondville	reach 1	49906.0*	1389.00	7.80	17.08	10.73	17.15	0.000249	2.12	655.90	91.17	0.14
raymondville	reach 1	49906.0*	2042.00	7.80	17.93	11.46	18.05	0.000389	2.78	734.58	94.56	0.18
raymondville	reach 1	49906.0*	3102.00	7.80	18.46	12.49	18.47	0.000046	0.98	6401.11	2000.30	0.08
raymondville	reach 1	49906.0*	8058.00	7.80	19.30	15.99	19.32	0.000187	1.96	8170.13	2237.10	0.12
raymondville	reach 1	49504.0*	1389.00	7.73	16.98	10.66	17.05	0.000253	2.13	652.84	91.03	0.14
raymondville	reach 1	49504.0*	2042.00	7.73	17.76	11.39	17.88	0.000403	2.82	725.35	94.18	0.18
raymondville	reach 1	49504.0*	3102.00	7.73	18.44	12.42	18.45	0.000042	0.94	6378.47	2056.54	0.08
raymondville	reach 1	49504.0*	8058.00	7.73	19.23	15.92	19.25	0.000170	1.97	8326.89	2395.43	0.12
raymondville	reach 1	49102.0*	1389.00	7.67	16.87	10.60	16.94	0.000257	2.14	648.78	90.87	0.14
raymondville	reach 1	49102.0*	2042.00	7.67	17.59	11.33	17.71	0.000421	2.86	714.60	93.72	0.18
raymondville	reach 1	49102.0*	3102.00	7.67	18.34	12.36	18.41	0.000295	2.49	2243.19	2159.30	0.15
raymondville	reach 1	49102.0*	8058.00	7.67	19.17	15.86	19.18	0.000177	1.66	8510.38	2495.81	0.12
raymondville	reach 1	48700	1389.00	7.60	16.77	10.53	16.84	0.000281	2.15	645.45	90.72	0.14
raymondville	reach 1	48700	2042.00	7.60	17.41	11.26	17.54	0.000438	2.90	704.47	93.28	0.19
raymondville	reach 1	48700	3102.00	7.60	17.94	12.29	18.20	0.000831	4.11	754.53	95.41	0.28
raymondville	reach 1	48700	8058.00	7.60	19.10	15.79	19.11	0.000187	1.82	8697.90	2509.33	0.11
raymondville	reach 1	48516.6*	1389.00	7.57	16.72	10.50	16.79	0.000283	2.16	643.65	90.65	0.14
raymondville	reach 1	48516.6*	2042.00	7.57	17.32	11.23	17.45	0.000448	2.92	699.09	93.08	0.19
raymondville	reach 1	48516.6*	3102.00	7.57	17.77	12.26	18.04	0.000875	4.19	740.82	94.84	0.28
raymondville	reach 1	48516.6*	8058.00	7.57	19.07	15.78	19.08	0.000189	1.65	8716.28	2564.52	0.11
raymondville	reach 1	48333.3*	1389.00	7.54	16.67	10.47	16.74	0.000285	2.16	641.83	90.58	0.14
raymondville	reach 1	48333.3*	2042.00	7.54	17.23	11.20	17.37	0.000458	2.94	693.89	92.82	0.19
raymondville	reach 1	48333.3*	3102.00	7.54	17.58	12.23	17.86	0.000928	4.27	725.87	94.20	0.27
raymondville	reach 1	48333.3*	8058.00	7.54	19.04	15.73	19.05	0.000174	1.72	8831.18	2920.44	0.12
raymondville	reach 1	48150	1389.00	7.51	16.62	10.44	16.69	0.000287	2.17	640.27	90.50	0.14
raymondville	reach 1	48150	2042.00	7.51	17.15	11.17	17.28	0.000468	2.97	688.58	92.61	0.19
raymondville	reach 1	48150	3102.00	7.51	17.39	12.20	17.69	0.000984	4.36	711.29	93.58	0.28
raymondville	reach 1	48150	8058.00	7.51	19.00	15.70	19.02	0.000170	1.73	9114.23	3191.97	0.12
raymondville	reach 1	47886.*	1389.00	7.43	16.49	10.36	16.56	0.000275	2.18	635.97	91.16	0.15
raymondville	reach 1	47886.*	2042.00	7.43	16.87	11.09	17.01	0.000740	3.01	677.87	2258.47	0.23
raymondville	reach 1	47886.*	3102.00	7.43	17.42	12.12	17.44	0.000152	1.45	4598.05	2379.28	0.11
raymondville	reach 1	47886.*	8058.00	7.43	18.89	15.62	18.91	0.000197	1.92	8758.16	3503.67	0.13
raymondville	reach 1	47222.*	1389.00	7.36	16.34	10.29	16.41	0.000387	2.14	647.80	1930.87	0.17
raymondville	reach 1	47222.*	2042.00	7.36	16.90	11.02	16.82	0.000164	1.47	3061.40	2115.82	0.11
raymondville	reach 1	47222.*	3102.00	7.36	17.32	12.05	17.34	0.000177	1.62	4274.78	2553.46	0.12
raymondville	reach 1	47222.*	8058.00	7.36	18.77	16.21	18.79	0.000212	2.05	8668.43	3761.34	0.13
raymondville	reach 1	46758.*	1389.00	7.28	16.29	10.21	16.30	0.000105	1.16	2286.88	1386.70	0.09
raymondville	reach 1	46758.*	2042.00	7.28	16.73	10.94	16.75	0.000129	1.36	3015.51	1907.98	0.10
raymondville	reach 1	46758.*	3102.00	7.28	17.21	11.97	17.24	0.000187	1.72	4110.73	2498.30	0.12
raymondville	reach 1	46758.*	8058.00	7.28	18.65	16.02	18.67	0.000215	2.11	8767.12	3736.83	0.13
raymondville	reach 1	46294.*	1389.00	7.21	16.26	10.14	16.28	0.000068	0.96	2760.85	1545.32	0.07
raymondville	reach 1	46294.*	2042.00	7.21	16.69	10.87	16.70	0.000090	1.18	3465.82	1823.57	0.08
raymondville	reach 1	46294.*	3102.00	7.21	17.14	11.90	17.18	0.000124	1.45	4439.16	2292.06	0.10
raymondville	reach 1	46294.*	8058.00	7.21	18.54	15.51	18.57	0.000210	2.14	8967.65	3764.88	0.13
raymondville	reach 1	45830	1389.00	7.13	16.23	10.06	16.24	0.000040	0.78	3473.24	1848.93	0.06
raymondville	reach 1	45830	2042.00	7.13	16.65	10.79	16.66	0.000057	0.97	4278.93	2002.46	0.07
raymondville	reach 1	45830	3102.00	7.13	17.10	11.82	17.11	0.000086	1.25	5212.33	2382.76	0.08
raymondville	reach 1	45830	8058.00	7.13	18.45	15.00	18.47	0.000194	2.11	9257.91	3723.57	0.13
raymondville	reach 1	45414.*	1389.00	7.06	16.21	9.99	16.22	0.000042	0.80	3457.83	1920.44	0.06
raymondville	reach 1	45414.*	2042.00	7.06	16.62	10.72	16.63	0.000059	0.99	4284.37	2063.02	0.07
raymondville	reach 1	45414.*	3102.00	7.06	17.06	11.75	17.07	0.000086	1.25	5210.01	2291.45	0.08
raymondville	reach 1	45414.*	8058.00	7.06	18.38	15.00	18.40	0.000180	2.03	9545.89	3776.19	0.12
raymondville	reach 1	44998.*	1389.00	6.99	16.19	9.92	16.20	0.000046	0.84	3471.05	2025.81	0.06
raymondville	reach 1	44998.*	2042.00	6.99	16.59	10.65	16.60	0.000060	1.01	4308.56	2120.84	0.07
raymondville	reach 1	44998.*	3102.00	6.99	17.02	11.68	17.03	0.000104	1.38	5312.06	2774.30	0.09
raymondville	reach 1	44998.*	8058.00	6.99	18.31	15.00	18.33	0.000189	1.98	9891.27	4199.96	0.12
raymondville	reach 1	44582.*	1389.00	6.93	16.16	9.86	16.17	0.000047	0.85	3491.25	2088.39	0.06
raymondville	reach 1	44582.*	2042.00	6.93	16.56	10.59	16.57	0.000073	1.11	4425.55	2719.65	0.08
raymondville	reach 1	44582.*	3102.00	6.93	16.98	11.82	17.00	0.000095	1.31	5612.67	2892.95	0.09
raymondville	reach 1	44582.*	8058.00	6.93	18.25	15.00	18.27	0.000157	1.89	10677.90	4439.19	0.11



HEC-RAS Plan - Rev. Ex. (Continued)

River	Reach	River Sta	Q Total (cfs)	Mjn Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	44186.0*	1389.00	6.86	16.13	9.79	16.14	0.000055	0.92	3637.36	2717.31	0.06
raymondville	reach 1	44186.0*	2042.00	6.86	16.53	10.52	16.54	0.000063	1.03	4741.62	2812.75	0.07
raymondville	reach 1	44186.0*	3102.00	6.86	16.95	11.55	16.96	0.000082	1.22	6101.03	3767.27	0.08
raymondville	reach 1	44186.0*	8058.00	6.86	18.21	15.00	18.22	0.000125	1.68	11533.27	4438.97	0.10
raymondville	reach 1	43750	1389.00	6.79	16.10	9.72	16.11	0.000045	0.84	4055.13	3414.79	0.06
raymondville	reach 1	43750	2042.00	6.79	16.50	10.45	16.51	0.000051	0.93	5449.86	3614.96	0.06
raymondville	reach 1	43750	3102.00	6.79	16.91	11.48	16.92	0.000071	1.14	7007.31	3999.47	0.08
raymondville	reach 1	43750	8058.00	6.79	18.16	15.00	18.17	0.000100	1.51	12391.28	4439.00	0.09
raymondville	reach 1	43313.8*	1389.00	6.72	16.07		16.08	0.000061	0.96	3545.10	3352.14	0.07
raymondville	reach 1	43313.8*	2042.00	6.72	16.47		16.48	0.000068	1.06	4944.45	3813.77	0.07
raymondville	reach 1	43313.6*	3102.00	6.72	16.87		16.88	0.000087	1.24	6516.55	3979.12	0.08
raymondville	reach 1	43313.6*	8058.00	6.72	18.11		18.12	0.000115	1.59	11865.01	4447.89	0.10
raymondville	reach 1	42877.2*	1389.00	6.65	16.03		16.04	0.000086	1.13	3017.89	3374.61	0.08
raymondville	reach 1	42877.2*	2042.00	6.65	16.43		16.44	0.000097	1.24	4450.23	3807.52	0.09
raymondville	reach 1	42877.2*	3102.00	6.65	16.82		16.84	0.000108	1.37	5987.51	3939.37	0.09
raymondville	reach 1	42877.2*	8058.00	6.65	18.06		18.07	0.000133	1.70	11304.20	4472.56	0.11
raymondville	reach 1	42440.8*	1389.00	6.57	15.97		15.99	0.000131	1.36	2469.25	3248.75	0.10
raymondville	reach 1	42440.8*	2042.00	6.57	16.37		16.39	0.000126	1.40	3928.25	3724.76	0.10
raymondville	reach 1	42440.8*	3102.00	6.57	16.76		16.78	0.000139	1.53	5412.44	3850.39	0.10
raymondville	reach 1	42440.8*	8058.00	6.57	17.99		18.00	0.000159	1.82	10705.66	4526.03	0.11
raymondville	reach 1	42004.4*	1389.00	6.50	15.89		15.92	0.000173	1.54	1929.31	2654.99	0.11
raymondville	reach 1	42004.4*	2042.00	6.50	16.30		16.33	0.000173	1.61	3360.98	3698.17	0.11
raymondville	reach 1	42004.4*	3102.00	6.50	16.68		16.70	0.000185	1.73	4781.90	3750.63	0.12
raymondville	reach 1	42004.4*	8058.00	6.50	17.91		17.93	0.000204	2.04	10212.27	5432.52	0.13
raymondville	reach 1	41568	1389.00	6.43	15.80		15.83	0.000222	1.70	1505.72	2018.32	0.13
raymondville	reach 1	41568	2042.00	6.43	16.19		16.24	0.000260	1.92	2664.69	3659.95	0.14
raymondville	reach 1	41568	3102.00	6.43	16.58		16.61	0.000265	2.02	4084.40	3721.72	0.14
raymondville	reach 1	41568	8058.00	6.43	17.82		17.84	0.000213	2.05	10596.10	6000.00	0.13
raymondville	reach 1	39543	1389.00	6.10	15.62		15.62	0.000056	0.70	4961.19	5100.80	0.06
raymondville	reach 1	39543	2042.00	6.10	16.02		16.03	0.000051	0.71	7042.69	6000.00	0.06
raymondville	reach 1	39543	3102.00	6.10	16.39		16.40	0.000054	0.78	9253.44	6000.00	0.06
raymondville	reach 1	39543	8058.00	6.10	17.62		17.63	0.000061	0.96	16647.15	6000.00	0.07
raymondville	reach 1	37135	1389.00	5.71	15.55	8.64	15.55	0.000017	0.48	6473.26	4752.20	0.04
raymondville	reach 1	37135	2042.00	5.71	15.95	9.37	15.95	0.000020	0.54	8456.77	5105.18	0.04
raymondville	reach 1	37135	3102.00	5.71	16.29	10.40	16.29	0.000031	0.70	10246.21	5378.87	0.05
raymondville	reach 1	37135	8058.00	5.71	17.49	13.90	17.49	0.000053	1.02	16872.48	5693.81	0.07
raymondville	reach 1	34845	1715.00	5.33	15.40		15.44	0.000220	1.73	2515.09	4564.19	0.13
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4499.93	4727.52	0.10
raymondville	reach 1	34845	2856.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.38	0.09
raymondville	reach 1	34845	7246.00	5.33	17.31		17.32	0.000120	1.55	12164.18	6000.00	0.10
raymondville	reach 1	34786	1715.00	5.32	15.38		15.43	0.000241	1.81	2321.74	4556.86	0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.59	4722.59	0.10
raymondville	reach 1	34786	2856.00	5.32	16.15		16.16	0.000114	1.36	5916.32	4853.13	0.09
raymondville	reach 1	34786	7246.00	5.32	17.30		17.32	0.000123	1.57	12011.09	6000.00	0.10
raymondville	reach 1	32585	1715.00	4.96	14.67		14.74	0.000408	2.27	1045.52	1136.47	0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000246	1.92	2999.29	3852.55	0.14
raymondville	reach 1	32585	2856.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89	0.11
raymondville	reach 1	32585	7246.00	4.96	16.99		17.01	0.000157	1.79	10791.92	5488.22	0.11
raymondville	reach 1	30564	1715.00	4.63	13.82		13.93	0.000393	2.65	651.89	114.68	0.17
raymondville	reach 1	30564	2255.00	4.63	14.61		14.75	0.000475	3.05	912.78	898.14	0.19
raymondville	reach 1	30564	2856.00	4.63	15.25		15.37	0.000441	3.04	2048.00	3095.80	0.19
raymondville	reach 1	30564	7246.00	4.63	16.54		16.57	0.000304	2.32	8895.56	6000.00	0.15
raymondville	reach 1	29170	1715.00	4.40	13.22		13.34	0.000460	2.79	613.92	89.32	0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	668.09	91.71	0.22
raymondville	reach 1	29170	2856.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.63	0.26
raymondville	reach 1	29170	7246.00	4.40	16.00		16.07	0.000612	3.24	6758.47	6000.00	0.22
raymondville	reach 1	28867.7*	1715.00	4.35	13.07		13.19	0.000482	2.83	605.45	89.47	0.19
raymondville	reach 1	28867.7*	2255.00	4.35	13.61		13.79	0.000669	3.45	654.05	91.93	0.23
raymondville	reach 1	28867.7*	2856.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14	0.27
raymondville	reach 1	28867.7*	7246.00	4.35	15.80		15.89	0.000690	3.51	6270.15	6000.00	0.23
raymondville	reach 1	28565.5*	1715.00	4.30	12.92		13.05	0.000498	2.84	665.67	316.48	0.19
raymondville	reach 1	28565.5*	2255.00	4.30	13.40		13.55	0.000888	3.24	889.85	549.79	0.25
raymondville	reach 1	28565.5*	2856.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05	0.27
raymondville	reach 1	28565.5*	7246.00	4.30	15.58		15.69	0.000740	3.70	5724.74	5785.43	0.24
raymondville	reach 1	28263.2*	1715.00	4.25	12.81		12.86	0.000468	2.31	1071.69	576.83	0.18

HFC-PAS Plan - Rev. 1 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	28263.2*	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.84	633.89	0.19
raymondville	reach 1	28263.2*	2856.00	4.25	13.62		13.72	0.000606	2.87	1589.04	750.20	0.21
raymondville	reach 1	28263.2*	7246.00	4.25	15.38		15.48	0.000716	3.70	5478.45	5198.19	0.24
raymondville	reach 1	27961	1715.00	4.20	12.74		12.77	0.000235	1.70	1570.78	639.88	0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.90	746.39	0.15
raymondville	reach 1	27961	2856.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.95	0.16
raymondville	reach 1	27961	7246.00	4.20	15.18		15.28	0.000647	3.57	5464.53	4774.35	0.23
raymondville	reach 1	27505.2*	1715.00	4.13	12.83		12.87	0.000249	1.74	1578.12	724.59	0.13
raymondville	reach 1	27505.2*	2255.00	4.13	13.03		13.07	0.000296	1.98	1886.69	821.50	0.15
raymondville	reach 1	27505.2*	2856.00	4.13	13.38		13.42	0.000337	2.19	2179.60	860.65	0.16
raymondville	reach 1	27505.2*	7246.00	4.13	14.90		14.99	0.000638	3.49	5875.00	5098.29	0.23
raymondville	reach 1	27049.4*	1715.00	4.05	12.52		12.56	0.000255	1.74	1619.83	824.93	0.14
raymondville	reach 1	27049.4*	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49	0.15
raymondville	reach 1	27049.4*	2856.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16	0.16
raymondville	reach 1	27049.4*	7246.00	4.05	14.67		14.73	0.000470	2.98	6884.71	5369.74	0.19
raymondville	reach 1	26593.6*	1715.00	3.98	12.42		12.45	0.000234	1.68	1769.43	1096.95	0.13
raymondville	reach 1	26593.6*	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.49	1364.94	0.14
raymondville	reach 1	26593.6*	2856.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10	0.15
raymondville	reach 1	26593.6*	7246.00	3.98	14.53		14.56	0.000267	2.24	8693.89	5119.07	0.15
raymondville	reach 1	26137.8*	1715.00	3.90	12.34		12.36	0.000185	1.48	2193.27	1558.82	0.12
raymondville	reach 1	26137.8*	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.80	3244.14	0.13
raymondville	reach 1	26137.8*	2856.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4080.54	0.13
raymondville	reach 1	26137.8*	7246.00	3.90	14.46		14.47	0.000140	1.82	10862.09	4906.02	0.11
raymondville	reach 1	25682	1715.00	3.83	12.28		12.30	0.000131	1.25	3537.46	4063.27	0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.16	4115.05	0.09
raymondville	reach 1	25682	2856.00	3.83	12.95		12.96	0.000091	1.13	5283.81	4163.46	0.08
raymondville	reach 1	25682	7246.00	3.83	14.42		14.43	0.000078	1.22	13217.92	4899.04	0.08
raymondville	reach 1	25281.*	1715.00	3.76	12.25		12.26	0.000100	1.11	4047.24	4054.71	0.09
raymondville	reach 1	25281.*	2255.00	3.76	12.60		12.61	0.000082	1.05	5490.53	4121.23	0.08
raymondville	reach 1	25281.*	2856.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4654.45	0.08
raymondville	reach 1	25281.*	7246.00	3.76	14.40		14.41	0.000074	1.20	14383.38	6000.00	0.08
raymondville	reach 1	24880.*	1715.00	3.70	12.22		12.22	0.000071	0.95	4655.09	3810.44	0.07
raymondville	reach 1	24880.*	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.35	4209.63	0.07
raymondville	reach 1	24880.*	2856.00	3.70	12.90		12.91	0.000063	0.97	7572.73	4863.09	0.07
raymondville	reach 1	24880.*	7246.00	3.70	14.38		14.39	0.000058	1.08	15650.87	6000.00	0.07
raymondville	reach 1	24479.*	1715.00	3.63	12.20		12.20	0.000051	0.82	5342.30	3892.01	0.06
raymondville	reach 1	24479.*	2255.00	3.63	12.56		12.56	0.000046	0.83	6808.78	4400.61	0.06
raymondville	reach 1	24479.*	2856.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4996.58	0.06
raymondville	reach 1	24479.*	7246.00	3.63	14.36		14.36	0.000046	0.97	16920.38	6000.00	0.06
raymondville	reach 1	24078.*	1715.00	3.57	12.18		12.19	0.000037	0.70	6169.48	4145.35	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000036	0.73	7758.83	4865.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5466.29	0.05
raymondville	reach 1	24078.*	7246.00	3.57	14.34		14.34	0.000037	0.88	18183.26	6000.00	0.06
raymondville	reach 1	23677	1715.00	3.50	12.17		12.17	0.000027	0.60	7149.13	4883.58	0.04
raymondville	reach 1	23677	2255.00	3.50	12.52		12.53	0.000026	0.62	8905.42	5216.65	0.04
raymondville	reach 1	23677	2856.00	3.50	12.85		12.85	0.000027	0.66	10699.55	5674.64	0.05
raymondville	reach 1	23677	7246.00	3.50	14.32		14.32	0.000030	0.80	19448.81	6000.00	0.05
raymondville	reach 1	21660	1715.00	3.17	12.13		12.13	0.000013	0.42	10242.93	6000.00	0.03
raymondville	reach 1	21660	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.19	6000.00	0.03
raymondville	reach 1	21660	2856.00	3.17	12.82		12.82	0.000013	0.44	14360.32	6000.00	0.03
raymondville	reach 1	21660	7246.00	3.17	14.28		14.28	0.000018	0.60	23099.37	6000.00	0.04
raymondville	reach 1	19606	1715.00	2.83	12.11		12.11	0.000013	0.42	10021.67	5924.28	0.03
raymondville	reach 1	19606	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.52	6000.00	0.03
raymondville	reach 1	19606	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19606	7246.00	2.83	14.25		14.25	0.000018	0.61	22831.81	6000.00	0.04
raymondville	reach 1	19152.2*	1715.00	2.75	12.10		12.10	0.000014	0.45	9720.37	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.46		12.46	0.000013	0.45	11917.39	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7246.00	2.75	14.23		14.23	0.000019	0.63	22524.12	6000.00	0.04
raymondville	reach 1	18698.5*	1715.00	2.68	12.08		12.08	0.000018	0.47	9422.54	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.68	12.45		12.45	0.000015	0.47	11607.85	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.68	12.77		12.77	0.000015	0.49	13547.96	6000.00	0.03
raymondville	reach 1	18698.5*	7246.00	2.68	14.21		14.22	0.000020	0.64	22218.02	6000.00	0.04
raymondville	reach 1	18244.7*	1715.00	2.61	12.07		12.07	0.000017	0.49	9114.87	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.61	12.43		12.43	0.000016	0.49	11286.46	6000.00	0.03



HEC-RAS Plan Ray - Ray Ev (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	18244.7*	2856.00	2.61	12.76		12.76	0.000016	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7246.00	2.61	14.20		14.20	0.000021	0.66	21902.07	6000.00	0.04
raymondville	reach 1	17791.*	1715.00	2.53	12.05		12.06	0.000019	0.52	8817.04	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.92	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.83	6000.00	0.04
raymondville	reach 1	17791.*	7246.00	2.53	14.18		14.19	0.000022	0.68	21595.96	6000.00	0.04
raymondville	reach 1	17337.2*		2.45	12.04		12.04	0.000021	0.55	8521.07	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10671.24	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7246.00	2.45	14.17		14.17	0.000023	0.69	21291.72	6000.00	0.04
raymondville	reach 1	16883.5*	1715.00	2.38	12.03		12.03	0.000024	0.58	8214.66	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.11	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7246.00	2.38	14.15		14.16	0.000024	0.71	20977.03	6000.00	0.04
raymondville	reach 1	16429.7*	1715.00	2.31	12.00		12.01	0.000027	0.62	7868.05	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.55	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.18	6000.00	0.04
raymondville	reach 1	16429.7*	7246.00	2.31	14.14		14.14	0.000025	0.73	20668.91	6000.00	0.05
raymondville	reach 1	15976	1715.00	2.23	11.98		11.98	0.000029	0.64	7527.11	5762.40	0.05
raymondville	reach 1	15976	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.48	6000.00	0.04
raymondville	reach 1	15976	2856.00	2.23	12.69		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15976	7246.00	2.23	14.12		14.12	0.000026	0.75	20362.28	6000.00	0.05
raymondville	reach 1	15517.2*	1715.00	2.16	11.94		11.96	0.000132	1.39	3708.43	5539.86	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.29	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.67		12.67	0.000069	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7246.00	2.16	14.10		14.10	0.000050	1.05	16453.36	6000.00	0.08
raymondville	reach 1	15058.4*	1715.00	2.08	11.82		11.87	0.000256	1.92	1509.68	1758.37	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.76	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7246.00	2.08	14.06		14.07	0.000112	1.57	12461.36	6000.00	0.10
raymondville	reach 1	14599.6*	1715.00	2.01	11.68		11.74	0.000291	2.03	1233.59	763.75	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.95	1250.95	0.16
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.76	2029.68	0.17
raymondville	reach 1	14599.6*	7246.00	2.01	13.94		13.99	0.000303	2.57	8036.43	5863.88	0.16
raymondville	reach 1	14140.8*	1715.00	1.93	11.53		11.59	0.000322	2.12	1102.12	657.04	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.65	0.20
raymondville	reach 1	14140.8*	7246.00	1.93	13.84		13.77	0.000703	3.84	4598.99	3225.39	0.24
raymondville	reach 1	13682	1715.00	1.86	11.37		11.44	0.000351	2.19	1008.35	528.33	0.16
raymondville	reach 1	13682	2255.00	1.86	11.63		11.73	0.000486	2.65	1160.21	615.43	0.19
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000633	3.11	1323.90	713.65	0.22
raymondville	reach 1	13682	7246.00	1.86	12.96		13.29	0.001573	5.45	2314.10	1441.32	0.35
raymondville	reach 1	11672	1715.00	1.53	10.92		10.94	0.000176	1.52	3113.12	4476.87	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000186	1.52	4277.29	4718.76	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7246.00	1.53	12.30		12.31	0.000203	1.89	9943.54	5302.36	0.13
raymondville	reach 1	9870	1715.00	1.20	10.34		10.41	0.000425	2.22	1630.79	3478.17	0.17
raymondville	reach 1	9870	2255.00	1.20	10.72		10.76	0.000279	1.89	3335.61	4974.57	0.14
raymondville	reach 1	9870	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9870	7246.00	1.20	11.83		11.85	0.000271	2.10	8850.34	5023.66	0.14
raymondville	reach 1	6234	1715.00	0.64	8.37		8.54	0.000750	3.30	518.98	84.97	0.24
raymondville	reach 1	6234	2255.00	0.64	8.91		9.15	0.001009	3.99	565.56	87.13	0.28
raymondville	reach 1	6234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.49	3570.44	0.30
raymondville	reach 1	6234	7246.00	0.64	10.83		10.86	0.000342	2.33	8769.46	6000.00	0.16
raymondville	reach 1	4339	1715.00	0.31	7.55	3.61	7.57	0.000310	1.18	1447.31	591.67	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	4.18	7.95	0.000363	1.34	1677.54	638.33	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.43	8.30	0.000414	1.50	1906.63	680.43	0.16
raymondville	reach 1	4339	7246.00	0.31	9.81	6.58	9.90	0.000713	2.39	3034.37	810.01	0.22
raymondville	reach 1	4300	1715.00	0.30	7.53	3.60	7.56	0.000318	1.20	1434.97	590.09	0.14
raymondville	reach 1	4300	2255.00	0.30	7.91	4.17	7.93	0.000372	1.36	1663.20	636.47	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	4.74	8.29	0.000425	1.51	1890.17	679.39	0.16
raymondville	reach 1	4300	7246.00	0.30	9.78	6.57	9.87	0.000731	2.41	3004.80	805.43	0.22
raymondville	reach 1	3878.00*	1715.00	0.23	7.38		7.40	0.000372	1.28	1335.00	554.55	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.76	0.000434	1.47	1537.18	586.86	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000489	1.65	1727.38	603.00	0.17

HEC-RAS Plan-View-Profile (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Cntl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	3878.00*	7246.00	0.23	9.46		9.55	0.000786	2.53	3646.25	2837.86	0.23
raymondville	reach 1	3456.00*	1715.00	0.16	7.21		7.24	0.000420	1.41	1216.52	480.81	0.16
raymondville	reach 1	3456.00*	2255.00	0.18	7.52		7.56	0.000508	1.65	1382.76	648.58	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.86	0.000814	1.87	1596.01	848.34	0.19
raymondville	reach 1	3456.00*	7246.00	0.16	9.17		9.24	0.000634	2.40	4601.69	2818.70	0.21
raymondville	reach 1	3034.00*	1715.00	0.09	6.99		7.03	0.000541	1.62	1144.89	919.34	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.29		7.33	0.000570	1.78	1678.31	1901.23	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.61	0.000551	1.87	2233.06	2008.81	0.19
raymondville	reach 1	3034.00*	7246.00	0.09	8.97		9.02	0.000425	2.10	5803.29	2859.11	0.17
raymondville	reach 1	2812.00*	1715.00	0.02	6.84		6.86	0.000308	1.41	2168.78	2204.51	0.14
raymondville	reach 1	2812.00*	2255.00	0.02	7.14		7.16	0.000284	1.44	2836.46	2238.20	0.14
raymondville	reach 1	2812.00*	2856.00	0.02	7.43		7.45	0.000266	1.47	3497.74	2276.47	0.13
raymondville	reach 1	2812.00*	7246.00	0.02	8.85		8.87	0.000254	1.77	7204.54	2866.51	0.14
raymondville	reach 1	2190	1715.00	-0.05	6.78		6.79	0.000097	0.99	3638.05	2179.37	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.07		7.08	0.000113	1.12	4301.43	2443.72	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000116	1.17	5023.66	2478.62	0.09
raymondville	reach 1	2190	7246.00	-0.05	8.77		8.79	0.000157	1.61	8730.19	2912.33	0.11
raymondville	reach 1	0	1715.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3265.95	2522.08	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	3.47	6.79	0.000160	1.21	3950.09	2543.12	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	4.04	7.09	0.000160	1.27	4756.18	3325.24	0.10
raymondville	reach 1	0	7246.00	-0.41	8.43	6.14	8.44	0.000160	1.51	9360.06	3429.42	0.11

**HEC-RAS MODEL**  
**PROPOSED CONDITIONS**  
**10% DIVERSION**

HEC-RAS Plan: P 10 D 2

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
La Sal Vieja	Reach 1	15000	743.00	24.30	30.94	28.42	31.01	0.000366	2.10	354.04	66.58	0.16
La Sal Vieja	Reach 1	15060	1278.00	24.30	33.43	27.29	33.52	0.000339	2.40	532.13	76.53	0.16
La Sal Vieja	Reach 1	15060	1876.00	24.30	35.70	28.11	35.81	0.000318	2.62	716.20	85.61	0.16
La Sal Vieja	Reach 1	15060	1182.00	24.30	39.31	27.15	39.33	0.000044	1.12	1051.29	100.05	0.06
La Sal Vieja	Reach 1	15050	743.00	24.30	30.94	26.42	31.01	0.000367	2.10	353.87	66.55	0.16
La Sal Vieja	Reach 1	15050	1278.00	24.30	33.43	27.29	33.52	0.000339	2.40	531.77	76.51	0.16
La Sal Vieja	Reach 1	15050	1876.00	24.30	35.70	28.11	35.81	0.000318	2.62	715.85	85.60	0.16
La Sal Vieja	Reach 1	15050	1182.00	24.30	39.31	27.15	39.33	0.000044	1.12	1051.25	100.05	0.06
La Sal Vieja	Reach 1	15010	743.00	24.30	30.93	26.42	31.00	0.000368	2.10	353.30	66.53	0.16
La Sal Vieja	Reach 1	15010	1278.00	24.30	33.42	27.29	33.51	0.000340	2.40	531.41	76.49	0.16
La Sal Vieja	Reach 1	15010	1876.00	24.30	35.69	28.11	35.80	0.000318	2.62	715.49	85.58	0.16
La Sal Vieja	Reach 1	15010	1182.00	24.30	39.31	27.15	39.33	0.000044	1.12	1051.20	100.05	0.06
La Sal Vieja	Reach 1	15000	743.00	24.30	30.93		31.00	0.000369	2.11	352.93	66.51	0.16
La Sal Vieja	Reach 1	15000	1278.00	24.30	33.42		33.51	0.000341	2.41	531.05	76.47	0.16
La Sal Vieja	Reach 1	15000	1876.00	24.30	35.69		35.80	0.000319	2.62	715.13	85.56	0.16
La Sal Vieja	Reach 1	15000	1182.00	24.30	39.31		39.33	0.000044	1.12	1051.16	100.05	0.06
La Sal Vieja	Reach 1	12500	743.00	23.30	30.02		30.09	0.000351	2.07	359.24	66.89	0.16
La Sal Vieja	Reach 1	12500	1278.00	23.30	32.59		32.68	0.000318	2.35	544.41	77.17	0.16
La Sal Vieja	Reach 1	12500	1876.00	23.30	34.92		35.02	0.000296	2.55	734.95	86.48	0.15
La Sal Vieja	Reach 1	12500	1182.00	23.30	39.22		39.24	0.000035	1.03	1143.96	103.69	0.05
La Sal Vieja	Reach 1	9650	743.00	22.16	29.08		29.14	0.000316	2.00	372.39	67.87	0.15
La Sal Vieja	Reach 1	9650	1278.00	22.16	31.74		31.82	0.000293	2.25	567.02	78.34	0.15
La Sal Vieja	Reach 1	9650	1876.00	22.16	34.13		34.22	0.000264	2.45	765.54	87.89	0.15
La Sal Vieja	Reach 1	9650	1182.00	22.16	39.15		39.16	0.000027	0.94	1256.67	107.96	0.05
La Sal Vieja	Reach 1	7500	743.00	21.30	28.44		28.50	0.000282	1.92	367.49	68.56	0.14
La Sal Vieja	Reach 1	7500	1278.00	21.30	31.17		31.24	0.000254	2.17	589.73	79.48	0.14
La Sal Vieja	Reach 1	7500	1876.00	21.30	33.60		33.68	0.000238	2.36	794.37	89.19	0.14
La Sal Vieja	Reach 1	7500	1182.00	21.30	39.09		39.10	0.000022	0.88	1344.81	111.17	0.04
La Sal Vieja	Reach 1	4100	743.00	19.94	27.61		27.65	0.000218	1.75	424.22	70.87	0.13
La Sal Vieja	Reach 1	4100	1278.00	19.94	30.41		30.47	0.000204	2.00	693.90	81.87	0.13
La Sal Vieja	Reach 1	4100	1876.00	19.94	32.87		32.95	0.000196	2.20	851.78	91.73	0.13
La Sal Vieja	Reach 1	4100	1182.00	19.94	39.03		39.04	0.000017	0.79	1492.29	116.35	0.04
La Sal Vieja	Reach 1	1000	743.00	18.70	27.04	20.82	27.08	0.000160	1.57	472.57	73.35	0.11
La Sal Vieja	Reach 1	1000	1278.00	18.70	29.88	21.69	29.91	0.000160	1.84	695.32	84.63	0.11
La Sal Vieja	Reach 1	1000	1876.00	18.70	32.33	22.51	32.40	0.000160	2.05	916.91	94.53	0.12
La Sal Vieja	Reach 1	1000	1182.00	18.70	39.00	21.55	39.00	0.000007	0.58	1457.38	108.00	0.03
raymondville	Reach 8	296300	151.00	69.99	79.87		79.88	0.000075	0.82	353.24	506.65	0.07
raymondville	Reach 8	296300	363.00	69.99	82.66		82.66	0.000001	0.07	8413.84	3000.00	0.01
raymondville	Reach 8	296300	820.00	69.99	84.97		84.97	0.000000	0.08	15337.55	3000.00	0.01
raymondville	Reach 8	296300	2458.00	69.99	88.33		88.33	0.000001	0.13	25411.92	3000.00	0.01
raymondville	Reach 8	295300	151.00	69.94	79.80		79.81	0.000065	0.71	475.98	1336.78	0.10
raymondville	Reach 8	295300	363.00	69.94	82.66		82.66	0.000000	0.07	8798.45	3000.00	0.01
raymondville	Reach 8	295300	820.00	69.94	84.96		84.96	0.000000	0.08	15696.44	3000.00	0.01
raymondville	Reach 8	295300	2458.00	69.94	88.32		88.32	0.000001	0.13	25780.97	3000.00	0.01
raymondville	Reach 8	293500	151.00	69.85	79.62	73.48	79.64	0.000124	1.05	143.20	29.31	0.08
raymondville	Reach 8	293500	363.00	69.85	82.62	75.00	82.66	0.000172	1.48	244.72	38.32	0.10
raymondville	Reach 8	293500	820.00	69.85	84.95	76.98	84.95	0.000008	0.32	5411.03	3000.00	0.03
raymondville	Reach 8	293500	2458.00	69.85	88.32	80.88	88.32	0.000003	0.24	15505.73	3000.00	0.02
raymondville	Reach 8	291800	151.00	69.76	79.40	73.39	79.42	0.000133	1.08	139.41	28.92	0.09
raymondville	Reach 8	291800	363.00	69.76	82.31	74.91	82.35	0.000189	1.54	236.38	37.66	0.11
raymondville	Reach 8	291800	820.00	69.76	84.94	76.89	84.94	0.000004	0.24	5664.29	1550.35	0.02
raymondville	Reach 8	291800	2458.00	69.76	88.31	80.79	88.31	0.000003	0.21	15688.13	3000.00	0.02
raymondville	Reach 8	289400	151.00	69.64	79.06	73.27	79.08	0.000151	1.13	133.08	28.26	0.09
raymondville	Reach 8	289400	363.00	69.64	81.82	74.79	81.86	0.000222	1.63	222.52	38.54	0.12
raymondville	Reach 8	289400	820.00	69.64	84.84	76.77	84.91	0.000301	2.13	433.41	1751.73	0.18
raymondville	Reach 8	289400	2458.00	69.64	88.31	80.67	88.31	0.000002	0.20	16528.36	3000.00	0.01
raymondville	Reach 8	287000	151.00	69.52	78.67	73.15	78.69	0.000176	1.20	125.63	27.46	0.10
raymondville	Reach 8	287000	363.00	69.52	81.22	74.67	81.27	0.000274	1.77	205.50	35.11	0.13
raymondville	Reach 8	287000	820.00	69.52	83.90	76.65	84.01	0.000456	2.64	310.37	43.15	0.17
raymondville	Reach 8	287000	2458.00	69.52	87.88	80.55	88.25	0.001137	4.86	505.89	55.09	0.28
raymondville	Reach 8	285100	151.00	69.43	78.31	73.06	78.33	0.000207	1.28	118.19	26.63	0.11
raymondville	Reach 8	285100	363.00	69.43	80.63	74.58	80.69	0.000347	1.93	188.17	33.60	0.14
raymondville	Reach 8	285100	820.00	69.43	82.80	76.56	82.95	0.000688	3.06	268.16	40.11	0.21
raymondville	Reach 8	285100	2458.00	69.43	86.27	80.46	86.42	0.000774	3.78	1165.74	501.33	0.23
raymondville	Reach 8	283500	151.00	69.35	77.94	72.98	77.97	0.000246	1.36	110.77	25.78	0.12
raymondville	Reach 8	283500	363.00	69.35	79.98	74.50	80.05	0.000457	2.14	169.63	31.91	0.16
raymondville	Reach 8	283500	820.00	69.35	81.25	76.47	81.48	0.001282	3.88	212.30	971.84	0.28

HEC-RAS Plan R10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Crl
raymondville	Reach 8	283900	2458.00	69.35	84.39	60.38	84.69	0.001581	4.73	759.81	1899.06	0.38
raymondville	Reach 8	281800	151.00	69.28	77.48		77.50	0.000315	1.50	100.97	24.61	0.13
raymondville	Reach 8	281800	363.00	69.28	79.52		79.54	0.000202	1.39	564.08	563.95	0.11
raymondville	Reach 8	281800	820.00	69.28	81.33		81.33	0.000015	0.34	4849.73	3000.00	0.04
raymondville	Reach 8	281800	2458.00	69.26	84.58		84.58	0.000004	0.24	14808.52	3000.00	0.02
raymondville	Reach 8	279700	152.00	69.16	76.60	72.90	76.65	0.000540	1.83	82.93	22.31	0.17
raymondville	Reach 8	279700	307.00	69.16	78.63	73.96	78.91	0.000542	2.19	140.96	487.37	0.18
raymondville	Reach 8	279700	589.00	69.16	81.21	75.41	81.28	0.000404	1.79	357.51	1868.95	0.21
raymondville	Reach 8	279700	1876.00	69.16	84.57	79.10	84.57	0.000004	0.25	9983.56	2139.78	0.02
raymondville	Reach 8	275500	152.00	66.89	74.32	70.53	74.37	0.000543	1.84	82.77	22.28	0.17
raymondville	Reach 8	275500	307.00	66.89	76.54	71.89	76.61	0.000550	2.20	139.55	28.94	0.18
raymondville	Reach 8	275500	589.00	66.89	79.16	73.14	79.26	0.000582	2.61	225.73	36.80	0.19
raymondville	Reach 8	275500	1876.00	66.89	84.22	76.81	84.48	0.000904	4.17	450.25	51.98	0.25
raymondville	Reach 8	273500	152.00	65.81	73.23		73.28	0.000546	1.84	82.58	22.26	0.17
raymondville	Reach 8	273500	307.00	65.81	75.43		75.50	0.000558	2.21	138.75	28.86	0.18
raymondville	Reach 8	273500	589.00	65.81	78.02		78.13	0.000576	2.63	223.83	36.63	0.19
raymondville	Reach 8	273500	1876.00	65.81	81.96		82.32	0.001313	4.78	391.38	48.44	0.30
raymondville	Reach 8	272300	152.00	65.17	72.57		72.63	0.000553	1.85	82.20	22.21	0.17
raymondville	Reach 8	272300	307.00	65.17	74.78		74.84	0.000568	2.23	137.90	28.76	0.18
raymondville	Reach 8	272300	589.00	65.17	77.32		77.43	0.000592	2.66	221.30	36.44	0.19
raymondville	Reach 8	272300	1876.00	65.17	79.72		80.26	0.002293	5.91	317.53	43.65	0.39
raymondville	Reach 8	270300	152.00	64.09	71.45	67.73	71.51	0.000570	1.87	81.28	22.09	0.17
raymondville	Reach 8	270300	307.00	64.09	73.59	68.91	73.67	0.000595	2.27	135.47	28.51	0.18
raymondville	Reach 8	270300	589.00	64.09	76.11	70.33	76.22	0.000616	2.60	226.12	37.30	0.30
raymondville	Reach 8	270300	1876.00	64.09	79.03	74.01	79.06	0.000225	1.83	2125.46	1204.73	0.14
raymondville	Reach 8	268100	152.00	62.90	70.12	66.54	70.18	0.000631	1.94	78.24	21.87	0.18
raymondville	Reach 8	268100	307.00	62.90	72.20	67.72	72.28	0.000669	2.37	129.65	27.89	0.19
raymondville	Reach 8	268100	589.00	62.90	74.63	69.14	74.76	0.000712	2.85	206.45	35.19	0.21
raymondville	Reach 8	268100	1876.00	62.90	77.28	72.82	77.84	0.002455	6.08	309.50	43.09	0.40
raymondville	Reach 8	266400	152.00	61.98	66.91	65.62	66.96	0.000783	2.11	72.13	20.81	0.20
raymondville	Reach 8	266400	307.00	61.98	70.92	66.90	71.03	0.000823	2.58	120.00	582.73	0.21
raymondville	Reach 8	266400	589.00	61.98	73.27	68.22	73.42	0.000873	3.08	191.32	1423.89	0.23
raymondville	Reach 8	266400	1876.00	61.98	78.42	71.91	76.46	0.000335	1.93	1999.60	3000.00	0.17
raymondville	Reach 8	264100	152.00	60.21	67.01	63.85	67.09	0.000889	2.19	69.37	20.40	0.21
raymondville	Reach 8	264100	307.00	60.21	68.80	65.03	68.92	0.001017	2.77	110.81	25.78	0.24
raymondville	Reach 8	264100	589.00	60.21	70.95	66.45	71.13	0.001140	3.40	173.07	32.22	0.26
raymondville	Reach 8	264100	1876.00	60.21	75.19	70.14	75.30	0.000821	3.09	1263.80	3000.00	0.31
raymondville	Reach 8	262450	152.00	58.95	63.50		63.87	0.007388	4.89	31.10	13.66	0.57
raymondville	Reach 8	262450	307.00	58.95	65.50		65.85	0.004327	4.77	64.39	19.65	0.48
raymondville	Reach 8	262450	589.00	58.95	67.49		67.94	0.003871	5.38	109.43	25.62	0.46
raymondville	Reach 8	262450	1876.00	58.95	71.45		72.45	0.005152	8.00	234.39	37.50	0.56
raymondville	Reach 8	260550	270.00	57.49	62.45		62.49	0.000349	1.56	173.08	49.77	0.15
raymondville	Reach 8	260550	539.00	57.49	64.51		64.56	0.000344	1.87	287.96	62.10	0.15
raymondville	Reach 8	260550	923.00	57.49	66.46		66.54	0.000360	2.19	420.85	73.83	0.16
raymondville	Reach 8	260550	2115.00	57.49	70.32		70.45	0.000397	2.82	750.70	97.00	0.18
raymondville	Reach 8	258250	270.00	57.03	62.00		62.04	0.000346	1.55	173.68	49.84	0.15
raymondville	Reach 8	258250	539.00	57.03	64.07		64.12	0.000340	1.86	289.18	62.21	0.15
raymondville	Reach 8	258250	923.00	57.03	65.99		66.07	0.000361	2.20	420.39	73.79	0.16
raymondville	Reach 8	258250	2115.00	57.03	69.80		69.93	0.000406	2.84	745.01	96.64	0.18
raymondville	Reach 8	258000	270.00	56.80	61.57		61.61	0.000346	1.56	173.57	49.83	0.15
raymondville	Reach 8	258000	539.00	56.80	63.64		63.69	0.000339	1.86	289.53	62.24	0.15
raymondville	Reach 8	258000	923.00	56.80	65.54		65.62	0.000368	2.21	418.55	73.64	0.16
raymondville	Reach 8	258000	2115.00	56.80	69.29		69.41	0.000418	2.87	736.56	96.12	0.18
raymondville	Reach 8	255800	270.00	55.83	60.81		60.85	0.000344	1.55	174.04	49.88	0.15
raymondville	Reach 8	255800	539.00	55.83	62.89		62.95	0.000335	1.85	290.99	62.39	0.15
raymondville	Reach 8	255800	923.00	55.83	64.74		64.81	0.000372	2.22	418.10	73.44	0.16
raymondville	Reach 8	255800	2115.00	55.83	68.33		68.46	0.000447	2.94	718.59	94.99	0.18
raymondville	Reach 8	252200	270.00	54.57	59.99		59.63	0.000333	1.53	176.03	50.12	0.14
raymondville	Reach 8	252200	539.00	54.57	61.72		61.77	0.000318	1.82	296.46	62.91	0.15
raymondville	Reach 8	252200	923.00	54.57	63.38		63.44	0.000394	2.27	407.38	72.72	0.17
raymondville	Reach 8	252200	2115.00	54.57	66.54		66.68	0.000541	3.16	689.13	91.81	0.21
raymondville	Reach 8	250350	270.00	53.92	58.99		59.02	0.000322	1.51	178.32	50.40	0.14
raymondville	Reach 8	250350	539.00	53.92	61.15		61.20	0.000305	1.79	301.25	63.37	0.14
raymondville	Reach 8	250350	923.00	53.92	62.61		62.69	0.000413	2.31	400.29	72.14	0.17
raymondville	Reach 8	250350	2115.00	53.92	65.43		65.60	0.000644	3.37	627.29	89.04	0.22
raymondville	Reach 8	248900	270.00	53.41	58.53		58.57	0.000308	1.49	181.14	50.73	0.14

HEC-RAS Plan P10.D.2 (Continued)

River	Reach	Rever Sta	Q Total (cfs)	Mh Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	248900	539.00	53.41	60.72		60.77	0.000291	1.78	306.33	63.84	0.14
raymondville	Reach 8	248900	923.00	53.41	61.99		62.08	0.000435	2.35	392.45	71.47	0.18
raymondville	Reach 8	248900	2115.00	53.41	64.36		64.56	0.000802	3.66	578.32	85.66	0.25
raymondville	Reach 8	248400	270.00	52.19	57.55		57.58	0.000256	1.39	193.60	52.18	0.13
raymondville	Reach 8	248400	539.00	52.19	59.78		59.83	0.000248	1.66	324.78	65.55	0.13
raymondville	Reach 8	245400	923.00	52.19	61.32		61.33	0.000119	1.27	1570.80	1202.06	0.09
raymondville	Reach 8	245400	2115.00	52.19	64.31		64.31	0.000018	0.58	6603.70	2092.90	0.04
raymondville	Reach 8	242800	270.00	51.28	56.97		56.99	0.000203	1.28	210.77	54.13	0.11
raymondville	Reach 8	242800	539.00	51.28	59.20		59.23	0.000209	1.56	346.32	67.51	0.12
raymondville	Reach 8	242800	923.00	51.28	61.00		61.02	0.000124	1.34	1471.45	1367.69	0.10
raymondville	Reach 8	242800	2115.00	51.28	64.27		64.27	0.000013	0.50	7931.61	2207.97	0.03
raymondville	Reach 8	240200	398.00	50.37	56.16		56.21	0.000411	1.84	216.23	54.72	0.16
raymondville	Reach 8	240200	803.00	50.37	58.31	53.49	58.39	0.000458	2.31	347.61	67.61	0.18
raymondville	Reach 8	240200	1359.00	50.37	60.22		60.34	0.000523	2.78	488.11	79.10	0.20
raymondville	Reach 8	240200	2996.00	50.37	63.92		64.12	0.000628	3.85	821.41	101.28	0.23
raymondville	Reach 8	235900	398.00	48.86	53.21		53.33	0.001264	2.78	143.97	46.12	0.28
raymondville	Reach 8	235900	803.00	48.86	53.30		53.76	0.004781	5.43	147.81	46.62	0.54
raymondville	Reach 8	235900	1359.00	48.86	54.99		55.51	0.003800	5.77	235.34	56.77	0.50
raymondville	Reach 8	235900	2996.00	48.86	57.89		58.66	0.003693	7.05	425.19	74.17	0.52
raymondville	Reach 8	233900	398.00	48.16	50.85		50.88	0.001176	1.81	343.37	401.42	0.27
raymondville	Reach 8	233900	803.00	48.16	53.11		53.12	0.000900	0.80	1563.00	673.68	0.07
raymondville	Reach 8	233900	1359.00	48.16	55.11		55.12	0.000035	0.70	3151.80	932.05	0.05
raymondville	Reach 8	233900	2996.00	48.16	58.26		58.27	0.000023	0.77	7474.52	1813.68	0.05
raymondville	Reach 8	231612	398.00	40.87	49.89		49.93	0.000208	1.57	253.15	46.10	0.12
raymondville	Reach 8	231612	803.00	40.87	52.76		52.82	0.000246	2.00	401.74	57.57	0.13
raymondville	Reach 8	231612	1359.00	40.87	54.93		54.97	0.000159	1.88	1289.01	617.77	0.11
raymondville	Reach 8	231612	2996.00	40.87	58.16		58.18	0.000076	1.59	3602.40	949.67	0.08
raymondville	Reach 8	227684	398.00	40.09	49.10		49.13	0.000199	1.55	257.36	46.60	0.12
raymondville	Reach 8	227684	803.00	40.09	51.78		51.84	0.000255	2.02	396.69	57.32	0.14
raymondville	Reach 8	227684	1359.00	40.09	53.99		54.09	0.000331	2.55	533.07	66.16	0.16
raymondville	Reach 8	227684	2996.00	40.09	57.65		57.71	0.000205	2.48	2113.13	634.29	0.13
raymondville	Reach 8	225004	398.00	39.55	48.55		48.58	0.000211	1.58	251.79	45.98	0.12
raymondville	Reach 8	225004	803.00	39.55	51.05		51.12	0.000286	2.12	379.44	56.00	0.14
raymondville	Reach 8	225004	1359.00	39.55	53.00		53.12	0.000400	2.74	496.24	63.80	0.17
raymondville	Reach 8	225004	2996.00	39.55	56.58		56.62	0.000611	3.93	879.34	460.99	0.22
raymondville	Reach 8	222418	398.00	39.03	48.00		48.03	0.000214	1.59	250.41	45.86	0.12
raymondville	Reach 8	222418	803.00	39.03	50.88		50.89	0.000037	0.87	2042.61	911.34	0.05
raymondville	Reach 8	222418	1359.00	39.03	52.96		52.96	0.000017	0.69	4140.05	1113.56	0.04
raymondville	Reach 8	222418	2996.00	39.03	56.65		56.65	0.000012	0.72	9586.08	2071.08	0.03
raymondville	Reach 8	220780	398.00	38.71	47.64		47.68	0.000218	1.60	248.76	45.71	0.12
raymondville	Reach 8	220780	803.00	38.71	50.70		50.76	0.000237	1.97	407.30	57.95	0.13
raymondville	Reach 8	220780	1359.00	38.71	52.78		52.88	0.000325	2.53	536.23	66.25	0.16
raymondville	Reach 8	220780	2996.00	38.71	56.34		56.56	0.000547	3.75	797.89	80.51	0.21
raymondville	Reach 8	217688	398.00	38.09	46.96		47.00	0.000224	1.62	246.44	45.53	0.12
raymondville	Reach 8	217688	803.00	38.09	49.95		50.01	0.000248	2.00	400.51	57.49	0.13
raymondville	Reach 8	217688	1359.00	38.09	51.88		51.79	0.000380	2.69	505.84	64.40	0.17
raymondville	Reach 8	217688	2996.00	38.09	54.21		54.50	0.000825	4.37	736.59	363.30	0.25
raymondville	Reach 8	215481	398.00	37.65	46.45		46.49	0.000232	1.64	243.04	45.22	0.12
raymondville	Reach 8	215481	803.00	37.65	49.38		49.45	0.000261	2.04	392.77	56.95	0.14
raymondville	Reach 8	215481	1359.00	37.65	50.94		51.02	0.000310	2.47	556.65	573.40	0.15
raymondville	Reach 8	215481	2996.00	37.65	53.70		53.74	0.000181	2.17	2912.29	996.47	0.12
raymondville	Reach 8	213503	398.00	37.25	46.00		46.05	0.000222	1.61	247.32	45.78	0.12
raymondville	Reach 8	213503	803.00	37.25	48.87		48.94	0.000258	2.03	394.99	57.24	0.14
raymondville	Reach 8	213503	1359.00	37.25	50.40		50.46	0.000259	2.21	1042.43	563.24	0.14
raymondville	Reach 8	213503	2996.00	37.25	53.45		53.48	0.000111	1.79	3224.66	876.14	0.10
raymondville	Reach 8	211886	398.00	36.93	45.64		45.68	0.000234	1.84	242.55	45.28	0.12
raymondville	Reach 8	211886	803.00	36.93	48.47		48.52	0.000242	1.96	580.82	574.71	0.13
raymondville	Reach 8	211886	1359.00	36.93	50.21		50.22	0.000084	1.28	2447.28	1457.93	0.08
raymondville	Reach 8	211886	2996.00	36.93	53.40		53.41	0.000019	0.76	8614.58	2275.61	0.04
raymondville	Reach 8	210380	398.00	36.63	45.28		45.32	0.000246	1.67	237.79	44.79	0.13
raymondville	Reach 8	210380	803.00	36.63	48.05		48.12	0.000291	2.13	377.43	55.89	0.14
raymondville	Reach 8	210380	1359.00	36.63	49.85		49.97	0.000427	2.81	484.22	53.07	0.18
raymondville	Reach 8	210380	2996.00	36.63	53.01		53.29	0.000765	4.26	703.82	75.72	0.25
raymondville	Reach 8	210328	398.00	36.62	45.27		45.31	0.000247	1.67	237.67	44.78	0.13
raymondville	Reach 8	210328	803.00	36.62	48.04		48.11	0.000291	2.13	377.14	55.87	0.14
raymondville	Reach 8	210328	1359.00	36.62	49.83		49.95	0.000429	2.81	483.72	63.04	0.18
raymondville	Reach 8	210328	2996.00	36.62	52.98		53.27	0.000769	4.27	702.31	75.64	0.25

HEC-RAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	206056	398.00	38.18	44.89		44.73	0.000255	1.70	234.88	44.56	0.13
raymondville	Reach 8	206056	803.00	38.18	47.38		47.43	0.000311	2.18	388.05	55.27	0.15
raymondville	Reach 8	206056	1359.00	38.18	48.73		48.87	0.000527	3.04	447.72	60.76	0.20
raymondville	Reach 8	206056	2996.00	38.18	50.51		50.95	0.001393	5.33	562.32	67.88	0.33
raymondville	Reach 8	205823	398.00	35.72	44.08		44.13	0.000286	1.77	225.02	43.64	0.14
raymondville	Reach 8	205823	803.00	35.72	48.70		48.78	0.000286	2.07	558.69	397.47	0.14
raymondville	Reach 8	205823	1359.00	35.72	48.14		48.17	0.000193	1.92	1558.98	1435.61	0.12
raymondville	Reach 8	205823	2996.00	35.72	50.40		50.41	0.000069	1.38	6633.91	3429.30	0.08
raymondville	Reach 8	203593	398.00	35.27	43.39		43.44	0.000330	1.87	213.10	42.48	0.15
raymondville	Reach 8	203593	803.00	35.27	45.91		48.00	0.000408	2.41	332.91	52.57	0.17
raymondville	Reach 8	203593	1359.00	35.27	47.25		47.43	0.000679	3.34	407.10	57.94	0.22
raymondville	Reach 8	203593	2996.00	35.27	49.79		50.02	0.000835	4.28	1496.32	1680.40	0.25
raymondville	Reach 8	202982	398.00	35.14	43.18		43.23	0.000346	1.90	209.50	42.14	0.15
raymondville	Reach 8	202982	803.00	35.14	45.64		45.74	0.000431	2.47	325.66	52.01	0.17
raymondville	Reach 8	202982	1359.00	35.14	46.78		48.97	0.000777	3.51	387.18	58.55	0.24
raymondville	Reach 8	202982	2996.00	35.14	48.67		49.23	0.001889	5.97	501.89	64.14	0.38
raymondville	Reach 8	200800	398.00	34.67	42.24		42.31	0.000448	2.09	190.34	40.28	0.17
raymondville	Reach 8	200800	803.00	34.67	44.84		44.90	0.000291	2.08	701.14	590.71	0.14
raymondville	Reach 8	200800	1359.00	34.67	46.37		48.38	0.000106	1.44	2277.65	1255.56	0.09
raymondville	Reach 8	200800	2996.00	34.67	48.68		48.89	0.000054	1.21	5635.97	1893.28	0.07
raymondville	Reach 8	200550	398.00	34.66	42.22		42.29	0.000450	2.09	189.98	40.25	0.17
raymondville	Reach 8	200550	803.00	34.66	44.83		44.89	0.000293	2.09	695.72	588.89	0.14
raymondville	Reach 8	200550	1359.00	34.66	46.38		48.38	0.000106	1.45	2270.37	1254.31	0.09
raymondville	Reach 8	200550	2996.00	34.66	48.68		48.89	0.000054	1.22	5631.86	1892.49	0.07
raymondville	Reach 8	198245	398.00	34.20	40.83		40.93	0.000789	2.58	154.23	36.52	0.22
raymondville	Reach 8	198245	803.00	34.20	43.79		43.91	0.000649	2.87	279.58	48.33	0.21
raymondville	Reach 8	198245	1359.00	34.20	45.92		45.98	0.000305	2.40	1281.30	1047.00	0.15
raymondville	Reach 8	198245	2996.00	34.20	48.52		48.53	0.000082	1.51	5042.91	1949.99	0.08
raymondville	Reach 8	198303	398.00	31.67	39.98		40.03	0.000299	1.80	221.15	43.23	0.14
raymondville	Reach 8	198303	803.00	31.67	42.98		43.06	0.000308	2.17	389.20	55.26	0.15
raymondville	Reach 8	198303	1359.00	31.67	45.21		45.32	0.000385	2.70	527.11	233.38	0.17
raymondville	Reach 8	198303	2996.00	31.67	48.23		48.29	0.000231	2.35	2605.89	1067.53	0.14
raymondville	Reach 8	194638	398.00	31.17	39.48		39.53	0.000299	1.80	221.24	43.24	0.14
raymondville	Reach 8	194638	803.00	31.17	42.47		42.54	0.000310	2.18	388.34	55.19	0.15
raymondville	Reach 8	194638	1359.00	31.17	44.58		44.89	0.000380	2.66	637.20	435.55	0.17
raymondville	Reach 8	194638	2996.00	31.17	47.98		47.99	0.000134	1.81	3497.99	1324.90	0.10
raymondville	Reach 8	193324	398.00	30.77	39.09	33.74	39.14	0.000297	1.80	221.83	43.28	0.14
raymondville	Reach 8	193324	803.00	30.77	42.06	35.13	42.14	0.000311	2.18	387.94	55.17	0.15
raymondville	Reach 8	193324	1359.00	30.77	44.03	36.52	44.15	0.000427	2.81	484.42	63.06	0.18
raymondville	Reach 8	193324	2996.00	30.77	47.35	39.29	47.62	0.000733	4.19	715.24	78.30	0.24
raymondville	Reach 8	192642	398.00	30.57	38.89	33.54	38.94	0.000298	1.80	221.51	43.27	0.14
raymondville	Reach 8	192642	803.00	30.57	41.85	34.93	41.92	0.000313	2.19	387.23	55.12	0.15
raymondville	Reach 8	192642	1359.00	30.57	43.73	36.32	43.88	0.000442	2.84	478.15	62.85	0.18
raymondville	Reach 8	192642	2996.00	30.57	46.80	39.09	47.09	0.000810	4.35	688.89	74.91	0.25
raymondville	Reach 8	191137	398.00	30.12	38.44		38.49	0.000297	1.80	221.61	43.28	0.14
raymondville	Reach 8	191137	803.00	30.12	41.38		41.45	0.000315	2.19	385.95	55.02	0.15
raymondville	Reach 8	191137	1359.00	30.12	43.03		43.16	0.000484	2.94	482.31	61.83	0.19
raymondville	Reach 8	191137	2996.00	30.12	45.30		45.87	0.001109	4.89	612.49	70.71	0.29
raymondville	Reach 8	188880	398.00	29.38	37.71		37.78	0.000296	1.79	222.11	43.32	0.14
raymondville	Reach 8	188880	803.00	29.38	40.75		40.80	0.000223	1.88	872.32	443.23	0.13
raymondville	Reach 8	188880	1359.00	29.38	42.58		42.61	0.000121	1.53	1772.27	787.53	0.10
raymondville	Reach 8	188880	2996.00	29.38	45.10		45.11	0.000072	1.42	4331.84	1222.84	0.08
raymondville	Reach 8	187150	398.00	28.92	37.28		37.31	0.000294	1.79	222.81	43.38	0.14
raymondville	Reach 8	187150	803.00	28.92	40.33		40.40	0.000297	2.14	374.51	55.85	0.15
raymondville	Reach 8	187150	1359.00	28.92	42.16		42.28	0.000431	2.81	482.83	62.96	0.18
raymondville	Reach 8	187150	2996.00	28.92	44.51		44.82	0.000906	4.51	828.38	477.82	0.27
raymondville	Reach 8	187100	398.00	28.91	37.25		37.30	0.000295	1.79	222.37	43.35	0.14
raymondville	Reach 8	187100	803.00	28.91	40.31		40.39	0.000297	2.15	374.20	55.83	0.15
raymondville	Reach 8	187100	1359.00	28.91	42.13		42.26	0.000432	2.82	482.07	62.91	0.18
raymondville	Reach 8	187100	2996.00	28.91	44.46		44.77	0.000630	4.58	804.17	472.31	0.27
raymondville	Reach 8	184560	398.00	28.14	36.50		36.55	0.000291	1.78	223.43	43.44	0.14
raymondville	Reach 8	184560	803.00	28.14	39.57		39.64	0.000285	2.11	438.38	318.73	0.14
raymondville	Reach 8	184560	1359.00	28.14	41.92		41.92	0.000053	1.09	3181.65	1735.52	0.08
raymondville	Reach 8	184560	2996.00	28.14	44.51		44.52	0.000021	0.82	9007.74	2712.35	0.04
raymondville	Reach 8	184500	398.00	28.13	36.49		36.54	0.000292	1.78	223.21	43.42	0.14
raymondville	Reach 8	184500	803.00	28.13	39.58		39.63	0.000287	2.11	432.40	308.57	0.14



HEC-RAS Plan: P10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	184500	1359.00	28.13	41.91		41.92	0.00053	1.09	3156.97	1733.26	0.08
raymondville	Reach 8	184500	2996.00	28.13	44.51		44.51	0.00021	0.82	9005.40	2711.84	0.04
raymondville	Reach 8	183033	398.00	27.68	36.03	30.63	36.08	0.000289	1.78	223.92	43.49	0.14
raymondville	Reach 8	183033	803.00	27.68	39.10	32.02	39.18	0.000293	2.13	376.40	55.78	0.14
raymondville	Reach 8	183033	1359.00	27.68	41.68	33.41	41.76	0.000243	2.31	822.78	372.74	0.14
raymondville	Reach 8	183033	2996.00	27.68	44.37	36.18	44.43	0.000210	2.56	2274.73	733.90	0.13
raymondville	Reach 8	181219	398.00	27.11	35.51		35.56	0.000285	1.77	225.25	43.82	0.14
raymondville	Reach 8	181219	803.00	27.11	38.58		38.65	0.000290	2.13	377.88	55.87	0.14
raymondville	Reach 8	181219	1359.00	27.11	41.21		41.29	0.000273	2.38	733.76	318.83	0.14
raymondville	Reach 8	181219	2996.00	27.11	44.00		44.06	0.000197	2.44	2757.70	1223.53	0.13
raymondville	Reach 8	179129	398.00	26.49	34.92		34.97	0.000280	1.76	226.55	43.73	0.14
raymondville	Reach 8	179129	803.00	26.49	37.97		38.04	0.000288	2.12	378.54	55.93	0.14
raymondville	Reach 8	179129	1359.00	26.49	40.80		40.84	0.000168	1.90	1531.78	1370.20	0.11
raymondville	Reach 8	179129	2996.00	26.49	43.93		43.93	0.000025	0.89	8404.29	2661.75	0.05
raymondville	Reach 8	178000	398.00	26.15	34.61	29.12	34.66	0.000276	1.75	227.70	43.84	0.14
raymondville	Reach 8	178000	803.00	26.15	37.65	30.51	37.72	0.000286	2.12	379.43	56.00	0.14
raymondville	Reach 8	178000	1359.00	26.15	40.50	31.90	40.59	0.000288	2.44	573.42	174.53	0.15
raymondville	Reach 8	178000	2996.00	26.15	43.78	34.67	43.86	0.000231	2.73	2092.21	2230.46	0.14
raymondville	Reach 8	177727	398.00	26.07	34.53	29.04	34.58	0.000278	1.75	227.93	43.86	0.13
raymondville	Reach 8	177727	803.00	26.07	37.57	30.43	37.64	0.000286	2.12	379.58	56.01	0.14
raymondville	Reach 8	177727	1359.00	26.07	40.42	31.82	40.52	0.000288	2.44	588.23	141.87	0.15
raymondville	Reach 8	177727	2996.00	26.07	43.71	34.59	43.80	0.000237	2.76	2044.13	2181.32	0.14
raymondville	Reach 8	175705	398.00	25.46	33.99	28.43	34.03	0.000267	1.79	230.65	44.10	0.13
raymondville	Reach 8	175705	803.00	25.46	37.00	29.82	37.07	0.000282	2.10	381.57	56.15	0.14
raymondville	Reach 8	175705	1359.00	25.46	39.83	31.21	39.93	0.000294	2.44	559.96	87.59	0.15
raymondville	Reach 8	175705	2996.00	25.46	43.23	33.98	43.31	0.000242	2.70	2069.89	828.13	0.14
raymondville	Reach 8	175125	398.00	25.28	33.83	28.26	33.88	0.000283	1.72	231.83	44.21	0.13
raymondville	Reach 8	175125	803.00	25.28	36.83	29.84	36.90	0.000280	2.10	382.54	56.22	0.14
raymondville	Reach 8	175125	1359.00	25.28	39.68	31.03	39.78	0.000293	2.44	557.63	87.54	0.15
raymondville	Reach 8	175125	2996.00	25.28	43.07	33.80	43.16	0.000260	2.79	1955.94	804.99	0.15
raymondville	Reach 8	173765	398.00	24.88	33.48		33.52	0.000257	1.70	233.94	44.41	0.13
raymondville	Reach 8	173765	803.00	24.88	36.46		36.52	0.000278	2.09	383.77	56.31	0.14
raymondville	Reach 8	173765	1359.00	24.88	39.27		39.36	0.000293	2.44	557.82	87.55	0.15
raymondville	Reach 8	173765	2996.00	24.88	42.64		42.77	0.000329	3.16	1565.49	689.75	0.17
raymondville	Reach 8	171741	398.00	24.27	32.97		33.02	0.000244	1.67	238.60	44.82	0.13
raymondville	Reach 8	171741	803.00	24.27	35.90		35.97	0.000272	2.08	386.83	56.52	0.14
raymondville	Reach 8	171741	1359.00	24.27	38.68		38.77	0.000291	2.43	559.09	87.82	0.15
raymondville	Reach 8	171741	2996.00	24.27	42.21		42.27	0.000181	2.33	2977.26	1586.37	0.12
raymondville	Reach 8	171891	398.00	24.25	32.96		33.01	0.000243	1.67	238.90	44.84	0.13
raymondville	Reach 8	171891	803.00	24.25	35.89		35.95	0.000271	2.07	387.10	56.53	0.14
raymondville	Reach 8	171891	1359.00	24.25	38.68		38.75	0.000291	2.43	559.32	87.82	0.15
raymondville	Reach 8	171891	2996.00	24.25	42.20		42.26	0.000183	2.34	2960.69	1585.28	0.12
raymondville	Reach 8	169710	398.00	23.66	32.49		32.54	0.000229	1.63	244.42	45.34	0.12
raymondville	Reach 8	169710	803.00	23.66	35.36		35.42	0.000285	2.06	390.55	56.78	0.14
raymondville	Reach 8	169710	1359.00	23.66	38.09		38.18	0.000289	2.42	560.55	87.71	0.15
raymondville	Reach 8	169710	2996.00	23.66	41.91		41.94	0.000131	1.99	3523.43	1826.07	0.11
raymondville	Reach 8	168304	1146.00	23.63	32.02		32.10	0.000344	2.33	492.81	75.54	0.16
raymondville	Reach 8	168304	2137.00	23.63	34.78		34.90	0.000418	2.99	715.43	86.53	0.18
raymondville	Reach 8	168304	3507.00	23.63	37.36		37.57	0.000507	3.68	953.46	96.92	0.21
raymondville	Reach 8	168304	8107.00	23.63	41.52		41.62	0.000288	3.28	7897.10	5924.42	0.16
raymondville	Reach 8	167456	1146.00	23.54	31.70		31.79	0.000380	2.41	476.06	74.85	0.17
raymondville	Reach 8	167456	2137.00	23.54	34.38		34.53	0.000463	3.10	690.14	85.36	0.19
raymondville	Reach 8	167456	3507.00	23.54	36.88		37.11	0.000565	3.83	916.67	95.39	0.22
raymondville	Reach 8	167456	8107.00	23.54	41.32		41.39	0.000242	3.01	8450.40	5886.37	0.15
raymondville	Reach 8	166128	1146.00	23.41	31.13		31.24	0.000485	2.58	443.56	72.89	0.18
raymondville	Reach 8	166128	2137.00	23.41	33.67		33.85	0.000567	3.33	641.85	83.06	0.21
raymondville	Reach 8	166128	3507.00	23.41	36.01		36.27	0.000705	4.14	846.37	92.38	0.24
raymondville	Reach 8	166128	8107.00	23.41	40.91		41.02	0.000330	3.46	7532.61	6000.00	0.17
raymondville	Reach 8	166078	1146.00	23.40	31.11		31.21	0.000468	2.59	442.54	72.83	0.19
raymondville	Reach 8	166078	2137.00	23.40	33.65		33.82	0.000571	3.34	640.22	82.98	0.21
raymondville	Reach 8	166078	3507.00	23.40	35.97		36.24	0.000711	4.16	843.84	92.28	0.24
raymondville	Reach 8	166078	8107.00	23.40	40.88		41.00	0.000341	3.51	7397.55	6000.00	0.18
raymondville	reach 2	164919	489.00	22.94	30.91		30.93	0.000075	1.08	461.71	73.88	0.07
raymondville	reach 2	164919	1010.00	22.94	33.40		33.43	0.000118	1.54	657.74	83.82	0.10
raymondville	reach 2	164919	1747.00	22.94	35.68		35.72	0.000169	2.04	857.78	92.88	0.12
raymondville	reach 2	164919	7752.00	22.94	40.42		40.55	0.000453	3.57	4480.84	3390.30	0.20



HEC-RAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	164431.*	489.00	22.89	30.87		30.89	0.000075	1.06	482.07	73.92	0.07
raymondville	reach 2	164431.*	1010.00	22.89	33.34		33.37	0.000119	1.54	856.95	83.77	0.10
raymondville	reach 2	164431.*	1747.00	22.89	35.57		35.64	0.000178	2.04	857.44	96.28	0.12
raymondville	reach 2	164431.*	7752.00	22.89	40.21		40.33	0.000430	3.48	4822.41	3757.87	0.19
raymondville	reach 2	163943.*	489.00	22.85	30.84		30.85	0.000075	1.06	483.07	73.96	0.07
raymondville	reach 2	163943.*	1010.00	22.85	33.28		33.32	0.000119	1.54	855.82	83.74	0.10
raymondville	reach 2	163943.*	1747.00	22.85	35.49		35.55	0.000175	2.05	850.81	93.80	0.12
raymondville	reach 2	163943.*	7752.00	22.85	40.05		40.13	0.000329	2.98	5757.09	4232.13	0.17
raymondville	reach 2	163456	489.00	22.80	30.80	24.37	30.82	0.000074	1.05	464.03	74.01	0.07
raymondville	reach 2	163456	1010.00	22.80	33.22	25.30	33.28	0.000120	1.54	854.82	83.89	0.10
raymondville	reach 2	163456	1747.00	22.80	35.40	28.35	35.47	0.000175	2.06	846.89	606.84	0.12
raymondville	reach 2	163456	7752.00	22.80	39.96	31.59	40.00	0.000190	2.18	8026.09	3644.36	0.19
raymondville	reach 2	161457	489.00	22.59	30.86		30.88	0.000072	1.04	469.24	74.28	0.07
raymondville	reach 2	161457	1010.00	22.59	32.98		33.01	0.000121	1.55	651.91	83.54	0.10
raymondville	reach 2	161457	1747.00	22.59	35.03		35.10	0.000182	2.09	877.82	577.92	0.12
raymondville	reach 2	161457	7752.00	22.59	39.87		39.98	0.000026	0.98	13636.36	4924.70	0.05
raymondville	reach 2	159438	489.00	22.38	30.52		30.54	0.000070	1.03	474.50	74.57	0.07
raymondville	reach 2	159438	1010.00	22.38	32.72		32.78	0.000123	1.58	648.38	83.97	0.10
raymondville	reach 2	159438	1747.00	22.38	34.64		34.72	0.000184	2.14	815.89	91.06	0.13
raymondville	reach 2	159438	7752.00	22.38	39.72		39.78	0.000179	2.52	8286.18	5972.27	0.13
raymondville	reach 2	157410	489.00	22.18	30.38		30.40	0.000068	1.02	479.02	74.81	0.07
raymondville	reach 2	157410	1010.00	22.18	32.47		32.51	0.000125	1.57	644.01	83.16	0.10
raymondville	reach 2	157410	1747.00	22.18	34.23		34.31	0.000207	2.19	796.93	90.22	0.13
raymondville	reach 2	157410	7752.00	22.18	38.38		38.96	0.001217	6.22	1659.20	2062.96	0.33
raymondville	reach 2	157293.*	489.00	22.17	30.37		30.39	0.000068	1.02	479.18	74.82	0.07
raymondville	reach 2	157293.*	1010.00	22.17	32.46		32.49	0.000126	1.57	643.80	83.14	0.10
raymondville	reach 2	157293.*	1747.00	22.17	34.21		34.28	0.000208	2.20	795.46	90.15	0.13
raymondville	reach 2	157293.*	7752.00	22.17	38.28		38.80	0.001268	6.08	1909.85	2484.65	0.33
raymondville	reach 2	157176.*	489.00	22.16	30.37		30.38	0.000068	1.02	479.36	74.83	0.07
raymondville	reach 2	157176.*	1010.00	22.16	32.44		32.48	0.000126	1.57	643.22	83.13	0.10
raymondville	reach 2	157176.*	1747.00	22.16	34.18		34.26	0.000209	2.20	794.04	90.10	0.13
raymondville	reach 2	157176.*	7752.00	22.16	38.20		38.63	0.001180	5.82	2395.55	2975.21	0.32
raymondville	reach 2	157059.*	489.00	22.14	30.36		30.37	0.000067	1.02	480.23	74.87	0.07
raymondville	reach 2	157059.*	1010.00	22.14	32.43		32.46	0.000126	1.57	643.57	83.14	0.10
raymondville	reach 2	157059.*	1747.00	22.14	34.16		34.23	0.000214	2.20	793.80	91.86	0.13
raymondville	reach 2	157059.*	7752.00	22.14	38.19		38.47	0.000833	4.83	3543.21	4772.01	0.27
raymondville	reach 2	156942.*	489.00	22.13	30.35		30.37	0.000067	1.02	480.41	74.88	0.07
raymondville	reach 2	156942.*	1010.00	22.13	32.41		32.45	0.000127	1.57	643.64	84.17	0.10
raymondville	reach 2	156942.*	1747.00	22.13	34.13		34.20	0.000215	2.19	796.03	93.14	0.13
raymondville	reach 2	156942.*	7752.00	22.13	38.25		38.34	0.000356	3.33	8241.82	6000.00	0.18
raymondville	reach 2	156825	489.00	22.12	30.34		30.36	0.000067	1.02	480.57	74.89	0.07
raymondville	reach 2	156825	1010.00	22.12	32.40		32.43	0.000126	1.57	642.78	83.10	0.10
raymondville	reach 2	156825	1747.00	22.12	34.10		34.18	0.000212	2.21	790.52	89.93	0.13
raymondville	reach 2	156825	7752.00	22.12	38.26		38.30	0.000169	2.39	8638.31	6000.00	0.12
raymondville	reach 2	155106	489.00	21.94	30.22		30.24	0.000066	1.01	485.15	75.13	0.07
raymondville	reach 2	155106	1010.00	21.94	32.18		32.22	0.000128	1.58	639.58	82.95	0.10
raymondville	reach 2	155106	1747.00	21.94	33.72		33.80	0.000226	2.28	772.67	89.14	0.14
raymondville	reach 2	155106	7752.00	21.94	37.66		37.82	0.000516	4.06	4584.32	4206.13	0.21
raymondville	reach 2	153062	489.00	21.73	30.09		30.11	0.000063	1.00	491.07	75.45	0.07
raymondville	reach 2	153062	1010.00	21.73	31.91		31.95	0.000131	1.59	635.02	82.73	0.10
raymondville	reach 2	153062	1747.00	21.73	33.24		33.32	0.000247	2.34	748.06	88.03	0.14
raymondville	reach 2	153062	7752.00	21.73	37.10		37.15	0.000206	2.83	5853.70	2350.51	0.14
raymondville	reach 2	151635	489.00	21.59	30.00		30.02	0.000062	0.99	494.91	75.65	0.07
raymondville	reach 2	151635	1010.00	21.59	31.72		31.76	0.000133	1.60	631.02	82.54	0.10
raymondville	reach 2	151635	1747.00	21.59	32.87		32.95	0.000286	2.40	727.82	87.10	0.15
raymondville	reach 2	151635	7752.00	21.59	38.56		38.71	0.000484	3.96	3771.87	1820.58	0.21
raymondville	reach 2	150792	821.00	21.50	29.88		29.92	0.000177	1.67	492.25	75.51	0.12
raymondville	reach 2	150792	1518.00	21.50	31.48		31.58	0.000317	2.45	618.73	81.94	0.16
raymondville	reach 2	150792	2558.00	21.50	32.37		32.58	0.000656	3.69	692.82	85.48	0.23
raymondville	reach 2	150792	8565.00	21.50	35.90		36.15	0.000885	5.05	3994.41	3282.83	0.27
raymondville	reach 2	149670	694.00	21.30	29.71		29.74	0.000125	1.40	494.78	75.65	0.10
raymondville	reach 2	149670	1202.00	21.30	31.21		31.27	0.000205	1.96	612.25	81.62	0.13
raymondville	reach 2	149670	1714.00	21.30	31.88		31.99	0.000325	2.56	668.52	84.33	0.16
raymondville	reach 2	149670	5186.00	21.30	34.44		34.96	0.001313	5.78	896.87	94.55	0.33
raymondville	reach 2	149620	694.00	21.29	29.71		29.74	0.000125	1.40	495.06	75.66	0.10
raymondville	reach 2	149620	1202.00	21.29	31.19		31.25	0.000205	1.96	612.22	81.62	0.13
raymondville	reach 2	149620	1714.00	21.29	31.87		31.97	0.000326	2.57	667.97	84.31	0.16

HEC-DAS Plan P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	140820	5186.00	21.29	34.37		34.89	0.001337	5.82	891.06	94.30	0.33
raymondville	reach 2	147820	694.00	21.09	29.45		29.48	0.000128	1.41	490.64	75.43	0.10
raymondville	reach 2	147820	1202.00	21.09	31.03		31.04	0.000058	1.05	3225.16	2948.20	0.07
raymondville	reach 2	147820	1714.00	21.09	31.79		31.79	0.000034	0.83	5475.46	3025.47	0.05
raymondville	reach 2	147820	5186.00	21.09	34.84		34.84	0.000014	0.65	18133.77	5387.67	0.03
raymondville	reach 2	145620	694.00	20.88	29.19		29.22	0.000131	1.43	486.90	75.22	0.10
raymondville	reach 2	145620	1202.00	20.88	30.91		30.92	0.000065	1.11	2917.44	2658.03	0.07
raymondville	reach 2	145620	1714.00	20.88	31.71		31.72	0.000036	0.87	5309.15	3038.39	0.05
raymondville	reach 2	145620	5186.00	20.88	34.61		34.62	0.000014	0.66	18188.82	5847.48	0.03
raymondville	reach 2	142688	694.00	20.57	28.79		28.83	0.000135	1.44	480.72	74.90	0.10
raymondville	reach 2	142688	1202.00	20.57	30.57		30.63	0.000198	1.94	620.12	82.01	0.12
raymondville	reach 2	142688	1714.00	20.57	31.41		31.51	0.000297	2.48	690.31	85.36	0.15
raymondville	reach 2	142688	5186.00	20.57	33.98		34.46	0.001195	5.58	986.91	224.93	0.32
raymondville	reach 2	142619	694.00	20.57	28.79		28.82	0.000136	1.45	480.20	74.87	0.10
raymondville	reach 2	142619	1202.00	20.57	30.56		30.62	0.000198	1.94	619.29	81.97	0.12
raymondville	reach 2	142619	1714.00	20.57	31.39		31.49	0.000299	2.49	689.00	85.30	0.15
raymondville	reach 2	142619	5186.00	20.57	33.91		34.40	0.001222	5.62	972.20	216.00	0.32
raymondville	reach 2	140677	694.00	20.38	28.51		28.55	0.000141	1.46	473.80	74.53	0.10
raymondville	reach 2	140677	1202.00	20.38	30.18		30.24	0.000199	1.92	613.67	1903.60	0.12
raymondville	reach 2	140677	1714.00	20.38	31.14		31.16	0.000112	1.52	2697.63	1903.48	0.09
raymondville	reach 2	140677	5186.00	20.38	34.02		34.02	0.000053	1.17	10532.09	4094.06	0.07
raymondville	reach 2	138658	694.00	20.17	28.22		28.26	0.000146	1.48	487.78	74.20	0.10
raymondville	reach 2	138658	1202.00	20.17	29.73		29.80	0.000233	2.06	584.50	80.25	0.13
raymondville	reach 2	138658	1714.00	20.17	30.88		30.91	0.000143	1.71	2397.45	2088.13	0.11
raymondville	reach 2	138658	5186.00	20.17	33.95		33.95	0.000024	0.87	14927.89	5065.24	0.05
raymondville	reach 2	138000	694.00	20.10	28.12		28.16	0.000148	1.49	465.77	74.10	0.10
raymondville	reach 2	138000	1202.00	20.10	29.57		29.64	0.000242	2.08	577.46	79.90	0.14
raymondville	reach 2	138000	1714.00	20.10	30.66		30.76	0.000328	2.57	686.65	84.25	0.16
raymondville	reach 2	138000	5186.00	20.10	33.36	27.02	33.83	0.001204	5.56	1301.42	2270.48	0.32
raymondville	reach 2	137950	694.00	20.10	28.12		28.15	0.000149	1.49	465.21	74.07	0.10
raymondville	reach 2	137950	1202.00	20.10	29.56		29.63	0.000243	2.09	579.47	79.85	0.14
raymondville	reach 2	137950	1714.00	20.10	30.64		30.75	0.000330	2.58	665.21	84.18	0.16
raymondville	reach 2	137950	5186.00	20.10	33.27	27.01	33.77	0.001270	5.69	1120.52	1724.45	0.33
raymondville	reach 2	136663	694.00	20.09	27.91		27.95	0.000182	1.54	451.04	73.30	0.11
raymondville	reach 2	136663	1202.00	20.09	29.22		29.30	0.000277	2.18	550.29	78.53	0.15
raymondville	reach 2	136663	1714.00	20.09	30.26		30.34	0.000295	2.41	1536.81	3574.26	0.15
raymondville	reach 2	136663	5186.00	20.09	33.53		33.53	0.000021	0.82	16281.02	5317.09	0.04
raymondville	reach 2	134669	694.00	19.96	27.61		27.64	0.000149	1.46	678.62	544.81	0.10
raymondville	reach 2	134669	1202.00	19.96	29.10		29.11	0.000040	0.86	4049.42	3563.08	0.06
raymondville	reach 2	134669	1714.00	19.96	30.25		30.25	0.000014	0.55	9743.59	5903.23	0.03
raymondville	reach 2	134669	5186.00	19.96	33.52		33.52	0.000004	0.37	23390.69	6000.00	0.02
raymondville	reach 2	132609	694.00	19.75	27.51		27.51	0.000027	0.68	2464.80	1491.70	0.05
raymondville	reach 2	132609	1202.00	19.75	29.06		29.06	0.000011	0.49	6887.34	4354.29	0.03
raymondville	reach 2	132609	1714.00	19.75	30.23		30.23	0.000006	0.40	12691.91	5814.05	0.02
raymondville	reach 2	132609	5186.00	19.75	33.51		33.51	0.000003	0.34	32358.25	6000.00	0.02
raymondville	reach 2	129500	694.00	19.43	27.41		27.42	0.000046	0.89	1700.07	1088.45	0.06
raymondville	reach 2	129500	1202.00	19.43	29.02		29.03	0.000023	0.72	4349.75	3379.48	0.04
raymondville	reach 2	129500	1714.00	19.43	30.22		30.22	0.000010	0.52	9262.95	4484.33	0.03
raymondville	reach 2	129500	5186.00	19.43	33.50		33.51	0.000005	0.46	25903.59	5356.32	0.02
raymondville	reach 2	129450	694.00	19.43	27.41		27.42	0.000046	0.89	1697.50	1087.66	0.06
raymondville	reach 2	129450	1202.00	19.43	29.02		29.03	0.000023	0.72	4345.89	3376.19	0.04
raymondville	reach 2	129450	1714.00	19.43	30.22		30.22	0.000010	0.52	9260.65	4484.06	0.03
raymondville	reach 2	129450	5186.00	19.43	33.50		33.50	0.000005	0.46	25858.30	5355.70	0.02
raymondville	reach 2	127700	694.00	19.25	27.31		27.33	0.000068	1.10	1155.17	678.24	0.07
raymondville	reach 2	127700	1202.00	19.25	28.97		28.98	0.000042	0.99	2649.90	1108.91	0.06
raymondville	reach 2	127700	1714.00	19.25	30.18		30.18	0.000035	0.99	4287.94	1824.16	0.06
raymondville	reach 2	127700	5186.00	19.25	33.49		33.49	0.000013	0.73	18091.74	4645.99	0.04
raymondville	reach 2	126465	694.00	19.12	27.21		27.23	0.000103	1.07	833.85	370.30	0.09
raymondville	reach 2	126465	1202.00	19.12	28.90		28.92	0.000074	1.10	1725.66	678.87	0.08
raymondville	reach 2	126465	1714.00	19.12	30.11		30.13	0.000063	1.14	4017.60	4249.25	0.07
raymondville	reach 2	126465	5186.00	19.12	33.48		33.48	0.000009	0.54	22546.93	6000.00	0.03
raymondville	reach 2	124374	694.00	18.91	27.06		27.07	0.000052	0.96	1661.46	1552.62	0.06
raymondville	reach 2	124374	1202.00	18.91	28.85		28.85	0.000015	0.60	5412.36	2697.78	0.04
raymondville	reach 2	124374	1714.00	18.91	30.09		30.06	0.000008	0.48	9971.10	4177.07	0.03
raymondville	reach 2	124374	5186.00	18.91	33.47		33.47	0.000005	0.47	25196.95	5245.80	0.02
raymondville	reach 2	124318	694.00	18.90	27.06		27.07	0.000057	0.83	1659.74	1552.24	0.06

HEC-RAS Plan R10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Crit
raymondville	reach 2	124318	1202.00	18.90	28.84		28.84	0.000018	0.53	5389.37	2895.25	0.04
raymondville	reach 2	124318	1714.00	18.90	30.09		30.09	0.000008	0.43	9955.74	4178.50	0.03
raymondville	reach 2	124318	5186.00	18.90	33.46		33.46	0.000005	0.43	25153.26	5236.73	0.02
raymondville	reach 2	122094	694.00	18.67	26.98		26.99	0.000030	0.68	2295.09	1450.83	0.05
raymondville	reach 2	122094	1202.00	18.67	28.81		28.81	0.000011	0.48	5212.73	1740.77	0.03
raymondville	reach 2	122094	1714.00	18.67	30.08		30.08	0.000009	0.49	7872.43	3612.96	0.03
raymondville	reach 2	122094	5186.00	18.67	33.45		33.46	0.000007	0.53	22787.66	5157.96	0.03
raymondville	reach 2	121888.*	694.00	18.63	26.94		26.97	0.000123	1.38	572.67	215.15	0.10
raymondville	reach 2	121888.*	1202.00	18.63	28.79		28.80	0.000081	1.10	2428.00	1480.38	0.07
raymondville	reach 2	121888.*	1714.00	18.63	30.06		30.07	0.000028	0.83	5579.98	3220.48	0.05
raymondville	reach 2	121888.*	5186.00	18.63	33.45		33.45	0.000012	0.87	19326.77	5025.80	0.03
raymondville	reach 2	121283.*	694.00	18.59	26.90		26.93	0.000119	1.36	603.58	239.88	0.09
raymondville	reach 2	121283.*	1202.00	18.59	28.74		28.77	0.000122	1.55	1426.29	1073.35	0.10
raymondville	reach 2	121283.*	1714.00	18.59	30.05		30.06	0.000049	1.07	4199.44	2768.10	0.06
raymondville	reach 2	121283.*	5186.00	18.59	33.45		33.45	0.000017	0.79	16926.94	5215.12	0.04
raymondville	reach 2	120877.*	694.00	18.55	26.86		26.89	0.000112	1.32	665.17	288.02	0.09
raymondville	reach 2	120877.*	1202.00	18.55	28.72		28.73	0.000068	1.17	2327.78	1530.43	0.07
raymondville	reach 2	120877.*	1714.00	18.55	30.05		30.08	0.000030	0.83	4911.88	2085.17	0.05
raymondville	reach 2	120877.*	5186.00	18.55	33.45		33.45	0.000017	0.75	15866.45	4591.84	0.04
raymondville	reach 2	120472.*	694.00	18.51	26.83		26.85	0.000107	1.29	846.26	661.70	0.09
raymondville	reach 2	120472.*	1202.00	18.51	28.72		28.72	0.000037	0.86	3393.87	1956.86	0.05
raymondville	reach 2	120472.*	1714.00	18.51	30.05		30.05	0.000017	0.64	6186.79	2258.83	0.04
raymondville	reach 2	120472.*	5186.00	18.51	33.45		33.45	0.000012	0.82	16167.28	3268.69	0.03
raymondville	reach 2	120067	694.00	18.47	26.81	20.44	26.82	0.000060	0.97	1444.12	1039.07	0.07
raymondville	reach 2	120067	1202.00	18.47	28.71	21.27	28.71	0.000019	0.81	4593.31	2087.65	0.04
raymondville	reach 2	120067	1714.00	18.47	30.05	21.97	30.05	0.000011	0.51	8083.27	3044.15	0.03
raymondville	reach 2	120067	5186.00	18.47	33.45	26.59	33.45	0.000008	0.50	18446.36	3050.95	0.03
raymondville	reach 2	119652.*	694.00	18.43	26.80	20.40	26.81	0.000082	0.99	1395.69	1003.74	0.07
raymondville	reach 2	119652.*	1202.00	18.43	28.71	21.23	28.71	0.000020	0.64	4455.58	2058.57	0.04
raymondville	reach 2	119652.*	1714.00	18.43	30.04	21.93	30.05	0.000012	0.54	7847.15	3044.23	0.03
raymondville	reach 2	119652.*	5186.00	18.43	33.45	26.65	33.45	0.000008	0.52	18218.84	3083.10	0.03
raymondville	reach 2	119237.*	694.00	18.38	26.78	20.35	26.79	0.000083	1.00	1358.16	963.52	0.07
raymondville	reach 2	119237.*	1202.00	18.38	28.70	21.18	28.71	0.000022	0.67	4315.58	2042.41	0.04
raymondville	reach 2	119237.*	1714.00	18.38	30.04	21.88	30.04	0.000013	0.57	7609.95	3044.32	0.03
raymondville	reach 2	119237.*	5186.00	18.38	33.44	26.61	33.45	0.000008	0.54	19002.23	4051.84	0.03
raymondville	reach 2	118622.*	694.00	18.34	26.77	20.31	26.78	0.000082	1.01	1328.73	912.12	0.07
raymondville	reach 2	118622.*	1202.00	18.34	28.70	21.14	26.70	0.000021	0.69	4219.24	1988.28	0.04
raymondville	reach 2	118622.*	1714.00	18.34	30.04	21.84	30.04	0.000014	0.60	7639.77	3307.63	0.03
raymondville	reach 2	118622.*	5186.00	18.34	33.44	26.55	33.44	0.000007	0.54	21248.01	5411.20	0.03
raymondville	reach 2	118407	694.00	18.30	26.75	20.27	26.76	0.000053	0.97	1434.90	947.71	0.06
raymondville	reach 2	118407	1202.00	18.30	28.70	21.10	26.70	0.000018	0.67	4890.90	2272.52	0.04
raymondville	reach 2	118407	1714.00	18.30	30.04	21.80	30.04	0.000012	0.59	8498.09	3894.09	0.03
raymondville	reach 2	118407	5186.00	18.30	33.44	26.55	33.44	0.000006	0.51	24573.67	6000.00	0.02
raymondville	reach 2	118184.*	694.00	18.28	26.74		26.75	0.000054	0.96	1413.67	949.44	0.06
raymondville	reach 2	118184.*	1202.00	18.28	28.69		26.69	0.000018	0.66	4686.44	2288.20	0.04
raymondville	reach 2	118184.*	1714.00	18.28	30.04		30.04	0.000010	0.53	8481.96	3253.08	0.03
raymondville	reach 2	118184.*	5186.00	18.28	33.44		33.44	0.000008	0.52	23178.87	5207.81	0.02
raymondville	reach 2	117962.*	694.00	18.25	26.72		26.73	0.000056	0.95	1390.29	954.18	0.07
raymondville	reach 2	117962.*	1202.00	18.25	28.69		26.69	0.000018	0.65	4683.77	2296.94	0.04
raymondville	reach 2	117962.*	1714.00	18.25	30.03		30.04	0.000010	0.52	8485.07	3243.68	0.03
raymondville	reach 2	117962.*	5186.00	18.25	33.44		33.44	0.000006	0.52	22602.20	4723.37	0.02
raymondville	reach 2	117739.*	694.00	18.23	26.71		26.72	0.000059	0.95	1363.06	965.34	0.07
raymondville	reach 2	117739.*	1202.00	18.23	28.68		26.69	0.000019	0.65	4680.93	2378.69	0.04
raymondville	reach 2	117739.*	1714.00	18.23	30.03		30.03	0.000010	0.51	8487.62	3223.63	0.03
raymondville	reach 2	117739.*	5186.00	18.23	33.44		33.44	0.000006	0.50	22346.72	4389.12	0.02
raymondville	reach 2	117517.*	694.00	18.20	26.69		26.70	0.000063	0.95	1335.27	976.91	0.07
raymondville	reach 2	117517.*	1202.00	18.20	28.68		26.68	0.000019	0.63	4696.92	2366.75	0.04
raymondville	reach 2	117517.*	1714.00	18.20	30.03		30.03	0.000010	0.50	8495.90	3204.44	0.03
raymondville	reach 2	117517.*	5186.00	18.20	33.44		33.44	0.000006	0.50	22177.51	4315.03	0.02
raymondville	reach 2	117295	694.00	18.18	26.68		26.69	0.000068	0.95	1305.13	996.54	0.07
raymondville	reach 2	117295	1202.00	18.18	28.68		26.68	0.000019	0.61	4719.97	2384.00	0.04
raymondville	reach 2	117295	1714.00	18.18	30.03		30.03	0.000010	0.49	8507.51	3177.54	0.03
raymondville	reach 2	117295	5186.00	18.18	33.43		33.44	0.000006	0.50	22019.46	4288.40	0.02
raymondville	reach 2	114850	694.00	17.93	26.44		26.47	0.000120	1.38	502.29	76.04	0.09
raymondville	reach 2	114850	1202.00	17.93	28.52		28.57	0.000160	1.60	669.12	84.38	0.11
raymondville	reach 2	114850	1714.00	17.93	29.88		29.96	0.000208	2.18	787.81	89.81	0.13
raymondville	reach 2	114850	5186.00	17.93	33.37		33.38	0.000160	1.78	7855.95	4047.34	0.06

HEC-DAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	114401.*	694.00	17.88	26.39		26.41	0.000120	1.35	512.50	80.86	0.09
raymondville	reach 2	114401.*	1202.00	17.88	28.45		28.50	0.000158	1.74	690.45	91.41	0.11
raymondville	reach 2	114401.*	1714.00	17.88	29.80		29.87	0.000201	2.09	818.21	98.22	0.13
raymondville	reach 2	114401.*	5186.00	17.88	33.35		33.36	0.000047	1.25	11203.45	4688.29	0.07
raymondville	reach 2	113953.*	694.00	17.84	26.33		26.36	0.000125	1.33	519.89	86.55	0.10
raymondville	reach 2	113953.*	1202.00	17.84	28.38		28.43	0.000181	1.69	712.00	100.63	0.11
raymondville	reach 2	113953.*	1714.00	17.84	29.72		29.78	0.000196	1.99	966.89	875.67	0.13
raymondville	reach 2	113953.*	5186.00	17.84	33.35		33.35	0.000024	0.90	14653.80	4785.25	0.05
raymondville	reach 2	113504.*	694.00	17.79	26.28		26.30	0.000134	1.32	526.29	94.41	0.10
raymondville	reach 2	113504.*	1202.00	17.79	28.31		28.35	0.000160	1.61	819.13	403.59	0.11
raymondville	reach 2	113504.*	1714.00	17.79	29.69		29.71	0.000088	1.35	284.50	2359.52	0.08
raymondville	reach 2	113504.*	5186.00	17.79	33.34		33.34	0.000013	0.88	17864.04	4704.85	0.04
raymondville	reach 2	113056.*	694.00	17.75	26.22		26.25	0.000154	1.30	533.79	109.31	0.10
raymondville	reach 2	113056.*	1202.00	17.75	28.29		28.30	0.000074	1.10	2191.91	1634.02	0.08
raymondville	reach 2	113056.*	1714.00	17.75	29.68		29.68	0.000031	0.80	5412.76	3116.37	0.05
raymondville	reach 2	113056.*	5186.00	17.75	33.33		33.34	0.000008	0.54	20772.36	4581.13	0.03
raymondville	reach 2	112608	694.00	17.70	26.17		26.19	0.000121	1.10	982.54	1100.63	0.09
raymondville	reach 2	112608	1202.00	17.70	28.27		28.28	0.000025	0.64	4214.67	2283.44	0.04
raymondville	reach 2	112608	1714.00	17.70	29.67		29.67	0.000011	0.49	8060.96	3151.26	0.03
raymondville	reach 2	112608	5186.00	17.70	33.33		33.33	0.000006	0.44	23384.56	4438.33	0.02
raymondville	reach 2	112513.*	694.00	17.69	26.16		26.18	0.000149	1.29	539.52	109.67	0.10
raymondville	reach 2	112513.*	1202.00	17.69	28.26		28.27	0.000057	0.99	2568.93	1750.36	0.07
raymondville	reach 2	112513.*	1714.00	17.69	29.66		29.66	0.000023	0.71	6173.86	3239.11	0.04
raymondville	reach 2	112513.*	5186.00	17.69	33.32		33.32	0.000007	0.50	22324.48	4775.19	0.03
raymondville	reach 2	112419.*	694.00	17.69	26.14		26.17	0.000131	1.31	528.37	93.70	0.10
raymondville	reach 2	112419.*	1202.00	17.69	28.22		28.26	0.000134	1.53	1123.40	1200.88	0.10
raymondville	reach 2	112419.*	1714.00	17.69	29.64		29.65	0.000056	1.12	4113.33	3298.60	0.07
raymondville	reach 2	112419.*	5186.00	17.69	33.31		33.32	0.000009	0.57	21623.92	5453.20	0.03
raymondville	reach 2	112324.*	694.00	17.68	26.13		26.16	0.000123	1.35	515.53	83.71	0.10
raymondville	reach 2	112324.*	1202.00	17.68	28.20		28.25	0.000158	1.71	701.60	95.47	0.11
raymondville	reach 2	112324.*	1714.00	17.68	29.59		29.64	0.000146	1.81	1852.95	2725.36	0.11
raymondville	reach 2	112324.*	5186.00	17.68	33.31		33.31	0.000010	0.62	21106.86	5726.60	0.03
raymondville	reach 2	112230	694.00	17.67	26.11		26.14	0.000123	1.40	497.19	75.77	0.10
raymondville	reach 2	112230	1202.00	17.67	28.18		28.23	0.000164	1.81	662.50	84.05	0.11
raymondville	reach 2	112230	1714.00	17.67	29.54		29.62	0.000211	2.20	780.53	89.49	0.13
raymondville	reach 2	112230	5186.00	17.67	33.30		33.30	0.000012	0.66	20628.71	6000.00	0.03
raymondville	reach 2	110608	694.00	17.50	25.92		25.95	0.000124	1.40	495.28	75.67	0.10
raymondville	reach 2	110608	1202.00	17.50	27.92		27.97	0.000170	1.64	654.62	83.67	0.12
raymondville	reach 2	110608	1714.00	17.50	29.20		29.27	0.000223	2.24	764.79	88.76	0.13
raymondville	reach 2	110608	5186.00	17.50	33.28		33.28	0.000012	0.66	20526.83	6000.00	0.03
raymondville	reach 3 (south)	144530	201.00	21.30	32.27		32.27	0.000004	0.29	701.56	85.89	0.02
raymondville	reach 3 (south)	144530	343.00	21.30	34.49		34.49	0.000006	0.38	901.83	94.76	0.02
raymondville	reach 3 (south)	144530	528.00	21.30	36.55		36.56	0.000002	0.23	6501.58	3516.52	0.01
raymondville	reach 3 (south)	144630	1148.00	21.30	39.17		39.17	0.000001	0.17	15713.97	3516.52	0.01
raymondville	reach 3 (south)	144230	201.00	21.30	32.27		32.27	0.000004	0.29	701.45	85.88	0.02
raymondville	reach 3 (south)	144230	343.00	21.30	34.49		34.49	0.000006	0.38	901.67	94.75	0.02
raymondville	reach 3 (south)	144230	528.00	21.30	36.55		36.55	0.000002	0.23	6499.88	3516.52	0.01
raymondville	reach 3 (south)	144230	1148.00	21.30	39.17		39.17	0.000001	0.17	15713.25	3516.52	0.01
raymondville	reach 3 (south)	144030	201.00	26.10	32.22	27.56	32.27	0.000175	1.64	122.40	44.49	0.12
raymondville	reach 3 (south)	144030	343.00	26.10	34.41	28.19	34.48	0.000184	2.06	166.21	53.25	0.13
raymondville	reach 3 (south)	144030	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.78	61.37	0.14
raymondville	reach 3 (south)	144030	1148.00	26.10	39.11	30.77	39.17	0.000171	1.90	880.45	2554.83	0.12
raymondville	reach 3 (south)	144020	201.00	26.10	32.22	27.56	32.26	0.000175	1.64	122.40	44.49	0.12
raymondville	reach 3 (south)	144020	343.00	26.10	34.41	28.19	34.48	0.000184	2.06	166.17	53.25	0.13
raymondville	reach 3 (south)	144020	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.74	61.36	0.14
raymondville	reach 3 (south)	144020	1148.00	26.10	39.11	30.78	39.17	0.000171	1.90	876.60	2554.83	0.12
raymondville	reach 3 (south)	144005	Culvert									
raymondville	reach 3 (south)	143990	201.00	26.10	31.93	27.56	31.98	0.000206	1.72	116.57	43.33	0.13
raymondville	reach 3 (south)	143990	343.00	26.10	33.74	28.19	33.82	0.000244	2.24	152.81	50.57	0.14
raymondville	reach 3 (south)	143990	528.00	26.10	34.80	28.88	34.94	0.000375	3.04	173.95	54.80	0.18
raymondville	reach 3 (south)	143990	1148.00	26.10	35.85	30.78	36.39	0.001211	5.89	194.99	59.01	0.33
raymondville	reach 3 (south)	143980	201.00	26.10	31.94		31.96	0.000134	1.09	185.18	43.38	0.09
raymondville	reach 3 (south)	143980	343.00	26.10	33.77		33.79	0.000136	1.27	270.97	50.67	0.10
raymondville	reach 3 (south)	143980	528.00	26.10	34.85		34.89	0.000191	1.61	328.10	55.00	0.12
raymondville	reach 3 (south)	143980	1148.00	26.10	36.05		36.18	0.000537	2.89	396.95	59.80	0.20





HFC-DAS Plan R 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	121829	1148.00	23.01	35.20		35.21	0.000053	1.06	6309.06	6500.00	0.06
raymondville	reach 3 (south)	120128	201.00	22.81	28.26		28.28	0.000174	1.19	168.50	41.81	0.10
raymondville	reach 3 (south)	120128	343.00	22.81	30.00		30.03	0.000175	1.39	247.19	48.76	0.11
raymondville	reach 3 (south)	120128	528.00	22.81	31.55		31.59	0.000192	1.61	327.63	54.96	0.12
raymondville	reach 3 (south)	120128	1148.00	22.81	35.12		35.13	0.000061	1.14	5753.77	6500.00	0.07
raymondville	reach 3 (south)	120078	201.00	22.80	28.25		28.28	0.000174	1.19	168.55	41.81	0.10
raymondville	reach 3 (south)	120078	343.00	22.80	29.99		30.02	0.000175	1.39	247.25	48.76	0.11
raymondville	reach 3 (south)	120078	528.00	22.80	31.54		31.58	0.000192	1.61	327.65	54.97	0.12
raymondville	reach 3 (south)	120078	1148.00	22.80	35.11		35.12	0.000061	1.14	5732.16	6500.00	0.07
raymondville	reach 3 (south)	118101	201.00	22.55	27.89		27.92	0.000188	1.23	163.99	41.38	0.11
raymondville	reach 3 (south)	118101	343.00	22.55	29.63		29.68	0.000186	1.42	241.95	48.33	0.11
raymondville	reach 3 (south)	118101	528.00	22.55	31.15		31.19	0.000205	1.65	319.70	54.36	0.12
raymondville	reach 3 (south)	118101	1148.00	22.55	34.97		34.99	0.000078	1.29	4824.11	6380.65	0.08
raymondville	reach 3 (south)	118051	201.00	22.54	27.88		27.91	0.000188	1.23	164.01	41.38	0.11
raymondville	reach 3 (south)	118051	343.00	22.54	29.62		29.65	0.000186	1.42	241.98	48.33	0.11
raymondville	reach 3 (south)	118051	528.00	22.54	31.14		31.18	0.000205	1.65	319.68	54.38	0.12
raymondville	reach 3 (south)	118051	1148.00	22.54	34.97		34.98	0.000078	1.29	4799.06	6364.95	0.08
raymondville	reach 3 (south)	116902	201.00	22.39	27.66		27.69	0.000198	1.25	161.04	41.09	0.11
raymondville	reach 3 (south)	116902	343.00	22.39	29.40		29.44	0.000193	1.44	238.66	48.06	0.11
raymondville	reach 3 (south)	116902	528.00	22.39	30.89		30.94	0.000214	1.68	314.68	54.01	0.12
raymondville	reach 3 (south)	116902	1148.00	22.39	34.86		34.88	0.000091	1.39	4182.47	5963.98	0.08
raymondville	reach 3 (south)	114860	201.00	22.13	27.23		27.25	0.000225	1.31	153.86	40.38	0.12
raymondville	reach 3 (south)	114860	343.00	22.13	28.99		29.03	0.000210	1.48	231.56	47.46	0.12
raymondville	reach 3 (south)	114860	528.00	22.13	30.43		30.48	0.000236	1.74	303.74	53.20	0.13
raymondville	reach 3 (south)	114860	1148.00	22.13	34.62		34.66	0.000138	1.70	2101.85	2554.83	0.10
raymondville	reach 3 (south)	113007	201.00	21.88	26.77		26.80	0.000261	1.38	145.82	39.58	0.13
raymondville	reach 3 (south)	113007	343.00	21.88	28.59		28.62	0.000230	1.53	224.05	46.82	0.12
raymondville	reach 3 (south)	113007	528.00	21.88	29.97		30.02	0.000262	1.61	292.45	52.34	0.13
raymondville	reach 3 (south)	113007	1148.00	21.88	34.27		34.34	0.000217	2.07	554.68	69.56	0.13
raymondville	reach 3 (south)	112058	201.00	21.76	26.51		26.54	0.000292	1.43	140.17	39.00	0.13
raymondville	reach 3 (south)	112058	343.00	21.76	28.36		28.40	0.000244	1.57	219.09	46.40	0.13
raymondville	reach 3 (south)	112058	528.00	21.76	29.71		29.76	0.000280	1.85	285.18	51.78	0.14
raymondville	reach 3 (south)	112058	1148.00	21.76	34.06		34.13	0.000223	2.09	548.62	69.20	0.13
raymondville	reach 3 (south)	112008	201.00	21.75	26.50		26.53	0.000293	1.44	139.96	38.98	0.13
raymondville	reach 3 (south)	112008	343.00	21.75	28.35		28.39	0.000245	1.57	218.98	46.39	0.13
raymondville	reach 3 (south)	112008	528.00	21.75	28.69		28.74	0.000281	1.85	284.95	51.76	0.14
raymondville	reach 3 (south)	112008	1148.00	21.75	34.05		34.12	0.000224	2.09	546.53	69.20	0.13
raymondville	reach 3 (south)	110270	201.00	21.53	25.90		25.94	0.000398	1.60	125.53	37.47	0.15
raymondville	reach 3 (south)	110270	343.00	21.53	27.89		27.93	0.000283	1.65	207.92	45.42	0.14
raymondville	reach 3 (south)	110270	528.00	21.53	29.16		29.22	0.000330	1.96	268.83	50.50	0.15
raymondville	reach 3 (south)	110270	1148.00	21.53	33.64		33.72	0.000236	2.14	535.82	68.46	0.13
raymondville	reach 1	109185	827.00	17.51	25.72		25.76	0.000139	1.47	560.71	86.90	0.10
raymondville	reach 1	109185	1346.00	17.51	27.67		27.73	0.000167	1.82	737.95	94.71	0.12
raymondville	reach 1	109185	1918.00	17.51	28.87		28.95	0.000223	2.25	854.20	99.50	0.14
raymondville	reach 1	109185	5312.00	17.51	32.94		33.20	0.000533	4.11	1292.25	115.78	0.22
raymondville	reach 1	109050	827.00	17.49	25.70		25.74	0.000139	1.47	560.82	86.91	0.10
raymondville	reach 1	109050	1346.00	17.49	27.65		27.70	0.000167	1.82	737.71	94.70	0.12
raymondville	reach 1	109050	1918.00	17.49	28.84		28.92	0.000224	2.25	853.17	99.46	0.14
raymondville	reach 1	109050	5312.00	17.49	32.87		33.13	0.000540	4.13	1285.85	115.55	0.22
raymondville	reach 1	108145	827.00	17.35	25.65		25.68	0.000134	1.46	568.18	87.24	0.10
raymondville	reach 1	108145	1346.00	17.35	27.58		27.64	0.000162	1.81	744.58	94.99	0.11
raymondville	reach 1	108145	1918.00	17.35	28.75		28.83	0.000220	2.24	857.91	99.65	0.13
raymondville	reach 1	108145	5312.00	17.35	32.63		32.90	0.000553	4.17	1275.27	115.19	0.22
raymondville	reach 1	107740	827.00	17.35	25.59		25.63	0.000137	1.47	563.34	87.02	0.10
raymondville	reach 1	107740	1346.00	17.35	27.52		27.57	0.000167	1.82	738.16	94.72	0.12
raymondville	reach 1	107740	1918.00	17.35	28.66		28.74	0.000227	2.25	848.71	99.28	0.14
raymondville	reach 1	107740	5312.00	17.35	32.39		32.67	0.000588	4.26	1247.25	114.21	0.23
raymondville	reach 1	106578	827.00	17.16	25.43	19.35	25.47	0.000135	1.46	566.12	87.15	0.10
raymondville	reach 1	106578	1346.00	17.16	27.32	20.03	27.37	0.000167	1.82	737.81	94.70	0.12
raymondville	reach 1	106578	1918.00	17.16	28.39	20.69	28.47	0.000233	2.28	840.94	98.96	0.14
raymondville	reach 1	106578	5312.00	17.16	31.62	23.57	31.93	0.000684	4.50	1181.59	111.89	0.24
raymondville	reach 1	106370	827.00	17.13	25.40	19.31	25.43	0.000133	1.44	573.54	89.25	0.10
raymondville	reach 1	106370	1346.00	17.13	27.29	20.00	27.34	0.000163	1.79	750.07	97.35	0.11
raymondville	reach 1	106370	1918.00	17.13	28.34	20.65	28.42	0.000228	2.24	854.85	101.66	0.14
raymondville	reach 1	106370	5312.00	17.13	31.48	23.54	31.79	0.000679	4.44	1195.99	115.32	0.24
raymondville	reach 1	105922	827.00	17.06	25.34	19.25	25.37	0.000133	1.45	572.29	88.73	0.10

HEC-RAS Plan P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	105922.*	1346.00	17.06	27.21	19.93	27.27	0.000164	1.80	748.19	96.63	0.11
raymondville	reach 1	105922.*	1918.00	17.06	28.23	20.58	28.31	0.000233	2.27	846.55	100.91	0.14
raymondville	reach 1	105922.*	5312.00	17.06	31.14	23.47	31.47	0.000746	4.56	1159.24	114.55	0.25
raymondville	reach 1	105474.*	827.00	16.99	25.28	19.18	25.31	0.000133	1.45	571.18	88.23	0.10
raymondville	reach 1	105474.*	1346.00	16.99	27.14	19.87	27.19	0.000166	1.81	742.50	95.93	0.11
raymondville	reach 1	105474.*	1918.00	16.99	28.12	20.51	28.20	0.000238	2.29	838.53	99.99	0.14
raymondville	reach 1	105474.*	5312.00	16.99	30.77	23.41	31.12	0.000823	4.75	1118.17	112.65	0.27
raymondville	reach 1	105028.*	827.00	16.91	25.22	19.09	25.25	0.000133	1.45	570.89	87.78	0.10
raymondville	reach 1	105028.*	1346.00	16.91	27.06	19.78	27.12	0.000166	1.82	739.73	95.28	0.12
raymondville	reach 1	105028.*	1918.00	16.91	28.01	20.44	28.09	0.000242	2.31	831.54	99.12	0.14
raymondville	reach 1	105028.*	5312.00	16.91	30.35	23.33	30.73	0.000898	4.94	1074.61	108.64	0.28
raymondville	reach 1	104578	827.00	16.84	25.16	19.02	25.19	0.000133	1.45	570.04	87.33	0.10
raymondville	reach 1	104578	1346.00	16.84	26.99	19.72	27.04	0.000168	1.83	738.43	94.64	0.12
raymondville	reach 1	104578	1918.00	16.84	27.90	20.37	27.98	0.000247	2.33	824.10	98.28	0.14
raymondville	reach 1	104578	5312.00	16.84	29.86	23.26	30.30	0.001015	5.17	1026.96	106.22	0.29
raymondville	reach 1	102128	827.00	16.43	24.64		24.87	0.000127	1.43	578.13	87.70	0.10
raymondville	reach 1	102128	1346.00	16.43	26.68		26.70	0.000109	1.31	1751.96	1078.38	0.09
raymondville	reach 1	102128	1918.00	16.43	27.81		27.83	0.000086	1.28	2884.02	1361.46	0.08
raymondville	reach 1	102128	5312.00	16.43	29.47		29.49	0.000129	1.82	7340.68	3365.50	0.11
raymondville	reach 1	100615	827.00	16.19	24.67	18.36	24.70	0.000108	1.28	644.35	103.43	0.09
raymondville	reach 1	100615	1346.00	16.19	26.54	19.04	26.56	0.000085	1.34	1674.24	991.38	0.08
raymondville	reach 1	100615	1918.00	16.19	27.48	19.88	27.50	0.000077	1.38	2936.25	1657.85	0.08
raymondville	reach 1	100615	5312.00	16.19	29.29	22.42	29.31	0.000105	1.82	7852.34	3463.28	0.10
raymondville	reach 1	100117	827.00	16.10	24.61	18.28	24.64	0.000122	1.41	586.42	88.06	0.10
raymondville	reach 1	100117	1346.00	16.10	26.48	18.97	26.51	0.000122	1.39	1517.40	882.59	0.10
raymondville	reach 1	100117	1918.00	16.10	27.43	19.63	27.45	0.000106	1.42	2488.21	1237.31	0.09
raymondville	reach 1	100117	5312.00	16.10	29.22	22.53	29.25	0.000165	2.05	6974.73	4312.94	0.12
raymondville	reach 1	98117	827.00	15.78	24.38		24.41	0.000117	1.39	594.44	88.44	0.09
raymondville	reach 1	98117	1346.00	15.78	26.36		26.37	0.000043	0.83	4188.95	3514.62	0.06
raymondville	reach 1	98117	1918.00	15.78	27.37		27.37	0.000018	0.59	8051.94	4385.51	0.04
raymondville	reach 1	98117	5312.00	15.78	29.16		29.17	0.000019	0.70	16979.52	5489.39	0.04
raymondville	reach 1	98117	827.00	15.45	24.15		24.18	0.000112	1.37	603.39	88.84	0.09
raymondville	reach 1	98117	1346.00	15.45	26.19		26.22	0.000148	1.35	1648.21	1964.83	0.10
raymondville	reach 1	98117	1918.00	15.45	27.30		27.31	0.000070	1.05	4370.18	3581.17	0.07
raymondville	reach 1	98117	5312.00	15.45	29.11		29.11	0.000049	1.04	12059.08	5518.12	0.06
raymondville	reach 1	95341	827.00	15.32	24.08		24.10	0.000088	1.16	714.33	115.46	0.08
raymondville	reach 1	95341	1346.00	15.32	26.10		26.12	0.000107	1.30	1360.53	1372.97	0.09
raymondville	reach 1	95341	1918.00	15.32	27.24		27.25	0.000078	1.22	3446.18	3254.44	0.08
raymondville	reach 1	95341	5312.00	15.32	29.06		29.07	0.000060	1.26	11381.96	5641.49	0.07
raymondville	reach 1	94117	827.00	15.12	23.95		23.98	0.000106	1.34	615.23	89.37	0.09
raymondville	reach 1	94117	1346.00	15.12	25.93		25.97	0.000150	1.54	1071.56	478.67	0.11
raymondville	reach 1	94117	1918.00	15.12	27.11		27.14	0.000123	1.56	2401.23	2023.47	0.10
raymondville	reach 1	94117	5312.00	15.12	28.95		28.97	0.000120	1.78	7861.64	3658.03	0.10
raymondville	reach 1	92117	827.00	14.79	23.75	16.97	23.78	0.000101	1.32	626.82	89.89	0.09
raymondville	reach 1	92117	1346.00	14.79	25.80	17.66	25.84	0.000172	1.62	897.28	318.33	0.11
raymondville	reach 1	92117	1918.00	14.79	26.81	18.32	26.85	0.000180	1.75	1518.30	870.45	0.11
raymondville	reach 1	92117	5312.00	14.79	28.49	21.22	28.58	0.000342	2.99	3851.74	2097.59	0.17
raymondville	reach 1	90057	827.00	14.45	23.55		23.58	0.000095	1.29	639.38	90.45	0.09
raymondville	reach 1	90057	1346.00	14.45	25.23		25.27	0.000189	1.66	870.97	439.18	0.12
raymondville	reach 1	90057	1918.00	14.45	26.51		26.55	0.000136	1.60	2291.48	2069.12	0.10
raymondville	reach 1	90057	5312.00	14.45	28.11		28.13	0.000140	1.85	7994.44	4843.90	0.11
raymondville	reach 1	90018	827.00	14.45	23.55		23.57	0.000085	1.29	639.04	90.43	0.09
raymondville	reach 1	90018	1346.00	14.45	25.22		25.27	0.000189	1.66	867.87	437.70	0.12
raymondville	reach 1	90018	1918.00	14.45	26.51		26.54	0.000137	1.61	2277.87	2067.17	0.10
raymondville	reach 1	90018	5312.00	14.45	28.10		28.13	0.000141	1.86	7964.90	4843.31	0.11
raymondville	reach 1	88117	827.00	14.14	23.37		23.40	0.000090	1.27	651.25	90.97	0.08
raymondville	reach 1	88117	1346.00	14.14	24.92		24.97	0.000134	1.69	797.13	97.18	0.10
raymondville	reach 1	88117	1918.00	14.14	26.22		26.26	0.000158	1.69	2445.44	4245.21	0.11
raymondville	reach 1	88117	5312.00	14.14	27.93		27.94	0.000074	1.34	10945.49	5609.53	0.08
raymondville	reach 1	88117	1371.00	13.81	23.01		23.08	0.000251	2.11	648.42	90.85	0.14
raymondville	reach 1	88117	2190.00	13.81	24.36		24.48	0.000384	2.83	774.74	96.25	0.18
raymondville	reach 1	88117	3160.00	13.81	25.72	18.53	25.78	0.000330	2.39	3132.94	3309.31	0.16
raymondville	reach 1	88117	7333.00	13.81	27.78		27.79	0.000078	1.39	13895.05	6000.00	0.08
raymondville	reach 1	84790	1371.00	13.59	22.67		22.74	0.000280	2.13	643.29	91.74	0.14
raymondville	reach 1	84790	2190.00	13.59	23.82		23.95	0.000425	2.92	751.24	96.51	0.18
raymondville	reach 1	84790	3160.00	13.59	24.98		25.19	0.000589	3.65	866.83	101.37	0.22
raymondville	reach 1	84790	7333.00	13.59	26.67	21.34	27.42	0.001838	6.99	1214.10	2112.74	0.40

HFC-PAS Plan: P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cht
raymondville	reach 1	84693.8*	1371.00	13.57	22.64		22.71	0.000265	2.13	645.06	93.83	0.14
raymondville	reach 1	84693.8*	2190.00	13.57	23.77		23.90	0.000435	2.90	753.95	99.37	0.19
raymondville	reach 1	84693.8*	3160.00	13.57	24.92		25.13	0.000602	3.62	871.79	105.04	0.22
raymondville	reach 1	84693.8*	7333.00	13.57	26.50	21.33	27.24	0.001866	6.93	1362.03	2828.56	0.40
raymondville	reach 1	84597.7*	1371.00	13.56	22.62		22.69	0.000272	2.13	643.45	95.20	0.14
raymondville	reach 1	84597.7*	2190.00	13.56	23.72		23.86	0.000450	2.91	752.54	101.81	0.19
raymondville	reach 1	84597.7*	3160.00	13.56	24.86		25.06	0.000627	3.63	871.54	108.57	0.23
raymondville	reach 1	84597.7*	7333.00	13.56	26.33	21.32	27.05	0.001945	6.87	1560.22	3518.05	0.40
raymondville	reach 1	84501.5*	1371.00	13.54	22.59		22.66	0.000277	2.14	640.05	95.17	0.15
raymondville	reach 1	84501.5*	2190.00	13.54	23.68		23.81	0.000469	2.93	748.04	103.39	0.19
raymondville	reach 1	84501.5*	3160.00	13.54	24.79		24.99	0.000661	3.64	867.41	111.78	0.23
raymondville	reach 1	84501.5*	7333.00	13.54	26.20	21.29	26.64	0.001913	6.64	1989.91	4307.82	0.40
raymondville	reach 1	84405.4*	1371.00	13.53	22.56		22.64	0.000273	2.16	635.66	92.49	0.14
raymondville	reach 1	84405.4*	2190.00	13.53	23.63		23.77	0.000486	2.96	740.28	103.41	0.19
raymondville	reach 1	84405.4*	3160.00	13.53	24.71		24.92	0.000708	3.68	857.90	114.45	0.24
raymondville	reach 1	84405.4*	7333.00	13.53	26.19		26.62	0.001527	5.82	2936.28	4335.64	0.35
raymondville	reach 1	84309.2*	1371.00	13.51	22.54		22.61	0.000288	2.16	634.06	90.47	0.14
raymondville	reach 1	84309.2*	2190.00	13.51	23.59		23.73	0.000481	2.99	732.07	99.37	0.19
raymondville	reach 1	84309.2*	3160.00	13.51	24.64		24.85	0.000756	3.74	844.98	115.68	0.24
raymondville	reach 1	84309.2*	7333.00	13.51	26.17		26.44	0.001149	4.95	3686.62	4353.23	0.31
raymondville	reach 1	84218.1*	1371.00	13.50	22.51		22.58	0.000270	2.17	632.07	90.27	0.14
raymondville	reach 1	84218.1*	2190.00	13.50	23.54		23.68	0.000461	3.01	727.04	94.40	0.19
raymondville	reach 1	84218.1*	3160.00	13.50	24.58		24.79	0.000771	3.81	828.51	111.51	0.25
raymondville	reach 1	84218.1*	7333.00	13.50	26.13		26.32	0.000955	4.40	4758.88	5532.88	0.28
raymondville	reach 1	84117	1371.00	13.48	22.49		22.56	0.000272	2.17	630.84	90.07	0.14
raymondville	reach 1	84117	2190.00	13.48	23.49		23.64	0.000467	3.03	723.75	94.11	0.19
raymondville	reach 1	84117	3160.00	13.48	24.48		24.72	0.000682	3.66	818.93	98.07	0.24
raymondville	reach 1	84117	7333.00	13.48	26.10		26.21	0.000721	3.72	5786.26	6000.00	0.24
raymondville	reach 1	83817.*	1371.00	13.40	22.34		22.42	0.000281	2.19	624.64	90.45	0.15
raymondville	reach 1	83817.*	2190.00	13.40	23.25		23.39	0.000503	3.09	708.23	94.57	0.20
raymondville	reach 1	83817.*	3160.00	13.40	24.05		24.29	0.001067	3.94	871.46	547.22	0.28
raymondville	reach 1	83817.*	7333.00	13.40	25.71		25.84	0.000739	3.85	5219.88	4432.85	0.24
raymondville	reach 1	83117.*	1371.00	13.31	22.19		22.26	0.000294	2.21	619.80	91.87	0.15
raymondville	reach 1	83117.*	2190.00	13.31	22.96		23.10	0.000715	3.05	789.06	427.48	0.23
raymondville	reach 1	83117.*	3160.00	13.31	23.58		23.79	0.000928	3.74	1173.50	891.93	0.26
raymondville	reach 1	83117.*	7333.00	13.31	25.31		25.46	0.000794	4.07	4709.03	4407.34	0.26
raymondville	reach 1	82617.*	1371.00	13.23	22.04		22.10	0.000354	2.07	792.45	508.81	0.16
raymondville	reach 1	82617.*	2190.00	13.23	22.70		22.79	0.000499	2.96	1173.24	650.20	0.19
raymondville	reach 1	82617.*	3160.00	13.23	23.26		23.39	0.000828	3.17	1690.93	1088.69	0.22
raymondville	reach 1	82617.*	7333.00	13.23	25.00		25.10	0.000585	3.58	4636.53	2287.35	0.22
raymondville	reach 1	82117	1371.00	13.15	21.93		21.96	0.000196	1.63	1271.31	646.58	0.12
raymondville	reach 1	82117	2190.00	13.15	22.54		22.59	0.000293	2.13	1807.16	1064.24	0.15
raymondville	reach 1	82117	3160.00	13.15	23.05		23.12	0.000384	2.57	2380.79	1339.50	0.17
raymondville	reach 1	82117	7333.00	13.15	24.79		24.85	0.000394	3.03	5435.76	2276.10	0.18
raymondville	reach 1	80117	1371.00	12.82	21.70		21.71	0.000084	0.98	3365.99	3096.26	0.08
raymondville	reach 1	80117	2190.00	12.82	22.31		22.32	0.000074	0.99	5527.51	4007.71	0.07
raymondville	reach 1	80117	3160.00	12.82	22.84		22.85	0.000063	0.97	7686.39	4112.94	0.07
raymondville	reach 1	80117	7333.00	12.82	24.64		24.64	0.000042	0.94	17158.06	5895.97	0.06
raymondville	reach 1	79415	1371.00	12.71	21.53		21.61	0.000293	2.23	614.31	89.33	0.15
raymondville	reach 1	79415	2190.00	12.71	22.01		22.19	0.000614	3.33	657.85	91.26	0.22
raymondville	reach 1	79415	3160.00	12.71	22.38		22.70	0.001107	4.57	691.51	92.73	0.29
raymondville	reach 1	79415	7333.00	12.71	22.85	20.47	24.39	0.004992	9.97	735.68	94.61	0.63
raymondville	reach 1	78117	1371.00	12.50	21.38		21.39	0.000095	1.11	3421.08	4035.32	0.08
raymondville	reach 1	78117	2190.00	12.50	21.91		21.92	0.000074	1.04	5602.83	4088.24	0.07
raymondville	reach 1	78117	3160.00	12.50	22.36		22.37	0.000072	1.08	7632.74	4624.51	0.07
raymondville	reach 1	78117	7333.00	12.50	23.62		23.63	0.000073	1.23	14202.40	5831.50	0.08
raymondville	reach 1	76117	1371.00	12.17	21.26		21.26	0.000048	0.80	4666.25	4195.57	0.06
raymondville	reach 1	76117	2190.00	12.17	21.82		21.82	0.000041	0.79	7016.77	4250.18	0.06
raymondville	reach 1	76117	3160.00	12.17	22.26		22.27	0.000044	0.85	9026.07	4687.83	0.06
raymondville	reach 1	76117	7333.00	12.17	23.50		23.51	0.000056	1.07	15524.59	6000.00	0.07
raymondville	reach 1	74240	1371.00	11.86	21.17		21.17	0.000048	0.80	4477.30	4231.70	0.06
raymondville	reach 1	74240	2190.00	11.86	21.74		21.74	0.000041	0.79	6904.91	4301.82	0.06
raymondville	reach 1	74240	3160.00	11.86	22.18		22.18	0.000045	0.86	8899.53	4853.72	0.06
raymondville	reach 1	74240	7333.00	11.86	23.40		23.40	0.000056	1.06	15310.79	6000.00	0.07
raymondville	reach 1	74117	1371.00	11.84	21.16		21.17	0.000048	0.80	4453.67	4230.96	0.06
raymondville	reach 1	74117	2190.00	11.84	21.73		21.74	0.000041	0.80	6864.57	4301.17	0.06



HEC-DAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	74117	3160.00	11.84	22.17		22.18	0.000045	0.87	8874.34	4853.03	0.06
raymondville	reach 1	74117	7333.00	11.84	23.39		23.40	0.000057	1.09	15270.59	6000.00	0.07
raymondville	reach 1	71592	1371.00	11.42	21.07		21.07	0.000050	0.83	4466.29	4150.90	0.06
raymondville	reach 1	71592	2190.00	11.42	21.85		21.86	0.000041	0.80	6922.96	4208.63	0.06
raymondville	reach 1	71592	3160.00	11.42	22.09		22.09	0.000048	0.89	8790.24	4645.15	0.06
raymondville	reach 1	71592	7333.00	11.42	23.28		23.28	0.000062	1.15	14731.73	6000.00	0.07
raymondville	reach 1	69075	1521.00	11.01	20.90		20.91	0.000084	1.09	3589.03	3351.95	0.08
raymondville	reach 1	69075	2332.00	11.01	21.53		21.53	0.000058	0.96	6499.59	4919.41	0.07
raymondville	reach 1	69075	3398.00	11.01	21.95		21.95	0.000059	1.02	8594.35	4972.21	0.07
raymondville	reach 1	69075	8244.00	11.01	23.10		23.11	0.000074	1.26	15457.29	6000.00	0.08
raymondville	reach 1	66802	1521.00	10.64	20.66		20.66	0.000103	1.29	3474.58	4275.02	0.09
raymondville	reach 1	66802	2332.00	10.64	21.39		21.39	0.000065	0.94	6910.42	5141.63	0.06
raymondville	reach 1	66802	3398.00	10.64	21.81		21.82	0.000065	0.98	9096.34	5182.81	0.07
raymondville	reach 1	66802	8244.00	10.64	22.92		22.93	0.000074	1.26	15591.25	6000.00	0.08
raymondville	reach 1	64802	1521.00	10.31	20.35		20.39	0.000207	1.67	2065.32	3883.66	0.12
raymondville	reach 1	64802	2332.00	10.31	21.67		21.26	0.000077	1.12	5952.01	5435.63	0.08
raymondville	reach 1	64802	3398.00	10.31	21.85		21.88	0.000072	1.13	8281.99	5477.12	0.08
raymondville	reach 1	64802	8244.00	10.31	22.75		22.76	0.000091	1.40	14526.00	6000.00	0.09
raymondville	reach 1	62802	1521.00	9.98	19.87		19.95	0.000235	2.13	712.53	93.63	0.14
raymondville	reach 1	62802	2332.00	9.98	21.10		21.11	0.000077	1.13	6242.48	6000.00	0.06
raymondville	reach 1	62802	3398.00	9.98	21.54		21.54	0.000087	1.09	8880.38	6000.00	0.07
raymondville	reach 1	62802	8244.00	9.98	22.57		22.58	0.000083	1.34	15104.05	6000.00	0.06
raymondville	reach 1	61180	1521.00	9.65	19.38		19.45	0.000251	2.18	697.19	92.98	0.14
raymondville	reach 1	61180	2332.00	9.65	20.73		20.82	0.000300	2.57	1620.55	2278.69	0.16
raymondville	reach 1	61180	3398.00	9.65	21.16		21.25	0.000479	2.75	2881.60	3497.14	0.19
raymondville	reach 1	61180	8244.00	9.65	22.21		22.26	0.000418	2.64	8093.00	6000.00	0.18
raymondville	reach 1	61130	1521.00	9.64	19.37		19.44	0.000251	2.18	696.95	92.95	0.14
raymondville	reach 1	61130	2332.00	9.64	20.72		20.81	0.000302	2.58	1603.45	2254.63	0.16
raymondville	reach 1	61130	3398.00	9.64	21.15		21.23	0.000494	2.79	2818.39	3441.80	0.19
raymondville	reach 1	61130	8244.00	9.64	22.18		22.23	0.000441	2.91	7907.46	6000.00	0.19
raymondville	reach 1	60777	1521.00	9.58	19.28		19.35	0.000254	2.19	694.22	92.84	0.14
raymondville	reach 1	60777	2332.00	9.58	20.71		20.73	0.000127	1.42	5036.73	6000.00	0.10
raymondville	reach 1	60777	3398.00	9.58	21.13		21.14	0.000104	1.34	7521.30	6000.00	0.09
raymondville	reach 1	60777	8244.00	9.58	22.13		22.14	0.000116	1.55	13559.97	6000.00	0.10
raymondville	reach 1	58796	1521.00	9.26	18.75		18.83	0.000275	2.25	674.74	92.00	0.15
raymondville	reach 1	58796	2332.00	9.26	20.21		20.30	0.000423	2.51	2067.51	6000.00	0.18
raymondville	reach 1	58796	3398.00	9.26	20.84		20.86	0.000188	1.79	5822.96	6000.00	0.12
raymondville	reach 1	58796	8244.00	9.26	21.85		21.87	0.000188	1.85	11907.01	6000.00	0.12
raymondville	reach 1	56896	1521.00	8.92	18.14		18.22	0.000307	2.34	649.84	90.91	0.15
raymondville	reach 1	56896	2332.00	8.92	19.21		19.38	0.000478	3.11	749.59	95.20	0.20
raymondville	reach 1	56896	3398.00	8.92	19.86	13.85	20.13	0.000807	4.18	812.36	97.80	0.26
raymondville	reach 1	56896	8244.00	8.92	21.26		21.31	0.000450	2.92	8306.02	6000.00	0.19
raymondville	reach 1	56844	1521.00	8.91	18.12		18.20	0.000308	2.34	649.28	90.89	0.15
raymondville	reach 1	56844	2332.00	8.91	19.18		19.33	0.000481	3.12	748.10	95.14	0.20
raymondville	reach 1	56844	3398.00	8.91	19.82		20.10	0.000814	4.20	809.85	97.70	0.26
raymondville	reach 1	56844	8244.00	8.91	21.23		21.29	0.000475	2.99	8132.34	6000.00	0.18
raymondville	reach 1	56166.2*	1521.00	8.83	17.97		18.05	0.000317	2.37	642.85	90.80	0.16
raymondville	reach 1	56166.2*	2332.00	8.83	18.99		19.11	0.000422	2.90	1220.24	1012.00	0.18
raymondville	reach 1	56166.2*	3398.00	8.83	19.62		19.75	0.000505	3.28	1996.71	1343.97	0.20
raymondville	reach 1	56166.2*	8244.00	8.83	21.04		21.08	0.000393	2.70	8572.80	6000.00	0.18
raymondville	reach 1	55688.5*	1521.00	8.75	17.89		17.93	0.000187	1.82	1526.86	996.71	0.12
raymondville	reach 1	55688.5*	2332.00	8.75	19.85		18.98	0.000150	1.74	2779.04	1313.21	0.11
raymondville	reach 1	55688.5*	3398.00	8.75	19.58		19.59	0.000176	1.94	3681.55	2847.80	0.12
raymondville	reach 1	55688.5*	8244.00	8.75	20.90		20.92	0.000261	2.15	9427.83	5581.22	0.14
raymondville	reach 1	55210.7*	1521.00	8.67	17.86		17.87	0.000058	1.02	3033.08	1273.06	0.07
raymondville	reach 1	55210.7*	2332.00	8.67	18.92		18.93	0.000050	1.00	4421.35	1345.95	0.08
raymondville	reach 1	55210.7*	3398.00	8.67	19.53		19.53	0.000066	1.19	5660.42	3307.37	0.07
raymondville	reach 1	55210.7*	8244.00	8.67	20.82		20.83	0.000148	1.65	11047.82	4720.22	0.11
raymondville	reach 1	54733	1594.00	8.59	17.70	11.76	17.80	0.000352	2.49	640.41	90.49	0.16
raymondville	reach 1	54733	2439.00	8.59	18.69	12.85	18.88	0.000560	3.33	731.98	94.46	0.21
raymondville	reach 1	54733	3552.00	8.59	19.09	13.65	19.42	0.001028	4.81	769.95	96.05	0.29
raymondville	reach 1	54733	8639.00	8.59	20.45	17.13	20.65	0.001334	4.85	4826.39	4363.21	0.32
raymondville	reach 1	54238.*	1594.00	8.51	17.52		17.62	0.000372	2.52	632.42	135.21	0.17
raymondville	reach 1	54238.*	2439.00	8.51	18.48		18.57	0.000525	2.68	1616.72	1734.45	0.20
raymondville	reach 1	54238.*	3552.00	8.51	18.84		18.95	0.000671	3.15	2311.99	2079.38	0.22
raymondville	reach 1	54238.*	8639.00	8.51	20.00		20.12	0.000814	3.90	5161.67	2897.14	0.25

HEC-RAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta	O Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
raymondville	reach 1	53743.*	1594.00	8.43	17.44		17.47	0.000194	1.57	2018.08	1688.88	0.12
raymondville	reach 1	53743.*	2439.00	8.43	18.43		18.44	0.000115	1.35	3941.02	2177.46	0.09
raymondville	reach 1	53743.*	3552.00	8.43	18.78		18.78	0.000163	1.66	4676.87	2305.75	0.11
raymondville	reach 1	53743.*	8639.00	8.43	19.81		19.85	0.000323	2.58	7361.67	2806.14	0.16
raymondville	reach 1	53248.*	1594.00	8.35	17.43		17.43	0.000040	0.77	4364.53	2112.68	0.06
raymondville	reach 1	53248.*	2439.00	8.35	18.42		18.42	0.000031	0.76	6591.10	2379.52	0.05
raymondville	reach 1	53248.*	3552.00	8.35	18.73		18.74	0.000050	0.96	7350.30	2461.28	0.06
raymondville	reach 1	53248.*	8639.00	8.35	19.73		19.75	0.000134	1.75	10073.13	2905.95	0.11
raymondville	reach 1	52753	1371.00	8.27	17.42		17.42	0.000008	0.38	6989.21	2284.21	0.03
raymondville	reach 1	52753	2015.00	8.27	18.41		18.41	0.000008	0.41	9410.21	2641.54	0.03
raymondville	reach 1	52753	3073.00	8.27	18.72		18.72	0.000015	0.58	10250.79	2734.04	0.04
raymondville	reach 1	52753	8046.00	8.27	19.70		19.71	0.000055	1.18	13065.15	3018.20	0.07
raymondville	reach 1	52344.3*	1371.00	8.20	17.40		17.40	0.000014	0.46	5826.43	2270.57	0.03
raymondville	reach 1	52344.3*	2015.00	8.20	18.40		18.40	0.000012	0.48	8331.89	2666.91	0.03
raymondville	reach 1	52344.3*	3073.00	8.20	18.71		18.71	0.000022	0.66	9177.66	2758.02	0.04
raymondville	reach 1	52344.3*	8046.00	8.20	19.87		19.88	0.000072	1.30	11955.01	3051.69	0.08
raymondville	reach 1	51935.7*	1371.00	8.13	17.39		17.39	0.000024	0.57	4824.24	2285.94	0.04
raymondville	reach 1	51935.7*	2015.00	8.13	18.39		18.39	0.000017	0.54	7285.54	2647.91	0.04
raymondville	reach 1	51935.7*	3073.00	8.13	18.69		18.69	0.000030	0.74	8103.77	2744.61	0.05
raymondville	reach 1	51935.7*	8046.00	8.13	19.82		19.84	0.000097	1.44	10817.39	3078.76	0.09
raymondville	reach 1	51527.1*	1371.00	8.07	17.38		17.38	0.000030	0.73	4119.83	1860.27	0.05
raymondville	reach 1	51527.1*	2015.00	8.07	18.38		18.38	0.000024	0.60	6308.96	2501.71	0.04
raymondville	reach 1	51527.1*	3073.00	8.07	18.67		18.68	0.000042	0.81	7067.32	2652.51	0.06
raymondville	reach 1	51527.1*	8046.00	8.07	19.57		19.58	0.000133	1.59	9647.98	3101.48	0.10
raymondville	reach 1	51118.5*	1371.00	8.00	17.36		17.37	0.000026	0.69	4088.76	1575.37	0.05
raymondville	reach 1	51118.5*	2015.00	8.00	18.37		18.37	0.000024	0.69	5815.32	1824.31	0.04
raymondville	reach 1	51118.5*	3073.00	8.00	18.65		18.66	0.000044	0.95	6348.35	1887.70	0.06
raymondville	reach 1	51118.5*	8046.00	8.00	19.50		19.52	0.000175	1.72	8472.96	3000.79	0.12
raymondville	reach 1	50710	1371.00	7.93	17.26	10.83	17.33	0.000238	2.08	660.40	91.37	0.14
raymondville	reach 1	50710	2015.00	7.93	18.21	11.56	18.32	0.000358	2.69	749.13	95.18	0.17
raymondville	reach 1	50710	3073.00	7.93	18.33	12.59	18.59	0.000797	4.04	760.68	95.66	0.25
raymondville	reach 1	50710	8046.00	7.93	19.43	16.11	19.46	0.000168	1.96	7959.98	2102.81	0.12
raymondville	reach 1	50308.0*	1371.00	7.86	17.16	10.77	17.23	0.000241	2.09	657.90	91.23	0.14
raymondville	reach 1	50308.0*	2015.00	7.86	18.06	11.49	18.17	0.000369	2.72	741.10	94.83	0.17
raymondville	reach 1	50308.0*	3073.00	7.86	18.46	12.52	18.46	0.000048	1.00	6199.75	1923.36	0.06
raymondville	reach 1	50308.0*	8046.00	7.86	19.37	16.04	19.39	0.000165	1.94	8053.51	2133.02	0.12
raymondville	reach 1	49906.0*	1371.00	7.80	17.05	10.70	17.12	0.000245	2.10	653.48	91.06	0.14
raymondville	reach 1	49906.0*	2015.00	7.80	17.89	11.43	18.01	0.000383	2.76	731.36	94.42	0.17
raymondville	reach 1	49906.0*	3073.00	7.80	18.44	12.46	18.44	0.000046	0.98	6356.17	1994.88	0.06
raymondville	reach 1	49906.0*	8046.00	7.80	19.30	15.98	19.32	0.000167	1.96	8163.19	2235.80	0.12
raymondville	reach 1	49504.0*	1371.00	7.73	16.95	10.64	17.02	0.000249	2.11	650.40	90.93	0.14
raymondville	reach 1	49504.0*	2015.00	7.73	17.73	11.36	17.85	0.000397	2.79	722.41	94.05	0.18
raymondville	reach 1	49504.0*	3073.00	7.73	18.42	12.39	18.43	0.000042	0.94	6337.45	2051.90	0.06
raymondville	reach 1	49504.0*	8046.00	7.73	19.23	15.91	19.25	0.000170	1.97	8321.41	2394.13	0.12
raymondville	reach 1	49102.0*	1371.00	7.67	16.85	10.57	16.92	0.000253	2.12	646.88	90.78	0.14
raymondville	reach 1	49102.0*	2015.00	7.67	17.56	11.30	17.68	0.000414	2.83	711.95	93.61	0.18
raymondville	reach 1	49102.0*	3073.00	7.67	18.32	12.33	18.38	0.000294	2.49	2223.87	2150.47	0.15
raymondville	reach 1	49102.0*	8046.00	7.67	19.16	15.85	19.18	0.000177	1.66	8502.93	2495.44	0.12
raymondville	reach 1	48700	1371.00	7.60	16.75	10.50	16.82	0.000258	2.13	643.54	90.63	0.14
raymondville	reach 1	48700	2015.00	7.60	17.38	11.23	17.51	0.000431	2.87	702.11	93.18	0.18
raymondville	reach 1	48700	3073.00	7.60	17.92	12.26	18.18	0.000820	4.08	752.88	95.34	0.26
raymondville	reach 1	48700	8046.00	7.60	19.09	15.78	19.11	0.000167	1.61	8690.41	2509.03	0.11
raymondville	reach 1	48516.6*	1371.00	7.57	16.70	10.48	16.77	0.000258	2.14	641.82	90.57	0.14
raymondville	reach 1	48516.6*	2015.00	7.57	17.30	11.20	17.43	0.000440	2.89	696.89	92.97	0.19
raymondville	reach 1	48516.6*	3073.00	7.57	17.75	12.24	18.02	0.000884	4.16	739.43	94.78	0.26
raymondville	reach 1	48516.6*	8046.00	7.57	19.06	15.75	19.08	0.000169	1.65	8708.63	2564.15	0.11
raymondville	reach 1	48333.3*	1371.00	7.54	16.65	10.45	16.72	0.000260	2.14	640.09	90.48	0.14
raymondville	reach 1	48333.3*	2015.00	7.54	17.21	11.17	17.34	0.000450	2.91	691.65	92.74	0.19
raymondville	reach 1	48333.3*	3073.00	7.54	17.57	12.21	17.85	0.000915	4.24	724.76	94.15	0.27
raymondville	reach 1	48333.3*	8046.00	7.54	19.03	15.72	19.05	0.000174	1.71	8822.46	2917.75	0.12
raymondville	reach 1	48150	1371.00	7.51	16.60	10.41	16.67	0.000262	2.15	638.62	90.42	0.14
raymondville	reach 1	48150	2015.00	7.51	17.13	11.14	17.26	0.000459	2.93	688.69	92.53	0.19
raymondville	reach 1	48150	3073.00	7.51	17.38	12.18	17.67	0.000969	4.33	710.47	93.55	0.28
raymondville	reach 1	48150	8046.00	7.51	19.00	15.69	19.02	0.000170	1.73	9104.72	3190.17	0.12
raymondville	reach 1	47886.*	1371.00	7.43	16.47	10.34	16.54	0.000270	2.18	634.53	91.09	0.14
raymondville	reach 1	47886.*	2015.00	7.43	16.86	11.06	17.00	0.000727	2.98	676.00	2251.83	0.23
raymondville	reach 1	47886.*	3073.00	7.43	17.41	12.10	17.43	0.000151	1.44	4572.13	2375.07	0.11

HEC-DAS Plan: P1002 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
raymondville	reach 1	47866.*	8046.00	7.43	18.88	15.51	18.90	0.000197	1.91	8745.52	3502.23	0.13
raymondville	reach 1	47222.*	1371.00	7.38	16.32	10.27	16.39	0.000380	2.12	648.17	1925.73	0.16
raymondville	reach 1	47222.*	2015.00	7.38	16.79	10.99	16.81	0.000163	1.47	3030.06	2109.78	0.11
raymondville	reach 1	47222.*	3073.00	7.38	17.31	12.03	17.33	0.000177	1.62	4248.54	2548.32	0.12
raymondville	reach 1	47222.*	8046.00	7.36	18.76	16.20	18.79	0.000212	2.04	8656.79	3758.23	0.13
raymondville	reach 1	46758.*	1371.00	7.28	16.28	10.19	16.29	0.000104	1.16	2271.10	1372.62	0.09
raymondville	reach 1	46758.*	2015.00	7.28	16.72	10.92	16.74	0.000128	1.35	2988.58	1892.18	0.10
raymondville	reach 1	46758.*	3073.00	7.28	17.20	11.95	17.23	0.000186	1.72	4086.80	2481.04	0.12
raymondville	reach 1	46758.*	8046.00	7.28	18.65	16.02	18.67	0.000215	2.11	8755.33	3735.30	0.13
raymondville	reach 1	48294.*	1371.00	7.21	16.24	10.12	16.25	0.000087	0.97	2741.84	1540.18	0.07
raymondville	reach 1	48294.*	2015.00	7.21	16.67	10.84	16.68	0.000089	1.17	3441.32	1798.32	0.08
raymondville	reach 1	48294.*	3073.00	7.21	17.13	11.87	17.15	0.000123	1.44	4416.32	2286.00	0.10
raymondville	reach 1	48294.*	8046.00	7.21	18.54	15.51	18.56	0.000211	2.14	8955.45	3764.40	0.13
raymondville	reach 1	45830	1371.00	7.13	16.22	10.03	16.23	0.000040	0.78	3450.89	1847.06	0.05
raymondville	reach 1	45830	2015.00	7.13	16.64	10.76	16.65	0.000056	0.97	4253.00	1998.90	0.07
raymondville	reach 1	45830	3073.00	7.13	17.09	11.79	17.10	0.000085	1.24	5191.62	2378.96	0.08
raymondville	reach 1	45830	8046.00	7.13	18.45	15.00	18.47	0.000194	2.11	9245.56	3723.06	0.13
raymondville	reach 1	45414.*	1371.00	7.06	16.20	9.97	16.20	0.000041	0.80	3434.95	1902.30	0.06
raymondville	reach 1	45414.*	2015.00	7.06	16.61	10.69	16.62	0.000058	0.99	4258.82	2060.88	0.07
raymondville	reach 1	45414.*	3073.00	7.06	17.05	11.72	17.06	0.000085	1.24	5190.74	2275.59	0.08
raymondville	reach 1	45414.*	8046.00	7.06	18.38	15.00	18.40	0.000180	2.03	9532.92	3775.49	0.12
raymondville	reach 1	44998.*	1371.00	6.99	16.18	9.90	16.18	0.000045	0.83	3447.50	2021.19	0.06
raymondville	reach 1	44998.*	2015.00	6.99	16.58	10.62	16.59	0.000059	1.00	4281.50	2117.91	0.07
raymondville	reach 1	44998.*	3073.00	6.99	17.01	11.65	17.02	0.000095	1.31	5289.67	2696.00	0.09
raymondville	reach 1	44998.*	8046.00	6.99	18.31	15.00	18.33	0.000169	1.96	9676.82	4187.12	0.12
raymondville	reach 1	44582.*	1371.00	6.93	16.15	9.84	16.15	0.000046	0.85	3487.35	2094.72	0.06
raymondville	reach 1	44582.*	2015.00	6.93	16.55	10.56	16.56	0.000071	1.09	4395.10	2690.33	0.07
raymondville	reach 1	44582.*	3073.00	6.93	16.98	11.59	16.99	0.000094	1.31	5589.80	2889.88	0.09
raymondville	reach 1	44582.*	8046.00	6.93	18.25	15.00	18.27	0.000157	1.89	10662.29	4439.05	0.11
raymondville	reach 1	44166.*	1371.00	6.86	16.12	9.77	16.13	0.000054	0.92	3607.04	2714.63	0.08
raymondville	reach 1	44166.*	2015.00	6.86	16.52	10.49	16.53	0.000063	1.03	4711.58	2810.19	0.07
raymondville	reach 1	44166.*	3073.00	6.86	16.94	11.52	16.95	0.000081	1.22	6072.25	3780.95	0.08
raymondville	reach 1	44166.*	8046.00	6.86	18.20	15.00	18.22	0.000125	1.68	11517.38	4438.84	0.10
raymondville	reach 1	43750	1371.00	6.79	16.09	9.69	16.10	0.000045	0.84	4017.84	3409.61	0.06
raymondville	reach 1	43750	2015.00	6.79	16.49	10.42	16.50	0.000051	0.92	5413.31	3608.37	0.06
raymondville	reach 1	43750	3073.00	6.79	16.90	11.45	16.91	0.000071	1.14	6977.78	3997.25	0.08
raymondville	reach 1	43750	8046.00	6.79	18.15	15.00	18.17	0.000100	1.51	12375.11	4438.88	0.09
raymondville	reach 1	43313.6*	1371.00	6.72	16.06		16.07	0.000061	0.96	3509.33	3337.31	0.07
raymondville	reach 1	43313.6*	2015.00	6.72	16.46		16.47	0.000067	1.05	4908.63	3656.74	0.07
raymondville	reach 1	43313.6*	3073.00	6.72	16.88		16.87	0.000086	1.24	6488.22	3978.48	0.08
raymondville	reach 1	43313.6*	8046.00	6.72	18.11		18.12	0.000115	1.59	11848.53	4447.71	0.10
raymondville	reach 1	42877.2*	1371.00	6.65	16.02		16.03	0.000086	1.12	2983.26	3364.18	0.08
raymondville	reach 1	42877.2*	2015.00	6.65	16.42		16.43	0.000096	1.24	4417.62	3805.94	0.09
raymondville	reach 1	42877.2*	3073.00	6.65	16.82		16.83	0.000107	1.38	5960.79	3935.98	0.09
raymondville	reach 1	42877.2*	8046.00	6.65	18.05		18.07	0.000134	1.70	11287.19	4472.08	0.11
raymondville	reach 1	42440.6*	1371.00	6.57	15.96		15.96	0.000129	1.35	2439.28	3168.60	0.10
raymondville	reach 1	42440.6*	2015.00	6.57	16.36		16.36	0.000125	1.39	3898.30	3723.31	0.10
raymondville	reach 1	42440.6*	3073.00	6.57	16.76		16.77	0.000138	1.52	5388.05	3847.26	0.10
raymondville	reach 1	42440.6*	8046.00	6.57	17.98		18.00	0.000159	1.89	10687.71	4525.27	0.11
raymondville	reach 1	42004.4*	1371.00	6.50	15.88		15.91	0.000170	1.52	1908.34	2598.99	0.11
raymondville	reach 1	42004.4*	2015.00	6.50	16.29		16.32	0.000171	1.60	3333.77	3696.15	0.11
raymondville	reach 1	42004.4*	3073.00	6.50	16.69		16.70	0.000184	1.72	4760.48	3749.88	0.12
raymondville	reach 1	42004.4*	8046.00	6.50	17.90		17.92	0.000204	2.04	10189.06	5415.63	0.13
raymondville	reach 1	41568	1371.00	6.43	15.79		15.83	0.000219	1.68	1492.92	2005.67	0.13
raymondville	reach 1	41568	2015.00	6.43	16.19		16.23	0.000257	1.91	2542.30	3658.64	0.14
raymondville	reach 1	41568	3073.00	6.43	16.57		16.61	0.000283	2.01	4066.27	3721.20	0.14
raymondville	reach 1	41568	8046.00	6.43	17.82		17.84	0.000214	2.05	10568.55	6000.00	0.13
raymondville	reach 1	39543	1371.00	6.10	15.82		15.82	0.000055	0.70	4944.08	5100.55	0.06
raymondville	reach 1	39543	2015.00	6.10	16.02		16.02	0.000050	0.71	7025.82	6000.00	0.06
raymondville	reach 1	39543	3073.00	6.10	16.39		16.39	0.000054	0.77	9239.12	6000.00	0.06
raymondville	reach 1	39543	8046.00	6.10	17.62		17.62	0.000061	0.96	16815.65	6000.00	0.07
raymondville	reach 1	37135	1371.00	5.71	15.55	8.62	15.55	0.000017	0.47	6464.07	4749.10	0.03
raymondville	reach 1	37135	2015.00	5.71	15.95	9.34	15.95	0.000020	0.54	8450.96	5104.70	0.04
raymondville	reach 1	37135	3073.00	5.71	16.29	10.37	16.29	0.000030	0.69	10240.83	5378.77	0.05
raymondville	reach 1	37135	8046.00	5.71	17.48	13.89	17.49	0.000053	1.03	16840.30	5693.26	0.07
raymondville	reach 1	34845	1714.00	5.33	15.40		15.44	0.000220	1.73	2510.61	4563.61	0.13

HEC-RAS Plan: P.10.D.2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4489.89	4727.52	0.10
raymondville	reach 1	34845	2858.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.58	0.09
raymondville	reach 1	34845	7211.00	5.33	17.31		17.32	0.000119	1.54	12129.71	6000.00	0.10
raymondville	reach 1	34786	1714.00	5.32	15.36		15.42	0.000242	1.81	2317.11	4556.48	0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.59	4722.59	0.10
raymondville	reach 1	34786	2858.00	5.32	16.15		16.18	0.000114	1.36	5918.32	4853.13	0.09
raymondville	reach 1	34786	7211.00	5.32	17.30		17.31	0.000123	1.57	11976.67	6000.00	0.10
raymondville	reach 1	32585	1714.00	4.96	14.67		14.74	0.000408	2.28	1043.70	1133.11	0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000248	1.92	2999.29	3852.55	0.14
raymondville	reach 1	32585	2858.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89	0.11
raymondville	reach 1	32585	7211.00	4.96	16.99		17.00	0.000157	1.79	10763.48	5487.46	0.11
raymondville	reach 1	30584	1714.00	4.63	13.82		13.93	0.000393	2.65	651.73	114.58	0.17
raymondville	reach 1	30584	2255.00	4.63	14.61		14.75	0.000475	3.05	912.78	898.14	0.19
raymondville	reach 1	30584	2858.00	4.63	15.25		15.37	0.000441	3.04	2046.00	3095.80	0.19
raymondville	reach 1	30584	7211.00	4.63	16.53		16.56	0.000303	2.31	8866.46	6000.00	0.15
raymondville	reach 1	29170	1714.00	4.40	13.22		13.34	0.000459	2.79	613.82	89.31	0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	688.09	91.71	0.22
raymondville	reach 1	29170	2858.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.63	0.26
raymondville	reach 1	29170	7211.00	4.40	15.99		16.06	0.000613	3.24	6729.80	6000.00	0.22
raymondville	reach 1	28867.7"	1714.00	4.35	13.07		13.19	0.000482	2.83	605.36	89.47	0.19
raymondville	reach 1	28867.7"	2255.00	4.35	13.61		13.79	0.000669	3.45	654.05	91.93	0.23
raymondville	reach 1	28867.7"	2858.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14	0.27
raymondville	reach 1	28867.7"	7211.00	4.35	15.79		15.88	0.000692	3.51	6237.12	6000.00	0.23
raymondville	reach 1	28565.5"	1714.00	4.30	12.92		13.04	0.000497	2.83	665.41	316.05	0.19
raymondville	reach 1	28565.5"	2255.00	4.30	13.40		13.55	0.000888	3.24	889.85	549.79	0.25
raymondville	reach 1	28565.5"	2858.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05	0.27
raymondville	reach 1	28565.5"	7211.00	4.30	15.58		15.68	0.000743	3.70	5687.72	5781.57	0.24
raymondville	reach 1	28263.2"	1714.00	4.25	12.81		12.88	0.000468	2.31	1071.21	576.71	0.18
raymondville	reach 1	28263.2"	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.84	633.89	0.19
raymondville	reach 1	28263.2"	2858.00	4.25	13.62		13.72	0.000608	2.87	1589.04	750.20	0.21
raymondville	reach 1	28263.2"	7211.00	4.25	15.37		15.48	0.000719	3.70	5441.03	5181.30	0.24
raymondville	reach 1	27961	1714.00	4.20	12.74		12.77	0.000235	1.70	1570.27	639.60	0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.90	746.99	0.15
raymondville	reach 1	27961	2858.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.95	0.16
raymondville	reach 1	27961	7211.00	4.20	15.18		15.27	0.000850	3.57	5426.65	4750.97	0.23
raymondville	reach 1	27505.2"	1714.00	4.13	12.63		12.67	0.000249	1.74	1577.57	724.99	0.13
raymondville	reach 1	27505.2"	2255.00	4.13	13.03		13.07	0.000296	1.98	1886.69	821.50	0.15
raymondville	reach 1	27505.2"	2858.00	4.13	13.38		13.42	0.000337	2.19	2179.60	860.65	0.16
raymondville	reach 1	27505.2"	7211.00	4.13	14.89		14.98	0.000637	3.50	5830.55	5074.52	0.23
raymondville	reach 1	27049.4"	1714.00	4.05	12.52		12.55	0.000255	1.74	1819.24	824.81	0.14
raymondville	reach 1	27049.4"	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49	0.15
raymondville	reach 1	27049.4"	2858.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16	0.16
raymondville	reach 1	27049.4"	7211.00	4.05	14.66		14.72	0.000470	2.97	6837.58	5339.08	0.19
raymondville	reach 1	26593.6"	1714.00	3.98	12.42		12.45	0.000234	1.66	1788.68	1096.39	0.13
raymondville	reach 1	26593.6"	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.48	1364.94	0.14
raymondville	reach 1	26593.6"	2858.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10	0.15
raymondville	reach 1	26593.6"	7211.00	3.98	14.53		14.55	0.000266	2.23	8652.17	5084.00	0.15
raymondville	reach 1	26137.8"	1714.00	3.90	12.34		12.36	0.000185	1.48	2192.22	1558.26	0.12
raymondville	reach 1	26137.8"	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.80	3244.14	0.13
raymondville	reach 1	26137.8"	2858.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4060.54	0.13
raymondville	reach 1	26137.8"	7211.00	3.90	14.45		14.46	0.000140	1.82	10822.28	4907.62	0.11
raymondville	reach 1	25682	1714.00	3.83	12.28		12.30	0.000131	1.25	3534.62	4063.17	0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.17	4115.05	0.09
raymondville	reach 1	25682	2858.00	3.83	12.95		12.96	0.000091	1.13	6283.81	4163.46	0.08
raymondville	reach 1	25682	7211.00	3.83	14.41		14.42	0.000078	1.22	13178.30	4897.76	0.08
raymondville	reach 1	25281."	1714.00	3.76	12.25		12.25	0.000100	1.11	4044.35	4054.57	0.09
raymondville	reach 1	25281."	2255.00	3.76	12.60		12.61	0.000082	1.05	5490.53	4121.23	0.08
raymondville	reach 1	25281."	2858.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4654.45	0.08
raymondville	reach 1	25281."	7211.00	3.76	14.39		14.40	0.000074	1.20	14335.13	6000.00	0.08
raymondville	reach 1	24880."	1714.00	3.70	12.22		12.22	0.000071	0.95	4652.35	3810.08	0.07
raymondville	reach 1	24880."	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.34	4209.63	0.07
raymondville	reach 1	24880."	2858.00	3.70	12.90		12.91	0.000053	0.97	7572.73	4663.09	0.07
raymondville	reach 1	24880."	7211.00	3.70	14.37		14.38	0.000056	1.08	15602.90	6000.00	0.07
raymondville	reach 1	24479."	1714.00	3.63	12.20		12.20	0.000051	0.82	5339.50	3891.35	0.06
raymondville	reach 1	24479."	2255.00	3.63	12.58		12.56	0.000048	0.83	6808.77	4400.81	0.06
raymondville	reach 1	24479."	2858.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4998.58	0.06
raymondville	reach 1	24479."	7211.00	3.63	14.35		14.36	0.000046	0.97	16872.70	6000.00	0.06

HEC-RAS Plan: R10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vol Chnl (ft³/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	24078.*	1714.00	3.57	12.18		12.19	0.000037	0.70	6188.50	4144.97	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000038	0.73	7758.82	4985.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5466.29	0.05
raymondville	reach 1	24078.*	7211.00	3.57	14.33		14.33	0.000037	0.88	18135.87	6000.00	0.06
raymondville	reach 1	23877	1714.00	3.50	12.16		12.17	0.000027	0.60	7145.75	4682.75	0.04
raymondville	reach 1	23877	2255.00	3.50	12.52		12.53	0.000028	0.62	8905.41	5218.84	0.04
raymondville	reach 1	23877	2856.00	3.50	12.85		12.85	0.000027	0.66	10999.55	5674.84	0.05
raymondville	reach 1	23877	7211.00	3.50	14.31		14.31	0.000030	0.80	19399.51	6000.00	0.05
raymondville	reach 1	21680	1714.00	3.17	12.13		12.13	0.000013	0.42	10238.59	6000.00	0.03
raymondville	reach 1	21680	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.19	6000.00	0.03
raymondville	reach 1	21680	2856.00	3.17	12.82		12.82	0.000013	0.44	14360.32	6000.00	0.03
raymondville	reach 1	21680	7211.00	3.17	14.27		14.27	0.000017	0.60	23052.92	6000.00	0.04
raymondville	reach 1	19606	1714.00	2.83	12.11		12.11	0.000013	0.42	10017.36	5923.15	0.03
raymondville	reach 1	19606	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.52	6000.00	0.03
raymondville	reach 1	19606	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19606	7211.00	2.83	14.24		14.24	0.000018	0.61	22785.90	6000.00	0.04
raymondville	reach 1	19152.2*	1714.00	2.75	12.10		12.10	0.000014	0.45	9715.96	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.46		12.46	0.000013	0.45	11917.39	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7211.00	2.75	14.22		14.22	0.000019	0.63	22478.37	6000.00	0.04
raymondville	reach 1	18698.5*	1714.00	2.68	12.08		12.08	0.000016	0.47	9418.08	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.68	12.45		12.45	0.000015	0.47	11607.84	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.68	12.77		12.77	0.000015	0.49	13547.96	6000.00	0.03
raymondville	reach 1	18698.5*	7211.00	2.68	14.21		14.21	0.000020	0.64	22172.42	6000.00	0.04
raymondville	reach 1	18244.7*	1714.00	2.61	12.07		12.07	0.000017	0.49	9110.35	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.61	12.43		12.43	0.000016	0.49	11288.46	6000.00	0.03
raymondville	reach 1	18244.7*	2856.00	2.61	12.76		12.76	0.000016	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7211.00	2.61	14.19		14.19	0.000020	0.66	21856.83	6000.00	0.04
raymondville	reach 1	17791.*	1714.00	2.53	12.05		12.05	0.000019	0.52	8812.47	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.91	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.83	6000.00	0.04
raymondville	reach 1	17791.*	7211.00	2.53	14.18		14.18	0.000021	0.68	21550.89	6000.00	0.04
raymondville	reach 1	17337.2*	1714.00	2.45	12.04		12.04	0.000021	0.55	8516.45	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10871.23	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7211.00	2.45	14.16		14.16	0.000022	0.69	21246.61	6000.00	0.04
raymondville	reach 1	16883.5*	1714.00	2.38	12.03		12.03	0.000024	0.58	8209.99	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.10	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7211.00	2.38	14.15		14.15	0.000024	0.71	20932.08	6000.00	0.04
raymondville	reach 1	16429.7*	1714.00	2.31	12.00		12.01	0.000027	0.62	7863.28	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.54	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.16	6000.00	0.04
raymondville	reach 1	16429.7*	7211.00	2.31	14.13		14.13	0.000025	0.73	20624.12	6000.00	0.05
raymondville	reach 1	15976	1714.00	2.23	11.98		11.98	0.000029	0.64	7522.40	5762.30	0.05
raymondville	reach 1	15976	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.48	6000.00	0.04
raymondville	reach 1	15976	2856.00	2.23	12.69		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15976	7211.00	2.23	14.11		14.12	0.000026	0.75	20317.65	6000.00	0.05
raymondville	reach 1	15517.2*	1714.00	2.16	11.94		11.96	0.000132	1.39	3703.61	5538.14	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.29	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.67		12.67	0.000069	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7211.00	2.16	14.09		14.09	0.000050	1.05	16408.85	6000.00	0.06
raymondville	reach 1	15058.4*	1714.00	2.08	11.82		11.87	0.000256	1.92	1508.18	1757.44	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.76	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7211.00	2.08	14.05		14.08	0.000112	1.57	12416.77	6000.00	0.10
raymondville	reach 1	14599.6*	1714.00	2.01	11.68		11.73	0.000291	2.03	1232.99	763.58	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.95	1250.95	0.16
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.76	2029.68	0.17
raymondville	reach 1	14599.6*	7211.00	2.01	13.94		13.98	0.000303	2.57	7992.51	5847.37	0.16
raymondville	reach 1	14140.8*	1714.00	1.93	11.53		11.59	0.000322	2.12	1101.86	656.86	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.65	0.20
raymondville	reach 1	14140.8*	7211.00	1.93	13.83		13.76	0.000704	3.84	4572.89	3221.84	0.24
raymondville	reach 1	13682	1714.00	1.88	11.37		11.44	0.000350	2.18	1008.04	528.14	0.16
raymondville	reach 1	13682	2255.00	1.88	11.83		11.73	0.000486	2.85	1160.21	615.43	0.19

HEC-RAS Plan- P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000633	3.11	1323.90	713.65	0.22
raymondville	reach 1	13682	7211.00	1.86	12.95		13.28	0.001567	5.44	2304.99	1438.69	0.35
raymondville	reach 1	11672	1714.00	1.53	10.91		10.94	0.000176	1.52	3110.54	4476.20	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000168	1.52	4277.34	4718.76	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7211.00	1.53	12.29		12.31	0.000203	1.89	9912.65	5301.54	0.13
raymondville	reach 1	9670	1714.00	1.20	10.34		10.40	0.000425	2.22	1627.84	3472.93	0.17
raymondville	reach 1	9670	2255.00	1.20	10.72		10.78	0.000279	1.89	3335.79	4974.58	0.14
raymondville	reach 1	9670	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9670	7211.00	1.20	11.82		11.84	0.000271	2.10	8822.86	5023.42	0.14
raymondville	reach 1	8234	1714.00	0.64	8.37		8.53	0.000749	3.30	518.87	84.96	0.24
raymondville	reach 1	8234	2255.00	0.64	8.91		9.15	0.001009	3.99	566.57	87.13	0.28
raymondville	reach 1	8234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.62	3570.68	0.30
raymondville	reach 1	8234	7211.00	0.64	10.83		10.85	0.000344	2.34	8724.45	6000.00	0.18
raymondville	reach 1	4339	1714.00	0.31	7.55	3.61	7.57	0.000311	1.18	1446.41	591.48	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	5.28	7.95	0.000363	1.34	1678.06	638.44	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.48	8.30	0.000413	1.50	1907.96	580.49	0.16
raymondville	reach 1	4339	7211.00	0.31	9.80	6.58	9.89	0.000710	2.38	3028.24	808.88	0.22
raymondville	reach 1	4300	1714.00	0.30	7.53	3.60	7.55	0.000318	1.20	1434.08	589.90	0.14
raymondville	reach 1	4300	2255.00	0.30	7.91	5.27	7.94	0.000372	1.36	1663.73	636.58	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	5.49	8.29	0.000424	1.51	1890.91	679.46	0.16
raymondville	reach 1	4300	7211.00	0.30	9.77	6.56	9.86	0.000728	2.40	2998.85	804.32	0.22
raymondville	reach 1	3878.00*	1714.00	0.23	7.38		7.40	0.000373	1.28	1334.11	554.37	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.77	0.000433	1.47	1537.78	586.92	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000488	1.65	1728.19	603.07	0.17
raymondville	reach 1	3878.00*	7211.00	0.23	9.45		9.54	0.000786	2.53	3627.04	2834.25	0.23
raymondville	reach 1	3456.00*	1714.00	0.16	7.20		7.23	0.000420	1.41	1215.89	480.73	0.16
raymondville	reach 1	3456.00*	2255.00	0.16	7.52		7.56	0.000507	1.65	1383.89	649.42	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.87	0.000612	1.86	1598.24	851.30	0.19
raymondville	reach 1	3456.00*	7211.00	0.16	9.17		9.24	0.000834	2.39	4583.32	2816.87	0.21
raymondville	reach 1	3034.00*	1714.00	0.09	6.99		7.03	0.000542	1.82	1143.09	915.54	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.29		7.33	0.000568	1.78	1680.43	1902.15	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.62	0.000547	1.86	2240.90	2009.76	0.18
raymondville	reach 1	3034.00*	7211.00	0.09	8.97		9.01	0.000424	2.09	5785.18	2857.62	0.17
raymondville	reach 1	2612.00*	1714.00	0.02	6.83		6.86	0.000309	1.41	2163.28	2204.23	0.14
raymondville	reach 1	2612.00*	2255.00	0.02	7.14		7.18	0.000283	1.43	2843.09	2238.53	0.14
raymondville	reach 1	2612.00*	2856.00	0.02	7.44		7.45	0.000264	1.46	3509.24	2277.21	0.13
raymondville	reach 1	2612.00*	7211.00	0.02	8.84		8.87	0.000253	1.77	7187.30	2862.33	0.14
raymondville	reach 1	2190	1714.00	-0.05	6.78		6.78	0.000098	0.99	3632.18	2179.05	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.08		7.08	0.000112	1.11	4309.51	2444.12	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000115	1.17	5037.48	2479.28	0.09
raymondville	reach 1	2190	7211.00	-0.05	8.77		8.78	0.000157	1.60	8713.47	2911.57	0.11
raymondville	reach 1	0	1714.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3264.59	2522.02	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	5.27	6.79	0.000160	1.21	3950.46	2543.13	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	5.55	7.09	0.000160	1.27	4757.25	3325.34	0.10
raymondville	reach 1	0	7211.00	-0.41	8.42	6.13	8.43	0.000160	1.51	9331.55	3429.20	0.11
North Main	reach 4	331370	410.00	96.81	103.97	99.87	104.06	0.000492	2.44	168.35	36.91	0.20
North Main	reach 4	331370	573.00	96.81	105.23	100.50	105.34	0.000479	2.63	217.96	41.60	0.20
North Main	reach 4	331370	770.00	96.81	106.53	101.12	106.66	0.000463	2.80	275.18	46.43	0.20
North Main	reach 4	331370	1392.00	96.81	109.54	102.69	109.70	0.000453	3.23	431.50	57.59	0.21
North Main	reach 4	330227	410.00	96.76	103.48	99.35	103.55	0.000399	2.23	183.83	39.69	0.18
North Main	reach 4	330227	573.00	96.76	104.76	99.90	104.85	0.000387	2.41	237.54	44.25	0.18
North Main	reach 4	330227	770.00	96.76	106.07	100.47	106.18	0.000374	2.58	298.96	48.95	0.18
North Main	reach 4	330227	1392.00	96.76	109.08	101.93	109.23	0.000374	3.01	462.46	59.45	0.19
North Main	reach 4	330128	410.00	96.76	103.44	99.26	103.52	0.000413	2.31	177.44	36.28	0.18
North Main	reach 4	330128	573.00	96.76	104.71	99.81	104.81	0.000421	2.53	226.49	40.84	0.19
North Main	reach 4	330128	770.00	96.76	106.02	100.40	106.13	0.000423	2.72	283.12	45.91	0.19
North Main	reach 4	330128	1392.00	96.76	109.02	101.86	109.18	0.000435	3.17	438.74	57.61	0.20
North Main	reach 4	330078	410.00	96.76	103.41	99.26	103.50	0.000419	2.32	176.85	36.22	0.19
North Main	reach 4	330078	573.00	96.76	104.69	99.80	104.79	0.000426	2.54	225.58	40.75	0.19
North Main	reach 4	330078	770.00	96.76	106.00	100.39	106.11	0.000427	2.73	282.09	45.83	0.19
North Main	reach 4	330078	1392.00	96.76	109.00	101.86	109.16	0.000438	3.18	437.41	57.52	0.20
North Main	reach 4	329975	410.00	97.01	103.29	100.02	103.43	0.000858	3.01	136.16	32.79	0.26
North Main	reach 4	329975	573.00	97.01	104.57	100.64	104.73	0.000776	3.16	181.05	37.34	0.25
North Main	reach 4	329975	770.00	97.01	105.88	101.29	106.05	0.000711	3.31	232.97	41.99	0.25
North Main	reach 4	329975	1392.00	97.01	108.88	102.88	109.10	0.000648	3.71	375.16	52.87	0.25



HEC-RAS Plan P10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 4	328000	410.00	95.26	102.35	97.87	102.42	0.000330	2.09	196.40	40.45	0.17
North Main	reach 4	328000	573.00	95.26	103.69	98.42	103.76	0.000321	2.28	253.61	45.11	0.17
North Main	reach 4	328000	770.00	95.26	105.04	99.00	105.13	0.000313	2.42	317.95	49.63	0.17
North Main	reach 4	328000	1392.00	95.26	106.06	100.47	108.19	0.000329	2.88	484.17	60.35	0.18
North Main	reach 4	328000	410.00	94.56	101.63	97.39	101.70	0.000385	2.19	187.63	40.63	0.18
North Main	reach 4	328000	573.00	94.56	103.01	97.95	103.09	0.000354	2.31	247.67	46.27	0.18
North Main	reach 4	328000	770.00	94.56	104.39	98.54	104.49	0.000332	2.44	315.63	51.75	0.17
North Main	reach 4	328000	1392.00	94.56	107.40	100.02	107.52	0.000335	2.85	498.77	63.48	0.18
North Main	reach 4	324083	410.00	94.05	101.03	96.40	101.09	0.000287	1.90	216.21	44.36	0.15
North Main	reach 4	324083	573.00	94.05	102.46	96.92	102.52	0.000249	2.02	283.23	49.81	0.15
North Main	reach 4	324083	770.00	94.05	103.87	97.47	103.93	0.000238	2.15	357.59	55.24	0.15
North Main	reach 4	324083	1392.00	94.05	106.85	98.88	106.96	0.000257	2.58	539.10	66.67	0.16
North Main	reach 4	324005	410.00	94.05	101.01	96.40	101.07	0.000270	1.90	215.24	44.28	0.15
North Main	reach 4	324005	573.00	94.05	102.44	96.92	102.50	0.000251	2.03	282.22	49.73	0.15
North Main	reach 4	324005	770.00	94.05	103.85	97.47	103.93	0.000240	2.16	356.52	55.18	0.15
North Main	reach 4	324005	1392.00	94.05	106.83	98.88	106.94	0.000259	2.59	537.70	66.59	0.16
North Main	reach 4	322000	410.00	93.17	100.42	95.84	100.48	0.000317	2.04	200.55	41.49	0.16
North Main	reach 4	322000	573.00	93.17	101.89	96.40	101.96	0.000286	2.16	265.68	47.02	0.16
North Main	reach 4	322000	770.00	93.17	103.33	96.99	103.41	0.000273	2.28	337.43	52.45	0.16
North Main	reach 4	322000	1392.00	93.17	106.29	98.48	106.37	0.000302	2.42	435.48	56.10	0.17
North Main	reach 4	320965	410.00	93.05	100.00	95.85	100.09	0.000484	2.40	171.18	36.63	0.20
North Main	reach 4	320965	573.00	93.05	101.51	96.44	101.61	0.000404	2.48	230.60	41.82	0.19
North Main	reach 4	320965	770.00	93.05	102.98	97.06	103.08	0.000373	2.61	295.49	46.85	0.18
North Main	reach 4	320965	1392.00	93.05	105.84	98.63	106.00	0.000408	3.13	444.07	56.65	0.20
North Main	reach 4	320873	410.00	93.05	99.95	95.85	100.04	0.000476	2.42	189.52	36.47	0.20
North Main	reach 4	320873	573.00	93.05	101.47	96.44	101.57	0.000412	2.50	228.96	41.69	0.19
North Main	reach 4	320873	770.00	93.05	102.94	97.06	103.05	0.000379	2.62	295.80	46.72	0.18
North Main	reach 4	320873	1392.00	93.05	105.81	98.63	105.96	0.000414	3.15	441.82	56.52	0.20
North Main	reach 4	320000	410.00	92.95	99.57	95.52	99.65	0.000417	2.25	182.22	40.31	0.19
North Main	reach 4	320000	573.00	92.95	101.16	96.08	101.24	0.000341	2.28	250.98	46.39	0.17
North Main	reach 4	320000	770.00	92.95	102.66	96.87	102.74	0.000306	2.37	324.79	52.12	0.17
North Main	reach 4	320000	1392.00	92.95	105.50	98.13	105.63	0.000333	2.85	488.63	63.07	0.18
North Main	reach 4	318000	410.00	91.12	98.87	93.95	98.94	0.000306	2.05	200.37	39.67	0.16
North Main	reach 4	318000	573.00	91.12	100.58	94.56	100.65	0.000259	2.10	273.15	45.76	0.15
North Main	reach 4	318000	770.00	91.12	102.12	95.19	102.20	0.000244	2.21	348.07	51.27	0.15
North Main	reach 4	318000	1392.00	91.12	104.88	96.76	105.00	0.000297	2.77	503.02	61.12	0.17
North Main	reach 4	317530	410.00	91.23	98.72	94.19	98.79	0.000330	2.04	201.31	43.71	0.17
North Main	reach 4	317530	573.00	91.23	100.46	94.78	100.52	0.000256	2.02	283.94	51.52	0.15
North Main	reach 4	317530	770.00	91.23	102.02	95.39	102.08	0.000228	2.08	369.59	58.52	0.15
North Main	reach 4	317530	1392.00	91.23	104.76	96.87	104.86	0.000261	2.54	547.10	70.81	0.16
North Main	reach 4	317452	410.00	91.23	98.70	94.20	98.76	0.000335	2.05	200.14	43.59	0.17
North Main	reach 4	317452	573.00	91.23	100.44	94.78	100.50	0.000269	2.03	282.88	51.43	0.15
North Main	reach 4	317452	770.00	91.23	102.00	95.39	102.07	0.000230	2.09	368.52	58.44	0.15
North Main	reach 4	317452	1392.00	91.23	104.74	96.87	104.84	0.000263	2.55	545.61	70.72	0.16
North Main	reach 4	317000	410.00	90.93	96.54	93.87	96.61	0.000347	2.14	191.70	39.29	0.17
North Main	reach 4	317000	573.00	90.93	100.31	94.48	100.38	0.000277	2.15	267.13	45.81	0.16
North Main	reach 4	317000	770.00	90.93	101.88	95.12	101.96	0.000255	2.24	343.49	51.59	0.15
North Main	reach 4	317000	1392.00	90.93	104.59	96.66	104.71	0.000310	2.80	496.84	61.57	0.17
North Main	reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001840	1.80	22.17	21.96	0.32
North Main	reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002312	2.65	37.73	24.65	0.38
North Main	reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000289	1.58	120.38	35.69	0.15
North Main	reach 2	157900	515.00	90.87	97.22	93.55	97.33	0.000596	2.69	191.80	43.00	0.22
North Main	reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.67	0.81
North Main	reach 2	157788	100.00	90.87	92.32	91.74	92.45	0.003570	2.98	33.51	25.31	0.46
North Main	reach 2	157788	188.00	90.87	95.38	92.18	95.41	0.000255	1.51	124.53	34.56	0.14
North Main	reach 2	157788	515.00	90.87	97.16	93.35	97.27	0.000586	2.67	192.99	42.42	0.22
North Main	reach 2	157777	Inline Weir									
North Main	reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002109	2.10	19.02	16.29	0.34
North Main	reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	70.00	26.04	0.15
North Main	reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.26	38.00	0.09
North Main	reach 2	157707	515.00	88.33	97.15	91.83	97.22	0.000299	2.13	242.03	44.90	0.16
North Main	reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000558	1.34	29.86	16.33	0.18
North Main	reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000160	1.10	91.03	28.83	0.11
North Main	reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000068	0.94	199.70	41.36	0.08
North Main	reach 2	157442	515.00	87.38	97.10	91.01	97.16	0.000208	1.85	277.85	48.28	0.14
North Main	reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000661	1.42	28.12	17.94	0.20

HFC-DAS Plan P 100 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	157290	100.00	87.38	92.23	88.88	92.26	0.000164	1.11	90.11	28.70	0.11
North Main	reach 2	157290	188.00	87.38	95.34	89.49	95.38	0.000088	0.94	199.13	41.31	0.08
North Main	reach 2	157290	515.00	87.38	97.06	91.01	97.12	0.000212	1.87	275.88	48.12	0.14
North Main	reach 2	158900	40.00	87.38	89.39	88.06	89.41	0.000375	1.10	36.34	22.49	0.15
North Main	reach 2	158900	100.00	87.38	92.18	88.52	92.19	0.000091	0.88	113.34	32.71	0.08
North Main	reach 2	158900	188.00	87.38	95.32	89.03	95.33	0.000044	0.80	234.18	44.25	0.06
North Main	reach 2	158900	515.00	87.38	97.00	90.35	97.04	0.000148	1.64	313.59	50.41	0.12
North Main	reach 2	155952	40.00	87.33	88.97	87.94	88.99	0.000537	1.18	34.40	26.19	0.18
North Main	reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000057	0.70	142.02	42.08	0.07
North Main	reach 2	155952	188.00	87.33	95.30	88.80	95.31	0.000025	0.82	301.54	58.13	0.05
North Main	reach 2	155952	515.00	87.33	96.91	89.97	96.93	0.000089	1.28	401.25	66.22	0.09
North Main	reach 2	155846	40.00	87.31	88.90	87.84	88.93	0.000582	1.23	32.44	23.05	0.18
North Main	reach 2	155846	100.00	87.31	92.11	88.28	92.12	0.000071	0.81	123.90	33.81	0.07
North Main	reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000038	0.78	246.34	43.17	0.06
North Main	reach 2	155846	515.00	87.31	96.89	90.02	96.93	0.000134	1.82	318.86	47.85	0.11
North Main	reach 2	155779	40.00	87.31	88.88	87.70	88.89	0.000233	0.82	48.83	33.30	0.12
North Main	reach 2	155779	100.00	87.31	92.11	88.02	92.11	0.000033	0.58	171.26	42.65	0.05
North Main	reach 2	155779	188.00	87.31	95.29	88.39	95.30	0.000019	0.59	321.09	51.44	0.04
North Main	reach 2	155779	515.00	87.31	96.88	89.98	96.91	0.000073	1.27	406.30	55.83	0.08
North Main	reach 2	155696	40.00	87.31	88.85	87.78	88.87	0.000439	1.09	38.78	28.03	0.16
North Main	reach 2	155696	100.00	87.31	92.09	88.16	92.10	0.000058	0.74	136.00	35.24	0.07
North Main	reach 2	155696	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	263.07	44.43	0.05
North Main	reach 2	155696	515.00	87.31	96.88	89.78	96.90	0.000118	1.53	338.87	48.97	0.10
North Main	reach 2	154900	40.00	86.57	88.64	87.06	88.65	0.000178	0.81	49.18	26.98	0.11
North Main	reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000038	0.63	158.81	37.28	0.05
North Main	reach 2	154900	188.00	86.57	95.25	87.90	95.26	0.000023	0.64	293.64	48.93	0.05
North Main	reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000092	1.40	368.95	51.55	0.09
North Main	reach 2	153295	40.00	85.60	88.43	88.21	88.44	0.000103	0.72	55.88	24.54	0.08
North Main	reach 2	153295	100.00	85.60	92.00	86.68	92.00	0.000031	0.61	164.17	36.18	0.05
North Main	reach 2	153295	188.00	85.60	95.23	87.20	95.23	0.000022	0.63	298.51	47.19	0.04
North Main	reach 2	153295	515.00	85.60	96.64	88.55	96.67	0.000093	1.40	368.45	52.08	0.09
North Main	reach 2	153200	40.00	85.60	88.42	88.21	88.42	0.000105	0.72	55.58	24.50	0.08
North Main	reach 2	153200	100.00	85.60	91.99	86.68	91.99	0.000031	0.61	163.77	36.13	0.05
North Main	reach 2	153200	188.00	85.60	95.22	87.20	95.22	0.000022	0.63	298.11	47.16	0.04
North Main	reach 2	153200	515.00	85.60	96.62	88.54	96.65	0.000093	1.40	367.48	52.01	0.09
North Main	reach 2	152900	40.00	85.22	88.40	85.96	88.40	0.000057	0.58	71.20	28.96	0.06
North Main	reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.34	40.41	0.04
North Main	reach 2	152900	188.00	85.22	95.21	86.82	95.21	0.000015	0.55	342.87	50.85	0.04
North Main	reach 2	152900	515.00	85.22	96.60	88.03	96.62	0.000067	1.24	416.60	55.34	0.08
North Main	reach 2	150900	40.00	84.97	88.32	85.46	88.32	0.000031	0.44	90.25	32.96	0.05
North Main	reach 2	150900	100.00	84.97	91.95	85.85	91.96	0.000013	0.43	233.23	45.64	0.03
North Main	reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.31	56.94	0.03
North Main	reach 2	150900	515.00	84.97	96.49	87.43	96.51	0.000048	1.08	478.18	61.53	0.07
North Main	reach 2	150637	40.00	84.27	88.31	85.01	88.31	0.000015	0.34	117.07	37.85	0.03
North Main	reach 2	150637	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.49	52.07	0.03
North Main	reach 2	150637	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.28	65.38	0.03
North Main	reach 2	150637	515.00	84.27	96.49	86.81	96.50	0.000046	0.92	561.00	92.25	0.07
North Main	reach 2	150589	40.00	84.27	88.30	85.01	88.30	0.000016	0.34	116.71	37.82	0.03
North Main	reach 2	150589	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.29	52.06	0.03
North Main	reach 2	150589	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.05	65.36	0.03
North Main	reach 2	150589	515.00	84.27	96.48	86.81	96.50	0.000046	0.92	560.71	92.14	0.07
North Main	reach 2	148900	40.00	84.27	86.27	84.79	88.27	0.000020	0.39	101.82	32.38	0.04
North Main	reach 2	148900	100.00	84.27	91.93	85.20	91.94	0.000011	0.41	244.22	45.30	0.03
North Main	reach 2	148900	188.00	84.27	95.17	85.67	95.18	0.000010	0.46	409.54	56.75	0.03
North Main	reach 2	148900	515.00	84.27	96.40	86.90	96.42	0.000046	1.07	481.68	61.08	0.07
North Main	reach 2	147966	40.00	83.76	88.24	84.95	88.24	0.000072	0.68	59.17	20.37	0.07
North Main	reach 2	147966	100.00	83.76	91.92	85.61	91.93	0.000034	0.65	154.11	31.16	0.05
North Main	reach 2	147966	188.00	83.76	95.16	86.29	95.17	0.000027	0.69	270.97	41.27	0.05
North Main	reach 2	147966	515.00	83.76	96.31	87.99	96.35	0.000129	1.61	320.43	45.43	0.11
North Main	reach 2	147814	40.00	83.76	88.23	84.77	88.23	0.000044	0.55	73.29	24.60	0.06
North Main	reach 2	147814	100.00	83.76	91.91	85.95	91.92	0.000021	0.53	187.11	37.16	0.04
North Main	reach 2	147814	188.00	83.76	95.15	85.97	95.16	0.000017	0.58	325.35	48.14	0.04
North Main	reach 2	147814	515.00	83.76	96.30	87.51	96.33	0.000083	1.35	382.74	52.02	0.09
North Main	reach 2	146900	40.00	83.28	88.21	84.07	88.21	0.000018	0.39	103.01	29.99	0.04
North Main	reach 2	146900	100.00	83.28	91.90	84.58	91.90	0.000011	0.42	237.55	42.95	0.03
North Main	reach 2	146900	188.00	83.28	95.14	85.14	95.15	0.000010	0.48	395.25	54.33	0.03
North Main	reach 2	146900	515.00	83.28	96.24	88.55	96.26	0.000052	1.13	456.96	58.18	0.07



HEC-DAS Plan R10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	125586	982.00	76.00	84.69	79.56	84.82	0.000318	2.85	338.52	57.70	0.20
North Main	reach 2	125586	1985.00	78.00	87.29	81.48	87.52	0.000373	3.90	918.38	994.32	0.23
North Main	reach 2	125586	3435.00	76.00	89.17	83.38	89.26	0.000198	3.24	4682.51	4132.33	0.18
North Main	reach 2	125586	8788.00	76.00	91.28	88.92	91.30	0.000101	2.61	19840.91	9254.02	0.13
North Main	reach 2	124578	982.00	76.00	84.42	79.24	84.53	0.000252	2.75	360.00	60.53	0.18
North Main	reach 2	124578	1985.00	76.00	86.88	81.00	87.14	0.000378	4.13	521.85	70.78	0.24
North Main	reach 2	124578	3435.00	76.00	88.77	82.77	89.00	0.000338	4.42	2567.28	2100.51	0.23
North Main	reach 2	124578	8788.00	76.00	90.95	89.11	91.12	0.000369	5.19	8967.59	5474.81	0.25
North Main	reach 2	124560	982.00	76.00	84.32	79.51	84.47	0.000326	3.06	324.30	56.45	0.21
North Main	reach 2	124560	1985.00	76.00	86.80	81.36	87.06	0.000409	4.22	820.95	448.28	0.25
North Main	reach 2	124560	3435.00	76.00	88.66	83.15	88.91	0.000409	4.78	2037.98	2461.63	0.25
North Main	reach 2	124560	8788.00	76.00	90.96	88.79	91.03	0.000210	3.89	12950.46	5746.89	0.19
North Main	reach 2	124036	982.00	76.00	84.22	79.38	84.36	0.000325	3.05	324.35	55.73	0.21
North Main	reach 2	124036	1985.00	76.00	86.85	81.22	86.92	0.000428	4.30	759.89	414.56	0.25
North Main	reach 2	124036	3435.00	76.00	88.49	83.03	88.77	0.000442	4.93	1894.68	2338.67	0.26
North Main	reach 2	124036	8788.00	76.00	90.87	88.75	90.95	0.000230	4.06	12392.69	5634.60	0.20
North Main	reach 2	122198	982.00	76.00	83.60	79.14	83.74	0.000356	3.03	322.25	58.15	0.22
North Main	reach 2	122198	1985.00	76.00	86.08	80.87	86.23	0.000306	3.52	1454.91	912.78	0.21
North Main	reach 2	122198	3435.00	76.00	88.18	82.63	88.24	0.000186	3.00	4640.25	2068.13	0.16
North Main	reach 2	122198	8788.00	76.00	90.51	87.29	90.57	0.000190	3.66	10965.65	5348.64	0.18
North Main	reach 2	120752	982.00	76.00	82.80	79.42	83.03	0.000713	3.82	252.84	52.00	0.30
North Main	reach 2	120752	1985.00	76.00	85.03	81.24	85.49	0.000910	5.48	379.28	61.73	0.35
North Main	reach 2	120752	3435.00	76.00	87.72	83.02	87.89	0.000380	4.24	3099.97	1841.94	0.24
North Main	reach 2	120752	8788.00	76.00	90.14	87.94	90.24	0.000282	4.33	8307.25	2880.18	0.22
North Main	reach 2	120467	982.00	76.00	82.62	79.23	82.83	0.000683	3.70	260.89	53.78	0.29
North Main	reach 2	120467	1985.00	76.00	84.79	80.99	85.23	0.000876	5.32	388.08	63.25	0.35
North Main	reach 2	120467	3435.00	76.00	87.44	82.74	87.75	0.000538	5.11	2124.62	1724.91	0.29
North Main	reach 2	120467	8788.00	76.00	90.08	88.05	90.16	0.000254	4.13	10027.74	4268.64	0.21
North Main	reach 2	119740	982.00	76.00	81.61	79.23	81.94	0.001356	4.61	206.56	49.38	0.40
North Main	reach 2	119740	1985.00	76.00	83.35	80.96	84.04	0.001847	6.86	301.51	56.98	0.49
North Main	reach 2	119740	3435.00	76.00	86.00	82.74	86.90	0.001499	7.70	675.19	2845.75	0.47
North Main	reach 2	119740	8788.00	76.00	90.02	87.55	90.03	0.000668	2.13	19229.77	7382.64	0.11
North Main	reach 2	119730	982.00	72.00	81.74	75.11	81.80	0.000999	1.92	534.15	83.04	0.12
North Main	reach 2	119730	1985.00	72.00	83.62	78.74	83.77	0.000202	3.17	725.99	126.07	0.18
North Main	reach 2	119730	3435.00	72.00	86.32	78.35	86.56	0.000243	4.08	1389.94	3097.27	0.20
North Main	reach 2	119730	8788.00	72.00	90.01	82.35	90.03	0.000049	2.17	20301.08	7455.91	0.10
North Main	reach 2	118784	982.00	72.00	81.66	75.11	81.72	0.000102	1.94	527.97	82.66	0.12
North Main	reach 2	118784	1985.00	72.00	83.49	76.74	83.61	0.000178	2.94	1266.90	637.70	0.17
North Main	reach 2	118784	3435.00	72.00	86.26	78.35	86.36	0.000130	2.97	4007.96	4362.98	0.15
North Main	reach 2	118784	8788.00	72.00	89.93	84.22	89.98	0.000083	2.82	11019.67	5112.72	0.12
North Main	reach 2	118761	982.00	70.00	81.66	73.45	81.71	0.000084	1.86	546.59	76.91	0.11
North Main	reach 2	118761	1985.00	70.00	83.49	75.48	83.60	0.000160	2.91	1270.94	635.63	0.16
North Main	reach 2	118761	3435.00	70.00	86.25	77.48	86.36	0.000130	3.06	3764.94	1787.83	0.15
North Main	reach 2	118761	8788.00	70.00	89.92	83.99	89.97	0.000093	3.03	11824.54	2612.52	0.13
North Main	reach 2	118735	Culvert									
North Main	reach 2	118709	982.00	70.00	80.64		80.71	0.000128	2.12	470.71	71.54	0.13
North Main	reach 2	118709	1985.00	70.00	83.43		83.55	0.000164	2.94	1236.19	623.30	0.16
North Main	reach 2	118709	3435.00	70.00	86.24		86.34	0.000131	3.07	3740.83	1784.91	0.15
North Main	reach 2	118709	8788.00	70.00	89.92		89.97	0.000093	3.03	11825.70	2612.61	0.13
North Main	reach 2	118635	982.00	72.00	80.82		80.89	0.000150	2.20	452.55	74.06	0.14
North Main	reach 2	118635	1985.00	72.00	83.41		83.53	0.000172	2.93	1249.76	587.64	0.16
North Main	reach 2	118635	3435.00	72.00	86.23		86.32	0.000127	2.97	3846.67	1836.33	0.15
North Main	reach 2	118635	8788.00	72.00	89.91		89.95	0.000087	2.92	12044.15	2624.32	0.13
North Main	reach 2	118513	982.00	72.00	80.80		80.88	0.000144	2.18	459.86	89.25	0.14
North Main	reach 2	118513	1985.00	72.00	83.40		83.51	0.000165	2.89	1267.88	571.90	0.16
North Main	reach 2	118513	3435.00	72.00	86.21		86.30	0.000128	3.00	3771.47	1808.91	0.15
North Main	reach 2	118513	8788.00	72.00	89.89		89.94	0.000089	2.96	11907.77	2606.83	0.13
North Main	reach 2	117690	1120.00	70.00	80.46	73.75	80.57	0.000174	2.70	448.23	64.46	0.16
North Main	reach 2	117690	2355.00	70.00	83.08	75.82	83.35	0.000315	4.31	635.42	81.63	0.22
North Main	reach 2	117690	4175.00	70.00	85.57	77.91	86.12	0.000487	6.10	862.21	97.61	0.29
North Main	reach 2	117690	10250.00	70.00	89.69	83.24	89.85	0.000221	4.88	9359.67	6056.26	0.20
North Main	reach 2	117193	1120.00	70.00	80.38	73.66	80.49	0.000172	2.68	441.96	64.45	0.16
North Main	reach 2	117193	2355.00	70.00	82.94	75.71	83.22	0.000315	4.29	635.52	84.72	0.22
North Main	reach 2	117193	4175.00	70.00	85.38	77.76	85.91	0.000479	6.02	1063.02	329.15	0.28
North Main	reach 2	117193	10250.00	70.00	88.71	83.27	89.61	0.000811	9.03	3667.89	2891.89	0.38
North Main	reach 2	116403	1120.00	70.00	80.29	74.20	80.39	0.000175	2.60	475.33	78.91	0.16

HEC-RAS Plan P 10 D 2 (Continued)

Reach	River Sta	Q Total (cfs)	Mn Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl	
North Main	reach 2	137249	482.00	78.00	87.10	80.54	87.16	0.000092	1.97	321.05	52.99	0.12
North Main	reach 2	137249	1051.00	78.00	90.06	82.09	90.19	0.000151	3.06	495.11	64.52	0.16
North Main	reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.83	67.93	0.24
North Main	reach 2	137249	4804.00	78.00	92.13	88.26	93.82	0.001684	11.41	812.87	9825.97	0.54
North Main	reach 2	137150	482.00	78.00	87.10	80.41	87.15	0.000080	1.84	334.73	53.82	0.11
North Main	reach 2	137150	1051.00	78.00	90.06	81.88	90.17	0.000133	2.88	510.47	64.88	0.15
North Main	reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.65	573.13	68.37	0.23
North Main	reach 2	137150	4804.00	78.00	92.02	87.85	93.63	0.001565	10.98	846.31	2219.39	0.52
North Main	reach 2	135957	482.00	78.00	87.02	80.18	87.06	0.000083	1.84	365.41	57.13	0.10
North Main	reach 2	135957	1051.00	78.00	89.93	81.52	90.03	0.000107	2.58	547.41	67.85	0.13
North Main	reach 2	135957	1858.00	78.00	90.78	83.04	90.96	0.000210	3.79	1407.88	1304.77	0.19
North Main	reach 2	135957	4804.00	78.00	91.89	87.09	92.26	0.000536	6.43	3674.90	2910.72	0.31
North Main	reach 2	135841	482.00	78.00	87.00	80.23	87.05	0.000068	1.69	354.58	55.79	0.10
North Main	reach 2	135841	1051.00	78.00	89.90	81.60	90.00	0.000115	2.67	531.66	66.35	0.14
North Main	reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000248	4.10	1170.01	1398.61	0.20
North Main	reach 2	135841	4804.00	78.00	91.79	87.27	92.20	0.000604	6.77	3720.93	5966.99	0.32
North Main	reach 2	135233	482.00	78.00	86.97	80.32	87.01	0.000066	1.57	344.66	55.10	0.10
North Main	reach 2	135233	1051.00	78.00	89.85	81.73	89.94	0.000107	2.48	518.96	66.03	0.13
North Main	reach 2	135233	1858.00	78.00	90.68	83.13	90.78	0.000151	3.05	2892.15	3641.70	0.16
North Main	reach 2	135233	4804.00	78.00	91.99	86.96	92.00	0.000054	1.95	17107.29	9184.68	0.09
North Main	reach 2	134690	482.00	78.00	86.96	80.04	86.98	0.000046	1.33	404.77	63.73	0.08
North Main	reach 2	134690	1051.00	78.00	89.83	81.31	89.88	0.000069	1.99	952.03	598.72	0.11
North Main	reach 2	134690	1858.00	78.00	90.66	82.63	90.71	0.000084	2.30	4718.44	8803.45	0.12
North Main	reach 2	134690	4804.00	78.00	91.97	86.09	91.98	0.000041	1.73	18914.44	9799.40	0.08
North Main	reach 2	134647	Bridge									
North Main	reach 2	134606	482.00	78.00	86.91	81.96	86.97	0.000132	2.01	314.42	70.54	0.13
North Main	reach 2	134606	1051.00	78.00	89.73	83.30	89.81	0.000140	2.60	1312.26	1870.11	0.15
North Main	reach 2	134606	1858.00	78.00	90.62	84.81	90.66	0.000107	2.41	5385.00	8770.79	0.13
North Main	reach 2	134606	4804.00	78.00	91.98	90.76	91.96	0.000042	1.64	19589.74	9786.65	0.08
North Main	reach 2	134537	482.00	78.00	86.92	80.04	86.95	0.000047	1.33	402.39	63.57	0.08
North Main	reach 2	134537	1051.00	78.00	89.73	81.31	89.79	0.000073	2.03	896.99	575.14	0.11
North Main	reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000094	2.42	4456.30	8741.85	0.12
North Main	reach 2	134537	4804.00	78.00	91.95	86.09	91.96	0.000043	1.76	18668.18	9780.28	0.09
North Main	reach 2	132334	962.00	78.00	86.54	81.36	86.66	0.000267	2.85	348.88	58.28	0.19
North Main	reach 2	132334	1985.00	78.00	89.10	83.16	89.37	0.000386	4.22	683.55	2189.99	0.24
North Main	reach 2	132334	3435.00	78.00	90.23	84.98	90.31	0.000202	3.29	6637.50	8435.94	0.18
North Main	reach 2	132334	8788.00	78.00	91.79	90.51	91.80	0.000098	2.51	21366.80	9649.19	0.13
North Main	reach 2	131688	962.00	78.00	86.37	81.34	86.49	0.000261	2.76	359.27	62.08	0.19
North Main	reach 2	131688	1985.00	78.00	89.00	83.09	89.14	0.000238	3.29	1936.90	2844.87	0.19
North Main	reach 2	131688	3435.00	78.00	90.10	84.81	90.18	0.000188	3.13	5859.42	7587.70	0.17
North Main	reach 2	131688	8788.00	78.00	91.71	89.89	91.73	0.000114	2.70	19220.21	9691.70	0.14
North Main	reach 2	130701	962.00	78.00	86.29	80.24	86.32	0.000093	1.67	1074.78	280.77	0.11
North Main	reach 2	130701	1985.00	78.00	88.93	81.50	88.97	0.000099	2.13	2233.84	1508.60	0.12
North Main	reach 2	130701	3435.00	78.00	89.96	82.88	90.02	0.000135	2.67	4808.33	3205.58	0.15
North Main	reach 2	130701	8788.00	78.00	91.59	86.50	91.61	0.000129	2.87	17380.88	8452.08	0.15
North Main	reach 2	130046	962.00	78.00	86.07	81.30	86.21	0.000320	2.99	329.52	57.98	0.21
North Main	reach 2	130046	1985.00	78.00	88.66	83.09	88.84	0.000325	3.76	1668.02	3297.72	0.22
North Main	reach 2	130046	3435.00	78.00	89.87	84.88	89.92	0.000161	2.88	6704.61	8136.75	0.16
North Main	reach 2	130046	8788.00	78.00	91.54	89.69	91.55	0.000069	2.08	23783.07	9342.15	0.11
North Main	reach 2	128081	962.00	78.00	85.42	81.03	85.56	0.000360	3.01	323.41	215.76	0.22
North Main	reach 2	128081	1985.00	78.00	88.07	82.73	88.23	0.000306	3.54	1742.75	3181.06	0.21
North Main	reach 2	128081	3435.00	78.00	89.58	84.47	89.63	0.000144	2.70	6899.00	6764.99	0.15
North Main	reach 2	128081	8788.00	78.00	91.43	89.09	91.44	0.000047	1.72	27397.28	9636.69	0.09
North Main	reach 2	128032	962.00	78.00	85.40	81.04	85.55	0.000365	3.02	321.73	208.41	0.22
North Main	reach 2	128032	1985.00	78.00	88.05	82.72	88.21	0.000313	3.57	1705.85	3147.67	0.21
North Main	reach 2	128032	3435.00	78.00	89.57	84.47	89.62	0.000145	2.71	6885.76	6793.84	0.15
North Main	reach 2	128032	8788.00	78.00	91.42	89.09	91.43	0.000047	1.71	27430.54	9653.00	0.09
North Main	reach 2	126984	962.00	78.00	85.11	79.67	85.22	0.000259	2.66	361.04	1375.32	0.18
North Main	reach 2	126984	1985.00	78.00	87.92	81.51	87.97	0.000135	2.46	3182.99	4090.31	0.14
North Main	reach 2	126984	3435.00	78.00	89.48	83.42	89.50	0.000074	2.02	8489.65	6571.45	0.11
North Main	reach 2	126984	8788.00	78.00	91.39	88.13	91.40	0.000026	1.38	31422.46	9052.71	0.07
North Main	reach 2	126599	962.00	78.00	85.01	79.66	85.12	0.000266	2.68	360.96	60.48	0.19
North Main	reach 2	126599	1985.00	78.00	87.87	81.48	87.88	0.000334	3.79	803.21	1012.42	0.22
North Main	reach 2	126599	3435.00	78.00	89.38	83.39	89.46	0.000173	3.06	5654.01	6473.70	0.16
North Main	reach 2	126599	8788.00	78.00	91.37	89.23	91.38	0.000056	1.95	24630.65	8887.44	0.10

HEC-RAS Plan P.10.D.2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	145333	40.00	83.11	88.19	83.73	88.20	0.000012	0.33	119.50	32.27	0.03
North Main	reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	282.16	45.25	0.03
North Main	reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.36	57.84	0.03
North Main	reach 2	145333	515.00	83.11	96.17	86.06	96.18	0.000044	1.05	491.19	61.71	0.07
North Main	reach 2	145285	40.00	83.11	88.19	83.73	88.19	0.000012	0.34	119.40	32.26	0.03
North Main	reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	282.06	45.24	0.03
North Main	reach 2	145285	188.00	83.11	95.13	84.73	95.13	0.000008	0.44	429.24	57.83	0.03
North Main	reach 2	145285	515.00	83.11	96.17	86.06	96.18	0.000030	0.87	1061.87	2255.66	0.05
North Main	reach 2	144900	40.00	83.06	84.19	83.56	88.19	0.000007	0.27	149.53	37.62	0.02
North Main	reach 2	144900	100.00	83.06	91.88	83.95	91.89	0.000006	0.32	310.80	49.66	0.02
North Main	reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	567.08	502.88	0.02
North Main	reach 2	144900	515.00	83.06	96.16	85.56	96.17	0.000019	0.72	1749.62	2348.64	0.04
North Main	reach 2	144259	482.00	78.00	88.12	80.37	88.15	0.000062	1.34	360.35	49.90	0.09
North Main	reach 2	144259	1051.00	78.00	91.79	81.85	91.84	0.000079	1.88	563.69	61.85	0.10
North Main	reach 2	144259	1858.00	78.00	94.98	83.44	95.07	0.000087	2.51	779.84	73.70	0.12
North Main	reach 2	144259	4804.00	78.00	95.37	87.36	95.93	0.000556	6.12	1472.90	7690.02	0.29
North Main	reach 2	144227	Culvert									
North Main	reach 2	144196	482.00	78.00	88.01	80.37	88.04	0.000064	1.36	354.91	49.59	0.09
North Main	reach 2	144196	1051.00	78.00	91.21	81.85	91.27	0.000096	2.00	528.29	59.66	0.11
North Main	reach 2	144196	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.60	67.09	0.15
North Main	reach 2	144196	4804.00	78.00	95.37	87.36	95.90	0.000537	6.02	1658.54	7701.23	0.29
North Main	reach 2	143766	482.00	80.00	87.93	83.00	87.99	0.000188	1.95	247.64	47.48	0.15
North Main	reach 2	143766	1051.00	80.00	91.10	84.46	91.20	0.000198	2.53	416.92	59.30	0.16
North Main	reach 2	143766	1858.00	80.00	93.03	85.96	93.23	0.000287	3.55	538.16	66.46	0.20
North Main	reach 2	143766	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8006.06	8954.63	0.20
North Main	reach 2	142844	482.00	80.00	87.76	82.81	87.83	0.000164	1.84	282.35	49.54	0.14
North Main	reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000178	2.41	437.12	61.04	0.15
North Main	reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.38	67.81	0.20
North Main	reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11670.84	9169.20	0.14
North Main	reach 2	142821	Bridge									
North Main	reach 2	142771	482.00	80.00	87.75	82.51	87.80	0.000162	1.84	261.48	48.53	0.14
North Main	reach 2	142771	1051.00	80.00	90.91	83.97	91.00	0.000181	2.43	433.31	60.03	0.16
North Main	reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.69	66.21	0.20
North Main	reach 2	142771	4804.00	80.00	95.16	89.25	95.30	0.000237	3.76	8202.65	8923.66	0.19
North Main	reach 2	141205	482.00	80.00	87.52	82.38	87.57	0.000145	1.77	272.17	49.51	0.13
North Main	reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.38	443.14	59.96	0.15
North Main	reach 2	141205	1858.00	80.00	92.34	85.15	92.52	0.000273	3.43	549.62	65.66	0.20
North Main	reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000124	2.73	11456.93	8885.64	0.14
North Main	reach 2	140152	482.00	80.00	87.33	82.62	87.39	0.000198	1.94	247.95	50.27	0.15
North Main	reach 2	140152	1051.00	80.00	90.44	84.06	90.53	0.000209	2.47	425.14	63.80	0.17
North Main	reach 2	140152	1858.00	80.00	92.02	85.54	92.22	0.000327	3.55	531.06	70.59	0.22
North Main	reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11249.01	9006.83	0.14
North Main	reach 2	140137	Bridge									
North Main	reach 2	140107	482.00	78.00	87.34	80.82	87.37	0.000066	1.45	331.29	54.26	0.10
North Main	reach 2	140107	1051.00	78.00	90.44	82.15	90.51	0.000117	2.03	519.30	66.60	0.13
North Main	reach 2	140107	1858.00	78.00	91.90	83.72	92.04	0.000209	3.03	620.76	72.71	0.17
North Main	reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.36	11295.31	6548.51	0.12
North Main	reach 2	138870	482.00	78.00	87.24	80.26	87.28	0.000066	1.69	360.32	56.15	0.10
North Main	reach 2	138870	1051.00	78.00	90.28	81.66	90.37	0.000109	2.65	548.17	67.44	0.13
North Main	reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.63	72.06	0.20
North Main	reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.62	13699.34	8905.65	0.12
North Main	reach 2	137367	482.00	78.00	87.14	80.26	87.18	0.000069	1.72	354.81	55.90	0.10
North Main	reach 2	137367	1051.00	78.00	90.11	81.69	90.21	0.000115	2.69	537.58	67.02	0.14
North Main	reach 2	137367	1858.00	78.00	91.14	83.26	91.39	0.000264	4.32	608.21	70.85	0.21
North Main	reach 2	137367	4804.00	78.00	94.26	87.47	94.51	0.000311	5.42	4574.15	8308.33	0.24
North Main	reach 2	137364	482.00	78.00	87.13	80.26	87.18	0.000069	1.72	354.49	55.88	0.10
North Main	reach 2	137364	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.45	67.02	0.14
North Main	reach 2	137364	1858.00	78.00	91.13	83.26	91.39	0.000265	4.33	607.89	70.83	0.21
North Main	reach 2	137364	4804.00	78.00	94.26	87.48	94.51	0.000312	5.43	4562.97	8303.31	0.24
North Main	reach 2	137349	Bridge									
North Main	reach 2	137334	482.00	78.00	87.12	80.26	87.16	0.000069	1.72	353.51	55.82	0.10
North Main	reach 2	137334	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.07	67.00	0.14
North Main	reach 2	137334	1858.00	78.00	91.12	83.26	91.38	0.000266	4.33	606.91	70.78	0.21
North Main	reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000551	7.05	2675.34	7114.79	0.32

HEC-DAS Plan P.10.D.2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	116403	2355.00	70.00	82.78	76.04	83.02	0.000301	4.07	724.07	120.77	0.22
North Main	reach 2	116403	4175.00	70.00	85.19	77.98	85.61	0.000420	5.50	1394.65	504.22	0.27
North Main	reach 2	116403	10250.00	70.00	88.24	82.88	89.11	0.000822	8.84	4194.49	3561.11	0.39
North Main	reach 2	118181	1120.00	70.00	80.27	73.29	80.35	0.000125	2.30	545.28	90.59	0.14
North Main	reach 2	118181	2355.00	70.00	82.75	75.16	82.94	0.000227	3.65	829.76	141.45	0.19
North Main	reach 2	118181	4175.00	70.00	85.17	77.13	85.50	0.000319	4.92	1563.74	532.45	0.23
North Main	reach 2	118181	10250.00	70.00	88.12	82.12	88.69	0.000692	8.24	4220.98	3562.90	0.35
North Main	reach 2	115322	1120.00	70.00	80.16	74.01	80.24	0.000134	2.39	913.43	548.07	0.14
North Main	reach 2	115322	2355.00	70.00	82.71	75.78	82.77	0.000115	2.63	2779.64	929.35	0.14
North Main	reach 2	115322	4175.00	70.00	85.22	77.95	85.27	0.000102	2.82	5881.33	1879.77	0.13
North Main	reach 2	115322	10250.00	70.00	88.50	82.27	88.53	0.000072	2.74	17771.27	5546.64	0.12
North Main	reach 2	115218	1120.00	70.00	80.16	73.19	80.23	0.000097	2.13	948.28	487.47	0.12
North Main	reach 2	115218	2355.00	70.00	82.70	74.98	82.77	0.000102	2.56	2714.45	920.13	0.13
North Main	reach 2	115218	4175.00	70.00	85.21	77.05	85.27	0.000095	2.80	5791.29	1865.26	0.13
North Main	reach 2	115218	10250.00	70.00	88.50	82.15	88.53	0.000071	2.77	17768.03	5538.21	0.12
North Main	reach 2	115057	1120.00	70.00	80.17	73.09	80.20	0.000061	1.89	2065.88	1196.54	0.10
North Main	reach 2	115057	2355.00	70.00	82.72	74.83	82.74	0.000040	1.80	8213.06	2266.73	0.08
North Main	reach 2	115057	4175.00	70.00	85.23	76.81	85.24	0.000027	1.49	14057.59	4330.41	0.07
North Main	reach 2	115057	10250.00	70.00	88.50	80.91	88.51	0.000020	1.47	30458.94	6911.07	0.06
North Main	reach 2	114848	1120.00	70.00	80.15	72.89	80.18	0.000048	1.41	2753.69	2275.53	0.08
North Main	reach 2	114848	2355.00	70.00	82.71	74.60	82.72	0.000021	1.12	8613.90	4118.85	0.06
North Main	reach 2	114848	4175.00	70.00	85.23	76.48	85.24	0.000014	1.05	17259.12	7138.80	0.05
North Main	reach 2	114848	10250.00	70.00	88.50	80.65	88.50	0.000014	1.19	34336.93	13492.68	0.05
North Main	reach 2	114815	1120.00	70.00	80.12	72.77	80.15	0.000058	1.58	2172.96	2232.55	0.09
North Main	reach 2	114815	2355.00	70.00	82.71	74.43	82.72	0.000021	1.12	8886.71	4132.87	0.06
North Main	reach 2	114815	4175.00	70.00	85.23	76.24	85.23	0.000013	1.02	17725.71	7088.72	0.05
North Main	reach 2	114815	10250.00	70.00	88.49	81.02	88.49	0.000013	1.16	35530.34	12778.40	0.05
North Main	reach 2	114600	Bridge									
North Main	reach 2	114585	1120.00	70.00	80.10	72.77	80.14	0.000059	1.60	2130.30	2221.68	0.09
North Main	reach 2	114585	2355.00	70.00	82.69	74.43	82.70	0.000021	1.13	8674.70	4117.79	0.06
North Main	reach 2	114585	4175.00	70.00	85.21	76.24	85.21	0.000013	1.02	17707.03	7049.29	0.05
North Main	reach 2	114585	10250.00	70.00	88.46	80.96	88.47	0.000013	1.16	35559.78	12733.41	0.05
North Main	reach 2	114500	1120.00	70.00	80.10	72.77	80.13	0.000060	1.61	2121.43	2219.25	0.09
North Main	reach 2	114500	2355.00	70.00	82.68	74.43	82.69	0.000021	1.12	8841.37	4159.43	0.06
North Main	reach 2	114500	4175.00	70.00	85.20	76.24	85.20	0.000013	1.00	18046.63	7031.53	0.05
North Main	reach 2	114500	10250.00	70.00	88.45	80.95	88.46	0.000013	1.14	36167.68	12716.41	0.05
North Main	reach 2	113500	1120.00	70.00	79.97	72.96	80.05	0.000116	2.20	533.74	71.49	0.13
North Main	reach 2	113500	2355.00	70.00	82.66	74.73	82.67	0.000027	1.27	8432.34	4114.36	0.07
North Main	reach 2	113500	4175.00	70.00	85.18	76.61	85.19	0.000012	0.97	18638.03	8099.55	0.05
North Main	reach 2	113500	10250.00	70.00	88.45	81.62	88.45	0.000013	1.13	37696.48	12776.29	0.05
North Main	reach 3 (south)	315796	410.00	90.87	98.19	93.28	98.24	0.000281	1.92	213.14	41.35	0.15
North Main	reach 3 (south)	315796	573.00	90.87	100.03	93.83	100.09	0.000210	1.94	295.09	47.55	0.14
North Main	reach 3 (south)	315796	770.00	90.87	101.62	94.40	101.68	0.000198	2.05	374.81	52.89	0.14
North Main	reach 3 (south)	315796	1392.00	90.87	104.32	95.86	104.40	0.000201	2.33	833.94	299.87	0.14
North Main	reach 3 (south)	315434	410.00	90.87	98.11	93.06	98.15	0.000188	1.64	249.95	49.43	0.13
North Main	reach 3 (south)	315434	573.00	90.87	99.98	93.55	100.02	0.000145	1.64	349.58	57.14	0.12
North Main	reach 3 (south)	315434	770.00	90.87	101.57	94.06	101.62	0.000137	1.73	445.82	63.71	0.12
North Main	reach 3 (south)	315434	1392.00	90.87	104.36	95.42	104.36	0.000020	0.74	4440.17	1324.78	0.04
North Main	reach 3 (south)	315287	569.00	90.32	98.01	93.48	98.10	0.000414	2.44	233.86	45.45	0.19
North Main	reach 3 (south)	315287	889.00	90.32	99.86	94.34	99.97	0.000413	2.74	323.89	52.27	0.19
North Main	reach 3 (south)	315287	1298.00	90.32	101.41	95.25	101.57	0.000467	3.17	409.54	58.09	0.21
North Main	reach 3 (south)	315287	2652.00	90.32	103.98	97.50	104.32	0.000802	4.63	572.89	69.01	0.28
North Main	reach 3 (south)	314000	569.00	89.95	97.40	93.03	97.51	0.000507	2.67	213.51	41.89	0.21
North Main	reach 3 (south)	314000	889.00	89.95	99.25	93.94	99.39	0.000508	3.00	296.66	48.39	0.21
North Main	reach 3 (south)	314000	1298.00	89.95	100.70	94.90	100.89	0.000590	3.50	370.79	53.52	0.23
North Main	reach 3 (south)	314000	2652.00	89.95	102.55	97.28	103.03	0.001259	5.58	475.57	60.03	0.35
North Main	reach 3 (south)	313862	569.00	89.95	97.33	93.03	97.44	0.000528	2.71	210.31	41.62	0.21
North Main	reach 3 (south)	313862	889.00	89.95	99.17	93.94	99.31	0.000523	3.03	292.98	48.12	0.22
North Main	reach 3 (south)	313862	1298.00	89.95	100.61	94.89	100.81	0.000611	3.55	366.06	53.21	0.24
North Main	reach 3 (south)	313862	2652.00	89.95	102.34	97.28	102.85	0.001350	5.72	463.40	59.31	0.38
North Main	reach 3 (south)	312000	569.00	89.03	96.49	91.86	96.58	0.000400	2.43	234.30	44.40	0.19
North Main	reach 3 (south)	312000	889.00	89.03	98.33	92.72	98.45	0.000410	2.76	321.65	50.74	0.19
North Main	reach 3 (south)	312000	1298.00	89.03	100.17	93.63	100.21	0.000175	1.98	1974.41	1828.17	0.13
North Main	reach 3 (south)	312000	2652.00	89.03	102.52	95.91	102.52	0.000031	0.93	8452.60	3258.17	0.06
North Main	reach 3 (south)	311185	569.00	88.28	96.30	90.77	96.35	0.000194	1.79	318.63	57.19	0.13
North Main	reach 3 (south)	311185	889.00	88.28	98.13	91.55	98.20	0.000208	2.06	430.76	65.18	0.14

HEC-RAS Plan P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # CN
North Main	reach 3 (south)	311185	1298.00	88.28	99.98	92.37	100.04	0.000220	2.33	557.05	73.12	0.15
North Main	reach 3 (south)	311185	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7392.17	3587.45	0.07
North Main	reach 3 (south)	311119	569.00	88.28	96.29	90.77	96.34	0.000195	1.79	317.87	57.14	0.13
North Main	reach 3 (south)	311119	889.00	88.28	98.12	91.55	98.19	0.000209	2.07	429.84	65.12	0.14
North Main	reach 3 (south)	311119	1298.00	88.28	99.95	92.37	100.03	0.000221	2.33	555.95	73.06	0.15
North Main	reach 3 (south)	311119	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7381.88	3587.31	0.07
North Main	reach 3 (south)	310000	569.00	88.03	96.04	90.56	96.10	0.000235	1.99	285.74	48.91	0.15
North Main	reach 3 (south)	310000	889.00	88.03	97.84	91.36	97.92	0.000263	2.34	379.22	54.87	0.16
North Main	reach 3 (south)	310000	1298.00	88.03	99.63	92.23	99.75	0.000289	2.89	482.97	60.69	0.17
North Main	reach 3 (south)	310000	2652.00	88.03	102.43	94.45	102.44	0.000065	1.33	6497.51	3211.86	0.08
North Main	reach 3 (south)	308000	569.00	87.73	95.54	90.26	95.80	0.000260	2.07	275.22	48.06	0.15
North Main	reach 3 (south)	308000	889.00	87.73	97.27	91.07	97.37	0.000294	2.44	363.65	53.76	0.17
North Main	reach 3 (south)	308000	1298.00	87.73	99.01	91.93	99.13	0.000326	2.81	481.85	59.48	0.18
North Main	reach 3 (south)	308000	2652.00	87.73	102.26	94.15	102.28	0.000087	1.66	5631.20	3536.34	0.09
North Main	reach 3 (south)	307236	569.00	87.73	95.26	90.64	95.35	0.000419	2.45	231.79	44.90	0.19
North Main	reach 3 (south)	307236	889.00	87.73	96.98	91.54	97.09	0.000449	2.83	314.06	51.55	0.20
North Main	reach 3 (south)	307236	1298.00	87.73	98.67	92.47	98.83	0.000470	3.18	407.67	57.79	0.21
North Main	reach 3 (south)	307236	2652.00	87.73	102.10	94.76	102.15	0.000419	2.37	2671.78	2607.12	0.19
North Main	reach 3 (south)	307136	569.00	87.73	95.21	90.64	95.31	0.000429	2.48	229.78	44.73	0.19
North Main	reach 3 (south)	307136	889.00	87.73	96.92	91.54	97.04	0.000459	2.85	311.56	51.36	0.20
North Main	reach 3 (south)	307136	1298.00	87.73	98.62	92.47	98.78	0.000480	3.21	404.74	57.62	0.21
North Main	reach 3 (south)	307136	2652.00	87.73	102.05	94.76	102.11	0.000451	2.46	2547.95	2499.39	0.20
North Main	reach 3 (south)	306000	569.00	86.38	94.67	90.06	94.78	0.000502	2.65	214.49	42.05	0.21
North Main	reach 3 (south)	306000	889.00	86.38	96.33	91.07	96.47	0.000548	3.07	289.23	48.33	0.22
North Main	reach 3 (south)	306000	1298.00	86.38	98.00	92.08	98.18	0.000581	3.48	375.28	54.75	0.23
North Main	reach 3 (south)	306000	2652.00	86.38	101.03	94.62	101.38	0.000835	4.74	559.58	66.51	0.29
North Main	reach 3 (south)	304000	569.00	86.39	93.77	89.22	93.86	0.000420	2.47	230.69	44.48	0.19
North Main	reach 3 (south)	304000	889.00	86.39	95.31	90.10	95.44	0.000483	2.93	303.41	49.84	0.21
North Main	reach 3 (south)	304000	1298.00	86.39	96.89	91.02	97.07	0.000531	3.38	386.81	55.36	0.22
North Main	reach 3 (south)	304000	2652.00	86.39	99.17	93.30	99.57	0.000986	5.08	521.62	63.26	0.31
North Main	reach 3 (south)	302336	569.00	86.39	93.04	89.14	93.12	0.000466	2.38	239.21	44.82	0.20
North Main	reach 3 (south)	302336	889.00	86.39	94.51	89.94	94.63	0.000491	2.72	326.29	63.36	0.21
North Main	reach 3 (south)	302336	1298.00	86.39	96.08	90.78	96.22	0.000484	3.00	432.22	71.56	0.22
North Main	reach 3 (south)	302336	2652.00	86.39	99.07	92.81	99.06	0.000688	1.03	5321.13	2125.54	0.09
North Main	reach 3 (south)	302274	569.00	86.39	92.97	89.45	93.09	0.000699	2.71	208.71	53.34	0.24
North Main	reach 3 (south)	302274	889.00	86.39	94.45	90.31	94.59	0.000664	3.02	293.94	60.94	0.24
North Main	reach 3 (south)	302274	1298.00	86.39	96.01	91.23	96.18	0.000629	3.28	395.83	69.63	0.24
North Main	reach 3 (south)	302274	2652.00	86.39	99.05	93.33	99.07	0.000144	1.84	4050.19	2018.01	0.12
North Main	reach 3 (south)	301922	569.00	86.39	92.82	88.68	92.90	0.000368	2.24	253.92	52.64	0.18
North Main	reach 3 (south)	301922	889.00	86.39	94.29	89.41	94.40	0.000413	2.65	335.38	58.64	0.20
North Main	reach 3 (south)	301922	1298.00	86.39	95.65	90.19	95.99	0.000437	3.01	431.69	64.76	0.21
North Main	reach 3 (south)	301922	2652.00	86.39	98.97	92.18	99.01	0.000178	2.13	3472.22	2124.79	0.13
North Main	reach 3 (south)	301915	569.00	86.39	92.82	88.66	92.89	0.000357	2.22	256.67	52.84	0.18
North Main	reach 3 (south)	301915	889.00	86.39	94.28	89.38	94.39	0.000401	2.63	338.17	58.49	0.19
North Main	reach 3 (south)	301915	1298.00	86.39	95.84	90.15	95.98	0.000429	2.99	434.17	64.82	0.20
North Main	reach 3 (south)	301915	2652.00	86.39	98.98	92.13	99.00	0.000118	1.59	4746.56	2553.02	0.11
North Main	reach 3 (south)	301865	569.00	86.39	92.80	88.66	92.87	0.000361	2.23	255.68	52.77	0.18
North Main	reach 3 (south)	301865	889.00	86.39	94.26	89.38	94.37	0.000405	2.64	336.94	58.41	0.19
North Main	reach 3 (south)	301865	1298.00	86.39	95.81	90.15	95.95	0.000433	3.00	432.70	64.72	0.20
North Main	reach 3 (south)	301865	2652.00	86.39	98.98	92.13	98.99	0.000119	1.59	4730.86	2552.40	0.11
North Main	reach 3 (south)	301721	569.00	86.39	92.86	89.06	92.80	0.000637	2.60	203.41	45.33	0.23
North Main	reach 3 (south)	301721	889.00	86.39	94.12	89.90	94.29	0.000695	3.25	273.19	51.58	0.25
North Main	reach 3 (south)	301721	1298.00	86.39	95.67	90.77	95.87	0.000711	3.63	358.04	58.28	0.26
North Main	reach 3 (south)	301721	2652.00	86.39	98.89	92.95	98.96	0.000420	2.74	2258.75	1285.32	0.20
North Main	reach 3 (south)	301655	569.00	86.39	92.64	89.08	92.76	0.000655	2.83	201.35	45.13	0.24
North Main	reach 3 (south)	301655	889.00	86.39	94.07	89.90	94.24	0.000713	3.29	270.62	51.36	0.25
North Main	reach 3 (south)	301655	1298.00	86.39	95.61	90.78	95.82	0.000728	3.68	355.06	58.06	0.26
North Main	reach 3 (south)	301655	2652.00	86.39	98.87	92.95	98.94	0.000464	2.61	2237.75	1284.51	0.20
North Main	reach 3 (south)	300000	569.00	86.39	90.99	88.74	91.20	0.001441	3.73	152.58	40.80	0.34
North Main	reach 3 (south)	300000	889.00	86.39	92.35	89.50	92.83	0.001382	4.21	211.34	45.24	0.34
North Main	reach 3 (south)	300000	1298.00	86.39	93.96	90.32	94.28	0.001226	4.50	288.24	50.42	0.33
North Main	reach 3 (south)	300000	2652.00	86.39	97.20	92.41	97.69	0.001331	5.66	468.18	60.85	0.36
North Main	reach 3 (south)	299385	569.00	86.39	89.70	88.37	90.00	0.002731	4.37	130.23	44.81	0.45
North Main	reach 3 (south)	299385	889.00	86.39	91.47	89.04	91.74	0.001513	4.16	213.85	50.11	0.35
North Main	reach 3 (south)	299385	1298.00	86.39	93.28	89.75	93.55	0.001087	4.20	308.85	54.66	0.31
North Main	reach 3 (south)	299385	2652.00	86.39	96.46	91.65	96.90	0.001193	5.37	493.72	63.33	0.34





Flow	Flow Sls	Q Total	Min Ch El	W S Elev	Ch W.S.	E.G. Elev	E.G. Slope	Vel Chnt	Flow Area	Top Width	Floods # Ch
	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft <sup>2</sup> )	(sq ft)	(ft)	(ft)
North Main	reach 3 (south)	284500	1044.00	74.78	83.42	77.78	0.000307	2.48	421.04	64.96	0.17
North Main	reach 3 (south)	284500	1567.00	74.78	85.28	78.62	0.000381	2.88	548.61	71.88	0.18
North Main	reach 3 (south)	284500	2228.00	74.78	87.17	79.55	0.000359	3.22	691.18	78.89	0.19
North Main	reach 3 (south)	284500	4412.00	74.78	90.50	81.95	0.000429	2.58	962.57	1201.64	0.20
North Main	reach 3 (south)	284287	1044.00	74.78	83.33	77.89	0.000389	2.66	398.89	60.85	0.19
North Main	reach 3 (south)	284287	1567.00	74.78	85.18	79.79	0.000396	3.09	507.39	67.19	0.20
North Main	reach 3 (south)	284287	2228.00	74.78	87.06	79.75	0.000422	3.48	639.85	73.82	0.21
North Main	reach 3 (south)	284287	4412.00	74.78	90.39	82.22	0.000594	2.51	931.31	1207.42	0.22
North Main	reach 3 (south)	284201	1044.00	74.78	83.29	77.89	0.000376	2.70	398.48	60.51	0.19
North Main	reach 3 (south)	284201	1567.00	74.78	85.14	79.79	0.000409	3.11	504.58	67.04	0.20
North Main	reach 3 (south)	284201	2228.00	74.78	87.02	79.75	0.000426	3.50	638.72	73.67	0.21
North Main	reach 3 (south)	284201	4412.00	74.78	90.98	82.22	0.000398	4.66	942.80	1237.58	0.41
North Main	reach 3 (south)	284000	1044.00	73.32	83.23	77.22	0.000305	2.44	427.34	66.52	0.17
North Main	reach 3 (south)	284000	1567.00	73.32	85.09	78.40	0.000325	2.82	556.57	73.05	0.18
North Main	reach 3 (south)	284000	2228.00	73.32	86.96	81.12	0.000369	3.18	699.89	79.89	0.19
North Main	reach 3 (south)	284000	4412.00	73.32	90.79	84.76	0.000602	4.70	938.35	1201.64	0.20
North Main	reach 3 (south)	282000	1044.00	73.32	82.71	76.35	0.000235	2.26	482.87	66.86	0.15
North Main	reach 3 (south)	282000	1567.00	73.32	84.50	77.22	0.000272	2.66	588.18	73.65	0.17
North Main	reach 3 (south)	282000	2228.00	73.32	86.33	78.15	0.000304	3.05	729.46	80.57	0.18
North Main	reach 3 (south)	282000	4412.00	73.32	89.53	80.58	0.000442	4.82	915.22	1203.64	0.21
North Main	reach 3 (south)	280000	1044.00	73.32	82.14	76.38	0.000307	2.49	418.66	63.76	0.17
North Main	reach 3 (south)	280000	1567.00	73.32	83.84	77.22	0.000354	2.94	532.46	70.04	0.19
North Main	reach 3 (south)	280000	2228.00	73.32	85.59	78.21	0.000395	3.37	681.03	75.52	0.20
North Main	reach 3 (south)	280000	4412.00	73.32	87.98	80.64	0.000410	3.73	869.46	1203.64	0.21
North Main	reach 3 (south)	279000	1044.00	73.32	81.32	76.63	0.000504	2.66	352.16	60.61	0.22
North Main	reach 3 (south)	279000	1567.00	73.32	83.00	77.54	0.000563	3.46	452.95	68.62	0.23
North Main	reach 3 (south)	279000	2228.00	73.32	84.66	78.50	0.000610	3.91	588.40	73.87	0.25
North Main	reach 3 (south)	279000	4412.00	73.32	87.10	80.94	0.000254	2.81	814.13	1154.65	0.18
North Main	reach 3 (south)	278000	1044.00	74.04	80.08	76.67	0.000745	3.27	318.66	64.43	0.26
North Main	reach 3 (south)	278000	1567.00	74.04	81.56	77.41	0.000765	3.74	419.01	69.84	0.27
North Main	reach 3 (south)	278000	2228.00	74.04	83.16	78.25	0.000789	4.16	535.18	75.75	0.28
North Main	reach 3 (south)	278000	4412.00	74.04	85.50	80.41	0.001895	5.98	737.30	110.50	0.41
North Main	reach 3 (south)	275122	1044.00	74.04	78.74	76.94	0.002514	5.01	208.44	55.86	0.46
North Main	reach 3 (south)	275122	1567.00	74.04	80.36	77.75	0.001874	5.15	304.26	61.91	0.41
North Main	reach 3 (south)	275122	2228.00	74.04	82.03	78.53	0.001593	5.40	412.24	67.42	0.39
North Main	reach 3 (south)	275113	4412.00	74.04	84.01	80.88	0.001653	6.18	561.26	1565.58	0.42
North Main	reach 3 (south)	275102	1044.00	70.28	78.73	73.20	0.000346	2.58	404.96	64.47	0.18
North Main	reach 3 (south)	275102	1567.00	70.28	80.35	74.06	0.000401	3.05	513.87	70.20	0.20
North Main	reach 3 (south)	275102	2228.00	70.28	82.02	75.00	0.000448	3.50	636.52	76.82	0.21
North Main	reach 3 (south)	274837	1044.00	70.28	78.74	72.17	0.000884	1.98	754.59	109.82	0.09
North Main	reach 3 (south)	274837	1567.00	70.28	80.37	72.74	0.001011	1.87	939.77	117.29	0.10
North Main	reach 3 (south)	274837	2228.00	70.28	82.06	73.36	0.000115	1.95	1143.79	124.41	0.11
North Main	reach 3 (south)	274000	1044.00	70.28	78.57	72.91	0.000250	2.24	465.37	72.09	0.16
North Main	reach 3 (south)	274000	1567.00	70.28	80.16	73.66	0.000297	2.68	548.99	78.59	0.17
North Main	reach 3 (south)	274000	2228.00	70.28	81.81	74.52	0.000337	3.09	691.34	85.34	0.19
North Main	reach 3 (south)	274000	4412.00	70.28	83.76	76.72	0.000380	3.59	858.75	100.35	0.28
North Main	reach 3 (south)	271000	1044.00	70.28	78.21	72.67	0.000220	2.08	503.02	80.48	0.15
North Main	reach 3 (south)	271000	1567.00	70.28	79.73	73.98	0.000261	2.48	630.63	87.17	0.16
North Main	reach 3 (south)	271000	2228.00	70.28	81.32	74.16	0.000298	2.88	774.74	94.15	0.18
North Main	reach 3 (south)	271000	4412.00	70.28	82.75	76.21	0.000731	4.83	913.52	100.35	0.28
North Main	reach 3 (south)	270000	1044.00	70.27	77.88	73.02	0.000460	2.85	442.56	71.55	0.21
North Main	reach 3 (south)	270000	1567.00	70.27	79.09	73.29	0.000541	3.52	548.72	76.06	0.23
North Main	reach 3 (south)	270000	2228.00	70.27	80.58	74.66	0.000614	4.06	683.11	80.99	0.25
North Main	reach 3 (south)	270000	4412.00	70.27	82.48	76.90	0.000201	2.55	878.35	293.50	0.15

HEC-RAS Plan 2D (2009)

HEC-RAS Plan R 10.D.2 (Continued)

Fliver	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	269920	1306.00	70.27	78.73	73.80	77.03	0.001290	4.37	299.05	58.43	0.34
North Main	reach 3 (south)	269920	1925.00	70.27	77.94	74.51	78.38	0.001499	5.17	372.61	62.98	0.37
North Main	reach 3 (south)	269920	2703.00	70.27	79.25	75.50	79.79	0.001852	5.90	457.96	67.82	0.40
North Main	reach 3 (south)	269920	5237.00	70.27	82.04	78.02	82.14	0.000740	3.57	3568.23	2730.06	0.26
North Main	reach 3 (south)	269788	1306.00	70.27	76.52	73.60	76.84	0.001453	4.55	286.91	57.64	0.36
North Main	reach 3 (south)	269788	1925.00	70.27	77.69	74.51	78.14	0.001695	5.39	356.85	62.03	0.40
North Main	reach 3 (south)	269788	2703.00	70.27	78.96	75.50	79.55	0.001864	6.16	438.73	66.77	0.42
North Main	reach 3 (south)	269788	5237.00	70.27	81.92	78.02	82.03	0.000893	3.89	3287.45	2251.01	0.29
North Main	reach 3 (south)	269131	1306.00	70.27	73.66	73.37	74.78	0.009694	8.42	155.13	52.65	0.66
North Main	reach 3 (south)	269131	1925.00	70.27	74.99	74.22	78.10	0.006738	8.46	227.58	57.93	0.75
North Main	reach 3 (south)	269131	2703.00	70.27	78.62	75.13	77.68	0.004599	8.26	327.19	64.27	0.65
North Main	reach 3 (south)	269131	5237.00	70.27	78.80	77.51	80.88	0.005866	10.99	476.53	72.58	0.76
North Main	reach 3 (south)	269121	Inline Weir									
North Main	reach 3 (south)	269108	1306.00	65.34	73.38	68.57	73.56	0.000598	3.38	385.88	60.49	0.24
North Main	reach 3 (south)	269108	1925.00	65.34	74.98	69.48	75.22	0.000678	3.95	487.33	66.22	0.26
North Main	reach 3 (south)	269108	2703.00	65.34	76.61	70.48	76.93	0.000756	4.50	600.34	72.50	0.28
North Main	reach 3 (south)	269108	5237.00	65.34	78.79	73.11	79.52	0.001489	6.81	768.76	82.01	0.39
North Main	reach 3 (south)	268000	1306.00	65.34	72.73	68.42	72.89	0.000804	3.23	403.80	70.70	0.24
North Main	reach 3 (south)	268000	1925.00	65.34	74.27	69.28	74.48	0.000849	3.72	517.88	77.37	0.25
North Main	reach 3 (south)	268000	2703.00	65.34	75.84	70.19	76.11	0.000896	4.19	644.73	84.36	0.27
North Main	reach 3 (south)	268000	5237.00	65.34	78.90	72.63	77.68	0.001862	7.10	737.52	90.23	0.44
North Main	reach 3 (south)	266898	1306.00	65.32	71.72	68.31	71.93	0.000917	3.69	353.98	70.13	0.29
North Main	reach 3 (south)	266898	1925.00	65.32	73.21	69.13	73.48	0.000920	4.15	463.98	76.94	0.30
North Main	reach 3 (south)	266898	2703.00	65.32	74.73	70.01	75.06	0.000938	4.61	586.19	83.86	0.31
North Main	reach 3 (south)	266898	5237.00	65.32	75.89	72.28	76.06	0.000732	4.34	4021.21	3385.38	0.28
North Main	reach 3 (south)	266888	Inline Weir									
North Main	reach 3 (south)	266679	1306.00	61.46	71.71	64.54	71.78	0.000170	2.07	631.27	82.48	0.13
North Main	reach 3 (south)	266679	1925.00	61.46	73.21	65.38	73.31	0.000220	2.54	759.10	88.33	0.15
North Main	reach 3 (south)	266679	2703.00	61.46	74.72	66.24	74.86	0.000272	3.01	897.54	94.43	0.17
North Main	reach 3 (south)	266679	5237.00	61.46	75.88	68.53	76.02	0.000356	3.59	4387.34	3397.04	0.20
North Main	reach 3 (south)	266000	1306.00	59.80	71.63	62.86	71.88	0.000102	1.73	754.55	87.36	0.10
North Main	reach 3 (south)	266000	1925.00	59.80	73.10	63.72	73.18	0.000141	2.17	886.99	93.05	0.12
North Main	reach 3 (south)	266000	2703.00	59.80	74.60	64.63	74.70	0.000180	2.59	1289.41	100.93	0.14
North Main	reach 3 (south)	266000	5237.00	59.80	75.68	66.95	75.80	0.000271	3.31	4570.18	3336.56	0.18
North Main	reach 3 (south)	265565	1306.00	59.80	71.56	63.58	71.62	0.000166	2.05	636.47	83.04	0.13
North Main	reach 3 (south)	265565	1925.00	59.80	73.00	64.54	73.10	0.000223	2.53	761.26	90.31	0.15
North Main	reach 3 (south)	265565	2703.00	59.80	74.53	65.56	74.62	0.000197	2.52	2399.20	2474.50	0.15
North Main	reach 3 (south)	265565	5237.00	59.80	75.62	68.12	75.68	0.000209	2.71	6395.41	3901.35	0.15
North Main	reach 3 (south)	265509	1306.00	59.80	71.55	63.58	71.61	0.000167	2.05	635.67	82.99	0.13
North Main	reach 3 (south)	265509	1925.00	59.80	72.98	64.54	73.08	0.000224	2.53	760.09	90.24	0.15
North Main	reach 3 (south)	265509	2703.00	59.80	74.52	65.57	74.61	0.000199	2.53	2368.82	2407.93	0.15
North Main	reach 3 (south)	265509	5237.00	59.80	75.61	68.13	75.67	0.000212	2.72	6350.13	3900.96	0.15
North Main	reach 3 (south)	264000	1306.00	59.75	71.33	63.05	71.39	0.000135	1.95	670.35	79.75	0.12
North Main	reach 3 (south)	264000	1925.00	59.75	72.68	63.91	72.77	0.000193	2.46	781.32	84.76	0.14
North Main	reach 3 (south)	264000	2703.00	59.75	74.36	64.86	74.39	0.000095	1.82	4706.53	3335.07	0.10
North Main	reach 3 (south)	264000	5237.00	59.75	75.39	67.30	75.41	0.000131	1.81	8506.07	3871.04	0.12
North Main	reach 3 (south)	262000	1306.00	59.40	71.04	62.70	71.10	0.000145	2.01	650.50	77.57	0.12
North Main	reach 3 (south)	262000	1925.00	59.40	72.26	63.63	72.36	0.000215	2.57	747.72	82.15	0.15
North Main	reach 3 (south)	262000	2703.00	59.40	73.85	64.61	73.96	0.000795	2.73	989.93	279.86	0.26
North Main	reach 3 (south)	262000	5237.00	59.40	75.11	67.14	75.12	0.000149	1.32	7532.43	3949.06	0.11
North Main	reach 3 (south)	260000	1565.00	59.40	70.70	63.04	70.76	0.000209	1.93	809.25	140.64	0.14
North Main	reach 3 (south)	260000	2291.00	59.40	71.80	63.96	71.88	0.000285	2.31	1171.76	670.11	0.16
North Main	reach 3 (south)	260000	3206.00	59.40	73.11	64.96	73.18	0.000248	2.29	2079.68	721.51	0.15
North Main	reach 3 (south)	260000	6165.00	59.40	74.81	67.44	74.85	0.000209	1.98	6377.57	2320.87	0.14
North Main	reach 3 (south)	258000	1565.00	58.66	70.37	62.05	70.43	0.000136	2.01	780.01	89.92	0.12
North Main	reach 3 (south)	258000	2291.00	58.66	71.29	62.90	71.40	0.000218	2.65	884.38	93.38	0.15
North Main	reach 3 (south)	258000	3206.00	58.66	72.48	63.83	72.64	0.000288	3.20	1332.08	1061.34	0.18
North Main	reach 3 (south)	258000	6165.00	58.66	74.31	66.26	74.40	0.000242	3.14	6099.31	3368.93	0.17
North Main	reach 3 (south)	256681	1565.00	58.71	70.16	62.22	70.23	0.000161	2.11	742.89	91.29	0.13
North Main	reach 3 (south)	256681	2291.00	58.71	70.95	63.12	71.08	0.000266	2.81	816.52	94.88	0.17
North Main	reach 3 (south)	256681	3206.00	58.71	72.31	64.09	72.35	0.000137	2.13	4051.23	2553.73	0.12
North Main	reach 3 (south)	256681	6165.00	58.71	74.15	66.57	74.17	0.000114	1.35	10371.21	4021.06	0.10
North Main	reach 3 (south)	256121	1565.00	58.27	70.15	60.74	70.18	0.000043	1.20	1301.83	139.02	0.07
North Main	reach 3 (south)	256121	2291.00	58.27	70.94	61.35	70.98	0.000072	1.62	1412.67	142.55	0.09
North Main	reach 3 (south)	256121	3206.00	58.27	72.21	62.02	72.26	0.000188	1.83	1883.74	2754.45	0.14
North Main	reach 3 (south)	256121	6165.00	58.27	74.13	63.78	74.13	0.000040	1.01	12944.10	3721.33	0.06



HFC-PAS Plan: P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	255391	1585.00	58.07	70.10	61.89	70.14	0.000138	1.74	1144.58	2919.87	0.12
North Main	reach 3 (south)	255391	2291.00	58.07	70.98	62.58	70.93	0.000191	2.12	1532.48	3109.34	0.14
North Main	reach 3 (south)	255391	3208.00	58.07	72.10	63.50	72.15	0.000208	2.09	2495.67	3452.80	0.14
North Main	reach 3 (south)	255391	6185.00	58.07	74.11	65.91	74.12	0.000019	0.88	17899.10	3508.71	0.04
North Main	reach 3 (south)	254845	1585.00	58.07	70.05	61.47	70.07	0.000063	1.37	2819.07	3933.34	0.08
North Main	reach 3 (south)	254845	2291.00	58.07	70.80	62.33	70.81	0.000098	1.11	4331.59	4070.99	0.09
North Main	reach 3 (south)	254845	3208.00	58.07	72.07	63.25	72.07	0.000051	0.87	7058.35	4255.88	0.07
North Main	reach 3 (south)	254845	6185.00	58.07	74.10	65.65	74.11	0.000010	0.48	23695.57	4331.00	0.03
North Main	reach 3 (south)	254785	1585.00	58.07	70.04	61.47	70.08	0.000064	1.38	2747.33	3932.83	0.08
North Main	reach 3 (south)	254785	2291.00	58.07	70.79	62.33	70.80	0.000098	1.12	4201.65	4069.86	0.09
North Main	reach 3 (south)	254785	3208.00	58.07	72.06	63.25	72.07	0.000052	0.87	7437.68	4254.79	0.07
North Main	reach 3 (south)	254785	6185.00	58.07	74.09	65.65	74.09	0.000010	0.48	23649.21	4330.89	0.03
North Main	reach 3 (south)	254000	1585.00	58.07	70.03	61.54	70.03	0.000018	0.89	7092.93	4064.45	0.04
North Main	reach 3 (south)	254000	2291.00	58.07	70.78	62.48	70.78	0.000018	0.81	9354.31	4131.88	0.04
North Main	reach 3 (south)	254000	3208.00	58.07	72.04	63.44	72.04	0.000012	0.53	3456.25	4250.71	0.03
North Main	reach 3 (south)	254000	6185.00	58.07	74.08	65.99	74.08	0.000008	0.50	25541.14	4274.65	0.03
North Main	reach 3 (south)	252000	1585.00	58.08	69.87	61.85	69.94	0.000265	2.15	728.74	127.33	0.18
North Main	reach 3 (south)	252000	2291.00	58.08	70.73	62.80	70.73	0.000019	0.63	8890.19	5957.73	0.04
North Main	reach 3 (south)	252000	3208.00	58.08	72.03	63.81	72.03	0.000012	0.56	12727.92	5965.40	0.04
North Main	reach 3 (south)	252000	6185.00	58.08	74.06	66.38	74.06	0.000009	0.54	24048.17	5975.95	0.03
North Main	reach 3 (south)	250880	1585.00	57.32	69.84	60.90	69.88	0.000186	1.83	958.50	194.94	0.13
North Main	reach 3 (south)	250880	2291.00	57.32	70.70	61.84	70.71	0.000038	0.79	5282.11	4958.28	0.06
North Main	reach 3 (south)	250880	3208.00	57.32	72.01	62.84	72.01	0.000028	0.78	7254.08	4981.42	0.05
North Main	reach 3 (south)	250880	6185.00	57.32	74.04	65.39	74.05	0.000035	0.99	10347.20	4983.10	0.06
North Main	reach 3 (south)	250000	1630.00	57.29	69.53	60.32	69.57	0.000098	1.58	1029.39	135.51	0.10
North Main	reach 3 (south)	250000	2428.00	57.29	70.67	61.17	70.68	0.000049	0.89	5510.44	5024.77	0.07
North Main	reach 3 (south)	250000	3444.00	57.29	71.99	62.10	71.99	0.000031	0.79	8245.25	5058.58	0.06
North Main	reach 3 (south)	250000	6802.00	57.29	74.03	64.50	74.03	0.000007	0.42	30679.59	5099.43	0.03
North Main	reach 3 (south)	248748	1630.00	57.29	69.31	60.88	69.38	0.000272	2.03	803.30	157.83	0.18
North Main	reach 3 (south)	248748	2428.00	57.29	70.55	61.88	70.59	0.000201	1.72	2278.32	3904.64	0.14
North Main	reach 3 (south)	248748	3444.00	57.29	71.92	62.94	71.94	0.000127	1.59	3558.90	3918.38	0.11
North Main	reach 3 (south)	248748	6802.00	57.29	74.02	65.66	74.03	0.000013	0.61	22354.87	3933.49	0.04
North Main	reach 3 (south)	248519	1630.00	57.29	69.25	60.88	69.32	0.000285	2.05	795.49	151.08	0.18
North Main	reach 3 (south)	248519	2428.00	57.29	70.51	61.88	70.55	0.000213	1.73	2239.58	3904.29	0.14
North Main	reach 3 (south)	248519	3444.00	57.29	71.89	62.94	71.92	0.000130	1.58	3536.19	3918.15	0.11
North Main	reach 3 (south)	248519	6802.00	57.29	74.01	65.66	74.02	0.000013	0.60	22318.85	3933.41	0.04
North Main	reach 3 (south)	248000	1630.00	57.30	69.13	61.28	69.20	0.000177	2.21	738.41	91.07	0.14
North Main	reach 3 (south)	248000	2428.00	57.30	70.48	62.30	70.49	0.000054	1.18	5230.02	3894.58	0.07
North Main	reach 3 (south)	248000	3444.00	57.30	71.88	63.33	71.88	0.000034	0.97	7973.47	3978.72	0.06
North Main	reach 3 (south)	248000	6802.00	57.30	74.00	66.08	74.01	0.000013	0.66	22504.36	4018.10	0.04
North Main	reach 3 (south)	247478	1630.00	57.30	68.78	66.70	68.98	0.001547	3.84	447.89	118.90	0.33
North Main	reach 3 (south)	247478	2428.00	57.30	70.47	67.29	70.47	0.000055	0.78	5279.75	3931.84	0.06
North Main	reach 3 (south)	247478	3444.00	57.30	71.87	67.94	71.87	0.000036	0.73	7925.14	4078.54	0.05
North Main	reach 3 (south)	247478	6802.00	57.30	73.99	70.00	74.00	0.000018	0.85	20886.16	4203.74	0.04
North Main	reach 3 (south)	247400	1630.00	57.30	68.68	66.61	68.87	0.001413	3.44	473.79	129.83	0.32
North Main	reach 3 (south)	247400	2428.00	57.30	70.46	67.15	70.47	0.000055	0.77	5265.11	3923.80	0.06
North Main	reach 3 (south)	247400	3444.00	57.30	71.86	67.79	71.87	0.000036	0.74	7901.92	4071.48	0.05
North Main	reach 3 (south)	247400	6802.00	57.30	73.98	69.49	73.99	0.000019	0.65	20911.14	4195.78	0.04
North Main	reach 3 (south)	248000	1630.00	57.05	68.19	60.62	68.27	0.000187	2.21	738.66	94.70	0.14
North Main	reach 3 (south)	248000	2428.00	57.05	70.35	61.81	70.37	0.000088	1.51	3126.83	3511.25	0.09
North Main	reach 3 (south)	248000	3444.00	57.05	71.78	62.65	71.80	0.000070	1.48	4428.20	3555.55	0.09
North Main	reach 3 (south)	248000	6802.00	57.05	73.98	65.30	73.98	0.000016	0.79	20003.59	3568.35	0.04
North Main	reach 3 (south)	244000	1630.00	57.05	67.59	61.42	67.73	0.000402	3.00	543.79	78.30	0.20
North Main	reach 3 (south)	244000	2428.00	57.05	69.87	62.54	70.04	0.000391	3.31	733.45	88.70	0.20
North Main	reach 3 (south)	244000	3444.00	57.05	71.58	63.72	71.61	0.000129	1.95	3708.28	5926.83	0.12
North Main	reach 3 (south)	244000	6802.00	57.05	73.93	66.66	73.93	0.000007	0.43	32510.45	6014.71	0.03
North Main	reach 3 (south)	242500	1630.00	56.61	66.99	61.05	67.14	0.000396	3.02	540.82	76.06	0.20
North Main	reach 3 (south)	242500	2428.00	56.61	69.28	62.07	69.45	0.000389	3.35	724.91	85.44	0.20
North Main	reach 3 (south)	242500	3444.00	56.61	71.05	63.17	71.27	0.000427	3.78	1242.79	3879.41	0.22
North Main	reach 3 (south)	242500	6802.00	56.61	73.90	66.03	73.91	0.000044	1.30	14651.15	3780.28	0.07
North Main	reach 3 (south)	241505	1630.00	56.61	68.62	60.37	66.78	0.000381	2.93	558.80	75.95	0.19
North Main	reach 3 (south)	241505	2428.00	56.61	68.91	61.41	69.08	0.000384	3.28	740.82	85.20	0.20
North Main	reach 3 (south)	241505	3444.00	56.61	70.61	62.51	70.84	0.000440	3.88	891.25	92.07	0.22
North Main	reach 3 (south)	241505	6802.00	56.61	73.19	65.41	73.74	0.000871	5.95	1142.27	849.50	0.31
North Main	reach 3 (south)	240950	1630.00	56.61	68.41	60.53	66.55	0.000392	2.94	553.70	80.55	0.20
North Main	reach 3 (south)	240950	2428.00	56.61	68.71	61.55	68.87	0.000375	3.23	750.85	91.48	0.20

HEC-RAS Plan P.10.D.2 (Continued)

River	Reach	Fiber Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	240950	3444.00	56.61	70.37	62.64	70.59	0.000446	3.79	908.93	99.06	0.22
North Main	reach 3 (south)	240950	6802.00	56.61	72.70	65.42	73.24	0.000907	5.90	1152.45	333.78	0.32
North Main	reach 3 (south)	240918	1630.00	56.61	66.40	60.53	66.54	0.000394	2.95	552.67	80.49	0.20
North Main	reach 3 (south)	240819	2428.00	56.61	68.69	61.55	68.86	0.000377	3.24	749.73	91.40	0.20
North Main	reach 3 (south)	240919	3444.00	56.61	70.35	62.64	70.57	0.000448	3.80	907.47	96.99	0.22
North Main	reach 3 (south)	240919	6802.00	56.61	72.86	65.42	73.21	0.000915	5.92	1148.77	329.16	0.32
North Main	reach 3 (south)	240000	1630.00	55.47	66.19	59.11	66.27	0.000201	2.30	709.21	90.33	0.14
North Main	reach 3 (south)	240000	2428.00	55.47	68.48	60.01	68.59	0.000209	2.62	927.01	99.62	0.15
North Main	reach 3 (south)	240000	3444.00	55.47	70.09	60.97	70.24	0.000266	3.15	1092.28	106.13	0.17
North Main	reach 3 (south)	240000	6802.00	55.47	72.06	63.53	72.48	0.000826	5.19	1309.75	114.13	0.27
North Main	reach 3 (south)	239550	1630.00	55.23	66.09	58.93	66.18	0.000206	2.32	702.91	90.26	0.15
North Main	reach 3 (south)	239550	2428.00	55.23	68.36	59.85	68.49	0.000215	2.64	921.04	100.29	0.15
North Main	reach 3 (south)	239550	3444.00	55.23	69.96	60.88	70.12	0.000275	3.17	1064.90	107.21	0.18
North Main	reach 3 (south)	239550	6802.00	55.23	71.75	63.48	72.19	0.000674	5.30	1283.32	114.87	0.28
North Main	reach 3 (south)	239468	1630.00	55.23	66.08	58.93	66.16	0.000207	2.32	701.34	90.18	0.15
North Main	reach 3 (south)	239468	2428.00	55.23	68.37	59.86	68.47	0.000216	2.64	919.21	100.21	0.15
North Main	reach 3 (south)	239468	3444.00	55.23	69.94	60.88	70.10	0.000276	3.18	1082.38	107.10	0.18
North Main	reach 3 (south)	239468	6802.00	55.23	71.69	63.48	72.13	0.000684	5.33	1276.31	114.61	0.28
North Main	reach 3 (south)	238000	1630.00	54.74	65.79	58.50	65.67	0.000193	2.29	711.84	88.04	0.14
North Main	reach 3 (south)	238000	2428.00	54.74	68.06	59.41	68.16	0.000207	2.64	921.42	96.61	0.15
North Main	reach 3 (south)	238000	3444.00	54.74	69.53	60.40	69.69	0.000275	3.22	1068.00	102.20	0.18
North Main	reach 3 (south)	238000	6802.00	54.74	71.44	62.99	71.50	0.000215	2.75	6569.24	2483.95	0.15
North Main	reach 3 (south)	237265	1630.00	54.61	65.65	58.13	65.73	0.000188	2.28	715.19	87.22	0.14
North Main	reach 3 (south)	237265	2428.00	54.61	67.91	59.07	68.02	0.000204	2.63	922.06	95.88	0.15
North Main	reach 3 (south)	237265	3444.00	54.61	69.32	60.09	69.49	0.000280	3.25	1062.22	109.98	0.18
North Main	reach 3 (south)	237265	6802.00	54.61	71.39	62.75	71.40	0.000676	1.45	10374.77	2936.77	0.09
North Main	reach 3 (south)	236620	1630.00	54.53	65.54	58.02	65.61	0.000172	2.16	753.25	93.57	0.13
North Main	reach 3 (south)	236620	2428.00	54.53	67.79	58.91	67.86	0.000185	2.49	974.50	103.03	0.14
North Main	reach 3 (south)	236620	3444.00	54.53	69.17	59.89	69.91	0.000252	3.07	1120.39	108.81	0.17
North Main	reach 3 (south)	236620	6802.00	54.53	71.36	62.45	71.37	0.000647	1.38	11177.72	2222.18	0.07
North Main	reach 3 (south)	238000	1630.00	54.54	65.41	58.03	65.49	0.000201	2.32	702.63	88.21	0.14
North Main	reach 3 (south)	238000	2428.00	54.54	67.64	58.97	67.75	0.000217	2.67	910.66	97.69	0.15
North Main	reach 3 (south)	238000	3444.00	54.54	68.97	60.02	69.14	0.000299	3.30	1044.01	103.32	0.18
North Main	reach 3 (south)	238000	6802.00	54.54	71.32	62.70	71.35	0.000110	1.79	8050.22	2136.58	0.11
North Main	reach 3 (south)	235490	1630.00	54.49	65.27	58.23	65.37	0.000266	2.60	627.83	81.61	0.16
North Main	reach 3 (south)	235490	2428.00	54.49	67.49	59.26	67.63	0.000283	2.96	820.23	91.37	0.17
North Main	reach 3 (south)	235490	3444.00	54.49	68.74	60.37	68.95	0.000468	3.67	938.99	111.32	0.22
North Main	reach 3 (south)	235490	6802.00	54.49	71.19	63.23	71.24	0.000427	2.40	4402.50	1373.17	0.20
North Main	reach 3 (south)	235442	1630.00	54.49	65.25	58.23	65.36	0.000267	2.60	626.75	81.55	0.17
North Main	reach 3 (south)	235442	2428.00	54.49	67.48	59.26	67.61	0.000264	2.96	818.95	91.30	0.17
North Main	reach 3 (south)	235442	3444.00	54.49	68.72	60.37	68.93	0.000466	3.68	936.36	110.04	0.22
North Main	reach 3 (south)	235442	6802.00	54.49	71.16	63.23	71.22	0.000422	2.52	4365.28	1368.32	0.20
North Main	reach 3 (south)	234280	1630.00	53.37	65.14	56.31	65.18	0.000085	1.64	991.42	109.47	0.10
North Main	reach 3 (south)	234280	2428.00	53.37	67.35	57.10	67.41	0.000099	1.95	1243.68	118.46	0.11
North Main	reach 3 (south)	234280	3444.00	53.37	68.52	57.97	68.61	0.000146	2.49	1384.66	123.21	0.13
North Main	reach 3 (south)	234280	6802.00	53.37	70.70	60.25	70.78	0.000347	2.57	4771.45	2212.67	0.19
North Main	below diversion	112500	1045.00	70.00	79.89	72.65	79.94	0.000087	1.92	568.83	75.19	0.11
North Main	below diversion	112500	2105.00	70.00	82.71	74.13	82.72	0.000032	1.38	6819.85	3833.46	0.07
North Main	below diversion	112500	3525.00	70.00	85.17	75.70	85.18	0.000009	0.86	19279.30	6103.07	0.04
North Main	below diversion	112500	8125.00	70.00	88.44	79.27	88.44	0.000007	0.84	41835.34	12763.30	0.04
North Main	below diversion	111500	1045.00	70.00	79.80	72.74	79.85	0.000086	1.88	1038.71	1061.45	0.11
North Main	below diversion	111500	2105.00	70.00	82.68	74.26	82.69	0.000025	1.24	8114.34	4169.80	0.06
North Main	below diversion	111500	3525.00	70.00	85.17	75.84	85.17	0.000009	0.84	21314.26	6701.42	0.04
North Main	below diversion	111500	8125.00	70.00	88.43	81.05	88.43	0.000006	0.77	45979.73	11659.41	0.03
North Main	below diversion	108769	1045.00	70.00	79.54	72.80	79.60	0.000096	1.92	573.45	64.98	0.12
North Main	below diversion	108769	2105.00	70.00	82.49	74.30	82.56	0.000096	2.36	2199.82	1191.41	0.13
North Main	below diversion	108769	3525.00	70.00	85.09	75.83	85.12	0.000048	1.92	10351.59	6510.27	0.09
North Main	below diversion	108769	8125.00	70.00	88.41	79.22	88.41	0.000011	1.06	40985.79	13634.99	0.05
North Main	below diversion	108564	1045.00	70.00	79.52	72.68	79.58	0.000096	1.95	559.41	78.70	0.12
North Main	below diversion	108564	2105.00	70.00	82.39	74.15	82.51	0.000141	2.87	835.36	232.42	0.15
North Main	below diversion	108564	3525.00	70.00	85.05	75.70	85.09	0.000062	2.18	9700.82	6417.97	0.10
North Main	below diversion	108564	8125.00	70.00	88.40	79.18	88.41	0.000011	1.05	41286.80	13624.48	0.04
North Main	below diversion	108524	Bridge									
North Main	below diversion	108484	1045.00	70.00	79.49	72.68	79.54	0.000096	1.95	556.90	78.56	0.12
North Main	below diversion	108484	2105.00	70.00	82.26	74.15	82.39	0.000147	2.91	808.63	195.02	0.15
North Main	below diversion	108464	3525.00	70.00	85.00	75.70	85.04	0.000067	2.27	9250.64	6306.62	0.11

HEC-DAS Plan P10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	108484	8125.00	70.00	88.38	79.18	88.39	0.000011	1.05	41264.40	13592.98	0.04
North Main	below diversion	108424	1045.00	70.00	79.47	72.68	79.53	0.000098	1.98	558.06	78.52	0.12
North Main	below diversion	108424	2105.00	70.00	82.25	74.15	82.38	0.000148	2.91	805.33	189.89	0.15
North Main	below diversion	108424	3525.00	70.00	84.99	75.70	85.03	0.000088	2.29	9174.53	8270.55	0.11
North Main	below diversion	108424	8125.00	70.00	88.38	79.18	88.38	0.000011	1.05	41330.71	13582.48	0.04
North Main	below diversion	108200	1045.00	70.00	79.46	72.64	79.51	0.000100	1.97	549.61	78.53	0.12
North Main	below diversion	108200	2105.00	70.00	82.21	74.12	82.34	0.000152	2.95	793.28	231.40	0.18
North Main	below diversion	108200	3525.00	70.00	84.98	75.67	85.02	0.000061	2.18	9104.92	7559.78	0.10
North Main	below diversion	108200	8125.00	70.00	88.37	79.18	88.37	0.000012	1.12	37787.96	13440.43	0.05
North Main	below diversion	107200	1045.00	70.00	79.36	72.50	79.41	0.000090	1.88	574.29	78.88	0.11
North Main	below diversion	107200	2105.00	70.00	82.07	73.90	82.19	0.000140	2.83	808.35	246.45	0.15
North Main	below diversion	107200	3525.00	70.00	84.92	75.38	84.95	0.000049	1.95	9653.68	5967.28	0.09
North Main	below diversion	107200	8125.00	70.00	88.35	78.82	88.36	0.000011	1.05	39858.01	12883.70	0.04
North Main	below diversion	105420	1138.00	70.00	79.19	72.65	79.24	0.000094	1.88	623.28	88.54	0.12
North Main	below diversion	105420	1918.00	70.00	81.87	73.61	81.98	0.000099	2.35	878.73	100.33	0.13
North Main	below diversion	105420	3235.00	70.00	84.87	74.93	84.88	0.000025	1.40	11414.87	7178.07	0.07
North Main	below diversion	105420	7583.00	70.00	88.34	78.01	88.34	0.000010	1.01	35554.05	12841.25	0.04
North Main	below diversion	105350	1138.00	70.00	79.14	72.87	79.22	0.000133	2.33	531.09	76.87	0.14
North Main	below diversion	105350	1918.00	70.00	81.80	73.94	81.98	0.000147	2.94	749.10	87.39	0.16
North Main	below diversion	105350	3235.00	70.00	84.88	75.33	84.88	0.000036	1.71	10770.00	7211.84	0.08
North Main	below diversion	105350	7583.00	70.00	88.33	78.98	88.34	0.000011	1.08	36386.21	12833.34	0.05
North Main	below diversion	105335	Bridge									
North Main	below diversion	105320	1138.00	70.00	79.13	72.87	79.21	0.000133	2.33	530.09	78.82	0.14
North Main	below diversion	105320	1918.00	70.00	81.69	73.94	81.82	0.000152	2.97	739.48	88.98	0.16
North Main	below diversion	105320	3235.00	70.00	84.84	75.33	84.86	0.000037	1.72	10640.34	7156.52	0.08
North Main	below diversion	105320	7583.00	70.00	88.32	78.93	88.32	0.000011	1.09	36113.83	12809.59	0.05
North Main	below diversion	105235	1138.00	70.00	79.12	72.87	79.20	0.000134	2.33	529.31	78.78	0.14
North Main	below diversion	105235	1918.00	70.00	81.67	73.94	81.81	0.000153	2.97	738.45	88.91	0.16
North Main	below diversion	105235	3235.00	70.00	84.84	75.33	84.86	0.000039	1.78	10170.25	7035.25	0.08
North Main	below diversion	105235	7583.00	70.00	88.31	78.93	88.32	0.000012	1.12	35001.49	12719.32	0.05
North Main	below diversion	104800	1138.00	70.00	79.05	72.81	79.14	0.000136	2.35	528.62	77.73	0.14
North Main	below diversion	104800	1918.00	70.00	81.60	73.90	81.73	0.000155	2.99	740.37	88.52	0.16
North Main	below diversion	104800	3235.00	70.00	84.77	75.30	84.83	0.000078	2.50	6860.31	5451.45	0.12
North Main	below diversion	104800	7583.00	70.00	88.31	78.91	88.31	0.000014	1.25	34562.56	9493.01	0.05
North Main	below diversion	104148	1138.00	70.00	78.98		79.05	0.000122	2.22	558.61	82.33	0.13
North Main	below diversion	104148	1918.00	70.00	81.51		81.63	0.000140	2.83	782.92	94.26	0.15
North Main	below diversion	104148	3235.00	70.00	84.87		84.77	0.000103	2.88	4578.88	3755.24	0.13
North Main	below diversion	104148	7583.00	70.00	88.30		88.31	0.000019	1.43	31274.26	9580.75	0.06
North Main	below diversion	104116	1138.00	70.00	78.97		79.05	0.000122	2.22	558.31	82.31	0.13
North Main	below diversion	104116	1918.00	70.00	81.51		81.63	0.000140	2.83	782.51	94.24	0.15
North Main	below diversion	104116	3235.00	70.00	84.67		84.77	0.000104	2.88	4564.89	3747.76	0.14
North Main	below diversion	104116	7583.00	70.00	88.30		88.30	0.000019	1.43	31223.03	9577.54	0.06
North Main	below diversion	103008	1138.00	70.00	78.84		78.92	0.000129	2.26	547.57	81.88	0.14
North Main	below diversion	103008	1918.00	70.00	81.38		81.48	0.000147	2.87	768.40	93.55	0.15
North Main	below diversion	103008	3235.00	70.00	84.54		84.65	0.000115	3.02	4108.59	3495.11	0.14
North Main	below diversion	103008	7583.00	70.00	88.28		88.29	0.000019	1.44	31087.61	9567.80	0.06
North Main	below diversion	102913	1138.00	70.00	78.83		78.91	0.000133	2.29	535.68	78.95	0.14
North Main	below diversion	102913	1918.00	70.00	81.35		81.48	0.000151	2.91	747.37	89.33	0.16
North Main	below diversion	102913	3235.00	70.00	84.53		84.65	0.000122	3.10	3346.00	2508.14	0.15
North Main	below diversion	102913	7583.00	70.00	88.27		88.28	0.000032	1.86	24521.66	8507.49	0.08
North Main	below diversion	102850	1138.00	70.00	78.82		78.90	0.000130	2.26	546.17	81.59	0.14
North Main	below diversion	102850	1918.00	70.00	81.34		81.46	0.000148	2.88	766.28	93.45	0.15
North Main	below diversion	102850	3235.00	70.00	84.53		84.64	0.000116	3.03	4077.58	3477.28	0.14
North Main	below diversion	102850	7583.00	70.00	88.27		88.27	0.000019	1.45	30945.03	9560.11	0.06
North Main	below diversion	102835	Bridge									
North Main	below diversion	102820	1138.00	70.00	78.81		78.89	0.000131	2.27	545.15	81.53	0.14
North Main	below diversion	102820	1918.00	70.00	81.32		81.44	0.000149	2.88	764.80	93.37	0.15
North Main	below diversion	102820	3235.00	70.00	84.46		84.57	0.000123	3.11	3809.40	3319.03	0.15
North Main	below diversion	102820	7583.00	70.00	88.25		88.25	0.000020	1.46	30748.14	9547.74	0.06
North Main	below diversion	102800	1138.00	70.00	78.78		78.86	0.000155	2.45	496.30	72.57	0.15
North Main	below diversion	102800	1918.00	70.00	81.28		81.40	0.000177	3.13	688.07	81.30	0.17
North Main	below diversion	102800	3235.00	70.00	84.34		84.52	0.000178	3.71	1959.50	1367.33	0.18
North Main	below diversion	102800	7583.00	70.00	88.22		88.24	0.000042	2.12	22384.68	8346.35	0.09
North Main	below diversion	101500	1138.00	70.00	78.59		78.68	0.000157	2.43	502.21	75.90	0.15
North Main	below diversion	101500	1918.00	70.00	81.08		81.21	0.000177	3.09	702.14	85.91	0.17



HEC-RAS Plan P10D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	92120	1152.00	68.00	77.01	71.04	77.10	0.000185	2.39	464.36	72.98	0.18
North Main	below diversion	92120	1957.00	68.00	79.90	72.22	79.44	0.000206	3.04	673.70	94.58	0.18
North Main	below diversion	92120	3301.00	68.00	82.00	73.79	82.23	0.000240	3.89	976.07	131.84	0.20
North Main	below diversion	92120	7683.00	68.00	84.45	77.30	84.65	0.000272	4.69	5711.31	4291.58	0.22
North Main	below diversion	91139	1152.00	68.00	78.81	71.04	76.91	0.000203	2.46	470.29	72.16	0.17
North Main	below diversion	91139	1957.00	68.00	79.08	72.22	79.23	0.000223	3.12	653.46	92.50	0.18
North Main	below diversion	91139	3301.00	68.00	81.75	73.79	81.99	0.000260	3.99	942.69	128.04	0.21
North Main	below diversion	91139	7683.00	68.00	84.07	77.30	84.34	0.000342	5.16	5785.02	3816.96	0.24
North Main	below diversion	91050	1152.00	68.00	76.79	71.03	76.89	0.000205	2.47	466.42	71.84	0.17
North Main	below diversion	91050	1957.00	68.00	79.06	72.22	79.21	0.000225	3.13	649.17	90.10	0.18
North Main	below diversion	91050	3301.00	68.00	81.72	73.78	81.98	0.000263	4.01	931.83	128.49	0.21
North Main	below diversion	91050	7683.00	68.00	84.03	77.31	84.31	0.000351	5.22	5709.10	3787.43	0.25
North Main	below diversion	88641	1152.00	68.00	76.26	70.90	76.36	0.000240	2.54	453.07	72.23	0.18
North Main	below diversion	88641	1957.00	68.00	78.49	72.04	78.85	0.000253	3.19	624.49	81.80	0.19
North Main	below diversion	88641	3301.00	68.00	81.07	73.56	81.32	0.000283	4.02	1127.46	558.78	0.21
North Main	below diversion	88641	7683.00	68.00	83.49	77.02	83.62	0.000213	3.98	7820.02	15498.35	0.19
North Main	below diversion	88488	1152.00	68.00	76.22	70.92	76.32	0.000252	2.59	444.24	71.32	0.18
North Main	below diversion	88488	1957.00	68.00	78.44	72.07	78.60	0.000265	3.25	616.49	89.96	0.20
North Main	below diversion	88488	3301.00	68.00	81.03	73.60	81.27	0.000286	4.03	1232.34	743.99	0.21
North Main	below diversion	88488	7683.00	68.00	83.41	77.10	83.57	0.000256	4.36	6816.75	13565.41	0.21
North Main	below diversion	88300	1152.00	68.00	76.17	70.90	76.27	0.000251	2.59	445.11	71.19	0.18
North Main	below diversion	88300	1957.00	68.00	78.39	72.04	78.55	0.000264	3.25	615.88	88.72	0.20
North Main	below diversion	88300	3301.00	68.00	80.97	73.55	81.21	0.000288	4.05	1139.30	579.69	0.21
North Main	below diversion	88300	7683.00	68.00	83.32	77.04	83.52	0.000294	4.64	5242.00	12412.72	0.22
North Main	below diversion	87300	1152.00	68.00	75.89	70.89	76.00	0.000287	2.71	424.66	69.37	0.19
North Main	below diversion	87300	1957.00	68.00	78.10	72.02	78.27	0.000297	3.38	596.00	170.96	0.21
North Main	below diversion	87300	3301.00	68.00	80.72	73.55	80.92	0.000270	3.66	1666.73	1271.95	0.21
North Main	below diversion	87300	7683.00	68.00	83.19	77.04	83.27	0.000183	3.44	9466.41	14227.16	0.17
North Main	below diversion	85942	1152.00	68.00	75.37	71.09	75.52	0.000442	3.17	383.42	65.13	0.24
North Main	below diversion	85942	1957.00	68.00	77.58	72.28	77.79	0.000432	3.83	516.23	74.40	0.25
North Main	below diversion	85942	3301.00	68.00	80.09	73.87	80.44	0.000454	4.78	808.15	679.57	0.26
North Main	below diversion	85942	7683.00	68.00	82.75	77.39	82.95	0.000340	4.81	6684.41	16908.04	0.24
North Main	below diversion	85850	1152.00	68.00	75.34	71.12	75.50	0.000454	3.19	381.69	65.82	0.24
North Main	below diversion	85850	1957.00	68.00	77.52	72.33	77.75	0.000439	3.83	516.38	75.66	0.25
North Main	below diversion	85850	3301.00	68.00	80.06	73.90	80.41	0.000454	4.73	792.46	670.16	0.26
North Main	below diversion	85850	7683.00	68.00	82.58	77.40	82.90	0.000483	5.67	4819.95	17711.71	0.28
North Main	below diversion	85835	Bridge									
North Main	below diversion	85820	1152.00	68.00	75.28	71.12	75.44	0.000466	3.22	357.60	65.54	0.24
North Main	below diversion	85820	1957.00	68.00	77.46	72.33	77.69	0.000452	3.86	511.43	75.36	0.25
North Main	below diversion	85820	3301.00	68.00	79.96	73.91	80.31	0.000464	4.75	825.48	194.05	0.27
North Main	below diversion	85820	7683.00	68.00	82.25	77.41	82.65	0.000594	6.18	4065.55	17431.05	0.31
North Main	below diversion	85783	1152.00	68.00	75.25	71.12	75.41	0.000474	3.24	355.95	65.43	0.24
North Main	below diversion	85783	1957.00	68.00	77.43	72.33	77.67	0.000457	3.87	509.59	75.25	0.25
North Main	below diversion	85783	3301.00	68.00	79.93	73.91	80.28	0.000477	4.81	781.20	132.32	0.27
North Main	below diversion	85783	7683.00	68.00	81.62	77.40	82.48	0.001103	6.12	2157.85	1321.40	0.42
North Main	below diversion	83100	1152.00	68.00	74.39	69.12	74.50	0.000289	2.89	429.36	69.60	0.19
North Main	below diversion	83100	1957.00	68.00	76.55	70.33	76.73	0.000289	3.39	590.35	79.10	0.20
North Main	below diversion	83100	3301.00	68.00	78.92	71.92	79.22	0.000352	4.40	844.96	158.44	0.24
North Main	below diversion	83100	7683.00	68.00	81.63	75.44	81.66	0.000092	2.81	14968.18	17502.46	0.12
North Main	below diversion	82100	1152.00	68.00	73.99	69.46	74.18	0.000375	3.48	360.64	63.36	0.23
North Main	below diversion	82100	1957.00	68.00	76.06	70.70	76.36	0.000448	4.51	501.46	233.23	0.26
North Main	below diversion	82100	3301.00	68.00	78.21	72.34	78.74	0.000607	6.03	669.09	1451.12	0.31
North Main	below diversion	82100	7683.00	68.00	81.52	76.46	81.56	0.000106	2.99	12412.37	17298.99	0.14
North Main	below diversion	82000	1152.00	68.00	73.95	69.46	74.14	0.000382	3.50	358.06	63.17	0.23
North Main	below diversion	82000	1957.00	68.00	76.01	70.70	76.31	0.000457	4.53	497.80	223.96	0.26
North Main	below diversion	82000	3301.00	68.00	78.14	72.34	78.68	0.000621	6.07	663.13	1384.40	0.32
North Main	below diversion	82000	7683.00	68.00	81.52	76.46	81.55	0.000107	3.00	12365.34	17293.77	0.14
North Main	below diversion	81100	1152.00	66.00	73.56	69.22	73.78	0.000427	3.81	354.96	77.38	0.25
North Main	below diversion	81100	1957.00	66.00	75.50	70.49	75.66	0.000538	5.00	489.69	590.26	0.29
North Main	below diversion	81100	3301.00	66.00	77.48	72.26	78.07	0.000733	6.63	753.69	968.84	0.35
North Main	below diversion	81100	7683.00	66.00	79.39	77.31	81.13	0.001890	11.83	1348.17	2704.36	0.57
North Main	below diversion	80100	1152.00	66.00	73.20	69.04	73.36	0.000380	3.30	407.49	88.37	0.23
North Main	below diversion	80100	1957.00	66.00	75.09	70.23	75.35	0.000444	4.22	596.13	115.81	0.26
North Main	below diversion	80100	3301.00	66.00	76.90	71.79	77.35	0.000611	5.64	695.22	640.53	0.31
North Main	below diversion	80100	7683.00	66.00	78.57	75.54	79.38	0.001173	6.65	2581.03	970.37	0.44



HFC-DAS Plan P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	79100	1152.00	66.00	72.63	89.23	72.87	0.000627	3.95	305.19	216.19	0.29
North Main	below diversion	79100	1957.00	66.00	74.37	70.42	74.77	0.000745	5.12	418.78	306.47	0.33
North Main	below diversion	79100	3301.00	66.00	75.89	71.99	76.48	0.001217	7.27	514.43	407.29	0.43
North Main	below diversion	79100	7683.00	66.00	78.01	78.01	78.33	0.000721	6.53	4290.52	10257.41	0.34
North Main	below diversion	77548	1152.00	66.00	71.78	68.57	71.95	0.000541	3.39	347.30	74.86	0.28
North Main	below diversion	77548	1957.00	66.00	73.39	69.60	73.68	0.000819	4.34	474.93	83.04	0.29
North Main	below diversion	77548	3301.00	66.00	73.47	70.89	74.27	0.001897	7.25	481.16	83.42	0.49
North Main	below diversion	77548	7683.00	66.00	75.72	75.15	75.85	0.000496	4.74	9109.66	6519.96	0.28
North Main	below diversion	77538	1152.00	62.00	71.82	65.22	71.90	0.000139	2.34	519.18	74.98	0.14
North Main	below diversion	77538	1957.00	62.00	73.45	66.46	73.61	0.000218	3.30	647.25	82.23	0.18
North Main	below diversion	77538	3301.00	62.00	73.62	68.05	74.07	0.000584	5.48	661.33	82.99	0.30
North Main	below diversion	77538	7683.00	62.00	75.89	71.64	75.84	0.000339	4.72	9690.35	6635.47	0.24
North Main	below diversion	77419	1152.00	62.00	71.81	65.22	71.89	0.000139	2.35	518.38	74.93	0.14
North Main	below diversion	77419	1957.00	62.00	73.42	66.46	73.59	0.000220	3.31	645.03	82.11	0.18
North Main	below diversion	77419	3301.00	62.00	73.54	68.05	74.00	0.000600	5.52	654.89	82.65	0.31
North Main	below diversion	77419	7683.00	62.00	75.14	71.64	75.74	0.000933	7.59	4168.02	6008.66	0.39
North Main	below diversion	77357	1152.00	62.00	71.81	64.93	71.87	0.000117	2.05	567.86	78.87	0.13
North Main	below diversion	77357	1957.00	62.00	73.43	66.07	73.56	0.000179	2.88	701.20	1800.06	0.18
North Main	below diversion	77357	3301.00	62.00	73.59	67.59	73.95	0.000481	4.78	715.50	2346.27	0.27
North Main	below diversion	77357	7683.00	62.00	75.40	71.07	75.60	0.000415	4.97	5972.02	6308.07	0.26
North Main	below diversion	77349	Bridge									
North Main	below diversion	77329	1152.00	62.00	71.79	64.93	71.86	0.000117	2.06	566.73	78.81	0.13
North Main	below diversion	77329	1957.00	62.00	73.40	66.07	73.53	0.000181	2.89	699.24	1346.45	0.17
North Main	below diversion	77329	3301.00	62.00	73.53	67.59	73.89	0.000491	4.81	710.31	1747.51	0.27
North Main	below diversion	77329	7683.00	62.00	75.12	71.07	75.42	0.000555	5.66	5336.46	5752.63	0.30
North Main	below diversion	77179	1152.00	60.10	71.79	63.12	71.84	0.000079	1.80	644.65	78.79	0.11
North Main	below diversion	77179	1957.00	60.10	73.40	64.96	73.50	0.000130	2.59	777.02	2322.59	0.14
North Main	below diversion	77179	3301.00	60.10	73.56	66.07	73.78	0.000289	3.90	2050.43	2323.87	0.21
North Main	below diversion	77179	7683.00	60.10	75.12	69.91	75.32	0.000374	4.85	6426.33	5696.73	0.24
North Main	below diversion	77143	Culvert									
North Main	below diversion	77107	1152.00	60.10	70.33	63.12	70.40	0.000143	2.16	534.29	72.44	0.14
North Main	below diversion	77107	1957.00	60.10	72.07	64.36	72.21	0.000205	2.97	666.72	80.00	0.17
North Main	below diversion	77107	3301.00	60.10	73.46	66.07	73.75	0.000365	4.35	781.93	2323.04	0.23
North Main	below diversion	77107	7683.00	60.10	75.06	69.91	75.28	0.000396	4.98	6239.92	5576.18	0.25
North Main	below diversion	76585	1152.00	60.00	70.27	63.03	70.33	0.000106	2.02	580.95	78.57	0.12
North Main	below diversion	76585	1957.00	60.00	71.98	64.21	72.10	0.000162	2.83	721.42	85.91	0.16
North Main	below diversion	76585	3301.00	60.00	73.31	65.79	73.58	0.000301	4.19	839.31	2131.94	0.22
North Main	below diversion	76585	7683.00	60.00	74.67	69.90	75.02	0.000499	5.82	5214.89	7598.22	0.29
North Main	below diversion	76000	1152.00	60.00	70.20	63.03	70.27	0.000114	2.09	562.70	89.06	0.13
North Main	below diversion	76000	1957.00	60.00	71.87	64.22	72.00	0.000175	2.92	732.70	114.60	0.16
North Main	below diversion	76000	3301.00	60.00	73.10	65.79	73.38	0.000330	4.34	950.26	3466.64	0.23
North Main	below diversion	76000	7683.00	60.00	74.61	69.98	74.74	0.000264	4.22	9274.96	10197.54	0.21
North Main	below diversion	75929	1152.00	60.00	70.19	63.16	70.27	0.000116	2.22	555.56	94.67	0.13
North Main	below diversion	75929	1957.00	60.00	71.85	64.37	71.99	0.000182	3.11	736.96	124.69	0.17
North Main	below diversion	75929	3301.00	60.00	73.05	65.96	73.36	0.000341	4.58	1209.72	3927.66	0.24
North Main	below diversion	75929	7683.00	60.00	74.62	69.54	74.72	0.000210	3.91	10466.01	10544.76	0.19
North Main	below diversion	75868	1152.00	60.00	70.18	63.10	70.26	0.000115	2.21	551.06	81.96	0.13
North Main	below diversion	75868	1957.00	60.00	71.83	64.30	71.98	0.000183	3.13	707.80	106.41	0.17
North Main	below diversion	75868	3301.00	60.00	73.09	65.89	73.33	0.000281	4.18	1798.89	4121.47	0.21
North Main	below diversion	75868	7683.00	60.00	74.62	69.52	74.70	0.000186	3.69	11092.26	10170.00	0.18
North Main	below diversion	75852	Bridge									
North Main	below diversion	75838	1152.00	60.00	70.18	63.10	70.23	0.000115	2.22	548.90	81.52	0.13
North Main	below diversion	75838	1957.00	60.00	71.75	64.30	71.91	0.000188	3.16	700.52	107.92	0.17
North Main	below diversion	75838	3301.00	60.00	72.94	65.89	73.20	0.000307	4.33	1660.83	3947.71	0.22
North Main	below diversion	75838	7683.00	60.00	74.54	69.48	74.63	0.000201	3.82	10704.97	10060.29	0.18
North Main	below diversion	75752	1152.00	60.00	70.15	63.10	70.22	0.000116	2.22	548.19	81.37	0.13
North Main	below diversion	75752	1957.00	60.00	71.74	64.30	71.89	0.000189	3.16	698.95	107.69	0.17
North Main	below diversion	75752	3301.00	60.00	72.91	65.89	73.18	0.000313	4.37	1631.46	3759.34	0.23
North Main	below diversion	75752	7683.00	60.00	74.44	69.48	74.59	0.000294	4.59	7676.49	9594.58	0.22
North Main	below diversion	75000	1152.00	60.00	70.06	63.00	70.14	0.000116	2.22	557.26	301.30	0.13
North Main	below diversion	75000	1957.00	60.00	71.65	64.18	71.75	0.000149	2.80	1560.05	962.45	0.15
North Main	below diversion	75000	3301.00	60.00	72.85	65.77	72.95	0.000166	3.17	4094.91	4280.36	0.16
North Main	below diversion	75000	7683.00	60.00	74.38	69.38	74.43	0.000122	2.96	14212.70	9590.07	0.14
North Main	below diversion	74000	1152.00	60.00	69.92	63.44	70.01	0.000157	2.34	500.28	72.36	0.15
North Main	below diversion	74000	1957.00	60.00	71.52	64.70	71.60	0.000154	2.63	2367.41	2432.67	0.15



HEC-RAS Plan B 1002 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	66428	1341.00	80.00	88.28		88.41	0.000290	3.02	453.79	72.40	0.20
North Main	below diversion	66428	2165.00	80.00	89.83		89.95	0.000245	3.17	2134.50	2103.80	0.19
North Main	below diversion	66428	3291.00	80.00	71.05		71.11	0.000151	2.72	5299.59	3166.17	0.15
North Main	below diversion	66428	7282.00	80.00	72.88		72.90	0.000129	2.81	12201.80	4465.55	0.15
North Main	below diversion	66342	1341.00	80.00	88.24		88.38	0.000294	3.03	452.09	72.30	0.20
North Main	below diversion	66342	2165.00	80.00	89.74		89.92	0.000312	3.55	1419.35	1353.39	0.21
North Main	below diversion	66342	3291.00	80.00	70.95		71.07	0.000247	3.45	3611.24	2403.93	0.19
North Main	below diversion	66342	7282.00	80.00	72.80		72.87	0.000212	3.59	9334.31	3783.47	0.19
North Main	below diversion	65921.*	1341.00	80.00	88.10		88.25	0.000314	3.09	442.02	71.70	0.21
North Main	below diversion	65921.*	2165.00	80.00	89.58		89.78	0.000354	3.74	1237.85	1295.42	0.23
North Main	below diversion	65921.*	3291.00	80.00	70.83		70.96	0.000264	3.54	3350.86	2120.82	0.20
North Main	below diversion	65921.*	7282.00	80.00	72.70		72.79	0.000234	3.75	8915.08	3827.88	0.20
North Main	below diversion	65500	1341.00	80.00	87.95		88.10	0.000339	3.16	431.12	71.08	0.21
North Main	below diversion	65500	2165.00	80.00	89.44		89.63	0.000357	3.71	1388.87	1650.08	0.23
North Main	below diversion	65500	3291.00	80.00	70.76		70.85	0.000211	3.15	4038.65	2333.15	0.18
North Main	below diversion	65500	7282.00	80.00	72.63		72.69	0.000192	3.38	9221.51	3229.49	0.18
North Main	below diversion	65133.3*	1341.00	80.00	87.78		87.96	0.000437	3.44	395.37	89.01	0.24
North Main	below diversion	65133.3*	2165.00	80.00	89.14		89.46	0.000587	4.54	498.68	212.26	0.29
North Main	below diversion	65133.3*	3291.00	80.00	70.48		70.72	0.000496	4.84	2052.67	1686.27	0.27
North Main	below diversion	65133.3*	7282.00	80.00	72.43		72.59	0.000400	4.76	6482.90	2843.69	0.25
North Main	below diversion	64786.6*	1341.00	80.00	87.80		87.80	0.000498	3.59	377.87	86.97	0.28
North Main	below diversion	64786.6*	2165.00	80.00	88.89		89.24	0.000680	4.77	467.95	73.34	0.31
North Main	below diversion	64786.6*	3291.00	80.00	89.98	85.94	70.47	0.000848	5.84	1144.17	1254.52	0.35
North Main	below diversion	64786.6*	7282.00	80.00	72.07		72.39	0.000698	6.08	4479.00	2113.80	0.33
North Main	below diversion	64400	1341.00	80.00	87.43	83.25	87.83	0.000480	3.56	379.80	85.06	0.25
North Main	below diversion	64400	2165.00	80.00	88.64	84.38	89.00	0.000690	4.80	460.90	69.55	0.31
North Main	below diversion	64400	3291.00	80.00	89.44	85.06	70.11	0.001129	6.58	517.98	329.04	0.40
North Main	below diversion	64400	7282.00	80.00	71.41	88.92	72.04	0.001201	7.82	3071.41	1601.88	0.43
North Main	below diversion	62879	1341.00	58.00	87.14	81.64	87.20	0.000163	2.22	1567.74	2502.56	0.15
North Main	below diversion	62879	2165.00	58.00	88.53	82.83	88.57	0.000110	2.06	3190.43	4198.28	0.13
North Main	below diversion	62879	3291.00	58.00	89.50	84.14	89.54	0.000113	2.24	4805.09	5260.52	0.13
North Main	below diversion	62879	7282.00	58.00	71.32	87.69	71.37	0.000158	2.99	8057.86	9432.77	0.16
North Main	below diversion	62817	1341.00	58.00	87.17	81.52	87.18	0.000051	1.35	3163.99	4237.78	0.09
North Main	below diversion	62817	2165.00	58.00	88.55	82.68	88.56	0.000042	1.36	5103.01	5622.85	0.08
North Main	below diversion	62817	3291.00	58.00	89.51	84.94	89.52	0.000049	1.58	6582.11	6528.88	0.09
North Main	below diversion	62817	7282.00	58.00	71.32	88.52	71.35	0.000089	2.36	9630.96	10739.55	0.12
North Main	below diversion	62803	Bridge									
North Main	below diversion	62789	1341.00	58.00	87.15	81.52	87.17	0.000048	1.31	3307.36	4221.54	0.08
North Main	below diversion	62789	2165.00	58.00	88.53	82.68	88.54	0.000039	1.31	5315.21	5609.31	0.08
North Main	below diversion	62789	3291.00	58.00	89.49	84.93	89.51	0.000046	1.52	6840.81	6514.90	0.08
North Main	below diversion	62789	7282.00	58.00	71.30	86.48	71.33	0.000083	2.28	9975.87	10731.86	0.12
North Main	below diversion	62703	1341.00	58.00	87.15	81.52	87.16	0.000044	1.24	3530.07	4219.16	0.08
North Main	below diversion	62703	2165.00	58.00	88.53	82.68	88.54	0.000035	1.24	5631.93	5605.92	0.07
North Main	below diversion	62703	3291.00	58.00	89.49	84.92	89.50	0.000042	1.45	7227.89	6513.28	0.08
North Main	below diversion	62703	7282.00	58.00	71.30	86.34	71.32	0.000075	2.17	10499.83	10730.62	0.11
North Main	below diversion	62600	1341.00	58.00	87.15	81.51	87.15	0.000018	0.80	5947.54	3346.64	0.06
North Main	below diversion	62600	2165.00	58.00	88.52	82.69	88.53	0.000015	0.81	8998.59	4260.03	0.05
North Main	below diversion	62600	3291.00	58.00	89.49	84.86	89.49	0.000018	0.95	11238.26	4882.34	0.05
North Main	below diversion	62600	7282.00	58.00	71.30	85.63	71.30	0.000033	1.43	16020.94	8956.43	0.07
North Main	below diversion	61620	1341.00	58.00	87.14	81.56	87.14	0.000013	0.71	6623.73	9474.41	0.04
North Main	below diversion	61620	2165.00	58.00	88.51	82.66	88.51	0.000013	0.79	10043.71	10773.25	0.04
North Main	below diversion	61620	3291.00	58.00	89.48	84.12	89.48	0.000015	0.89	13584.14	12159.47	0.05
North Main	below diversion	61620	7282.00	58.00	71.28	84.98	71.28	0.000023	1.25	20292.66	13181.37	0.06
North Main	below diversion	61584	1341.00	58.00	87.06	81.39	87.12	0.000133	2.18	1924.92	9192.06	0.14
North Main	below diversion	61584	2165.00	58.00	88.48	82.49	88.50	0.000065	1.70	5825.09	11530.81	0.10
North Main	below diversion	61584	3291.00	58.00	89.47	83.76	89.48	0.000046	1.53	9502.07	12421.05	0.08
North Main	below diversion	61584	7282.00	58.00	71.27	87.67	71.28	0.000048	1.75	16228.10	13180.03	0.09
North Main	below diversion	61570	Bridge									
North Main	below diversion	61556	1341.00	58.00	87.01	81.38	87.07	0.000141	2.23	1828.94	9140.74	0.14
North Main	below diversion	61556	2165.00	58.00	88.46	82.49	88.48	0.000067	1.73	5720.77	11505.55	0.10
North Main	below diversion	61556	3291.00	58.00	89.45	83.75	89.46	0.000047	1.54	9431.93	12404.07	0.09
North Main	below diversion	61556	7282.00	58.00	71.26	87.61	71.27	0.000049	1.78	18158.05	13178.49	0.09
North Main	below diversion	61443	1341.00	58.00	87.03	81.37	87.04	0.000021	0.92	6013.82	8412.31	0.06
North Main	below diversion	61443	2165.00	58.00	88.46	82.49	88.46	0.000016	0.89	9759.67	9141.35	0.05
North Main	below diversion	61443	3291.00	58.00	89.45	84.88	89.45	0.000019	1.02	13887.26	11555.76	0.05



HEC-DAS Plan P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	81443	7282.00	58.00	71.25	65.91	71.26	0.000023	1.25	22682.34	13175.66	0.06
North Main	below diversion	80700	1341.00	58.10	67.02	61.47	67.03	0.000012	0.70	9383.48	9537.67	0.04
North Main	below diversion	80700	2165.00	58.10	68.44	62.57	68.44	0.000007	0.58	17164.59	11151.84	0.03
North Main	below diversion	80700	3291.00	58.10	69.43	64.72	69.43	0.000007	0.60	23848.09	12286.00	0.03
North Main	below diversion	80700	7282.00	58.10	71.24	65.82	71.24	0.000009	0.78	36770.16	13173.08	0.04
North Main	below diversion	58982	1341.00	58.00	66.91	61.36	66.98	0.000154	2.32	1848.37	8432.10	0.15
North Main	below diversion	58982	2165.00	58.00	68.40	62.49	68.41	0.000051	1.51	7777.20	9959.31	0.09
North Main	below diversion	58982	3291.00	58.00	69.40	63.76	69.41	0.000031	1.24	13851.12	10924.65	0.07
North Main	below diversion	58982	7282.00	58.00	71.22	67.64	71.22	0.000024	1.24	26362.19	11744.00	0.06
North Main	below diversion	58909	1341.00	58.00	66.80	61.42	66.94	0.000280	3.07	461.09	3824.01	0.20
North Main	below diversion	58909	2165.00	58.00	68.30	62.62	68.39	0.000187	2.84	3108.22	6892.61	0.17
North Main	below diversion	58909	3291.00	58.00	69.38	63.93	69.40	0.000112	2.36	7214.75	8605.07	0.13
North Main	below diversion	58909	7282.00	58.00	71.21	68.57	71.22	0.000066	2.04	17255.26	10269.24	0.10
North Main	below diversion	58867	Bridge									
North Main	below diversion	58865	1341.00	58.00	66.85	61.42	66.80	0.000299	3.14	441.28	3688.24	0.20
North Main	below diversion	58865	2165.00	58.00	68.20	62.62	68.30	0.000213	3.00	2800.57	6711.95	0.18
North Main	below diversion	58865	3291.00	58.00	69.31	63.93	69.35	0.000119	2.43	6990.28	8544.51	0.14
North Main	below diversion	58865	7282.00	58.00	71.18	68.57	71.20	0.000068	2.06	17095.11	10265.32	0.11
North Main	below diversion	58787	1341.00	58.00	66.63	61.42	66.77	0.000284	3.05	651.74	3673.20	0.20
North Main	below diversion	58787	2165.00	58.00	68.21	62.62	68.26	0.000143	2.46	3989.20	6897.70	0.15
North Main	below diversion	58787	3291.00	58.00	69.31	63.93	69.33	0.000077	1.96	9076.36	8950.88	0.11
North Main	below diversion	58787	7282.00	58.00	71.17	68.19	71.18	0.000045	1.67	20494.68	10195.75	0.09
North Main	below diversion	57900	1341.00	58.00	66.81	61.26	66.83	0.000069	1.52	3235.00	3491.67	0.10
North Main	below diversion	57900	2165.00	58.00	68.18	62.39	68.19	0.000034	1.20	7044.82	5455.61	0.07
North Main	below diversion	57900	3291.00	58.00	69.28	63.67	69.29	0.000027	1.17	11828.78	7563.72	0.07
North Main	below diversion	57900	7282.00	58.00	71.15	66.48	71.15	0.000035	1.48	23241.08	10151.72	0.08
North Main	below diversion	55821	1341.00	58.00	66.47	61.38	66.49	0.000068	1.57	4015.40	4022.47	0.10
North Main	below diversion	55821	2165.00	58.00	68.13	62.50	68.14	0.000019	0.95	12357.97	9214.75	0.05
North Main	below diversion	55821	3291.00	58.00	69.28	63.75	69.26	0.000011	0.78	20061.24	9668.45	0.04
North Main	below diversion	55821	7282.00	58.00	71.12	66.42	71.12	0.000012	0.90	32862.38	10167.79	0.05
North Main	below diversion	55758	1341.00	58.00	66.47	61.31	66.48	0.000062	1.50	4415.84	4632.45	0.09
North Main	below diversion	55758	2165.00	58.00	68.12	62.43	68.13	0.000014	0.81	13835.49	9192.32	0.05
North Main	below diversion	55758	3291.00	58.00	69.25	63.67	69.26	0.000009	0.70	21334.49	9829.40	0.04
North Main	below diversion	55758	7282.00	58.00	71.11	66.44	71.11	0.000011	0.85	34009.85	10105.07	0.04
North Main	below diversion	55744	Bridge									
North Main	below diversion	55730	1341.00	58.00	66.41	61.31	66.45	0.000114	2.03	2358.06	3292.14	0.13
North Main	below diversion	55730	2165.00	58.00	68.10	62.43	68.11	0.000037	1.32	6170.62	8286.37	0.08
North Main	below diversion	55730	3291.00	58.00	69.24	63.67	69.25	0.000023	1.11	14725.74	9627.20	0.08
North Main	below diversion	55730	7282.00	58.00	71.09	66.68	71.10	0.000022	1.21	27129.47	10701.85	0.06
North Main	below diversion	55644	1341.00	58.00	66.41	61.31	66.43	0.000067	1.76	3059.85	2818.05	0.11
North Main	below diversion	55644	2165.00	58.00	68.09	62.43	68.10	0.000026	1.11	9686.75	7718.88	0.08
North Main	below diversion	55644	3291.00	58.00	69.24	63.67	69.24	0.000017	0.96	16816.43	9001.67	0.05
North Main	below diversion	55644	7282.00	58.00	71.09	66.49	71.09	0.000017	1.08	30129.42	10072.30	0.05
North Main	below diversion	54900	1341.00	58.00	66.37	61.06	66.38	0.000053	1.39	4708.24	4086.53	0.09
North Main	below diversion	54900	2165.00	58.00	68.08	62.13	68.06	0.000013	0.78	13206.60	5916.68	0.04
North Main	below diversion	54900	3291.00	58.00	69.22	63.30	69.23	0.000010	0.73	19952.21	7063.79	0.04
North Main	below diversion	54900	7282.00	58.00	71.07	66.27	71.07	0.000012	0.91	31206.34	8038.26	0.05
North Main	below diversion	53185	1341.00	58.00	66.26	61.15	66.28	0.000087	1.45	3356.25	2002.22	0.10
North Main	below diversion	53185	2165.00	58.00	68.04	62.22	68.05	0.000028	1.09	7877.39	3067.97	0.06
North Main	below diversion	53185	3291.00	58.00	69.20	64.46	69.21	0.000026	1.13	11888.91	3871.11	0.06
North Main	below diversion	53185	7282.00	58.00	71.03	65.78	71.04	0.000033	1.43	19870.27	6477.42	0.07
North Main	below diversion	53128	1341.00	58.00	68.19	61.05	68.28	0.000155	2.33	1547.79	1264.08	0.15
North Main	below diversion	53128	2165.00	58.00	68.03	62.09	68.04	0.000059	1.67	5584.12	3157.95	0.10
North Main	below diversion	53128	3291.00	58.00	69.19	63.21	69.20	0.000043	1.54	9758.33	3997.78	0.08
North Main	below diversion	53128	7282.00	58.00	71.03	66.93	71.04	0.000046	1.77	18024.91	6512.74	0.09
North Main	below diversion	53114	Bridge									
North Main	below diversion	53100	1341.00	58.00	66.15	61.05	66.22	0.000182	2.37	1509.67	1307.18	0.15
North Main	below diversion	53100	2165.00	58.00	68.01	62.09	68.02	0.000055	1.61	6291.57	3877.38	0.09
North Main	below diversion	53100	3291.00	58.00	69.17	63.21	69.18	0.000036	1.40	11256.53	4658.64	0.06
North Main	below diversion	53100	7282.00	58.00	71.01	66.93	71.02	0.000037	1.58	20843.73	8105.44	0.08
North Main	below diversion	52987	1341.00	58.00	66.13	61.05	66.20	0.000185	2.39	1484.92	1280.68	0.15
North Main	below diversion	52987	2165.00	58.00	67.99	62.09	68.01	0.000055	1.61	6252.44	3839.96	0.09
North Main	below diversion	52987	3291.00	58.00	69.15	63.21	69.16	0.000037	1.41	11192.93	4649.66	0.08
North Main	below diversion	52987	7282.00	58.00	71.00	66.93	71.01	0.000037	1.58	20602.63	8101.77	0.08

HFC-DAS Plan R.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	52500	1341.00	58.00	66.05	61.01	66.12	0.000169	2.41	1646.98	2086.69	0.16
North Main	below diversion	52500	2165.00	58.00	67.96	62.06	67.99	0.000042	1.40	7445.90	3957.46	0.08
North Main	below diversion	52500	3291.00	58.00	69.14	63.19	69.15	0.000028	1.24	12495.47	4696.43	0.07
North Main	below diversion	52500	7282.00	58.00	70.99	66.81	70.99	0.000030	1.43	22141.12	7573.35	0.07
North Main	below diversion	50599	1341.00	56.00	65.65	59.56	65.77	0.000207	2.83	497.56	72.34	0.17
North Main	below diversion	50599	2165.00	56.00	67.61	60.75	67.81	0.000260	3.65	671.08	231.58	0.20
North Main	below diversion	50599	3291.00	56.00	68.71	62.06	68.99	0.000353	4.56	1878.09	2622.46	0.24
North Main	below diversion	50599	7282.00	56.00	70.81	65.42	70.88	0.000163	3.47	11449.61	7856.71	0.17
North Main	below diversion	50550	1341.00	58.00	65.65	59.34	65.75	0.000193	2.59	521.93	73.41	0.18
North Main	below diversion	50550	2165.00	58.00	67.63	60.51	67.80	0.000222	3.24	1004.30	1116.54	0.18
North Main	below diversion	50550	3291.00	58.00	68.83	61.78	68.95	0.000169	3.23	4134.14	3797.87	0.17
North Main	below diversion	50550	7282.00	58.00	70.83	65.11	70.86	0.000096	2.58	13396.14	8628.24	0.13
North Main	below diversion	50596	Bridge									
North Main	below diversion	50522	1341.00	58.00	65.62	59.34	65.72	0.000198	2.60	519.84	73.29	0.17
North Main	below diversion	50522	2165.00	58.00	67.63	60.51	67.79	0.000223	3.24	999.34	1109.26	0.18
North Main	below diversion	50522	3291.00	58.00	68.70	61.78	68.84	0.000219	3.45	3654.91	3654.81	0.19
North Main	below diversion	50522	7282.00	58.00	70.79	65.11	70.82	0.000100	2.62	13209.21	8615.96	0.13
North Main	below diversion	50423	1341.00	58.00	65.60	59.34	65.71	0.000197	2.61	518.65	73.23	0.17
North Main	below diversion	50423	2165.00	58.00	67.61	60.51	67.77	0.000225	3.26	978.44	1078.02	0.18
North Main	below diversion	50423	3291.00	58.00	68.68	61.78	68.82	0.000225	3.49	3566.58	3639.75	0.19
North Main	below diversion	50423	7282.00	58.00	70.78	65.11	70.82	0.000101	2.63	13189.26	8613.27	0.13
North Main	below diversion	49400	1341.00	58.00	65.37	59.36	65.48	0.000213	2.64	512.49	75.57	0.17
North Main	below diversion	49400	2165.00	58.00	67.39	60.51	67.53	0.000216	3.13	1635.90	3559.07	0.18
North Main	below diversion	49400	3291.00	58.00	68.58	61.79	68.63	0.000105	2.38	6804.71	4775.33	0.13
North Main	below diversion	49400	7282.00	58.00	70.72	65.06	70.74	0.000048	1.80	18816.10	8296.90	0.09
North Main	below diversion	48450	1341.00	58.00	65.12	59.52	65.25	0.000244	2.94	476.21	73.56	0.19
North Main	below diversion	48450	2165.00	58.00	67.39	60.71	67.40	0.000048	1.55	7504.04	5102.39	0.09
North Main	below diversion	48450	3291.00	58.00	68.57	62.00	68.58	0.000026	1.22	13663.08	5929.52	0.06
North Main	below diversion	48450	7282.00	58.00	70.70	66.82	70.71	0.000018	1.16	27471.24	9544.34	0.06
North Main	reach 1	233824	2975.00	53.37	64.93	57.51	65.09	0.000317	3.15	945.71	106.09	0.19
North Main	reach 1	233824	4660.00	53.37	67.14	58.84	67.31	0.000323	3.49	2290.74	1506.24	0.19
North Main	reach 1	233824	6593.00	53.37	68.41	60.15	68.52	0.000252	3.23	4720.18	2123.86	0.17
North Main	reach 1	233824	11576.00	53.37	70.63	62.90	70.67	0.000158	2.47	9994.49	2599.99	0.13
North Main	reach 1	232833	2975.00	53.37	64.67	57.14	64.79	0.000258	2.86	1040.05	115.98	0.17
North Main	reach 1	232833	4660.00	53.37	66.91	58.39	67.02	0.000226	2.97	3154.73	2152.25	0.16
North Main	reach 1	232833	6593.00	53.37	68.26	59.80	68.32	0.000141	2.49	6494.90	2821.12	0.13
North Main	reach 1	232833	11576.00	53.37	70.53	62.15	70.56	0.000086	2.13	12911.15	3045.52	0.10
North Main	reach 1	232775	2975.00	53.37	64.65	57.14	64.78	0.000259	2.87	1038.25	115.92	0.17
North Main	reach 1	232775	4660.00	53.37	66.89	58.39	67.01	0.000229	2.99	3112.24	2128.50	0.16
North Main	reach 1	232775	6593.00	53.37	68.25	59.60	68.31	0.000143	2.50	6461.19	2619.45	0.13
North Main	reach 1	232775	11576.00	53.37	70.52	62.15	70.55	0.000086	2.13	12875.73	3043.54	0.10
North Main	reach 1	232000	2975.00	53.37	64.47	57.01	64.56	0.000238	2.76	1587.88	1382.18	0.16
North Main	reach 1	232000	4660.00	53.37	66.88	58.24	66.88	0.000079	1.55	7827.20	3719.71	0.09
North Main	reach 1	232000	6593.00	53.37	68.23	59.43	68.24	0.000042	1.21	13236.07	4095.48	0.07
North Main	reach 1	232000	11576.00	53.37	70.49	61.98	70.50	0.000027	1.09	22784.07	4357.28	0.06
North Main	reach 1	230198	2975.00	52.60	64.06	56.15	64.17	0.000216	2.67	1115.49	120.21	0.15
North Main	reach 1	230198	4660.00	52.60	66.67	57.32	66.72	0.000101	2.08	6964.39	5594.45	0.11
North Main	reach 1	230198	6593.00	52.60	68.16	58.48	68.17	0.000034	1.30	16172.17	6274.62	0.06
North Main	reach 1	230198	11576.00	52.60	70.46	60.97	70.47	0.000017	0.93	30681.42	6300.00	0.05
North Main	reach 1	230130	2975.00	52.60	64.04	56.15	64.15	0.000217	2.67	1112.76	120.12	0.15
North Main	reach 1	230130	4660.00	52.60	66.66	57.32	66.71	0.000102	2.10	6895.36	5569.12	0.11
North Main	reach 1	230130	6593.00	52.60	68.16	58.48	68.16	0.000034	1.30	16146.03	6274.78	0.06
North Main	reach 1	230130	11576.00	52.60	70.46	60.97	70.47	0.000017	0.93	30665.71	6300.00	0.05
North Main	reach 1	230000	2975.00	52.60	64.00	56.24	64.12	0.000236	2.77	1072.23	116.72	0.16
North Main	reach 1	230000	4660.00	52.60	66.65	57.45	66.69	0.000125	2.05	6415.02	5259.86	0.12
North Main	reach 1	230000	6593.00	52.60	68.15	58.65	68.16	0.000039	1.23	15484.17	6145.54	0.07
North Main	reach 1	230000	11576.00	52.60	70.46	61.19	70.46	0.000018	0.93	29724.88	6185.80	0.05
North Main	reach 1	228819	2975.00	52.61	63.75	55.98	63.86	0.000204	2.56	1153.30	126.38	0.15
North Main	reach 1	228819	4660.00	52.61	66.38	57.11	66.50	0.000198	2.85	2691.34	2090.48	0.15
North Main	reach 1	228819	6593.00	52.61	68.06	58.24	68.09	0.000085	1.99	9821.45	5505.63	0.10
North Main	reach 1	228819	11576.00	52.61	70.42	60.63	70.43	0.000034	1.24	22967.53	5627.49	0.06
North Main	reach 1	227802	2975.00	52.61	63.39	56.41	63.54	0.000323	3.13	951.34	109.53	0.19
North Main	reach 1	227802	4660.00	52.61	65.95	57.66	66.17	0.000362	3.70	1435.09	818.24	0.20
North Main	reach 1	227802	6593.00	52.61	67.89	58.90	67.93	0.000169	2.30	8273.20	6196.02	0.14
North Main	reach 1	227802	11576.00	52.61	70.38	61.50	70.38	0.000037	1.15	23814.23	6272.52	0.06
North Main	reach 1	228000	2975.00	52.41	62.85	56.12	63.01	0.000344	3.18	934.44	109.84	0.19

HEC-RAS Plan R 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	226000	4660.00	52.41	65.33	57.35	65.56	0.000393	3.82	1218.84	119.51	0.21
North Main	reach 1	226000	6593.00	52.41	65.13	58.56	67.45	0.000490	4.58	1439.68	133.51	0.24
North Main	reach 1	226000	11576.00	52.41	70.03	61.15	70.22	0.000493	4.22	5704.42	2139.66	0.22
North Main	reach 1	224978	2975.00	52.41	62.55	55.81	62.68	0.000291	2.91	1022.19	122.06	0.18
North Main	reach 1	224978	4660.00	52.41	64.99	56.94	65.18	0.000330	3.50	1332.98	132.32	0.19
North Main	reach 1	224978	6593.00	52.41	66.71	58.06	66.98	0.000412	4.19	1625.88	240.14	0.22
North Main	reach 1	224978	11576.00	52.41	69.32	60.47	69.70	0.000550	5.29	3470.97	1368.67	0.26
North Main	reach 1	224934	2975.00	52.41	62.53	55.81	62.67	0.000292	2.92	1020.49	122.02	0.18
North Main	reach 1	224934	4660.00	52.41	64.97	56.94	65.17	0.000332	3.50	1330.84	132.26	0.19
North Main	reach 1	224934	6593.00	52.41	66.69	58.06	66.96	0.000415	4.20	1620.92	237.41	0.22
North Main	reach 1	224934	11576.00	52.41	69.28	60.47	69.66	0.000558	5.32	3428.22	1355.47	0.26
North Main	reach 1	223155	2975.00	52.35	61.86	55.92	62.05	0.000408	3.29	903.15	115.90	0.21
North Main	reach 1	223155	4660.00	52.35	64.18	57.10	64.40	0.000570	3.82	1316.72	332.66	0.24
North Main	reach 1	223155	6593.00	52.35	65.85	58.25	66.10	0.000545	4.11	1980.41	459.03	0.25
North Main	reach 1	223155	11576.00	52.35	68.22	60.71	68.52	0.000705	4.84	3288.00	692.30	0.28
North Main	reach 1	222000	2975.00	52.03	61.37	55.67	61.55	0.000456	3.44	863.90	112.37	0.22
North Main	reach 1	222000	4660.00	52.03	63.53	56.85	63.78	0.000506	4.07	1339.63	519.66	0.24
North Main	reach 1	222000	6593.00	52.03	65.25	58.02	65.43	0.000580	3.79	2724.96	1019.70	0.25
North Main	reach 1	222000	11576.00	52.03	67.76	60.51	67.90	0.000372	3.48	5800.03	1391.31	0.20
North Main	reach 1	220735	2975.00	51.94	60.69	55.55	60.80	0.000579	3.72	796.79	110.98	0.24
North Main	reach 1	220735	4660.00	51.94	62.72	56.76	63.04	0.000672	4.51	1034.13	120.18	0.27
North Main	reach 1	220735	6593.00	51.94	64.04	57.93	64.51	0.000887	5.51	1195.81	126.11	0.32
North Main	reach 1	220735	11576.00	51.94	66.19	60.42	66.98	0.001618	7.34	2230.90	1324.81	0.43
North Main	reach 1	220633	2975.00	51.94	60.62	55.55	60.64	0.000595	3.76	791.68	110.69	0.25
North Main	reach 1	220633	4660.00	51.94	62.65	58.76	62.97	0.000689	4.55	1025.06	119.84	0.27
North Main	reach 1	220633	6593.00	51.94	63.93	57.93	64.41	0.000915	5.57	1182.76	125.64	0.32
North Main	reach 1	220633	11576.00	51.94	65.87	60.43	66.79	0.001749	7.82	1858.28	997.47	0.44
North Main	reach 1	220295	2975.00	51.84	60.46	55.22	60.65	0.000496	3.49	853.33	116.80	0.23
North Main	reach 1	220295	4660.00	51.84	62.46	56.36	62.74	0.000586	4.26	1095.08	124.91	0.25
North Main	reach 1	220295	6593.00	51.84	63.69	57.44	64.11	0.000786	5.24	1344.67	435.80	0.30
North Main	reach 1	220295	11576.00	51.84	65.77	59.82	66.21	0.000996	5.92	3580.41	1760.30	0.34
North Main	reach 1	219330	2975.00	51.58	60.14	54.48	60.26	0.000303	2.76	1077.87	145.38	0.18
North Main	reach 1	219330	4660.00	51.58	62.09	55.44	62.27	0.000361	3.40	1369.73	153.43	0.20
North Main	reach 1	219330	6593.00	51.58	63.18	56.36	63.46	0.000511	4.29	1538.54	157.90	0.24
North Main	reach 1	219330	11576.00	51.58	64.74	58.40	65.29	0.000898	6.11	2673.13	1357.30	0.33
North Main	reach 1	218000	2975.00	51.24	59.77	53.94	59.87	0.000273	2.66	1120.24	147.75	0.17
North Main	reach 1	218000	4660.00	51.24	61.64	54.86	61.81	0.000338	3.32	1403.27	154.91	0.19
North Main	reach 1	218000	6593.00	51.24	62.59	55.76	62.82	0.000440	3.98	2405.76	1505.83	0.22
North Main	reach 1	218000	11576.00	51.24	64.15	57.77	64.37	0.000482	4.48	5273.04	2079.79	0.24
North Main	reach 1	216806	2975.00	51.24	59.25	54.39	59.43	0.000515	3.39	876.59	129.63	0.23
North Main	reach 1	216806	4660.00	51.24	61.07	55.45	61.29	0.000551	3.94	1723.37	1539.52	0.24
North Main	reach 1	216806	6593.00	51.24	62.13	56.49	62.29	0.000439	3.73	3862.89	2247.67	0.22
North Main	reach 1	216806	11576.00	51.24	63.82	58.70	63.91	0.000319	3.33	8379.88	3047.42	0.19
North Main	reach 1	216752	2975.00	51.24	59.22	54.40	59.40	0.000523	3.41	872.48	129.47	0.23
North Main	reach 1	216752	4660.00	51.24	61.03	55.45	61.26	0.000566	3.99	1664.84	1499.27	0.25
North Main	reach 1	216752	6593.00	51.24	62.10	56.49	62.26	0.000454	3.78	3785.32	2236.58	0.22
North Main	reach 1	216752	11576.00	51.24	63.80	58.70	63.89	0.000325	3.35	8318.90	3040.41	0.19
North Main	reach 1	216000	2975.00	51.25	58.68	54.46	58.93	0.000745	3.99	748.25	112.61	0.27
North Main	reach 1	216000	4660.00	51.25	60.50	55.55	60.78	0.000720	4.45	1730.67	1671.24	0.26
North Main	reach 1	216000	6593.00	51.25	61.79	56.64	61.92	0.000436	3.60	4130.46	2006.19	0.22
North Main	reach 1	216000	11576.00	51.25	63.57	58.97	63.63	0.000345	2.89	8062.66	2459.82	0.19
North Main	reach 1	214269	2975.00	51.25	57.68	53.68	57.84	0.000520	3.13	950.52	160.33	0.23
North Main	reach 1	214269	4660.00	51.25	59.45	54.52	59.67	0.000559	3.76	1243.26	264.97	0.24
North Main	reach 1	214269	6593.00	51.25	60.92	55.36	61.13	0.000487	3.87	2675.63	1260.10	0.23
North Main	reach 1	214269	11576.00	51.25	62.81	57.16	62.98	0.000439	4.06	5177.17	1446.31	0.23
North Main	reach 1	212822	2975.00	51.25	55.43	54.24	56.13	0.004223	6.74	441.34	113.39	0.80
North Main	reach 1	212822	4660.00	51.25	57.22	55.27	58.02	0.003089	7.16	651.06	120.20	0.54
North Main	reach 1	212822	6593.00	51.25	58.70	56.29	59.87	0.002903	7.91	851.31	284.69	0.54
North Main	reach 1	212822	11576.00	51.25	60.51	59.63	61.69	0.003171	9.37	1838.37	697.51	0.56
North Main	reach 1	212818	Inline Weir									
North Main	reach 1	212769	2975.00	44.29	55.42	47.99	55.54	0.000250	2.82	1053.42	116.66	0.17
North Main	reach 1	212769	4660.00	44.29	57.22	49.16	57.41	0.000333	3.55	1603.39	539.58	0.19
North Main	reach 1	212769	6593.00	44.29	58.70	50.32	58.91	0.000363	3.93	2432.41	626.22	0.21
North Main	reach 1	212769	11576.00	44.29	60.50	52.60	60.80	0.000521	5.02	3647.48	747.41	0.25
North Main	reach 1	211780	2975.00	43.36	55.30	48.55	55.36	0.000121	2.06	1849.40	956.32	0.12
North Main	reach 1	211780	4660.00	43.36	57.13	47.61	57.19	0.000107	2.09	4326.36	1732.69	0.11

HEC-DAS Plan: P 100 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Val Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	211780	6593.00	43.36	58.84	48.66	58.87	0.000098	1.87	7376.93	2328.95	0.11
North Main	reach 1	211780	11576.00	43.36	60.49	50.90	60.51	0.000096	1.92	12483.55	3273.76	0.11
North Main	reach 1	210419	2975.00	43.36	55.04	47.04	55.14	0.000207	2.59	1406.86	1514.52	0.15
North Main	reach 1	210419	4660.00	43.36	57.02	48.27	57.05	0.000105	1.85	6085.09	2805.04	0.11
North Main	reach 1	210419	6593.00	43.36	58.56	49.46	58.57	0.000064	1.24	11321.24	4035.70	0.08
North Main	reach 1	210419	11576.00	43.36	60.43	51.97	60.43	0.000048	1.16	19459.71	4584.36	0.07
North Main	reach 1	209041	2975.00	43.31	54.75	46.85	54.86	0.000210	2.82	1133.83	123.83	0.15
North Main	reach 1	209041	4660.00	43.31	56.64	48.03	56.82	0.000295	3.38	1457.77	653.04	0.18
North Main	reach 1	209041	6593.00	43.31	58.25	49.19	58.41	0.000283	3.52	3396.48	1735.98	0.18
North Main	reach 1	209041	11576.00	43.31	60.24	51.64	60.33	0.000216	3.30	9210.85	4722.19	0.16
North Main	reach 1	208000	2975.00	43.31	54.52	46.80	54.63	0.000223	2.70	1102.81	120.24	0.16
North Main	reach 1	208000	4660.00	43.31	56.31	47.97	56.50	0.000322	3.52	1331.33	217.48	0.19
North Main	reach 1	208000	6593.00	43.31	57.81	49.12	58.03	0.000536	3.95	2535.06	1849.50	0.24
North Main	reach 1	208000	11576.00	43.31	60.07	51.59	60.13	0.000257	2.60	10940.15	6181.20	0.16
North Main	reach 1	207786	2975.00	43.31	54.48	46.84	54.59	0.000223	2.63	1129.77	129.01	0.16
North Main	reach 1	207786	4660.00	43.31	56.24	48.02	56.42	0.000326	3.40	1438.17	549.04	0.19
North Main	reach 1	207786	6593.00	43.31	57.77	49.16	57.92	0.000327	3.46	3704.92	2712.83	0.19
North Main	reach 1	207786	11576.00	43.31	60.05	51.60	60.08	0.000163	2.03	13636.52	5753.38	0.13
North Main	reach 1	207730	2975.00	43.31	54.47	46.83	54.58	0.000224	2.64	1128.10	128.94	0.16
North Main	reach 1	207730	4660.00	43.31	56.23	48.02	56.41	0.000328	3.41	1427.71	532.79	0.19
North Main	reach 1	207730	6593.00	43.31	57.76	49.16	57.92	0.000329	3.47	3676.47	2678.46	0.19
North Main	reach 1	207730	11576.00	43.31	60.04	51.60	60.07	0.000165	2.04	13581.63	5752.30	0.13
North Main	reach 1	206000	2975.00	43.32	54.16	46.71	54.23	0.000167	2.31	2827.36	2443.65	0.14
North Main	reach 1	206000	4660.00	43.32	56.17	47.85	56.18	0.000047	1.26	9863.11	3965.09	0.07
North Main	reach 1	206000	6593.00	43.32	57.76	48.97	57.77	0.000023	0.91	16197.82	4005.67	0.05
North Main	reach 1	206000	11576.00	43.32	59.98	51.37	59.99	0.000019	0.84	25617.50	4388.64	0.05
North Main	reach 1	204471	2975.00	43.17	53.77	46.89	53.91	0.000276	2.90	1026.43	118.20	0.17
North Main	reach 1	204471	4660.00	43.17	55.80	47.88	56.01	0.000382	3.66	1274.09	128.22	0.20
North Main	reach 1	204471	6593.00	43.17	57.37	49.02	57.64	0.000534	4.27	1832.30	636.74	0.24
North Main	reach 1	204471	11576.00	43.17	59.60	51.50	59.88	0.000626	4.77	4216.66	1576.48	0.27
North Main	reach 1	203192	2975.00	43.15	53.53	46.10	53.61	0.000173	2.30	1291.52	150.35	0.14
North Main	reach 1	203192	4660.00	43.15	55.50	47.09	55.63	0.000226	2.89	1669.43	199.88	0.16
North Main	reach 1	203192	6593.00	43.15	58.92	48.09	57.12	0.000303	3.54	1973.44	258.42	0.19
North Main	reach 1	203192	11576.00	43.15	58.79	50.21	59.16	0.000537	5.05	2965.18	794.12	0.28
North Main	reach 1	202000	2975.00	42.72	53.29	45.85	53.39	0.000203	2.54	1169.92	129.90	0.15
North Main	reach 1	202000	4660.00	42.72	55.15	46.91	55.32	0.000282	3.28	1439.24	369.68	0.18
North Main	reach 1	202000	6593.00	42.72	56.48	47.96	56.69	0.000413	3.83	2304.40	863.82	0.22
North Main	reach 1	202000	11576.00	42.72	58.24	50.22	58.49	0.000525	4.51	4308.00	1425.64	0.25
North Main	reach 1	201961	2975.00	42.72	53.28	45.86	53.38	0.000197	2.48	1198.87	136.39	0.15
North Main	reach 1	201961	4660.00	42.72	55.14	46.91	55.30	0.000272	3.19	1474.61	281.31	0.18
North Main	reach 1	201961	6593.00	42.72	56.46	47.95	56.67	0.000338	3.75	2415.65	1011.49	0.20
North Main	reach 1	201961	11576.00	42.72	58.23	50.20	58.48	0.000446	4.44	4777.72	1851.68	0.23
North Main	reach 1	201917	2975.00	42.72	53.27	45.87	53.37	0.000198	2.48	1197.66	136.36	0.15
North Main	reach 1	201917	4660.00	42.72	55.13	46.92	55.29	0.000273	3.19	1471.18	271.80	0.18
North Main	reach 1	201917	6593.00	42.72	56.45	47.96	56.65	0.000339	3.76	2398.78	1007.35	0.20
North Main	reach 1	201917	11576.00	42.72	58.20	50.20	58.44	0.000453	4.46	4733.52	1841.14	0.23
North Main	reach 1	201322	2975.00	42.52	53.15	45.65	53.25	0.000195	2.51	1186.30	130.35	0.15
North Main	reach 1	201322	4660.00	42.52	54.96	46.69	55.13	0.000276	3.26	1428.26	853.12	0.18
North Main	reach 1	201322	6593.00	42.52	56.17	47.75	56.43	0.000399	4.13	1594.95	1007.43	0.22
North Main	reach 1	201322	11576.00	42.52	57.37	50.00	58.04	0.000912	6.55	1767.28	1162.32	0.33
North Main	reach 1	200676	2975.00	42.52	52.99	46.06	53.10	0.000266	2.73	1088.24	135.46	0.17
North Main	reach 1	200676	4660.00	42.52	54.80	47.21	54.95	0.000306	3.20	2074.28	927.47	0.19
North Main	reach 1	200676	6593.00	42.52	56.04	48.35	56.16	0.000392	3.23	3331.83	1173.08	0.21
North Main	reach 1	200676	11576.00	42.52	57.35	50.72	57.48	0.000648	3.51	5253.14	1733.05	0.25
North Main	reach 1	200030	2975.00	42.52	52.82	45.77	52.94	0.000246	2.74	1085.03	124.66	0.16
North Main	reach 1	200030	4660.00	42.52	54.64	46.88	54.77	0.000258	3.08	2322.58	848.09	0.17
North Main	reach 1	200030	6593.00	42.52	56.02	47.96	56.04	0.000075	1.77	12048.19	6280.29	0.09
North Main	reach 1	200030	11576.00	42.52	57.35	50.30	57.38	0.000058	1.64	20512.82	6457.97	0.08
North Main	reach 1	199964	2975.00	42.52	52.80	45.77	52.92	0.000248	2.75	1082.91	124.59	0.16
North Main	reach 1	199964	4660.00	42.52	54.62	46.88	54.75	0.000261	3.09	2305.77	845.71	0.17
North Main	reach 1	199964	6593.00	42.52	56.01	47.96	56.04	0.000075	1.77	12015.68	6279.41	0.09
North Main	reach 1	199964	11576.00	42.52	57.34	50.30	57.36	0.000058	1.64	20487.80	6457.50	0.08
North Main	reach 1	198000	2975.00	42.52	52.35	45.61	52.45	0.000224	2.59	1666.38	1292.41	0.16
North Main	reach 1	198000	4660.00	42.52	54.51	46.65	54.52	0.000053	1.41	9593.79	4470.08	0.08
North Main	reach 1	198000	6593.00	42.52	55.94	47.70	55.95	0.000027	1.03	18935.56	7656.41	0.06
North Main	reach 1	198000	11576.00	42.52	57.28	49.93	57.28	0.000025	0.99	29317.00	7798.67	0.05

HFC-DAS Plan P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 1	197381	2975.00	42.52	52.18	45.85	52.30	0.000267	2.75	1130.76	339.91	0.17
North Main	reach 1	197381	4660.00	42.52	54.45	46.70	54.48	0.000105	1.94	8447.07	3652.19	0.11
North Main	reach 1	197381	6593.00	42.52	55.92	47.75	55.93	0.000048	1.40	13288.63	5807.88	0.08
North Main	reach 1	197381	11578.00	42.52	57.26	49.98	57.27	0.000045	1.42	23724.89	8913.91	0.07
North Main	reach 1	197333	2975.00	42.52	52.17	45.85	52.29	0.000269	2.75	1126.53	329.82	0.17
North Main	reach 1	197333	4660.00	42.52	54.41	46.71	54.47	0.000160	2.39	4887.60	3523.90	0.13
North Main	reach 1	197333	6593.00	42.52	55.91	47.75	55.93	0.000066	1.83	11764.58	5768.15	0.09
North Main	reach 1	197333	11578.00	42.52	57.25	49.98	57.27	0.000055	1.57	22228.46	8913.78	0.08
North Main	reach 1	198000	2975.00	42.53	51.75	45.70	51.89	0.000331	2.98	1000.88	142.41	0.19
North Main	reach 1	198000	4660.00	42.53	53.97	46.77	54.16	0.000355	3.49	1733.27	1538.56	0.20
North Main	reach 1	198000	6593.00	42.53	55.75	47.82	55.80	0.000169	2.34	7364.96	4192.28	0.14
North Main	reach 1	198000	11578.00	42.53	57.13	50.10	57.16	0.000129	2.01	14009.16	5443.16	0.12
North Main	reach 1	194500	2975.00	42.53	51.09	45.88	51.28	0.000508	3.50	849.89	117.17	0.23
North Main	reach 1	194500	4660.00	42.53	53.21	47.00	53.48	0.000589	4.21	1107.71	126.05	0.25
North Main	reach 1	194500	6593.00	42.53	54.99	48.11	55.32	0.000804	4.72	2204.90	3245.89	0.26
North Main	reach 1	194500	11578.00	42.53	56.78	50.49	56.87	0.000307	3.41	9398.86	4537.03	0.19
North Main	reach 1	194434	2975.00	42.53	51.05	45.88	51.24	0.000513	3.52	845.70	117.32	0.23
North Main	reach 1	194434	4660.00	42.53	53.18	47.00	53.44	0.000577	4.23	1102.57	125.48	0.25
North Main	reach 1	194434	6593.00	42.53	54.94	48.10	55.28	0.000822	4.78	2049.49	2758.34	0.27
North Main	reach 1	194434	11578.00	42.53	56.75	50.49	56.85	0.000315	3.45	9290.84	4532.45	0.19
North Main	reach 1	194000	2975.00	42.44	50.83	45.75	51.02	0.000511	3.47	856.40	120.56	0.23
North Main	reach 1	194000	4660.00	42.44	52.92	46.86	53.19	0.000571	4.17	1117.87	129.85	0.25
North Main	reach 1	194000	6593.00	42.44	54.84	47.94	55.01	0.000451	3.73	3936.27	3597.14	0.22
North Main	reach 1	194000	11578.00	42.44	56.89	50.26	56.72	0.000198	2.31	11919.14	4480.78	0.14
North Main	reach 1	192000	2975.00	42.24	49.54	45.43	49.78	0.000782	3.96	750.76	117.27	0.28
North Main	reach 1	192000	4660.00	42.24	51.48	46.50	51.83	0.000826	4.73	986.53	138.24	0.30
North Main	reach 1	192000	6593.00	42.24	53.40	47.57	53.76	0.000888	4.95	1838.94	1020.23	0.31
North Main	reach 1	192000	11578.00	42.24	56.21	49.85	56.28	0.000253	2.87	8820.79	2854.83	0.17
North Main	reach 1	190533	2975.00	42.24	48.87	45.50	47.47	0.004581	7.21	412.85	100.83	0.63
North Main	reach 1	190533	4660.00	42.24	49.01	46.62	49.79	0.002844	7.07	659.18	109.06	0.51
North Main	reach 1	190533	6593.00	42.24	50.77	47.70	51.69	0.002398	7.69	858.86	115.36	0.50
North Main	reach 1	190533	11578.00	42.24	53.93	50.05	55.27	0.002794	9.30	1244.58	5141.03	0.55
North Main	reach 1	190528										
North Main	reach 1	190513	2975.00	38.26	46.86	41.83	46.88	0.000571	3.72	798.70	106.67	0.24
North Main	reach 1	190513	4660.00	38.26	49.00	42.78	49.30	0.000600	4.39	1062.44	116.48	0.26
North Main	reach 1	190513	6593.00	38.26	50.77	43.92	51.18	0.000704	5.18	1272.79	121.88	0.28
North Main	reach 1	190513	11578.00	38.26	53.82	46.35	54.65	0.001138	6.67	1684.13	5125.47	0.36
North Main	reach 1	190000	2975.00	38.26	46.40	41.46	46.59	0.000528	3.49	851.53	122.00	0.23
North Main	reach 1	190000	4660.00	38.26	48.74	42.56	49.00	0.000533	4.05	1149.57	131.97	0.24
North Main	reach 1	190000	6593.00	38.26	50.47	43.63	50.82	0.000620	4.76	1383.95	3897.21	0.27
North Main	reach 1	190000	11578.00	38.26	53.44	45.89	54.07	0.001016	6.34	1826.12	5353.42	0.34
North Main	reach 1	189032	2975.00	38.26	45.78	41.50	46.00	0.000691	3.74	794.93	126.79	0.26
North Main	reach 1	189032	4660.00	38.26	48.16	42.59	48.44	0.000635	4.19	1112.62	140.22	0.26
North Main	reach 1	189032	6593.00	38.26	49.81	43.63	50.18	0.000726	4.88	1350.67	3441.50	0.29
North Main	reach 1	189032	11578.00	38.26	52.31	45.89	52.98	0.001214	6.59	1756.38	4935.66	0.37
North Main	reach 1	188975	2975.00	38.26	45.74	41.50	45.96	0.000705	3.77	789.36	126.54	0.27
North Main	reach 1	188975	4660.00	38.26	48.12	42.59	48.40	0.000644	4.21	1107.05	140.00	0.26
North Main	reach 1	188975	6593.00	38.26	49.76	43.64	50.14	0.000738	4.91	1343.78	3379.03	0.29
North Main	reach 1	188975	11578.00	38.26	52.22	45.89	52.91	0.001223	6.65	1740.79	4908.23	0.38
North Main	reach 1	188000	2307.00	37.83	45.28	41.06	45.39	0.000425	2.66	867.89	158.31	0.20
North Main	reach 1	188000	3399.00	37.83	47.82	41.75	47.93	0.000278	2.63	1292.98	172.90	0.17
North Main	reach 1	188000	4719.00	37.83	49.47	42.45	49.61	0.000286	2.98	1582.31	1721.25	0.18
North Main	reach 1	188000	10089.00	37.83	51.52	44.76	51.94	0.000681	5.16	1956.17	5425.78	0.28
North Main	reach 1	187869	2307.00	37.83	45.15	40.75	45.32	0.000535	3.26	708.67	113.31	0.23
North Main	reach 1	187869	3399.00	37.83	47.70	41.56	47.88	0.000403	3.37	1009.17	124.07	0.21
North Main	reach 1	187869	4719.00	37.83	49.32	42.40	49.55	0.000452	3.88	1214.93	130.87	0.22
North Main	reach 1	187869	10089.00	37.83	51.03	45.19	51.78	0.001249	6.98	1445.15	136.08	0.38
North Main	reach 1	187894	2307.00	34.85	45.14	38.47	45.24	0.000235	2.56	901.34	110.37	0.16
North Main	reach 1	187894	3399.00	34.85	47.68	39.32	47.81	0.000225	2.85	1194.36	119.85	0.16
North Main	reach 1	187894	4719.00	34.85	49.29	40.20	49.47	0.000279	3.39	1392.01	125.90	0.18
North Main	reach 1	187894	10089.00	34.85	50.95	43.12	51.56	0.000849	6.28	1605.82	132.08	0.32
North Main	reach 1	186000	2307.00	34.04	44.87	37.06	44.94	0.000136	2.05	1127.91	129.22	0.12
North Main	reach 1	186000	3399.00	34.04	47.38	37.87	47.46	0.000178	2.31	1473.83	173.72	0.14
North Main	reach 1	186000	4719.00	34.04	49.16	38.73	49.18	0.000086	1.83	6999.17	4025.36	0.10
North Main	reach 1	186000	10089.00	34.04	51.11	41.47	51.13	0.000060	1.49	15352.85	4157.85	0.08
North Main	reach 1	184000	2307.00	34.09	44.62	36.79	44.68	0.000130	2.02	1139.88	127.84	0.12



HEC-RAS Plan: P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	184000.	3399.00	34.09	47.07	37.57	47.15	0.000135	2.32	1483.27	136.35	0.12
North Main	reach 1	184000.	4719.00	34.09	48.82	38.39	48.93	0.000181	2.72	2154.70	2397.35	0.15
North Main	reach 1	184000.	10089.00	34.09	50.90	41.08	50.94	0.000150	2.37	10487.11	4102.66	0.13
North Main	reach 1	182000.	2307.00	33.49	44.36	36.24	44.42	0.000123	1.99	1157.34	127.22	0.12
North Main	reach 1	182000.	3399.00	33.49	46.80	37.03	46.88	0.000131	2.30	1478.26	136.34	0.12
North Main	reach 1	182000.	4719.00	33.49	48.58	37.87	48.63	0.000114	1.99	5586.54	3969.38	0.11
North Main	reach 1	182000.	10089.00	33.49	50.72	40.61	50.74	0.000069	1.62	14518.32	4126.62	0.09
North Main	reach 1	180000.	2307.00	33.44	44.10	36.25	44.16	0.000138	2.07	1112.51	124.61	0.12
North Main	reach 1	180000.	3399.00	33.44	46.52	37.05	46.60	0.000144	2.39	1425.03	133.78	0.13
North Main	reach 1	180000.	4719.00	33.44	48.23	37.90	48.35	0.000166	2.74	2108.19	2224.68	0.14
North Main	reach 1	180000.	10089.00	33.44	50.49	40.64	50.54	0.000143	2.33	10753.35	4114.07	0.13
North Main	reach 1	178120	2307.00	33.43	43.72	36.84	43.82	0.000246	2.57	899.37	115.24	0.16
North Main	reach 1	178120	3399.00	33.43	46.13	37.78	46.26	0.000241	2.85	1192.58	128.17	0.16
North Main	reach 1	178120	4719.00	33.43	47.76	38.75	47.94	0.000292	3.35	1408.86	136.93	0.18
North Main	reach 1	178120	10089.00	33.43	50.13	41.82	50.22	0.000223	3.18	8719.67	4103.69	0.16
North Main	reach 1	179059	2307.00	33.43	43.71	36.84	43.81	0.000247	2.57	898.33	115.19	0.16
North Main	reach 1	179059	3399.00	33.43	46.12	37.78	46.25	0.000242	2.85	1191.46	128.12	0.16
North Main	reach 1	179059	4719.00	33.43	47.75	38.75	47.93	0.000293	3.35	1407.40	136.87	0.18
North Main	reach 1	179059	10089.00	33.43	50.12	41.82	50.21	0.000226	3.20	8658.31	4103.02	0.17
North Main	reach 1	178000.	2307.00	33.28	43.72	36.31	43.80	0.000169	2.24	1027.81	120.22	0.14
North Main	reach 1	178000.	3399.00	33.28	46.13	37.14	46.23	0.000174	2.58	1329.03	129.77	0.14
North Main	reach 1	178000.	4719.00	33.28	47.76	38.00	47.90	0.000217	3.05	1545.88	136.23	0.16
North Main	reach 1	178000.	10089.00	33.28	50.14	40.85	50.18	0.000152	2.24	10659.21	4165.91	0.13
North Main	reach 1	178000.	2307.00	33.44	43.35	36.36	43.44	0.000190	2.31	998.85	123.20	0.14
North Main	reach 1	178000.	3399.00	33.44	45.76	37.18	45.87	0.000189	2.80	1308.39	133.97	0.15
North Main	reach 1	178000.	4719.00	33.44	47.28	38.06	47.41	0.000283	3.11	1518.18	161.05	0.18
North Main	reach 1	178000.	10089.00	33.44	49.83	40.88	49.87	0.000153	2.36	10948.24	5022.27	0.13
North Main	reach 1	174282	2307.00	32.56	43.09	35.52	43.18	0.000135	2.06	1121.25	126.48	0.12
North Main	reach 1	174282	3399.00	32.56	45.49	36.30	45.58	0.000141	2.37	1434.17	134.09	0.13
North Main	reach 1	174282	4719.00	32.56	46.85	37.10	46.99	0.000209	2.91	1621.52	149.63	0.16
North Main	reach 1	174282	10089.00	32.56	49.17	39.74	49.45	0.000522	4.42	4217.23	4084.22	0.24
North Main	reach 1	173031	2307.00	32.46	42.89	35.42	42.97	0.000167	2.23	1033.38	121.36	0.13
North Main	reach 1	173031	3399.00	32.46	45.28	36.25	45.38	0.000174	2.54	1336.91	132.34	0.14
North Main	reach 1	173031	4719.00	32.46	46.55	37.15	46.71	0.000238	3.13	1508.52	138.14	0.17
North Main	reach 1	173031	10089.00	32.46	48.74	40.01	48.91	0.000317	3.90	7693.47	7626.51	0.20
North Main	reach 1	172979	2307.00	32.46	42.88	35.42	42.96	0.000168	2.23	1032.30	121.32	0.14
North Main	reach 1	172979	3399.00	32.46	45.28	36.25	45.38	0.000174	2.54	1335.89	132.30	0.14
North Main	reach 1	172979	4719.00	32.46	46.54	37.15	46.69	0.000238	3.13	1506.75	138.08	0.17
North Main	reach 1	172979	10089.00	32.46	48.72	40.01	48.89	0.000326	3.95	7487.15	7761.18	0.20
North Main	reach 1	172000.	2307.00	32.46	42.72	35.31	42.80	0.000161	2.19	1051.44	122.74	0.13
North Main	reach 1	172000.	3399.00	32.46	45.11	36.12	45.21	0.000165	2.51	1354.36	131.05	0.14
North Main	reach 1	172000.	4719.00	32.46	46.31	36.98	46.46	0.000230	3.12	1514.38	135.23	0.16
North Main	reach 1	172000.	10089.00	32.46	48.50	39.78	48.58	0.000250	3.02	9495.37	6672.24	0.17
North Main	reach 1	170000.	2307.00	32.45	42.41	35.13	42.48	0.000153	2.14	1076.99	125.16	0.13
North Main	reach 1	170000.	3399.00	32.45	44.78	35.89	44.87	0.000159	2.46	1384.33	134.59	0.13
North Main	reach 1	170000.	4719.00	32.45	45.82	36.72	45.97	0.000267	3.07	1535.70	157.68	0.17
North Main	reach 1	170000.	10089.00	32.45	47.09	39.37	47.61	0.000946	5.77	1747.77	160.36	0.33
North Main	reach 1	168000.	2307.00	32.50	42.07	35.26	42.15	0.000186	2.28	1012.50	125.35	0.14
North Main	reach 1	168000.	3399.00	32.50	44.42	36.04	44.52	0.000194	2.54	1591.44	1051.65	0.15
North Main	reach 1	168000.	4719.00	32.50	45.38	36.87	45.45	0.000225	2.50	4299.17	3998.41	0.16
North Main	reach 1	168000.	10089.00	32.50	46.49	39.57	46.58	0.000269	2.89	8836.64	4275.18	0.17
North Main	reach 1	167722	2307.00	32.50	42.00	35.33	42.09	0.000209	2.40	959.80	119.08	0.15
North Main	reach 1	167722	3399.00	32.50	44.35	36.13	44.46	0.000208	2.71	1320.56	786.94	0.15
North Main	reach 1	167722	4719.00	32.50	45.27	36.98	45.38	0.000224	2.94	3680.88	4814.57	0.16
North Main	reach 1	167722	10089.00	32.50	46.44	39.78	46.49	0.000237	2.88	11166.88	7325.58	0.16
North Main	reach 1	167842	2307.00	32.50	41.96	35.33	42.07	0.000210	2.41	957.74	119.02	0.15
North Main	reach 1	167842	3399.00	32.50	44.34	36.13	44.45	0.000209	2.72	1308.77	736.99	0.15
North Main	reach 1	167842	4719.00	32.50	45.24	36.99	45.36	0.000233	2.99	3522.71	4898.82	0.16
North Main	reach 1	167842	10089.00	32.50	46.40	39.78	46.47	0.000243	2.99	10908.07	7302.72	0.17
North Main	reach 1	166000.	2307.00	32.51	41.61	35.37	41.70	0.000239	2.45	941.17	126.75	0.16
North Main	reach 1	166000.	3399.00	32.51	43.93	36.18	44.04	0.000301	2.68	1286.85	177.79	0.18
North Main	reach 1	166000.	4719.00	32.51	44.68	37.04	44.85	0.000427	3.28	1901.58	2536.58	0.21
North Main	reach 1	166000.	10089.00	32.51	46.09	39.79	46.12	0.000173	2.25	13635.27	7848.26	0.14
North Main	reach 1	164000.	2307.00	31.68	41.22	34.36	41.29	0.000174	2.19	1054.25	132.24	0.14
North Main	reach 1	164000.	3399.00	31.68	43.46	35.13	43.54	0.000204	2.30	1960.18	1786.57	0.15
North Main	reach 1	164000.	4719.00	31.68	44.34	35.96	44.38	0.000130	1.90	7223.95	8994.06	0.12
North Main	reach 1	164000.	10089.00	31.68	45.90	38.62	45.91	0.000068	1.47	19119.97	7845.29	0.09

HEC-RAS Plan 2.100.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	163662	2307.00	31.34	41.16	34.03	41.23	0.000161	2.16	1070.34	129.17	0.13
North Main	reach 1	163662	3399.00	31.34	43.36	34.80	43.47	0.000221	2.38	1833.36	1396.09	0.15
North Main	reach 1	163662	4719.00	31.34	44.26	35.62	44.32	0.000194	2.02	5611.69	4900.34	0.14
North Main	reach 1	163662	10089.00	31.34	45.87	38.29	45.89	0.000106	1.69	14768.96	6000.00	0.11
North Main	reach 1	163605	2307.00	31.34	41.15	34.04	41.22	0.000161	2.16	1069.12	129.13	0.13
North Main	reach 1	163605	3399.00	31.34	43.37	34.81	43.45	0.000221	2.39	1815.78	1365.88	0.15
North Main	reach 1	163605	4719.00	31.34	44.27	35.63	44.31	0.000197	2.03	5551.04	4880.95	0.14
North Main	reach 1	163605	10089.00	31.34	45.86	38.29	45.88	0.000107	1.70	14731.47	6000.00	0.11
North Main	reach 1	162000	2307.00	31.35	40.87	34.07	40.95	0.000182	2.22	1037.30	131.81	0.14
North Main	reach 1	162000	3399.00	31.35	43.24	34.84	43.25	0.000069	1.33	7103.54	5412.21	0.09
North Main	reach 1	162000	4719.00	31.35	44.17	35.67	44.18	0.000041	1.03	12989.84	7052.58	0.07
North Main	reach 1	162000	10089.00	31.35	45.78	38.35	45.79	0.000031	0.97	25344.18	7664.40	0.06
North Main	reach 1	160000	2307.00	31.35	40.54	33.79	40.61	0.000156	2.08	1110.86	138.75	0.13
North Main	reach 1	160000	3399.00	31.35	42.94	34.50	43.03	0.000196	2.31	1482.18	385.05	0.14
North Main	reach 1	160000	4719.00	31.35	44.01	35.25	44.04	0.000120	1.90	6670.61	5945.27	0.11
North Main	reach 1	160000	10089.00	31.35	45.69	37.75	45.70	0.000084	1.51	18922.22	7834.74	0.09
North Main	reach 1	158000	2307.00	31.36	40.16	33.99	40.24	0.000213	2.33	990.30	132.18	0.15
North Main	reach 1	158000	3399.00	31.36	42.48	34.74	42.58	0.000245	2.58	1317.82	167.67	0.16
North Main	reach 1	158000	4719.00	31.36	43.72	35.53	43.77	0.000155	2.06	5880.24	5303.20	0.13
North Main	reach 1	158000	10089.00	31.36	45.56	38.10	45.57	0.000067	1.47	18865.85	7861.97	0.09
North Main	reach 1	157191	2307.00	31.36	39.95	34.07	40.05	0.000265	2.56	899.49	121.73	0.17
North Main	reach 1	157191	3399.00	31.36	42.26	34.85	42.38	0.000250	2.85	1191.17	130.86	0.17
North Main	reach 1	157191	4719.00	31.36	43.43	35.68	43.59	0.000294	3.28	2465.10	3244.16	0.18
North Main	reach 1	157191	10089.00	31.36	45.48	38.39	45.50	0.000105	2.09	15980.93	8000.00	0.11
North Main	reach 1	157140	2307.00	31.36	39.93	34.07	40.04	0.000267	2.57	897.77	121.68	0.17
North Main	reach 1	157140	3399.00	31.36	42.24	34.85	42.37	0.000251	2.86	1189.43	130.80	0.17
North Main	reach 1	157140	4719.00	31.36	43.41	35.66	43.57	0.000296	3.29	2411.17	3162.36	0.18
North Main	reach 1	157140	10089.00	31.36	45.47	38.39	45.50	0.000105	2.10	15935.43	8000.00	0.11
North Main	reach 1	156000	2307.00	31.36	39.61	34.00	39.72	0.000287	2.63	877.93	120.95	0.17
North Main	reach 1	156000	3399.00	31.36	41.93	34.76	42.06	0.000291	2.91	1168.71	139.48	0.18
North Main	reach 1	156000	4719.00	31.36	43.13	35.58	43.22	0.000279	2.73	3887.73	3799.71	0.17
North Main	reach 1	156000	10089.00	31.36	45.38	38.25	45.39	0.000076	1.60	18262.55	7828.38	0.09
North Main	reach 1	154644	2307.00	31.37	39.22	33.86	39.33	0.000291	2.81	883.60	124.19	0.17
North Main	reach 1	154644	3399.00	31.37	41.56	34.59	41.69	0.000260	2.88	1181.79	131.06	0.17
North Main	reach 1	154644	4719.00	31.37	42.58	35.36	42.78	0.000361	3.58	1317.60	134.07	0.20
North Main	reach 1	154644	10089.00	31.37	45.12	37.92	45.21	0.000268	3.10	9933.46	7776.22	0.16
North Main	reach 1	153231	2307.00	31.03	38.73	33.86	38.86	0.000388	2.86	805.79	124.06	0.20
North Main	reach 1	153231	3399.00	31.03	41.14	34.63	41.28	0.000319	3.04	1117.98	135.07	0.19
North Main	reach 1	153231	4719.00	31.03	41.98	35.43	42.21	0.000461	3.83	1233.24	138.95	0.23
North Main	reach 1	153231	10089.00	31.03	44.09	38.06	44.52	0.001082	5.66	3724.72	5113.23	0.34
North Main	reach 1	152561	2307.00	31.03	38.43	33.81	38.57	0.000463	3.05	756.27	121.07	0.22
North Main	reach 1	152561	3399.00	31.03	40.90	34.60	41.05	0.000362	3.17	1071.04	133.79	0.20
North Main	reach 1	152561	4719.00	31.03	41.82	35.44	41.87	0.000542	4.04	1168.70	137.50	0.24
North Main	reach 1	152561	10089.00	31.03	43.35	38.16	43.76	0.001215	5.74	3935.45	4412.17	0.36
North Main	reach 1	152553	Inline Weir									
North Main	reach 1	152515	2307.00	28.25	38.42	31.02	38.49	0.000155	2.15	1074.86	126.55	0.13
North Main	reach 1	152515	3399.00	28.25	40.69	31.61	40.98	0.000156	2.43	1399.37	136.65	0.13
North Main	reach 1	152515	4719.00	28.25	41.61	32.65	41.76	0.000246	3.15	1498.81	139.59	0.17
North Main	reach 1	152515	10089.00	28.25	43.34	35.36	43.61	0.000823	4.62	4481.01	4520.77	0.30
North Main	reach 1	152000	2307.00	28.25	38.34	31.07	38.42	0.000166	2.20	1050.85	126.12	0.13
North Main	reach 1	152000	3399.00	28.25	40.81	31.66	40.90	0.000165	2.47	1375.07	136.68	0.14
North Main	reach 1	152000	4719.00	28.25	41.47	32.74	41.63	0.000264	3.22	1466.31	139.74	0.18
North Main	reach 1	152000	10089.00	28.25	43.13	35.51	43.28	0.000417	3.84	6936.57	7269.86	0.22
North Main	reach 1	151800	2307.00	28.25	38.28	30.91	38.35	0.000150	2.14	1080.01	124.11	0.13
North Main	reach 1	151800	3399.00	28.25	40.75	31.67	40.84	0.000152	2.44	1395.89	132.22	0.13
North Main	reach 1	151800	4719.00	28.25	41.37	32.49	41.53	0.000248	3.19	1476.58	134.26	0.17
North Main	reach 1	151800	10089.00	28.25	43.03	35.18	43.14	0.000287	3.45	9075.62	7991.21	0.18
North Main	reach 1	151516	2307.00	28.25	38.27	30.91	38.34	0.000151	2.14	1078.41	124.07	0.13
North Main	reach 1	151516	3399.00	28.25	40.73	31.67	40.83	0.000153	2.44	1394.15	132.18	0.13
North Main	reach 1	151516	4719.00	28.25	41.35	32.49	41.50	0.000249	3.20	1475.66	134.19	0.17
North Main	reach 1	151516	10089.00	28.25	43.00	35.18	43.12	0.000276	3.51	8853.76	7990.83	0.18
North Main	reach 1	150000	2281.00	27.92	38.03	30.78	38.10	0.000167	2.19	1042.32	126.44	0.13
North Main	reach 1	150000	3366.00	27.92	40.48	31.60	40.57	0.000182	2.46	1389.30	345.24	0.14
North Main	reach 1	150000	4596.00	27.92	40.91	32.42	41.06	0.000345	3.16	1639.59	750.79	0.19
North Main	reach 1	150000	9932.00	27.92	41.95	35.18	42.35	0.000928	5.37	3603.67	3809.13	0.32

HEC-RAS Plan P.10.D.2 (Continued)

Flow	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
North Main	reach 1	148000	2281.00	27.14	37.72	30.06	37.79	0.000144	2.08	1095.27	128.02	0.13
North Main	reach 1	148000	3366.00	27.14	40.29	30.87	40.31	0.000086	1.57	5233.64	4342.24	0.10
North Main	reach 1	148000	4598.00	27.14	40.64	31.87	40.67	0.000107	1.79	7083.73	8085.64	0.11
North Main	reach 1	148000	9932.00	27.14	41.70	34.48	41.72	0.000118	1.98	15048.88	7841.29	0.12
North Main	reach 1	147159	2281.00	27.14	37.81	29.93	37.87	0.000132	2.01	1137.14	131.26	0.12
North Main	reach 1	147159	3366.00	27.14	40.22	30.70	40.23	0.000096	1.18	7379.08	7961.33	0.09
North Main	reach 1	147159	4598.00	27.14	40.57	31.47	40.58	0.000091	1.14	10191.21	7991.18	0.09
North Main	reach 1	147159	9932.00	27.14	41.63	34.15	41.64	0.000080	1.21	18623.51	8000.00	0.09
North Main	reach 1	147111	2281.00	27.14	37.60	29.93	37.66	0.000132	2.01	1136.29	131.23	0.12
North Main	reach 1	147111	3366.00	27.14	40.22	30.71	40.23	0.000097	1.19	7336.47	7960.36	0.09
North Main	reach 1	147111	4598.00	27.14	40.57	31.48	40.58	0.000092	1.15	10154.70	7990.79	0.09
North Main	reach 1	147111	9932.00	27.14	41.62	34.15	41.63	0.000080	1.21	18592.26	8000.00	0.09
North Main	reach 1	148000	2281.00	27.13	37.44	29.99	37.51	0.000151	2.12	1077.41	127.15	0.13
North Main	reach 1	148000	3366.00	27.13	40.04	30.77	40.09	0.000142	2.03	3253.79	3986.43	0.12
North Main	reach 1	148000	4598.00	27.13	40.49	31.56	40.50	0.000054	1.28	11281.66	7814.65	0.08
North Main	reach 1	148000	9932.00	27.13	41.54	34.29	41.55	0.000063	1.43	19524.10	7831.82	0.08
North Main	reach 1	144000	2281.00	27.12	37.10	30.01	37.18	0.000173	2.24	1020.02	122.72	0.14
North Main	reach 1	144000	3366.00	27.12	39.65	30.82	39.74	0.000222	2.45	1466.41	580.36	0.15
North Main	reach 1	144000	4598.00	27.12	40.33	31.60	40.35	0.000103	1.73	7889.59	7790.61	0.11
North Main	reach 1	144000	9932.00	27.12	41.38	34.36	41.39	0.000103	1.82	16072.50	7820.17	0.11
North Main	reach 1	143233	2281.00	27.12	36.97	30.01	37.05	0.000179	2.24	1017.42	125.33	0.14
North Main	reach 1	143233	3366.00	27.12	39.47	30.80	39.57	0.000230	2.47	1361.80	175.32	0.16
North Main	reach 1	143233	4598.00	27.12	40.27	31.60	40.28	0.000078	1.13	10307.89	7765.98	0.09
North Main	reach 1	143233	9932.00	27.12	41.31	34.35	41.32	0.000082	1.16	18588.82	8000.00	0.09
North Main	reach 1	143179	2281.00	27.12	36.96	30.01	37.04	0.000180	2.24	1016.17	125.28	0.14
North Main	reach 1	143179	3366.00	27.12	39.46	30.80	39.55	0.000230	2.48	1359.56	174.90	0.16
North Main	reach 1	143179	4598.00	27.12	40.27	31.59	40.28	0.000077	1.14	10270.27	7763.70	0.09
North Main	reach 1	143179	9932.00	27.12	41.31	34.35	41.32	0.000081	1.20	18550.39	8000.00	0.09
North Main	reach 1	142000	2281.00	27.13	36.71	30.16	36.80	0.000223	2.42	943.33	122.48	0.15
North Main	reach 1	142000	3366.00	27.13	39.15	30.98	39.26	0.000262	2.65	1268.06	161.90	0.17
North Main	reach 1	142000	4598.00	27.13	40.07	31.82	40.13	0.000198	2.36	4703.67	4001.63	0.15
North Main	reach 1	142000	9932.00	27.13	41.24	34.63	41.24	0.000048	1.19	21601.02	7847.22	0.07
North Main	reach 1	141221	2281.00	26.68	36.55	29.69	36.63	0.000205	2.38	956.91	118.75	0.15
North Main	reach 1	141221	3366.00	26.68	38.82	30.52	39.01	0.000389	2.32	1449.71	2603.26	0.19
North Main	reach 1	141221	4598.00	26.68	39.99	31.37	40.00	0.000115	1.38	7115.00	4132.34	0.10
North Main	reach 1	141221	9932.00	26.68	41.22	34.23	41.22	0.000026	0.74	26846.34	8000.00	0.05
North Main	reach 1	141154	2281.00	26.68	36.53	29.69	36.62	0.000206	2.39	955.23	118.69	0.15
North Main	reach 1	141154	3366.00	26.68	38.90	30.52	38.98	0.000404	2.33	1446.59	2574.63	0.19
North Main	reach 1	141154	4598.00	26.68	39.96	31.36	40.00	0.000116	1.38	7101.85	4131.40	0.10
North Main	reach 1	141154	9932.00	26.68	41.22	34.23	41.22	0.000026	0.74	26832.43	8000.00	0.05
North Main	reach 1	140000	2281.00	26.64	36.29	29.52	36.38	0.000210	2.41	944.67	116.71	0.15
North Main	reach 1	140000	3366.00	26.64	38.54	30.34	38.63	0.000233	2.51	2146.10	1851.00	0.16
North Main	reach 1	140000	4598.00	26.64	39.80	31.17	39.84	0.000151	1.97	5675.49	3750.40	0.13
North Main	reach 1	140000	9932.00	26.64	41.18	34.01	41.19	0.000035	1.02	24164.03	7885.12	0.06
North Main	reach 1	138000	2281.00	25.62	35.93	28.53	36.01	0.000162	2.18	1044.67	123.81	0.13
North Main	reach 1	138000	3366.00	25.62	38.08	29.35	38.18	0.000220	2.53	1329.94	171.47	0.15
North Main	reach 1	138000	4598.00	25.62	39.30	30.15	39.43	0.000286	2.87	2218.58	2234.13	0.18
North Main	reach 1	138000	9932.00	25.62	41.08	32.96	41.10	0.000060	1.42	19470.83	7845.00	0.08
North Main	reach 1	138000	2317.00	25.62	35.62	28.34	35.69	0.000158	2.17	1070.12	125.08	0.13
North Main	reach 1	138000	3394.00	25.62	37.69	29.09	37.79	0.000176	2.54	1337.11	132.88	0.14
North Main	reach 1	138000	4615.00	25.62	38.75	29.85	38.90	0.000241	3.12	1480.44	138.69	0.17
North Main	reach 1	138000	9953.00	25.62	40.91	32.53	40.93	0.000111	1.88	14263.74	7773.66	0.11
North Main	reach 1	135932	2317.00	25.63	35.61	28.39	35.68	0.000159	2.17	1069.75	126.34	0.13
North Main	reach 1	135932	3394.00	25.63	37.68	29.15	37.78	0.000176	2.53	1339.02	133.91	0.14
North Main	reach 1	135932	4615.00	25.63	38.74	29.93	38.89	0.000241	3.11	1483.04	137.79	0.17
North Main	reach 1	135932	9953.00	25.63	40.91	32.61	40.93	0.000100	2.00	14264.74	7117.93	0.11
North Main	reach 1	135888	2317.00	25.63	35.60	28.39	35.68	0.000159	2.17	1068.83	126.31	0.13
North Main	reach 1	135888	3394.00	25.63	37.67	29.15	37.77	0.000176	2.54	1337.94	133.88	0.14
North Main	reach 1	135888	4615.00	25.63	38.73	29.93	38.89	0.000241	3.11	1481.61	137.75	0.17
North Main	reach 1	135888	9953.00	25.63	40.90	32.60	40.93	0.000100	2.00	14225.65	7105.26	0.11
North Main	reach 1	134000	2317.00	25.63	35.25	28.74	35.34	0.000199	2.34	991.42	124.12	0.15
North Main	reach 1	134000	3394.00	25.63	37.27	29.52	37.38	0.000240	2.66	1409.26	613.92	0.16
North Main	reach 1	134000	4615.00	25.63	38.23	30.26	38.35	0.000312	2.94	2427.21	1517.09	0.18
North Main	reach 1	134000	9953.00	25.63	40.59	32.91	40.65	0.000224	2.76	9807.53	6771.49	0.16
North Main	reach 1	132000	2313.00	25.57	34.85	28.33	34.94	0.000202	2.31	1001.51	130.01	0.15
North Main	reach 1	132000	3388.00	25.57	36.81	29.10	36.93	0.000219	2.68	1265.53	139.38	0.16
North Main	reach 1	132000	4548.00	25.57	37.56	29.82	37.73	0.000313	3.32	1371.25	454.02	0.19



HEC-RAS Plan R 100.2 (Continued)

Flow	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	132000	9933.00	25.57	39.38	32.53	39.86	0.000831	5.88	2233.92	2237.51	0.33
North Main	reach 1	130750	2313.00	25.57	34.57	28.35	34.66	0.000238	2.47	934.90	122.58	0.18
North Main	reach 1	130750	3388.00	25.57	36.50	29.13	36.83	0.000258	2.87	1178.39	130.44	0.17
North Main	reach 1	130750	4548.00	25.57	37.12	29.87	37.29	0.000408	3.44	1659.14	732.48	0.21
North Main	reach 1	130750	9933.00	25.57	38.17	32.83	38.85	0.001085	5.99	2654.81	1819.14	0.35
North Main	reach 1	130898	2313.00	25.57	34.55	28.35	34.65	0.000238	2.48	933.27	122.53	0.18
North Main	reach 1	130898	3388.00	25.57	36.49	29.13	36.81	0.000257	2.88	1177.51	130.38	0.17
North Main	reach 1	130898	4548.00	25.57	37.10	29.87	37.28	0.000410	3.45	1648.87	718.67	0.21
North Main	reach 1	130898	9933.00	25.57	38.09	32.83	38.80	0.001141	6.11	2563.57	1757.13	0.38
North Main	reach 1	129441	2313.00	24.36	34.30	27.38	34.38	0.000189	2.32	994.93	119.90	0.14
North Main	reach 1	129441	3388.00	24.36	36.21	28.18	36.33	0.000216	2.75	1230.48	128.65	0.16
North Main	reach 1	129441	4548.00	24.36	37.10	28.91	37.11	0.000396	1.17	11442.79	4859.87	0.08
North Main	reach 1	129441	9933.00	24.36	38.20	31.72	38.21	0.000885	1.51	17237.48	5695.86	0.09
North Main	reach 1	128185	2313.00	24.36	34.06	27.06	34.16	0.000170	2.22	1040.70	123.70	0.14
North Main	reach 1	128185	3388.00	24.36	35.96	27.82	36.08	0.000197	2.85	1278.79	129.97	0.15
North Main	reach 1	128185	4548.00	24.36	37.01	28.54	37.03	0.000390	1.55	6279.87	3702.95	0.10
North Main	reach 1	128185	9933.00	24.36	38.02	31.24	38.05	0.000188	2.28	8829.91	3977.50	0.14
North Main	reach 1	128137	2313.00	24.36	34.06	27.06	34.14	0.000170	2.23	1038.95	123.85	0.14
North Main	reach 1	128137	3388.00	24.36	35.94	27.82	36.05	0.000198	2.85	1276.65	129.92	0.15
North Main	reach 1	128137	4548.00	24.36	36.85	28.54	37.01	0.000382	3.23	1415.11	199.99	0.20
North Main	reach 1	128137	9933.00	24.36	38.00	31.24	38.04	0.000191	2.29	8790.33	3975.88	0.14
North Main	reach 1	128000	2313.00	24.36	34.04	27.16	34.12	0.000182	2.26	1021.91	125.72	0.14
North Main	reach 1	128000	3388.00	24.36	35.91	27.94	36.02	0.000244	2.87	1271.09	152.40	0.16
North Main	reach 1	128000	4548.00	24.36	36.80	28.68	36.96	0.000385	3.20	1484.34	364.78	0.20
North Main	reach 1	128000	9933.00	24.36	37.97	31.43	38.01	0.000174	2.33	8945.55	3946.50	0.14
North Main	reach 1	128275	2313.00	24.02	33.74	26.97	33.81	0.000170	2.17	1065.23	132.90	0.14
North Main	reach 1	128275	3388.00	24.02	35.56	27.74	35.85	0.000180	2.50	1799.83	1238.18	0.14
North Main	reach 1	128275	4548.00	24.02	36.37	28.48	36.46	0.000214	2.95	3508.97	3209.27	0.15
North Main	reach 1	128275	9933.00	24.02	37.50	31.09	37.81	0.000322	3.51	8047.81	4793.98	0.19
North Main	reach 1	128263	2313.00	24.02	33.73	26.96	33.80	0.000170	2.17	1063.75	132.87	0.14
North Main	reach 1	128263	3388.00	24.02	35.56	27.73	35.85	0.000180	2.50	1799.58	1233.08	0.14
North Main	reach 1	128263	4548.00	24.02	36.37	28.48	36.46	0.000215	2.95	3492.70	3202.08	0.15
North Main	reach 1	128263	9933.00	24.02	37.49	31.09	37.80	0.000324	3.52	8009.42	4783.88	0.19
North Main	reach 1	128194	2313.00	24.02	33.70	27.12	33.79	0.000218	2.42	954.18	121.59	0.15
North Main	reach 1	128194	3388.00	24.02	35.57	27.93	35.82	0.000152	2.17	3480.39	2551.98	0.13
North Main	reach 1	128194	4548.00	24.02	36.40	28.69	36.43	0.000109	1.72	7454.73	4890.51	0.11
North Main	reach 1	128194	9933.00	24.02	37.54	31.53	37.58	0.000134	2.09	13852.38	6032.87	0.12
North Main	reach 1	128142	2313.00	24.02	33.68	27.13	33.77	0.000220	2.43	951.82	121.51	0.15
North Main	reach 1	128142	3388.00	24.02	35.56	27.93	35.82	0.000152	2.17	3487.48	2548.68	0.13
North Main	reach 1	128142	4548.00	24.02	36.40	28.69	36.43	0.000109	1.72	7444.82	4888.31	0.11
North Main	reach 1	128142	9933.00	24.02	37.54	31.53	37.58	0.000134	2.09	13852.38	6032.87	0.12
North Main	reach 1	128000	2313.00	24.02	33.66	26.84	33.74	0.000180	2.24	1032.35	127.86	0.14
North Main	reach 1	128000	3388.00	24.02	35.55	27.80	35.59	0.000127	1.82	3919.38	2298.85	0.12
North Main	reach 1	128000	4548.00	24.02	36.40	28.34	36.41	0.000054	1.25	9778.94	5547.27	0.08
North Main	reach 1	128000	9933.00	24.02	37.54	31.04	37.55	0.000085	1.67	18242.83	7093.80	0.10
North Main	reach 1	124276	2313.00	23.83	33.29	26.75	33.39	0.000238	2.54	912.19	114.22	0.18
North Main	reach 1	124276	3388.00	23.83	35.13	27.57	35.27	0.000270	3.00	1129.73	1298.28	0.17
North Main	reach 1	124276	4548.00	23.83	36.04	28.35	36.21	0.000325	3.43	1890.82	4741.54	0.19
North Main	reach 1	124276	9933.00	23.83	36.47	31.24	37.12	0.001247	6.85	2388.18	5875.44	0.38
North Main	reach 1	124185	2313.00	23.83	33.27	26.71	33.37	0.000230	2.52	918.31	113.65	0.18
North Main	reach 1	124185	3388.00	23.83	35.10	27.51	35.24	0.000286	2.99	1132.88	1102.97	0.17
North Main	reach 1	124185	4548.00	23.83	36.09	28.28	36.15	0.000198	2.43	4989.41	5591.42	0.15
North Main	reach 1	124185	9933.00	23.83	36.81	31.19	36.90	0.000372	3.41	8550.96	6614.01	0.20
North Main	reach 1	124085	2313.00	23.83	33.25	26.74	33.35	0.000238	2.55	907.84	112.40	0.18
North Main	reach 1	124085	3388.00	23.83	35.07	27.54	35.21	0.000274	3.03	1118.06	1770.30	0.17
North Main	reach 1	124085	4548.00	23.83	36.08	28.33	36.13	0.000182	2.35	5338.84	5468.38	0.14
North Main	reach 1	124085	9933.00	23.83	36.78	31.19	36.87	0.000347	3.42	8826.90	6334.04	0.20
North Main	reach 1	124000	2313.00	23.83	33.23	26.74	33.33	0.000233	2.50	925.64	117.88	0.16
North Main	reach 1	124000	3388.00	23.83	35.09	27.56	35.16	0.000211	2.53	2503.47	2132.34	0.15
North Main	reach 1	124000	4548.00	23.83	36.07	28.33	36.11	0.000171	2.06	5483.20	4713.30	0.13
North Main	reach 1	124000	9933.00	23.83	36.76	31.20	36.84	0.000385	3.15	8914.46	6231.51	0.20
North Main	reach 1	122908	2313.00	23.83	32.99	26.64	33.08	0.000228	2.43	950.36	124.43	0.18
North Main	reach 1	122908	3388.00	23.83	34.79	27.42	34.92	0.000258	2.97	1182.10	2108.17	0.17
North Main	reach 1	122908	4548.00	23.83	35.85	28.17	35.84	0.000355	3.51	1297.48	2997.55	0.20
North Main	reach 1	122908	9933.00	23.83	36.58	30.95	36.59	0.000138	2.28	14238.32	7038.17	0.12
North Main	reach 1	122857	2313.00	23.83	32.97	26.64	33.07	0.000229	2.44	948.87	124.37	0.18

HEC-RAS Plan R10D2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	122857	3388.00	23.83	34.78	27.42	34.90	0.000259	2.87	1180.29	2092.80	0.17
North Main	reach 1	122857	4548.00	23.83	35.62	28.17	35.81	0.000358	3.52	1293.61	2969.64	0.20
North Main	reach 1	122857	9933.00	23.83	38.58	30.95	38.59	0.000137	2.27	14185.85	7030.15	0.13
North Main	reach 1	122000	2313.00	23.45	32.79	26.44	32.88	0.000218	2.41	960.78	123.09	0.15
North Main	reach 1	122000	3388.00	23.45	34.56	27.21	34.69	0.000245	2.83	1385.16	811.22	0.16
North Main	reach 1	122000	4548.00	23.45	35.57	27.92	35.60	0.000113	1.89	7028.81	5370.83	0.11
North Main	reach 1	122000	9933.00	23.45	36.41	30.65	38.45	0.000197	2.45	11769.42	6597.38	0.15
North Main	reach 1	120000	2313.00	23.41	32.33	26.14	32.42	0.000238	2.48	940.48	124.01	0.16
North Main	reach 1	120000	3388.00	23.41	34.04	28.90	34.17	0.000274	2.92	1158.58	131.34	0.17
North Main	reach 1	120000	4548.00	23.41	35.01	27.65	35.20	0.000392	3.53	1288.99	144.40	0.21
North Main	reach 1	120000	9933.00	23.41	36.05	30.37	36.08	0.000170	2.18	11450.86	5895.62	0.14
North Main	reach 1	118000	2313.00	23.26	31.82	28.00	31.92	0.000285	2.56	904.04	122.54	0.17
North Main	reach 1	118000	3388.00	23.26	33.44	28.75	33.59	0.000310	3.06	1107.82	128.84	0.18
North Main	reach 1	118000	4548.00	23.26	34.12	27.47	34.34	0.000464	3.80	1196.47	135.83	0.23
North Main	reach 1	118000	9933.00	23.26	35.41	30.18	35.53	0.000496	3.73	6839.85	4548.83	0.23
North Main	reach 1	116000	2327.00	23.27	31.25	25.90	31.36	0.000297	2.82	887.92	128.97	0.17
North Main	reach 1	116000	3399.00	23.27	32.80	26.62	32.95	0.000329	3.06	1499.19	2451.56	0.19
North Main	reach 1	116000	4547.00	23.27	33.40	27.30	33.51	0.000354	2.95	3718.48	4123.05	0.19
North Main	reach 1	116000	9936.00	23.27	34.81	29.89	34.85	0.000238	2.55	10749.16	6182.51	0.16
North Main	reach 1	114000	2327.00	21.89	30.77	24.65	30.85	0.000214	2.38	990.88	153.85	0.15
North Main	reach 1	114000	3399.00	21.89	32.37	25.36	32.43	0.000191	2.21	3684.46	4230.68	0.14
North Main	reach 1	114000	4547.00	21.89	33.05	28.04	33.09	0.000130	1.91	7081.79	5610.81	0.12
North Main	reach 1	114000	9936.00	21.89	34.55	28.61	34.57	0.000089	1.74	18171.49	8540.27	0.10
North Main	reach 1	113338	2327.00	21.88	30.61	24.72	30.70	0.000241	2.44	953.88	129.88	0.16
North Main	reach 1	113338	3399.00	21.88	32.13	25.44	32.26	0.000289	2.94	1155.76	2285.85	0.18
North Main	reach 1	113338	4547.00	21.88	32.71	26.13	32.92	0.000423	3.68	1235.66	4884.40	0.22
North Main	reach 1	113338	9936.00	21.88	34.51	28.76	34.52	0.000061	1.33	18993.56	7247.56	0.08
North Main	reach 1	113284	2327.00	21.88	30.60	24.66	30.69	0.000227	2.38	977.40	132.17	0.15
North Main	reach 1	113284	3399.00	21.88	32.12	25.37	32.25	0.000274	2.87	1182.83	2951.45	0.17
North Main	reach 1	113284	4547.00	21.88	32.70	26.06	32.90	0.000403	3.80	1263.28	5069.37	0.21
North Main	reach 1	113284	9936.00	21.88	33.64	28.63	34.42	0.001431	7.11	1396.86	6487.97	0.40
North Main	reach 1	112624	2327.00	22.02	30.39	24.95	30.51	0.000329	2.75	847.57	122.58	0.18
North Main	reach 1	112624	3399.00	22.02	31.86	25.73	32.03	0.000391	3.29	1064.59	449.63	0.21
North Main	reach 1	112624	4547.00	22.02	32.48	26.47	32.62	0.000396	3.33	3286.91	4278.95	0.21
North Main	reach 1	112624	9936.00	22.02	33.78	29.23	33.82	0.000308	2.58	10780.32	6556.01	0.18
North Main	reach 1	112620	Inline Weir									
North Main	reach 1	112604	2327.00	20.05	30.38	22.94	30.46	0.000164	2.20	1056.62	124.65	0.13
North Main	reach 1	112604	3399.00	20.05	31.85	23.74	31.97	0.000217	2.73	1281.48	416.83	0.16
North Main	reach 1	112604	4547.00	20.05	32.47	24.49	32.58	0.000255	2.91	3518.34	4269.82	0.17
North Main	reach 1	112604	9936.00	20.05	33.77	27.33	33.82	0.000258	2.58	10871.38	6528.97	0.17
North Main	reach 1	112000	2327.00	20.06	30.28	22.91	30.38	0.000166	2.21	1052.49	124.65	0.13
North Main	reach 1	112000	3399.00	20.06	31.72	23.71	31.83	0.000241	2.71	1465.89	1090.76	0.16
North Main	reach 1	112000	4547.00	20.06	32.35	24.47	32.42	0.000228	2.48	4688.73	4503.98	0.16
North Main	reach 1	112000	9936.00	20.06	33.64	27.28	33.68	0.000199	2.33	12010.83	6377.40	0.15
North Main	reach 1	110000	2639.00	19.82	29.85	22.82	29.96	0.000227	2.58	1024.75	122.12	0.16
North Main	reach 1	110000	3859.00	19.82	31.23	23.78	31.32	0.000259	2.66	2403.97	1138.17	0.17
North Main	reach 1	110000	5336.00	19.82	31.91	24.69	31.97	0.000214	2.47	4342.72	1701.91	0.15
North Main	reach 1	110000	10085.00	19.82	33.31	27.12	33.34	0.000146	2.08	14514.07	7862.13	0.13
North Main	reach 1	108000	2639.00	19.53	29.40	22.56	29.50	0.000226	2.56	1030.78	123.56	0.16
North Main	reach 1	108000	3859.00	19.53	30.94	23.41	30.98	0.000123	2.05	5580.28	4910.98	0.12
North Main	reach 1	108000	5336.00	19.53	31.72	24.31	31.74	0.000083	1.71	9522.72	5153.89	0.10
North Main	reach 1	108000	10085.00	19.53	33.17	26.69	33.18	0.000067	1.44	17817.74	6260.88	0.09
North Main	reach 1	107667	2639.00	19.53	29.32		29.43	0.000242	2.58	1023.04	127.97	0.16
North Main	reach 1	107667	3859.00	19.53	30.75		30.91	0.000321	3.18	1212.08	141.05	0.19
North Main	reach 1	107667	5336.00	19.53	31.40		31.68	0.000501	4.10	1312.60	172.50	0.24
North Main	reach 1	107667	10085.00	19.53	32.39	26.69	33.05	0.001383	6.86	2481.52	5022.64	0.39
North Main	reach 1	107600	2639.00	19.53	29.30		29.41	0.000244	2.59	1020.87	127.87	0.16
North Main	reach 1	107600	3859.00	19.53	30.73		30.88	0.000324	3.19	1208.84	140.20	0.19
North Main	reach 1	107600	5336.00	19.53	31.37		31.63	0.000507	4.11	1306.41	170.16	0.24
North Main	reach 1	107600	10085.00	19.53	32.17	26.68	32.94	0.001537	7.06	1667.63	2371.93	0.41
North Main	reach 1	106000	2639.00	19.52	28.89	22.49	29.00	0.000262	2.68	984.25	122.94	0.17
North Main	reach 1	106000	3859.00	19.52	30.09	23.32	30.27	0.000465	3.37	1144.72	156.60	0.22
North Main	reach 1	106000	5336.00	19.52	30.72	24.23	30.81	0.000453	2.95	4333.12	5320.15	0.21
North Main	reach 1	106000	10085.00	19.52	31.83	26.58	31.69	0.000354	2.82	11102.30	8032.39	0.19
North Main	reach 1	104000	2639.00	18.67	28.38	22.04	28.48	0.000265	2.69	981.55	123.14	0.17
North Main	reach 1	104000	3859.00	18.67	29.81	22.88	29.83	0.000108	1.61	5656.83	2790.90	0.11

HEC-RAS Plan P.10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 1	104000.	5336.00	18.67	30.39	23.78	30.40	0.000109	1.55	7904.74	3679.46	0.11
North Main	reach 1	104000.	10085.00	18.67	31.19	26.08	31.21	0.000186	2.03	11042.21	4178.10	0.13
North Main	reach 1	102396	2639.00	18.36	27.93	21.50	28.04	0.000277	2.75	960.54	120.82	0.17
North Main	reach 1	102396	3859.00	18.36	29.35	22.37	29.52	0.000362	3.40	1136.23	1791.07	0.20
North Main	reach 1	102396	5336.00	18.36	30.08	23.29	30.18	0.000223	2.74	6916.02	10331.18	0.16
North Main	reach 1	102396	10085.00	18.36	30.92	25.73	30.95	0.000186	2.30	16375.19	11400.00	0.14
North Main	reach 1	102314	2639.00	18.36	27.90	21.50	28.02	0.000279	2.76	957.70	120.72	0.17
North Main	reach 1	102314	3859.00	18.36	29.31	22.37	29.49	0.000366	3.41	1132.28	1678.00	0.20
North Main	reach 1	102314	5336.00	18.36	30.06	23.29	30.14	0.000233	2.80	6682.73	10479.45	0.16
North Main	reach 1	102314	10085.00	18.36	30.90	25.73	30.93	0.000173	2.34	16137.53	11400.00	0.14
North Main	reach 1	102000.	2639.00	18.36	27.84	21.28	27.94	0.000223	2.52	1048.81	127.28	0.15
North Main	reach 1	102000.	3859.00	18.36	29.33	22.09	29.38	0.000176	2.20	4598.01	4528.98	0.14
North Main	reach 1	102000.	5336.00	18.36	30.04	22.83	30.07	0.000136	1.88	10196.72	10766.36	0.12
North Main	reach 1	102000.	10085.00	18.36	30.88	25.18	30.88	0.000103	1.73	19074.87	10776.47	0.11
North Main	reach 1	100000.	2639.00	18.35	27.29	21.37	27.41	0.000309	2.82	936.36	123.65	0.18
North Main	reach 1	100000.	3859.00	18.35	28.87	22.19	28.86	0.000399	3.47	1111.05	129.37	0.21
North Main	reach 1	100000.	5336.00	18.35	29.19	23.08	29.51	0.000781	4.49	1267.28	748.36	0.28
North Main	reach 1	100000.	10085.00	18.35	30.36	25.43	30.47	0.000515	3.69	9300.74	10725.03	0.23
North Main	reach 1	98000.	2639.00	17.13	26.79	20.26	26.89	0.000221	2.48	1233.00	1037.06	0.15
North Main	reach 1	98000.	3859.00	17.13	28.20	21.07	28.25	0.000211	2.21	3442.91	1978.17	0.15
North Main	reach 1	98000.	5336.00	17.13	28.66	21.91	28.71	0.000208	2.28	5372.17	3276.40	0.15
North Main	reach 1	98000.	10085.00	17.13	29.75	24.17	29.79	0.000229	2.54	10395.10	5204.86	0.16
North Main	reach 1	97100.	2639.00	16.79	26.58	20.16	26.68	0.000235	2.48	1064.21	164.77	0.16
North Main	reach 1	97100.	3859.00	16.79	27.93	20.98	28.03	0.000282	2.72	2542.14	2367.06	0.17
North Main	reach 1	97100.	5336.00	16.79	28.43	21.83	28.50	0.000258	2.60	5174.52	4319.58	0.17
North Main	reach 1	97100.	10085.00	16.79	29.53	24.10	29.57	0.000251	2.46	11510.99	7149.19	0.16
North Main	reach 1	97052	2639.00	16.79	26.57	20.16	26.87	0.000237	2.48	1062.57	164.54	0.16
North Main	reach 1	97052	3859.00	16.79	27.82	20.98	28.02	0.000285	2.74	2507.27	2343.01	0.17
North Main	reach 1	97052	5336.00	16.79	28.42	21.83	28.49	0.000287	2.60	5118.74	4285.49	0.17
North Main	reach 1	97052	10085.00	16.79	29.52	24.10	29.56	0.000259	2.43	11431.09	7120.75	0.16
North Main	reach 1	96000.	2639.00	16.79	26.31	19.88	26.41	0.000246	2.60	1015.60	127.18	0.16
North Main	reach 1	96000.	3859.00	16.79	27.85	20.70	27.72	0.000289	2.48	3303.80	3227.91	0.17
North Main	reach 1	96000.	5336.00	16.79	28.34	21.56	28.35	0.000693	1.20	12282.26	7397.77	0.08
North Main	reach 1	96000.	10085.00	16.79	29.43	23.86	29.44	0.000559	1.24	21554.29	9635.97	0.08
North Main	reach 1	94000.	2639.00	16.80	25.99	19.82	26.04	0.000136	1.91	1812.55	316.77	0.12
North Main	reach 1	94000.	3859.00	16.80	27.23	20.81	27.29	0.000160	2.23	2808.96	1913.24	0.13
North Main	reach 1	94000.	5336.00	16.80	28.10	21.49	28.15	0.000172	2.25	5323.19	3856.07	0.14
North Main	reach 1	94000.	10085.00	16.80	29.26	23.79	29.27	0.000113	1.74	18657.14	9186.17	0.11
North Main	reach 1	92434	2639.00	16.79	25.63	19.58	25.74	0.000287	2.66	993.44	128.00	0.17
North Main	reach 1	92434	3859.00	16.79	26.73	20.37	26.91	0.000381	3.40	1145.46	304.72	0.20
North Main	reach 1	92434	5336.00	16.79	27.47	21.21	27.72	0.000506	4.08	2054.66	2130.05	0.24
North Main	reach 1	92434	10085.00	16.79	28.73	23.45	28.93	0.000549	4.52	6594.88	5121.16	0.25
North Main	reach 1	92378	2639.00	16.79	25.62	19.58	25.73	0.000289	2.66	991.39	127.94	0.17
North Main	reach 1	92378	3859.00	16.79	26.71	20.37	26.89	0.000385	3.41	1139.09	245.87	0.20
North Main	reach 1	92378	5336.00	16.79	27.44	21.21	27.69	0.000519	4.12	1977.98	2043.33	0.24
North Main	reach 1	92378	10085.00	16.79	28.67	23.45	28.89	0.000588	4.67	6287.07	4955.32	0.26
North Main	reach 1	92000.	2639.00	16.79	25.50	19.60	25.62	0.000292	2.76	955.71	123.81	0.18
North Main	reach 1	92000.	3859.00	16.79	26.54	20.40	26.74	0.000425	3.55	1100.16	253.91	0.21
North Main	reach 1	92000.	5336.00	16.79	27.19	21.26	27.47	0.000800	4.38	1751.48	1706.98	0.26
North Main	reach 1	92000.	10085.00	16.79	28.29	23.53	28.80	0.000928	5.32	4878.80	3984.81	0.32
North Main	reach 1	91033	2639.00	16.48	25.18	19.68	25.31	0.000349	2.90	910.77	126.88	0.19
North Main	reach 1	91033	3859.00	16.48	26.08	20.50	26.29	0.000505	3.69	1326.94	1731.84	0.23
North Main	reach 1	91033	5336.00	16.48	26.65	21.36	26.88	0.000597	4.15	2629.43	2821.66	0.25
North Main	reach 1	91033	10085.00	16.48	27.50	23.84	27.75	0.000812	5.08	5665.58	4339.49	0.30
North Main	reach 1	91030	Inkine Weir									
North Main	reach 1	91000	2639.00	14.79	25.17	17.94	25.27	0.000206	2.47	1066.54	128.05	0.15
North Main	reach 1	91000	3859.00	14.79	26.07	18.81	26.23	0.000310	3.18	1700.41	2353.85	0.19
North Main	reach 1	91000	5336.00	14.79	26.64	19.72	26.80	0.000363	3.53	3584.22	4273.29	0.20
North Main	reach 1	91000	10085.00	14.79	27.49	22.17	27.64	0.000452	4.09	8402.13	7084.83	0.23
North Main	reach 1	90000.	2639.00	14.79	25.02	17.69	25.09	0.000150	2.16	1883.29	1216.46	0.13
North Main	reach 1	90000.	3859.00	14.79	25.93	18.51	25.99	0.000149	2.26	4511.46	3851.95	0.13
North Main	reach 1	90000.	5336.00	14.79	26.50	19.38	26.55	0.000150	2.33	7012.51	4967.57	0.13
North Main	reach 1	90000.	10085.00	14.79	27.22	21.70	27.27	0.000264	2.70	11180.10	6482.36	0.17
North Main	reach 1	88000.	2639.00	14.78	24.75	17.74	24.80	0.000133	1.98	3067.06	3045.98	0.12
North Main	reach 1	88000.	3859.00	14.78	25.73	18.58	25.75	0.000088	1.67	7152.17	5281.27	0.10
North Main	reach 1	88000.	5336.00	14.78	26.30	19.46	26.32	0.000088	1.58	10523.87	6589.84	0.10

HEC-RAS Plan P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	88000	10085.00	14.78	28.82	21.81	28.84	0.000172	2.06	14248.79	7798.75	0.13
North Main	reach 1	87189	2639.00	14.78	24.54	17.84	24.65	0.000237	2.59	1018.10	1644.50	0.16
North Main	reach 1	87189	3859.00	14.78	25.43	18.69	25.61	0.000374	3.42	1129.62	5668.96	0.20
North Main	reach 1	87189	5336.00	14.78	25.82	19.58	26.13	0.000626	4.52	1179.92	6374.85	0.28
North Main	reach 1	87189	10085.00	14.78	26.67	21.96	26.70	0.000154	2.36	14404.91	7897.15	0.13
North Main	reach 1	87084	2639.00	14.78	24.52	17.84	24.83	0.000239	2.80	1015.50	1835.08	0.16
North Main	reach 1	87084	3859.00	14.78	25.39	18.69	25.57	0.000378	3.43	1125.32	5607.97	0.20
North Main	reach 1	87084	5336.00	14.78	25.76	19.58	26.08	0.000638	4.55	1172.39	6269.76	0.27
North Main	reach 1	87084	10085.00	14.78	26.65	21.96	26.68	0.000159	2.39	14216.86	7854.71	0.13
North Main	reach 1	88000	2639.00	14.31	24.35	17.36	24.41	0.000154	2.12	2390.60	2185.34	0.13
North Main	reach 1	88000	3859.00	14.31	25.28	18.19	25.31	0.000127	1.85	5501.23	3891.91	0.12
North Main	reach 1	88000	5336.00	14.31	25.67	19.09	25.70	0.000147	2.04	7199.42	4842.60	0.13
North Main	reach 1	88000	10085.00	14.31	26.45	21.42	26.49	0.000201	2.45	11760.82	6828.14	0.15
North Main	reach 1	84000	2685.00	13.56	23.99	18.51	24.08	0.000173	2.34	1140.97	127.66	0.14
North Main	reach 1	84000	3889.00	13.56	25.05	17.32	25.08	0.000100	1.88	5488.25	9091.23	0.11
North Main	reach 1	84000	5379.00	13.56	25.41	18.20	25.44	0.000116	1.97	8836.47	9328.93	0.11
North Main	reach 1	84000	10151.00	13.56	26.11	20.52	26.14	0.000144	2.06	15508.45	9806.81	0.12
North Main	reach 1	82000	2665.00	12.94	23.64	16.02	23.72	0.000180	2.39	1113.60	123.90	0.14
North Main	reach 1	82000	3889.00	12.94	24.81	16.88	24.85	0.000137	2.02	5248.84	4405.51	0.12
North Main	reach 1	82000	5379.00	12.94	25.06	17.80	25.12	0.000228	2.52	6770.35	10717.53	0.16
North Main	reach 1	82000	10151.00	12.94	25.75	20.20	25.78	0.000228	2.28	14209.02	10798.60	0.15
North Main	reach 1	81854	2665.00	12.94	23.63	15.92	23.71	0.000157	2.21	1205.29	148.15	0.13
North Main	reach 1	81854	3889.00	12.94	24.68	18.74	24.81	0.000239	2.87	1353.08	5958.19	0.16
North Main	reach 1	81854	5379.00	12.94	25.02	17.61	25.09	0.000189	2.60	7048.00	11287.19	0.15
North Main	reach 1	81854	10151.00	12.94	25.72	19.90	25.76	0.000179	2.60	14948.69	11348.90	0.14
North Main	reach 1	81817	2665.00	12.94	23.62	15.92	23.70	0.000157	2.21	1204.46	143.57	0.13
North Main	reach 1	81817	3889.00	12.94	24.67	16.74	24.80	0.000239	2.88	1351.74	5800.15	0.16
North Main	reach 1	81817	5379.00	12.94	25.01	17.61	25.08	0.000192	2.62	6958.96	11288.90	0.15
North Main	reach 1	81817	10151.00	12.94	25.70	19.90	25.75	0.000183	2.64	14780.04	11346.11	0.15
North Main	reach 1	80000	2665.00	12.93	23.28	15.98	23.38	0.000201	2.48	1074.65	123.27	0.15
North Main	reach 1	80000	3889.00	12.93	24.24	16.85	24.35	0.000258	2.85	3080.46	5095.06	0.17
North Main	reach 1	80000	5379.00	12.93	24.43	17.74	24.58	0.000428	3.48	4226.41	6552.65	0.21
North Main	reach 1	80000	10151.00	12.93	25.17	20.14	25.26	0.000409	3.55	10903.40	10718.91	0.21
North Main	reach 1	78000	2665.00	12.95	22.81	16.07	22.92	0.000285	2.61	1180.56	762.42	0.17
North Main	reach 1	78000	3889.00	12.95	23.61	16.93	23.72	0.000386	2.88	2830.70	3408.21	0.20
North Main	reach 1	78000	5379.00	12.95	23.90	17.86	23.94	0.000227	2.21	7446.86	7124.31	0.15
North Main	reach 1	78000	10151.00	12.95	24.56	20.30	24.60	0.000260	2.50	12881.56	9317.95	0.16
North Main	reach 1	76000	2665.00	12.94	22.29	15.90	22.40	0.000259	2.67	1011.90	555.20	0.17
North Main	reach 1	76000	3889.00	12.94	23.03	16.73	23.10	0.000244	2.49	4539.83	5923.72	0.16
North Main	reach 1	76000	5379.00	12.94	23.28	17.63	23.35	0.000311	2.78	6047.99	6532.72	0.18
North Main	reach 1	76000	10151.00	12.94	23.90	19.97	23.96	0.000390	3.05	10623.14	8078.95	0.20
North Main	reach 1	74000	2665.00	11.86	21.78	15.07	21.89	0.000249	2.64	1011.62	129.72	0.16
North Main	reach 1	74000	3889.00	11.86	22.55	15.95	22.62	0.000235	2.43	4903.96	6866.73	0.16
North Main	reach 1	74000	5379.00	11.86	22.84	16.88	22.87	0.000184	2.19	9076.72	9596.82	0.14
North Main	reach 1	74000	10151.00	11.86	23.29	19.28	23.33	0.000255	2.66	13451.07	9607.17	0.17
North Main	reach 1	72000	2665.00	10.58	21.36	13.83	21.44	0.000202	2.33	1145.93	146.85	0.15
North Main	reach 1	72000	3889.00	10.58	22.07	14.69	22.14	0.000231	2.41	4597.02	8010.79	0.16
North Main	reach 1	72000	5379.00	10.58	22.42	15.60	22.47	0.000216	2.39	7394.50	8014.20	0.15
North Main	reach 1	72000	10151.00	10.58	23.05	17.95	23.06	0.000980	1.51	20393.89	10762.49	0.09
North Main	reach 1	70000	2665.00	10.48	20.95	13.58	21.04	0.000197	2.45	1158.22	893.74	0.15
North Main	reach 1	70000	3889.00	10.48	21.52	14.45	21.62	0.000283	2.76	3468.19	5132.98	0.17
North Main	reach 1	70000	5379.00	10.48	21.79	15.37	21.89	0.000398	3.12	4946.62	6093.20	0.20
North Main	reach 1	70000	10151.00	10.48	22.74	17.79	22.79	0.000271	2.73	11402.28	8862.78	0.17
North Main	reach 1	69760	2665.00	10.48	20.92	13.48	21.00	0.000170	2.25	1182.75	3495.57	0.14
North Main	reach 1	69760	3889.00	10.48	21.39	14.29	21.54	0.000310	3.11	1248.76	7200.83	0.19
North Main	reach 1	69760	5379.00	10.48	21.80	15.16	21.82	0.000095	1.76	10792.11	8407.85	0.10
North Main	reach 1	69760	10151.00	10.48	22.74	17.47	22.75	0.000084	1.73	19070.88	8940.65	0.10
North Main	reach 1	69693	2665.00	10.48	20.90	13.47	20.98	0.000172	2.26	1179.20	3454.58	0.14
North Main	reach 1	69693	3889.00	10.48	21.36	14.29	21.52	0.000312	3.12	1245.59	7135.21	0.19
North Main	reach 1	69693	5379.00	10.48	21.79	15.16	21.81	0.000096	1.77	10735.36	8394.58	0.10
North Main	reach 1	69693	10151.00	10.48	22.73	17.47	22.74	0.000084	1.73	19019.70	8939.32	0.10
North Main	reach 1	68373	2917.00	10.48	20.85	13.69	20.86	0.000036	0.92	9815.14	7248.41	0.06
North Main	reach 1	68373	4268.00	10.48	21.38	14.55	21.38	0.000028	0.84	16284.11	10765.16	0.05
North Main	reach 1	68373	5813.00	10.48	21.73	15.39	21.73	0.000029	0.89	20044.12	10779.69	0.06
North Main	reach 1	68373	11410.00	10.48	22.68	17.86	22.66	0.000034	1.03	30101.39	10815.35	0.06
North Main	reach 1	67000	2917.00	10.28	20.74	13.57	20.77	0.000082	1.59	6173.05	6345.77	0.09

HEC-RAS Plan R10.D.2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	67000	4268.00	10.28	21.30	14.49	21.31	0.000066	1.33	11075.55	9388.09	0.08
North Main	reach 1	67000	5813.00	10.28	21.65	15.41	21.68	0.000068	1.27	14359.64	9430.38	0.08
North Main	reach 1	67000	11410.00	10.28	22.59	18.13	22.59	0.000068	1.32	23203.09	9458.64	0.08
North Main	reach 1	68000	2917.00	10.28	20.61	13.73	20.68	0.000153	2.00	4176.59	5153.98	0.13
North Main	reach 1	68000	4268.00	10.28	21.22	14.88	21.24	0.000096	1.53	9364.16	8050.56	0.10
North Main	reach 1	68000	5813.00	10.28	21.57	15.82	21.59	0.000098	1.45	12180.74	8088.19	0.10
North Main	reach 1	68000	11410.00	10.28	22.51	18.40	22.52	0.000094	1.46	19796.95	8109.19	0.10
North Main	reach 1	65430	2917.00	10.28	20.40	13.89	20.53	0.000295	2.90	1007.37	5088.00	0.18
North Main	reach 1	65430	4268.00	10.28	21.17	14.64	21.19	0.000093	1.64	9900.98	9458.83	0.10
North Main	reach 1	65430	5813.00	10.28	21.52	15.58	21.53	0.000093	1.54	13388.77	10453.84	0.10
North Main	reach 1	65430	11410.00	10.28	22.47	18.38	22.47	0.000075	1.47	24259.94	11800.00	0.09
North Main	reach 1	65374	2917.00	10.28	20.38	13.89	20.51	0.000297	2.90	1005.23	5055.03	0.18
North Main	reach 1	65374	4268.00	10.28	21.16	14.84	21.18	0.000093	1.66	9827.48	9435.61	0.10
North Main	reach 1	65374	5813.00	10.28	21.51	15.58	21.52	0.000093	1.57	13323.98	10436.47	0.10
North Main	reach 1	65374	11410.00	10.28	22.46	18.37	22.47	0.000075	1.51	24205.29	11800.00	0.09
North Main	reach 1	64000	2917.00	10.18	19.86	13.35	20.08	0.000332	2.73	1070.27	156.85	0.18
North Main	reach 1	64000	4268.00	10.18	20.99	14.21	21.02	0.000139	1.83	6565.98	4997.82	0.12
North Main	reach 1	64000	5813.00	10.18	21.42	15.08	21.43	0.000054	1.17	16356.01	10359.41	0.08
North Main	reach 1	64000	11410.00	10.18	22.38	17.68	22.38	0.000053	1.24	27108.38	11698.72	0.08
North Main	reach 1	62000	2917.00	10.03	19.14	13.25	19.28	0.000478	3.00	972.14	162.44	0.22
North Main	reach 1	62000	4268.00	10.03	20.78	14.15	20.78	0.000103	1.57	7128.20	5036.93	0.10
North Main	reach 1	62000	5813.00	10.03	21.26	15.04	21.28	0.000102	1.62	10013.67	6477.68	0.10
North Main	reach 1	62000	11410.00	10.03	22.20	17.86	22.22	0.000130	1.95	16872.28	7871.20	0.12
North Main	reach 1	60000	2917.00	9.59	18.23	12.80	18.39	0.000416	3.24	901.64	120.30	0.21
North Main	reach 1	60000	4268.00	9.59	20.30	13.69	20.42	0.000387	3.01	3148.10	4941.37	0.20
North Main	reach 1	60000	5813.00	9.59	20.91	14.57	20.97	0.000271	2.57	7270.11	8447.08	0.17
North Main	reach 1	60000	11410.00	9.59	21.88	17.18	21.91	0.000195	2.30	16330.58	10128.68	0.14
North Main	reach 1	58000	2917.00	9.33	17.09	12.83	17.32	0.000701	3.85	757.28	118.01	0.27
North Main	reach 1	58000	4268.00	9.33	19.14	13.72	19.42	0.000648	4.28	1001.85	123.84	0.28
North Main	reach 1	58000	5813.00	9.33	20.80	14.90	20.82	0.000119	1.92	11888.85	10802.44	0.11
North Main	reach 1	58000	11410.00	9.33	21.66	17.27	21.68	0.000080	1.46	23512.81	11213.37	0.09
North Main	reach 1	57448	2917.00	9.38	16.86	12.79	16.91	0.000825	3.99	730.71	120.82	0.29
North Main	reach 1	57448	4268.00	9.38	18.76	13.68	19.05	0.000706	4.29	994.47	130.40	0.27
North Main	reach 1	57448	5813.00	9.38	20.32	14.56	20.49	0.000460	3.79	3815.78	4759.87	0.23
North Main	reach 1	57448	11410.00	9.38	21.51	17.16	21.58	0.000305	3.28	11950.00	8883.91	0.19
North Main	reach 1	57404	2917.00	9.38	16.82	12.79	16.87	0.000842	4.02	725.75	120.42	0.29
North Main	reach 1	57404	4268.00	9.38	18.73	13.68	19.01	0.000716	4.31	989.98	130.24	0.28
North Main	reach 1	57404	5813.00	9.38	20.28	14.58	20.47	0.000484	3.88	3640.46	4582.79	0.23
North Main	reach 1	57404	11410.00	9.38	21.49	17.16	21.56	0.000314	3.33	11767.28	8793.22	0.19
North Main	reach 1	56867	2917.00	9.80	16.22	12.56	16.43	0.000739	3.85	799.43	139.64	0.27
North Main	reach 1	56867	4268.00	9.80	18.43	13.33	18.65	0.000573	3.82	1117.87	149.94	0.25
North Main	reach 1	56867	5813.00	9.80	20.04	14.10	20.22	0.000431	3.62	3070.15	2442.65	0.22
North Main	reach 1	56867	11410.00	9.80	21.14	16.41	21.32	0.000607	4.40	5918.25	2950.45	0.26
North Main	reach 1	56865	Inline Weir									
North Main	reach 1	56857	2917.00	7.31	16.22	10.17	16.33	0.000288	2.66	1094.79	141.93	0.17
North Main	reach 1	56857	4268.00	7.31	18.42	10.97	18.56	0.000286	3.01	1418.19	151.73	0.17
North Main	reach 1	56857	5813.00	7.31	20.04	11.77	20.17	0.000240	3.09	3395.65	2442.08	0.17
North Main	reach 1	56857	11410.00	7.31	21.12	14.18	21.31	0.000400	4.17	6194.01	2919.83	0.22
North Main	reach 1	56000	2917.00	6.74	16.02	9.60	16.11	0.000225	2.52	1156.96	141.98	0.16
North Main	reach 1	56000	4268.00	6.74	18.22	10.37	18.35	0.000229	2.89	1502.35	242.30	0.16
North Main	reach 1	56000	5813.00	6.74	19.79	11.16	19.95	0.000257	3.27	2049.95	396.38	0.17
North Main	reach 1	56000	11410.00	6.74	20.93	13.52	21.01	0.000242	3.13	8070.53	2723.64	0.17
North Main	reach 1	54000	2917.00	6.00	15.82	8.81	15.70	0.000185	2.34	1248.37	147.33	0.14
North Main	reach 1	54000	4268.00	6.00	17.78	9.57	17.89	0.000220	2.71	1576.86	169.93	0.16
North Main	reach 1	54000	5813.00	6.00	19.28	10.33	19.41	0.000285	3.16	1840.37	190.82	0.18
North Main	reach 1	54000	11410.00	6.00	20.58	12.64	20.82	0.000151	2.47	11892.01	4505.82	0.13
North Main	reach 1	52275	2920.00	5.83	15.30	8.55	15.38	0.000190	2.34	1248.74	151.78	0.14
North Main	reach 1	52275	4262.00	5.83	17.40	9.30	17.51	0.000221	2.68	1588.36	175.68	0.16
North Main	reach 1	52275	5802.00	5.83	18.74	10.09	18.90	0.000316	3.15	1844.38	210.60	0.19
North Main	reach 1	52275	10865.00	5.83	20.35	12.20	20.38	0.000138	2.17	13184.21	10308.39	0.13
North Main	reach 1	51585	2920.00	5.69	15.11	8.68	15.23	0.000260	2.69	1086.56	135.28	0.17
North Main	reach 1	51585	4262.00	5.69	17.19	9.51	17.34	0.000274	3.10	1376.66	143.59	0.18
North Main	reach 1	51585	5802.00	5.69	18.43	10.37	18.85	0.000384	3.70	1586.48	162.67	0.21
North Main	reach 1	51585	10865.00	5.69	20.20	12.68	20.28	0.000220	3.07	12105.33	8827.85	0.18
North Main	reach 1	51519	2920.00	5.69	15.10	8.68	15.21	0.000282	2.89	1084.14	135.21	0.17
North Main	reach 1	51519	4262.00	5.69	17.17	9.51	17.32	0.000276	3.10	1373.98	143.54	0.18



HFC-PAS Plan: P 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	51518	5802.00	5.69	18.41	10.37	18.82	0.000397	3.71	1561.99	162.67	0.21
North Main	reach 1	51519	10865.00	5.69	20.19	12.68	20.27	0.000224	3.10	11959.23	8768.40	0.16
North Main	reach 1	50000	2920.00	5.58	14.73	8.42	14.83	0.000235	2.52	1159.98	148.94	0.16
North Main	reach 1	50000	4262.00	5.58	16.74	9.20	16.87	0.000313	2.85	1496.23	198.07	0.18
North Main	reach 1	50000	5802.00	5.58	18.18	9.99	18.23	0.000151	2.18	4724.94	1438.84	0.13
North Main	reach 1	50000	10865.00	5.58	20.06	12.17	20.09	0.000061	1.54	18262.31	5871.55	0.08
North Main	reach 1	48000	2920.00	4.89	14.29	7.71	14.38	0.000214	2.35	1241.83	164.27	0.15
North Main	reach 1	48000	4262.00	4.89	16.18	8.46	16.29	0.000264	2.68	1591.35	202.84	0.17
North Main	reach 1	48000	5802.00	4.89	17.88	9.23	17.93	0.000144	2.19	4044.99	923.03	0.13
North Main	reach 1	48000	10865.00	4.89	19.92	11.31	19.95	0.000085	1.88	17879.34	8688.07	0.10
North Main	reach 1	47232	2920.00	4.94	14.06	8.02	14.18	0.000295	2.78	1056.39	139.53	0.18
North Main	reach 1	47232	4262.00	4.94	15.89	8.86	16.06	0.000329	3.22	1321.76	150.11	0.19
North Main	reach 1	47232	5802.00	4.94	17.52	9.69	17.73	0.000404	3.67	1580.42	171.64	0.21
North Main	reach 1	47232	10865.00	4.94	19.82	11.99	19.86	0.000157	2.39	12789.46	6035.27	0.13
North Main	reach 1	46000	2920.00	4.90	13.73	7.80	13.83	0.000266	2.62	1173.11	176.26	0.17
North Main	reach 1	46000	4262.00	4.90	15.55	8.59	15.67	0.000273	2.95	1789.96	614.38	0.17
North Main	reach 1	46000	5802.00	4.90	17.22	9.41	17.33	0.000225	2.91	3038.19	813.45	0.16
North Main	reach 1	46000	10865.00	4.90	19.71	11.65	19.73	0.000076	1.76	17754.74	7617.24	0.09
North Main	reach 1	44000	2920.00	4.68	13.19	7.35	13.30	0.000266	2.62	1114.70	147.45	0.17
North Main	reach 1	44000	4262.00	4.68	14.95	8.10	15.10	0.000297	3.09	1380.75	154.28	0.18
North Main	reach 1	44000	5802.00	4.68	16.55	8.87	16.74	0.000384	3.53	1641.47	181.24	0.21
North Main	reach 1	44000	10865.00	4.68	19.48	10.98	19.52	0.000138	2.31	12226.40	5817.87	0.13
North Main	reach 1	43141	2920.00	4.68	12.99	7.31	13.07	0.000274	2.61	1117.18	151.95	0.17
North Main	reach 1	43141	4262.00	4.68	14.70	8.04	14.84	0.000303	3.07	1387.51	159.03	0.18
North Main	reach 1	43141	5802.00	4.68	16.24	8.79	16.43	0.000341	3.54	1673.15	328.56	0.20
North Main	reach 1	43141	10865.00	4.68	19.42	10.84	19.45	0.000139	2.25	12746.08	6274.97	0.13
North Main	reach 1	42941	2920.00	4.24	12.93	7.10	13.02	0.000243	2.44	1197.92	166.30	0.16
North Main	reach 1	42941	4262.00	4.24	14.65	7.83	14.78	0.000266	2.86	1492.83	174.52	0.17
North Main	reach 1	42941	5802.00	4.24	16.19	8.56	16.38	0.000298	3.28	1795.53	322.40	0.19
North Main	reach 1	42941	10865.00	4.24	19.37	10.58	19.42	0.000259	2.45	9900.64	6235.90	0.16
North Main	reach 1	42838	Inline Weir									
North Main	reach 1	42932	2920.00	3.60	12.92	6.12	12.99	0.000150	2.08	1405.07	172.56	0.13
North Main	reach 1	42932	4262.00	3.60	14.65	6.82	14.74	0.000177	2.49	1708.74	179.23	0.14
North Main	reach 1	42932	5802.00	3.60	16.18	7.53	16.32	0.000208	2.91	2017.85	310.56	0.16
North Main	reach 1	42932	10865.00	3.60	19.36	9.49	19.42	0.000226	2.50	9813.15	6184.33	0.16
North Main	reach 1	42366	2920.00	3.60	12.89	5.90	12.93	0.000083	1.58	1842.67	217.70	0.10
North Main	reach 1	42366	4262.00	3.60	14.60	6.16	14.66	0.000099	1.92	2220.91	223.87	0.11
North Main	reach 1	42366	5802.00	3.60	16.14	6.74	16.21	0.000116	2.28	2567.19	227.44	0.12
North Main	reach 1	42366	10865.00	3.60	19.28	8.36	19.38	0.000108	2.47	10147.01	5579.78	0.12
North Main	reach 1	42313	2920.00	3.60	12.68	5.60	12.92	0.000083	1.59	1840.50	217.66	0.10
North Main	reach 1	42313	4262.00	3.60	14.59	6.16	14.65	0.000099	1.92	2218.26	223.64	0.11
North Main	reach 1	42313	5802.00	3.60	16.12	6.74	16.20	0.000117	2.26	2584.02	227.40	0.12
North Main	reach 1	42313	10865.00	3.60	19.28	8.36	19.35	0.000109	2.48	10112.03	5567.41	0.12
North Main	reach 1	42000	2920.00	3.60	12.85	5.51	12.89	0.000075	1.52	1919.74	223.46	0.09
North Main	reach 1	42000	4262.00	3.60	14.58	6.06	14.61	0.000090	1.85	2306.38	229.48	0.10
North Main	reach 1	42000	5802.00	3.60	16.09	6.62	16.16	0.000108	2.18	2661.29	234.86	0.11
North Main	reach 1	42000	10865.00	3.60	19.22	8.16	19.31	0.000125	2.68	8979.21	6439.48	0.13
North Main	reach 1	40000	2920.00	3.15	12.70	5.17	12.74	0.000072	1.50	1952.17	226.02	0.09
North Main	reach 1	40000	4262.00	3.15	14.38	5.72	14.43	0.000087	1.83	2334.97	231.48	0.10
North Main	reach 1	40000	5802.00	3.15	15.88	6.29	15.95	0.000105	2.16	2685.71	236.03	0.11
North Main	reach 1	40000	10865.00	3.15	18.86	7.87	19.01	0.000170	3.13	4429.69	2728.49	0.15
North Main	reach 1	38000	2920.00	3.14	12.55	5.08	12.59	0.000073	1.50	1942.68	225.80	0.09
North Main	reach 1	38000	4262.00	3.14	14.19	5.64	14.24	0.000090	1.84	2317.46	232.22	0.10
North Main	reach 1	38000	5802.00	3.14	15.66	6.20	15.74	0.000108	2.18	2663.29	237.32	0.11
North Main	reach 1	38000	10865.00	3.14	18.49	7.77	18.65	0.000188	3.25	3346.38	246.32	0.16
North Main	reach 1	36000	2920.00	3.15	12.39	5.13	12.43	0.000082	1.58	1844.91	217.19	0.10
North Main	reach 1	36000	4262.00	3.15	13.98	5.60	14.04	0.000102	1.94	2196.32	222.82	0.11
North Main	reach 1	36000	5802.00	3.15	15.41	6.26	15.50	0.000124	2.30	2518.14	227.92	0.12
North Main	reach 1	36000	10865.00	3.15	18.05	7.85	18.24	0.000223	3.47	3132.23	237.35	0.17
North Main	reach 1	34000	2920.00	3.16	12.21	5.23	12.25	0.000095	1.65	1774.75	220.28	0.10
North Main	reach 1	34000	4262.00	3.16	13.76	5.80	13.83	0.000116	2.01	2122.76	227.31	0.12
North Main	reach 1	34000	5802.00	3.16	15.14	6.39	15.23	0.000140	2.38	2440.01	231.92	0.13
North Main	reach 1	34000	10865.00	3.16	17.56	8.02	17.76	0.000257	3.61	3009.48	240.17	0.18
North Main	reach 1	32548	2920.00	3.16	12.06	5.30	12.11	0.000101	1.69	1728.51	216.60	0.11
North Main	reach 1	32548	4262.00	3.16	13.58	5.89	13.65	0.000124	2.07	2061.84	221.62	0.12
North Main	reach 1	32548	5802.00	3.16	14.93	6.48	15.02	0.000151	2.46	2362.39	226.07	0.13

HEC-RAS Plan R 10 D 2 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfd
North Main	reach 1	32548	10865.00	3.16	17.14	8.10	17.36	0.000290	3.78	2870.69	233.40	0.19
North Main	reach 1	32504	2920.00	3.16	12.06	5.30	12.10	0.000101	1.89	1727.54	216.58	0.11
North Main	reach 1	32504	4262.00	3.16	13.58	5.89	13.64	0.000124	2.07	2060.61	221.61	0.12
North Main	reach 1	32504	5802.00	3.16	14.92	6.48	15.01	0.000151	2.46	2360.86	228.04	0.13
North Main	reach 1	32504	10865.00	3.16	17.13	8.10	17.35	0.000291	3.79	2867.58	233.36	0.19
North Main	reach 1	32000	2920.00	3.16	12.01	5.19	12.05	0.000092	1.83	1794.42	221.27	0.10
North Main	reach 1	32000	4262.00	3.16	13.52	5.74	13.58	0.000115	2.00	2132.56	226.71	0.11
North Main	reach 1	32000	5802.00	3.16	14.85	6.30	14.94	0.000140	2.38	2437.06	231.50	0.13
North Main	reach 1	32000	10865.00	3.16	16.98	7.86	17.19	0.000305	3.68	2955.91	260.97	0.19
North Main	reach 1	30000	2920.00	2.92	11.84	4.88	11.87	0.000085	1.58	1845.38	222.79	0.10
North Main	reach 1	30000	4262.00	2.92	13.30	5.43	13.36	0.000108	1.96	2174.92	227.33	0.11
North Main	reach 1	30000	5802.00	2.92	14.58	5.98	14.66	0.000135	2.35	2467.55	231.30	0.13
North Main	reach 1	30000	10865.00	2.92	16.44	7.53	16.62	0.000259	3.56	4432.27	264.04	0.18
North Main	reach 1	29585	3104.00	2.90	11.79	5.02	11.83	0.000108	1.78	1759.65	218.40	0.11
North Main	reach 1	29585	4305.00	2.90	13.24	5.53	13.31	0.000124	2.07	2079.47	221.60	0.12
North Main	reach 1	29585	5837.00	2.90	14.51	6.10	14.60	0.000153	2.47	2362.37	226.47	0.13
North Main	reach 1	29585	10765.00	2.90	16.27	7.64	16.50	0.000321	3.89	2766.39	464.61	0.20
North Main	reach 1	29523	3104.00	2.90	11.78	5.02	11.83	0.000108	1.77	1758.38	218.37	0.11
North Main	reach 1	29523	4305.00	2.90	13.24	5.53	13.30	0.000124	2.07	2077.74	221.77	0.12
North Main	reach 1	29523	5837.00	2.90	14.50	6.10	14.59	0.000154	2.47	2360.16	226.43	0.13
North Main	reach 1	29523	10765.00	2.90	16.24	7.65	16.48	0.000323	3.90	2781.51	466.97	0.20
North Main	reach 1	28000	3104.00	2.90	11.81	5.03	11.86	0.000109	1.75	1774.30	223.05	0.11
North Main	reach 1	28000	4305.00	2.90	13.05	5.54	13.11	0.000124	2.05	2097.63	227.62	0.12
North Main	reach 1	28000	5837.00	2.90	14.26	6.10	14.38	0.000154	2.46	2376.44	231.49	0.14
North Main	reach 1	28000	10765.00	2.90	15.99	7.63	16.08	0.000176	2.86	3093.38	368.04	0.15
North Main	reach 1	26000	3104.00	2.90	11.37	5.04	11.42	0.000125	1.83	1691.68	219.63	0.12
North Main	reach 1	26000	4305.00	2.90	12.77	5.55	12.84	0.000142	2.15	2003.63	225.23	0.13
North Main	reach 1	26000	5837.00	2.90	13.95	6.12	14.04	0.000170	2.48	2771.55	269.08	0.14
North Main	reach 1	26000	10765.00	2.90	15.48	7.68	15.62	0.000309	3.34	3083.90	459.08	0.19
North Main	reach 1	24000	3104.00	2.90	11.11	4.93	11.18	0.000127	1.83	1897.44	222.65	0.12
North Main	reach 1	24000	4305.00	2.90	12.48	5.41	12.55	0.000142	2.09	2471.64	1207.81	0.13
North Main	reach 1	24000	5837.00	2.90	13.85	5.96	13.72	0.000147	2.18	4280.29	1818.29	0.13
North Main	reach 1	24000	10765.00	2.90	15.42	7.46	15.42	0.000034	1.12	23393.86	8096.82	0.06
North Main	reach 1	22000	3104.00	2.90	10.84	4.92	10.90	0.000137	1.87	1658.59	222.69	0.12
North Main	reach 1	22000	4305.00	2.90	12.17	5.39	12.24	0.000156	2.20	1964.13	239.06	0.13
North Main	reach 1	22000	5837.00	2.90	13.27	5.93	13.37	0.000195	2.64	2243.17	322.78	0.15
North Main	reach 1	22000	10765.00	2.90	15.03	7.42	15.25	0.000345	3.66	3690.10	1402.11	0.20
North Main	reach 1	20000	3104.00	2.23	10.56	4.53	10.82	0.000144	1.93	1810.45	215.16	0.12
North Main	reach 1	20000	4305.00	2.23	11.84	5.03	11.92	0.000168	2.28	1869.37	220.05	0.14
North Main	reach 1	20000	5837.00	2.23	12.94	5.59	12.96	0.000219	2.76	2111.72	223.87	0.16
North Main	reach 1	20000	10765.00	2.23	14.09	7.13	14.41	0.000504	4.49	2395.15	228.65	0.24
North Main	reach 1	19889	3104.00	2.23	10.54	4.62	10.60	0.000157	1.99	1561.50	212.54	0.13
North Main	reach 1	19889	4305.00	2.23	11.82	5.14	11.90	0.000182	2.34	1836.69	217.90	0.14
North Main	reach 1	19889	5837.00	2.23	12.82	5.72	12.94	0.000235	2.84	2055.46	221.57	0.16
North Main	reach 1	19889	10765.00	2.23	14.02	7.30	14.35	0.000547	4.63	2354.88	428.29	0.25
North Main	reach 1	19835	3104.00	2.23	10.53	4.62	10.59	0.000157	1.99	1559.65	212.50	0.13
North Main	reach 1	19835	4305.00	2.23	11.81	5.14	11.90	0.000183	2.35	1834.47	217.86	0.14
North Main	reach 1	19835	5837.00	2.23	12.80	5.72	12.93	0.000237	2.84	2052.49	221.52	0.16
North Main	reach 1	19835	10765.00	2.23	13.98	7.30	14.32	0.000552	4.64	2341.30	410.36	0.26
North Main	reach 1	18000	3104.00	2.22	10.23	4.53	10.30	0.000168	2.03	1527.86	211.95	0.13
North Main	reach 1	18000	4305.00	2.22	11.46	5.04	11.55	0.000197	2.40	1790.59	216.68	0.15
North Main	reach 1	18000	5837.00	2.22	12.34	5.60	12.47	0.000259	2.92	2278.06	1944.81	0.17
North Main	reach 1	18000	10765.00	2.22	12.96	7.15	13.25	0.000594	4.59	4440.53	5103.75	0.26
North Main	reach 1	16000	3104.00	2.22	9.67	4.30	9.94	0.000182	2.09	1483.04	208.47	0.14
North Main	reach 1	16000	4305.00	2.22	11.03	4.81	11.13	0.000217	2.49	1728.16	212.92	0.15
North Main	reach 1	16000	5837.00	2.22	12.20	5.38	12.21	0.000062	1.41	11935.73	6914.24	0.08
North Main	reach 1	16000	10765.00	2.22	12.71	6.94	12.73	0.000115	1.92	15447.00	6931.67	0.11
North Main	reach 1	14000	3104.00	2.03	9.51	4.07	9.57	0.000181	2.07	1496.51	212.55	0.14
North Main	reach 1	14000	4305.00	2.03	10.60	4.56	10.69	0.000220	2.49	1729.70	215.77	0.15
North Main	reach 1	14000	5837.00	2.03	11.95	5.12	11.98	0.000263	2.91	2003.73	224.81	0.17
North Main	reach 1	14000	10765.00	2.03	12.46	6.64	12.49	0.000125	1.99	14864.69	6924.69	0.12
North Main	reach 1	12000	3104.00	1.79	9.10	3.96	9.18	0.000216	2.20	1408.66	208.61	0.15
North Main	reach 1	12000	4305.00	1.79	10.10	4.48	10.21	0.000288	2.66	1617.69	212.03	0.17
North Main	reach 1	12000	5837.00	1.79	11.25	5.03	11.40	0.000316	3.13	1864.49	216.01	0.19
North Main	reach 1	12000	10765.00	1.79	12.38	6.58	12.38	0.000028	0.90	33858.03	13721.12	0.06
North Main	reach 1	10000	3243.00	1.80	8.58	3.99	8.67	0.000296	2.46	1317.18	209.92	0.17

HEC-RAS Plan R 10 D 2 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	10000.	4357.00	1.80	9.46	4.45	9.59	0.000352	2.90	1503.88	213.74	0.19
North Main	reach 1	10000.	5848.00	1.80	10.46	5.00	10.84	0.000472	3.39	1725.56	241.00	0.22
North Main	reach 1	10000.	10776.00	1.80	11.75	6.54	12.18	0.000999	5.24	2056.49	262.03	0.33
North Main	reach 1	8000.	3292.00	1.73	7.80	3.99	7.93	0.000470	2.89	1139.09	202.98	0.21
North Main	reach 1	8000.	4457.00	1.73	8.50	4.48	8.69	0.000593	3.48	1281.11	204.75	0.25
North Main	reach 1	8000.	5868.00	1.73	9.20	5.01	9.46	0.000734	4.12	1425.21	207.20	0.28
North Main	reach 1	8000.	10748.00	1.73	11.00	11.00	11.07	0.000298	3.00	10500.95	6877.30	0.18
North Main	reach 1	6000.	3292.00	1.77	6.86	3.88	6.97	0.000486	2.86	1307.36	296.77	0.21
North Main	reach 1	6000.	4457.00	1.77	7.23	4.11	7.40	0.000699	3.34	1416.89	301.04	0.28
North Main	reach 1	6000.	5868.00	1.77	7.43	4.58	7.69	0.001072	4.23	1475.75	303.30	0.32
North Main	reach 1	6000.	10748.00	1.77	7.87	5.89	8.48	0.003108	7.39	1548.94	306.11	0.55
North Main	reach 1	4058	3292.00	1.84	5.80	3.41	5.90	0.000821	2.53	1303.59	352.71	0.23
North Main	reach 1	4058	4457.00	1.84	6.15	3.74	6.22	0.000511	2.42	4852.86	16473.98	0.21
North Main	reach 1	4058	5868.00	1.84	6.37	4.10	6.41	0.000408	2.24	8558.91	16860.40	0.19
North Main	reach 1	4058	10748.00	1.84	6.85	5.15	6.87	0.000303	2.06	16972.36	17801.39	0.17
North Main	reach 1	4024	3292.00	1.84	5.79	3.41	5.89	0.000629	2.53	1298.63	352.64	0.23
North Main	reach 1	4024	4457.00	1.84	6.13	3.74	6.21	0.000531	2.47	4856.88	16453.51	0.22
North Main	reach 1	4024	5868.00	1.84	6.36	4.10	6.41	0.000421	2.27	8399.91	16844.12	0.19
North Main	reach 1	4024	10748.00	1.84	6.85	5.15	6.87	0.000303	2.06	16972.36	17801.39	0.17
North Main	reach 1	2000.	3575.00	1.72	4.16	2.81	4.25	0.001056	2.41	1484.15	642.56	0.28
North Main	reach 1	2000.	4920.00	1.72	4.43	3.05	4.56	0.001398	2.97	1654.04	644.16	0.33
North Main	reach 1	2000.	6522.00	1.72	4.68	3.32	4.88	0.001803	3.59	1816.57	645.72	0.38
North Main	reach 1	2000.	10850.00	1.72	5.13	3.91	5.54	0.003049	5.14	2109.80	648.49	0.50
North Main	reach 1	0.	3575.00	1.41	3.59	1.98	3.60	0.000155	0.77	6745.72	7371.77	0.10
North Main	reach 1	0.	4920.00	1.41	3.85	2.12	3.85	0.000155	0.84	8654.40	7646.04	0.10
North Main	reach 1	0.	6522.00	1.41	4.10	2.26	4.11	0.000155	0.90	10901.75	10307.77	0.11
North Main	reach 1	0.	10850.00	1.41	4.62	2.63	4.63	0.000155	1.03	16375.00	10712.36	0.11



River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
La Sal Vieja	Reach 1	15080	843.00	24.30	31.46	28.60	31.53	0.000380	2.17	388.67	88.62	0.16
La Sal Vieja	Reach 1	15080	1423.00	24.30	34.02	27.50	34.12	0.000333	2.46	577.86	78.89	0.18
La Sal Vieja	Reach 1	15060	1909.00	24.30	35.82	28.15	35.93	0.000317	2.63	726.04	86.07	0.18
La Sal Vieja	Reach 1	15060	1172.00	24.30	39.31	27.13	39.33	0.000043	1.12	1050.78	100.03	0.06
La Sal Vieja	Reach 1	15050	843.00	24.30	31.45	28.60	31.52	0.000361	2.17	388.30	88.60	0.18
La Sal Vieja	Reach 1	15050	1423.00	24.30	34.02	27.50	34.11	0.000334	2.46	577.50	78.87	0.18
La Sal Vieja	Reach 1	15060	1909.00	24.30	35.81	28.15	35.92	0.000317	2.63	725.68	86.05	0.16
La Sal Vieja	Reach 1	15050	1172.00	24.30	39.31	27.13	39.33	0.000043	1.12	1050.74	100.03	0.06
La Sal Vieja	Reach 1	15010	843.00	24.30	31.45	28.60	31.52	0.000362	2.17	387.93	88.58	0.16
La Sal Vieja	Reach 1	15010	1423.00	24.30	34.01	27.50	34.11	0.000334	2.47	577.14	78.85	0.16
La Sal Vieja	Reach 1	15010	1909.00	24.30	35.81	28.15	35.92	0.000317	2.63	725.33	86.04	0.16
La Sal Vieja	Reach 1	15010	1172.00	24.30	39.31	27.13	39.33	0.000043	1.12	1050.69	100.03	0.06
La Sal Vieja	Reach 1	15000	843.00	24.30	31.44		31.51	0.000383	2.18	387.56	88.56	0.16
La Sal Vieja	Reach 1	15000	1423.00	24.30	34.01		34.10	0.000335	2.47	576.79	78.83	0.16
La Sal Vieja	Reach 1	15000	1909.00	24.30	35.81		35.91	0.000318	2.63	724.97	86.02	0.16
La Sal Vieja	Reach 1	15000	1172.00	24.30	39.31		39.33	0.000043	1.12	1050.65	100.03	0.06
La Sal Vieja	Reach 1	12500	843.00	23.30	30.55		30.62	0.000343	2.13	395.28	89.01	0.16
La Sal Vieja	Reach 1	12500	1423.00	23.30	33.20		33.29	0.000311	2.40	591.81	79.59	0.16
La Sal Vieja	Reach 1	12500	1909.00	23.30	35.04		35.14	0.000295	2.56	745.11	86.95	0.15
La Sal Vieja	Reach 1	12500	1172.00	23.30	39.22		39.24	0.000034	1.02	1143.58	103.68	0.05
La Sal Vieja	Reach 1	9850	843.00	22.18	29.63		29.70	0.000308	2.05	410.45	89.89	0.15
La Sal Vieja	Reach 1	9850	1423.00	22.18	32.36		32.45	0.000278	2.31	616.49	80.82	0.15
La Sal Vieja	Reach 1	9850	1909.00	22.18	34.25		34.35	0.000283	2.48	776.09	88.37	0.15
La Sal Vieja	Reach 1	9850	1172.00	22.18	39.14		39.16	0.000026	0.93	1256.41	107.95	0.05
La Sal Vieja	Reach 1	7500	843.00	21.30	29.01		29.07	0.000275	1.97	427.22	70.84	0.14
La Sal Vieja	Reach 1	7500	1423.00	21.30	31.80		31.88	0.000249	2.22	640.82	82.02	0.14
La Sal Vieja	Reach 1	7500	1909.00	21.30	33.72		33.81	0.000237	2.37	805.23	89.68	0.14
La Sal Vieja	Reach 1	7500	1172.00	21.30	39.09		39.10	0.000022	0.87	1344.64	111.16	0.04
La Sal Vieja	Reach 1	4100	843.00	19.94	28.19		28.25	0.000214	1.81	466.48	73.02	0.13
La Sal Vieja	Reach 1	4100	1423.00	19.94	31.05		31.12	0.000202	2.06	691.39	84.45	0.13
La Sal Vieja	Reach 1	4100	1909.00	19.94	33.00		33.07	0.000198	2.21	883.10	92.22	0.13
La Sal Vieja	Reach 1	4100	1172.00	19.94	39.03		39.04	0.000016	0.79	1492.23	116.35	0.04
La Sal Vieja	Reach 1	1000	843.00	18.70	27.63	21.00	27.67	0.000160	1.63	516.79	75.73	0.11
La Sal Vieja	Reach 1	1000	1423.00	18.70	30.50	21.91	30.56	0.000160	1.90	750.79	87.21	0.11
La Sal Vieja	Reach 1	1000	1909.00	18.70	32.46	22.55	32.52	0.000160	2.06	928.62	95.02	0.12
La Sal Vieja	Reach 1	1000	1172.00	18.70	39.00	21.54	39.00	0.000007	0.58	4587.38	1082.00	0.03
raymondville	Reach 8	296300	395.00	70.00	78.74		78.79	0.000275	1.68	234.91	48.72	0.13
raymondville	Reach 8	296300	887.00	70.00	81.40		81.41	0.000016	0.47	4788.89	3000.00	0.04
raymondville	Reach 8	296300	1645.00	70.00	84.16		84.16	0.000002	0.22	13057.09	3000.00	0.01
raymondville	Reach 8	296300	4983.00	70.00	87.11		87.12	0.000004	0.35	21917.61	3000.00	0.02
raymondville	Reach 8	295300	395.00	69.73	78.47		78.51	0.000276	1.68	234.64	48.70	0.14
raymondville	Reach 8	295300	887.00	69.73	81.39		81.39	0.000013	0.43	5133.63	3000.00	0.03
raymondville	Reach 8	295300	1645.00	69.73	84.15		84.15	0.000002	0.22	13418.92	3000.00	0.01
raymondville	Reach 8	295300	4983.00	69.73	87.10		87.11	0.000004	0.35	22275.92	3000.00	0.02
raymondville	Reach 8	293500	395.00	69.23	77.98	72.70	78.03	0.000274	1.68	235.25	48.76	0.13
raymondville	Reach 8	293500	887.00	69.23	81.25	74.33	81.32	0.000291	2.10	421.60	65.13	0.15
raymondville	Reach 8	293500	1645.00	69.23	84.13	75.99	84.14	0.000072	1.19	3255.44	3000.00	0.09
raymondville	Reach 8	293500	4983.00	69.23	87.08	80.24	87.08	0.000025	0.81	12111.96	3000.00	0.05
raymondville	Reach 8	291800	395.00	68.76	77.52	72.23	77.56	0.000273	1.68	235.50	48.79	0.13
raymondville	Reach 8	291800	887.00	68.76	80.76	73.86	80.82	0.000295	2.11	419.73	64.98	0.15
raymondville	Reach 8	291800	1645.00	68.76	83.80	75.52	83.91	0.000328	2.57	641.04	80.22	0.16
raymondville	Reach 8	291800	4983.00	68.76	87.04	79.77	87.05	0.000021	0.72	12263.54	3000.00	0.05
raymondville	Reach 8	289400	395.00	68.10	76.87	71.57	76.91	0.000272	1.67	235.97	48.83	0.13
raymondville	Reach 8	289400	887.00	68.10	80.03	73.20	80.10	0.000303	2.13	415.56	64.66	0.15
raymondville	Reach 8	289400	1645.00	68.10	82.99	74.88	83.10	0.000345	2.62	628.93	79.46	0.16
raymondville	Reach 8	289400	4983.00	68.10	86.92	79.11	86.95	0.000121	1.81	5726.89	3000.00	0.11
raymondville	Reach 8	287000	395.00	67.44	76.22	70.91	76.26	0.000270	1.67	236.45	48.88	0.13
raymondville	Reach 8	287000	887.00	67.44	79.29	72.54	79.36	0.000313	2.16	410.38	64.26	0.15
raymondville	Reach 8	287000	1645.00	67.44	82.13	74.20	82.24	0.000369	2.68	612.93	78.45	0.17
raymondville	Reach 8	287000	4983.00	67.44	86.37	78.45	86.45	0.000424	2.21	2251.69	451.26	0.17
raymondville	Reach 8	285100	395.00	66.91	75.71	70.38	75.75	0.000267	1.66	237.37	48.97	0.13
raymondville	Reach 8	285100	887.00	66.91	78.88	72.01	78.76	0.000323	2.19	405.43	63.87	0.15
raymondville	Reach 8	285100	1645.00	66.91	81.40	73.67	81.51	0.000396	2.76	597.02	77.42	0.17
raymondville	Reach 8	285100	4983.00	66.91	85.41	77.92	85.50	0.000599	2.36	2111.44	497.46	0.20
raymondville	Reach 8	283500	395.00	66.47	75.27	69.94	75.32	0.000266	1.66	237.75	49.01	0.13
raymondville	Reach 8	283500	887.00	66.47	78.16	71.57	78.23	0.000336	2.22	399.76	63.42	0.16
raymondville	Reach 8	283500	1645.00	66.47	80.73	73.24	80.85	0.000429	2.84	579.60	624.69	0.18

HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	283500	4983.00	66.47	84.67	77.48	84.77	0.000381	3.01	2779.57	1944.93	0.20
raymondville	Reach 8	281800	395.00	66.00	74.82		74.87	0.000283	1.65	238.75	49.12	0.13
raymondville	Reach 8	281800	887.00	66.00	77.57		77.65	0.000353	2.26	392.31	62.83	0.16
raymondville	Reach 8	281800	1845.00	66.00	80.31		80.35	0.000197	1.90	2201.48	3000.00	0.16
raymondville	Reach 8	281800	4983.00	66.00	84.68		84.68	0.000012	0.59	15286.11	3000.00	0.04
raymondville	Reach 8	279700	414.00	65.42	74.24	68.98	74.29	0.000289	1.73	238.75	49.12	0.14
raymondville	Reach 8	279700	804.00	65.42	75.89	70.30	75.95	0.000303	2.08	366.08	62.34	0.15
raymondville	Reach 8	279700	1447.00	65.42	79.75	71.80	79.84	0.000312	2.43	711.70	1329.28	0.15
raymondville	Reach 8	279700	4528.00	65.42	84.81	75.98	84.83	0.000064	1.35	5838.85	2145.88	0.08
raymondville	Reach 8	275500	414.00	64.28	73.00	67.82	73.05	0.000303	1.78	234.63	48.70	0.14
raymondville	Reach 8	275500	804.00	64.26	75.57	69.14	75.84	0.000324	2.14	378.34	61.55	0.15
raymondville	Reach 8	275500	1447.00	64.26	78.35	70.84	78.45	0.000353	2.55	566.48	75.43	0.16
raymondville	Reach 8	275500	4528.00	64.26	83.88	74.82	83.97	0.000684	4.35	1039.68	102.09	0.24
raymondville	Reach 8	273500	414.00	63.71	72.38	67.28	72.43	0.000315	1.79	231.27	48.35	0.14
raymondville	Reach 8	273500	804.00	63.71	74.90	68.59	74.98	0.000341	2.18	369.10	60.96	0.16
raymondville	Reach 8	273500	1447.00	63.71	77.61	70.09	77.72	0.000377	2.82	552.62	74.50	0.17
raymondville	Reach 8	273500	4528.00	63.71	82.02	74.27	82.39	0.000821	4.87	929.50	96.54	0.28
raymondville	Reach 8	272300	414.00	63.38	72.00		72.05	0.000325	1.81	228.64	48.08	0.15
raymondville	Reach 8	272300	804.00	63.38	74.48		74.56	0.000355	2.21	363.85	60.51	0.16
raymondville	Reach 8	272300	1447.00	63.38	77.14		77.25	0.000398	2.87	542.44	73.82	0.17
raymondville	Reach 8	272300	4528.00	63.38	80.84		81.10	0.001242	5.45	831.14	91.30	0.32
raymondville	Reach 8	270300	414.00	62.83	71.32	66.40	71.37	0.000349	1.86	222.83	337.75	0.15
raymondville	Reach 8	270300	804.00	62.83	73.73	67.71	73.82	0.000388	2.29	351.80	61.13	0.17
raymondville	Reach 8	270300	1447.00	62.83	76.33	69.21	76.44	0.000422	2.87	543.54	1605.14	0.24
raymondville	Reach 8	270300	4528.00	62.83	79.92	73.39	79.98	0.000268	2.50	3632.09	2970.43	0.16
raymondville	Reach 8	268100	414.00	62.22	70.50	65.78	70.58	0.000393	1.95	212.79	48.40	0.16
raymondville	Reach 8	268100	804.00	62.22	72.81	67.10	72.90	0.000448	2.41	333.19	57.94	0.18
raymondville	Reach 8	268100	1447.00	62.22	75.28	68.60	75.41	0.000515	2.94	491.43	70.28	0.20
raymondville	Reach 8	268100	4528.00	62.22	78.03	72.78	78.67	0.001933	6.43	704.05	84.05	0.39
raymondville	Reach 8	266400	414.00	61.75	69.77	65.31	69.84	0.000458	2.06	201.00	45.11	0.17
raymondville	Reach 8	266400	804.00	61.75	71.96	66.63	72.07	0.000535	2.58	311.87	1195.24	0.19
raymondville	Reach 8	266400	1447.00	61.75	74.38	68.13	74.49	0.000569	2.92	495.27	1583.90	0.27
raymondville	Reach 8	266400	4528.00	61.75	77.49	72.33	77.54	0.000267	2.34	3895.24	3000.00	0.16
raymondville	Reach 8	264100	414.00	61.12	68.44	64.68	68.53	0.000711	2.43	170.49	41.59	0.21
raymondville	Reach 8	264100	804.00	61.12	70.37	66.00	70.52	0.000888	3.09	260.14	51.25	0.24
raymondville	Reach 8	264100	1447.00	61.12	72.57	67.50	72.79	0.000988	3.76	384.98	62.25	0.27
raymondville	Reach 8	264100	4528.00	61.12	76.98	71.68	77.01	0.000219	2.08	4275.67	3000.00	0.15
raymondville	Reach 8	262450	414.00	60.66	64.54	64.22	65.36	0.013368	7.27	56.96	24.38	0.84
raymondville	Reach 8	262450	804.00	60.66	66.85	65.54	67.47	0.005924	6.34	128.71	35.95	0.60
raymondville	Reach 8	262450	1447.00	60.66	68.85	67.05	69.60	0.005053	6.93	208.83	45.97	0.57
raymondville	Reach 8	262450	4528.00	60.66	75.22	71.22	76.05	0.002838	7.32	661.96	1539.93	0.57
raymondville	Reach 8	260650	529.00	56.97	63.35		63.40	0.000368	1.88	281.31	63.25	0.16
raymondville	Reach 8	260650	986.00	56.97	65.65		65.73	0.000365	2.22	443.17	77.09	0.16
raymondville	Reach 8	260650	1536.00	56.97	67.58		67.66	0.000387	2.55	601.32	88.55	0.17
raymondville	Reach 8	260650	4675.00	56.97	73.90		74.11	0.000463	3.64	1283.74	128.61	0.20
raymondville	Reach 8	259250	529.00	56.49	62.88		62.93	0.000363	1.88	281.98	63.31	0.16
raymondville	Reach 8	259250	986.00	56.49	65.18		65.26	0.000363	2.22	444.02	77.16	0.16
raymondville	Reach 8	259250	1536.00	56.49	67.06		67.16	0.000390	2.58	599.30	88.41	0.17
raymondville	Reach 8	259250	4675.00	56.49	73.28		73.49	0.000482	3.69	1265.48	125.74	0.21
raymondville	Reach 8	258000	529.00	56.04	62.42		62.48	0.000364	1.88	281.70	63.29	0.16
raymondville	Reach 8	258000	986.00	56.04	64.73		64.80	0.000384	2.22	443.66	77.13	0.16
raymondville	Reach 8	258000	1536.00	56.04	66.57		66.67	0.000397	2.58	595.48	88.15	0.17
raymondville	Reach 8	258000	4675.00	56.04	72.66		72.88	0.000505	3.76	1243.88	124.70	0.21
raymondville	Reach 8	255800	529.00	55.23	61.62		61.67	0.000362	1.87	282.27	63.34	0.16
raymondville	Reach 8	255800	986.00	55.23	63.93		64.00	0.000383	2.22	444.28	77.18	0.16
raymondville	Reach 8	255800	1536.00	55.23	65.87		65.78	0.000410	2.61	588.36	87.87	0.18
raymondville	Reach 8	255800	4675.00	55.23	71.47		71.71	0.000559	3.91	1197.11	122.44	0.22
raymondville	Reach 8	252200	529.00	53.92	60.33		60.39	0.000357	1.86	283.75	63.48	0.16
raymondville	Reach 8	252200	986.00	53.92	62.62		62.70	0.000362	2.22	441.62	77.22	0.16
raymondville	Reach 8	252200	1536.00	53.92	64.11		64.23	0.000455	2.71	586.48	86.16	0.19
raymondville	Reach 8	252200	4675.00	53.92	69.07		69.37	0.000782	4.38	1067.14	115.89	0.25
raymondville	Reach 8	250350	529.00	53.24	59.68		59.73	0.000352	1.85	285.29	63.62	0.15
raymondville	Reach 8	250350	986.00	53.24	61.98		62.03	0.000360	2.21	445.78	77.29	0.16
raymondville	Reach 8	250350	1536.00	53.24	63.23		63.35	0.000496	2.80	548.77	84.91	0.19
raymondville	Reach 8	250350	4675.00	53.24	67.34		67.72	0.001044	4.92	949.24	109.61	0.29
raymondville	Reach 8	248900	529.00	52.72	59.18	54.90	59.21	0.000352	1.85	285.32	63.63	0.15

HEC-RAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	248900	986.00	52.72	61.44	55.89	61.51	0.000380	2.21	445.83	77.30	0.16
raymondville	Reach 8	248900	1536.00	52.72	62.48	56.84	62.59	0.000551	2.91	528.02	83.44	0.20
raymondville	Reach 8	248900	4675.00	52.72	65.22	60.30	65.78	0.001764	5.98	781.39	100.01	0.38
raymondville	Reach 8	245400	529.00	51.44	57.96		59.01	0.000335	1.82	290.47	64.11	0.15
raymondville	Reach 8	245400	986.00	51.44	60.26		60.32	0.000319	2.10	622.58	781.50	0.15
raymondville	Reach 8	245400	1536.00	51.44	61.47		61.51	0.000189	1.73	1873.04	1275.29	0.12
raymondville	Reach 8	245400	4675.00	51.44	65.14		65.14	0.000044	1.01	8654.88	3000.00	0.07
raymondville	Reach 8	242800	529.00	50.49	57.12		57.17	0.000313	1.78	297.56	64.77	0.15
raymondville	Reach 8	242800	986.00	50.49	59.42		59.49	0.000326	2.13	462.11	78.55	0.16
raymondville	Reach 8	242800	1536.00	50.49	60.87		60.93	0.000264	2.09	1418.76	1302.29	0.14
raymondville	Reach 8	242800	4675.00	50.49	65.04		65.04	0.000036	0.94	9819.88	3000.00	0.06
raymondville	Reach 8	240200	624.00	49.54	56.12		56.19	0.000448	2.12	294.56	64.50	0.17
raymondville	Reach 8	240200	1188.00	49.54	58.31		58.42	0.000508	2.84	448.82	77.61	0.19
raymondville	Reach 8	240200	1705.00	49.54	59.81		59.95	0.000543	2.97	573.25	86.63	0.20
raymondville	Reach 8	240200	4264.00	49.54	64.53		64.78	0.000664	4.07	1048.48	114.92	0.24
raymondville	Reach 8	235900	624.00	47.97	52.68		52.86	0.001643	3.38	184.52	53.29	0.32
raymondville	Reach 8	235900	1188.00	47.97	54.64		54.88	0.001536	3.95	300.28	65.03	0.32
raymondville	Reach 8	235900	1705.00	47.97	55.95		56.24	0.001547	4.37	390.21	72.86	0.33
raymondville	Reach 8	235900	4264.00	47.97	59.42		60.03	0.002142	6.28	679.41	93.70	0.41
raymondville	Reach 8	233900	624.00	47.24	52.12		52.13	0.000142	1.02	999.46	554.82	0.10
raymondville	Reach 8	233900	1188.00	47.24	54.59		54.59	0.000097	0.72	2730.47	850.45	0.05
raymondville	Reach 8	233900	1705.00	47.24	55.96		55.97	0.000090	0.75	4090.48	1170.14	0.05
raymondville	Reach 8	233900	4264.00	47.24	59.71		59.71	0.000021	0.92	10428.48	2217.52	0.04
raymondville	Reach 8	231612	624.00	40.87	51.67		51.72	0.000229	1.83	341.44	53.22	0.13
raymondville	Reach 8	231612	1188.00	40.87	54.38		54.43	0.000191	1.97	973.47	535.87	0.12
raymondville	Reach 8	231612	1705.00	40.87	55.81		55.84	0.000120	1.74	1880.04	706.35	0.10
raymondville	Reach 8	231612	4264.00	40.87	59.61		59.83	0.000069	1.84	5430.24	1401.31	0.08
raymondville	Reach 8	227684	624.00	40.09	50.77		50.82	0.000231	1.83	340.93	53.29	0.13
raymondville	Reach 8	227684	1188.00	40.09	53.40		53.49	0.000307	2.40	495.04	63.81	0.15
raymondville	Reach 8	227684	1705.00	40.09	54.99		55.10	0.000337	2.68	808.42	362.71	0.16
raymondville	Reach 8	227684	4264.00	40.09	59.16		59.22	0.000177	2.51	3191.61	797.37	0.12
raymondville	Reach 8	225004	624.00	39.55	50.12		50.17	0.000253	1.90	329.05	52.27	0.13
raymondville	Reach 8	225004	1188.00	39.55	52.50		52.60	0.000363	2.55	484.89	61.79	0.16
raymondville	Reach 8	225004	1705.00	39.55	53.88		54.03	0.000469	3.08	554.28	67.34	0.19
raymondville	Reach 8	225004	4264.00	39.55	58.31		58.49	0.000454	3.78	2070.66	947.10	0.20
raymondville	Reach 8	222418	624.00	39.03	49.81		49.83	0.000078	1.16	1141.97	760.02	0.08
raymondville	Reach 8	222418	1188.00	39.03	52.43		52.44	0.000019	0.71	3571.44	1059.84	0.04
raymondville	Reach 8	222418	1705.00	39.03	53.88		53.88	0.000015	0.68	5207.00	1207.92	0.04
raymondville	Reach 8	222418	4264.00	39.03	58.35		58.35	0.000010	0.71	13329.72	2359.18	0.03
raymondville	Reach 8	220790	624.00	38.71	49.57		49.62	0.000224	1.81	344.47	53.43	0.13
raymondville	Reach 8	220790	1188.00	38.71	52.26		52.35	0.000294	2.36	502.84	64.20	0.15
raymondville	Reach 8	220790	1705.00	38.71	53.67		53.80	0.000384	2.85	597.23	69.83	0.17
raymondville	Reach 8	220790	4264.00	38.71	57.94		58.27	0.000733	4.58	931.80	86.91	0.25
raymondville	Reach 8	217688	624.00	38.09	48.87		48.92	0.000231	1.83	340.70	53.17	0.13
raymondville	Reach 8	217688	1188.00	38.09	51.29		51.39	0.000331	2.46	481.36	62.87	0.16
raymondville	Reach 8	217688	1705.00	38.09	52.32		52.47	0.000483	3.11	548.08	66.98	0.19
raymondville	Reach 8	217688	4264.00	38.09	55.76		56.02	0.000712	4.44	1540.20	696.04	0.24
raymondville	Reach 8	215481	624.00	37.65	48.35		48.40	0.000240	1.86	335.64	52.79	0.13
raymondville	Reach 8	215481	1188.00	37.65	50.58		50.67	0.000316	2.42	663.04	521.31	0.15
raymondville	Reach 8	215481	1705.00	37.65	51.58		51.88	0.000276	2.45	1251.87	648.82	0.15
raymondville	Reach 8	215481	4264.00	37.65	55.46		55.49	0.000098	1.87	4967.28	1313.96	0.09
raymondville	Reach 8	213503	624.00	37.25	47.88		47.93	0.000232	1.83	340.25	53.28	0.13
raymondville	Reach 8	213503	1188.00	37.25	50.01		50.07	0.000281	2.24	625.85	542.55	0.14
raymondville	Reach 8	213503	1705.00	37.25	51.12		51.17	0.000213	2.10	1467.86	622.08	0.13
raymondville	Reach 8	213503	4264.00	37.25	55.29		55.31	0.000084	1.73	5296.39	1768.01	0.09
raymondville	Reach 8	211886	624.00	36.93	47.50		47.56	0.000244	1.87	333.64	52.71	0.13
raymondville	Reach 8	211886	1188.00	36.93	49.77		49.79	0.000113	1.43	1868.93	1163.92	0.09
raymondville	Reach 8	211886	1705.00	36.93	50.99		51.00	0.000055	1.10	3697.15	1739.45	0.07
raymondville	Reach 8	211886	4264.00	36.93	55.26		55.26	0.000012	0.87	13620.19	3594.37	0.03
raymondville	Reach 8	210380	624.00	36.63	47.12		47.18	0.000257	1.91	327.11	52.16	0.13
raymondville	Reach 8	210380	1188.00	36.63	49.39		49.49	0.000383	2.60	455.53	61.22	0.17
raymondville	Reach 8	210380	1705.00	36.63	50.64		50.80	0.000514	3.18	535.42	66.24	0.20
raymondville	Reach 8	210380	4264.00	36.63	54.77		55.16	0.000958	5.06	845.63	100.56	0.28
raymondville	Reach 8	210328	624.00	36.62	47.11		47.18	0.000258	1.91	326.93	52.15	0.13
raymondville	Reach 8	210328	1188.00	36.62	49.37		49.47	0.000385	2.61	454.87	61.18	0.17
raymondville	Reach 8	210328	1705.00	36.62	50.62		50.78	0.000516	3.19	534.69	66.19	0.20
raymondville	Reach 8	210328	4264.00	36.62	54.71		55.12	0.000969	5.08	841.32	97.56	0.28

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	208056	624.00	35.16	46.50		46.56	0.000268	1.94	322.08	51.83	0.14
raymondville	Reach 8	208056	1186.00	36.16	48.40		48.52	0.000453	2.77	428.08	59.45	0.18
raymondville	Reach 8	208056	1705.00	36.16	49.22		49.42	0.000696	3.57	478.08	62.73	0.23
raymondville	Reach 8	208066	4264.00	36.18	50.95		51.75	0.002458	7.20	592.19	69.82	0.44
raymondville	Reach 8	205823	624.00	35.72	45.86		45.93	0.000299	2.02	316.88	159.86	0.14
raymondville	Reach 8	205823	1186.00	35.72	47.77		47.82	0.000221	1.99	1127.47	924.37	0.13
raymondville	Reach 8	205823	1705.00	35.72	48.74		48.76	0.000144	1.74	2479.34	1638.42	0.11
raymondville	Reach 8	205823	4264.00	35.72	51.11		51.12	0.000059	1.32	9136.87	3684.79	0.07
raymondville	Reach 8	203593	624.00	35.27	45.14		45.21	0.000344	2.13	293.62	49.49	0.15
raymondville	Reach 8	203593	1186.00	35.27	46.90		47.05	0.000593	3.07	386.81	56.52	0.21
raymondville	Reach 8	203593	1705.00	35.27	47.67		48.10	0.000852	3.85	443.28	50.38	0.25
raymondville	Reach 8	203593	4264.00	35.27	50.77		50.84	0.000372	3.05	4295.56	3514.28	0.17
raymondville	Reach 8	202962	624.00	35.14	44.92		44.99	0.000358	2.18	288.99	49.11	0.18
raymondville	Reach 8	202962	1186.00	35.14	46.49		46.65	0.000662	3.20	371.19	55.40	0.22
raymondville	Reach 8	202962	1705.00	35.14	47.24		47.50	0.001023	4.12	413.88	56.40	0.27
raymondville	Reach 8	202962	4264.00	35.14	50.30		50.49	0.000821	4.41	2739.16	3059.87	0.26
raymondville	Reach 8	200900	624.00	34.67	43.96		44.05	0.000450	2.35	265.57	47.17	0.17
raymondville	Reach 8	200900	1186.00	34.67	45.99		46.01	0.000131	1.56	1822.99	1160.07	0.10
raymondville	Reach 8	200900	1705.00	34.67	46.94		46.95	0.000084	1.34	3020.81	1336.52	0.08
raymondville	Reach 8	200900	4264.00	34.67	50.12		50.13	0.000049	1.26	8531.50	3170.81	0.06
raymondville	Reach 8	200550	624.00	34.66	43.94		44.03	0.000452	2.35	265.15	47.13	0.17
raymondville	Reach 8	200550	1186.00	34.66	45.98		46.00	0.000133	1.56	1813.12	1178.29	0.10
raymondville	Reach 8	200550	1705.00	34.66	46.93		46.95	0.000084	1.35	3015.26	1335.92	0.08
raymondville	Reach 8	200550	4264.00	34.66	50.12		50.13	0.000049	1.26	8524.16	3167.16	0.06
raymondville	Reach 8	198245	624.00	34.20	42.64		42.78	0.000687	2.75	226.77	43.75	0.21
raymondville	Reach 8	198245	1186.00	34.20	45.39		45.48	0.000431	2.72	807.24	761.00	0.18
raymondville	Reach 8	198245	1705.00	34.20	46.83		46.87	0.000187	1.99	2074.72	1209.29	0.12
raymondville	Reach 8	198245	4264.00	34.20	50.01		50.01	0.000050	1.28	9471.86	3800.11	0.07
raymondville	Reach 8	198303	624.00	31.67	41.83		41.89	0.000302	2.03	307.92	50.83	0.14
raymondville	Reach 8	198303	1186.00	31.67	44.61		44.72	0.000364	2.55	464.54	61.76	0.16
raymondville	Reach 8	198303	1705.00	31.67	46.05		46.18	0.000377	2.76	906.11	542.87	0.17
raymondville	Reach 8	198303	4264.00	31.67	49.83		49.86	0.000143	2.00	4743.02	1692.80	0.11
raymondville	Reach 8	194638	624.00	31.17	41.32		41.39	0.000303	2.03	307.67	50.81	0.14
raymondville	Reach 8	194638	1186.00	31.17	43.99		44.10	0.000380	2.80	456.95	61.28	0.17
raymondville	Reach 8	194638	1705.00	31.17	45.49		45.57	0.000314	2.52	1157.79	586.46	0.15
raymondville	Reach 8	194638	4264.00	31.17	49.70		49.71	0.000058	1.33	7781.75	3165.57	0.07
raymondville	Reach 8	193324	624.00	30.77	40.93	34.58	40.99	0.000303	2.03	307.81	50.82	0.14
raymondville	Reach 8	193324	1186.00	30.77	43.48	36.11	43.59	0.000396	2.83	450.14	60.84	0.17
raymondville	Reach 8	193324	1705.00	30.77	44.89	37.22	45.05	0.000502	3.16	540.27	66.50	0.20
raymondville	Reach 8	193324	4264.00	30.77	49.09	40.86	49.48	0.000923	4.99	854.72	83.29	0.27
raymondville	Reach 8	192642	624.00	30.57	40.72	34.38	40.78	0.000304	2.03	307.46	50.59	0.15
raymondville	Reach 8	192642	1186.00	30.57	43.20	35.91	43.31	0.000407	2.66	445.53	60.53	0.17
raymondville	Reach 8	192642	1705.00	30.57	44.54	37.02	44.70	0.000529	3.22	529.79	65.87	0.20
raymondville	Reach 8	192642	4264.00	30.57	48.37	40.66	48.80	0.001058	5.25	812.01	81.22	0.29
raymondville	Reach 8	191137	624.00	30.12	40.29		40.32	0.000305	2.03	307.06	50.56	0.15
raymondville	Reach 8	191137	1186.00	30.12	42.56		42.68	0.000436	2.73	434.12	59.77	0.18
raymondville	Reach 8	191137	1705.00	30.12	43.66		43.84	0.000610	3.39	502.29	64.17	0.21
raymondville	Reach 8	191137	4264.00	30.12	46.17		46.79	0.001729	6.31	675.49	74.19	0.37
raymondville	Reach 8	188680	624.00	29.38	39.51		39.57	0.000306	2.04	309.17	110.58	0.15
raymondville	Reach 8	188680	1186.00	29.38	42.04		42.06	0.000152	1.65	1374.68	668.04	0.11
raymondville	Reach 8	188680	1705.00	29.38	43.28		43.29	0.000101	1.47	2373.72	933.00	0.09
raymondville	Reach 8	188680	4264.00	29.38	46.08		46.09	0.000077	1.55	5603.26	1372.47	0.08
raymondville	Reach 8	187150	624.00	28.92	39.04		39.11	0.000307	2.04	306.15	50.50	0.15
raymondville	Reach 8	187150	1186.00	28.92	41.59		41.70	0.000401	2.65	447.66	60.70	0.17
raymondville	Reach 8	187150	1705.00	28.92	42.82		42.98	0.000541	3.25	525.28	65.60	0.20
raymondville	Reach 8	187150	4264.00	28.92	45.44		45.77	0.001002	5.05	1352.53	639.94	0.28
raymondville	Reach 8	187100	624.00	28.91	39.02		39.09	0.000308	2.04	305.84	50.47	0.15
raymondville	Reach 8	187100	1186.00	28.91	41.57		41.68	0.000403	2.65	447.22	60.65	0.17
raymondville	Reach 8	187100	1705.00	28.91	42.79		42.95	0.000544	3.25	524.11	65.53	0.20
raymondville	Reach 8	187100	4264.00	28.91	45.37		45.72	0.001045	5.14	1312.91	631.80	0.29
raymondville	Reach 8	184550	624.00	28.14	36.24		36.30	0.000311	2.05	304.89	50.98	0.15
raymondville	Reach 8	184550	1186.00	28.14	41.21		41.23	0.000091	1.35	2111.90	1339.29	0.08
raymondville	Reach 8	184550	1705.00	28.14	42.66		42.67	0.000037	0.96	4630.82	2072.46	0.05
raymondville	Reach 8	184550	4264.00	28.14	45.44		45.45	0.000022	0.89	11735.02	3153.06	0.04
raymondville	Reach 8	184500	624.00	28.13	38.22		38.29	0.000311	2.05	304.59	50.37	0.15
raymondville	Reach 8	184500	1186.00	28.13	41.20		41.22	0.000091	1.35	2105.51	1338.25	0.08

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	184500	1705.00	28.13	42.66		42.67	0.000037	0.96	4627.26	2072.00	0.05
raymondville	Reach 8	184500	4264.00	28.13	45.44		45.44	0.000022	0.89	11791.97	3152.52	0.04
raymondville	Reach 8	183033	624.00	27.66	37.73	31.48	37.80	0.000314	2.06	303.81	50.29	0.15
raymondville	Reach 8	183033	1186.00	27.66	40.89	33.00	40.98	0.000297	2.39	578.31	241.15	0.16
raymondville	Reach 8	183033	1705.00	27.66	42.47	34.11	42.54	0.000229	2.37	1155.41	470.51	0.14
raymondville	Reach 8	183033	4264.00	27.66	45.28	37.75	45.38	0.000250	2.94	3027.95	917.79	0.15
raymondville	Reach 8	181219	624.00	27.11	37.16		37.22	0.000317	2.06	302.48	50.20	0.15
raymondville	Reach 8	181219	1186.00	27.11	40.32		40.42	0.000323	2.45	511.84	181.13	0.16
raymondville	Reach 8	181219	1705.00	27.11	42.01		42.09	0.000299	2.50	1048.87	502.45	0.15
raymondville	Reach 8	181219	4264.00	27.11	44.90		44.95	0.000193	2.54	3961.59	1455.73	0.13
raymondville	Reach 8	179129	624.00	26.49	36.49		36.55	0.000325	2.08	299.87	49.99	0.15
raymondville	Reach 8	179129	1186.00	26.49	39.63		39.73	0.000338	2.48	494.11	209.76	0.16
raymondville	Reach 8	179129	1705.00	26.49	41.77		41.79	0.000081	1.42	3115.13	1916.29	0.08
raymondville	Reach 8	179129	4264.00	26.49	44.82		44.83	0.000024	0.93	10841.92	2789.88	0.05
raymondville	Reach 8	178000	624.00	26.15	36.12	29.97	36.19	0.000329	2.09	298.40	49.87	0.15
raymondville	Reach 8	178000	1186.00	26.15	39.25	31.49	39.34	0.000345	2.90	473.94	62.38	0.16
raymondville	Reach 8	178000	1705.00	26.15	41.52	32.60	41.62	0.000281	2.81	818.77	887.24	0.15
raymondville	Reach 8	178000	4264.00	26.15	44.65	36.24	44.75	0.000288	3.20	2892.14	3148.32	0.16
raymondville	Reach 8	177727	624.00	26.07	36.03	29.89	36.10	0.000330	2.09	297.91	49.84	0.15
raymondville	Reach 8	177727	1186.00	26.07	39.15	31.41	39.25	0.000346	2.51	473.06	62.33	0.16
raymondville	Reach 8	177727	1705.00	26.07	41.44	32.52	41.55	0.000286	2.63	797.65	814.12	0.15
raymondville	Reach 8	177727	4264.00	26.07	44.56	36.16	44.67	0.000297	3.24	2802.11	3073.94	0.16
raymondville	Reach 8	175705	624.00	25.46	35.35	29.28	35.42	0.000341	2.12	294.44	49.55	0.15
raymondville	Reach 8	175705	1186.00	25.46	38.44	30.80	38.54	0.000360	2.54	466.47	61.90	0.16
raymondville	Reach 8	175705	1705.00	25.46	40.82	31.91	40.93	0.000321	2.67	727.17	293.77	0.16
raymondville	Reach 8	175705	4264.00	25.46	43.97	35.55	44.07	0.000293	3.11	2730.23	939.53	0.16
raymondville	Reach 8	175125	624.00	25.28	35.15	29.10	35.22	0.000344	2.13	293.49	49.48	0.15
raymondville	Reach 8	175125	1186.00	25.28	38.22	30.83	38.39	0.000364	2.55	454.57	61.78	0.16
raymondville	Reach 8	175125	1705.00	25.28	40.63	31.73	40.74	0.000330	2.70	687.56	249.80	0.16
raymondville	Reach 8	175125	4264.00	25.28	43.76	35.36	43.89	0.000325	3.25	2563.25	910.52	0.17
raymondville	Reach 8	173785	624.00	24.88	34.67		34.74	0.000356	2.15	289.87	49.17	0.16
raymondville	Reach 8	173785	1186.00	24.88	37.72		37.82	0.000378	2.59	458.05	61.36	0.17
raymondville	Reach 8	173785	1705.00	24.88	40.17		40.29	0.000344	2.75	631.92	146.69	0.16
raymondville	Reach 8	173785	4264.00	24.88	43.15		43.34	0.000483	3.95	1943.16	785.16	0.20
raymondville	Reach 8	171741	624.00	24.27	33.93		34.00	0.000379	2.20	283.06	48.63	0.16
raymondville	Reach 8	171741	1186.00	24.27	36.93		37.03	0.000403	2.65	446.86	60.62	0.17
raymondville	Reach 8	171741	1705.00	24.27	39.45		39.57	0.000358	2.78	612.98	70.74	0.17
raymondville	Reach 8	171741	4264.00	24.27	42.51		42.59	0.000273	2.91	3453.37	1616.00	0.15
raymondville	Reach 8	171691	624.00	24.25	33.91		33.98	0.000379	2.20	283.01	48.61	0.16
raymondville	Reach 8	171691	1186.00	24.25	36.90		37.01	0.000404	2.66	446.68	60.60	0.17
raymondville	Reach 8	171691	1705.00	24.25	39.44		39.56	0.000356	2.78	612.95	70.73	0.17
raymondville	Reach 8	171691	4264.00	24.25	42.49		42.57	0.000278	2.93	3422.53	1614.05	0.15
raymondville	Reach 8	169710	624.00	23.66	33.11		33.20	0.000416	2.28	273.31	47.82	0.17
raymondville	Reach 8	169710	1186.00	23.66	36.06		36.18	0.000443	2.75	431.39	59.59	0.18
raymondville	Reach 8	169710	1705.00	23.66	38.71		38.83	0.000374	2.83	603.29	70.19	0.17
raymondville	Reach 8	169710	4264.00	23.66	41.96		42.04	0.000249	2.75	3634.48	1632.68	0.14
raymondville	Reach 8	168304	1342.00	23.63	32.55		32.65	0.000376	2.51	533.73	77.68	0.17
raymondville	Reach 8	168304	2463.00	23.63	35.36		35.54	0.000453	3.20	769.60	89.00	0.19
raymondville	Reach 8	168304	3863.00	23.63	37.93		38.16	0.000525	3.83	1009.89	99.22	0.21
raymondville	Reach 8	168304	8322.00	23.63	41.56		41.68	0.000288	3.29	8113.32	5926.09	0.16
raymondville	Reach 8	167456	1342.00	23.54	32.20		32.31	0.000419	2.61	514.08	76.66	0.18
raymondville	Reach 8	167456	2463.00	23.54	34.96		35.13	0.000505	3.33	740.50	87.69	0.20
raymondville	Reach 8	167456	3863.00	23.54	37.44		37.69	0.000586	3.99	970.46	97.62	0.22
raymondville	Reach 8	167456	8322.00	23.54	41.35		41.43	0.000244	3.03	8650.16	5730.63	0.15
raymondville	Reach 8	166128	1342.00	23.41	31.57		31.69	0.000522	2.82	475.89	74.63	0.20
raymondville	Reach 8	166128	2463.00	23.41	34.18		34.38	0.000629	3.60	684.58	85.09	0.22
raymondville	Reach 8	166128	3863.00	23.41	36.93		36.82	0.000733	4.32	895.13	94.47	0.25
raymondville	Reach 8	166128	8322.00	23.41	40.94		41.05	0.000329	3.46	7744.37	6000.00	0.17
raymondville	Reach 8	166078	1342.00	23.40	31.54		31.66	0.000526	2.83	474.42	74.56	0.20
raymondville	Reach 8	166078	2463.00	23.40	34.15		34.35	0.000534	3.61	682.62	85.00	0.22
raymondville	Reach 8	166078	3863.00	23.40	36.49		36.78	0.000739	4.33	892.39	94.36	0.25
raymondville	Reach 8	166078	8322.00	23.40	40.92		41.03	0.000340	3.51	7810.77	6000.00	0.18
raymondville	reach 2	184919	576.00	22.94	31.32		31.34	0.000087	1.17	492.20	75.51	0.08
raymondville	reach 2	184919	1178.00	22.94	33.87		33.92	0.000136	1.69	699.14	85.73	0.10
raymondville	reach 2	184919	1993.00	22.94	36.16		36.23	0.000189	2.20	904.51	94.87	0.13
raymondville	reach 2	184919	7931.00	22.94	40.46		40.58	0.000448	3.55	4596.53	3393.09	0.20



HEC-RAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	164431.*	578.00	22.89	31.27		31.30	0.000087	1.17	492.72	75.53	0.08
raymondville	reach 2	164431.*	1178.00	22.89	33.80		33.85	0.000137	1.69	696.51	85.64	0.10
raymondville	reach 2	164431.*	1993.00	22.89	36.06		36.13	0.000199	2.20	904.90	99.15	0.13
raymondville	reach 2	164431.*	7931.00	22.89	40.25		40.37	0.000428	3.48	4979.04	3781.27	0.19
raymondville	reach 2	163943.*	578.00	22.85	31.23		31.25	0.000087	1.17	492.69	75.55	0.08
raymondville	reach 2	163943.*	1178.00	22.85	33.74		33.78	0.000138	1.70	694.36	85.57	0.10
raymondville	reach 2	163943.*	1993.00	22.85	35.98		36.04	0.000199	2.22	895.88	98.47	0.13
raymondville	reach 2	163943.*	7931.00	22.85	40.09		40.17	0.000328	2.99	5933.23	4257.39	0.17
raymondville	reach 2	163456	578.00	22.80	31.19	24.54	31.21	0.000087	1.17	493.21	75.57	0.08
raymondville	reach 2	163456	1178.00	22.80	33.67	25.56	33.71	0.000139	1.70	692.73	85.48	0.11
raymondville	reach 2	163456	1993.00	22.80	35.88	26.65	35.94	0.000198	2.24	889.98	778.21	0.13
raymondville	reach 2	163456	7931.00	22.80	40.00	31.89	40.04	0.000217	2.34	8178.94	5350.07	0.14
raymondville	reach 2	161457	578.00	22.59	31.02		31.04	0.000085	1.18	496.33	75.73	0.08
raymondville	reach 2	161457	1178.00	22.59	33.38		33.43	0.000143	1.72	686.19	85.17	0.11
raymondville	reach 2	161457	1993.00	22.59	35.50		35.56	0.000179	2.12	1232.51	881.00	0.12
raymondville	reach 2	161457	7931.00	22.59	39.91		39.92	0.000028	0.98	13840.24	5254.47	0.05
raymondville	reach 2	159438	578.00	22.38	30.85		30.87	0.000084	1.15	499.49	75.89	0.08
raymondville	reach 2	159438	1178.00	22.38	33.08		33.13	0.000147	1.74	678.72	84.82	0.11
raymondville	reach 2	159438	1993.00	22.38	35.07		35.16	0.000221	2.33	855.31	92.77	0.14
raymondville	reach 2	159438	7931.00	22.38	39.78		39.80	0.000174	2.50	8537.12	5974.11	0.13
raymondville	reach 2	157410	578.00	22.18	30.68		30.71	0.000083	1.15	501.89	76.02	0.08
raymondville	reach 2	157410	1178.00	22.18	32.78		32.83	0.000153	1.78	689.81	84.39	0.11
raymondville	reach 2	157410	1993.00	22.18	34.80		34.89	0.000240	2.40	830.17	91.68	0.14
raymondville	reach 2	157410	7931.00	22.18	38.43		39.01	0.001231	8.27	1766.95	2220.08	0.33
raymondville	reach 2	157293.*	578.00	22.17	30.68		30.70	0.000083	1.15	501.92	76.02	0.08
raymondville	reach 2	157293.*	1178.00	22.17	32.78		32.81	0.000153	1.78	689.10	84.38	0.11
raymondville	reach 2	157293.*	1993.00	22.17	34.57		34.68	0.000242	2.41	828.24	91.60	0.14
raymondville	reach 2	157293.*	7931.00	22.17	38.32		38.85	0.001271	6.07	2061.48	2558.28	0.33
raymondville	reach 2	157176.*	578.00	22.16	30.67		30.69	0.000083	1.15	501.97	76.03	0.08
raymondville	reach 2	157176.*	1178.00	22.16	32.74		32.79	0.000154	1.78	688.41	84.33	0.11
raymondville	reach 2	157176.*	1993.00	22.16	34.54		34.63	0.000243	2.41	828.35	91.52	0.14
raymondville	reach 2	157176.*	7931.00	22.16	38.28		38.68	0.001168	5.59	2823.42	3539.01	0.32
raymondville	reach 2	157059.*	578.00	22.14	30.66		30.68	0.000082	1.15	502.72	76.06	0.08
raymondville	reach 2	157059.*	1178.00	22.14	32.72		32.77	0.000154	1.78	688.47	84.33	0.11
raymondville	reach 2	157059.*	1993.00	22.14	34.51		34.60	0.000252	2.41	828.41	94.21	0.14
raymondville	reach 2	157059.*	7931.00	22.14	38.21		38.52	0.000908	5.05	3658.23	5983.19	0.28
raymondville	reach 2	156942.*	578.00	22.13	30.65		30.67	0.000082	1.15	502.77	76.07	0.08
raymondville	reach 2	156942.*	1178.00	22.13	32.70		32.75	0.000157	1.78	688.60	85.70	0.11
raymondville	reach 2	156942.*	1993.00	22.13	34.48		34.57	0.000252	2.41	828.57	94.94	0.14
raymondville	reach 2	156942.*	7931.00	22.13	38.29		38.38	0.000341	3.27	6507.83	6000.00	0.17
raymondville	reach 2	156825	578.00	22.12	30.64		30.66	0.000082	1.15	502.80	76.07	0.08
raymondville	reach 2	156825	1178.00	22.12	32.69		32.73	0.000155	1.77	687.08	84.27	0.11
raymondville	reach 2	156825	1993.00	22.12	34.44		34.54	0.000248	2.43	821.44	91.30	0.14
raymondville	reach 2	156825	7931.00	22.12	38.29		38.33	0.000167	2.38	8829.61	6000.00	0.12
raymondville	reach 2	155106	578.00	21.94	30.49		30.51	0.000081	1.14	505.33	76.20	0.08
raymondville	reach 2	155106	1178.00	21.94	32.41		32.48	0.000160	1.79	659.39	83.90	0.11
raymondville	reach 2	155106	1993.00	21.94	33.99		34.09	0.000289	2.50	796.95	90.22	0.15
raymondville	reach 2	155106	7931.00	21.94	37.70		37.85	0.000510	4.04	4762.46	4254.39	0.21
raymondville	reach 2	153082	578.00	21.73	30.33		30.35	0.000079	1.13	508.87	76.39	0.08
raymondville	reach 2	153082	1178.00	21.73	32.08		32.13	0.000167	1.82	648.87	83.40	0.11
raymondville	reach 2	153082	1993.00	21.73	33.40		33.51	0.000305	2.61	762.54	88.68	0.16
raymondville	reach 2	153082	7931.00	21.73	37.14		37.19	0.000208	2.54	5948.19	2350.51	0.14
raymondville	reach 2	151635	578.00	21.59	30.21		30.23	0.000079	1.13	510.45	76.47	0.08
raymondville	reach 2	151635	1178.00	21.59	31.83		31.89	0.000174	1.84	640.17	82.98	0.12
raymondville	reach 2	151635	1993.00	21.59	32.93		33.05	0.000339	2.72	733.71	87.37	0.17
raymondville	reach 2	151635	7931.00	21.59	36.60		36.75	0.000498	3.99	3833.95	1820.58	0.21
raymondville	reach 2	150792	878.00	21.50	30.07		30.12	0.000188	1.73	506.98	76.29	0.12
raymondville	reach 2	150792	1632.00	21.50	31.55		31.66	0.000357	2.51	624.37	82.21	0.17
raymondville	reach 2	150792	2637.00	21.50	32.40		32.62	0.000690	3.79	695.22	85.59	0.23
raymondville	reach 2	150792	8759.00	21.50	36.05		36.24	0.000705	4.60	4392.63	3282.83	0.25
raymondville	reach 2	149670	732.00	21.30	29.90		29.93	0.000128	1.44	509.09	76.40	0.10
raymondville	reach 2	149670	1235.00	21.30	31.25		31.32	0.000212	2.00	616.29	81.82	0.13
raymondville	reach 2	149670	1728.00	21.30	31.90		32.00	0.000329	2.58	689.79	84.39	0.18
raymondville	reach 2	149670	5455.00	21.30	34.61		35.17	0.001381	5.97	913.45	95.25	0.34
raymondville	reach 2	149620	732.00	21.29	29.89		29.93	0.000128	1.44	509.37	76.41	0.10
raymondville	reach 2	149620	1235.00	21.29	31.24		31.31	0.000212	2.00	616.24	81.82	0.13
raymondville	reach 2	149620	1728.00	21.29	31.88		31.99	0.000330	2.58	689.23	84.37	0.16

HFC-DAS Plan D 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Chl El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	149820	5455.00	21.29	34.54		35.10	0.001406	6.01	907.21	94.98	0.34
raymondville	reach 2	147820	732.00	21.09	29.63		29.66	0.000132	1.45	504.30	76.15	0.10
raymondville	reach 2	147620	1235.00	21.09	31.09		31.10	0.000056	1.03	3388.26	2953.83	0.07
raymondville	reach 2	147620	1728.00	21.09	31.80		31.81	0.000034	0.83	5523.88	3027.15	0.05
raymondville	reach 2	147620	5455.00	21.09	34.84		34.84	0.000013	0.64	19213.30	5407.24	0.03
raymondville	reach 2	149820	732.00	20.88	29.38		29.39	0.000135	1.46	499.91	75.91	0.10
raymondville	reach 2	145620	1235.00	20.88	30.97		30.98	0.000062	1.09	3081.85	2664.39	0.07
raymondville	reach 2	145620	1728.00	20.88	31.73		31.74	0.000036	0.86	5359.35	3038.03	0.05
raymondville	reach 2	145620	5455.00	20.88	34.81		34.82	0.000013	0.65	19388.86	6000.00	0.03
raymondville	reach 2	142669	732.00	20.57	28.95		28.99	0.000141	1.49	492.83	75.53	0.10
raymondville	reach 2	142669	1235.00	20.57	30.64		30.70	0.000204	1.97	625.60	82.27	0.13
raymondville	reach 2	142669	1728.00	20.57	31.43		31.52	0.000301	2.50	691.88	85.42	0.15
raymondville	reach 2	142669	5455.00	20.57	34.16		34.66	0.001220	5.70	1166.07	1152.99	0.32
raymondville	reach 2	142619	732.00	20.57	28.95		28.88	0.000141	1.49	492.09	75.50	0.10
raymondville	reach 2	142619	1235.00	20.57	30.63		30.69	0.000204	1.98	624.74	82.23	0.13
raymondville	reach 2	142619	1728.00	20.57	31.41		31.51	0.000302	2.50	690.35	85.36	0.16
raymondville	reach 2	142619	5455.00	20.57	34.08		34.59	0.001275	5.79	1072.16	1063.72	0.33
raymondville	reach 2	140677	732.00	20.38	28.66		28.69	0.000147	1.51	484.76	75.11	0.10
raymondville	reach 2	140677	1235.00	20.38	30.25		30.30	0.000195	1.91	1039.64	1814.08	0.12
raymondville	reach 2	140677	1728.00	20.38	31.16		31.16	0.000111	1.51	2732.28	1905.06	0.09
raymondville	reach 2	140677	5455.00	20.38	34.22		34.23	0.000048	1.13	11391.77	4198.52	0.06
raymondville	reach 2	138658	732.00	20.17	28.35		28.39	0.000153	1.53	477.70	74.74	0.11
raymondville	reach 2	138658	1235.00	20.17	29.60		29.86	0.000241	2.09	589.80	80.50	0.14
raymondville	reach 2	138658	1728.00	20.17	30.90		30.93	0.000141	1.70	2442.73	2090.34	0.11
raymondville	reach 2	138658	5455.00	20.17	34.16		34.17	0.000022	0.85	16019.86	5297.18	0.04
raymondville	reach 2	139000	732.00	20.10	28.25		28.29	0.000156	1.54	475.32	74.81	0.11
raymondville	reach 2	139000	1235.00	20.10	29.63		29.70	0.000249	2.12	582.14	80.13	0.14
raymondville	reach 2	139000	1728.00	20.10	30.68		30.79	0.000331	2.59	666.37	84.33	0.16
raymondville	reach 2	139000	5455.00	20.10	33.76		34.06	0.000960	4.81	2692.39	4563.22	0.27
raymondville	reach 2	137950	732.00	20.10	28.24		28.28	0.000156	1.54	474.73	74.58	0.11
raymondville	reach 2	137950	1235.00	20.10	29.62		29.69	0.000251	2.13	581.11	80.06	0.14
raymondville	reach 2	137950	1728.00	20.10	30.66		30.77	0.000333	2.59	666.91	84.26	0.16
raymondville	reach 2	137950	5455.00	20.10	33.64		34.01	0.001014	5.18	2157.78	3839.61	0.29
raymondville	reach 2	136683	732.00	20.09	28.03		28.07	0.000171	1.59	459.67	73.77	0.11
raymondville	reach 2	136683	1235.00	20.09	29.27		29.34	0.000287	2.23	553.93	78.71	0.15
raymondville	reach 2	136683	1728.00	20.09	30.29		30.37	0.000284	2.37	1644.69	3575.77	0.15
raymondville	reach 2	136683	5455.00	20.09	33.83		33.83	0.000018	0.76	17852.39	5346.01	0.04
raymondville	reach 2	134669	732.00	19.96	27.72		27.75	0.000150	1.47	743.76	653.58	0.11
raymondville	reach 2	134669	1235.00	19.96	29.16		29.16	0.000038	0.85	4238.37	3659.92	0.05
raymondville	reach 2	134669	1728.00	19.96	30.28		30.28	0.000013	0.55	9923.61	5912.32	0.03
raymondville	reach 2	134669	5455.00	19.96	33.82		33.82	0.000004	0.36	31155.26	6000.00	0.02
raymondville	reach 2	132609	732.00	19.75	27.63		27.63	0.000026	0.67	2638.25	1507.72	0.04
raymondville	reach 2	132609	1235.00	19.75	29.12		29.12	0.000010	0.49	7121.31	4519.21	0.03
raymondville	reach 2	132609	1728.00	19.75	30.26		30.26	0.000006	0.40	12871.35	5850.54	0.02
raymondville	reach 2	132609	5455.00	19.75	33.81		33.81	0.000003	0.33	34119.00	6000.00	0.02
raymondville	reach 2	129500	732.00	19.43	27.53		27.54	0.000044	0.88	1834.53	1129.05	0.06
raymondville	reach 2	129500	1235.00	19.43	29.08		29.08	0.000023	0.72	4533.44	3532.09	0.04
raymondville	reach 2	129500	1728.00	19.43	30.25		30.25	0.000010	0.52	9402.47	4499.80	0.03
raymondville	reach 2	129500	5455.00	19.43	33.80		33.80	0.000005	0.44	27475.19	5377.86	0.02
raymondville	reach 2	129450	732.00	19.43	27.53		27.54	0.000045	0.88	1831.97	1128.29	0.06
raymondville	reach 2	129450	1235.00	19.43	29.08		29.08	0.000023	0.72	4529.38	3528.79	0.04
raymondville	reach 2	129450	1728.00	19.43	30.25		30.25	0.000010	0.52	9400.22	4499.55	0.03
raymondville	reach 2	129450	5455.00	19.43	33.79		33.79	0.000005	0.44	27426.28	5377.19	0.02
raymondville	reach 2	127700	732.00	19.25	27.44		27.45	0.000067	1.10	1238.43	693.11	0.07
raymondville	reach 2	127700	1235.00	19.25	29.02		29.03	0.000042	1.00	2706.02	1119.82	0.06
raymondville	reach 2	127700	1728.00	19.25	30.21		30.22	0.000035	0.99	4347.73	1914.74	0.06
raymondville	reach 2	127700	5455.00	19.25	33.78		33.78	0.000012	0.70	19450.44	4674.69	0.03
raymondville	reach 2	126465	732.00	19.12	27.32		27.34	0.000104	1.08	676.14	384.10	0.09
raymondville	reach 2	126465	1235.00	19.12	28.95		28.97	0.000075	1.11	1761.53	683.35	0.08
raymondville	reach 2	126465	1728.00	19.12	30.15		30.16	0.000060	1.12	4162.83	4279.65	0.07
raymondville	reach 2	126465	5455.00	19.12	33.77		33.77	0.000008	0.52	24292.38	6000.00	0.03
raymondville	reach 2	124374	732.00	18.91	27.18		27.19	0.000049	0.94	1847.16	1582.02	0.06
raymondville	reach 2	124374	1235.00	18.91	28.90		28.91	0.000015	0.60	5556.46	2713.19	0.04
raymondville	reach 2	124374	1728.00	18.91	30.13		30.13	0.000008	0.48	10115.33	4182.22	0.03
raymondville	reach 2	124374	5455.00	18.91	33.76		33.76	0.000005	0.46	26773.20	5566.75	0.02
raymondville	reach 2	124318	732.00	18.90	27.18		27.19	0.000053	0.81	1845.48	1581.85	0.06

HEC-DAS Plan P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cht
raymondville	reach 2	124318	1235.00	18.90	28.90		28.90	0.000015	0.53	5541.92	2711.57	0.03
raymondville	reach 2	124318	1728.00	18.90	30.12		30.12	0.000008	0.42	10100.50	4181.66	0.03
raymondville	reach 2	124318	5455.00	18.90	33.76		33.76	0.000005	0.42	26766.45	5565.88	0.02
raymondville	reach 2	122094	732.00	18.67	27.12		27.12	0.000028	0.66	2491.83	1474.36	0.05
raymondville	reach 2	122094	1235.00	18.67	28.88		28.88	0.000011	0.49	5329.66	1752.43	0.03
raymondville	reach 2	122094	1728.00	18.67	30.11		30.11	0.000009	0.48	7999.25	3622.19	0.03
raymondville	reach 2	122094	5455.00	18.67	33.76		33.76	0.000008	0.51	24361.71	5179.84	0.02
raymondville	reach 2	121688.*	732.00	18.63	27.08		27.11	0.000128	1.41	602.22	233.60	0.10
raymondville	reach 2	121688.*	1235.00	18.63	28.86		28.87	0.000059	1.09	2543.33	1497.36	0.07
raymondville	reach 2	121688.*	1728.00	18.63	30.10		30.10	0.000027	0.82	5694.40	1231.37	0.05
raymondville	reach 2	121688.*	5455.00	18.63	33.76		33.76	0.000010	0.64	20863.36	4062.34	0.03
raymondville	reach 2	121283.*	732.00	18.59	27.04		27.06	0.000123	1.39	636.88	253.83	0.10
raymondville	reach 2	121283.*	1235.00	18.59	28.81		28.84	0.000129	1.60	1510.96	1494.75	0.10
raymondville	reach 2	121283.*	1728.00	18.59	30.09		30.10	0.000048	1.05	4296.75	2822.53	0.06
raymondville	reach 2	121283.*	5455.00	18.59	33.76		33.76	0.000016	0.77	18570.72	5560.63	0.04
raymondville	reach 2	120877.*	732.00	18.55	27.00		27.02	0.000115	1.35	705.00	302.24	0.09
raymondville	reach 2	120877.*	1235.00	18.55	28.79		28.81	0.000065	1.15	2442.98	1538.24	0.07
raymondville	reach 2	120877.*	1728.00	18.55	30.09		30.09	0.000029	0.82	4986.64	2068.07	0.05
raymondville	reach 2	120877.*	5455.00	18.55	33.75		33.78	0.000015	0.72	17301.84	4856.59	0.04
raymondville	reach 2	120472.*	732.00	18.51	26.90		26.99	0.000102	1.27	968.44	891.98	0.09
raymondville	reach 2	120472.*	1235.00	18.51	28.79		28.80	0.000037	0.86	3543.90	2020.81	0.05
raymondville	reach 2	120472.*	1728.00	18.51	30.06		30.09	0.000017	0.83	6266.29	2274.93	0.04
raymondville	reach 2	120472.*	5455.00	18.51	33.75		33.78	0.000011	0.60	17209.66	3492.55	0.03
raymondville	reach 2	120067	732.00	18.47	26.95	20.51	26.96	0.000057	0.95	1590.27	1080.46	0.07
raymondville	reach 2	120067	1235.00	18.47	28.79	21.32	28.79	0.000018	0.60	4749.08	2074.19	0.04
raymondville	reach 2	120067	1728.00	18.47	30.06	21.99	30.06	0.000011	0.50	8192.86	3044.22	0.03
raymondville	reach 2	120067	5455.00	18.47	33.75	26.59	33.75	0.000007	0.48	19377.23	3051.56	0.03
raymondville	reach 2	119652.*	732.00	18.43	26.94	20.47	26.95	0.000059	0.97	1541.47	1078.75	0.07
raymondville	reach 2	119652.*	1235.00	18.43	28.78	21.28	28.79	0.000020	0.63	4611.10	2067.26	0.04
raymondville	reach 2	119652.*	1728.00	18.43	30.06	21.95	30.06	0.000012	0.53	7956.86	3044.30	0.03
raymondville	reach 2	119652.*	5455.00	18.43	33.75	26.70	33.75	0.000007	0.51	19172.59	3222.96	0.03
raymondville	reach 2	119237.*	732.00	18.38	26.92	20.42	26.93	0.000061	0.99	1499.66	1070.26	0.07
raymondville	reach 2	119237.*	1235.00	18.38	28.78	21.23	28.78	0.000021	0.66	4470.40	2055.55	0.04
raymondville	reach 2	119237.*	1728.00	18.38	30.06	21.90	30.06	0.000013	0.56	7719.79	3044.39	0.03
raymondville	reach 2	119237.*	5455.00	18.38	33.75	26.66	33.75	0.000007	0.53	20266.72	4509.86	0.03
raymondville	reach 2	118822.*	732.00	18.34	26.91	20.36	26.92	0.000081	1.01	1482.55	1014.79	0.07
raymondville	reach 2	118822.*	1235.00	18.34	28.78	21.19	28.78	0.000022	0.70	4374.37	2119.18	0.04
raymondville	reach 2	118822.*	1728.00	18.34	30.08	21.86	30.08	0.000013	0.60	7759.31	3312.09	0.03
raymondville	reach 2	118822.*	5455.00	18.34	33.75	26.62	33.75	0.000007	0.53	22975.51	5725.40	0.03
raymondville	reach 2	118407	732.00	18.30	26.89	20.34	26.90	0.000051	0.96	1570.84	1004.94	0.06
raymondville	reach 2	118407	1235.00	18.30	28.77	21.15	28.77	0.000018	0.66	4864.24	2294.90	0.04
raymondville	reach 2	118407	1728.00	18.30	30.07	21.62	30.08	0.000012	0.56	8638.84	3897.69	0.03
raymondville	reach 2	118407	5455.00	18.30	33.75	26.62	33.75	0.000005	0.48	26406.98	6000.00	0.02
raymondville	reach 2	118184.*	732.00	18.28	26.88		26.89	0.000051	0.94	1551.07	984.91	0.06
raymondville	reach 2	118184.*	1235.00	18.28	28.77		28.77	0.000018	0.65	4863.43	2312.33	0.04
raymondville	reach 2	118184.*	1728.00	18.28	30.07		30.07	0.000009	0.52	8599.85	3260.64	0.03
raymondville	reach 2	118184.*	5455.00	18.28	33.75		33.75	0.000006	0.50	24784.01	5332.89	0.02
raymondville	reach 2	117982.*	732.00	18.25	26.87		26.87	0.000053	0.94	1529.29	991.43	0.06
raymondville	reach 2	117982.*	1235.00	18.25	28.76		28.77	0.000018	0.64	4859.84	2324.94	0.04
raymondville	reach 2	117982.*	1728.00	18.25	30.07		30.07	0.000009	0.52	8602.76	3253.08	0.03
raymondville	reach 2	117982.*	5455.00	18.25	33.74		33.75	0.000006	0.50	24057.89	4799.03	0.02
raymondville	reach 2	117739.*	732.00	18.23	26.85		26.86	0.000055	0.93	1504.35	999.90	0.06
raymondville	reach 2	117739.*	1235.00	18.23	28.76		28.76	0.000018	0.64	4864.72	2426.13	0.04
raymondville	reach 2	117739.*	1728.00	18.23	30.07		30.07	0.000009	0.51	8604.75	3235.20	0.03
raymondville	reach 2	117739.*	5455.00	18.23	33.74		33.74	0.000006	0.49	23700.80	4465.38	0.02
raymondville	reach 2	117517.*	732.00	18.20	26.84		26.85	0.000058	0.93	1479.32	1015.29	0.07
raymondville	reach 2	117517.*	1235.00	18.20	28.76		28.76	0.000018	0.62	4879.05	2389.13	0.04
raymondville	reach 2	117517.*	1728.00	18.20	30.07		30.07	0.000009	0.50	8612.42	3214.05	0.03
raymondville	reach 2	117517.*	5455.00	18.20	33.74		33.74	0.000006	0.49	23503.00	4356.48	0.02
raymondville	reach 2	117295	732.00	18.18	26.82		26.83	0.000063	0.93	1453.24	1040.00	0.07
raymondville	reach 2	117295	1235.00	18.18	28.75		28.75	0.000018	0.60	4903.85	2407.05	0.04
raymondville	reach 2	117295	1728.00	18.18	30.06		30.07	0.000009	0.48	8623.19	3188.45	0.03
raymondville	reach 2	117295	5455.00	18.18	33.74		33.74	0.000006	0.48	23335.51	4311.19	0.02
raymondville	reach 2	114850	732.00	17.93	26.59		26.62	0.000125	1.43	513.63	76.64	0.10
raymondville	reach 2	114850	1235.00	17.93	28.60		28.85	0.000164	1.83	675.64	84.67	0.11
raymondville	reach 2	114850	1728.00	17.93	29.92		30.00	0.000207	2.18	791.24	89.97	0.13
raymondville	reach 2	114850	5455.00	17.93	33.69		33.70	0.000076	1.60	9198.86	4426.82	0.08



HEC-DAS Plan P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	114401.*	732.00	17.88	26.53		26.58	0.000126	1.40	524.17	81.80	0.10
raymondville	reach 2	114401.*	1235.00	17.88	28.53		28.58	0.000162	1.77	897.46	91.80	0.11
raymondville	reach 2	114401.*	1728.00	17.88	29.84		29.91	0.000202	2.10	822.00	98.42	0.13
raymondville	reach 2	114401.*	5455.00	17.88	33.67		33.68	0.000038	1.14	12732.40	4885.85	0.06
raymondville	reach 2	113953.*	732.00	17.84	26.47		26.50	0.000130	1.38	531.95	87.51	0.10
raymondville	reach 2	113953.*	1235.00	17.84	28.46		28.50	0.000165	1.72	719.86	101.14	0.11
raymondville	reach 2	113953.*	1728.00	17.84	29.75		29.82	0.000195	2.00	1002.82	956.58	0.13
raymondville	reach 2	113953.*	5455.00	17.84	33.67		33.67	0.000020	0.84	16199.66	4861.57	0.04
raymondville	reach 2	113504.*	732.00	17.79	26.41		26.44	0.000140	1.36	539.00	95.83	0.10
raymondville	reach 2	113504.*	1235.00	17.79	28.39		28.43	0.000161	1.63	856.38	824.02	0.11
raymondville	reach 2	113504.*	1728.00	17.79	29.73		29.75	0.000084	1.33	2940.18	2492.38	0.08
raymondville	reach 2	113504.*	5455.00	17.79	33.66		33.67	0.000012	0.85	19384.78	4749.23	0.03
raymondville	reach 2	113056.*	732.00	17.75	26.35		26.38	0.000161	1.34	547.99	111.42	0.11
raymondville	reach 2	113056.*	1235.00	17.75	28.37		28.39	0.000070	1.08	2330.80	1868.45	0.07
raymondville	reach 2	113056.*	1728.00	17.75	29.72		29.73	0.000029	0.79	5542.17	3127.06	0.05
raymondville	reach 2	113056.*	5455.00	17.75	33.66		33.66	0.000007	0.52	22255.82	4809.74	0.03
raymondville	reach 2	112608	732.00	17.70	26.31		26.33	0.000108	1.06	1149.72	1121.67	0.09
raymondville	reach 2	112608	1235.00	17.70	28.38		28.38	0.000024	0.84	4410.95	2428.29	0.04
raymondville	reach 2	112608	1728.00	17.70	29.71		29.71	0.000011	0.48	8184.21	3163.83	0.03
raymondville	reach 2	112608	5455.00	17.70	33.65		33.65	0.000005	0.43	24825.85	4459.42	0.02
raymondville	reach 2	112513.*	732.00	17.69	26.29		26.32	0.000156	1.32	560.99	290.85	0.10
raymondville	reach 2	112513.*	1235.00	17.69	28.34		28.35	0.000054	0.98	2720.04	1791.88	0.07
raymondville	reach 2	112513.*	1728.00	17.69	29.70		29.70	0.000022	0.70	8313.43	3251.20	0.04
raymondville	reach 2	112513.*	5455.00	17.69	33.65		33.65	0.000006	0.49	23888.29	4846.35	0.02
raymondville	reach 2	112419.*	732.00	17.69	26.27		26.30	0.000137	1.35	540.84	94.92	0.10
raymondville	reach 2	112419.*	1235.00	17.69	28.31		28.34	0.000130	1.52	1227.89	1231.77	0.10
raymondville	reach 2	112419.*	1728.00	17.69	29.69		29.70	0.000053	1.09	4256.20	3318.39	0.07
raymondville	reach 2	112419.*	5455.00	17.69	33.64		33.64	0.000008	0.54	23403.16	5453.20	0.03
raymondville	reach 2	112324.*	732.00	17.68	26.28		26.29	0.000129	1.39	526.57	84.47	0.10
raymondville	reach 2	112324.*	1235.00	17.68	28.29		28.34	0.000161	1.74	709.74	95.95	0.11
raymondville	reach 2	112324.*	1728.00	17.68	29.63		29.68	0.000141	1.79	1965.74	2757.10	0.11
raymondville	reach 2	112324.*	5455.00	17.68	33.64		33.64	0.000009	0.58	22981.72	5726.80	0.03
raymondville	reach 2	112230	732.00	17.67	26.24		26.28	0.000129	1.44	507.11	76.29	0.10
raymondville	reach 2	112230	1235.00	17.67	28.27		28.32	0.000168	1.84	669.81	84.39	0.12
raymondville	reach 2	112230	1728.00	17.67	29.58		29.66	0.000212	2.20	783.98	89.64	0.13
raymondville	reach 2	112230	5455.00	17.67	33.63		33.63	0.000010	0.61	22600.23	6000.00	0.03
raymondville	reach 2	110608	732.00	17.50	26.04		26.07	0.000131	1.45	504.65	78.17	0.10
raymondville	reach 2	110608	1235.00	17.50	28.00		28.05	0.000174	1.87	861.12	83.98	0.12
raymondville	reach 2	110608	1728.00	17.50	29.23		29.31	0.000224	2.25	788.03	88.93	0.13
raymondville	reach 2	110608	5455.00	17.50	33.61		33.61	0.000010	0.62	22518.31	6000.00	0.03
raymondville	reach 3 (south)	144530	201.00	21.30	32.27		32.27	0.000004	0.29	701.66	85.89	0.02
raymondville	reach 3 (south)	144530	343.00	21.30	34.49		34.49	0.000006	0.38	902.07	94.77	0.02
raymondville	reach 3 (south)	144530	528.00	21.30	36.56		36.56	0.000002	0.23	6503.73	3516.52	0.01
raymondville	reach 3 (south)	144530	1148.00	21.30	39.18		39.18	0.000001	0.17	15728.37	3516.52	0.01
raymondville	reach 3 (south)	144230	201.00	21.30	32.27		32.27	0.000004	0.29	701.55	85.89	0.02
raymondville	reach 3 (south)	144230	343.00	21.30	34.49		34.49	0.000006	0.38	901.91	94.76	0.02
raymondville	reach 3 (south)	144230	528.00	21.30	36.55		36.56	0.000002	0.23	6502.02	3516.52	0.01
raymondville	reach 3 (south)	144230	1148.00	21.30	39.18		39.18	0.000001	0.17	15727.64	3516.52	0.01
raymondville	reach 3 (south)	144030	201.00	26.10	32.22	27.56	32.27	0.000175	1.64	122.43	44.50	0.12
raymondville	reach 3 (south)	144030	343.00	26.10	34.42	28.19	34.48	0.000184	2.08	166.26	53.26	0.13
raymondville	reach 3 (south)	144030	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.80	61.37	0.14
raymondville	reach 3 (south)	144030	1148.00	26.10	39.12	30.77	39.17	0.000170	1.89	891.38	2554.83	0.12
raymondville	reach 3 (south)	144020	201.00	26.10	32.22	27.56	32.27	0.000175	1.64	122.42	44.50	0.12
raymondville	reach 3 (south)	144020	343.00	26.10	34.41	28.19	34.48	0.000184	2.06	166.22	53.26	0.13
raymondville	reach 3 (south)	144020	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.75	61.36	0.14
raymondville	reach 3 (south)	144020	1148.00	26.10	39.12	30.78	39.17	0.000171	1.89	887.52	2554.83	0.12
raymondville	reach 3 (south)	144005	Culvert									
raymondville	reach 3 (south)	143990	201.00	26.10	31.93	27.56	31.98	0.000206	1.72	116.60	43.33	0.13
raymondville	reach 3 (south)	143990	343.00	26.10	33.75	28.19	33.82	0.000243	2.24	152.88	50.58	0.14
raymondville	reach 3 (south)	143990	528.00	26.10	34.80	28.88	34.94	0.000375	3.04	173.96	54.81	0.18
raymondville	reach 3 (south)	143990	1148.00	26.10	35.87	30.78	36.41	0.001204	5.68	195.32	59.08	0.33
raymondville	reach 3 (south)	143980	201.00	26.10	31.95		31.96	0.000134	1.09	185.24	43.38	0.09
raymondville	reach 3 (south)	143980	343.00	26.10	33.77		33.80	0.000136	1.27	271.10	50.68	0.10
raymondville	reach 3 (south)	143980	528.00	26.10	34.85		34.89	0.000191	1.61	328.13	55.00	0.12
raymondville	reach 3 (south)	143980	1148.00	26.10	36.07		36.19	0.000534	2.89	397.91	58.86	0.20

HEC-RAS Plan R 25X 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ctl
raymondville	reach 3 (south)	141900	201.00	25.82	31.67		31.89	0.000134	1.08	185.33	43.39	0.09
raymondville	reach 3 (south)	141900	343.00	25.82	33.49		33.51	0.000138	1.27	270.94	50.87	0.10
raymondville	reach 3 (south)	141900	528.00	25.82	34.62		34.64	0.000081	1.08	2339.85	3997.98	0.08
raymondville	reach 3 (south)	141900	1148.00	25.82	36.03		36.03	0.000023	0.68	9448.70	5708.06	0.04
raymondville	reach 3 (south)	140581	201.00	25.65	31.50		31.52	0.000133	1.08	185.40	43.40	0.09
raymondville	reach 3 (south)	140581	343.00	25.65	33.32		33.34	0.000132	1.25	375.22	703.64	0.09
raymondville	reach 3 (south)	140581	528.00	25.65	34.55		34.56	0.000052	0.87	2788.45	3157.83	0.08
raymondville	reach 3 (south)	140581	1148.00	25.65	36.00		36.00	0.000021	0.63	9052.16	5278.83	0.04
raymondville	reach 3 (south)	139474	201.00	25.51	31.35		31.37	0.000134	1.09	185.05	43.36	0.09
raymondville	reach 3 (south)	139474	343.00	25.51	33.17		33.19	0.000136	1.26	299.72	394.34	0.10
raymondville	reach 3 (south)	139474	528.00	25.51	34.48		34.49	0.000057	0.91	2539.83	3005.27	0.08
raymondville	reach 3 (south)	139474	1148.00	25.51	35.97		35.98	0.000022	0.65	8894.31	5245.19	0.04
raymondville	reach 3 (south)	138078	201.00	25.32	31.15		31.17	0.000135	1.09	184.72	43.33	0.09
raymondville	reach 3 (south)	138078	343.00	25.32	32.96		32.99	0.000138	1.27	269.79	50.58	0.10
raymondville	reach 3 (south)	138078	528.00	25.32	34.39		34.40	0.000064	0.97	2266.70	2807.47	0.07
raymondville	reach 3 (south)	138078	1148.00	25.32	35.94		35.94	0.000023	0.66	8703.71	5201.02	0.04
raymondville	reach 3 (south)	138028	201.00	25.14	30.98		30.97	0.000138	1.09	183.98	43.28	0.09
raymondville	reach 3 (south)	138028	343.00	25.14	32.78		32.79	0.000140	1.28	268.53	50.48	0.10
raymondville	reach 3 (south)	138028	528.00	25.14	34.28		34.29	0.000073	1.04	1990.56	2581.86	0.07
raymondville	reach 3 (south)	138028	1148.00	25.14	35.90		35.90	0.000023	0.68	8526.54	5158.88	0.04
raymondville	reach 3 (south)	136820	201.00	24.98	30.78		30.78	0.000138	1.10	183.17	43.18	0.09
raymondville	reach 3 (south)	136820	343.00	24.98	32.58		32.58	0.000141	1.28	267.22	50.38	0.10
raymondville	reach 3 (south)	136820	528.00	24.98	34.18		34.17	0.000098	1.19	1423.12	1906.06	0.08
raymondville	reach 3 (south)	136820	1148.00	24.98	35.88		35.88	0.000031	0.77	7350.23	4901.88	0.05
raymondville	reach 3 (south)	135048	201.00	24.75	30.55		30.57	0.000138	1.10	183.24	43.20	0.09
raymondville	reach 3 (south)	135048	343.00	24.75	32.33		32.36	0.000142	1.29	266.88	50.34	0.10
raymondville	reach 3 (south)	135048	528.00	24.75	33.99		34.01	0.000117	1.30	1027.73	1421.10	0.09
raymondville	reach 3 (south)	135048	1148.00	24.75	35.79		35.80	0.000043	0.90	5787.27	3790.35	0.06
raymondville	reach 3 (south)	133745	201.00	24.58	30.38		30.38	0.000140	1.10	182.33	43.12	0.09
raymondville	reach 3 (south)	133745	343.00	24.58	32.15		32.17	0.000144	1.29	265.83	50.27	0.10
raymondville	reach 3 (south)	133745	528.00	24.58	33.82		33.85	0.000129	1.36	821.81	1191.47	0.10
raymondville	reach 3 (south)	133745	1148.00	24.58	35.73		35.74	0.000048	0.93	5555.42	3709.05	0.06
raymondville	reach 3 (south)	132244	201.00	24.39	30.14		30.16	0.000142	1.11	181.18	43.00	0.10
raymondville	reach 3 (south)	132244	343.00	24.39	31.92		31.95	0.000148	1.30	284.18	50.13	0.10
raymondville	reach 3 (south)	132244	528.00	24.39	33.61		33.64	0.000149	1.43	813.72	901.09	0.10
raymondville	reach 3 (south)	132244	1148.00	24.39	35.87		35.87	0.000044	0.91	6176.85	4873.54	0.06
raymondville	reach 3 (south)	130592	201.00	24.17	29.91		29.93	0.000143	1.11	180.74	42.98	0.10
raymondville	reach 3 (south)	130592	343.00	24.17	31.69		31.71	0.000147	1.30	283.38	50.07	0.10
raymondville	reach 3 (south)	130592	528.00	24.17	33.37		33.40	0.000158	1.50	353.12	58.79	0.11
raymondville	reach 3 (south)	130592	1148.00	24.17	35.62		35.62	0.000027	0.75	8955.08	6500.00	0.05
raymondville	reach 3 (south)	129120	201.00	23.98	29.70		29.72	0.000145	1.12	179.78	42.87	0.10
raymondville	reach 3 (south)	129120	343.00	23.98	31.47		31.49	0.000149	1.31	281.91	49.85	0.10
raymondville	reach 3 (south)	129120	528.00	23.98	33.13		33.17	0.000159	1.51	350.59	58.81	0.11
raymondville	reach 3 (south)	129120	1148.00	23.98	35.57		35.58	0.000028	0.78	8651.49	6500.00	0.05
raymondville	reach 3 (south)	127894	201.00	23.79	29.49		29.51	0.000148	1.12	178.79	42.78	0.10
raymondville	reach 3 (south)	127894	343.00	23.79	31.25		31.28	0.000152	1.32	280.47	49.84	0.10
raymondville	reach 3 (south)	127894	528.00	23.79	32.90		32.93	0.000163	1.52	348.07	58.43	0.11
raymondville	reach 3 (south)	127894	1148.00	23.79	35.52		35.53	0.000031	0.81	8348.05	6500.00	0.05
raymondville	reach 3 (south)	126200	201.00	23.60	29.28		29.28	0.000151	1.13	177.99	42.85	0.10
raymondville	reach 3 (south)	126200	343.00	23.60	31.02		31.05	0.000155	1.33	258.53	49.88	0.10
raymondville	reach 3 (south)	126200	528.00	23.60	32.65		32.69	0.000187	1.53	344.81	58.21	0.11
raymondville	reach 3 (south)	126200	1148.00	23.60	35.48		35.48	0.000033	0.84	8044.78	6500.00	0.05
raymondville	reach 3 (south)	126152	201.00	23.59	29.26		29.28	0.000151	1.13	177.49	42.86	0.10
raymondville	reach 3 (south)	126152	343.00	23.59	31.01		31.04	0.000155	1.33	258.84	49.89	0.10
raymondville	reach 3 (south)	126152	528.00	23.59	32.84		32.88	0.000167	1.53	345.00	58.21	0.11
raymondville	reach 3 (south)	126152	1148.00	23.59	35.47		35.48	0.000033	0.84	8034.34	6500.00	0.05
raymondville	reach 3 (south)	124435	201.00	23.37	28.99		29.01	0.000155	1.14	175.87	42.49	0.10
raymondville	reach 3 (south)	124435	343.00	23.37	30.74		30.77	0.000159	1.34	258.18	49.49	0.10
raymondville	reach 3 (south)	124435	528.00	23.37	32.35		32.39	0.000172	1.55	341.00	55.93	0.11
raymondville	reach 3 (south)	124435	1148.00	23.37	35.42		35.42	0.000036	0.88	7885.91	6500.00	0.05
raymondville	reach 3 (south)	123138	201.00	23.20	28.79		28.81	0.000159	1.15	174.24	42.35	0.10
raymondville	reach 3 (south)	123138	343.00	23.20	30.53		30.56	0.000182	1.35	254.27	49.34	0.10
raymondville	reach 3 (south)	123138	528.00	23.20	32.13		32.16	0.000176	1.56	337.84	55.70	0.11
raymondville	reach 3 (south)	123138	1148.00	23.20	35.38		35.37	0.000039	0.92	7334.50	6500.00	0.06
raymondville	reach 3 (south)	121829	201.00	23.01	28.54		28.58	0.000168	1.17	171.57	42.10	0.10
raymondville	reach 3 (south)	121829	343.00	23.01	30.28		30.31	0.000168	1.37	251.00	49.07	0.11
raymondville	reach 3 (south)	121829	528.00	23.01	31.84		31.88	0.000184	1.59	332.73	55.33	0.11

HFC-DAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	121629	1148.00	23.01	35.29		35.30	0.000044	0.97	8883.58	8500.00	0.06
raymondville	reach 3 (south)	120128	201.00	22.81	28.28		28.30	0.000172	1.19	189.34	41.89	0.10
raymondville	reach 3 (south)	120128	343.00	22.81	30.02		30.05	0.000173	1.38	248.24	48.85	0.11
raymondville	reach 3 (south)	120128	528.00	22.81	31.56		31.60	0.000191	1.61	328.22	55.01	0.12
raymondville	reach 3 (south)	120128	1148.00	22.81	35.22		35.23	0.000049	1.03	6433.44	8500.00	0.06
raymondville	reach 3 (south)	120078	201.00	22.80	28.27		28.30	0.000172	1.19	189.39	41.89	0.10
raymondville	reach 3 (south)	120078	343.00	22.80	30.01		30.04	0.000173	1.38	248.30	48.85	0.11
raymondville	reach 3 (south)	120078	528.00	22.80	31.55		31.59	0.000191	1.61	328.24	55.01	0.12
raymondville	reach 3 (south)	120078	1148.00	22.80	35.22		35.23	0.000049	1.03	6418.96	8500.00	0.06
raymondville	reach 3 (south)	118101	201.00	22.55	27.92		27.94	0.000184	1.22	165.08	41.48	0.11
raymondville	reach 3 (south)	118101	343.00	22.55	29.68		29.69	0.000183	1.41	243.21	48.43	0.11
raymondville	reach 3 (south)	118101	528.00	22.55	31.16		31.20	0.000204	1.65	320.40	54.44	0.12
raymondville	reach 3 (south)	118101	1148.00	22.55	35.11		35.12	0.000059	1.13	5717.63	8500.00	0.07
raymondville	reach 3 (south)	118051	201.00	22.54	27.91		27.93	0.000184	1.22	165.09	41.48	0.11
raymondville	reach 3 (south)	118051	343.00	22.54	29.65		29.68	0.000183	1.41	243.25	48.44	0.11
raymondville	reach 3 (south)	118051	528.00	22.54	31.15		31.19	0.000204	1.65	320.38	54.43	0.12
raymondville	reach 3 (south)	118051	1148.00	22.54	35.10		35.12	0.000059	1.14	5697.91	8500.00	0.07
raymondville	reach 3 (south)	118902	201.00	22.39	27.69		27.72	0.000193	1.24	162.30	41.21	0.11
raymondville	reach 3 (south)	118902	343.00	22.39	29.43		29.47	0.000190	1.43	240.11	48.18	0.11
raymondville	reach 3 (south)	118902	528.00	22.39	30.91		30.95	0.000213	1.67	315.46	54.07	0.12
raymondville	reach 3 (south)	118902	1148.00	22.39	35.03		35.04	0.000067	1.21	5217.92	8500.00	0.07
raymondville	reach 3 (south)	114880	201.00	22.13	27.27		27.30	0.000218	1.29	155.61	40.56	0.12
raymondville	reach 3 (south)	114880	343.00	22.13	29.04		29.07	0.000205	1.47	233.47	47.82	0.12
raymondville	reach 3 (south)	114880	528.00	22.13	30.45		30.50	0.000234	1.73	304.78	53.28	0.13
raymondville	reach 3 (south)	114880	1148.00	22.13	34.85		34.87	0.000104	1.50	2682.69	2554.83	0.09
raymondville	reach 3 (south)	119007	201.00	21.88	26.84		26.86	0.000249	1.36	148.22	39.82	0.12
raymondville	reach 3 (south)	119007	343.00	21.88	28.64		28.67	0.000223	1.51	226.45	47.03	0.12
raymondville	reach 3 (south)	119007	528.00	21.88	29.99		30.04	0.000259	1.80	293.73	52.44	0.13
raymondville	reach 3 (south)	119007	1148.00	21.88	34.55		34.61	0.000197	2.00	574.41	70.68	0.12
raymondville	reach 3 (south)	112058	201.00	21.76	26.59		26.62	0.000275	1.40	143.08	39.30	0.13
raymondville	reach 3 (south)	112058	343.00	21.76	28.42		28.45	0.000236	1.55	221.80	46.63	0.12
raymondville	reach 3 (south)	112058	528.00	21.76	29.73		29.79	0.000277	1.84	286.63	51.89	0.14
raymondville	reach 3 (south)	112058	1148.00	21.76	34.36		34.42	0.000202	2.02	569.44	70.40	0.12
raymondville	reach 3 (south)	112008	201.00	21.75	26.57		26.60	0.000276	1.41	142.90	39.28	0.13
raymondville	reach 3 (south)	112008	343.00	21.75	28.41		28.44	0.000237	1.55	221.70	46.62	0.13
raymondville	reach 3 (south)	112008	528.00	21.75	29.72		29.77	0.000277	1.84	286.41	51.88	0.14
raymondville	reach 3 (south)	112008	1148.00	21.75	34.35		34.41	0.000202	2.02	569.43	70.39	0.12
raymondville	reach 3 (south)	110270	201.00	21.53	26.02		26.06	0.000360	1.55	130.08	37.96	0.15
raymondville	reach 3 (south)	110270	343.00	21.53	27.96		28.00	0.000270	1.62	211.43	45.73	0.13
raymondville	reach 3 (south)	110270	528.00	21.53	29.19		29.25	0.000323	1.95	270.71	50.65	0.15
raymondville	reach 3 (south)	110270	1148.00	21.53	33.99		34.05	0.000212	2.05	559.47	69.83	0.13
raymondville	reach 1	109185	861.00	17.51	25.84		25.87	0.000143	1.51	570.85	87.37	0.10
raymondville	reach 1	109185	1382.00	17.51	27.75		27.80	0.000171	1.86	744.69	94.99	0.12
raymondville	reach 1	109185	1940.00	17.51	28.91		28.98	0.000226	2.26	857.53	99.63	0.14
raymondville	reach 1	109185	5581.00	17.51	33.27		33.54	0.000542	4.19	1330.39	117.09	0.22
raymondville	reach 1	109050	861.00	17.49	25.82		25.86	0.000143	1.51	570.91	87.37	0.10
raymondville	reach 1	109050	1382.00	17.49	27.72		27.78	0.000171	1.86	744.38	94.98	0.12
raymondville	reach 1	109050	1940.00	17.49	28.87		28.95	0.000226	2.27	856.46	99.59	0.14
raymondville	reach 1	109050	5581.00	17.49	33.19		33.47	0.000550	4.22	1323.75	116.86	0.22
raymondville	reach 1	108145	861.00	17.35	25.76		25.80	0.000138	1.49	578.16	87.70	0.10
raymondville	reach 1	108145	1382.00	17.35	27.65		27.71	0.000167	1.84	751.08	95.26	0.12
raymondville	reach 1	108145	1940.00	17.35	28.78		28.86	0.000223	2.25	861.08	99.77	0.14
raymondville	reach 1	108145	5581.00	17.35	32.93		33.20	0.000782	4.24	1353.07	127.58	0.25
raymondville	reach 1	107740	861.00	17.35	25.71		25.74	0.000141	1.50	573.14	87.47	0.10
raymondville	reach 1	107740	1382.00	17.35	27.58		27.64	0.000171	1.86	744.46	94.98	0.12
raymondville	reach 1	107740	1940.00	17.35	28.69		28.77	0.000230	2.28	851.76	99.40	0.14
raymondville	reach 1	107740	5581.00	17.35	32.63		32.92	0.000611	4.38	1274.24	115.15	0.23
raymondville	reach 1	106578	861.00	17.16	25.54	19.40	25.58	0.000140	1.50	575.49	87.58	0.10
raymondville	reach 1	106578	1382.00	17.16	27.38	20.08	27.44	0.000172	1.86	743.55	94.94	0.12
raymondville	reach 1	106578	1940.00	17.16	28.42	20.71	28.50	0.000236	2.30	843.61	99.07	0.14
raymondville	reach 1	106578	5581.00	17.16	31.82	23.75	32.15	0.000716	4.64	1203.98	112.68	0.25
raymondville	reach 1	106370	861.00	17.13	25.51	19.36	25.55	0.000137	1.47	583.93	89.74	0.10
raymondville	reach 1	106370	1382.00	17.13	27.35	20.05	27.40	0.000168	1.83	755.87	97.61	0.12
raymondville	reach 1	106370	1940.00	17.13	28.37	20.67	28.45	0.000231	2.26	857.54	101.97	0.14
raymondville	reach 1	106370	5581.00	17.13	31.68	23.73	32.00	0.000712	4.58	1218.21	116.14	0.25
raymondville	reach 1	105922.*	861.00	17.06	25.45	19.29	25.49	0.000137	1.46	582.45	89.21	0.10

HEC-DAS Plan: P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	105922.*	1382.00	17.06	27.27	19.99	27.32	0.000170	1.84	751.88	96.87	0.12
raymondville	reach 1	105922.*	1940.00	17.06	28.28	20.61	28.34	0.000238	2.28	849.03	101.01	0.14
raymondville	reach 1	105922.*	5581.00	17.06	31.32	23.68	31.68	0.000787	4.73	1179.15	115.54	0.28
raymondville	reach 1	105474.*	861.00	16.99	25.39	19.22	25.43	0.000137	1.48	581.11	86.70	0.10
raymondville	reach 1	105474.*	1382.00	16.99	27.19	19.91	27.25	0.000171	1.85	747.89	96.15	0.12
raymondville	reach 1	105474.*	1940.00	16.99	28.14	20.54	28.22	0.000241	2.31	840.81	100.08	0.14
raymondville	reach 1	105474.*	5581.00	16.99	30.91	23.80	31.29	0.000875	4.92	1135.04	113.83	0.27
raymondville	reach 1	105026.*	861.00	16.91	25.33	19.14	25.36	0.000137	1.48	580.59	88.23	0.10
raymondville	reach 1	105026.*	1382.00	16.91	27.12	19.83	27.17	0.000172	1.86	744.83	95.49	0.12
raymondville	reach 1	105026.*	1940.00	16.91	28.03	20.48	28.11	0.000248	2.33	833.81	99.21	0.14
raymondville	reach 1	105026.*	5581.00	16.91	30.47	23.52	30.88	0.000959	5.13	1087.58	109.18	0.29
raymondville	reach 1	104578	861.00	16.84	25.27	19.07	25.30	0.000137	1.49	579.52	87.78	0.10
raymondville	reach 1	104578	1382.00	16.84	27.04	19.78	27.09	0.000174	1.86	741.05	94.84	0.12
raymondville	reach 1	104578	1940.00	16.84	27.92	20.39	28.00	0.000251	2.35	825.97	98.38	0.14
raymondville	reach 1	104578	5581.00	16.84	29.96	23.45	30.41	0.001094	5.39	1035.83	108.54	0.30
raymondville	reach 1	102128	861.00	16.43	24.94		24.97	0.000132	1.47	586.63	88.09	0.10
raymondville	reach 1	102128	1382.00	16.43	26.73		26.75	0.000109	1.32	1799.38	1091.37	0.09
raymondville	reach 1	102128	1940.00	16.43	27.63		27.64	0.000877	1.29	2908.68	1388.37	0.08
raymondville	reach 1	102128	5581.00	16.43	29.57		29.58	0.000128	1.82	7880.15	3391.29	0.11
raymondville	reach 1	100615	861.00	16.19	24.76	18.41	24.79	0.000112	1.32	653.86	103.97	0.09
raymondville	reach 1	100615	1382.00	16.19	26.58	19.08	26.80	0.000098	1.38	1715.80	999.80	0.08
raymondville	reach 1	100615	1940.00	16.19	27.50	19.70	27.52	0.000078	1.39	2962.54	1859.42	0.08
raymondville	reach 1	100615	5581.00	16.19	29.39	22.80	29.42	0.000104	1.82	8208.27	3502.10	0.10
raymondville	reach 1	100117	861.00	16.10	24.69	18.33	24.73	0.000127	1.45	594.10	89.42	0.10
raymondville	reach 1	100117	1382.00	16.10	26.52	19.02	26.55	0.000124	1.40	1553.75	890.83	0.10
raymondville	reach 1	100117	1940.00	16.10	27.45	19.85	27.47	0.000107	1.42	2505.56	1248.84	0.09
raymondville	reach 1	100117	5581.00	16.10	29.34	22.71	29.38	0.000142	1.91	8815.72	5833.34	0.11
raymondville	reach 1	98117	861.00	15.78	24.45		24.48	0.000123	1.43	601.08	88.74	0.10
raymondville	reach 1	98117	1382.00	15.78	26.40		26.41	0.000042	0.82	4340.50	3518.90	0.06
raymondville	reach 1	98117	1940.00	15.78	27.38		27.38	0.000018	0.60	8120.82	4387.05	0.04
raymondville	reach 1	98117	5581.00	15.78	29.28		29.28	0.000019	0.70	17627.24	5501.21	0.04
raymondville	reach 1	98117	861.00	15.45	24.21		24.24	0.000119	1.41	608.98	89.09	0.10
raymondville	reach 1	98117	1382.00	15.45	26.24		26.27	0.000148	1.35	1740.39	1973.84	0.10
raymondville	reach 1	98117	1940.00	15.45	27.32		27.33	0.000069	1.05	4426.89	3582.71	0.07
raymondville	reach 1	98117	5581.00	15.45	29.23		29.23	0.000047	1.03	12720.04	5527.92	0.06
raymondville	reach 1	95341	861.00	15.32	24.14		24.16	0.000093	1.19	721.16	115.89	0.08
raymondville	reach 1	95341	1382.00	15.32	26.14		26.17	0.000109	1.31	1423.98	1381.98	0.09
raymondville	reach 1	95341	1940.00	15.32	27.25		27.27	0.000078	1.22	3498.15	3257.55	0.08
raymondville	reach 1	95341	5581.00	15.32	29.18		29.19	0.000057	1.23	12071.49	5853.33	0.07
raymondville	reach 1	94117	861.00	15.12	24.00		24.03	0.000113	1.39	619.84	89.58	0.09
raymondville	reach 1	94117	1382.00	15.12	25.97		26.01	0.000154	1.56	1092.23	487.09	0.11
raymondville	reach 1	94117	1940.00	15.12	27.12		27.15	0.000124	1.58	2433.23	2026.57	0.10
raymondville	reach 1	94117	5581.00	15.12	29.06		29.08	0.000150	2.00	8142.28	5169.81	0.11
raymondville	reach 1	92117	861.00	14.79	23.79	17.02	23.82	0.000107	1.37	630.17	90.04	0.09
raymondville	reach 1	92117	1382.00	14.79	25.84	17.71	25.88	0.000178	1.85	908.78	323.43	0.12
raymondville	reach 1	92117	1940.00	14.79	26.82	18.34	26.87	0.000182	1.77	1524.18	672.79	0.11
raymondville	reach 1	92117	5581.00	14.79	28.54	21.40	28.63	0.000360	3.02	3950.53	2108.89	0.18
raymondville	reach 1	90057	861.00	14.45	23.57		23.60	0.000102	1.34	641.46	90.54	0.09
raymondville	reach 1	90057	1382.00	14.45	25.25		25.30	0.000198	1.70	880.99	443.85	0.12
raymondville	reach 1	90057	1940.00	14.45	26.52		26.55	0.000138	1.81	2307.31	2071.39	0.10
raymondville	reach 1	90057	5581.00	14.45	28.13		28.16	0.000149	1.91	8099.78	4846.01	0.11
raymondville	reach 1	90018	861.00	14.45	23.57		23.60	0.000102	1.34	641.10	90.52	0.09
raymondville	reach 1	90018	1382.00	14.45	25.25		25.29	0.000197	1.70	877.51	442.10	0.12
raymondville	reach 1	90018	1940.00	14.45	26.52		26.55	0.000139	1.62	2293.44	2069.40	0.11
raymondville	reach 1	90018	5581.00	14.45	28.12		28.15	0.000151	1.92	8067.84	4845.37	0.11
raymondville	reach 1	88117	861.00	14.14	23.38		23.41	0.000097	1.32	652.09	91.01	0.09
raymondville	reach 1	88117	1382.00	14.14	24.93		24.98	0.000141	1.73	797.93	97.21	0.11
raymondville	reach 1	88117	1940.00	14.14	26.23		26.27	0.000158	1.71	2457.84	4245.50	0.11
raymondville	reach 1	88117	5581.00	14.14	27.94		27.95	0.000080	1.40	10993.65	5810.39	0.08
raymondville	reach 1	86117	1373.00	13.81	23.01		23.08	0.000251	2.12	648.73	90.88	0.14
raymondville	reach 1	86117	2192.00	13.81	24.36		24.49	0.000384	2.83	775.01	96.28	0.18
raymondville	reach 1	86117	3161.00	13.81	25.72	18.53	25.78	0.000329	2.39	3135.89	3309.58	0.16
raymondville	reach 1	86117	7345.00	13.81	27.78		27.79	0.000078	1.39	13718.07	6000.00	0.08
raymondville	reach 1	84790	1373.00	13.59	22.67		22.74	0.000281	2.13	643.55	91.75	0.14
raymondville	reach 1	84790	2192.00	13.59	23.82		23.95	0.000428	2.92	751.46	96.52	0.18
raymondville	reach 1	84790	3161.00	13.59	24.98		25.19	0.000589	3.65	866.73	101.38	0.22
raymondville	reach 1	84790	7345.00	13.59	26.87	21.35	27.43	0.001843	7.00	1217.29	2130.45	0.40

HEC-RAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	84693.8*	1373.00	13.57	22.85		22.72	0.000265	2.13	645.33	93.85	0.14
raymondville	reach 1	84693.8*	2192.00	13.57	23.77		23.90	0.000435	2.91	754.18	99.38	0.19
raymondville	reach 1	84693.8*	3161.00	13.57	24.92		25.13	0.000602	3.63	871.89	105.04	0.22
raymondville	reach 1	84693.8*	7345.00	13.57	26.50	21.34	27.24	0.001891	6.94	1363.28	2831.90	0.40
raymondville	reach 1	84597.7*	1373.00	13.58	22.82		22.89	0.000272	2.13	643.71	95.21	0.14
raymondville	reach 1	84597.7*	2192.00	13.58	23.73		23.86	0.000451	2.91	752.78	101.83	0.19
raymondville	reach 1	84597.7*	3161.00	13.58	24.88		25.08	0.000627	3.63	871.64	108.57	0.23
raymondville	reach 1	84597.7*	7345.00	13.58	26.33	21.33	27.05	0.001953	6.88	1558.03	3512.76	0.41
raymondville	reach 1	84501.5*	1373.00	13.54	22.59		22.68	0.000277	2.14	640.31	95.19	0.15
raymondville	reach 1	84501.5*	2192.00	13.54	23.88		23.81	0.000489	2.93	748.27	103.41	0.19
raymondville	reach 1	84501.5*	3161.00	13.54	24.79		24.99	0.000661	3.64	867.51	111.78	0.23
raymondville	reach 1	84501.5*	7345.00	13.54	26.20	21.30	26.85	0.001927	6.67	1976.01	4307.10	0.40
raymondville	reach 1	84405.4*	1373.00	13.53	22.57		22.64	0.000274	2.16	635.90	92.52	0.15
raymondville	reach 1	84405.4*	2192.00	13.53	23.63		23.77	0.000487	2.96	740.49	103.44	0.19
raymondville	reach 1	84405.4*	3161.00	13.53	24.71		24.92	0.000708	3.68	858.00	114.46	0.24
raymondville	reach 1	84405.4*	7345.00	13.53	26.18		26.62	0.001540	5.85	2922.82	4335.12	0.36
raymondville	reach 1	84309.2*	1373.00	13.51	22.54		22.61	0.000289	2.16	634.30	90.48	0.14
raymondville	reach 1	84309.2*	2192.00	13.51	23.59		23.73	0.000481	2.99	732.28	99.40	0.19
raymondville	reach 1	84309.2*	3161.00	13.51	24.64		24.85	0.000758	3.74	845.07	115.99	0.24
raymondville	reach 1	84309.2*	7345.00	13.51	26.16		26.44	0.001159	4.97	3872.64	4352.82	0.31
raymondville	reach 1	84213.1*	1373.00	13.50	22.51		22.59	0.000271	2.17	632.30	90.28	0.14
raymondville	reach 1	84213.1*	2192.00	13.50	23.54		23.68	0.000462	3.01	727.23	94.41	0.19
raymondville	reach 1	84213.1*	3161.00	13.50	24.58		24.79	0.000772	3.81	828.60	111.53	0.25
raymondville	reach 1	84213.1*	7345.00	13.50	26.13		26.32	0.000959	4.40	4745.71	5434.52	0.28
raymondville	reach 1	84117	1373.00	13.48	22.49		22.56	0.000272	2.18	631.06	90.08	0.14
raymondville	reach 1	84117	2192.00	13.48	23.50		23.64	0.000467	3.03	723.93	94.11	0.19
raymondville	reach 1	84117	3161.00	13.48	24.49		24.72	0.000683	3.86	819.00	98.07	0.24
raymondville	reach 1	84117	7345.00	13.48	26.10		26.21	0.000727	3.73	5774.11	6000.00	0.24
raymondville	reach 1	83817.*	1373.00	13.40	22.34		22.42	0.000282	2.20	624.84	90.46	0.15
raymondville	reach 1	83817.*	2192.00	13.40	23.25		23.40	0.000503	3.09	708.38	94.58	0.20
raymondville	reach 1	83817.*	3161.00	13.40	24.06		24.29	0.001067	3.94	871.76	547.45	0.28
raymondville	reach 1	83817.*	7345.00	13.40	25.72		25.85	0.000728	3.82	5273.55	4437.20	0.24
raymondville	reach 1	83117.*	1373.00	13.31	22.19		22.27	0.000295	2.21	619.98	91.88	0.15
raymondville	reach 1	83117.*	2192.00	13.31	22.96		23.10	0.000716	3.08	789.67	428.41	0.23
raymondville	reach 1	83117.*	3161.00	13.31	23.58		23.79	0.000928	3.74	1173.98	892.11	0.26
raymondville	reach 1	83117.*	7345.00	13.31	25.35		25.49	0.000738	3.94	4920.85	4416.68	0.25
raymondville	reach 1	82617.*	1373.00	13.23	22.04		22.10	0.000355	2.07	793.36	509.16	0.16
raymondville	reach 1	82617.*	2192.00	13.23	22.70		22.79	0.000499	2.86	1174.06	650.49	0.19
raymondville	reach 1	82617.*	3161.00	13.23	23.28		23.39	0.000628	3.17	1691.47	1088.78	0.22
raymondville	reach 1	82617.*	7345.00	13.23	25.00		25.13	0.000683	3.87	4648.21	4411.05	0.24
raymondville	reach 1	82117	1373.00	13.15	21.93		21.96	0.000196	1.63	1272.37	645.86	0.12
raymondville	reach 1	82117	2192.00	13.15	22.54		22.59	0.000293	2.13	1808.42	1064.42	0.15
raymondville	reach 1	82117	3161.00	13.15	23.05		23.12	0.000384	2.57	2381.52	1339.66	0.17
raymondville	reach 1	82117	7345.00	13.15	24.79		24.86	0.000393	3.03	5446.36	2277.02	0.18
raymondville	reach 1	80117	1373.00	12.82	21.70		21.71	0.000084	0.98	3371.05	3096.58	0.08
raymondville	reach 1	80117	2192.00	12.82	22.31		22.32	0.000074	0.99	5532.56	4007.95	0.07
raymondville	reach 1	80117	3161.00	12.82	22.84		22.85	0.000069	0.97	7688.81	4113.06	0.07
raymondville	reach 1	80117	7345.00	12.82	24.65		24.65	0.000041	0.94	17186.96	5896.45	0.06
raymondville	reach 1	79415	1373.00	12.71	21.53		21.61	0.000294	2.23	614.44	89.34	0.15
raymondville	reach 1	79415	2192.00	12.71	22.01		22.19	0.000515	3.33	657.94	91.27	0.22
raymondville	reach 1	79415	3161.00	12.71	22.38		22.70	0.001108	4.57	691.54	92.73	0.29
raymondville	reach 1	79415	7345.00	12.71	22.85	20.48	24.40	0.005010	9.99	735.60	94.61	0.63
raymondville	reach 1	78117	1373.00	12.50	21.38		21.39	0.000095	1.11	3427.38	4035.47	0.08
raymondville	reach 1	78117	2192.00	12.50	21.92		21.92	0.000074	1.04	5606.71	4088.33	0.07
raymondville	reach 1	78117	3161.00	12.50	22.37		22.37	0.000072	1.08	7635.45	4624.57	0.07
raymondville	reach 1	78117	7345.00	12.50	23.63		23.63	0.000073	1.23	14218.91	5831.78	0.08
raymondville	reach 1	78117	1373.00	12.17	21.26		21.27	0.000048	0.80	4673.20	4195.73	0.06
raymondville	reach 1	78117	2192.00	12.17	21.82		21.82	0.000041	0.79	7020.72	4250.27	0.06
raymondville	reach 1	78117	3161.00	12.17	22.26		22.27	0.000044	0.85	9028.97	4687.69	0.06
raymondville	reach 1	78117	7345.00	12.17	23.50		23.51	0.000056	1.07	15541.57	6000.00	0.07
raymondville	reach 1	74240	1373.00	11.86	21.17		21.18	0.000048	0.80	4484.59	4231.92	0.06
raymondville	reach 1	74240	2192.00	11.86	21.74		21.74	0.000041	0.79	6908.83	4301.93	0.06
raymondville	reach 1	74240	3161.00	11.86	22.18		22.18	0.000045	0.86	8902.65	4853.80	0.06
raymondville	reach 1	74240	7345.00	11.86	23.40		23.41	0.000056	1.08	15327.71	6000.00	0.07
raymondville	reach 1	74117	1373.00	11.84	21.16		21.17	0.000048	0.80	4460.98	4231.17	0.06
raymondville	reach 1	74117	2192.00	11.84	21.73		21.74	0.000041	0.80	6888.47	4301.29	0.06

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	74117	3161.00	11.84	22.17		22.18	0.000045	0.87	8877.47	4853.11	0.06
raymondville	reach 1	74117	7345.00	11.84	23.39		23.40	0.000057	1.09	15287.51	8000.00	0.07
raymondville	reach 1	71592	1373.00	11.42	21.07		21.07	0.000049	0.83	4473.69	4151.08	0.06
raymondville	reach 1	71592	2192.00	11.42	21.65		21.66	0.000041	0.80	6926.66	4208.72	0.06
raymondville	reach 1	71592	3161.00	11.42	22.09		22.09	0.000046	0.89	8793.37	4845.21	0.06
raymondville	reach 1	71592	7345.00	11.42	23.28		23.29	0.000062	1.15	14748.49	8000.00	0.07
raymondville	reach 1	69075	1523.00	11.01	20.90		20.91	0.000084	1.09	3595.95	3352.20	0.08
raymondville	reach 1	69075	2334.00	11.01	21.53		21.53	0.000056	0.96	6503.87	4919.52	0.07
raymondville	reach 1	69075	3400.00	11.01	21.95		21.96	0.000059	1.02	8597.86	4972.29	0.07
raymondville	reach 1	69075	8259.00	11.01	23.10		23.11	0.000074	1.28	15473.67	8000.00	0.08
raymondville	reach 1	66802	1523.00	10.64	20.67		20.68	0.000103	1.20	3486.06	4275.29	0.09
raymondville	reach 1	66802	2334.00	10.64	21.39		21.39	0.000055	0.94	6915.05	5141.71	0.06
raymondville	reach 1	66802	3400.00	10.64	21.81		21.82	0.000055	0.99	9100.19	5182.89	0.07
raymondville	reach 1	66802	8259.00	10.64	22.92		22.93	0.000074	1.26	15607.11	8000.00	0.08
raymondville	reach 1	64902	1523.00	10.31	20.36		20.39	0.000206	1.67	2082.80	3684.10	0.12
raymondville	reach 1	64902	2334.00	10.31	21.25		21.26	0.000077	1.12	5957.07	5435.72	0.08
raymondville	reach 1	64902	3400.00	10.31	21.68		21.68	0.000072	1.13	8286.24	5477.19	0.08
raymondville	reach 1	64902	8259.00	10.31	22.75		22.76	0.000081	1.40	14541.25	6000.00	0.09
raymondville	reach 1	62902	1523.00	9.98	19.88		19.95	0.000236	2.14	713.05	93.65	0.14
raymondville	reach 1	62902	2334.00	9.98	21.10		21.11	0.000077	1.13	6248.46	6000.00	0.08
raymondville	reach 1	62902	3400.00	9.98	21.54		21.54	0.000067	1.09	8885.24	6000.00	0.07
raymondville	reach 1	62902	8259.00	9.98	22.58		22.58	0.000083	1.34	15118.68	6000.00	0.08
raymondville	reach 1	61180	1523.00	9.65	19.39		19.46	0.000251	2.18	697.68	92.98	0.14
raymondville	reach 1	61180	2334.00	9.65	20.73		20.82	0.000301	2.57	1622.71	2281.54	0.16
raymondville	reach 1	61180	3400.00	9.65	21.16		21.25	0.000478	2.75	2885.33	3500.33	0.19
raymondville	reach 1	61180	8259.00	9.65	22.21		22.26	0.000418	2.84	8107.61	6000.00	0.18
raymondville	reach 1	61130	1523.00	9.64	19.37		19.45	0.000251	2.18	697.44	92.97	0.14
raymondville	reach 1	61130	2334.00	9.64	20.72		20.82	0.000302	2.58	1605.85	2258.01	0.16
raymondville	reach 1	61130	3400.00	9.64	21.15		21.23	0.000484	2.79	2822.12	3445.04	0.19
raymondville	reach 1	61130	8259.00	9.64	22.18		22.23	0.000441	2.91	7922.05	8000.00	0.19
raymondville	reach 1	60777	1523.00	9.58	19.28		19.36	0.000254	2.19	694.70	92.86	0.14
raymondville	reach 1	60777	2334.00	9.58	20.71		20.73	0.000126	1.42	5045.78	6000.00	0.10
raymondville	reach 1	60777	3400.00	9.58	21.13		21.14	0.000104	1.34	7527.90	6000.00	0.09
raymondville	reach 1	60777	8259.00	9.58	22.14		22.15	0.000116	1.55	13574.23	6000.00	0.10
raymondville	reach 1	58786	1523.00	9.26	18.75		18.83	0.000276	2.28	675.18	92.02	0.15
raymondville	reach 1	58786	2334.00	9.26	20.22		20.30	0.000421	2.50	2085.83	6000.00	0.16
raymondville	reach 1	58786	3400.00	9.26	20.84		20.86	0.000188	1.78	5832.95	6000.00	0.12
raymondville	reach 1	58786	8259.00	9.26	21.65		21.67	0.000168	1.85	11920.62	6000.00	0.12
raymondville	reach 1	56696	1523.00	8.92	18.14		18.22	0.000307	2.34	650.24	90.93	0.15
raymondville	reach 1	56696	2334.00	8.92	19.21		19.36	0.000478	3.11	750.11	95.22	0.20
raymondville	reach 1	56696	3400.00	8.92	19.86	13.85	20.13	0.000608	4.18	812.53	97.81	0.26
raymondville	reach 1	56696	8259.00	8.92	21.26		21.32	0.000449	2.92	8322.45	6000.00	0.19
raymondville	reach 1	56944	1523.00	8.91	18.12		18.21	0.000308	2.34	649.68	90.90	0.15
raymondville	reach 1	56944	2334.00	8.91	19.19		19.34	0.000481	3.12	748.61	95.16	0.20
raymondville	reach 1	56944	3400.00	8.91	19.82		20.10	0.000815	4.20	810.05	97.71	0.26
raymondville	reach 1	56944	8259.00	8.91	21.24		21.29	0.000474	2.99	8149.25	6000.00	0.19
raymondville	reach 1	56166.2*	1523.00	8.83	17.97		18.06	0.000317	2.37	643.23	90.61	0.16
raymondville	reach 1	56166.2*	2334.00	8.83	18.99		19.11	0.000421	2.90	1228.49	1013.74	0.18
raymondville	reach 1	56166.2*	3400.00	8.83	19.62		19.75	0.000504	3.28	2000.06	1344.47	0.20
raymondville	reach 1	56166.2*	8259.00	8.83	21.04		21.06	0.000392	2.70	8591.92	6000.00	0.18
raymondville	reach 1	55688.5*	1523.00	8.75	17.89		17.93	0.000186	1.82	1531.29	997.35	0.12
raymondville	reach 1	55688.5*	2334.00	8.75	18.95		18.96	0.000150	1.73	2787.40	1313.86	0.11
raymondville	reach 1	55688.5*	3400.00	8.75	19.56		19.59	0.000176	1.94	3658.78	2858.91	0.12
raymondville	reach 1	55688.5*	8259.00	8.75	20.90		20.93	0.000251	2.15	9446.30	5568.84	0.14
raymondville	reach 1	55210.7*	1523.00	8.67	17.87		17.88	0.000058	1.02	3038.78	1273.37	0.07
raymondville	reach 1	55210.7*	2334.00	8.67	18.93		18.94	0.000050	1.00	4430.01	1346.39	0.06
raymondville	reach 1	55210.7*	3400.00	8.67	19.53		19.54	0.000066	1.19	5688.85	3313.50	0.07
raymondville	reach 1	55210.7*	8259.00	8.67	20.82		20.83	0.000148	1.65	11063.88	4720.66	0.11
raymondville	reach 1	54733	1595.00	8.59	17.71	11.78	17.80	0.000351	2.49	640.83	90.51	0.16
raymondville	reach 1	54733	2441.00	8.59	18.70	12.65	18.87	0.000580	3.33	732.66	94.48	0.21
raymondville	reach 1	54733	3554.00	8.59	19.09	13.65	19.42	0.001028	4.81	770.18	98.06	0.29
raymondville	reach 1	54733	8653.00	8.59	20.46	17.13	20.65	0.001322	4.83	4853.99	4363.83	0.32
raymondville	reach 1	54236.*	1595.00	8.51	17.52		17.62	0.000372	2.52	633.08	148.41	0.17
raymondville	reach 1	54236.*	2441.00	8.51	18.49		18.58	0.000519	2.67	1633.65	1748.87	0.20
raymondville	reach 1	54236.*	3554.00	8.51	18.84		18.95	0.000668	3.15	2320.09	2081.97	0.22
raymondville	reach 1	54236.*	8653.00	8.51	20.01		20.12	0.000809	3.89	5188.69	2909.36	0.25



HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl. (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	53743.*	1595.00	8.43	17.45		17.47	0.000193	1.57	2027.16	1689.74	0.12
raymondville	reach 1	53743.*	2441.00	8.43	18.44		18.45	0.000114	1.35	3963.37	2181.47	0.09
raymondville	reach 1	53743.*	3554.00	8.43	18.78		18.78	0.000162	1.66	4886.39	2307.36	0.11
raymondville	reach 1	53743.*	8653.00	8.43	19.82		19.88	0.000321	2.57	7391.62	2809.45	0.16
raymondville	reach 1	53248.*	1595.00	8.35	17.43		17.44	0.000040	0.77	4375.88	2114.45	0.05
raymondville	reach 1	53248.*	2441.00	8.35	18.43		18.43	0.000031	0.78	6615.57	2382.20	0.05
raymondville	reach 1	53248.*	3554.00	8.35	18.74		18.74	0.000049	0.98	7360.59	2462.37	0.06
raymondville	reach 1	53248.*	8653.00	8.35	19.74		19.76	0.000134	1.75	10105.43	2910.26	0.11
raymondville	reach 1	52753	1374.00	8.27	17.42		17.42	0.000008	0.38	7001.45	2285.26	0.03
raymondville	reach 1	52753	2022.00	8.27	18.42		18.42	0.000008	0.42	9437.44	2644.55	0.03
raymondville	reach 1	52753	3078.00	8.27	18.72		18.73	0.000015	0.58	10262.22	2734.27	0.04
raymondville	reach 1	52753	8064.00	8.27	19.71		19.72	0.000055	1.18	13098.82	3021.44	0.07
raymondville	reach 1	52344.3*	1374.00	8.20	17.41		17.41	0.000014	0.46	5838.59	2280.46	0.03
raymondville	reach 1	52344.3*	2022.00	8.20	18.41		18.41	0.000012	0.48	8359.45	2664.85	0.03
raymondville	reach 1	52344.3*	3078.00	8.20	18.71		18.72	0.000022	0.68	9189.18	2757.25	0.04
raymondville	reach 1	52344.3*	8064.00	8.20	19.68		19.69	0.000072	1.30	11989.17	3055.42	0.08
raymondville	reach 1	51935.7*	1374.00	8.13	17.39		17.40	0.000024	0.57	4838.44	2287.74	0.04
raymondville	reach 1	51935.7*	2022.00	8.13	18.40		18.40	0.000017	0.54	7312.97	2651.04	0.04
raymondville	reach 1	51935.7*	3078.00	8.13	18.69		18.70	0.000030	0.74	8115.23	2745.94	0.05
raymondville	reach 1	51935.7*	8064.00	8.13	19.64		19.65	0.000097	1.43	10851.69	3083.04	0.09
raymondville	reach 1	51527.1*	1374.00	8.07	17.38		17.38	0.000035	0.64	4129.82	1898.37	0.05
raymondville	reach 1	51527.1*	2022.00	8.07	18.39		18.39	0.000024	0.60	6332.95	2506.81	0.04
raymondville	reach 1	51527.1*	3078.00	8.07	18.68		18.68	0.000042	0.81	7078.40	2854.63	0.06
raymondville	reach 1	51527.1*	8064.00	8.07	19.58		19.59	0.000132	1.59	9681.03	3105.94	0.10
raymondville	reach 1	51118.5*	1374.00	8.00	17.37		17.37	0.000027	0.69	4095.15	1581.43	0.05
raymondville	reach 1	51118.5*	2022.00	8.00	18.38		18.38	0.000024	0.69	5834.30	1826.38	0.04
raymondville	reach 1	51118.5*	3078.00	8.00	18.66		18.66	0.000044	0.95	6354.22	1899.99	0.06
raymondville	reach 1	51118.5*	8064.00	8.00	19.51		19.53	0.000175	1.71	8498.58	3008.49	0.12
raymondville	reach 1	50710	1374.00	7.93	17.27	10.84	17.33	0.000239	2.08	680.88	91.39	0.14
raymondville	reach 1	50710	2022.00	7.93	18.22	11.57	18.33	0.000359	2.70	750.06	95.22	0.17
raymondville	reach 1	50710	3078.00	7.93	18.34	12.60	18.59	0.000798	4.04	761.02	95.68	0.25
raymondville	reach 1	50710	8064.00	7.93	19.44	16.12	19.46	0.000168	1.96	7973.44	2103.47	0.12
raymondville	reach 1	50308.0*	1374.00	7.86	17.18	10.77	17.23	0.000242	2.09	657.73	91.25	0.14
raymondville	reach 1	50308.0*	2022.00	7.86	18.07	11.50	18.18	0.000370	2.73	741.98	94.87	0.17
raymondville	reach 1	50308.0*	3078.00	7.86	18.46	12.53	18.47	0.000048	1.00	6207.24	1924.41	0.06
raymondville	reach 1	50308.0*	8064.00	7.86	19.37	16.05	19.39	0.000165	1.95	8062.63	2133.55	0.12
raymondville	reach 1	49908.0*	1374.00	7.80	17.08	10.71	17.13	0.000246	2.10	653.88	91.08	0.14
raymondville	reach 1	49908.0*	2022.00	7.80	17.90	11.44	18.02	0.000385	2.76	732.16	94.46	0.17
raymondville	reach 1	49908.0*	3078.00	7.80	18.44	12.47	18.45	0.000046	0.98	6363.93	1995.82	0.06
raymondville	reach 1	49908.0*	8064.00	7.80	19.30	15.99	19.32	0.000167	1.96	8172.48	2237.54	0.12
raymondville	reach 1	49504.0*	1374.00	7.73	16.98	10.64	17.03	0.000249	2.11	650.77	90.95	0.14
raymondville	reach 1	49504.0*	2022.00	7.73	17.74	11.37	17.86	0.000399	2.80	723.15	94.08	0.18
raymondville	reach 1	49504.0*	3078.00	7.73	18.42	12.40	18.43	0.000042	0.94	6344.53	2052.70	0.06
raymondville	reach 1	49504.0*	8064.00	7.73	19.23	15.92	19.26	0.000170	1.97	8331.04	2395.84	0.12
raymondville	reach 1	49102.0*	1374.00	7.67	16.85	10.58	16.92	0.000254	2.12	647.03	90.79	0.14
raymondville	reach 1	49102.0*	2022.00	7.67	17.56	11.31	17.89	0.000418	2.84	712.61	93.64	0.18
raymondville	reach 1	49102.0*	3078.00	7.67	18.32	12.34	18.39	0.000294	2.49	2227.20	2151.98	0.15
raymondville	reach 1	49102.0*	8064.00	7.67	19.17	15.86	19.18	0.000177	1.86	8512.70	2495.93	0.12
raymondville	reach 1	48700	1374.00	7.60	16.75	10.51	16.82	0.000257	2.13	643.86	90.65	0.14
raymondville	reach 1	48700	2022.00	7.60	17.39	11.24	17.52	0.000433	2.88	702.79	93.21	0.18
raymondville	reach 1	48700	3078.00	7.60	17.92	12.27	18.18	0.000822	4.09	753.17	95.35	0.26
raymondville	reach 1	48700	8064.00	7.60	19.10	15.79	19.11	0.000167	1.62	8700.23	2509.42	0.11
raymondville	reach 1	48516.6*	1374.00	7.57	16.70	10.48	16.77	0.000259	2.14	642.13	90.58	0.14
raymondville	reach 1	48516.6*	2022.00	7.57	17.30	11.21	17.43	0.000442	2.90	697.43	92.99	0.19
raymondville	reach 1	48516.6*	3078.00	7.57	17.75	12.24	18.02	0.000866	4.16	739.67	94.79	0.26
raymondville	reach 1	48516.6*	8064.00	7.57	19.07	15.78	19.08	0.000169	1.65	8718.66	2564.64	0.11
raymondville	reach 1	48333.3*	1374.00	7.54	16.65	10.45	16.72	0.000281	2.15	640.37	90.50	0.14
raymondville	reach 1	48333.3*	2022.00	7.54	17.22	11.18	17.35	0.000452	2.92	692.15	92.76	0.19
raymondville	reach 1	48333.3*	3078.00	7.54	17.57	12.21	17.85	0.000917	4.25	724.95	94.16	0.27
raymondville	reach 1	48333.3*	8064.00	7.54	19.04	15.73	19.05	0.000174	1.72	8833.89	2921.27	0.12
raymondville	reach 1	48150	1374.00	7.51	16.60	10.42	16.88	0.000283	2.15	638.89	90.43	0.14
raymondville	reach 1	48150	2022.00	7.51	17.13	11.15	17.27	0.000462	2.94	687.15	92.55	0.19
raymondville	reach 1	48150	3078.00	7.51	17.38	12.18	17.68	0.000972	4.33	710.62	93.55	0.28
raymondville	reach 1	48150	8064.00	7.51	19.01	15.70	19.02	0.000170	1.73	9117.12	3192.52	0.12
raymondville	reach 1	47886.*	1374.00	7.43	16.47	10.34	16.55	0.000271	2.16	634.77	91.10	0.14
raymondville	reach 1	47886.*	2022.00	7.43	16.86	11.07	17.00	0.000730	2.99	678.48	2252.92	0.23
raymondville	reach 1	47886.*	3078.00	7.43	17.42	12.10	17.43	0.000151	1.45	4576.61	2375.44	0.11

HEC-RAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
raymondville	reach 1	47888.*	8064.00	7.43	18.89	15.62	18.91	0.000197	1.92	8758.99	3504.06	0.13
raymondville	reach 1	47222.*	1374.00	7.38	16.33	10.27	16.40	0.000381	2.13	648.44	1928.56	0.16
raymondville	reach 1	47222.*	2022.00	7.38	16.79	11.00	16.81	0.000164	1.47	3037.29	2111.18	0.11
raymondville	reach 1	47222.*	3078.00	7.38	17.31	12.03	17.33	0.000177	1.62	4253.07	2549.21	0.12
raymondville	reach 1	47222.*	8064.00	7.38	18.77	18.21	18.79	0.000213	2.05	8671.09	3762.05	0.13
raymondville	reach 1	48758.*	1374.00	7.28	16.28	10.20	16.29	0.000104	1.16	2273.95	1374.91	0.09
raymondville	reach 1	48758.*	2022.00	7.28	16.72	10.92	16.74	0.000129	1.35	2994.88	1895.77	0.10
raymondville	reach 1	48758.*	3078.00	7.28	17.20	11.95	17.23	0.000188	1.72	4090.77	2492.30	0.12
raymondville	reach 1	48758.*	8064.00	7.28	18.85	16.02	18.88	0.000215	2.11	8769.38	3737.13	0.13
raymondville	reach 1	48294.*	1374.00	7.21	18.24	10.12	16.25	0.000087	0.97	2744.92	1541.02	0.07
raymondville	reach 1	48294.*	2022.00	7.21	18.67	10.85	16.69	0.000090	1.18	3448.80	1804.01	0.08
raymondville	reach 1	48294.*	3078.00	7.21	17.14	11.88	17.15	0.000123	1.44	4421.92	2287.05	0.10
raymondville	reach 1	48294.*	8064.00	7.21	18.54	15.51	18.57	0.000211	2.14	8989.55	3785.08	0.13
raymondville	reach 1	45830	1374.00	7.13	16.22	10.04	16.23	0.000040	0.78	3454.52	1847.38	0.05
raymondville	reach 1	45830	2022.00	7.13	16.84	10.77	16.65	0.000057	0.97	4258.89	1999.72	0.07
raymondville	reach 1	45830	3078.00	7.13	17.09	11.80	17.10	0.000085	1.24	5195.19	2379.82	0.08
raymondville	reach 1	45830	8064.00	7.13	18.45	15.00	18.47	0.000194	2.11	9259.45	3723.84	0.13
raymondville	reach 1	45414.*	1374.00	7.06	16.20	9.97	16.21	0.000041	0.80	3438.82	1905.25	0.06
raymondville	reach 1	45414.*	2022.00	7.06	16.61	10.70	16.62	0.000059	0.99	4264.67	2061.22	0.07
raymondville	reach 1	45414.*	3078.00	7.06	17.05	11.73	17.08	0.000085	1.25	5194.06	2278.33	0.08
raymondville	reach 1	45414.*	8064.00	7.06	18.38	15.00	18.40	0.000180	2.03	9546.92	3778.25	0.12
raymondville	reach 1	44998.*	1374.00	6.99	16.18	9.90	16.19	0.000045	0.83	3451.32	2021.94	0.06
raymondville	reach 1	44998.*	2022.00	6.99	16.58	10.63	16.59	0.000060	1.00	4287.30	2118.54	0.07
raymondville	reach 1	44998.*	3078.00	6.99	17.01	11.66	17.03	0.000095	1.32	5293.49	2711.20	0.09
raymondville	reach 1	44998.*	8064.00	6.99	18.31	15.00	18.33	0.000189	1.98	9892.26	4200.87	0.12
raymondville	reach 1	44582.*	1374.00	6.93	16.15	9.84	16.16	0.000048	0.85	3471.22	2095.31	0.06
raymondville	reach 1	44582.*	2022.00	6.93	16.55	10.57	16.56	0.000072	1.10	4402.20	2897.20	0.07
raymondville	reach 1	44582.*	3078.00	6.93	16.98	11.60	16.99	0.000094	1.31	5593.74	2890.41	0.09
raymondville	reach 1	44582.*	8064.00	6.93	18.25	15.00	18.27	0.000157	1.89	10678.60	4439.18	0.11
raymondville	reach 1	44186.*	1374.00	6.88	16.12	9.77	16.13	0.000054	0.92	3611.94	2715.06	0.08
raymondville	reach 1	44186.*	2022.00	6.88	16.52	10.50	16.53	0.000063	1.03	4718.69	2810.80	0.07
raymondville	reach 1	44186.*	3078.00	6.88	16.94	11.53	16.95	0.000081	1.22	6077.21	3762.04	0.08
raymondville	reach 1	44186.*	8064.00	6.88	18.21	15.00	18.22	0.000125	1.68	11533.82	4438.98	0.10
raymondville	reach 1	43750	1374.00	6.79	16.09	9.70	16.10	0.000045	0.84	4023.86	3410.81	0.06
raymondville	reach 1	43750	2022.00	6.79	16.49	10.43	16.50	0.000051	0.93	5422.08	3609.95	0.06
raymondville	reach 1	43750	3078.00	6.79	16.90	11.48	16.91	0.000071	1.14	6982.88	3997.83	0.08
raymondville	reach 1	43750	8064.00	6.79	18.16	15.00	18.17	0.000100	1.51	12391.28	4439.00	0.09
raymondville	reach 1	43313.8*	1374.00	6.72	16.06		16.07	0.000061	0.96	3515.08	3339.70	0.07
raymondville	reach 1	43313.8*	2022.00	6.72	16.46		16.47	0.000067	1.05	4917.35	3987.51	0.07
raymondville	reach 1	43313.8*	3078.00	6.72	16.87		16.88	0.000088	1.24	6493.11	3978.92	0.08
raymondville	reach 1	43313.8*	8064.00	6.72	18.11		18.12	0.000115	1.60	11864.86	4447.88	0.10
raymondville	reach 1	42877.2*	1374.00	6.65	16.02		16.03	0.000086	1.12	2988.81	3385.85	0.08
raymondville	reach 1	42877.2*	2022.00	6.65	16.42		16.43	0.000098	1.24	4426.09	3806.35	0.09
raymondville	reach 1	42877.2*	3078.00	6.65	16.82		16.83	0.000107	1.36	5985.40	3938.56	0.09
raymondville	reach 1	42877.2*	8064.00	6.65	18.05		18.07	0.000134	1.70	11303.40	4472.53	0.11
raymondville	reach 1	42440.8*	1374.00	6.57	15.98		15.98	0.000129	1.35	2443.97	3181.72	0.10
raymondville	reach 1	42440.8*	2022.00	6.57	16.38		16.38	0.000125	1.39	3906.08	3723.69	0.10
raymondville	reach 1	42440.8*	3078.00	6.57	16.78		16.77	0.000138	1.52	5392.25	3847.58	0.10
raymondville	reach 1	42440.8*	8064.00	6.57	17.99		18.00	0.000159	1.83	10704.22	4525.97	0.11
raymondville	reach 1	42004.4*	1374.00	6.50	15.88		15.91	0.000171	1.52	1911.60	2807.27	0.11
raymondville	reach 1	42004.4*	2022.00	6.50	16.30		16.32	0.000172	1.60	3340.83	3696.87	0.11
raymondville	reach 1	42004.4*	3078.00	6.50	16.68		16.70	0.000184	1.72	4784.16	3749.99	0.12
raymondville	reach 1	42004.4*	8064.00	6.50	17.90		17.93	0.000205	2.04	10209.39	5430.43	0.13
raymondville	reach 1	41588	1374.00	6.43	15.79		15.83	0.000219	1.68	1494.90	2097.64	0.13
raymondville	reach 1	41588	2022.00	6.43	16.19		16.23	0.000258	1.91	2648.11	3658.98	0.14
raymondville	reach 1	41588	3078.00	6.43	16.57		16.61	0.000263	2.02	4069.39	3721.29	0.14
raymondville	reach 1	41588	8064.00	6.43	17.82		17.84	0.000214	2.05	10591.85	6000.00	0.13
raymondville	reach 1	39543	1374.00	6.10	15.62		15.82	0.000055	0.70	4948.33	5100.58	0.06
raymondville	reach 1	39543	2022.00	6.10	16.02		16.02	0.000050	0.71	7030.19	6000.00	0.06
raymondville	reach 1	39543	3078.00	6.10	16.39		16.39	0.000054	0.77	9241.57	6000.00	0.06
raymondville	reach 1	39543	8064.00	6.10	17.62		17.63	0.000061	0.98	16639.27	6000.00	0.07
raymondville	reach 1	37135	1374.00	5.71	15.55	8.62	15.55	0.000017	0.47	6464.96	4749.40	0.03
raymondville	reach 1	37135	2022.00	5.71	15.95	9.34	15.95	0.000020	0.54	8452.46	5104.82	0.04
raymondville	reach 1	37135	3078.00	5.71	16.29	10.37	16.29	0.000030	0.69	10241.74	5378.79	0.05
raymondville	reach 1	37135	8064.00	5.71	17.49	13.90	17.49	0.000053	1.03	16882.54	5693.64	0.07
raymondville	reach 1	34845	1714.00	5.33	15.40		15.44	0.000220	1.73	2510.81	4583.81	0.13



HEC-DAS Plan: P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude #	Chf
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4499.93	4727.52		0.10
raymondville	reach 1	34845	2856.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.98		0.09
raymondville	reach 1	34845	7234.00	5.33	17.31		17.32	0.000120	1.54	12152.38	6000.00		0.10
raymondville	reach 1	34786	1714.00	5.32	15.36		15.42	0.000242	1.81	2317.11	4556.48		0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.53	4722.59		0.10
raymondville	reach 1	34786	2856.00	5.32	16.15		16.16	0.000114	1.36	5918.32	4853.13		0.09
raymondville	reach 1	34786	7234.00	5.32	17.30		17.31	0.000123	1.57	11999.30	6000.00		0.10
raymondville	reach 1	32585	1714.00	4.96	14.67		14.74	0.000408	2.28	1043.70	1133.11		0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000248	1.92	2999.29	3852.55		0.14
raymondville	reach 1	32585	2856.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89		0.11
raymondville	reach 1	32585	7234.00	4.96	16.99		17.01	0.000157	1.79	10782.18	5487.96		0.11
raymondville	reach 1	30564	1714.00	4.63	13.82		13.93	0.000393	2.65	651.73	114.58		0.17
raymondville	reach 1	30564	2255.00	4.63	14.81		14.75	0.000475	3.05	912.78	888.14		0.19
raymondville	reach 1	30564	2856.00	4.63	15.25		15.37	0.000441	3.04	2048.00	3095.80		0.19
raymondville	reach 1	30564	7234.00	4.63	18.54		18.57	0.000304	2.31	8888.27	6000.00		0.15
raymondville	reach 1	29170	1714.00	4.40	13.22		13.34	0.000459	2.79	613.82	89.31		0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	668.09	91.71		0.22
raymondville	reach 1	29170	2856.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.83		0.26
raymondville	reach 1	29170	7234.00	4.40	15.99		16.07	0.000612	3.24	6748.85	6000.00		0.22
raymondville	reach 1	28867.7*	1714.00	4.35	13.07		13.19	0.000482	2.83	605.96	89.47		0.19
raymondville	reach 1	28867.7*	2255.00	4.35	13.61		13.79	0.000669	3.45	654.05	91.93		0.23
raymondville	reach 1	28867.7*	2856.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14		0.27
raymondville	reach 1	28867.7*	7234.00	4.35	15.80		15.89	0.000890	3.51	6258.86	6000.00		0.23
raymondville	reach 1	28565.5*	1714.00	4.30	12.92		13.04	0.000497	2.83	665.41	316.05		0.19
raymondville	reach 1	28565.5*	2255.00	4.30	13.40		13.55	0.000688	3.24	889.85	549.79		0.25
raymondville	reach 1	28565.5*	2856.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05		0.27
raymondville	reach 1	28565.5*	7234.00	4.30	15.58		15.69	0.000741	3.70	5712.11	5784.11		0.24
raymondville	reach 1	28263.2*	1714.00	4.25	12.81		12.88	0.000468	2.31	1071.21	578.71		0.18
raymondville	reach 1	28263.2*	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.83	633.89		0.19
raymondville	reach 1	28263.2*	2856.00	4.25	13.62		13.72	0.000608	2.87	1589.04	750.20		0.21
raymondville	reach 1	28263.2*	7234.00	4.25	15.37		15.48	0.000717	3.70	5465.70	5192.44		0.24
raymondville	reach 1	27961	1714.00	4.20	12.74		12.77	0.000235	1.70	1570.27	639.60		0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.89	746.39		0.15
raymondville	reach 1	27961	2856.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.95		0.16
raymondville	reach 1	27961	7234.00	4.20	15.18		15.28	0.000848	3.57	5451.84	4766.41		0.23
raymondville	reach 1	27505.2*	1714.00	4.13	12.63		12.67	0.000249	1.74	1577.57	724.39		0.13
raymondville	reach 1	27505.2*	2255.00	4.13	13.03		13.07	0.000296	1.98	1886.88	821.50		0.16
raymondville	reach 1	27505.2*	2856.00	4.13	13.38		13.42	0.000337	2.19	2179.80	860.85		0.15
raymondville	reach 1	27505.2*	7234.00	4.13	14.89		14.98	0.000836	3.49	5859.91	5090.24		0.23
raymondville	reach 1	27049.4*	1714.00	4.05	12.52		12.55	0.000255	1.74	1619.24	824.81		0.14
raymondville	reach 1	27049.4*	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49		0.15
raymondville	reach 1	27049.4*	2856.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16		0.16
raymondville	reach 1	27049.4*	7234.00	4.05	14.67		14.73	0.000470	2.96	6868.74	5359.37		0.19
raymondville	reach 1	26593.6*	1714.00	3.98	12.42		12.45	0.000234	1.66	1768.88	1096.39		0.13
raymondville	reach 1	26593.6*	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.48	1364.94		0.14
raymondville	reach 1	26593.6*	2856.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10		0.15
raymondville	reach 1	26593.6*	7234.00	3.98	14.53		14.56	0.000266	2.23	8679.77	5107.22		0.15
raymondville	reach 1	26137.8*	1714.00	3.90	12.34		12.36	0.000185	1.48	2192.22	1558.26		0.12
raymondville	reach 1	26137.8*	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.78	3244.10		0.13
raymondville	reach 1	26137.8*	2856.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4080.54		0.13
raymondville	reach 1	26137.8*	7234.00	3.90	14.46		14.47	0.000140	1.62	10848.83	4908.55		0.11
raymondville	reach 1	25682	1714.00	3.83	12.28		12.30	0.000131	1.25	3534.82	4063.17		0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.15	4115.05		0.09
raymondville	reach 1	25682	2856.00	3.83	12.95		12.96	0.000091	1.13	6283.81	4163.46		0.08
raymondville	reach 1	25682	7234.00	3.83	14.42		14.43	0.000078	1.22	13204.53	4898.81		0.08
raymondville	reach 1	25281.*	1714.00	3.76	12.25		12.25	0.000100	1.11	4044.35	4054.57		0.09
raymondville	reach 1	25281.*	2255.00	3.76	12.80		12.61	0.000082	1.05	5490.50	4121.23		0.08
raymondville	reach 1	25281.*	2856.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4854.45		0.08
raymondville	reach 1	25281.*	7234.00	3.76	14.40		14.41	0.000074	1.20	14367.09	6000.00		0.08
raymondville	reach 1	24880.*	1714.00	3.70	12.22		12.22	0.000071	0.95	4652.35	3810.06		0.07
raymondville	reach 1	24880.*	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.32	4209.63		0.07
raymondville	reach 1	24880.*	2856.00	3.70	12.90		12.91	0.000063	0.97	7572.73	4663.09		0.07
raymondville	reach 1	24880.*	7234.00	3.70	14.38		14.38	0.000058	1.08	15634.88	6000.00		0.07
raymondville	reach 1	24479.*	1714.00	3.63	12.20		12.20	0.000051	0.82	5339.50	3891.35		0.06
raymondville	reach 1	24479.*	2255.00	3.63	12.56		12.56	0.000048	0.83	6808.75	4400.80		0.06
raymondville	reach 1	24479.*	2856.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4998.58		0.06
raymondville	reach 1	24479.*	7234.00	3.63	14.36		14.36	0.000046	0.97	16904.31	6000.00		0.06

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	24078.*	1714.00	3.57	12.18		12.19	0.000037	0.70	6186.50	4144.97	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000038	0.73	7758.80	4885.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5466.29	0.05
raymondville	reach 1	24078.*	7234.00	3.57	14.34		14.34	0.000037	0.88	18187.29	6000.00	0.08
raymondville	reach 1	23677	1714.00	3.50	12.18		12.17	0.000027	0.80	7145.78	4882.75	0.04
raymondville	reach 1	23677	2255.00	3.50	12.52		12.53	0.000028	0.82	8905.38	5218.63	0.04
raymondville	reach 1	23677	2856.00	3.50	12.85		12.85	0.000027	0.88	10899.55	5674.64	0.05
raymondville	reach 1	23677	7234.00	3.50	14.31		14.32	0.000030	0.90	19430.78	6000.00	0.05
raymondville	reach 1	21880	1714.00	3.17	12.13		12.13	0.000013	0.42	10238.60	6000.00	0.03
raymondville	reach 1	21880	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.15	6000.00	0.03
raymondville	reach 1	21880	2856.00	3.17	12.82		12.82	0.000013	0.44	14360.32	6000.00	0.03
raymondville	reach 1	21880	7234.00	3.17	14.27		14.28	0.000018	0.80	23083.75	6000.00	0.04
raymondville	reach 1	19608	1714.00	2.83	12.11		12.11	0.000013	0.42	10017.37	5923.15	0.03
raymondville	reach 1	19608	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.49	6000.00	0.03
raymondville	reach 1	19608	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19608	7234.00	2.83	14.24		14.25	0.000018	0.61	22818.38	6000.00	0.04
raymondville	reach 1	19152.2*	1714.00	2.75	12.10		12.10	0.000014	0.45	9715.97	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.48		12.48	0.000013	0.45	11917.38	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7234.00	2.75	14.23		14.23	0.000019	0.83	22508.75	6000.00	0.04
raymondville	reach 1	18698.5*	1714.00	2.88	12.08		12.08	0.000018	0.47	9418.08	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.88	12.45		12.45	0.000015	0.47	11607.82	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.88	12.77		12.77	0.000015	0.49	13547.98	6000.00	0.03
raymondville	reach 1	18698.5*	7234.00	2.88	14.21		14.21	0.000020	0.64	22202.71	6000.00	0.04
raymondville	reach 1	18244.7*	1714.00	2.81	12.07		12.07	0.000017	0.49	9110.38	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.81	12.43		12.43	0.000018	0.49	11288.44	6000.00	0.03
raymondville	reach 1	18244.7*	2856.00	2.81	12.78		12.78	0.000018	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7234.00	2.81	14.20		14.20	0.000021	0.66	21886.83	6000.00	0.04
raymondville	reach 1	17791.*	1714.00	2.53	12.05		12.05	0.000019	0.52	8812.47	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.90	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.63	6000.00	0.04
raymondville	reach 1	17791.*	7234.00	2.53	14.18		14.18	0.000021	0.68	21580.79	6000.00	0.04
raymondville	reach 1	17337.2*	1714.00	2.45	12.04		12.04	0.000021	0.55	8518.46	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10671.23	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7234.00	2.45	14.17		14.17	0.000023	0.69	21276.81	6000.00	0.04
raymondville	reach 1	16883.5*	1714.00	2.38	12.03		12.03	0.000024	0.58	8209.99	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.11	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7234.00	2.38	14.15		14.15	0.000024	0.71	20981.98	6000.00	0.04
raymondville	reach 1	16429.7*	1714.00	2.31	12.00		12.01	0.000027	0.62	7883.26	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.55	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.16	6000.00	0.04
raymondville	reach 1	16429.7*	7234.00	2.31	14.14		14.14	0.000025	0.73	20653.83	6000.00	0.05
raymondville	reach 1	15878	1714.00	2.23	11.98		11.98	0.000029	0.64	7522.41	5782.30	0.05
raymondville	reach 1	15878	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.49	6000.00	0.04
raymondville	reach 1	15878	2856.00	2.23	12.69		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15878	7234.00	2.23	14.12		14.12	0.000028	0.75	20347.36	6000.00	0.05
raymondville	reach 1	15517.2*	1714.00	2.16	11.94		11.96	0.000132	1.39	3703.63	5538.15	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.30	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.87		12.67	0.000089	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7234.00	2.16	14.09		14.10	0.000050	1.05	16438.49	6000.00	0.06
raymondville	reach 1	15058.4*	1714.00	2.08	11.82		11.87	0.000258	1.92	1508.19	1757.45	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.77	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7234.00	2.08	14.05		14.07	0.000112	1.57	12446.49	6000.00	0.10
raymondville	reach 1	14599.6*	1714.00	2.01	11.68		11.73	0.000291	2.03	1232.99	763.56	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.96	1250.96	0.18
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.78	2029.86	0.17
raymondville	reach 1	14599.6*	7234.00	2.01	13.94		13.98	0.000303	2.57	8021.38	5857.80	0.18
raymondville	reach 1	14140.8*	1714.00	1.93	11.53		11.59	0.000322	2.12	1101.68	656.86	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.85	0.20
raymondville	reach 1	14140.8*	7234.00	1.93	13.64		13.77	0.000703	3.84	4590.05	3224.11	0.24
raymondville	reach 1	13882	1714.00	1.86	11.37		11.44	0.000350	2.18	1008.04	528.14	0.16
raymondville	reach 1	13882	2255.00	1.86	11.63		11.73	0.000486	2.85	1160.21	615.43	0.19

HEC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000933	3.11	1323.90	713.85	0.22
raymondville	reach 1	13682	7234.00	1.86	12.98		13.29	0.001571	5.44	2310.98	1440.42	0.35
raymondville	reach 1	11672	1714.00	1.53	10.91		10.94	0.000176	1.52	3110.63	4478.22	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000166	1.52	4277.26	4718.78	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7234.00	1.53	12.29		12.31	0.000203	1.89	9932.97	5302.08	0.13
raymondville	reach 1	9670	1714.00	1.20	10.34		10.40	0.000425	2.22	1627.98	3473.50	0.17
raymondville	reach 1	9670	2255.00	1.20	10.72		10.76	0.000279	1.89	3335.44	4974.57	0.14
raymondville	reach 1	9670	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9670	7234.00	1.20	11.82		11.85	0.000271	2.10	8840.94	5023.58	0.14
raymondville	reach 1	8234	1714.00	0.64	8.37		8.54	0.000749	3.30	518.92	84.96	0.24
raymondville	reach 1	8234	2255.00	0.64	8.91		9.15	0.001009	3.99	585.54	87.13	0.28
raymondville	reach 1	8234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.83	3570.69	0.30
raymondville	reach 1	8234	7234.00	0.64	10.83		10.88	0.000343	2.33	8754.97	6000.00	0.16
raymondville	reach 1	4339	1714.00	0.31	7.55	3.61	7.57	0.000310	1.18	1447.47	591.70	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	4.19	7.95	0.000363	1.34	1677.04	638.24	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.48	8.30	0.000413	1.50	1907.36	680.49	0.16
raymondville	reach 1	4339	7234.00	0.31	9.81	6.58	9.90	0.000712	2.39	3032.64	809.69	0.22
raymondville	reach 1	4300	1714.00	0.30	7.53	3.60	7.56	0.000318	1.19	1435.14	590.12	0.13
raymondville	reach 1	4300	2255.00	0.30	7.91	4.17	7.93	0.000372	1.36	1662.70	638.37	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	5.49	8.29	0.000424	1.51	1890.91	679.48	0.16
raymondville	reach 1	4300	7234.00	0.30	9.78	6.57	9.87	0.000730	2.41	3003.14	805.12	0.22
raymondville	reach 1	3878.00*	1714.00	0.23	7.38		7.40	0.000372	1.28	1335.31	554.62	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.76	0.000434	1.47	1538.62	586.82	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000488	1.65	1728.19	603.07	0.17
raymondville	reach 1	3878.00*	7234.00	0.23	9.45		9.55	0.000785	2.53	3641.70	2837.00	0.23
raymondville	reach 1	3456.00*	1714.00	0.16	7.21		7.24	0.000419	1.41	1216.97	480.85	0.16
raymondville	reach 1	3456.00*	2255.00	0.16	7.52		7.56	0.000509	1.65	1381.89	647.80	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.87	0.000612	1.86	1598.25	851.32	0.19
raymondville	reach 1	3456.00*	7234.00	0.16	9.17		9.24	0.000633	2.39	4598.62	2818.38	0.21
raymondville	reach 1	3034.00*	1714.00	0.09	7.00		7.04	0.000540	1.62	1146.24	922.20	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.28		7.33	0.000572	1.79	1672.42	1900.36	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.62	0.000547	1.86	2240.94	2009.77	0.18
raymondville	reach 1	3034.00*	7234.00	0.09	8.97		9.02	0.000424	2.10	5801.21	2858.94	0.17
raymondville	reach 1	2612.00*	1714.00	0.02	6.84		6.86	0.000306	1.40	2173.84	2204.77	0.14
raymondville	reach 1	2612.00*	2255.00	0.02	7.13		7.15	0.000288	1.44	2830.19	2237.88	0.14
raymondville	reach 1	2612.00*	2856.00	0.02	7.44		7.45	0.000264	1.48	3509.30	2277.21	0.13
raymondville	reach 1	2612.00*	7234.00	0.02	8.85		8.87	0.000253	1.77	7203.43	2866.24	0.14
raymondville	reach 1	2190	1714.00	-0.05	6.78		6.79	0.000097	0.99	3643.75	2179.68	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.07		7.08	0.000114	1.12	4293.78	2443.35	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000115	1.17	5037.54	2479.28	0.09
raymondville	reach 1	2190	7234.00	-0.05	8.77		8.79	0.000157	1.60	8729.76	2912.31	0.11
raymondville	reach 1	0	1714.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3264.59	2522.02	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	3.47	6.79	0.000180	1.21	3950.09	2543.12	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	5.55	7.09	0.000180	1.27	4757.25	3325.34	0.10
raymondville	reach 1	0	7234.00	-0.41	8.43	6.13	8.44	0.000180	1.51	9350.29	3429.34	0.11
North Main	reach 4	331370	410.00	96.81	103.97	99.87	104.06	0.000492	2.44	168.35	36.91	0.20
North Main	reach 4	331370	573.00	96.81	105.23	100.50	105.34	0.000479	2.63	217.96	41.60	0.20
North Main	reach 4	331370	770.00	96.81	106.53	101.12	106.66	0.000463	2.80	275.18	46.43	0.20
North Main	reach 4	331370	1392.00	96.81	109.54	102.59	109.70	0.000453	3.23	431.50	57.59	0.21
North Main	reach 4	330227	410.00	96.76	103.48	99.35	103.55	0.000399	2.23	183.83	39.69	0.18
North Main	reach 4	330227	573.00	96.76	104.78	99.90	104.85	0.000387	2.41	237.54	44.25	0.18
North Main	reach 4	330227	770.00	96.76	106.07	100.47	106.18	0.000374	2.58	298.96	48.95	0.18
North Main	reach 4	330227	1392.00	96.76	109.08	101.93	109.23	0.000374	3.01	462.46	59.45	0.19
North Main	reach 4	330128	410.00	96.76	103.44	99.26	103.52	0.000413	2.31	177.44	36.28	0.18
North Main	reach 4	330128	573.00	96.76	104.71	99.81	104.81	0.000421	2.53	226.49	40.84	0.19
North Main	reach 4	330128	770.00	96.76	106.02	100.40	106.13	0.000423	2.72	283.12	45.91	0.19
North Main	reach 4	330128	1392.00	96.76	109.02	101.86	109.18	0.000435	3.17	438.74	57.61	0.20
North Main	reach 4	330078	410.00	96.78	103.41	99.26	103.50	0.000419	2.32	176.65	36.22	0.19
North Main	reach 4	330078	573.00	96.78	104.69	99.80	104.79	0.000426	2.54	225.58	40.75	0.19
North Main	reach 4	330078	770.00	96.78	106.00	100.39	106.11	0.000427	2.73	282.09	45.83	0.19
North Main	reach 4	330078	1392.00	96.78	109.00	101.86	109.16	0.000438	3.18	437.41	57.52	0.20
North Main	reach 4	329975	410.00	97.01	103.29	100.02	103.43	0.000858	3.01	136.16	32.79	0.26
North Main	reach 4	329975	573.00	97.01	104.57	100.64	104.73	0.000776	3.16	181.05	37.34	0.25
North Main	reach 4	329975	770.00	97.01	105.88	101.29	106.05	0.000711	3.31	232.97	41.99	0.25
North Main	reach 4	329975	1392.00	97.01	108.88	102.88	109.10	0.000648	3.71	375.16	52.67	0.25

HEC-DAS Plan P-25X-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 4	328000	410.00	95.28	102.35	97.87	102.42	0.000330	2.09	196.40	40.45	0.17
North Main	reach 4	328000	573.00	95.28	103.69	98.42	103.76	0.000321	2.26	253.61	45.11	0.17
North Main	reach 4	328000	770.00	95.26	105.04	99.00	105.13	0.000313	2.42	317.95	49.83	0.17
North Main	reach 4	328000	1392.00	95.26	108.06	100.47	108.19	0.000329	2.88	484.17	60.35	0.18
North Main	reach 4	328000	410.00	94.56	101.63	97.39	101.70	0.000385	2.19	187.63	40.83	0.18
North Main	reach 4	328000	573.00	94.56	103.01	97.95	103.09	0.000354	2.31	247.67	46.27	0.18
North Main	reach 4	328000	770.00	94.56	104.39	98.54	104.49	0.000332	2.44	315.93	51.75	0.17
North Main	reach 4	328000	1392.00	94.56	107.40	100.02	107.52	0.000335	2.85	488.77	63.48	0.18
North Main	reach 4	324083	410.00	94.05	101.03	96.40	101.09	0.000287	1.90	216.21	44.36	0.15
North Main	reach 4	324083	573.00	94.05	102.46	96.92	102.52	0.000249	2.02	283.23	49.81	0.15
North Main	reach 4	324083	770.00	94.05	103.87	97.47	103.95	0.000238	2.15	357.59	55.24	0.15
North Main	reach 4	324083	1392.00	94.05	106.85	98.88	106.98	0.000257	2.58	539.10	66.67	0.16
North Main	reach 4	324005	410.00	94.05	101.01	96.40	101.07	0.000270	1.90	215.24	44.28	0.15
North Main	reach 4	324005	573.00	94.05	102.44	96.92	102.50	0.000251	2.03	282.22	48.73	0.15
North Main	reach 4	324005	770.00	94.05	103.85	97.47	103.93	0.000240	2.16	356.52	55.16	0.15
North Main	reach 4	324005	1392.00	94.05	106.83	98.88	106.94	0.000259	2.59	537.70	66.50	0.18
North Main	reach 4	322000	410.00	93.17	100.42	95.84	100.48	0.000317	2.04	200.55	41.49	0.18
North Main	reach 4	322000	573.00	93.17	101.89	96.40	101.96	0.000288	2.16	265.68	47.02	0.16
North Main	reach 4	322000	770.00	93.17	103.33	96.99	103.41	0.000273	2.28	337.43	52.45	0.16
North Main	reach 4	322000	1392.00	93.17	106.29	98.48	106.37	0.000302	2.42	435.48	58.10	0.17
North Main	reach 4	320965	410.00	93.05	100.00	95.85	100.09	0.000464	2.40	171.18	36.63	0.20
North Main	reach 4	320965	573.00	93.05	101.51	96.44	101.61	0.000404	2.48	230.80	41.82	0.19
North Main	reach 4	320965	770.00	93.05	102.98	97.06	103.08	0.000373	2.61	295.49	48.85	0.18
North Main	reach 4	320965	1392.00	93.05	105.84	98.63	106.00	0.000408	3.13	444.07	58.65	0.20
North Main	reach 4	320873	410.00	93.05	99.95	95.85	100.04	0.000476	2.42	189.52	36.47	0.20
North Main	reach 4	320873	573.00	93.05	101.47	96.44	101.57	0.000412	2.50	228.96	41.69	0.19
North Main	reach 4	320873	770.00	93.05	102.94	97.06	103.05	0.000379	2.62	293.80	48.72	0.18
North Main	reach 4	320873	1392.00	93.05	105.81	98.63	105.96	0.000414	3.15	441.82	58.52	0.20
North Main	reach 4	320000	410.00	92.95	99.57	95.52	99.65	0.000417	2.25	182.22	40.31	0.19
North Main	reach 4	320000	573.00	92.95	101.16	96.06	101.24	0.000341	2.28	250.98	48.39	0.17
North Main	reach 4	320000	770.00	92.95	102.66	96.67	102.74	0.000306	2.37	324.79	52.12	0.17
North Main	reach 4	320000	1392.00	92.95	105.50	98.13	105.63	0.000333	2.85	488.63	63.07	0.18
North Main	reach 4	318000	410.00	91.12	98.87	93.95	98.94	0.000308	2.05	200.37	39.67	0.18
North Main	reach 4	318000	573.00	91.12	100.58	94.56	100.65	0.000269	2.10	273.15	45.76	0.15
North Main	reach 4	318000	770.00	91.12	102.12	95.19	102.20	0.000244	2.21	348.07	51.27	0.15
North Main	reach 4	318000	1392.00	91.12	104.88	96.78	105.00	0.000297	2.77	503.02	61.12	0.17
North Main	reach 4	317530	410.00	91.23	98.72	94.19	98.79	0.000330	2.04	201.31	43.71	0.17
North Main	reach 4	317530	573.00	91.23	100.46	94.78	100.52	0.000256	2.02	283.94	51.52	0.15
North Main	reach 4	317530	770.00	91.23	102.02	95.39	102.08	0.000228	2.08	369.59	58.52	0.15
North Main	reach 4	317530	1392.00	91.23	104.78	98.67	104.86	0.000261	2.54	547.10	70.81	0.16
North Main	reach 4	317452	410.00	91.23	98.70	94.20	98.76	0.000335	2.05	200.14	43.59	0.17
North Main	reach 4	317452	573.00	91.23	100.44	94.78	100.50	0.000259	2.03	282.88	51.42	0.15
North Main	reach 4	317452	770.00	91.23	102.00	95.39	102.07	0.000230	2.09	368.52	58.44	0.15
North Main	reach 4	317452	1392.00	91.23	104.74	98.67	104.84	0.000263	2.55	545.81	70.72	0.16
North Main	reach 4	317000	410.00	90.93	98.54	93.87	98.81	0.000347	2.14	191.70	39.29	0.17
North Main	reach 4	317000	573.00	90.93	100.31	94.48	100.38	0.000277	2.15	267.13	45.81	0.16
North Main	reach 4	317000	770.00	90.93	101.88	95.12	101.96	0.000255	2.24	343.49	51.59	0.15
North Main	reach 4	317000	1392.00	90.93	104.59	96.66	104.71	0.000310	2.80	496.84	61.57	0.17
North Main	reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001841	1.80	22.17	21.96	0.32
North Main	reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002313	2.65	37.72	24.65	0.38
North Main	reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000289	1.58	120.44	35.70	0.15
North Main	reach 2	157900	515.00	90.87	97.21	93.55	97.32	0.000598	2.69	191.51	42.97	0.22
North Main	reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.87	0.81
North Main	reach 2	157788	100.00	90.87	92.31	91.74	92.45	0.003575	2.99	33.49	25.30	0.46
North Main	reach 2	157788	188.00	90.87	95.38	92.18	95.42	0.000255	1.51	124.58	34.57	0.14
North Main	reach 2	157788	515.00	90.87	97.15	93.35	97.26	0.000589	2.67	192.89	42.38	0.22
North Main	reach 2	157777	Inline Weir									
North Main	reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002111	2.10	19.01	16.28	0.34
North Main	reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	69.99	26.04	0.15
North Main	reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.32	38.01	0.09
North Main	reach 2	157707	515.00	88.33	97.15	91.83	97.22	0.000300	2.13	241.71	44.87	0.16
North Main	reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000559	1.34	29.85	16.32	0.19
North Main	reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000160	1.10	91.01	26.83	0.11
North Main	reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000067	0.94	199.76	41.37	0.08
North Main	reach 2	157442	515.00	87.38	97.09	91.01	97.15	0.000209	1.86	277.50	48.25	0.14
North Main	reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000663	1.42	28.10	17.93	0.20





HEC-DAS Diagram 2593 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	reach 3 (south)	284500	1044.00	74.78	83.42	77.78	83.51	0.000307	2.48	421.04	64.98	0.17
North Main	reach 3 (south)	284500	1567.00	74.78	85.28	78.62	85.41	0.000331	2.88	548.61	71.88	0.18
North Main	reach 3 (south)	284500	2228.00	74.78	87.17	79.55	87.33	0.000353	3.22	691.18	78.89	0.19
North Main	reach 3 (south)	284500	4412.00	74.78	90.50	81.95	90.57	0.000429	2.58	3622.57	2201.84	0.20
North Main	reach 3 (south)	284287	1044.00	74.78	83.33	77.89	83.44	0.000389	2.68	388.89	60.85	0.19
North Main	reach 3 (south)	284287	1567.00	74.78	85.18	78.79	85.33	0.000398	3.09	507.39	67.19	0.20
North Main	reach 3 (south)	284287	2228.00	74.78	87.06	79.75	87.25	0.000422	3.48	639.95	73.82	0.21
North Main	reach 3 (south)	284287	4412.00	74.78	90.39	82.22	90.48	0.000594	2.51	3314.31	2077.42	0.22
North Main	reach 3 (south)	284201	1044.00	74.78	83.29	77.89	83.40	0.000378	2.70	388.48	60.51	0.19
North Main	reach 3 (south)	284201	1567.00	74.78	85.14	78.79	85.29	0.000403	3.11	504.58	67.04	0.20
North Main	reach 3 (south)	284201	2228.00	74.78	87.02	79.75	87.21	0.000428	3.50	636.72	73.67	0.21
North Main	reach 3 (south)	284201	4412.00	74.78	89.99	82.22	90.33	0.002038	4.68	942.80	237.58	0.41
North Main	reach 3 (south)	284000	1044.00	73.32	83.20	77.22	83.33	0.000305	2.44	427.34	66.52	0.17
North Main	reach 3 (south)	284000	1567.00	73.32	85.09	78.40	85.21	0.000325	2.82	558.57	73.05	0.18
North Main	reach 3 (south)	284000	2228.00	73.32	86.96	79.45	87.12	0.000346	3.18	699.88	79.59	0.19
North Main	reach 3 (south)	284000	4412.00	73.32	89.79	81.75	90.13	0.000602	4.70	938.35	89.41	0.28
North Main	reach 3 (south)	282000	1044.00	73.33	82.71	76.95	82.79	0.000235	2.26	462.37	68.88	0.15
North Main	reach 3 (south)	282000	1567.00	73.33	84.50	77.22	84.61	0.000272	2.68	588.16	73.65	0.17
North Main	reach 3 (south)	282000	2228.00	73.33	86.33	78.15	86.48	0.000304	3.05	729.45	80.57	0.18
North Main	reach 3 (south)	282000	4412.00	73.33	88.53	80.56	88.88	0.000642	4.82	915.22	88.85	0.28
North Main	reach 3 (south)	280327	1044.00	73.32	82.24	76.48	82.34	0.000311	2.49	419.80	65.13	0.17
North Main	reach 3 (south)	280327	1567.00	73.32	83.96	77.37	84.09	0.000354	2.91	537.81	72.20	0.19
North Main	reach 3 (south)	280327	2228.00	73.32	85.73	78.34	85.90	0.000392	3.32	671.85	79.95	0.20
North Main	reach 3 (south)	280327	4412.00	73.32	87.82	80.79	87.97	0.000416	3.82	2753.43	1266.06	0.21
North Main	reach 3 (south)	280263	1044.00	73.32	82.22	76.48	82.32	0.000314	2.50	418.26	65.05	0.17
North Main	reach 3 (south)	280263	1567.00	73.32	83.94	77.37	84.07	0.000357	2.92	535.90	72.10	0.19
North Main	reach 3 (south)	280263	2228.00	73.32	85.70	78.34	85.88	0.000395	3.33	689.74	79.78	0.20
North Main	reach 3 (south)	280263	4412.00	73.32	87.79	80.78	87.94	0.000427	3.67	2712.52	1265.06	0.21
North Main	reach 3 (south)	280000	1044.00	73.32	82.14	76.38	82.24	0.000307	2.49	418.86	63.76	0.17
North Main	reach 3 (south)	280000	1567.00	73.32	83.84	77.25	83.97	0.000354	2.94	532.46	70.04	0.19
North Main	reach 3 (south)	280000	2228.00	73.32	85.59	78.21	85.77	0.000395	3.37	681.03	76.52	0.20
North Main	reach 3 (south)	280000	4412.00	73.32	87.68	80.64	87.83	0.000410	3.73	2699.48	1203.84	0.21
North Main	reach 3 (south)	278000	1044.00	73.32	81.32	76.63	81.48	0.000504	2.96	352.16	60.61	0.22
North Main	reach 3 (south)	278000	1567.00	73.32	82.90	77.54	83.09	0.000583	3.48	452.96	68.82	0.23
North Main	reach 3 (south)	278000	2228.00	73.32	84.58	78.50	84.80	0.000610	3.91	569.40	73.87	0.25
North Main	reach 3 (south)	278000	4412.00	73.32	87.10	80.94	87.18	0.000254	2.81	4149.13	1754.65	0.16
North Main	reach 3 (south)	276000	1044.00	74.04	80.08	76.67	80.25	0.000745	3.27	319.66	64.43	0.28
North Main	reach 3 (south)	276000	1567.00	74.04	81.58	77.41	81.78	0.000785	3.74	419.02	69.84	0.27
North Main	reach 3 (south)	276000	2228.00	74.04	83.16	78.25	83.43	0.000789	4.16	535.17	75.75	0.28
North Main	reach 3 (south)	276000	4412.00	74.04	85.50	80.41	86.06	0.001695	5.98	737.30	110.50	0.41
North Main	reach 3 (south)	275122	1044.00	74.04	78.74	76.94	79.13	0.002514	5.01	208.44	55.86	0.46
North Main	reach 3 (south)	275122	1567.00	74.04	80.36	77.75	80.77	0.001874	5.15	304.27	61.91	0.41
North Main	reach 3 (south)	275122	2228.00	74.04	82.03	78.65	82.48	0.001563	5.40	412.22	67.42	0.39
North Main	reach 3 (south)	275122	4412.00	74.04	84.01	80.86	84.48	0.001853	6.18	1681.32	1565.80	0.42
North Main	reach 3 (south)	275113	Inline Weir									
North Main	reach 3 (south)	275102	1044.00	70.28	78.73	73.20	78.83	0.000348	2.58	404.96	64.47	0.18
North Main	reach 3 (south)	275102	1567.00	70.28	80.35	74.08	80.49	0.000401	3.05	513.89	70.20	0.20
North Main	reach 3 (south)	275102	2228.00	70.28	82.02	75.00	82.21	0.000448	3.50	636.50	76.82	0.21
North Main	reach 3 (south)	275102	4412.00	70.28	84.00	77.51	84.31	0.000810	4.75	1896.24	1863.34	0.29
North Main	reach 3 (south)	274837	1044.00	70.28	78.74	72.17	78.77	0.000084	1.38	754.60	109.82	0.09
North Main	reach 3 (south)	274837	1567.00	70.28	80.37	72.74	80.41	0.000101	1.67	939.80	117.29	0.10
North Main	reach 3 (south)	274837	2228.00	70.28	82.08	73.96	82.12	0.000115	1.95	1143.78	124.41	0.11
North Main	reach 3 (south)	274837	4412.00	70.28	84.05	75.03	84.14	0.000170	2.59	3607.97	2501.89	0.14
North Main	reach 3 (south)	274000	1044.00	70.28	78.57	72.91	78.85	0.000250	2.24	465.38	72.09	0.16
North Main	reach 3 (south)	274000	1567.00	70.28	80.18	73.68	80.27	0.000297	2.68	585.01	78.59	0.17
North Main	reach 3 (south)	274000	2228.00	70.28	81.81	74.52	81.96	0.000337	3.09	719.91	85.34	0.19
North Main	reach 3 (south)	274000	4412.00	70.28	83.78	76.72	83.92	0.000380	3.59	3559.00	3590.31	0.20
North Main	reach 3 (south)	272412	1044.00	70.28	78.21	72.67	78.28	0.000220	2.08	503.02	80.48	0.15
North Main	reach 3 (south)	272412	1567.00	70.28	79.73	73.39	79.83	0.000281	2.48	630.65	87.17	0.16
North Main	reach 3 (south)	272412	2228.00	70.28	81.32	74.16	81.45	0.000296	2.88	774.71	94.15	0.18
North Main	reach 3 (south)	272412	4412.00	70.28	82.75	76.21	83.11	0.000731	4.83	913.53	100.35	0.28
North Main	reach 3 (south)	271000	1308.00	70.27	77.88	73.02	77.82	0.000480	2.95	442.56	71.55	0.21
North Main	reach 3 (south)	271000	1925.00	70.27	79.09	73.80	79.29	0.000541	3.52	546.75	78.08	0.23
North Main	reach 3 (south)	271000	2703.00	70.27	80.58	74.65	80.83	0.000614	4.08	683.08	80.96	0.25
North Main	reach 3 (south)	271000	5237.00	70.27	82.48	76.90	82.52	0.000201	2.55	5787.90	2953.79	0.15

HEC-RAS Plan: P.259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	116403	2355.00	70.00	81.80	79.04	82.11	0.000426	4.55	814.33	104.35	0.28
North Main	reach 2	116403	4175.00	70.00	84.22	77.98	84.74	0.000568	6.06	1078.32	277.92	0.31
North Main	reach 2	116403	10250.00	70.00	86.76	82.88	86.12	0.001339	10.59	2470.12	852.57	0.49
North Main	reach 2	116161	1120.00	70.00	79.95	73.29	79.45	0.000183	2.58	468.09	79.58	0.18
North Main	reach 2	116161	2355.00	70.00	81.78	75.18	82.01	0.000318	4.06	701.84	119.00	0.22
North Main	reach 2	116161	4175.00	70.00	84.17	77.13	84.59	0.000440	5.49	1211.70	311.02	0.27
North Main	reach 2	116161	10250.00	70.00	86.62	82.12	87.76	0.001089	9.71	2573.42	887.45	0.44
North Main	reach 2	115322	1120.00	70.00	79.16	74.01	79.28	0.000229	2.88	539.44	211.28	0.18
North Main	reach 2	115322	2355.00	70.00	81.62	75.78	81.75	0.000228	3.45	1868.84	755.07	0.19
North Main	reach 2	115322	4175.00	70.00	84.20	77.95	84.29	0.000158	3.32	4368.85	1257.05	0.18
North Main	reach 2	115322	10250.00	70.00	86.97	82.27	87.06	0.000230	4.59	11457.03	4548.97	0.20
North Main	reach 2	115218	1120.00	70.00	79.16	73.19	79.25	0.000159	2.53	802.83	174.11	0.15
North Main	reach 2	115218	2355.00	70.00	81.60	74.98	81.72	0.000190	3.27	1815.93	711.52	0.17
North Main	reach 2	115218	4175.00	70.00	84.18	77.05	84.27	0.000145	3.29	4287.04	1240.88	0.16
North Main	reach 2	115218	10250.00	70.00	86.93	82.15	87.06	0.000228	4.88	11201.25	4478.88	0.20
North Main	reach 2	115057	1120.00	70.00	79.14	73.09	79.22	0.000141	2.39	1026.17	805.06	0.14
North Main	reach 2	115057	2355.00	70.00	81.64	74.83	81.69	0.000084	2.18	4081.86	1868.65	0.12
North Main	reach 2	115057	4175.00	70.00	84.22	78.81	84.24	0.000047	1.89	10196.87	3185.21	0.09
North Main	reach 2	115057	10250.00	70.00	86.99	80.91	87.01	0.000049	2.18	22803.32	5737.53	0.09
North Main	reach 2	114848	1120.00	70.00	79.13	72.89	79.19	0.000119	2.09	1099.54	920.03	0.13
North Main	reach 2	114848	2355.00	70.00	81.64	74.80	81.65	0.000048	1.80	5878.08	3202.49	0.09
North Main	reach 2	114848	4175.00	70.00	84.21	76.48	84.22	0.000025	1.32	13174.70	5487.42	0.06
North Main	reach 2	114848	10250.00	70.00	86.99	80.65	87.00	0.000031	1.66	28098.16	10585.81	0.07
North Main	reach 2	114615	1120.00	70.00	79.08	72.77	79.15	0.000134	2.22	570.25	731.68	0.14
North Main	reach 2	114615	2355.00	70.00	81.62	74.43	81.64	0.000054	1.89	5687.43	3302.68	0.09
North Main	reach 2	114615	4175.00	70.00	84.21	76.24	84.21	0.000024	1.30	13469.46	5479.13	0.06
North Main	reach 2	114615	10250.00	70.00	86.99	80.98	87.00	0.000029	1.85	26667.81	10185.84	0.07
North Main	reach 2	114800	Bridge									
North Main	reach 2	114585	1120.00	70.00	79.05	72.77	79.13	0.000138	2.23	550.02	687.25	0.14
North Main	reach 2	114585	2355.00	70.00	81.60	74.43	81.62	0.000054	1.70	5658.86	3286.24	0.09
North Main	reach 2	114585	4175.00	70.00	84.19	76.24	84.20	0.000024	1.30	13472.95	5450.23	0.06
North Main	reach 2	114585	10250.00	70.00	86.98	80.98	86.98	0.000029	1.64	26891.11	10156.17	0.07
North Main	reach 2	114500	1120.00	70.00	79.04	72.77	79.12	0.000137	2.23	543.56	672.45	0.14
North Main	reach 2	114500	2355.00	70.00	81.59	74.43	81.62	0.000054	1.69	5738.94	3285.22	0.09
North Main	reach 2	114500	4175.00	70.00	84.18	76.24	84.19	0.000023	1.27	13779.56	5440.60	0.06
North Main	reach 2	114500	10250.00	70.00	86.97	80.95	86.98	0.000028	1.61	27336.42	10142.02	0.07
North Main	reach 2	113500	1120.00	70.00	78.86	72.96	78.96	0.000183	2.52	456.52	67.44	0.16
North Main	reach 2	113500	2355.00	70.00	81.49	74.73	81.54	0.000102	2.30	4510.46	3315.50	0.13
North Main	reach 2	113500	4175.00	70.00	84.16	76.61	84.17	0.000024	1.30	14072.60	5485.41	0.06
North Main	reach 2	113500	10250.00	70.00	86.95	81.62	86.95	0.000026	1.54	28057.25	10546.34	0.07
North Main	reach 3 (south)	315796	410.00	90.87	98.19	93.28	98.24	0.000261	1.92	213.14	41.35	0.15
North Main	reach 3 (south)	315796	573.00	90.87	100.03	93.83	100.09	0.000210	1.94	295.09	47.55	0.14
North Main	reach 3 (south)	315796	770.00	90.87	101.62	94.40	101.68	0.000198	2.05	374.81	52.89	0.14
North Main	reach 3 (south)	315796	1392.00	90.87	104.32	95.85	104.40	0.000201	2.33	833.94	299.87	0.14
North Main	reach 3 (south)	315434	410.00	90.87	98.11	93.06	98.15	0.000188	1.64	249.95	49.43	0.13
North Main	reach 3 (south)	315434	573.00	90.87	99.98	93.55	100.02	0.000148	1.64	349.58	57.14	0.12
North Main	reach 3 (south)	315434	770.00	90.87	101.57	94.08	101.62	0.000137	1.73	445.82	63.71	0.12
North Main	reach 3 (south)	315434	1392.00	90.87	104.36	95.42	104.36	0.000020	0.74	4440.17	1324.78	0.04
North Main	reach 3 (south)	315287	589.00	90.32	98.01	93.48	98.10	0.000414	2.44	233.66	45.45	0.19
North Main	reach 3 (south)	315287	889.00	90.32	99.86	94.34	99.97	0.000413	2.74	323.89	52.27	0.19
North Main	reach 3 (south)	315287	1298.00	90.32	101.41	95.26	101.57	0.000467	3.17	409.54	58.09	0.21
North Main	reach 3 (south)	315287	2652.00	90.32	103.98	97.50	104.32	0.000802	4.63	572.89	69.01	0.28
North Main	reach 3 (south)	314000	589.00	89.95	97.40	93.03	97.51	0.000507	2.67	213.51	41.89	0.21
North Main	reach 3 (south)	314000	889.00	89.95	99.25	93.94	99.39	0.000505	3.00	296.66	48.39	0.21
North Main	reach 3 (south)	314000	1298.00	89.95	100.70	94.90	100.89	0.000590	3.50	370.79	53.52	0.23
North Main	reach 3 (south)	314000	2652.00	89.95	102.55	97.28	103.03	0.001259	5.58	475.57	60.03	0.35
North Main	reach 3 (south)	313862	589.00	89.95	97.33	93.03	97.44	0.000528	2.71	210.31	41.62	0.21
North Main	reach 3 (south)	313862	889.00	89.95	99.17	93.94	99.31	0.000523	3.03	292.98	48.12	0.22
North Main	reach 3 (south)	313862	1298.00	89.95	100.61	94.89	100.81	0.000611	3.55	366.06	53.21	0.24
North Main	reach 3 (south)	313862	2652.00	89.95	102.34	97.28	102.85	0.001350	5.72	463.40	59.31	0.36
North Main	reach 3 (south)	312000	589.00	89.03	96.49	91.86	96.58	0.000400	2.43	234.30	44.40	0.19
North Main	reach 3 (south)	312000	889.00	89.03	98.33	92.72	98.45	0.000410	2.76	321.65	50.74	0.19
North Main	reach 3 (south)	312000	1298.00	89.03	100.17	93.63	100.21	0.000175	1.98	1974.41	1928.17	0.13
North Main	reach 3 (south)	312000	2652.00	89.03	102.52	95.91	102.52	0.000031	0.93	8452.60	3258.17	0.06
North Main	reach 3 (south)	311185	589.00	88.28	96.30	90.77	96.35	0.000194	1.79	318.83	57.19	0.13
North Main	reach 3 (south)	311185	889.00	88.28	98.13	91.55	98.20	0.000208	2.06	430.76	65.18	0.14

Reach	Flow Sta	O Total	Min Ch El	W.S. Elev	Ch W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Crit
	(Sta)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
North Main	reach 3 (south)	311185	88.28	92.37	100.04	102.50	0.000220	2.33	557.05	73.12	0.15
North Main	reach 3 (south)	311185	88.28	102.49	102.50	102.50	0.00043	1.14	7392.17	3587.45	0.07
North Main	reach 3 (south)	311119	88.28	90.77	96.34	100.195	0.000195	1.79	317.87	57.14	0.13
North Main	reach 3 (south)	311119	88.28	98.12	91.55	100.0209	0.000209	2.07	429.64	65.12	0.14
North Main	reach 3 (south)	311119	88.28	99.95	92.37	100.0221	0.000221	2.33	555.95	73.06	0.15
North Main	reach 3 (south)	311119	88.28	102.49	94.45	102.50	0.00043	1.14	7391.86	3587.31	0.07
North Main	reach 3 (south)	310000	88.03	98.04	90.58	102.235	0.000235	1.99	285.74	48.91	0.15
North Main	reach 3 (south)	310000	88.03	97.84	91.38	102.289	0.000289	2.34	379.22	54.87	0.16
North Main	reach 3 (south)	310000	88.03	99.63	92.23	102.44	0.000244	2.69	482.87	60.69	0.17
North Main	reach 3 (south)	310000	88.03	102.43	94.45	102.44	0.000244	1.33	6497.51	3211.88	0.08
North Main	reach 3 (south)	308000	87.73	97.27	91.07	100.294	0.000294	2.44	393.65	53.78	0.15
North Main	reach 3 (south)	308000	87.73	95.54	90.26	100.280	0.000280	2.07	275.22	46.06	0.15
North Main	reach 3 (south)	308000	87.73	99.01	91.93	100.328	0.000328	2.81	461.85	58.66	0.18
North Main	reach 3 (south)	308000	87.73	102.28	94.15	102.28	0.000228	1.66	5631.20	3536.34	0.09
North Main	reach 3 (south)	307236	87.73	95.26	90.64	100.419	0.000419	2.45	231.79	44.90	0.19
North Main	reach 3 (south)	307236	87.73	96.98	91.54	100.449	0.000449	2.83	314.06	51.65	0.20
North Main	reach 3 (south)	307236	87.73	98.73	92.47	100.470	0.000470	3.18	407.87	57.79	0.21
North Main	reach 3 (south)	307236	87.73	102.10	94.76	102.15	0.000419	2.37	2671.78	2807.12	0.19
North Main	reach 3 (south)	307136	87.73	96.92	91.54	100.429	0.000429	2.48	229.78	44.73	0.19
North Main	reach 3 (south)	307136	87.73	98.62	92.47	100.480	0.000480	3.21	404.74	57.82	0.21
North Main	reach 3 (south)	307136	87.73	102.05	94.76	102.11	0.000451	2.46	2547.95	2499.39	0.20
North Main	reach 3 (south)	306000	86.38	94.67	90.06	100.502	0.000502	2.65	214.49	42.05	0.21
North Main	reach 3 (south)	306000	86.38	96.30	91.07	100.548	0.000548	3.07	269.23	48.33	0.22
North Main	reach 3 (south)	306000	86.38	98.00	92.08	100.581	0.000581	3.46	375.28	54.75	0.23
North Main	reach 3 (south)	306000	86.38	101.03	94.52	101.38	0.000835	4.74	559.56	66.51	0.29
North Main	reach 3 (south)	304000	86.39	93.77	89.22	100.420	0.000420	2.47	230.69	44.48	0.19
North Main	reach 3 (south)	304000	86.39	95.31	90.10	100.483	0.000483	2.93	303.41	49.84	0.21
North Main	reach 3 (south)	304000	86.39	96.87	91.02	100.531	0.000531	3.36	386.81	55.36	0.22
North Main	reach 3 (south)	304000	86.39	98.48	93.30	100.586	0.000586	3.86	521.82	63.26	0.31
North Main	reach 3 (south)	302274	86.39	92.97	88.45	100.699	0.000699	2.71	209.71	53.94	0.24
North Main	reach 3 (south)	302274	86.39	94.45	90.31	100.664	0.000664	3.02	293.94	60.84	0.24
North Main	reach 3 (south)	302274	86.39	96.01	91.23	100.629	0.000629	3.28	395.83	69.63	0.24
North Main	reach 3 (south)	302274	86.39	99.05	93.33	100.744	0.000744	4.84	4050.19	2018.01	0.12
North Main	reach 3 (south)	301922	86.39	94.29	88.68	100.938	0.000938	2.24	253.92	52.64	0.18
North Main	reach 3 (south)	301922	86.39	96.85	90.19	100.947	0.000947	3.01	431.69	64.76	0.21
North Main	reach 3 (south)	301922	86.39	98.87	92.18	100.978	0.000978	2.13	3472.22	2124.78	0.13
North Main	reach 3 (south)	301915	86.39	92.82	88.66	100.937	0.000937	2.22	256.67	52.64	0.18
North Main	reach 3 (south)	301915	86.39	94.29	89.38	100.980	0.000980	2.63	336.17	58.49	0.19
North Main	reach 3 (south)	301915	86.39	96.84	90.15	100.943	0.000943	3.00	432.70	64.71	0.20
North Main	reach 3 (south)	301915	86.39	98.86	92.13	100.999	0.000999	1.59	4730.86	2552.40	0.11
North Main	reach 3 (south)	301721	86.39	92.66	89.08	100.837	0.000837	2.80	203.41	45.33	0.23
North Main	reach 3 (south)	301721	86.39	95.87	90.77	100.871	0.000871	3.63	358.04	58.28	0.25
North Main	reach 3 (south)	301721	86.39	98.89	92.95	100.936	0.000936	2.74	2256.75	1265.32	0.20
North Main	reach 3 (south)	301655	86.39	92.64	89.06	100.655	0.000655	2.63	201.35	45.13	0.24
North Main	reach 3 (south)	301655	86.39	94.07	89.90	100.6719	0.000719	3.29	270.62	51.36	0.25
North Main	reach 3 (south)	301655	86.39	95.81	90.75	100.728	0.000728	3.66	355.06	59.08	0.26
North Main	reach 3 (south)	301655	86.39	98.87	92.95	100.844	0.000844	2.61	2237.75	1264.51	0.20
North Main	reach 3 (south)	300000	86.39	90.99	88.74	100.441	0.000441	3.73	152.58	40.80	0.34
North Main	reach 3 (south)	300000	86.39	92.35	89.50	100.382	0.000382	4.21	211.34	45.24	0.34
North Main	reach 3 (south)	300000	86.39	93.96	90.32	100.4226	0.0004226	4.50	298.24	50.43	0.33
North Main	reach 3 (south)	300000	86.39	97.20	92.41	100.531	0.000531	5.66	468.18	60.85	0.36
North Main	reach 3 (south)	298385	86.39	89.70	88.37	100.2731	0.0002731	4.37	130.23	44.81	0.45
North Main	reach 3 (south)	298385	86.39	91.47	89.04	100.313	0.000313	4.16	213.85	50.11	0.35
North Main	reach 3 (south)	298385	86.39	93.28	89.75	100.3067	0.0003067	4.20	308.85	54.66	0.31
North Main	reach 3 (south)	298385	86.39	96.46	91.65	100.390	0.000390	5.37	493.72	63.33	0.34



HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl.
North Main	reach 2	137249	482.00	78.00	87.08	80.54	87.13	0.000093	1.98	319.88	52.91	0.12
North Main	reach 2	137249	1051.00	78.00	90.08	82.09	90.19	0.000151	3.06	495.03	64.52	0.16
North Main	reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.73	67.93	0.24
North Main	reach 2	137249	4804.00	78.00	92.14	88.26	93.83	0.001879	11.40	821.90	3640.75	0.54
North Main	reach 2	137150	482.00	78.00	87.07	80.41	87.12	0.000081	1.85	333.54	53.74	0.11
North Main	reach 2	137150	1051.00	78.00	90.08	81.88	90.17	0.000133	2.88	510.38	64.88	0.15
North Main	reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.65	573.03	68.36	0.23
North Main	reach 2	137150	4804.00	78.00	92.02	87.85	93.63	0.001585	10.97	646.41	2221.13	0.52
North Main	reach 2	135957	482.00	78.00	87.00	80.18	87.04	0.000063	1.64	384.12	57.05	0.10
North Main	reach 2	135957	1051.00	78.00	89.93	81.52	90.02	0.000107	2.58	547.31	67.95	0.13
North Main	reach 2	135957	1858.00	78.00	90.78	83.04	90.98	0.000210	3.79	1405.30	1303.71	0.19
North Main	reach 2	135957	4804.00	78.00	91.90	87.09	92.28	0.000537	6.42	3681.48	2916.62	0.31
North Main	reach 2	135841	482.00	78.00	86.98	80.23	87.02	0.000068	1.70	353.30	55.71	0.10
North Main	reach 2	135841	1051.00	78.00	89.90	81.80	90.00	0.000115	2.67	531.56	68.34	0.14
North Main	reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000248	4.11	1167.16	1395.68	0.20
North Main	reach 2	135841	4804.00	78.00	91.79	87.27	92.20	0.000602	6.75	3731.79	5978.83	0.32
North Main	reach 2	135233	482.00	78.00	86.95	80.32	88.99	0.000068	1.57	343.38	55.01	0.10
North Main	reach 2	135233	1051.00	78.00	89.85	81.73	89.94	0.000108	2.48	518.86	66.03	0.13
North Main	reach 2	135233	1858.00	78.00	90.88	83.13	90.78	0.000151	3.08	2883.68	3640.52	0.16
North Main	reach 2	135233	4804.00	78.00	91.99	86.96	92.00	0.000054	1.95	17128.66	9186.61	0.09
North Main	reach 2	134690	482.00	78.00	86.93	80.04	88.96	0.000048	1.33	403.28	63.63	0.08
North Main	reach 2	134690	1051.00	78.00	89.82	81.31	89.88	0.000089	1.99	951.06	598.31	0.11
North Main	reach 2	134690	1858.00	78.00	90.66	82.63	90.71	0.000084	2.30	4704.58	8801.60	0.12
North Main	reach 2	134690	4804.00	78.00	91.98	86.09	91.99	0.000041	1.73	18937.69	9801.20	0.08
North Main	reach 2	134647	Bridge									
North Main	reach 2	134606	482.00	78.00	86.89	81.96	86.94	0.000134	2.01	312.74	70.38	0.14
North Main	reach 2	134606	1051.00	78.00	89.72	83.30	89.81	0.000141	2.80	1307.46	1884.92	0.15
North Main	reach 2	134606	1858.00	78.00	90.62	84.81	90.68	0.000108	2.42	5367.28	8768.48	0.13
North Main	reach 2	134606	4804.00	78.00	91.96	90.76	91.96	0.000042	1.64	19613.56	9788.50	0.08
North Main	reach 2	134537	482.00	78.00	85.90	80.04	86.92	0.000047	1.34	400.88	63.48	0.08
North Main	reach 2	134537	1051.00	78.00	89.73	81.31	89.79	0.000073	2.03	895.56	574.51	0.11
North Main	reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000094	2.43	4434.95	8739.14	0.12
North Main	reach 2	134537	4804.00	78.00	91.95	86.09	91.96	0.000043	1.75	18892.29	9782.15	0.09
North Main	reach 2	132334	962.00	78.00	86.51	81.36	86.64	0.000271	2.86	347.05	58.17	0.19
North Main	reach 2	132334	1985.00	78.00	89.09	83.16	89.38	0.000387	4.22	675.33	2154.88	0.24
North Main	reach 2	132334	3435.00	78.00	90.22	84.98	90.30	0.000207	3.33	8568.96	8427.84	0.18
North Main	reach 2	132334	8788.00	78.00	91.79	90.51	91.81	0.000098	2.50	21396.33	9651.57	0.13
North Main	reach 2	131688	962.00	78.00	86.34	81.34	86.46	0.000265	2.77	357.98	61.94	0.19
North Main	reach 2	131688	1985.00	78.00	89.00	83.09	89.13	0.000239	3.29	1325.05	1989.65	0.19
North Main	reach 2	131688	3435.00	78.00	90.09	84.81	90.17	0.000190	3.16	5798.20	7579.23	0.17
North Main	reach 2	131688	8788.00	78.00	91.71	89.89	91.74	0.000114	2.69	19249.46	8694.01	0.14
North Main	reach 2	130701	962.00	78.00	86.26	80.24	86.29	0.000095	1.88	1085.82	280.33	0.11
North Main	reach 2	130701	1985.00	78.00	88.92	81.50	88.96	0.000099	2.13	2227.26	1500.41	0.12
North Main	reach 2	130701	3435.00	78.00	89.95	82.88	90.00	0.000137	2.69	4784.00	3186.62	0.15
North Main	reach 2	130701	8788.00	78.00	91.59	86.50	91.62	0.000128	2.87	17414.03	8455.02	0.15
North Main	reach 2	130048	962.00	78.00	86.03	81.30	86.17	0.000326	3.01	327.47	57.23	0.21
North Main	reach 2	130048	1985.00	78.00	88.65	83.09	88.84	0.000327	3.77	1648.99	3269.49	0.22
North Main	reach 2	130048	3435.00	78.00	89.85	84.88	89.91	0.000185	2.91	6819.25	8079.57	0.18
North Main	reach 2	130048	8788.00	78.00	91.54	89.69	91.55	0.000069	2.08	23821.63	9344.04	0.11
North Main	reach 2	128081	962.00	78.00	85.37	81.03	85.52	0.000370	3.04	320.37	196.37	0.22
North Main	reach 2	128081	1985.00	78.00	88.05	82.73	88.22	0.000311	3.56	1711.83	3151.93	0.21
North Main	reach 2	128081	3435.00	78.00	89.55	84.47	89.61	0.000149	2.74	6773.35	6703.22	0.15
North Main	reach 2	128081	8788.00	78.00	91.44	89.09	91.44	0.000046	1.71	27441.69	9638.16	0.09
North Main	reach 2	128032	962.00	78.00	85.35	81.04	85.50	0.000376	3.05	318.66	188.78	0.22
North Main	reach 2	128032	1985.00	78.00	88.03	82.72	88.20	0.000318	3.60	1674.52	3117.76	0.22
North Main	reach 2	128032	3435.00	78.00	89.55	84.47	89.60	0.000150	2.75	6758.84	6729.91	0.15
North Main	reach 2	128032	8788.00	78.00	91.43	89.09	91.43	0.000046	1.71	27475.54	9654.49	0.09
North Main	reach 2	126984	962.00	78.00	85.04	79.67	85.16	0.000287	2.71	357.36	1365.73	0.19
North Main	reach 2	126984	1985.00	78.00	87.90	81.51	87.96	0.000138	2.48	3139.94	4073.35	0.14
North Main	reach 2	126984	3435.00	78.00	89.45	83.42	89.48	0.000077	2.05	8359.63	6535.84	0.11
North Main	reach 2	126984	8788.00	78.00	91.40	88.13	91.40	0.000028	1.38	31465.98	9055.57	0.07
North Main	reach 2	126599	962.00	78.00	84.94	79.65	85.05	0.000275	2.71	357.00	60.18	0.19
North Main	reach 2	126599	1985.00	78.00	87.64	81.48	87.86	0.000338	3.81	782.60	977.89	0.22
North Main	reach 2	126599	3435.00	78.00	89.34	83.39	89.43	0.000180	3.12	5506.91	6420.99	0.17
North Main	reach 2	126599	8788.00	78.00	91.37	89.23	91.38	0.000056	1.95	24674.39	8888.89	0.10

HFC-DAS Plan: P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froutde # Cfl
North Main	reach 2	125566	962.00	76.00	84.61	79.98	84.74	0.000332	2.89	334.00	57.37	0.21
North Main	reach 2	125566	1985.00	76.00	87.27	81.48	87.49	0.000380	3.93	688.78	94.99	0.23
North Main	reach 2	125566	3435.00	76.00	89.13	83.38	89.22	0.000209	3.32	4521.78	408.20	0.18
North Main	reach 2	125566	8788.00	76.00	91.28	88.92	91.31	0.000100	2.90	19891.95	9254.74	0.13
North Main	reach 2	124578	962.00	76.00	84.33	79.24	84.45	0.000284	2.79	354.51	60.15	0.19
North Main	reach 2	124578	1985.00	76.00	86.85	81.00	87.11	0.000383	4.15	519.66	70.63	0.24
North Main	reach 2	124578	3435.00	76.00	88.71	82.77	88.94	0.000357	4.52	2458.61	2036.24	0.24
North Main	reach 2	124578	8788.00	76.00	90.95	89.11	91.12	0.000365	5.17	9007.22	5479.00	0.25
North Main	reach 2	124360	962.00	76.00	84.23	79.51	84.37	0.000343	3.10	318.91	58.05	0.21
North Main	reach 2	124360	1985.00	76.00	86.77	81.36	87.03	0.000417	4.25	805.80	440.91	0.25
North Main	reach 2	124360	3435.00	76.00	88.59	83.15	88.85	0.000426	4.86	1977.55	2413.04	0.26
North Main	reach 2	124360	8788.00	76.00	90.97	88.79	91.03	0.000208	3.87	13000.02	5749.37	0.18
North Main	reach 2	124036	962.00	76.00	84.11	79.38	84.26	0.000342	3.09	318.71	55.34	0.21
North Main	reach 2	124036	1985.00	76.00	86.61	81.22	86.58	0.000438	4.33	744.81	408.54	0.25
North Main	reach 2	124036	3435.00	76.00	88.41	83.03	88.71	0.000463	5.03	1830.26	2284.34	0.27
North Main	reach 2	124036	8788.00	76.00	90.88	88.75	90.96	0.000228	4.04	12447.38	5637.35	0.19
North Main	reach 2	122198	962.00	76.00	83.46	79.14	83.61	0.000386	3.10	313.79	57.54	0.22
North Main	reach 2	122198	1985.00	76.00	85.02	80.87	85.18	0.000320	3.58	1401.38	878.14	0.22
North Main	reach 2	122198	3435.00	76.00	88.06	82.63	88.14	0.000183	3.13	4408.59	2048.78	0.17
North Main	reach 2	122198	8788.00	76.00	90.52	87.29	90.58	0.000189	3.85	11022.83	5366.97	0.16
North Main	reach 2	120752	962.00	76.00	82.55	79.42	82.81	0.000841	4.02	239.96	50.91	0.32
North Main	reach 2	120752	1985.00	76.00	84.93	81.24	85.41	0.000953	5.56	373.13	81.29	0.36
North Main	reach 2	120752	3435.00	76.00	87.50	83.02	87.73	0.000462	4.73	2682.90	1825.62	0.27
North Main	reach 2	120752	8788.00	76.00	90.16	87.94	90.25	0.000278	4.30	6360.91	2900.23	0.21
North Main	reach 2	120467	962.00	76.00	82.32	79.23	82.56	0.000832	3.93	245.16	52.51	0.32
North Main	reach 2	120467	1985.00	76.00	84.68	80.99	85.13	0.000824	5.40	380.90	62.75	0.36
North Main	reach 2	120467	3435.00	76.00	87.08	82.74	87.54	0.000758	5.93	1568.19	1650.36	0.34
North Main	reach 2	120467	8788.00	76.00	90.10	88.05	90.18	0.000250	4.10	10106.63	4296.46	0.20
North Main	reach 2	119740	962.00	76.00	80.76	79.23	81.28	0.002445	5.68	169.27	45.79	0.52
North Main	reach 2	119740	1985.00	76.00	83.03	80.98	83.80	0.002242	7.06	283.14	55.56	0.53
North Main	reach 2	119740	3435.00	76.00	85.21	82.74	86.35	0.002131	8.61	498.34	1389.24	0.55
North Main	reach 2	119740	8788.00	76.00	90.03	87.55	90.05	0.000067	2.12	19364.39	7395.43	0.11
North Main	reach 2	119730	962.00	72.00	80.99	75.11	81.06	0.000139	2.13	473.41	79.15	0.14
North Main	reach 2	119730	1985.00	72.00	83.32	78.74	83.49	0.000225	3.27	690.41	118.57	0.19
North Main	reach 2	119730	3435.00	72.00	85.83	78.35	85.91	0.000302	4.39	1047.18	1570.56	0.22
North Main	reach 2	119730	8788.00	72.00	89.61	82.35	89.95	0.000354	5.76	4040.69	6174.67	0.26
North Main	reach 2	118784	962.00	72.00	80.88	75.11	80.96	0.000146	2.17	465.01	78.59	0.14
North Main	reach 2	118784	1985.00	72.00	83.18	78.74	83.32	0.000211	3.14	1075.90	589.18	0.18
North Main	reach 2	118784	3435.00	72.00	85.57	78.35	85.67	0.000153	3.11	3071.56	3291.00	0.18
North Main	reach 2	118784	8788.00	72.00	89.64	84.22	89.69	0.000096	3.00	10454.44	5052.28	0.13
North Main	reach 2	118761	962.00	70.00	80.88	73.45	80.94	0.000115	2.05	487.99	72.80	0.13
North Main	reach 2	118761	1985.00	70.00	83.17	75.48	83.31	0.000187	3.09	1079.88	564.50	0.17
North Main	reach 2	118761	3435.00	70.00	85.56	77.48	85.67	0.000153	3.20	2912.73	893.63	0.16
North Main	reach 2	118761	8788.00	70.00	89.62	83.99	89.68	0.000108	3.23	11060.36	2547.63	0.14
North Main	reach 2	118736	Culvert									
North Main	reach 2	118709	962.00	70.00	79.87		79.95	0.000181	2.35	417.09	67.48	0.16
North Main	reach 2	118709	1985.00	70.00	82.64		82.81	0.000241	3.38	812.96	446.55	0.19
North Main	reach 2	118709	3435.00	70.00	85.55		85.66	0.000154	3.21	2904.14	882.99	0.16
North Main	reach 2	118709	8788.00	70.00	89.61		89.67	0.000106	3.24	11032.25	2545.21	0.14
North Main	reach 2	118635	962.00	72.00	79.64		79.94	0.000222	2.47	396.41	70.11	0.17
North Main	reach 2	118635	1985.00	72.00	82.62		82.79	0.000283	3.43	826.05	475.27	0.20
North Main	reach 2	118635	3435.00	72.00	85.54		85.64	0.000155	3.16	2979.12	948.80	0.16
North Main	reach 2	118635	8788.00	72.00	89.60		89.66	0.000102	3.11	11259.97	2559.45	0.14
North Main	reach 2	118513	962.00	72.00	79.82		79.91	0.000211	2.44	399.85	67.63	0.17
North Main	reach 2	118513	1985.00	72.00	82.59		82.76	0.000250	3.37	857.94	448.70	0.19
North Main	reach 2	118513	3435.00	72.00	85.52		85.62	0.000154	3.17	2942.48	922.90	0.16
North Main	reach 2	118513	8788.00	72.00	89.59		89.65	0.000105	3.18	11122.31	2540.76	0.14
North Main	reach 2	117690	1120.00	70.00	79.63	73.75	79.76	0.000243	2.99	395.95	60.50	0.18
North Main	reach 2	117690	2355.00	70.00	82.21	75.82	82.54	0.000413	4.69	568.37	73.71	0.25
North Main	reach 2	117690	4175.00	70.00	84.78	77.91	85.36	0.000607	6.55	783.99	93.60	0.32
North Main	reach 2	117690	10250.00	70.00	89.32	83.24	89.52	0.000283	5.45	8421.16	6050.56	0.23
North Main	reach 2	117193	1120.00	70.00	79.53	73.66	79.66	0.000242	2.98	389.69	58.25	0.18
North Main	reach 2	117193	2355.00	70.00	82.04	75.71	82.37	0.000422	4.70	561.22	79.96	0.25
North Main	reach 2	117193	4175.00	70.00	84.48	77.76	85.14	0.000633	6.82	829.37	211.18	0.32
North Main	reach 2	117193	10250.00	70.00	87.26	83.27	89.13	0.001576	11.88	1886.64	848.40	0.53
North Main	reach 2	116403	1120.00	70.00	79.38	74.20	79.51	0.000260	2.94	408.67	70.45	0.19

HEC-RAS Plan: P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	157290	100.00	87.38	92.23	88.88	92.25	0.000164	1.11	90.09	28.70	0.11
North Main	reach 2	157290	188.00	87.38	95.35	89.49	95.36	0.000088	0.94	199.20	41.31	0.08
North Main	reach 2	157290	515.00	87.38	97.05	91.01	97.11	0.000213	1.87	275.51	48.09	0.14
North Main	reach 2	156900	40.00	87.39	89.39	88.06	89.41	0.000376	1.10	36.31	22.48	0.15
North Main	reach 2	156900	100.00	87.38	92.16	88.52	92.19	0.000091	0.88	113.32	32.70	0.08
North Main	reach 2	156900	188.00	87.38	95.33	89.03	95.34	0.000043	0.80	234.26	44.25	0.06
North Main	reach 2	156900	515.00	87.38	96.99	90.35	97.04	0.000148	1.64	313.20	50.38	0.12
North Main	reach 2	155952	40.00	87.33	88.96	87.94	88.96	0.000542	1.17	34.30	26.17	0.18
North Main	reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000058	0.70	141.98	42.08	0.07
North Main	reach 2	155952	188.00	87.33	95.30	89.80	95.31	0.000026	0.62	301.64	58.14	0.05
North Main	reach 2	155952	515.00	87.33	96.90	89.97	96.92	0.000089	1.29	400.73	66.18	0.09
North Main	reach 2	155846	40.00	87.31	88.90	87.84	88.92	0.000568	1.24	32.34	23.04	0.18
North Main	reach 2	155846	100.00	87.31	92.11	88.28	92.12	0.000071	0.81	123.87	33.81	0.07
North Main	reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000036	0.78	246.41	43.18	0.06
North Main	reach 2	155846	515.00	87.31	96.88	90.02	96.92	0.000134	1.62	318.28	47.83	0.11
North Main	reach 2	155779	40.00	87.31	88.88	87.70	88.89	0.000235	0.82	48.68	33.28	0.12
North Main	reach 2	155779	100.00	87.31	92.11	88.02	92.11	0.000033	0.58	171.23	42.64	0.05
North Main	reach 2	155779	188.00	87.31	95.30	88.39	95.30	0.000019	0.59	321.18	51.45	0.04
North Main	reach 2	155779	515.00	87.31	96.87	89.38	96.90	0.000073	1.27	405.85	55.81	0.08
North Main	reach 2	155698	40.00	87.31	88.84	87.78	88.86	0.000443	1.09	36.63	26.02	0.16
North Main	reach 2	155698	100.00	87.31	92.09	88.16	92.10	0.000056	0.74	135.97	35.24	0.07
North Main	reach 2	155698	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	283.15	44.43	0.05
North Main	reach 2	155698	515.00	87.31	96.85	89.76	96.89	0.000119	1.53	336.47	48.95	0.10
North Main	reach 2	154900	40.00	86.57	88.63	87.06	88.64	0.000178	0.82	48.95	26.96	0.11
North Main	reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000036	0.63	158.78	37.28	0.05
North Main	reach 2	154900	188.00	86.57	95.26	87.90	95.26	0.000023	0.64	293.72	46.84	0.05
North Main	reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000092	1.40	368.52	51.52	0.09
North Main	reach 2	153295	40.00	85.60	88.42	86.21	88.43	0.000105	0.72	55.63	24.51	0.08
North Main	reach 2	153295	100.00	85.60	92.00	86.68	92.00	0.000031	0.61	164.14	36.16	0.05
North Main	reach 2	153295	188.00	85.60	95.23	87.20	95.23	0.000022	0.63	298.59	47.20	0.04
North Main	reach 2	153295	515.00	85.60	96.63	88.55	96.66	0.000093	1.40	368.00	52.05	0.09
North Main	reach 2	153200	40.00	85.60	88.41	86.21	88.41	0.000106	0.72	55.30	24.46	0.08
North Main	reach 2	153200	100.00	85.60	91.99	86.68	91.99	0.000031	0.61	163.74	38.12	0.05
North Main	reach 2	153200	188.00	85.60	95.22	87.20	95.23	0.000022	0.63	298.19	47.17	0.04
North Main	reach 2	153200	515.00	85.60	96.61	88.54	96.64	0.000094	1.40	367.02	51.98	0.09
North Main	reach 2	152900	40.00	85.22	88.38	85.96	88.39	0.000058	0.56	70.88	28.93	0.06
North Main	reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.31	40.41	0.04
North Main	reach 2	152900	188.00	85.22	95.21	88.82	95.22	0.000015	0.55	342.96	50.86	0.04
North Main	reach 2	152900	515.00	85.22	96.59	88.03	96.61	0.000067	1.24	415.11	55.31	0.08
North Main	reach 2	150900	40.00	84.97	88.30	85.46	88.31	0.000031	0.45	89.85	32.92	0.05
North Main	reach 2	150900	100.00	84.97	91.95	85.85	91.96	0.000013	0.43	233.19	45.64	0.03
North Main	reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.41	58.95	0.03
North Main	reach 2	150900	515.00	84.97	96.48	87.43	96.50	0.000048	1.08	475.62	61.49	0.07
North Main	reach 2	150637	40.00	84.27	88.29	85.01	88.30	0.000016	0.34	116.61	37.81	0.03
North Main	reach 2	150637	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.44	52.07	0.03
North Main	reach 2	150637	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.40	65.38	0.03
North Main	reach 2	150637	515.00	84.27	96.48	86.81	96.49	0.000046	0.92	560.15	91.93	0.07
North Main	reach 2	150569	40.00	84.27	88.28	85.01	88.29	0.000016	0.34	116.25	37.77	0.03
North Main	reach 2	150569	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.24	52.05	0.03
North Main	reach 2	150569	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.17	65.37	0.03
North Main	reach 2	150569	515.00	84.27	96.47	86.81	96.49	0.000046	0.92	559.87	91.83	0.07
North Main	reach 2	148900	40.00	84.27	88.25	84.79	88.26	0.000020	0.39	101.41	32.34	0.04
North Main	reach 2	148900	100.00	84.27	91.93	85.20	91.94	0.000011	0.41	244.16	45.30	0.03
North Main	reach 2	148900	188.00	84.27	95.18	85.87	95.18	0.000010	0.46	409.64	56.76	0.03
North Main	reach 2	148900	515.00	84.27	96.39	86.90	96.41	0.000046	1.07	481.08	61.05	0.07
North Main	reach 2	147966	40.00	83.76	88.23	84.95	88.23	0.000073	0.68	58.91	20.33	0.07
North Main	reach 2	147966	100.00	83.76	91.92	85.61	91.93	0.000034	0.65	154.09	31.15	0.05
North Main	reach 2	147966	188.00	83.76	95.17	86.29	95.17	0.000027	0.69	271.05	41.27	0.05
North Main	reach 2	147966	515.00	83.76	96.30	87.99	96.34	0.000130	1.61	319.99	45.39	0.11
North Main	reach 2	147814	40.00	83.76	88.22	84.77	88.22	0.000044	0.55	72.98	24.56	0.06
North Main	reach 2	147814	100.00	83.76	91.91	85.35	91.92	0.000021	0.53	187.08	37.16	0.04
North Main	reach 2	147814	188.00	83.76	95.18	85.97	95.16	0.000017	0.58	325.44	48.14	0.04
North Main	reach 2	147814	515.00	83.76	96.29	87.51	96.32	0.000083	1.35	362.23	51.99	0.09
North Main	reach 2	146900	40.00	83.26	88.20	84.07	88.20	0.000018	0.39	102.62	29.95	0.04
North Main	reach 2	146900	100.00	83.26	91.90	84.58	91.90	0.000011	0.42	237.51	42.94	0.03
North Main	reach 2	146900	188.00	83.26	95.14	85.14	95.15	0.000010	0.48	395.35	54.33	0.03
North Main	reach 2	146900	515.00	83.26	96.23	86.55	96.25	0.000052	1.13	456.39	58.14	0.07

HEC-RAS Plan D 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	145333	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	119.07	32.21	0.03
North Main	reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.13	45.25	0.03
North Main	reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.46	57.85	0.03
North Main	reach 2	145333	515.00	83.11	98.16	86.08	96.17	0.000044	1.05	490.56	81.67	0.07
North Main	reach 2	145285	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	118.97	32.21	0.03
North Main	reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.03	45.24	0.03
North Main	reach 2	145285	188.00	83.11	95.13	84.73	95.13	0.000008	0.44	429.34	57.84	0.03
North Main	reach 2	145285	515.00	83.11	98.16	86.08	96.17	0.000030	0.87	1054.46	2238.74	0.05
North Main	reach 2	144900	40.00	83.06	88.18	83.58	88.18	0.000007	0.27	149.03	37.57	0.02
North Main	reach 2	144900	100.00	83.06	91.88	83.95	91.89	0.000006	0.32	310.78	49.66	0.02
North Main	reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	567.95	503.38	0.02
North Main	reach 2	144900	515.00	83.06	98.15	85.58	96.16	0.000019	0.73	1732.67	2335.24	0.04
North Main	reach 2	144259	482.00	78.00	88.11	80.37	88.14	0.000062	1.34	359.67	48.86	0.09
North Main	reach 2	144259	1051.00	78.00	91.79	81.85	91.64	0.000079	1.88	563.64	81.85	0.10
North Main	reach 2	144259	1858.00	78.00	94.98	83.44	95.08	0.000097	2.51	779.97	73.71	0.12
North Main	reach 2	144259	4804.00	78.00	95.35	87.38	95.92	0.000562	6.15	1418.59	7575.15	0.29
North Main	reach 2	144227	Culvert									
North Main	reach 2	144196	482.00	78.00	88.00	80.37	88.03	0.000065	1.36	354.22	49.55	0.09
North Main	reach 2	144196	1051.00	78.00	91.21	81.85	91.27	0.000098	2.00	528.24	59.88	0.11
North Main	reach 2	144196	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.54	67.09	0.15
North Main	reach 2	144196	4804.00	78.00	95.37	87.38	95.90	0.000537	6.02	1658.29	7700.76	0.29
North Main	reach 2	143786	482.00	80.00	87.92	83.00	87.98	0.000190	1.95	246.95	47.42	0.15
North Main	reach 2	143786	1051.00	80.00	91.10	84.48	91.20	0.000198	2.53	418.87	59.29	0.16
North Main	reach 2	143786	1858.00	80.00	93.03	85.98	93.22	0.000287	3.55	536.10	68.46	0.20
North Main	reach 2	143786	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8005.10	8954.42	0.20
North Main	reach 2	142844	482.00	80.00	87.78	82.81	87.81	0.000165	1.84	291.57	49.49	0.14
North Main	reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000178	2.41	437.06	61.03	0.15
North Main	reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.31	67.80	0.20
North Main	reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11889.65	9189.02	0.14
North Main	reach 2	142821	Bridge									
North Main	reach 2	142771	482.00	80.00	87.73	82.51	87.79	0.000163	1.85	280.70	48.47	0.14
North Main	reach 2	142771	1051.00	80.00	90.90	83.97	91.00	0.000181	2.43	433.25	60.03	0.18
North Main	reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.63	66.21	0.20
North Main	reach 2	142771	4804.00	80.00	95.18	89.25	95.30	0.000237	3.76	8206.88	8923.34	0.19
North Main	reach 2	141205	482.00	80.00	87.50	82.36	87.55	0.000147	1.78	271.28	49.45	0.13
North Main	reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.38	443.07	59.96	0.15
North Main	reach 2	141205	1858.00	80.00	92.33	85.15	92.52	0.000273	3.43	549.55	65.68	0.20
North Main	reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000125	2.73	11454.08	8884.70	0.14
North Main	reach 2	140152	482.00	80.00	87.31	82.62	87.37	0.000201	1.95	248.84	50.18	0.16
North Main	reach 2	140152	1051.00	80.00	90.44	84.06	90.53	0.000209	2.47	425.06	63.79	0.17
North Main	reach 2	140152	1858.00	80.00	92.02	85.54	92.21	0.000327	3.55	531.00	70.58	0.22
North Main	reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11245.37	9008.33	0.14
North Main	reach 2	140137	Bridge									
North Main	reach 2	140107	482.00	78.00	87.32	80.62	87.35	0.000087	1.48	330.20	54.18	0.10
North Main	reach 2	140107	1051.00	78.00	90.44	82.15	90.50	0.000117	2.03	519.22	66.79	0.13
North Main	reach 2	140107	1858.00	78.00	91.89	83.72	92.04	0.000209	3.03	620.87	72.71	0.17
North Main	reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.36	11292.51	6547.77	0.12
North Main	reach 2	138870	482.00	78.00	87.22	80.28	87.26	0.000068	1.70	359.15	56.07	0.10
North Main	reach 2	138870	1051.00	78.00	90.28	81.68	90.37	0.000109	2.65	548.08	67.43	0.13
North Main	reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.63	72.06	0.20
North Main	reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.82	13694.86	8905.17	0.12
North Main	reach 2	137387	482.00	78.00	87.12	80.28	87.18	0.000069	1.72	353.80	55.82	0.10
North Main	reach 2	137387	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.49	67.02	0.14
North Main	reach 2	137387	1858.00	78.00	91.14	83.28	91.39	0.000264	4.32	608.10	70.84	0.21
North Main	reach 2	137387	4804.00	78.00	94.26	87.47	94.51	0.000311	5.43	4571.58	8307.18	0.24
North Main	reach 2	137364	482.00	78.00	87.11	80.28	87.16	0.000069	1.72	353.27	55.80	0.10
North Main	reach 2	137364	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.36	67.01	0.14
North Main	reach 2	137364	1858.00	78.00	91.13	83.28	91.39	0.000285	4.33	607.78	70.83	0.21
North Main	reach 2	137364	4804.00	78.00	94.26	87.48	94.50	0.000313	5.44	4560.37	8302.15	0.24
North Main	reach 2	137349	Bridge									
North Main	reach 2	137334	482.00	78.00	87.09	80.28	87.14	0.000070	1.73	352.29	55.73	0.10
North Main	reach 2	137334	1051.00	78.00	90.10	81.69	90.21	0.000115	2.70	536.96	66.99	0.14
North Main	reach 2	137334	1858.00	78.00	91.12	83.28	91.39	0.000286	4.33	606.81	70.77	0.21
North Main	reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000552	7.06	2870.15	7107.29	0.32

HEC-DAS Plan P-25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnt (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	269920	1306.00	70.27	76.73	73.60	77.03	0.001290	4.37	299.05	58.43	0.34
North Main	reach 3 (south)	269920	1925.00	70.27	77.94	74.51	78.36	0.001499	5.17	372.65	62.98	0.37
North Main	reach 3 (south)	269920	2703.00	70.27	79.25	75.50	79.79	0.001652	5.90	457.92	67.82	0.40
North Main	reach 3 (south)	269920	5237.00	70.27	82.04	78.02	82.14	0.000740	3.57	3567.10	2732.52	0.26
North Main	reach 3 (south)	269788	1306.00	70.27	76.52	73.60	76.84	0.001453	4.55	298.91	57.84	0.36
North Main	reach 3 (south)	269788	1925.00	70.27	77.69	74.51	78.14	0.001694	5.39	356.90	62.04	0.40
North Main	reach 3 (south)	269788	2703.00	70.27	78.96	75.50	79.55	0.001864	6.16	436.68	66.76	0.42
North Main	reach 3 (south)	269788	5237.00	70.27	81.92	78.02	82.03	0.000693	3.69	3288.33	2251.74	0.29
North Main	reach 3 (south)	269131	1306.00	70.27	73.86	73.37	74.78	0.009699	8.42	155.11	52.64	0.86
North Main	reach 3 (south)	269131	1925.00	70.27	74.96	74.22	76.10	0.006790	8.48	226.98	57.88	0.75
North Main	reach 3 (south)	269131	2703.00	70.27	76.61	75.13	77.67	0.004818	8.27	328.78	64.25	0.85
North Main	reach 3 (south)	269131	5237.00	70.27	78.80	77.51	80.68	0.005858	10.99	478.75	72.58	0.76
North Main	reach 3 (south)	269121	Inline Weir									
North Main	reach 3 (south)	269108	1306.00	65.34	73.37	68.57	73.55	0.000600	3.39	385.42	60.47	0.24
North Main	reach 3 (south)	269108	1925.00	65.34	74.97	68.48	75.21	0.000681	3.96	486.64	66.18	0.26
North Main	reach 3 (south)	269108	2703.00	65.34	76.80	70.48	76.92	0.000758	4.51	599.87	72.47	0.28
North Main	reach 3 (south)	269108	5237.00	65.34	78.80	73.11	79.52	0.001468	6.61	769.02	82.03	0.39
North Main	reach 3 (south)	268000	1306.00	65.34	72.71	68.42	72.88	0.000607	3.24	403.06	70.66	0.24
North Main	reach 3 (south)	268000	1925.00	65.34	74.25	69.26	74.47	0.000653	3.72	516.79	77.30	0.25
North Main	reach 3 (south)	268000	2703.00	65.34	75.83	70.19	76.10	0.000698	4.20	644.01	84.25	0.27
North Main	reach 3 (south)	268000	5237.00	65.34	78.91	72.53	77.89	0.001858	7.10	738.11	90.27	0.44
North Main	reach 3 (south)	266898	1306.00	65.32	71.70	68.31	71.91	0.000927	3.70	352.65	70.04	0.29
North Main	reach 3 (south)	266898	1925.00	65.32	73.19	69.13	73.46	0.000930	4.17	462.15	76.83	0.30
North Main	reach 3 (south)	266898	2703.00	65.32	74.72	70.01	75.05	0.000943	4.62	585.05	83.80	0.31
North Main	reach 3 (south)	266898	5237.00	65.32	75.88	72.28	76.05	0.000744	4.37	3965.07	3381.17	0.28
North Main	reach 3 (south)	266868	Inline Weir									
North Main	reach 3 (south)	266879	1306.00	61.46	71.69	64.54	71.76	0.000171	2.07	629.71	82.41	0.13
North Main	reach 3 (south)	266879	1925.00	61.46	73.18	65.38	73.28	0.000221	2.54	757.00	88.24	0.15
North Main	reach 3 (south)	266879	2703.00	61.46	74.71	66.24	74.85	0.000273	3.02	896.25	94.37	0.17
North Main	reach 3 (south)	266879	5237.00	61.46	75.87	68.53	76.01	0.000360	3.61	4351.03	3392.85	0.20
North Main	reach 3 (south)	266000	1306.00	59.80	71.62	62.86	71.66	0.000103	1.73	752.84	87.29	0.10
North Main	reach 3 (south)	266000	1925.00	59.80	73.08	63.72	73.15	0.000142	2.18	884.70	92.95	0.12
North Main	reach 3 (south)	266000	2703.00	59.80	74.59	64.63	74.69	0.000181	2.60	1262.96	1318.08	0.14
North Main	reach 3 (south)	266000	5237.00	59.80	75.67	66.95	75.79	0.000275	3.33	4525.36	3331.36	0.18
North Main	reach 3 (south)	265585	1306.00	59.80	71.54	63.58	71.80	0.000168	2.06	634.81	82.94	0.13
North Main	reach 3 (south)	265585	1925.00	59.80	72.97	64.54	73.07	0.000225	2.54	758.97	90.18	0.15
North Main	reach 3 (south)	265585	2703.00	59.80	74.52	65.56	74.60	0.000199	2.54	2360.50	2377.27	0.15
North Main	reach 3 (south)	265585	5237.00	59.80	75.60	68.12	75.67	0.000213	2.73	6338.50	3900.86	0.15
North Main	reach 3 (south)	265509	1306.00	59.80	71.53	63.58	71.59	0.000188	2.06	634.01	82.89	0.13
North Main	reach 3 (south)	265509	1925.00	59.80	72.96	64.54	73.06	0.000226	2.54	757.79	90.12	0.15
North Main	reach 3 (south)	265509	2703.00	59.80	74.51	65.57	74.59	0.000202	2.55	2331.01	2296.11	0.15
North Main	reach 3 (south)	265509	5237.00	59.80	75.60	68.13	75.66	0.000215	2.74	6306.54	3900.59	0.15
North Main	reach 3 (south)	264000	1306.00	59.75	71.31	63.05	71.36	0.000136	1.95	668.62	79.67	0.12
North Main	reach 3 (south)	264000	1925.00	59.75	72.65	63.91	72.74	0.000194	2.47	778.93	84.66	0.14
North Main	reach 3 (south)	264000	2703.00	59.75	74.34	64.86	74.37	0.000097	1.84	4641.94	3320.50	0.10
North Main	reach 3 (south)	264000	5237.00	59.75	75.37	67.30	75.40	0.000133	1.83	8449.08	3870.91	0.12
North Main	reach 3 (south)	262000	1306.00	59.40	71.02	62.70	71.08	0.000146	2.01	648.65	77.48	0.12
North Main	reach 3 (south)	262000	1925.00	59.40	72.23	63.63	72.33	0.000217	2.58	745.10	82.03	0.15
North Main	reach 3 (south)	262000	2703.00	59.40	73.82	64.61	73.94	0.000815	2.75	981.63	279.16	0.26
North Main	reach 3 (south)	262000	5237.00	59.40	75.09	67.14	75.10	0.000152	1.34	7455.10	3741.01	0.12
North Main	reach 3 (south)	260000	1565.00	59.40	70.68	63.04	70.74	0.000212	1.94	805.40	140.41	0.14
North Main	reach 3 (south)	260000	2291.00	59.40	71.75	63.96	71.84	0.000272	2.33	1144.03	664.39	0.16
North Main	reach 3 (south)	260000	3206.00	59.40	73.06	64.96	73.13	0.000254	2.32	2044.48	718.94	0.16
North Main	reach 3 (south)	260000	6165.00	59.40	74.78	67.44	74.82	0.000214	2.00	6314.47	2312.22	0.15
North Main	reach 3 (south)	258000	1565.00	58.66	70.33	62.05	70.40	0.000137	2.01	777.24	89.81	0.12
North Main	reach 3 (south)	258000	2291.00	58.66	71.24	62.90	71.35	0.000222	2.67	859.66	93.19	0.15
North Main	reach 3 (south)	258000	3206.00	58.66	72.42	63.83	72.58	0.000298	3.24	1266.59	1002.79	0.18
North Main	reach 3 (south)	258000	6165.00	58.66	74.26	66.26	74.38	0.000254	3.21	5939.65	3345.60	0.17
North Main	reach 3 (south)	256881	1565.00	58.71	70.13	62.22	70.20	0.000163	2.12	739.87	91.14	0.13
North Main	reach 3 (south)	256881	2291.00	58.71	70.90	63.12	71.02	0.000271	2.82	811.17	94.63	0.17
North Main	reach 3 (south)	256881	3206.00	58.71	72.23	64.09	72.28	0.000146	2.19	3862.57	2424.74	0.13
North Main	reach 3 (south)	256881	6165.00	58.71	74.10	66.57	74.11	0.000120	1.39	10148.54	3993.89	0.11
North Main	reach 3 (south)	256121	1565.00	58.27	70.12	60.74	70.14	0.000043	1.21	1297.21	138.87	0.07
North Main	reach 3 (south)	256121	2291.00	58.27	70.88	61.35	70.93	0.000073	1.63	1404.58	142.30	0.09
North Main	reach 3 (south)	256121	3206.00	58.27	72.13	62.02	72.19	0.000186	1.96	1638.10	2498.00	0.14
North Main	reach 3 (south)	256121	6165.00	58.27	74.07	63.78	74.06	0.000041	1.03	12733.36	3702.03	0.07



HEC-DAS Plan B 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	255591	1585.00	58.07	70.08	61.89	70.11	0.000139	1.75	1127.61	2907.24	0.12
North Main	reach 3 (south)	255591	2291.00	58.07	70.80	62.56	70.87	0.000187	2.15	1496.15	3087.44	0.14
North Main	reach 3 (south)	255591	3206.00	58.07	72.02	63.50	72.07	0.000215	2.14	2421.14	3427.10	0.15
North Main	reach 3 (south)	255591	6165.00	58.07	74.08	65.91	74.06	0.000020	0.89	17499.46	3508.43	0.05
North Main	reach 3 (south)	254845	1585.00	58.07	70.01	61.47	70.03	0.000086	1.39	2741.59	3930.14	0.08
North Main	reach 3 (south)	254845	2291.00	58.07	70.74	62.33	70.75	0.000103	1.18	4195.98	4065.78	0.10
North Main	reach 3 (south)	254845	3206.00	58.07	71.99	63.25	71.99	0.000055	0.89	6874.98	4248.41	0.07
North Main	reach 3 (south)	254845	6165.00	58.07	74.05	65.65	74.05	0.000010	0.49	23448.63	4330.39	0.03
North Main	reach 3 (south)	254785	1585.00	58.07	70.01	61.47	70.03	0.000086	1.39	2740.58	3930.09	0.08
North Main	reach 3 (south)	254785	2291.00	58.07	70.72	62.33	70.73	0.000105	1.17	4163.62	4064.25	0.10
North Main	reach 3 (south)	254785	3206.00	58.07	71.98	63.25	71.99	0.000056	0.89	6854.06	4247.61	0.07
North Main	reach 3 (south)	254785	6165.00	58.07	74.04	65.65	74.04	0.000010	0.49	23401.74	4330.28	0.03
North Main	reach 3 (south)	254000	1585.00	58.07	70.01	61.55	70.01	0.000016	0.70	7019.77	4062.78	0.04
North Main	reach 3 (south)	254000	2291.00	58.07	70.69	62.46	70.69	0.000019	0.64	9137.96	4126.27	0.04
North Main	reach 3 (south)	254000	3206.00	58.07	71.96	63.44	71.96	0.000013	0.55	13188.50	4247.87	0.04
North Main	reach 3 (south)	254000	6165.00	58.07	74.03	65.99	74.03	0.000008	0.51	25296.38	4274.37	0.03
North Main	reach 3 (south)	252000	1585.00	58.08	69.79	61.85	69.85	0.000278	2.19	715.22	126.91	0.16
North Main	reach 3 (south)	252000	2291.00	58.08	70.66	62.80	70.66	0.000021	0.64	8678.69	5956.97	0.05
North Main	reach 3 (south)	252000	3206.00	58.08	71.94	63.81	71.94	0.000013	0.57	12479.89	5984.99	0.04
North Main	reach 3 (south)	252000	6165.00	58.08	74.01	66.38	74.01	0.000009	0.55	23821.92	5975.84	0.03
North Main	reach 3 (south)	250880	1585.00	57.32	69.53	60.90	69.58	0.000199	1.67	937.80	194.03	0.13
North Main	reach 3 (south)	250880	2291.00	57.32	70.63	61.84	70.63	0.000041	0.61	5170.82	4955.99	0.06
North Main	reach 3 (south)	250880	3206.00	57.32	71.92	62.84	71.93	0.000030	0.80	7125.78	4981.09	0.05
North Main	reach 3 (south)	250880	6165.00	57.32	73.99	65.39	73.99	0.000036	1.00	10259.75	4982.23	0.06
North Main	reach 3 (south)	250000	1630.00	57.29	69.42	60.32	69.46	0.000093	1.80	1015.72	126.14	0.10
North Main	reach 3 (south)	250000	2428.00	57.29	70.59	61.17	70.60	0.000053	0.91	6353.80	5016.13	0.07
North Main	reach 3 (south)	250000	3444.00	57.29	71.90	62.10	71.91	0.000033	0.81	8065.83	5058.93	0.06
North Main	reach 3 (south)	250000	6802.00	57.29	73.98	64.50	73.98	0.000007	0.42	30398.52	5098.31	0.03
North Main	reach 3 (south)	248746	1630.00	57.29	69.22	60.88	69.29	0.000228	2.08	789.79	131.98	0.15
North Main	reach 3 (south)	248746	2428.00	57.29	70.47	61.88	70.50	0.000219	1.78	2197.09	3903.90	0.14
North Main	reach 3 (south)	248746	3444.00	57.29	71.82	62.94	71.85	0.000136	1.83	3473.02	3915.58	0.12
North Main	reach 3 (south)	248746	6802.00	57.29	73.97	65.66	73.97	0.000013	0.61	22145.65	3933.06	0.04
North Main	reach 3 (south)	248519	1630.00	57.29	69.17	60.88	69.24	0.000225	2.08	783.85	127.92	0.15
North Main	reach 3 (south)	248519	2428.00	57.29	70.42	61.88	70.48	0.000234	1.79	2154.66	3903.51	0.15
North Main	reach 3 (south)	248519	3444.00	57.29	71.80	62.94	71.83	0.000139	1.82	3448.70	3915.35	0.12
North Main	reach 3 (south)	248519	6802.00	57.29	73.96	65.66	73.96	0.000013	0.61	22115.22	3933.00	0.04
North Main	reach 3 (south)	248000	1630.00	57.30	69.05	61.28	69.13	0.000182	2.23	731.48	90.72	0.14
North Main	reach 3 (south)	248000	2428.00	57.30	70.39	62.30	70.40	0.000058	1.22	5049.88	3688.88	0.08
North Main	reach 3 (south)	248000	3444.00	57.30	71.78	63.33	71.79	0.000037	1.00	7785.02	3970.08	0.08
North Main	reach 3 (south)	248000	6802.00	57.30	73.95	66.06	73.96	0.000014	0.87	22306.18	4017.27	0.04
North Main	reach 3 (south)	247476	1630.00	57.30	68.66	66.70	68.90	0.001678	3.74	436.40	118.79	0.34
North Main	reach 3 (south)	247476	2428.00	57.30	70.37	67.29	70.38	0.000060	0.78	5108.22	3919.16	0.07
North Main	reach 3 (south)	247476	3444.00	57.30	71.77	67.94	71.77	0.000038	0.75	7740.97	4071.42	0.08
North Main	reach 3 (south)	247476	6802.00	57.30	73.95	70.00	73.95	0.000019	0.65	20886.92	4202.95	0.04
North Main	reach 3 (south)	247400	1630.00	57.30	68.58	66.61	68.77	0.001549	3.54	460.34	129.47	0.33
North Main	reach 3 (south)	247400	2428.00	57.30	70.37	67.15	70.37	0.000061	0.79	5093.66	3910.65	0.07
North Main	reach 3 (south)	247400	3444.00	57.30	71.77	67.79	71.77	0.000039	0.76	7718.11	4063.35	0.08
North Main	reach 3 (south)	247400	6802.00	57.30	73.94	69.49	73.94	0.000019	0.66	20620.37	4195.01	0.04
North Main	reach 3 (south)	246000	1630.00	57.05	68.06	60.62	68.14	0.000196	2.25	724.18	94.02	0.14
North Main	reach 3 (south)	246000	2428.00	57.05	70.24	61.61	70.27	0.000091	1.56	3033.13	3505.72	0.10
North Main	reach 3 (south)	246000	3444.00	57.05	71.68	62.65	71.70	0.000074	1.50	4336.44	3552.79	0.09
North Main	reach 3 (south)	246000	6802.00	57.05	73.92	65.30	73.92	0.000016	0.80	19864.69	3568.28	0.04
North Main	reach 3 (south)	244000	1630.00	57.05	67.42	61.42	67.57	0.000431	3.07	530.55	77.52	0.21
North Main	reach 3 (south)	244000	2428.00	57.05	69.74	62.54	69.92	0.000408	3.36	722.40	88.13	0.21
North Main	reach 3 (south)	244000	3444.00	57.05	71.46	63.72	71.50	0.000133	2.06	3593.71	5917.21	0.12
North Main	reach 3 (south)	244000	6802.00	57.05	73.89	66.68	73.90	0.000007	0.44	32315.43	6014.05	0.03
North Main	reach 3 (south)	242500	1630.00	56.61	66.77	61.05	66.92	0.000432	3.11	523.94	75.15	0.21
North Main	reach 3 (south)	242500	2428.00	56.61	69.12	62.07	69.30	0.000409	3.41	711.81	84.81	0.21
North Main	reach 3 (south)	242500	3444.00	56.61	70.92	63.17	71.15	0.000457	3.89	1116.94	3853.15	0.22
North Main	reach 3 (south)	242500	6802.00	56.61	73.87	66.03	73.87	0.000045	1.32	14526.71	3759.63	0.07
North Main	reach 3 (south)	241505	1630.00	56.61	66.37	60.37	66.51	0.000399	3.03	537.34	74.90	0.20
North Main	reach 3 (south)	241505	2428.00	56.61	68.73	61.41	68.91	0.000384	3.34	728.01	84.49	0.20
North Main	reach 3 (south)	241505	3444.00	56.61	70.45	62.51	70.69	0.000480	3.93	877.18	91.45	0.22
North Main	reach 3 (south)	241505	6802.00	56.61	73.15	65.41	73.70	0.000880	5.98	1138.19	845.13	0.32
North Main	reach 3 (south)	240950	1630.00	56.61	66.13	60.53	66.28	0.000440	3.07	531.06	79.20	0.21
North Main	reach 3 (south)	240950	2428.00	56.61	68.52	61.55	68.69	0.000400	3.31	733.76	90.60	0.20

HFC-DAS Plan P 259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	240950	3444.00	56.61	70.20	62.64	70.43	0.000468	3.88	892.58	98.30	0.23
North Main	reach 3 (south)	240950	6802.00	56.61	72.85	65.42	73.20	0.000918	5.93	1147.43	327.48	0.32
North Main	reach 3 (south)	240919	1630.00	56.61	68.12	60.53	66.28	0.000442	3.08	529.92	79.13	0.21
North Main	reach 3 (south)	240919	2428.00	56.61	68.51	61.55	68.88	0.000401	3.31	732.58	90.53	0.21
North Main	reach 3 (south)	240919	3444.00	56.61	70.18	62.64	70.42	0.000471	3.87	891.05	98.23	0.23
North Main	reach 3 (south)	240919	6802.00	56.61	72.62	65.42	73.17	0.000928	5.95	1143.70	320.40	0.32
North Main	reach 3 (south)	240000	1630.00	55.47	65.88	59.11	65.96	0.000225	2.39	681.19	89.07	0.15
North Main	reach 3 (south)	240000	2428.00	55.47	68.28	60.01	68.39	0.000223	2.68	906.89	98.80	0.16
North Main	reach 3 (south)	240000	3444.00	55.47	69.91	60.97	70.07	0.000280	3.21	1073.20	105.40	0.18
North Main	reach 3 (south)	240000	6802.00	55.47	72.01	63.53	72.43	0.000636	5.22	1303.54	113.91	0.27
North Main	reach 3 (south)	239560	1630.00	55.23	65.77	58.93	65.86	0.000231	2.42	673.89	88.84	0.15
North Main	reach 3 (south)	239560	2428.00	55.23	68.17	59.85	68.29	0.000229	2.70	900.14	99.37	0.18
North Main	reach 3 (south)	239560	3444.00	55.23	69.78	60.88	69.94	0.000289	3.23	1064.92	106.39	0.18
North Main	reach 3 (south)	239560	6802.00	55.23	71.89	63.48	72.13	0.000684	5.33	1278.51	114.82	0.28
North Main	reach 3 (south)	239468	1630.00	55.23	65.75	58.93	65.84	0.000233	2.43	672.14	88.75	0.16
North Main	reach 3 (south)	239468	2428.00	55.23	68.16	59.86	68.27	0.000230	2.70	898.21	99.29	0.16
North Main	reach 3 (south)	239468	3444.00	55.23	69.75	60.88	69.91	0.000291	3.24	1062.27	106.28	0.18
North Main	reach 3 (south)	239468	6802.00	55.23	71.83	63.48	72.07	0.000694	5.36	1289.41	114.35	0.28
North Main	reach 3 (south)	238000	1630.00	54.74	65.42	58.50	65.51	0.000220	2.40	679.90	86.66	0.15
North Main	reach 3 (south)	238000	2428.00	54.74	67.82	59.41	67.94	0.000221	2.70	899.11	95.73	0.16
North Main	reach 3 (south)	238000	3444.00	54.74	69.32	60.40	69.49	0.000291	3.29	1046.44	101.40	0.18
North Main	reach 3 (south)	238000	6802.00	54.74	71.35	62.99	71.42	0.000232	2.84	6336.39	2475.59	0.18
North Main	reach 3 (south)	237265	1630.00	54.61	65.27	58.13	65.36	0.000215	2.39	681.87	85.75	0.15
North Main	reach 3 (south)	237265	2428.00	54.61	67.67	59.07	67.78	0.000219	2.70	898.69	94.95	0.15
North Main	reach 3 (south)	237265	3444.00	54.61	69.10	60.09	69.27	0.000295	3.32	1038.65	101.36	0.18
North Main	reach 3 (south)	237265	6802.00	54.61	71.29	62.75	71.30	0.000682	1.50	10072.75	2925.97	0.09
North Main	reach 3 (south)	236620	1630.00	54.53	65.13	58.02	65.21	0.000198	2.28	715.85	91.83	0.14
North Main	reach 3 (south)	236620	2428.00	54.53	67.54	58.91	67.64	0.000199	2.59	948.58	101.96	0.15
North Main	reach 3 (south)	236620	3444.00	54.53	68.93	59.89	69.09	0.000268	3.15	1095.05	107.83	0.17
North Main	reach 3 (south)	236620	6802.00	54.53	71.26	62.45	71.27	0.000499	1.44	10945.96	2204.78	0.08
North Main	reach 3 (south)	236000	1630.00	54.54	64.98	58.03	65.07	0.000234	2.45	695.53	86.41	0.16
North Main	reach 3 (south)	236000	2428.00	54.54	67.38	58.97	67.50	0.000235	2.74	884.95	96.57	0.16
North Main	reach 3 (south)	236000	3444.00	54.54	68.72	60.02	68.89	0.000321	3.38	1017.71	102.23	0.19
North Main	reach 3 (south)	236000	6802.00	54.54	71.22	62.70	71.24	0.000118	1.85	7823.69	2098.66	0.11
North Main	reach 3 (south)	235490	1630.00	54.49	64.82	58.23	64.93	0.000313	2.76	591.64	79.64	0.18
North Main	reach 3 (south)	235490	2428.00	54.49	67.21	59.26	67.36	0.000308	3.05	795.00	90.15	0.18
North Main	reach 3 (south)	235490	3444.00	54.49	68.48	60.37	68.70	0.000425	3.77	912.83	95.71	0.22
North Main	reach 3 (south)	235490	6802.00	54.49	71.07	63.23	71.13	0.000475	2.48	4240.73	1351.96	0.21
North Main	reach 3 (south)	235442	1630.00	54.49	64.80	58.23	64.92	0.000315	2.76	590.39	79.57	0.18
North Main	reach 3 (south)	235442	2428.00	54.49	67.20	59.26	67.34	0.000310	3.06	793.61	90.08	0.18
North Main	reach 3 (south)	235442	3444.00	54.49	68.46	60.37	68.68	0.000427	3.78	910.82	95.62	0.22
North Main	reach 3 (south)	235442	6802.00	54.49	71.04	63.23	71.11	0.000470	2.62	4199.40	1346.49	0.21
North Main	reach 3 (south)	234280	1630.00	53.37	64.66	56.31	64.71	0.000098	1.73	940.13	107.55	0.10
North Main	reach 3 (south)	234280	2428.00	53.37	67.06	57.10	67.12	0.000107	2.01	1209.36	117.28	0.11
North Main	reach 3 (south)	234280	3444.00	53.37	68.26	57.96	68.36	0.000158	2.54	1353.56	122.18	0.13
North Main	reach 3 (south)	234280	6802.00	53.37	70.50	60.26	70.59	0.000415	2.75	4336.86	2123.72	0.20
North Main	below diversion	112500	785.00	70.00	78.78	72.20	78.82	0.000077	1.65	488.01	71.22	0.10
North Main	below diversion	112500	1580.00	70.00	81.43	73.44	81.46	0.000061	1.79	3126.88	2323.44	0.10
North Main	below diversion	112500	2700.00	70.00	84.14	74.82	84.15	0.000013	0.97	13580.22	5486.78	0.05
North Main	below diversion	112500	5600.00	70.00	86.93	77.42	86.94	0.000007	0.82	30575.53	10530.30	0.04
North Main	below diversion	111500	785.00	70.00	78.70	72.28	78.74	0.000087	1.72	487.36	69.71	0.11
North Main	below diversion	111500	1580.00	70.00	81.38	73.56	81.40	0.000051	1.62	3689.72	2554.06	0.09
North Main	below diversion	111500	2700.00	70.00	84.13	74.96	84.14	0.000012	0.90	15055.07	5481.35	0.04
North Main	below diversion	111500	5600.00	70.00	86.92	77.59	86.92	0.000006	0.77	33911.29	9345.24	0.03
North Main	below diversion	108769	785.00	70.00	78.45	72.35	78.50	0.000088	1.67	483.79	79.41	0.11
North Main	below diversion	108769	1580.00	70.00	81.11	73.81	81.19	0.000113	2.34	990.57	563.39	0.13
North Main	below diversion	108769	2700.00	70.00	84.02	74.99	84.06	0.000058	2.01	4553.22	2158.19	0.10
North Main	below diversion	108769	5600.00	70.00	86.90	77.47	86.91	0.000017	1.25	26222.95	11413.89	0.06
North Main	below diversion	108564	785.00	70.00	78.43	72.23	78.47	0.000087	1.69	476.27	74.18	0.11
North Main	below diversion	108564	1580.00	70.00	81.06	73.47	81.15	0.000124	2.47	685.47	85.08	0.14
North Main	below diversion	108564	2700.00	70.00	83.90	74.83	84.01	0.000123	2.91	2533.33	2852.27	0.14
North Main	below diversion	108564	5600.00	70.00	86.90	77.38	86.90	0.000017	1.26	26235.57	11412.19	0.06
North Main	below diversion	108524	Bridge									
North Main	below diversion	108484	785.00	70.00	78.40	72.23	78.45	0.000089	1.69	474.17	74.06	0.11
North Main	below diversion	108484	1580.00	70.00	81.00	73.47	81.09	0.000126	2.48	680.47	84.84	0.14
North Main	below diversion	108484	2700.00	70.00	83.77	74.83	83.90	0.000133	3.01	2200.89	2526.77	0.15

HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	108484	5600.00	70.00	85.88	77.38	85.88	0.000018	1.26	28155.99	11365.89	0.08
North Main	below diversion	108424	785.00	70.00	78.39	72.23	78.44	0.000089	1.70	473.47	74.03	0.11
North Main	below diversion	108424	1580.00	70.00	80.98	73.47	81.08	0.000127	2.48	879.27	84.78	0.14
North Main	below diversion	108424	2700.00	70.00	83.78	74.84	83.89	0.000135	3.02	2168.93	2491.35	0.15
North Main	below diversion	108424	5600.00	70.00	86.87	77.38	86.88	0.000018	1.27	28145.19	11373.29	0.08
North Main	below diversion	108200	785.00	70.00	78.37	72.20	78.42	0.000090	1.71	469.23	72.27	0.11
North Main	below diversion	108200	1580.00	70.00	80.95	73.43	81.05	0.000129	2.51	868.90	82.37	0.14
North Main	below diversion	108200	2700.00	70.00	83.74	74.81	83.86	0.000129	2.96	2536.98	2845.49	0.15
North Main	below diversion	108200	5600.00	70.00	86.86	77.38	86.87	0.000019	1.32	24095.59	11139.88	0.08
North Main	below diversion	107200	785.00	70.00	78.29	72.07	78.33	0.000081	1.82	491.98	74.79	0.11
North Main	below diversion	107200	1580.00	70.00	80.83	73.25	80.92	0.000119	2.40	894.55	84.38	0.14
North Main	below diversion	107200	2700.00	70.00	83.85	74.57	83.73	0.000100	2.80	3513.33	3474.59	0.13
North Main	below diversion	107200	5600.00	70.00	88.84	77.07	88.85	0.000018	1.23	25539.85	10740.48	0.05
North Main	below diversion	105420	880.00	70.00	78.12	72.28	78.17	0.000091	1.68	531.50	84.02	0.11
North Main	below diversion	105420	1517.00	70.00	80.85	73.14	80.71	0.000094	2.11	757.22	94.88	0.12
North Main	below diversion	105420	2548.00	70.00	83.52	74.28	83.57	0.000064	2.07	4688.42	4222.28	0.10
North Main	below diversion	105420	4853.00	70.00	86.82	76.22	86.83	0.000011	1.00	23991.58	10635.20	0.04
North Main	below diversion	105350	880.00	70.00	78.10	72.48	78.16	0.000125	2.07	452.83	72.68	0.13
North Main	below diversion	105350	1517.00	70.00	80.59	73.42	80.70	0.000137	2.83	846.82	82.64	0.15
North Main	below diversion	105350	2548.00	70.00	83.49	74.65	83.57	0.000095	2.59	3895.74	3359.47	0.13
North Main	below diversion	105350	4853.00	70.00	86.81	76.81	86.82	0.000013	1.12	24220.39	10704.35	0.05
North Main	below diversion	105335	Bridge									
North Main	below diversion	105320	880.00	70.00	78.08	72.48	78.15	0.000128	2.07	451.96	72.63	0.13
North Main	below diversion	105320	1517.00	70.00	80.55	73.42	80.65	0.000139	2.64	843.05	82.46	0.15
North Main	below diversion	105320	2548.00	70.00	83.45	74.65	83.53	0.000098	2.83	3781.97	3245.83	0.13
North Main	below diversion	105320	4853.00	70.00	86.79	76.81	86.80	0.000013	1.13	23985.75	10874.56	0.05
North Main	below diversion	105235	880.00	70.00	78.07	72.46	78.14	0.000126	2.08	451.28	72.60	0.13
North Main	below diversion	105235	1517.00	70.00	80.54	73.42	80.64	0.000140	2.84	842.17	82.42	0.15
North Main	below diversion	105235	2548.00	70.00	83.43	74.65	83.52	0.000104	2.71	3471.17	3074.72	0.13
North Main	below diversion	105235	4853.00	70.00	86.79	76.81	86.79	0.000014	1.17	23132.88	10570.35	0.05
North Main	below diversion	104800	880.00	70.00	78.01	72.39	78.08	0.000128	2.09	450.00	73.25	0.14
North Main	below diversion	104800	1517.00	70.00	80.47	73.37	80.58	0.000142	2.66	842.93	83.77	0.15
North Main	below diversion	104800	2548.00	70.00	83.29	74.61	83.48	0.000160	3.34	1338.70	1727.80	0.17
North Main	below diversion	104800	4853.00	70.00	86.77	76.78	86.78	0.000022	1.46	20709.06	8356.28	0.08
North Main	below diversion	104148	880.00	70.00	77.94		78.00	0.000115	1.97	475.79	77.32	0.13
North Main	below diversion	104148	1517.00	70.00	80.39		80.48	0.000127	2.51	879.81	89.09	0.14
North Main	below diversion	104148	2548.00	70.00	83.20		83.35	0.000148	3.20	1151.48	1093.93	0.16
North Main	below diversion	104148	4853.00	70.00	86.75		86.76	0.000032	1.74	17147.72	8253.45	0.08
North Main	below diversion	104116	880.00	70.00	77.93		77.99	0.000115	1.97	475.52	77.30	0.13
North Main	below diversion	104116	1517.00	70.00	80.39		80.48	0.000128	2.51	879.46	89.07	0.14
North Main	below diversion	104116	2548.00	70.00	83.20		83.35	0.000148	3.20	1146.64	1087.27	0.16
North Main	below diversion	104116	4853.00	70.00	86.74		86.75	0.000032	1.75	17080.81	8235.94	0.08
North Main	below diversion	103006	880.00	70.00	77.81		77.87	0.000122	2.01	466.03	76.75	0.13
North Main	below diversion	103006	1517.00	70.00	80.25		80.35	0.000134	2.55	867.33	88.44	0.14
North Main	below diversion	103006	2548.00	70.00	83.03		83.19	0.000157	3.27	989.23	873.34	0.16
North Main	below diversion	103006	4853.00	70.00	86.71		86.73	0.000033	1.77	16885.86	8184.95	0.08
North Main	below diversion	102913	880.00	70.00	77.80		77.87	0.000126	2.04	456.68	74.71	0.13
North Main	below diversion	102913	1517.00	70.00	80.24		80.34	0.000138	2.59	850.80	84.78	0.15
North Main	below diversion	102913	2548.00	70.00	83.02		83.18	0.000160	3.30	942.78	831.44	0.16
North Main	below diversion	102913	4853.00	70.00	86.69		86.73	0.000053	2.25	12270.14	6717.87	0.10
North Main	below diversion	102850	880.00	70.00	77.80	72.23	77.86	0.000123	2.01	464.93	76.69	0.13
North Main	below diversion	102850	1517.00	70.00	80.23	73.16	80.33	0.000135	2.56	865.57	88.35	0.14
North Main	below diversion	102850	2548.00	70.00	83.01	74.37	83.17	0.000158	3.27	970.70	852.23	0.18
North Main	below diversion	102850	4853.00	70.00	86.69	76.47	86.71	0.000033	1.78	16712.74	8139.35	0.08
North Main	below diversion	102835	Bridge									
North Main	below diversion	102820	880.00	70.00	77.79		77.85	0.000123	2.02	464.08	76.64	0.13
North Main	below diversion	102820	1517.00	70.00	80.21		80.31	0.000136	2.56	864.35	88.29	0.14
North Main	below diversion	102820	2548.00	70.00	82.98		83.14	0.000159	3.28	956.87	145.04	0.16
North Main	below diversion	102820	4853.00	70.00	86.67		86.69	0.000034	1.80	18506.21	8084.61	0.08
North Main	below diversion	102800	880.00	70.00	77.74		77.82	0.000147	2.18	424.10	68.96	0.14
North Main	below diversion	102800	1517.00	70.00	80.18		80.28	0.000181	2.78	601.09	77.48	0.18
North Main	below diversion	102800	2548.00	70.00	82.90		83.09	0.000189	3.56	847.50	114.41	0.18
North Main	below diversion	102800	4853.00	70.00	86.61		86.66	0.000078	2.69	10468.77	6078.66	0.12
North Main	below diversion	101500	880.00	70.00	77.58		77.65	0.000149	2.17	427.51	71.81	0.14
North Main	below diversion	101500	1517.00	70.00	79.99		80.10	0.000161	2.75	611.79	81.54	0.18





HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Val Chnl (ft/e)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	below diversion	92120	896.00	68.00	73.02	70.60	76.10	0.000185	2.16	414.70	68.81	0.15
North Main	below diversion	92120	1573.00	68.00	73.32	71.69	78.44	0.000194	2.74	586.04	85.21	0.17
North Main	below diversion	92120	2645.00	68.00	80.80	73.06	80.99	0.000224	3.51	827.90	113.49	0.19
North Main	below diversion	92120	4959.00	68.00	83.52	75.34	83.90	0.000352	5.10	1186.03	543.28	0.24
North Main	below diversion	91139	896.00	68.00	75.63	70.60	75.91	0.000203	2.23	401.44	67.98	0.16
North Main	below diversion	91139	1573.00	68.00	78.12	71.69	78.24	0.000210	2.81	568.95	83.27	0.17
North Main	below diversion	91139	2645.00	68.00	80.56	73.06	80.78	0.000243	3.59	801.34	109.86	0.19
North Main	below diversion	91139	4959.00	68.00	83.12	75.34	83.54	0.000392	5.28	1129.06	233.19	0.26
North Main	below diversion	91050	896.00	68.00	75.81	70.59	75.69	0.000205	2.24	399.87	67.70	0.16
North Main	below diversion	91050	1573.00	68.00	78.10	71.68	78.22	0.000213	2.82	568.39	82.32	0.17
North Main	below diversion	91050	2645.00	68.00	80.53	73.07	80.73	0.000246	3.61	792.06	107.27	0.20
North Main	below diversion	91050	4959.00	68.00	83.23	75.35	83.45	0.000258	4.29	3588.64	2451.06	0.21
North Main	below diversion	88641	896.00	68.00	75.28	70.47	75.37	0.000238	2.33	384.40	68.09	0.17
North Main	below diversion	88641	1573.00	68.00	77.56	71.53	77.69	0.000240	2.88	550.39	77.81	0.18
North Main	below diversion	88641	2645.00	68.00	79.81	72.86	80.12	0.000278	3.89	744.85	87.90	0.21
North Main	below diversion	88641	4959.00	68.00	82.44	75.08	82.75	0.000344	4.79	2451.90	10198.91	0.24
North Main	below diversion	88488	896.00	68.00	75.24	70.49	75.33	0.000248	2.38	376.53	67.16	0.18
North Main	below diversion	88488	1573.00	68.00	77.51	71.55	77.65	0.000252	2.94	540.35	76.83	0.19
North Main	below diversion	88488	2645.00	68.00	79.85	72.90	80.07	0.000288	3.74	756.72	108.48	0.21
North Main	below diversion	88488	4959.00	68.00	82.49	75.13	82.66	0.000230	3.93	4443.85	12793.28	0.20
North Main	below diversion	88300	896.00	68.00	75.19	70.47	75.28	0.000245	2.37	377.52	67.19	0.18
North Main	below diversion	88300	1573.00	68.00	77.47	71.52	77.60	0.000251	2.93	540.89	78.44	0.19
North Main	below diversion	88300	2645.00	68.00	79.80	72.85	80.01	0.000288	3.74	753.31	106.46	0.21
North Main	below diversion	88300	4959.00	68.00	82.25	75.07	82.60	0.000383	5.01	1825.71	797.37	0.25
North Main	below diversion	87300	896.00	68.00	74.92	70.46	75.02	0.000280	2.49	359.23	65.59	0.19
North Main	below diversion	87300	1573.00	68.00	77.19	71.51	77.33	0.000283	3.05	518.01	74.43	0.20
North Main	below diversion	87300	2645.00	68.00	79.50	72.85	79.72	0.000304	3.79	851.65	192.35	0.21
North Main	below diversion	87300	4959.00	68.00	82.02	75.06	82.23	0.000281	4.25	3034.23	1643.79	0.21
North Main	below diversion	85942	896.00	68.00	74.40	70.64	74.54	0.000451	2.96	302.46	61.23	0.23
North Main	below diversion	85942	1573.00	68.00	76.67	71.75	76.88	0.000423	3.49	452.17	70.80	0.24
North Main	below diversion	85942	2645.00	68.00	78.92	73.14	79.21	0.000449	4.36	834.23	98.19	0.26
North Main	below diversion	85942	4959.00	68.00	81.30	75.44	81.70	0.000522	5.50	2163.91	1305.21	0.29
North Main	below diversion	85850	896.00	68.00	74.37	70.67	74.51	0.000465	2.99	300.05	61.46	0.24
North Main	below diversion	85850	1573.00	68.00	76.64	71.80	76.83	0.000432	3.49	451.53	71.70	0.24
North Main	below diversion	85850	2645.00	68.00	78.88	73.16	79.17	0.000454	4.35	836.32	105.84	0.26
North Main	below diversion	85850	4959.00	68.00	81.17	75.46	81.65	0.000598	5.83	1705.96	1305.60	0.31
North Main	below diversion	85836	Bridge									
North Main	below diversion	85820	896.00	68.00	74.31	70.67	74.46	0.000480	3.02	296.68	61.21	0.24
North Main	below diversion	85820	1573.00	68.00	76.58	71.80	76.78	0.000446	3.52	447.10	71.42	0.24
North Main	below diversion	85820	2645.00	68.00	78.81	73.19	79.11	0.000467	4.39	838.92	129.11	0.26
North Main	below diversion	85820	4959.00	68.00	81.02	75.46	81.51	0.000633	5.94	1684.34	1374.15	0.32
North Main	below diversion	85783	896.00	68.00	74.29	70.67	74.43	0.000487	3.04	295.07	61.10	0.24
North Main	below diversion	85783	1573.00	68.00	76.56	71.80	76.75	0.000452	3.54	445.40	71.31	0.25
North Main	below diversion	85783	2645.00	68.00	78.78	73.19	79.08	0.000472	4.40	828.09	103.38	0.26
North Main	below diversion	85783	4959.00	68.00	80.92	75.46	81.47	0.000694	6.16	1447.79	1299.44	0.33
North Main	below diversion	83100	896.00	68.00	73.42	68.67	73.51	0.000267	2.46	363.94	65.33	0.18
North Main	below diversion	83100	1573.00	68.00	75.72	69.80	75.87	0.000264	3.02	526.46	75.49	0.19
North Main	below diversion	83100	2645.00	68.00	77.82	71.19	78.08	0.000329	3.97	694.03	84.61	0.22
North Main	below diversion	83100	4959.00	68.00	80.71	73.49	80.76	0.000104	2.85	9702.96	16520.38	0.13
North Main	below diversion	82100	896.00	68.00	73.04	68.97	73.19	0.000369	3.15	302.52	59.04	0.22
North Main	below diversion	82100	1573.00	68.00	75.30	70.15	75.54	0.000390	3.97	447.64	69.45	0.24
North Main	below diversion	82100	2645.00	68.00	77.20	71.58	77.83	0.000542	5.36	587.97	455.62	0.29
North Main	below diversion	82100	4959.00	68.00	80.81	74.08	80.65	0.000098	2.76	9138.47	16682.51	0.13
North Main	below diversion	82000	896.00	68.00	73.00	68.97	73.16	0.000378	3.17	300.15	58.86	0.22
North Main	below diversion	82000	1573.00	68.00	75.26	70.15	75.50	0.000397	4.00	444.66	69.25	0.24
North Main	below diversion	82000	2645.00	68.00	77.14	71.58	77.57	0.000554	5.39	583.05	440.54	0.30
North Main	below diversion	82000	4959.00	68.00	79.64	74.08	80.54	0.000896	7.93	791.72	2432.57	0.39
North Main	below diversion	81100	896.00	68.00	72.61	68.75	72.79	0.000420	3.44	296.59	69.92	0.24
North Main	below diversion	81100	1573.00	68.00	74.84	69.91	75.11	0.000453	4.37	438.09	410.85	0.26
North Main	below diversion	81100	2645.00	68.00	76.50	71.43	77.01	0.000673	5.99	602.59	749.77	0.33
North Main	below diversion	81100	4959.00	68.00	78.73	74.03	79.67	0.001038	8.48	1108.01	1815.63	0.42
North Main	below diversion	80100	896.00	68.00	72.23	68.60	72.37	0.000405	3.06	325.91	79.48	0.23
North Main	below diversion	80100	1573.00	68.00	74.48	69.69	74.68	0.000375	3.69	529.14	104.56	0.23
North Main	below diversion	80100	2645.00	68.00	76.00	71.06	76.36	0.000555	5.06	708.95	132.61	0.29
North Main	below diversion	80100	4959.00	68.00	78.37	73.33	78.76	0.000558	5.90	2385.94	980.98	0.30

HEC-RAS Plan: P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	below diversion	79100	896.00	66.00	71.82	68.76	71.83	0.000722	3.74	245.18	58.72	0.30
North Main	below diversion	79100	1573.00	66.00	73.91	69.91	74.20	0.000597	4.39	387.27	274.11	0.29
North Main	below diversion	79100	2645.00	66.00	74.98	71.24	75.59	0.001041	6.37	462.11	353.20	0.39
North Main	below diversion	79100	4959.00	66.00	77.43	73.63	78.04	0.000929	7.16	2141.06	3496.10	0.39
North Main	below diversion	77548	896.00	66.00	70.31	68.19	70.52	0.001009	3.70	242.64	67.96	0.34
North Main	below diversion	77548	1573.00	66.00	73.18	69.13	73.38	0.000447	3.61	457.04	81.94	0.25
North Main	below diversion	77548	2645.00	66.00	73.32	70.30	73.66	0.001174	5.94	468.87	82.67	0.40
North Main	below diversion	77548	4959.00	66.00	74.12	72.25	75.62	0.002805	9.90	537.04	2212.48	0.64
North Main	below diversion	77536	896.00	62.00	70.36	64.76	70.44	0.000160	2.22	414.97	68.44	0.15
North Main	below diversion	77536	1573.00	62.00	73.21	65.91	73.33	0.000152	2.72	626.29	81.20	0.15
North Main	below diversion	77536	2645.00	62.00	73.42	67.34	73.73	0.000401	4.48	645.17	82.12	0.25
North Main	below diversion	77536	4959.00	62.00	74.39	69.52	75.26	0.001023	7.60	726.65	2987.22	0.40
North Main	below diversion	77419	896.00	62.00	70.35	64.76	70.43	0.000181	2.22	414.07	68.38	0.15
North Main	below diversion	77419	1573.00	62.00	73.20	65.91	73.32	0.000153	2.73	627.40	81.15	0.15
North Main	below diversion	77419	2645.00	62.00	73.37	67.33	73.68	0.000408	4.50	640.94	81.89	0.25
North Main	below diversion	77419	4959.00	62.00	74.21	69.52	75.13	0.001093	7.78	758.72	2666.80	0.42
North Main	below diversion	77357	896.00	62.00	70.35	64.50	70.41	0.000140	1.96	457.49	72.53	0.14
North Main	below diversion	77357	1573.00	62.00	73.21	65.55	73.30	0.000125	2.37	662.50	921.49	0.14
North Main	below diversion	77357	2645.00	62.00	73.40	66.91	73.64	0.000330	3.91	699.21	1707.07	0.22
North Main	below diversion	77357	4959.00	62.00	74.72	69.13	74.91	0.000332	4.27	4241.96	5206.14	0.23
North Main	below diversion	77343	Bridge									
North Main	below diversion	77329	896.00	62.00	70.39	64.50	70.39	0.000141	1.96	456.29	72.45	0.14
North Main	below diversion	77329	1573.00	62.00	73.19	65.55	73.28	0.000126	2.36	661.16	685.52	0.14
North Main	below diversion	77329	2645.00	62.00	73.38	66.91	73.61	0.000334	3.92	696.82	1258.24	0.22
North Main	below diversion	77329	4959.00	62.00	74.51	69.12	74.77	0.000432	4.81	3637.06	4393.01	0.28
North Main	below diversion	77179	896.00	60.10	70.33	62.68	70.37	0.000086	1.68	534.17	72.44	0.11
North Main	below diversion	77179	1573.00	60.10	73.19	63.79	73.26	0.000090	2.13	759.07	2320.94	0.12
North Main	below diversion	77179	2645.00	60.10	73.38	65.26	73.55	0.000215	3.32	1634.95	2322.47	0.18
North Main	below diversion	77179	4959.00	60.10	74.52	67.74	74.68	0.000260	3.91	4715.04	4701.56	0.20
North Main	below diversion	77143	Culvert									
North Main	below diversion	77107	896.00	60.10	69.48	62.67	69.52	0.000124	1.90	472.75	68.76	0.13
North Main	below diversion	77107	1573.00	60.10	71.51	63.79	71.61	0.000164	2.55	622.51	77.56	0.15
North Main	below diversion	77107	2645.00	60.10	72.76	65.26	73.00	0.000292	3.72	725.09	83.11	0.21
North Main	below diversion	77107	4959.00	60.10	74.48	67.74	74.64	0.000270	3.96	4605.91	4660.06	0.21
North Main	below diversion	76585	896.00	60.00	69.41	62.59	69.46	0.000093	1.75	514.74	74.85	0.11
North Main	below diversion	76585	1573.00	60.00	71.44	63.66	71.53	0.000126	2.41	675.51	83.58	0.14
North Main	below diversion	76585	2645.00	60.00	72.67	65.07	72.86	0.000236	3.57	781.53	88.84	0.19
North Main	below diversion	76585	4959.00	60.00	74.22	67.33	74.47	0.000318	4.54	3726.81	7143.44	0.23
North Main	below diversion	76000	896.00	60.00	69.35	62.59	69.40	0.000099	1.81	497.87	71.48	0.12
North Main	below diversion	76000	1573.00	60.00	71.35	63.68	71.45	0.000136	2.49	675.46	106.69	0.14
North Main	below diversion	76000	2645.00	60.00	72.51	65.07	72.71	0.000257	3.69	816.86	1587.66	0.20
North Main	below diversion	76000	4959.00	60.00	73.65	67.39	74.19	0.000600	6.04	1240.89	4028.96	0.31
North Main	below diversion	75929	896.00	60.00	69.34	62.70	69.40	0.000099	1.92	488.80	72.69	0.12
North Main	below diversion	75929	1573.00	60.00	71.34	63.82	71.45	0.000141	2.65	676.15	115.50	0.15
North Main	below diversion	75929	2645.00	60.00	72.48	65.23	72.69	0.000273	3.96	901.39	2248.15	0.21
North Main	below diversion	75929	4959.00	60.00	73.89	67.44	74.05	0.000251	4.11	5210.74	4564.41	0.20
North Main	below diversion	75868	896.00	60.00	69.33	62.64	69.39	0.000098	1.91	488.16	70.86	0.12
North Main	below diversion	75868	1573.00	60.00	71.33	63.76	71.43	0.000141	2.66	655.51	99.89	0.15
North Main	below diversion	75868	2645.00	60.00	72.45	65.16	72.68	0.000264	3.91	1169.74	2819.02	0.21
North Main	below diversion	75868	4959.00	60.00	73.90	67.40	74.02	0.000208	3.75	5687.18	4593.12	0.19
North Main	below diversion	75852	Bridge									
North Main	below diversion	75838	896.00	60.00	69.31	62.64	69.37	0.000099	1.92	486.58	70.77	0.12
North Main	below diversion	75838	1573.00	60.00	71.29	63.76	71.39	0.000143	2.67	651.69	100.33	0.15
North Main	below diversion	75838	2645.00	60.00	72.34	65.16	72.58	0.000281	4.00	1063.01	2572.01	0.21
North Main	below diversion	75838	4959.00	60.00	73.77	67.37	73.92	0.000236	3.97	5507.22	4529.66	0.20
North Main	below diversion	75752	896.00	60.00	69.30	62.64	69.36	0.000099	1.92	486.05	70.74	0.12
North Main	below diversion	75752	1573.00	60.00	71.27	63.76	71.38	0.000144	2.67	650.59	100.15	0.15
North Main	below diversion	75752	2645.00	60.00	72.32	65.15	72.56	0.000284	4.02	1038.28	2472.96	0.21
North Main	below diversion	75752	4959.00	60.00	73.74	67.37	73.89	0.000245	4.04	5392.87	4276.69	0.20
North Main	below diversion	75000	896.00	60.00	69.23	62.56	69.28	0.000098	1.91	485.42	69.32	0.12
North Main	below diversion	75000	1573.00	60.00	71.19	63.65	71.29	0.000125	2.50	1162.16	771.22	0.14
North Main	below diversion	75000	2645.00	60.00	72.20	65.05	72.34	0.000198	3.34	2428.96	4016.37	0.18
North Main	below diversion	75000	4959.00	60.00	73.69	67.25	73.74	0.000114	2.75	10034.06	8844.27	0.14
North Main	below diversion	74000	896.00	60.00	69.11	62.97	69.17	0.000138	2.03	442.90	68.87	0.14
North Main	below diversion	74000	1573.00	60.00	71.06	64.14	71.14	0.000151	2.51	1414.95	1714.09	0.15



HFC DAS Plan P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	66428	1085.00	60.00	67.68		67.79	0.000255	2.87	411.88	69.90	0.18
North Main	below diversion	66428	1812.00	60.00	69.32		69.48	0.000297	3.35	1108.35	1932.80	0.21
North Main	below diversion	66428	2685.00	60.00	70.53		70.61	0.000175	2.82	3788.74	2678.37	0.16
North Main	below diversion	66428	4893.00	60.00	72.06		72.10	0.000118	2.57	8882.38	3890.84	0.14
North Main	below diversion	66342	1085.00	60.00	67.65		67.77	0.000258	2.68	410.43	69.61	0.19
North Main	below diversion	66342	1812.00	60.00	69.27		69.45	0.000321	3.47	820.85	1193.55	0.22
North Main	below diversion	66342	2685.00	60.00	70.44		70.57	0.000263	3.44	2515.26	1898.98	0.20
North Main	below diversion	66342	4893.00	60.00	72.00		72.08	0.000196	3.29	6558.56	3187.19	0.18
North Main	below diversion	65921	1085.00	60.00	67.53		67.65	0.000275	2.73	401.95	69.30	0.19
North Main	below diversion	65921	1812.00	60.00	69.12		69.31	0.000348	3.57	708.13	978.15	0.22
North Main	below diversion	65921	2685.00	60.00	70.31		70.48	0.000288	3.56	2332.45	1764.04	0.21
North Main	below diversion	65921	4893.00	60.00	71.90		71.99	0.000219	3.46	6112.67	3160.93	0.19
North Main	below diversion	65500	1085.00	60.00	67.40		67.52	0.000295	2.79	392.70	68.71	0.20
North Main	below diversion	65500	1812.00	60.00	69.97		69.16	0.000364	3.80	702.64	481.69	0.23
North Main	below diversion	65500	2685.00	60.00	70.22		70.39	0.000248	3.29	2642.21	2084.76	0.19
North Main	below diversion	65500	4893.00	60.00	71.84		71.90	0.000166	3.00	6841.34	2832.08	0.16
North Main	below diversion	65133.3*	1085.00	60.00	67.24		67.39	0.000385	3.04	359.14	68.63	0.22
North Main	below diversion	65133.3*	1812.00	60.00	68.78		69.01	0.000488	4.01	467.13	78.86	0.26
North Main	below diversion	65133.3*	2685.00	60.00	69.89		70.19	0.000545	4.68	1224.38	1185.70	0.28
North Main	below diversion	65133.3*	4893.00	60.00	71.85		71.81	0.000351	4.25	4472.79	2342.75	0.23
North Main	below diversion	64766.6*	1085.00	60.00	67.09		67.25	0.000435	3.17	344.28	64.99	0.24
North Main	below diversion	64766.6*	1812.00	60.00	68.56		68.83	0.000555	4.18	444.41	71.67	0.28
North Main	below diversion	64766.6*	2685.00	60.00	69.49		69.94	0.000791	5.42	606.25	735.02	0.34
North Main	below diversion	64766.6*	4893.00	60.00	71.38		71.65	0.000543	5.17	3169.39	1695.08	0.29
North Main	below diversion	64400	1085.00	60.00	66.95	62.85	67.10	0.000411	3.12	348.49	63.29	0.23
North Main	below diversion	64400	1812.00	60.00	68.37	63.92	68.64	0.000548	4.18	442.09	66.51	0.27
North Main	below diversion	64400	2685.00	60.00	69.19	65.00	69.66	0.000835	5.54	499.70	71.64	0.35
North Main	below diversion	64400	4893.00	60.00	70.92	67.09	71.39	0.000832	6.30	2315.67	1509.81	0.36
North Main	below diversion	62879	1085.00	58.00	66.60	61.20	66.67	0.000195	2.29	991.67	1957.40	0.18
North Main	below diversion	62879	1812.00	58.00	68.24	62.35	68.27	0.000101	1.93	2786.01	3878.12	0.12
North Main	below diversion	62879	2685.00	58.00	69.19	63.49	69.22	0.000097	2.03	4133.14	4915.35	0.12
North Main	below diversion	62879	4893.00	58.00	70.92	67.06	70.95	0.000091	2.22	7205.69	9177.72	0.12
North Main	below diversion	62817	1085.00	58.00	66.63	61.09	66.65	0.000058	1.37	2473.19	3705.78	0.09
North Main	below diversion	62817	1812.00	58.00	68.25	62.23	68.26	0.000037	1.25	4667.26	5348.40	0.07
North Main	below diversion	62817	2685.00	58.00	69.19	63.30	69.20	0.000041	1.40	6087.83	6230.33	0.08
North Main	below diversion	62817	4893.00	58.00	70.92	65.75	70.94	0.000049	1.72	8892.09	9669.86	0.09
North Main	below diversion	62803										
North Main	below diversion	62789	1085.00	58.00	66.62	61.09	66.63	0.000055	1.33	2589.42	3688.51	0.09
North Main	below diversion	62789	1812.00	58.00	68.23	62.23	68.24	0.000034	1.20	4857.20	5329.98	0.07
North Main	below diversion	62789	2685.00	58.00	69.17	63.30	69.18	0.000038	1.35	6323.78	6212.10	0.08
North Main	below diversion	62789	4893.00	58.00	70.91	65.69	70.92	0.000046	1.66	9220.23	9628.24	0.09
North Main	below diversion	62703	1085.00	58.00	66.61	61.10	66.63	0.000050	1.27	2774.64	3688.15	0.08
North Main	below diversion	62703	1812.00	58.00	68.23	62.23	68.24	0.000031	1.14	5152.81	5328.37	0.07
North Main	below diversion	62703	2685.00	58.00	69.17	63.31	69.18	0.000034	1.28	6687.65	6210.09	0.07
North Main	below diversion	62703	4893.00	58.00	70.91	65.62	70.92	0.000041	1.58	9707.83	9626.02	0.08
North Main	below diversion	62600	1085.00	58.00	66.61	61.08	66.61	0.000021	0.82	4806.31	2984.23	0.05
North Main	below diversion	62600	1812.00	58.00	68.23	62.22	68.23	0.000013	0.74	8323.32	4068.51	0.04
North Main	below diversion	62600	2685.00	58.00	69.17	63.25	69.17	0.000014	0.84	10482.64	4674.53	0.05
North Main	below diversion	62600	4893.00	58.00	70.91	65.26	70.91	0.000018	1.04	14688.43	8021.52	0.05
North Main	below diversion	61620	1085.00	58.00	66.60	61.14	66.60	0.000014	0.70	5501.90	9333.55	0.04
North Main	below diversion	61620	1812.00	58.00	68.21	62.22	68.21	0.000011	0.71	9132.56	10348.56	0.04
North Main	below diversion	61620	2685.00	58.00	69.16	63.90	69.16	0.000012	0.81	12377.68	11698.47	0.04
North Main	below diversion	61620	4893.00	58.00	70.90	64.52	70.90	0.000013	0.91	18878.28	13097.95	0.05
North Main	below diversion	61584	1085.00	58.00	66.50	60.95	66.58	0.000157	2.25	1027.01	8647.34	0.15
North Main	below diversion	61584	1812.00	58.00	68.18	62.05	68.20	0.000070	1.72	4692.93	11256.70	0.10
North Main	below diversion	61584	2685.00	58.00	69.15	63.10	69.16	0.000043	1.46	8293.85	12128.48	0.08
North Main	below diversion	61584	4893.00	58.00	70.89	65.18	70.90	0.000029	1.32	14806.75	13096.20	0.07
North Main	below diversion	61570										
North Main	below diversion	61556	1085.00	58.00	66.50	60.95	66.57	0.000159	2.26	1016.06	8639.51	0.15
North Main	below diversion	61556	1812.00	58.00	68.15	62.05	68.17	0.000073	1.76	4572.47	11227.54	0.10
North Main	below diversion	61556	2685.00	58.00	69.13	63.10	69.14	0.000044	1.47	8223.84	12111.58	0.08
North Main	below diversion	61556	4893.00	58.00	70.87	65.18	70.87	0.000029	1.33	14717.79	13090.95	0.07
North Main	below diversion	61443	1085.00	58.00	66.52	60.97	66.53	0.000025	0.95	4755.05	8272.32	0.06
North Main	below diversion	61443	1812.00	58.00	68.15	62.05	68.15	0.000013	0.79	8913.97	8720.27	0.05
North Main	below diversion	61443	2685.00	58.00	69.12	63.03	69.13	0.000017	0.94	12328.40	10768.79	0.05

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	51443	4893.00	58.00	70.86	65.58	70.86	0.000013	0.94	20752.04	13089.20	0.05
North Main	below diversion	50700	1085.00	58.10	68.51	61.05	66.51	0.000018	0.77	7088.04	8956.89	0.05
North Main	below diversion	50700	1812.00	58.10	68.15	62.12	68.15	0.000006	0.54	15387.85	10824.37	0.03
North Main	below diversion	50700	2685.00	58.10	69.11	63.82	69.11	0.000006	0.55	21589.73	11904.02	0.03
North Main	below diversion	50700	4893.00	58.10	70.85	65.57	70.85	0.000005	0.57	33867.39	13087.48	0.03
North Main	below diversion	58982	1085.00	58.00	66.35	60.95	66.44	0.000185	2.41	795.83	5302.91	0.18
North Main	below diversion	58982	1812.00	58.00	68.10	62.04	68.12	0.000059	1.56	8133.55	9674.16	0.09
North Main	below diversion	58982	2685.00	58.00	69.08	63.10	69.09	0.000030	1.21	11801.16	10612.52	0.07
North Main	below diversion	58982	4893.00	58.00	70.84	65.16	70.85	0.000015	0.98	23722.38	11688.82	0.05
North Main	below diversion	58909	1085.00	58.00	68.32	61.00	66.43	0.000229	2.66	418.23	3380.31	0.18
North Main	below diversion	58909	1812.00	58.00	68.00	62.14	68.09	0.000188	2.78	2285.53	6370.06	0.17
North Main	below diversion	58909	2685.00	58.00	69.03	63.27	69.07	0.000114	2.34	5752.36	8180.85	0.13
North Main	below diversion	58909	4893.00	58.00	70.84	65.36	70.85	0.000044	1.82	15123.68	10217.06	0.08
North Main	below diversion	58887	Bridge									
North Main	below diversion	58885	1085.00	58.00	68.22	61.00	68.34	0.000240	2.70	411.91	3294.51	0.18
North Main	below diversion	58885	1812.00	58.00	67.89	62.14	68.00	0.000213	2.94	1897.86	6177.90	0.18
North Main	below diversion	58885	2685.00	58.00	68.97	63.27	69.02	0.000123	2.41	5519.66	8063.46	0.14
North Main	below diversion	58885	4893.00	58.00	70.82	65.36	70.83	0.000045	1.83	15013.34	10214.36	0.08
North Main	below diversion	58787	1085.00	58.00	68.21	61.00	66.32	0.000240	2.89	448.04	3281.15	0.18
North Main	below diversion	58787	1812.00	58.00	67.90	62.14	67.96	0.000150	2.47	2948.80	6183.20	0.15
North Main	below diversion	58787	2685.00	58.00	68.97	63.27	68.99	0.000080	1.95	7292.23	8394.45	0.11
North Main	below diversion	58787	4893.00	58.00	70.81	65.38	70.82	0.000029	1.31	18248.06	10143.17	0.07
North Main	below diversion	57900	1085.00	58.00	68.15	60.85	66.18	0.000083	1.59	2397.25	3385.50	0.11
North Main	below diversion	57900	1812.00	58.00	67.88	61.93	67.89	0.000031	1.13	6072.91	4647.20	0.07
North Main	below diversion	57900	2685.00	58.00	68.95	63.00	68.95	0.000025	1.09	10195.33	6852.98	0.06
North Main	below diversion	57900	4893.00	58.00	70.80	66.02	70.80	0.000019	1.08	20905.54	9640.26	0.06
North Main	below diversion	55821	1085.00	58.00	65.98	60.98	66.00	0.000088	1.80	2548.07	3383.33	0.12
North Main	below diversion	55821	1812.00	58.00	67.84	62.06	67.84	0.000019	0.92	10392.26	8651.37	0.05
North Main	below diversion	55821	2685.00	58.00	68.93	63.08	68.93	0.000011	0.75	17784.71	9634.55	0.04
North Main	below diversion	55821	4893.00	58.00	70.78	66.08	70.78	0.000007	0.67	30514.72	10118.75	0.03
North Main	below diversion	55758	1085.00	58.00	65.96	60.90	65.99	0.000093	1.78	2708.39	3705.07	0.11
North Main	below diversion	55758	1812.00	58.00	67.83	61.99	67.83	0.000015	0.81	11659.02	8811.04	0.05
North Main	below diversion	55758	2685.00	58.00	68.92	63.01	68.92	0.000008	0.66	19072.97	9501.06	0.04
North Main	below diversion	55758	4893.00	58.00	70.77	66.00	70.77	0.000006	0.62	31686.71	10047.28	0.03
North Main	below diversion	55744	Bridge									
North Main	below diversion	55730	1085.00	58.00	65.90	60.90	65.96	0.000140	2.14	1558.64	2842.25	0.14
North Main	below diversion	55730	1812.00	58.00	67.80	61.99	67.81	0.000038	1.30	6685.29	7636.58	0.08
North Main	below diversion	55730	2685.00	58.00	68.91	63.01	68.91	0.000022	1.06	12721.07	9239.48	0.06
North Main	below diversion	55730	4893.00	58.00	70.74	66.20	70.74	0.000013	0.92	24733.77	10642.77	0.05
North Main	below diversion	55644	1085.00	58.00	65.90	60.90	65.94	0.000117	1.98	2001.32	2394.37	0.13
North Main	below diversion	55644	1812.00	58.00	67.80	61.99	67.80	0.000027	1.09	8059.17	7078.85	0.06
North Main	below diversion	55644	2685.00	58.00	68.91	63.01	68.91	0.000016	0.91	14651.00	8651.71	0.05
North Main	below diversion	55644	4893.00	58.00	70.73	66.04	70.74	0.000010	0.82	27539.64	10002.54	0.04
North Main	below diversion	54900	1085.00	58.00	65.83	60.86	65.86	0.000088	1.71	2742.43	3145.82	0.11
North Main	below diversion	54900	1812.00	58.00	67.78	61.70	67.78	0.000013	0.76	11540.88	5564.52	0.04
North Main	below diversion	54900	2685.00	58.00	68.90	62.70	68.90	0.000009	0.67	18000.01	6735.72	0.04
North Main	below diversion	54900	4893.00	58.00	70.72	65.93	70.73	0.000007	0.67	29082.51	7974.21	0.03
North Main	below diversion	53165	1085.00	58.00	65.69	60.78	65.71	0.000084	1.53	2335.29	1569.28	0.11
North Main	below diversion	53165	1812.00	58.00	67.75	61.81	67.76	0.000026	1.02	7010.23	2890.41	0.08
North Main	below diversion	53165	2685.00	58.00	68.87	62.77	68.88	0.000022	1.02	10664.58	3644.80	0.06
North Main	below diversion	53165	4893.00	58.00	70.71	65.20	70.71	0.000019	1.06	18394.32	8305.73	0.06
North Main	below diversion	53128	1085.00	58.00	65.61	60.67	65.69	0.000178	2.37	925.31	955.93	0.18
North Main	below diversion	53128	1812.00	58.00	67.73	61.67	67.75	0.000058	1.58	4712.61	2840.74	0.09
North Main	below diversion	53128	2685.00	58.00	68.87	62.64	68.88	0.000039	1.43	8494.68	3763.36	0.08
North Main	below diversion	53128	4893.00	58.00	70.71	64.60	70.71	0.000027	1.32	16509.35	6452.82	0.07
North Main	below diversion	53114	Bridge									
North Main	below diversion	53100	1085.00	58.00	65.57	60.67	65.65	0.000184	2.40	891.88	943.93	0.16
North Main	below diversion	53100	1812.00	58.00	67.71	61.67	67.73	0.000053	1.54	5225.33	3452.82	0.09
North Main	below diversion	53100	2685.00	58.00	68.84	62.64	68.85	0.000033	1.32	9784.80	4441.53	0.07
North Main	below diversion	53100	4893.00	58.00	70.69	64.60	70.69	0.000021	1.18	19049.18	6861.35	0.06
North Main	below diversion	52987	1085.00	58.00	65.55	60.67	65.63	0.000188	2.41	871.25	936.45	0.16
North Main	below diversion	52987	1812.00	58.00	67.70	61.67	67.72	0.000054	1.55	5190.99	3439.12	0.09
North Main	below diversion	52987	2685.00	58.00	68.83	62.64	68.84	0.000034	1.33	9729.93	4433.25	0.07
North Main	below diversion	52987	4893.00	58.00	70.68	64.60	70.68	0.000021	1.18	19002.05	6841.06	0.06



HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	52500	1085.00	58.00	65.45	60.63	65.54	0.000208	2.52	817.77	1109.93	0.17
North Main	below diversion	52500	1812.00	58.00	67.68	61.63	67.70	0.000041	1.35	6337.96	3857.96	0.08
North Main	below diversion	52500	2685.00	58.00	68.82	62.61	68.83	0.000026	1.16	11020.49	4497.20	0.06
North Main	below diversion	52500	4893.00	58.00	70.67	64.58	70.67	0.000017	1.06	20375.14	6836.16	0.05
North Main	below diversion	50599	1085.00	56.00	65.10	59.11	65.19	0.000171	2.46	458.52	69.92	0.18
North Main	below diversion	50599	1812.00	56.00	67.39	60.26	67.54	0.000198	3.13	632.48	124.55	0.17
North Main	below diversion	50599	2685.00	56.00	68.46	61.39	68.89	0.000277	3.98	1332.17	1867.39	0.21
North Main	below diversion	50599	4893.00	56.00	70.56	63.51	70.61	0.000097	2.64	10137.23	7632.90	0.13
North Main	below diversion	50550	1085.00	56.00	65.10	58.92	65.18	0.000162	2.26	482.17	71.23	0.15
North Main	below diversion	50550	1812.00	56.00	67.41	60.02	67.53	0.000174	2.82	792.07	743.49	0.16
North Main	below diversion	50550	2685.00	56.00	68.54	61.14	68.66	0.000174	3.04	3090.82	3501.71	0.16
North Main	below diversion	50550	4893.00	56.00	70.57	63.32	70.59	0.000058	1.93	12161.63	8547.10	0.10
North Main	below diversion	50536	Bridge									
North Main	below diversion	50522	1085.00	56.00	65.07	58.92	65.15	0.000164	2.27	480.50	71.14	0.15
North Main	below diversion	50522	1812.00	56.00	67.33	60.02	67.45	0.000180	2.86	739.01	615.87	0.16
North Main	below diversion	50522	2685.00	56.00	68.43	61.13	68.57	0.000197	3.21	2705.02	3385.64	0.17
North Main	below diversion	50522	4893.00	56.00	70.55	63.32	70.57	0.000057	1.95	12037.78	8538.95	0.10
North Main	below diversion	50423	1085.00	56.00	65.06	58.93	65.14	0.000165	2.27	479.54	71.09	0.15
North Main	below diversion	50423	1812.00	56.00	67.31	60.03	67.44	0.000161	2.86	730.13	591.82	0.16
North Main	below diversion	50423	2685.00	56.00	68.41	61.13	68.55	0.000201	3.24	2635.19	3364.21	0.18
North Main	below diversion	50423	4893.00	56.00	70.54	63.32	70.56	0.000058	1.96	11984.26	8535.43	0.10
North Main	below diversion	49400	1085.00	56.00	64.87	58.95	64.95	0.000176	2.29	475.29	73.32	0.15
North Main	below diversion	49400	1812.00	56.00	67.12	60.05	67.24	0.000188	2.86	772.06	2009.26	0.17
North Main	below diversion	49400	2685.00	56.00	68.33	61.13	68.38	0.000099	2.26	5583.32	4640.61	0.12
North Main	below diversion	49400	4893.00	56.00	70.51	63.29	70.52	0.000028	1.31	17576.28	8229.56	0.07
North Main	below diversion	48450	1085.00	56.00	64.67	59.09	64.77	0.000196	2.53	443.87	71.46	0.17
North Main	below diversion	48450	1812.00	56.00	67.10	60.23	67.12	0.000053	1.59	6055.86	5068.04	0.09
North Main	below diversion	48450	2685.00	56.00	68.32	61.33	68.32	0.000022	1.12	12396.73	5685.80	0.06
North Main	below diversion	48450	4893.00	56.00	70.50	63.41	70.50	0.000010	0.83	26125.35	9109.14	0.04
North Main	reach 1	233824	2722.00	53.37	64.47	57.28	64.62	0.000308	3.03	897.50	104.17	0.18
North Main	reach 1	233824	4319.00	53.37	66.84	58.59	67.02	0.000332	3.50	1871.84	1293.07	0.19
North Main	reach 1	233824	6086.00	53.37	68.14	59.82	68.26	0.000270	3.32	4147.84	2121.65	0.18
North Main	reach 1	233824	10949.00	53.37	70.43	62.59	70.48	0.000182	2.48	9481.63	2565.12	0.14
North Main	reach 1	232833	2722.00	53.37	64.22	56.93	64.33	0.000251	2.75	988.06	114.24	0.17
North Main	reach 1	232833	4319.00	53.37	66.60	58.16	66.72	0.000240	3.02	2537.31	1796.85	0.17
North Main	reach 1	232833	6086.00	53.37	67.98	59.30	68.05	0.000153	2.55	5774.01	2556.00	0.13
North Main	reach 1	232833	10949.00	53.37	70.33	61.86	70.36	0.000067	2.12	12305.85	2962.02	0.10
North Main	reach 1	232775	2722.00	53.37	64.20	56.93	64.32	0.000252	2.76	986.33	114.18	0.17
North Main	reach 1	232775	4319.00	53.37	66.57	58.16	66.70	0.000244	3.04	2494.75	1770.51	0.17
North Main	reach 1	232775	6086.00	53.37	67.97	59.30	68.03	0.000154	2.56	5739.29	2554.57	0.13
North Main	reach 1	232775	10949.00	53.37	70.32	61.86	70.35	0.000087	2.12	12272.85	2986.00	0.10
North Main	reach 1	232000	2722.00	53.37	64.00	56.81	64.12	0.000257	2.80	971.13	110.77	0.17
North Main	reach 1	232000	4319.00	53.37	66.53	58.01	66.56	0.000095	1.66	8652.18	3472.36	0.10
North Main	reach 1	232000	6086.00	53.37	67.95	59.13	67.96	0.000046	1.25	12095.75	4049.05	0.07
North Main	reach 1	232000	10949.00	53.37	70.29	61.69	70.30	0.000027	1.08	21926.29	4336.41	0.06
North Main	reach 1	230198	2722.00	52.60	63.60	55.95	63.70	0.000209	2.57	1059.76	118.33	0.15
North Main	reach 1	230198	4319.00	52.60	66.28	57.10	66.35	0.000136	2.37	4942.36	4795.66	0.13
North Main	reach 1	230198	6086.00	52.60	67.87	58.19	67.88	0.000040	1.38	14353.06	6272.26	0.07
North Main	reach 1	230198	10949.00	52.60	70.26	60.69	70.26	0.000017	0.93	29371.54	6300.00	0.05
North Main	reach 1	230130	2722.00	52.60	63.57	55.95	63.68	0.000211	2.57	1057.17	118.24	0.15
North Main	reach 1	230130	4319.00	52.60	66.27	57.10	66.34	0.000138	2.39	4864.12	4762.03	0.13
North Main	reach 1	230130	6086.00	52.60	67.86	58.19	67.88	0.000040	1.39	14323.08	6272.21	0.07
North Main	reach 1	230130	10949.00	52.60	70.25	60.69	70.26	0.000017	0.93	29355.40	6300.00	0.05
North Main	reach 1	230000	2722.00	52.60	63.54	56.04	63.65	0.000229	2.67	1018.37	114.90	0.16
North Main	reach 1	230000	4319.00	52.60	66.25	57.22	66.31	0.000171	2.34	4521.21	4275.50	0.14
North Main	reach 1	230000	6086.00	52.60	67.86	58.36	67.87	0.000046	1.32	13695.11	6142.04	0.07
North Main	reach 1	230000	10949.00	52.60	70.25	60.90	70.26	0.000018	0.93	28438.00	6184.82	0.05
North Main	reach 1	228819	2722.00	52.61	63.30	55.79	63.39	0.000199	2.48	1095.78	124.53	0.15
North Main	reach 1	228819	4319.00	52.61	65.95	56.90	66.08	0.000214	2.92	1921.96	1447.77	0.16
North Main	reach 1	228819	6086.00	52.61	67.74	57.96	67.79	0.000102	2.16	8098.57	5498.52	0.11
North Main	reach 1	228819	10949.00	52.61	70.21	60.36	70.22	0.000036	1.25	21767.70	5625.35	0.07
North Main	reach 1	227802	2722.00	52.61	62.95	56.20	63.09	0.000315	3.02	902.80	107.81	0.18
North Main	reach 1	227802	4319.00	52.61	65.54	57.42	65.74	0.000355	3.61	1207.77	248.50	0.20
North Main	reach 1	227802	6086.00	52.61	67.51	58.60	67.59	0.000234	2.75	5956.64	5806.23	0.16
North Main	reach 1	227802	10949.00	52.61	70.16	61.20	70.17	0.000039	1.17	22483.65	6265.34	0.07
North Main	reach 1	226000	2722.00	52.41	62.42	55.91	62.57	0.000335	3.07	887.36	108.15	0.19

HEC-DAS Plan P-25K-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El: (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	226000	4319.00	52.41	64.95	57.12	65.18	0.000377	3.68	1173.08	118.01	0.21
North Main	reach 1	226000	6086.00	52.41	66.73	58.26	67.03	0.000482	4.38	1389.54	124.95	0.23
North Main	reach 1	226000	10949.00	52.41	69.79	60.66	70.00	0.000457	4.31	5194.27	2103.42	0.23
North Main	reach 1	224978	2722.00	52.41	62.12	55.62	62.25	0.000283	2.80	970.73	120.30	0.17
North Main	reach 1	224978	4319.00	52.41	64.62	58.73	64.80	0.000316	3.36	1284.13	130.77	0.19
North Main	reach 1	224978	6086.00	52.41	66.33	57.78	66.58	0.000389	4.01	1545.01	200.59	0.21
North Main	reach 1	224978	10949.00	52.41	69.08	60.20	69.47	0.000548	5.24	3160.23	1261.34	0.26
North Main	reach 1	224934	2722.00	52.41	62.11	55.62	62.23	0.000284	2.81	969.11	120.24	0.17
North Main	reach 1	224934	4319.00	52.41	64.60	58.73	64.78	0.000317	3.37	1282.11	130.70	0.19
North Main	reach 1	224934	6086.00	52.41	66.31	57.78	66.56	0.000391	4.02	1541.26	199.40	0.21
North Main	reach 1	224934	10949.00	52.41	69.05	60.19	69.44	0.000555	5.27	3121.54	1258.23	0.26
North Main	reach 1	223155	2722.00	52.35	61.48	55.72	61.63	0.000399	3.18	856.34	114.10	0.20
North Main	reach 1	223155	4319.00	52.35	63.82	56.87	64.03	0.000574	3.74	1203.20	293.35	0.24
North Main	reach 1	223155	6086.00	52.35	65.50	57.96	65.74	0.000542	4.02	1822.51	433.14	0.24
North Main	reach 1	223155	10949.00	52.35	68.00	60.43	68.29	0.000695	4.78	3143.72	639.39	0.28
North Main	reach 1	222000	2722.00	52.03	60.97	55.47	61.15	0.000445	3.32	819.95	110.75	0.22
North Main	reach 1	222000	4319.00	52.03	63.17	56.62	63.41	0.000502	3.99	1185.48	382.41	0.23
North Main	reach 1	222000	6086.00	52.03	64.87	57.73	65.07	0.000597	3.91	2350.91	937.68	0.25
North Main	reach 1	222000	10949.00	52.03	67.55	60.22	67.67	0.000379	3.47	5480.85	1381.13	0.20
North Main	reach 1	220735	2722.00	51.94	60.31	55.35	60.51	0.000587	3.59	757.25	109.28	0.24
North Main	reach 1	220735	4319.00	51.94	62.40	56.53	62.69	0.000645	4.34	995.90	118.71	0.26
North Main	reach 1	220735	6086.00	51.94	63.74	57.64	64.17	0.000827	5.25	1158.93	124.78	0.30
North Main	reach 1	220735	10949.00	51.94	65.96	60.14	66.76	0.001534	7.27	1957.96	1090.77	0.42
North Main	reach 1	220633	2722.00	51.94	60.25	55.35	60.45	0.000582	3.63	750.41	108.00	0.24
North Main	reach 1	220633	4319.00	51.94	62.33	56.53	62.62	0.000661	4.38	986.73	118.39	0.27
North Main	reach 1	220633	6086.00	51.94	63.65	57.84	64.08	0.000851	5.31	1147.04	124.35	0.31
North Main	reach 1	220633	10949.00	51.94	65.70	60.14	66.59	0.001578	7.63	1692.43	906.24	0.42
North Main	reach 1	220295	2722.00	51.84	60.09	55.03	60.28	0.000487	3.36	810.07	115.28	0.22
North Main	reach 1	220295	4319.00	51.84	62.15	56.13	62.41	0.000590	4.09	1058.07	123.86	0.25
North Main	reach 1	220295	6086.00	51.84	63.41	57.16	63.80	0.000735	5.00	1240.81	322.74	0.29
North Main	reach 1	220295	10949.00	51.84	65.57	59.55	66.03	0.001023	5.95	3226.06	1718.41	0.34
North Main	reach 1	219330	2722.00	51.58	59.77	54.33	59.88	0.000295	2.66	1024.74	143.66	0.18
North Main	reach 1	219330	4319.00	51.58	61.80	55.24	61.96	0.000343	3.26	1324.19	152.20	0.19
North Main	reach 1	219330	6086.00	51.58	62.95	56.12	63.20	0.000468	4.05	1502.28	156.95	0.23
North Main	reach 1	219330	10949.00	51.58	64.59	58.17	65.12	0.000864	5.95	2468.99	1317.63	0.32
North Main	reach 1	218000	2722.00	51.24	59.41	53.79	59.51	0.000264	2.55	1067.75	146.38	0.17
North Main	reach 1	218000	4319.00	51.24	61.38	54.69	61.52	0.000319	3.17	1361.19	153.87	0.19
North Main	reach 1	218000	6086.00	51.24	62.38	55.55	62.81	0.000422	3.86	2101.36	1345.29	0.22
North Main	reach 1	218000	10949.00	51.24	63.99	57.54	64.22	0.000480	4.45	4953.44	2033.98	0.24
North Main	reach 1	216808	2722.00	51.24	58.91	54.22	59.08	0.000502	3.27	832.85	127.94	0.23
North Main	reach 1	216808	4319.00	51.24	60.78	55.25	61.02	0.000582	3.92	1348.13	1087.62	0.25
North Main	reach 1	216808	6086.00	51.24	61.90	56.23	62.07	0.000487	3.80	3345.75	2173.56	0.23
North Main	reach 1	216808	10949.00	51.24	63.66	58.45	63.74	0.000328	3.34	7881.37	2990.15	0.19
North Main	reach 1	216752	2722.00	51.24	58.88	54.22	59.05	0.000510	3.28	826.91	127.79	0.23
North Main	reach 1	216752	4319.00	51.24	60.75	55.25	60.99	0.000572	3.94	1313.95	1040.07	0.25
North Main	reach 1	216752	6086.00	51.24	61.86	56.23	62.04	0.000484	3.86	3261.84	2181.32	0.23
North Main	reach 1	216752	10949.00	51.24	63.64	58.45	63.72	0.000335	3.37	7818.12	2982.80	0.19
North Main	reach 1	216000	2722.00	51.25	58.36	54.28	58.59	0.000725	3.63	710.28	111.74	0.27
North Main	reach 1	216000	4319.00	51.25	60.18	55.34	60.49	0.000774	4.52	1265.80	1143.25	0.29
North Main	reach 1	216000	6086.00	51.25	61.53	56.37	61.88	0.000477	3.75	3602.92	1965.45	0.23
North Main	reach 1	216000	10949.00	51.25	63.40	58.70	63.46	0.000352	2.94	7841.85	2427.02	0.19
North Main	reach 1	214269	2722.00	51.25	57.38	53.54	57.52	0.000513	3.02	901.75	159.17	0.22
North Main	reach 1	214269	4319.00	51.25	59.12	54.38	59.33	0.000552	3.65	1184.62	165.77	0.24
North Main	reach 1	214269	6086.00	51.25	60.60	55.15	60.82	0.000516	3.91	2272.59	1234.53	0.24
North Main	reach 1	214269	10949.00	51.25	62.64	56.97	62.81	0.000437	4.03	4929.81	1416.59	0.22
North Main	reach 1	212822	2722.00	51.25	55.02	54.07	55.75	0.005010	6.89	395.07	111.84	0.65
North Main	reach 1	212822	4319.00	51.25	56.90	55.08	57.87	0.003202	7.05	612.64	118.98	0.55
North Main	reach 1	212822	6086.00	51.25	58.40	56.03	59.31	0.002858	7.66	794.83	124.65	0.53
North Main	reach 1	212822	10949.00	51.25	60.32	58.20	61.51	0.003162	9.28	1710.37	679.75	0.58
North Main	reach 1	212818										
North Main	reach 1	212769	2722.00	44.29	55.01	47.79	55.12	0.000239	2.71	1005.78	115.13	0.16
North Main	reach 1	212769	4319.00	44.29	56.90	48.94	57.09	0.000336	3.51	1229.56	122.15	0.20
North Main	reach 1	212769	6086.00	44.29	58.39	50.03	58.59	0.000350	3.81	2247.80	590.42	0.20
North Main	reach 1	212769	10949.00	44.29	60.32	52.52	60.61	0.000502	4.91	3511.68	729.03	0.25
North Main	reach 1	211780	2722.00	43.38	54.88	46.37	54.94	0.000124	2.04	1335.54	144.29	0.12
North Main	reach 1	211780	4319.00	43.38	56.81	47.41	56.86	0.000112	2.11	3782.78	1599.14	0.11



HEC-RAS Plan 2.5% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Crit
North Main	reach 1	211780	8086.00	43.36	58.32	48.40	58.36	0.000998	1.90	6671.20	2208.99	0.11
North Main	reach 1	211780	10949.00	43.36	60.29	50.84	60.32	0.000998	1.92	11867.22	3161.78	0.11
North Main	reach 1	210419	2722.00	43.36	54.62	46.84	54.72	0.000204	2.52	1079.09	122.64	0.15
North Main	reach 1	210419	4319.00	43.36	56.68	48.04	56.72	0.000115	2.03	5148.87	2658.00	0.11
North Main	reach 1	210419	8086.00	43.36	58.24	49.17	58.25	0.000073	1.29	10052.60	3921.55	0.09
North Main	reach 1	210419	10949.00	43.36	60.23	51.89	60.24	0.000049	1.16	18578.87	4582.51	0.07
North Main	reach 1	209041	2722.00	43.31	54.34	46.66	54.44	0.000201	2.51	1083.54	122.08	0.15
North Main	reach 1	209041	4319.00	43.31	56.32	47.81	56.48	0.000278	3.24	1334.39	186.01	0.18
North Main	reach 1	209041	8086.00	43.31	57.90	48.90	58.08	0.000293	3.54	2824.05	1522.99	0.19
North Main	reach 1	209041	10949.00	43.31	60.03	51.36	60.13	0.000231	3.36	8222.01	4681.43	0.17
North Main	reach 1	208000	2722.00	43.31	54.12	46.61	54.22	0.000212	2.58	1055.31	118.69	0.15
North Main	reach 1	208000	4319.00	43.31	56.00	47.75	56.18	0.000302	3.36	1285.56	129.54	0.19
North Main	reach 1	208000	8086.00	43.31	57.46	48.83	57.70	0.000477	3.98	1980.15	1205.95	0.23
North Main	reach 1	208000	10949.00	43.31	59.84	51.32	59.91	0.000289	2.76	9552.77	5699.27	0.18
North Main	reach 1	207786	2722.00	43.31	54.09	46.64	54.19	0.000213	2.52	1079.07	126.89	0.15
North Main	reach 1	207786	4319.00	43.31	55.94	47.80	56.11	0.000302	3.26	1326.29	191.74	0.19
North Main	reach 1	207786	8086.00	43.31	57.43	48.88	57.60	0.000337	3.50	2942.49	1881.89	0.20
North Main	reach 1	207786	10949.00	43.31	59.82	51.32	59.85	0.000185	2.13	12335.71	5400.50	0.14
North Main	reach 1	207730	2722.00	43.31	54.08	46.64	54.17	0.000213	2.53	1077.50	126.82	0.15
North Main	reach 1	207730	4319.00	43.31	55.93	47.79	56.09	0.000303	3.27	1323.01	181.93	0.19
North Main	reach 1	207730	8086.00	43.31	57.42	48.88	57.59	0.000339	3.51	2921.25	1867.52	0.20
North Main	reach 1	207730	10949.00	43.31	59.81	51.32	59.84	0.000187	2.14	12277.28	5368.80	0.14
North Main	reach 1	206000	2722.00	43.32	53.72	46.52	53.81	0.000200	2.46	1703.45	1761.64	0.15
North Main	reach 1	206000	4319.00	43.32	55.84	47.64	55.86	0.000058	1.42	8555.79	3952.08	0.08
North Main	reach 1	206000	8086.00	43.32	57.43	48.69	57.43	0.000026	0.94	14851.51	3988.45	0.05
North Main	reach 1	206000	10949.00	43.32	59.75	51.10	59.75	0.000019	0.83	24594.53	4372.45	0.05
North Main	reach 1	204471	2722.00	43.17	53.34	46.49	53.46	0.000268	2.79	975.16	116.47	0.17
North Main	reach 1	204471	4319.00	43.17	55.48	47.64	55.67	0.000341	3.50	1233.41	124.93	0.20
North Main	reach 1	204471	8086.00	43.17	57.03	48.73	57.29	0.000621	4.15	1641.37	485.73	0.24
North Main	reach 1	204471	10949.00	43.17	59.36	51.22	59.64	0.000623	4.78	3851.30	1400.42	0.27
North Main	reach 1	203192	2722.00	43.15	53.10	45.93	53.18	0.000168	2.22	1227.81	147.95	0.14
North Main	reach 1	203192	4319.00	43.15	55.18	46.91	55.30	0.000214	2.77	1606.64	194.84	0.16
North Main	reach 1	203192	8086.00	43.15	56.62	47.83	56.79	0.000278	3.35	1904.11	217.94	0.18
North Main	reach 1	203192	10949.00	43.15	58.59	49.97	58.95	0.000513	4.90	2810.81	747.09	0.25
North Main	reach 1	202000	2722.00	42.72	52.87	45.68	52.96	0.000195	2.44	1116.02	128.37	0.15
North Main	reach 1	202000	4319.00	42.72	54.86	46.71	55.01	0.000264	3.13	1378.62	135.85	0.17
North Main	reach 1	202000	8086.00	42.72	56.20	47.70	56.41	0.000368	3.72	2076.30	785.33	0.21
North Main	reach 1	202000	10949.00	42.72	58.04	49.96	58.29	0.000526	4.47	4029.69	1338.02	0.25
North Main	reach 1	201961	2722.00	42.72	52.85	45.69	52.95	0.000191	2.38	1142.35	134.61	0.14
North Main	reach 1	201961	4319.00	42.72	54.85	46.72	54.99	0.000255	3.05	1419.44	148.33	0.17
North Main	reach 1	201961	8086.00	42.72	56.19	47.69	56.38	0.000321	3.82	2152.12	905.78	0.19
North Main	reach 1	201961	10949.00	42.72	58.02	49.93	58.26	0.000451	4.41	4419.95	1626.89	0.23
North Main	reach 1	201917	2722.00	42.72	52.85	45.69	52.94	0.000191	2.39	1141.19	134.57	0.14
North Main	reach 1	201917	4319.00	42.72	54.84	46.72	54.98	0.000256	3.05	1417.72	148.17	0.17
North Main	reach 1	201917	8086.00	42.72	56.17	47.70	56.37	0.000323	3.83	2138.74	899.25	0.19
North Main	reach 1	201917	10949.00	42.72	57.99	49.93	58.23	0.000460	4.44	4367.91	1605.19	0.23
North Main	reach 1	201322	2722.00	42.52	52.74	45.48	52.83	0.000187	2.40	1132.91	128.93	0.14
North Main	reach 1	201322	4319.00	42.52	54.67	46.49	54.82	0.000257	3.11	1368.55	815.66	0.17
North Main	reach 1	201322	8086.00	42.52	55.93	47.49	56.17	0.000362	3.90	1561.64	976.96	0.21
North Main	reach 1	201322	10949.00	42.52	57.24	49.74	57.85	0.000843	8.27	1747.31	1144.60	0.32
North Main	reach 1	200676	2722.00	42.52	52.59	45.87	52.69	0.000258	2.63	1033.84	133.02	0.17
North Main	reach 1	200676	4319.00	42.52	54.50	46.99	54.65	0.000308	3.17	1802.59	888.20	0.19
North Main	reach 1	200676	8086.00	42.52	55.80	48.07	55.93	0.000327	3.26	3066.28	1072.76	0.19
North Main	reach 1	200676	10949.00	42.52	57.17	50.46	57.30	0.000664	3.50	4949.62	1660.19	0.26
North Main	reach 1	200030	2722.00	42.52	52.42	45.58	52.53	0.000237	2.63	1035.63	123.17	0.16
North Main	reach 1	200030	4319.00	42.52	54.34	46.67	54.47	0.000261	3.05	2070.51	809.39	0.17
North Main	reach 1	200030	8086.00	42.52	55.78	47.69	55.81	0.000086	1.87	10549.70	6242.65	0.10
North Main	reach 1	200030	10949.00	42.52	57.16	50.03	57.17	0.000061	1.67	19308.93	6435.21	0.09
North Main	reach 1	199964	2722.00	42.52	52.41	45.58	52.51	0.000238	2.63	1033.61	123.10	0.16
North Main	reach 1	199964	4319.00	42.52	54.32	46.67	54.45	0.000263	3.06	2055.28	807.00	0.17
North Main	reach 1	199964	8086.00	42.52	55.77	47.69	55.80	0.000087	1.88	10511.77	6241.81	0.10
North Main	reach 1	199964	10949.00	42.52	57.16	50.03	57.17	0.000062	1.68	19282.37	6434.71	0.09
North Main	reach 1	198000	2722.00	42.52	51.95	45.43	52.05	0.000229	2.55	1292.44	601.74	0.16
North Main	reach 1	198000	4319.00	42.52	54.17	46.47	54.19	0.000066	1.55	8094.80	4358.20	0.09
North Main	reach 1	198000	8086.00	42.52	55.70	47.44	55.70	0.000029	1.10	17051.23	7605.51	0.06
North Main	reach 1	198000	10949.00	42.52	57.09	49.68	57.09	0.000026	1.00	27834.86	7797.04	0.05

HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch B (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	197381	2722.00	42.52	51.79	45.47	51.90	0.000261	2.85	1033.60	191.74	0.17
North Main	reach 1	197381	4319.00	42.52	54.08	48.50	54.13	0.000137	2.17	5108.35	3538.40	0.12
North Main	reach 1	197381	6086.00	42.52	55.67	47.49	55.88	0.000053	1.48	11910.40	5410.14	0.08
North Main	reach 1	197381	10949.00	42.52	57.07	49.73	57.08	0.000048	1.48	22015.97	8907.88	0.08
North Main	reach 1	197333	2722.00	42.52	51.78	45.48	51.89	0.000262	2.85	1031.13	188.88	0.17
North Main	reach 1	197333	4319.00	42.52	54.02	48.51	54.11	0.000209	2.68	3553.23	3327.98	0.15
North Main	reach 1	197333	6086.00	42.52	55.68	47.49	55.88	0.000073	1.71	10398.16	5407.23	0.09
North Main	reach 1	197333	10949.00	42.52	57.06	49.73	57.07	0.000080	1.83	20512.49	8907.39	0.08
North Main	reach 1	198000	2722.00	42.53	51.37	45.52	51.50	0.000321	2.87	950.03	126.67	0.18
North Main	reach 1	198000	4319.00	42.53	53.58	46.56	53.74	0.000381	3.44	1369.60	328.10	0.20
North Main	reach 1	198000	6086.00	42.53	55.48	47.56	55.53	0.000192	2.55	6217.71	3947.58	0.15
North Main	reach 1	198000	10949.00	42.53	56.93	49.84	56.96	0.000140	2.06	12951.50	5118.19	0.12
North Main	reach 1	194500	2722.00	42.53	50.73	45.69	50.91	0.000491	3.37	808.50	115.88	0.22
North Main	reach 1	194500	4319.00	42.53	52.81	48.79	53.07	0.000559	4.08	1058.29	124.40	0.25
North Main	reach 1	194500	6086.00	42.53	54.72	47.83	55.03	0.000580	4.57	1682.91	1123.84	0.26
North Main	reach 1	194500	10949.00	42.53	56.51	50.22	56.63	0.000366	3.69	8212.23	4446.49	0.20
North Main	reach 1	194434	2722.00	42.53	50.70	45.69	50.87	0.000488	3.38	804.49	115.54	0.23
North Main	reach 1	194434	4319.00	42.53	52.77	48.79	53.03	0.000567	4.10	1053.32	124.23	0.25
North Main	reach 1	194434	6086.00	42.53	54.67	47.83	54.99	0.000594	4.61	1608.90	1075.37	0.26
North Main	reach 1	194434	10949.00	42.53	56.48	50.21	56.60	0.000378	3.75	8077.55	4441.06	0.21
North Main	reach 1	194000	2722.00	42.44	50.48	45.57	50.88	0.000486	3.34	814.89	119.04	0.23
North Main	reach 1	194000	4319.00	42.44	52.53	46.84	52.79	0.000582	4.05	1067.98	127.96	0.25
North Main	reach 1	194000	6086.00	42.44	54.50	47.67	54.73	0.000493	4.07	2833.00	2847.88	0.24
North Main	reach 1	194000	10949.00	42.44	56.41	50.00	56.45	0.000234	2.52	10660.36	4470.43	0.16
North Main	reach 1	192000	2722.00	42.24	49.23	45.25	49.48	0.000740	3.81	714.91	116.06	0.27
North Main	reach 1	192000	4319.00	42.24	51.11	48.30	51.44	0.000817	4.59	940.18	123.37	0.29
North Main	reach 1	192000	6086.00	42.24	53.01	47.30	53.39	0.000927	5.03	1454.27	939.05	0.31
North Main	reach 1	192000	10949.00	42.24	55.87	49.59	55.94	0.000277	2.94	7887.57	2495.12	0.17
North Main	reach 1	190533	2722.00	42.24	48.27	45.31	47.10	0.005222	7.29	373.52	99.45	0.66
North Main	reach 1	190533	4319.00	42.24	48.61	48.40	49.38	0.002791	7.01	618.10	107.87	0.52
North Main	reach 1	190533	6086.00	42.24	50.42	47.42	51.28	0.002365	7.46	815.91	114.03	0.49
North Main	reach 1	190533	10949.00	42.24	53.62	49.78	54.91	0.002547	9.11	1202.25	5023.94	0.53
North Main	reach 1	190528										
			Inline Weir									
North Main	reach 1	190513	2722.00	38.26	46.27	41.44	46.47	0.000563	3.60	756.27	107.36	0.24
North Main	reach 1	190513	4319.00	38.26	48.61	42.58	48.89	0.000587	4.25	1018.98	115.17	0.25
North Main	reach 1	190513	6086.00	38.26	50.41	43.82	50.79	0.000665	4.95	1229.43	120.89	0.27
North Main	reach 1	190513	10949.00	38.26	53.61	46.07	54.30	0.001033	6.88	1838.46	5013.77	0.35
North Main	reach 1	190000	2722.00	38.26	46.00	41.28	46.19	0.000525	3.39	804.04	120.34	0.23
North Main	reach 1	190000	4319.00	38.26	48.35	42.35	48.59	0.000523	3.93	1098.53	130.33	0.24
North Main	reach 1	190000	6086.00	38.26	50.13	43.34	50.45	0.000584	4.55	1336.80	3825.55	0.26
North Main	reach 1	190000	10949.00	38.26	53.17	45.84	53.78	0.000967	6.15	1779.52	5328.12	0.34
North Main	reach 1	189032	2722.00	38.26	45.39	41.32	45.60	0.000699	3.65	745.31	124.57	0.26
North Main	reach 1	189032	4319.00	38.26	47.78	42.37	48.04	0.000829	4.08	1059.42	138.06	0.26
North Main	reach 1	189032	6086.00	38.26	49.51	43.37	49.84	0.000683	4.66	1305.83	512.59	0.28
North Main	reach 1	189032	10949.00	38.26	52.11	45.84	52.74	0.001128	6.36	1721.76	4874.13	0.36
North Main	reach 1	188975	2722.00	38.26	45.35	41.32	45.58	0.000715	3.68	739.74	124.32	0.27
North Main	reach 1	188975	4319.00	38.26	47.74	42.37	48.00	0.000638	4.10	1053.99	137.84	0.26
North Main	reach 1	188975	6086.00	38.26	49.48	43.37	49.80	0.000693	4.68	1299.46	485.88	0.28
North Main	reach 1	188975	10949.00	38.26	52.04	45.84	52.67	0.001157	6.41	1708.05	4821.02	0.36
North Main	reach 1	188000	2131.00	37.63	44.85	40.94	44.98	0.000458	2.68	800.97	154.89	0.21
North Main	reach 1	188000	3219.00	37.63	47.42	41.85	47.53	0.000296	2.63	1223.65	171.57	0.17
North Main	reach 1	188000	4396.00	37.63	49.18	42.28	49.30	0.000275	2.87	1530.51	177.41	0.17
North Main	reach 1	188000	9519.00	37.63	51.39	44.54	51.78	0.000631	4.93	1930.80	5419.03	0.27
North Main	reach 1	187889	2131.00	37.63	44.72	40.61	44.89	0.000584	3.24	658.54	111.50	0.23
North Main	reach 1	187889	3219.00	37.63	47.30	41.43	47.47	0.000419	3.35	959.50	122.37	0.21
North Main	reach 1	187889	4396.00	37.63	49.04	42.21	49.25	0.000428	3.73	1178.44	129.69	0.22
North Main	reach 1	187889	9519.00	37.63	50.94	44.93	51.62	0.001139	6.64	1433.02	137.71	0.36
North Main	reach 1	187894	2131.00	34.85	44.71	38.32	44.81	0.000235	2.49	854.45	108.83	0.16
North Main	reach 1	187894	3219.00	34.85	47.28	39.19	47.40	0.000227	2.81	1148.39	118.31	0.16
North Main	reach 1	187894	4396.00	34.85	49.02	39.99	49.18	0.000261	3.24	1357.12	124.85	0.17
North Main	reach 1	187894	9519.00	34.85	50.87	42.84	51.42	0.000770	5.97	1595.10	131.78	0.30
North Main	reach 1	186000	2131.00	34.04	44.44	36.94	44.50	0.000134	1.99	1073.01	127.40	0.12
North Main	reach 1	186000	3219.00	34.04	47.01	37.76	47.09	0.000148	2.28	1414.45	147.14	0.13
North Main	reach 1	186000	4396.00	34.04	48.83	38.52	48.87	0.000107	1.80	5697.19	4008.12	0.11
North Main	reach 1	186000	9519.00	34.04	51.00	41.21	51.01	0.000058	1.46	14895.18	4156.82	0.08
North Main	reach 1	184000	2131.00	34.09	44.19	36.66	44.25	0.000128	1.96	1085.10	126.37	0.12

HEC-DAS Plan: P-25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	184000	3219.00	34.09	48.73	37.45	48.81	0.000132	2.27	1418.28	135.15	0.12
North Main	reach 1	184000	4396.00	34.09	48.49	38.21	48.80	0.000167	2.64	1683.18	392.79	0.14
North Main	reach 1	184000	9519.00	34.09	50.79	40.83	50.84	0.000147	2.34	10052.61	4100.62	0.13
North Main	reach 1	182000	2131.00	33.49	43.93	36.10	43.99	0.000121	1.93	1103.36	125.62	0.11
North Main	reach 1	182000	3219.00	33.49	48.47	36.90	46.55	0.000128	2.24	1434.00	135.12	0.12
North Main	reach 1	182000	4396.00	33.49	46.21	37.68	48.27	0.000144	2.22	4097.81	3872.93	0.13
North Main	reach 1	182000	9519.00	33.49	50.62	40.35	50.84	0.000068	1.59	14106.77	4125.33	0.09
North Main	reach 1	180000	2131.00	33.44	43.67	36.12	43.74	0.000134	2.01	1080.23	123.01	0.12
North Main	reach 1	180000	3219.00	33.44	46.20	36.93	46.28	0.000141	2.33	1382.39	132.55	0.13
North Main	reach 1	180000	4396.00	33.44	47.84	37.70	47.95	0.000170	2.74	1605.14	138.77	0.14
North Main	reach 1	180000	9519.00	33.44	50.40	40.38	50.44	0.000138	2.29	10372.90	4111.40	0.13
North Main	reach 1	178120	2131.00	33.43	43.30	36.68	43.40	0.000245	2.50	851.75	113.00	0.16
North Main	reach 1	178120	3219.00	33.43	45.62	37.63	45.94	0.000238	2.79	1152.69	126.49	0.16
North Main	reach 1	178120	4396.00	33.43	47.38	38.52	47.54	0.000281	3.24	1357.16	134.88	0.18
North Main	reach 1	178120	9519.00	33.43	50.05	41.54	50.14	0.000216	3.12	8373.56	4099.88	0.16
North Main	reach 1	178059	2131.00	33.43	43.29	36.68	43.39	0.000246	2.50	850.73	112.95	0.16
North Main	reach 1	178059	3219.00	33.43	45.81	37.63	45.93	0.000239	2.80	1151.61	128.44	0.16
North Main	reach 1	178059	4396.00	33.43	47.37	38.52	47.53	0.000282	3.24	1355.78	134.83	0.18
North Main	reach 1	178059	9519.00	33.43	50.03	41.54	50.12	0.000219	3.14	8314.43	4099.23	0.16
North Main	reach 1	178000	2131.00	33.28	43.30	36.18	43.37	0.000167	2.16	977.95	118.58	0.13
North Main	reach 1	178000	3219.00	33.28	45.81	37.00	45.91	0.000171	2.50	1288.58	128.53	0.14
North Main	reach 1	178000	4396.00	33.28	47.38	37.80	47.51	0.000208	2.94	1494.39	134.73	0.16
North Main	reach 1	178000	9519.00	33.28	50.06	40.59	50.10	0.000148	2.20	10810.93	4162.59	0.13
North Main	reach 1	176000	2131.00	33.44	42.94	36.22	43.02	0.000189	2.25	948.21	121.34	0.14
North Main	reach 1	176000	3219.00	33.44	45.45	37.05	45.55	0.000166	2.54	1267.53	132.59	0.14
North Main	reach 1	176000	4396.00	33.44	46.93	37.88	47.07	0.000235	2.99	1468.32	142.88	0.16
North Main	reach 1	176000	9519.00	33.44	49.76	40.61	49.80	0.000146	2.32	10597.59	5020.29	0.13
North Main	reach 1	174282	2131.00	32.56	42.68	35.39	42.74	0.000133	1.99	1069.54	125.16	0.12
North Main	reach 1	174282	3219.00	32.56	45.19	36.18	45.28	0.000138	2.31	1393.99	133.11	0.13
North Main	reach 1	174282	4396.00	32.56	46.60	36.92	46.71	0.000181	2.78	1583.90	140.60	0.15
North Main	reach 1	174282	9519.00	32.56	49.30	39.50	49.45	0.000329	3.53	6902.95	6614.79	0.19
North Main	reach 1	173031	2131.00	32.46	42.48	35.27	42.56	0.000164	2.16	984.31	119.64	0.13
North Main	reach 1	173031	3219.00	32.46	44.99	36.12	45.08	0.000169	2.48	1298.01	131.00	0.14
North Main	reach 1	173031	4396.00	32.46	46.33	36.94	46.47	0.000219	2.97	1477.70	137.11	0.16
North Main	reach 1	173031	9519.00	32.46	49.02	39.74	49.12	0.000198	3.11	9888.07	7835.90	0.16
North Main	reach 1	172979	2131.00	32.46	42.48	35.27	42.55	0.000165	2.17	983.26	119.60	0.13
North Main	reach 1	172979	3219.00	32.46	44.98	36.12	45.08	0.000170	2.48	1296.83	130.98	0.14
North Main	reach 1	172979	4396.00	32.46	46.32	36.94	46.46	0.000219	2.98	1476.08	137.06	0.16
North Main	reach 1	172979	9519.00	32.46	49.00	39.74	49.10	0.000204	3.16	9703.76	7833.75	0.16
North Main	reach 1	172000	2131.00	32.46	42.32	35.18	42.39	0.000158	2.13	1002.07	121.33	0.13
North Main	reach 1	172000	3219.00	32.46	44.82	36.00	44.91	0.000161	2.45	1318.36	130.04	0.14
North Main	reach 1	172000	4396.00	32.46	46.11	36.78	46.24	0.000210	2.96	1486.92	134.52	0.16
North Main	reach 1	172000	9519.00	32.46	48.50	39.52	48.77	0.000552	4.48	4140.48	3487.04	0.25
North Main	reach 1	170000	2131.00	32.45	42.01	34.99	42.08	0.000150	2.07	1027.27	123.76	0.13
North Main	reach 1	170000	3219.00	32.45	44.50	35.77	44.59	0.000155	2.39	1346.77	133.47	0.13
North Main	reach 1	170000	4396.00	32.45	45.66	36.51	45.79	0.000243	2.91	1510.67	156.57	0.17
North Main	reach 1	170000	9519.00	32.45	47.00	39.12	47.47	0.000863	5.50	1731.12	179.38	0.31
North Main	reach 1	168000	2131.00	32.50	41.67	35.12	41.75	0.000184	2.21	963.37	123.77	0.14
North Main	reach 1	168000	3219.00	32.50	44.16	35.92	44.26	0.000177	2.50	1370.25	628.44	0.14
North Main	reach 1	168000	4396.00	32.50	45.21	36.67	45.30	0.000239	2.55	3653.53	3892.53	0.16
North Main	reach 1	168000	9519.00	32.50	46.41	39.32	46.47	0.000262	2.84	8487.48	4232.98	0.17
North Main	reach 1	167722	2131.00	32.50	41.61	35.19	41.69	0.000207	2.33	913.27	117.61	0.15
North Main	reach 1	167722	3219.00	32.50	44.09	36.00	44.20	0.000202	2.64	1219.96	137.34	0.15
North Main	reach 1	167722	4396.00	32.50	45.11	36.78	45.23	0.000226	2.93	2982.57	4049.09	0.16
North Main	reach 1	167722	9519.00	32.50	46.33	39.52	46.41	0.000223	3.05	10436.21	7241.52	0.16
North Main	reach 1	167642	2131.00	32.50	41.59	35.19	41.68	0.000208	2.34	911.25	117.54	0.15
North Main	reach 1	167642	3219.00	32.50	44.08	36.01	44.19	0.000203	2.65	1217.77	136.95	0.15
North Main	reach 1	167642	4396.00	32.50	45.09	36.79	45.21	0.000231	2.96	2865.66	3888.28	0.16
North Main	reach 1	167642	9519.00	32.50	46.31	39.52	46.38	0.000231	3.11	10222.63	7226.56	0.16
North Main	reach 1	166000	2131.00	32.51	41.22	35.23	41.30	0.000238	2.39	892.01	124.77	0.16
North Main	reach 1	166000	3219.00	32.51	43.69	36.05	43.80	0.000275	2.82	1226.41	166.20	0.17
North Main	reach 1	166000	4396.00	32.51	44.56	36.83	44.72	0.000398	3.14	1640.61	1884.60	0.20
North Main	reach 1	166000	9519.00	32.51	46.01	39.53	46.04	0.000174	2.24	13005.90	7847.36	0.14
North Main	reach 1	164000	2131.00	31.68	40.83	34.23	40.90	0.000171	2.12	1003.28	130.48	0.13
North Main	reach 1	164000	3219.00	31.68	43.24	35.01	43.32	0.000206	2.28	1665.13	941.61	0.15
North Main	reach 1	164000	4396.00	31.68	44.20	35.75	44.24	0.000140	1.96	6273.46	6695.93	0.12
North Main	reach 1	164000	9519.00	31.68	45.82	38.37	45.83	0.000068	1.45	18522.39	7844.15	0.09

HEC-DAS Plan P-25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Frout # Chl
North Main	reach 1	163662	2131.00	31.34	40.77	33.90	40.84	0.000158	2.09	1020.64	127.57	0.13
North Main	reach 1	163662	3219.00	31.34	43.17	34.68	43.25	0.000191	2.38	1585.36	950.32	0.14
North Main	reach 1	163662	4398.00	31.34	44.14	35.43	44.18	0.000202	2.07	4927.37	4677.43	0.14
North Main	reach 1	163662	9519.00	31.34	45.80	38.04	45.81	0.000103	1.88	14317.01	6000.00	0.11
North Main	reach 1	163805	2131.00	31.34	40.76	33.90	40.83	0.000159	2.09	1019.48	127.53	0.13
North Main	reach 1	163805	3219.00	31.34	43.16	34.69	43.24	0.000190	2.37	1574.78	927.70	0.14
North Main	reach 1	163805	4398.00	31.34	44.12	35.43	44.17	0.000205	2.09	4868.77	4657.32	0.14
North Main	reach 1	163805	9519.00	31.34	45.79	38.04	45.81	0.000104	1.88	14280.64	6000.00	0.11
North Main	reach 1	162000	2131.00	31.35	40.49	33.93	40.56	0.000180	2.16	987.24	129.92	0.14
North Main	reach 1	162000	3219.00	31.35	43.01	34.72	43.03	0.000084	1.45	5925.04	4970.45	0.09
North Main	reach 1	162000	4398.00	31.35	44.02	35.48	44.03	0.000043	1.08	11970.29	6909.78	0.07
North Main	reach 1	162000	9519.00	31.35	45.71	38.10	45.71	0.000029	0.95	24754.88	7893.17	0.08
North Main	reach 1	160000	2131.00	31.35	40.16	33.87	40.23	0.000154	2.01	1058.48	137.24	0.13
North Main	reach 1	160000	3219.00	31.35	42.71	34.39	42.79	0.000182	2.28	1425.89	178.28	0.14
North Main	reach 1	160000	4398.00	31.35	43.85	35.08	43.89	0.000126	1.92	5785.96	5420.42	0.12
North Main	reach 1	160000	9519.00	31.35	45.61	37.51	45.62	0.000083	1.48	18280.64	7833.89	0.08
North Main	reach 1	158000	2131.00	31.38	39.79	33.88	39.87	0.000212	2.26	941.23	130.58	0.15
North Main	reach 1	158000	3219.00	31.38	42.29	34.62	42.38	0.000221	2.50	1288.52	158.22	0.15
North Main	reach 1	158000	4398.00	31.38	43.56	35.34	43.61	0.000164	2.11	5041.88	4793.53	0.13
North Main	reach 1	158000	9519.00	31.38	45.48	37.88	45.49	0.000068	1.44	18248.28	7860.84	0.09
North Main	reach 1	157191	2131.00	31.38	39.58	33.94	39.67	0.000264	2.49	854.58	120.27	0.16
North Main	reach 1	157191	3219.00	31.38	42.08	34.73	42.20	0.000238	2.78	1187.88	130.14	0.16
North Main	reach 1	157191	4398.00	31.38	43.27	35.49	43.42	0.000285	3.20	1999.55	2493.88	0.18
North Main	reach 1	157191	9519.00	31.38	45.40	38.13	45.42	0.000103	2.06	15361.61	8000.00	0.11
North Main	reach 1	157140	2131.00	31.38	39.56	33.94	39.66	0.000265	2.50	852.87	120.21	0.17
North Main	reach 1	157140	3219.00	31.38	42.07	34.73	42.18	0.000239	2.78	1168.04	130.09	0.16
North Main	reach 1	157140	4398.00	31.38	43.26	35.48	43.41	0.000288	3.21	1962.40	2428.57	0.18
North Main	reach 1	157140	9519.00	31.38	45.39	38.13	45.42	0.000104	2.07	15318.75	8000.00	0.11
North Main	reach 1	156000	2131.00	31.38	39.24	33.87	39.35	0.000286	2.58	833.42	119.83	0.17
North Main	reach 1	156000	3219.00	31.38	41.78	34.64	41.90	0.000254	2.80	1148.38	130.38	0.17
North Main	reach 1	156000	4398.00	31.38	42.88	35.39	43.03	0.000392	3.19	1808.10	1190.03	0.20
North Main	reach 1	156000	9519.00	31.38	45.30	38.00	45.32	0.000074	1.57	17878.38	7827.58	0.09
North Main	reach 1	154844	2131.00	31.37	38.85	33.74	38.95	0.000292	2.54	837.74	123.09	0.17
North Main	reach 1	154844	3219.00	31.37	41.45	34.48	41.57	0.000242	2.78	1168.95	130.73	0.18
North Main	reach 1	154844	4398.00	31.37	42.35	35.18	42.54	0.000337	3.42	1288.80	133.40	0.19
North Main	reach 1	154844	9519.00	31.37	45.08	37.88	45.14	0.000284	3.07	9394.75	7770.71	0.18
North Main	reach 1	153231	2131.00	31.03	38.35	33.72	38.47	0.000398	2.81	759.36	122.37	0.20
North Main	reach 1	153231	3219.00	31.03	41.06	34.50	41.19	0.000295	2.91	1108.93	134.69	0.18
North Main	reach 1	153231	4398.00	31.03	41.79	35.25	42.00	0.000428	3.64	1207.88	138.08	0.22
North Main	reach 1	153231	9519.00	31.03	44.17	37.81	44.50	0.000985	5.09	4160.42	5574.67	0.32
North Main	reach 1	152581	2131.00	31.03	38.04	33.87	38.18	0.000476	3.00	710.17	118.10	0.22
North Main	reach 1	152581	3219.00	31.03	40.83	34.48	40.98	0.000332	3.03	1062.77	133.47	0.19
North Main	reach 1	152581	4398.00	31.03	41.46	35.24	41.89	0.000496	3.83	1147.70	136.71	0.23
North Main	reach 1	152581	9519.00	31.03	43.62	37.90	43.82	0.000939	4.35	5171.28	4657.41	0.31
North Main	reach 1	152553	Inline Weir									
North Main	reach 1	152515	2131.00	28.25	38.04	30.86	38.10	0.000151	2.08	1026.54	124.98	0.13
North Main	reach 1	152515	3219.00	28.25	40.82	31.69	40.91	0.000142	2.31	1390.92	138.39	0.13
North Main	reach 1	152515	4398.00	28.25	41.45	32.46	41.59	0.000222	2.98	1477.48	138.97	0.16
North Main	reach 1	152515	9519.00	28.25	43.61	35.13	43.77	0.000537	3.74	5809.36	5562.02	0.24
North Main	reach 1	152000	2131.00	28.25	37.98	30.93	38.03	0.000182	2.12	1002.94	124.45	0.13
North Main	reach 1	152000	3219.00	28.25	40.75	31.75	40.84	0.000150	2.35	1367.57	136.85	0.13
North Main	reach 1	152000	4398.00	28.25	41.33	32.54	41.47	0.000238	3.04	1446.89	139.14	0.17
North Main	reach 1	152000	9519.00	28.25	43.50	35.25	43.58	0.000227	2.88	9830.12	7807.12	0.16
North Main	reach 1	151800	2131.00	28.25	37.90	30.77	37.97	0.000148	2.06	1032.98	122.88	0.13
North Main	reach 1	151800	3219.00	28.25	40.70	31.55	40.78	0.000138	2.32	1389.38	132.06	0.13
North Main	reach 1	151800	4398.00	28.25	41.24	32.30	41.38	0.000223	3.01	1461.29	133.84	0.16
North Main	reach 1	151800	9519.00	28.25	43.45	34.91	43.50	0.000140	2.50	12456.96	7996.92	0.13
North Main	reach 1	151516	2131.00	28.25	37.89	30.77	37.95	0.000147	2.07	1031.43	122.82	0.13
North Main	reach 1	151516	3219.00	28.25	40.69	31.55	40.77	0.000139	2.32	1387.81	132.02	0.13
North Main	reach 1	151516	4398.00	28.25	41.22	32.30	41.38	0.000224	3.01	1458.89	133.77	0.16
North Main	reach 1	151516	9519.00	28.25	42.94	34.91	43.43	0.000706	5.62	1694.88	4092.00	0.29
North Main	reach 1	150000	2121.00	27.92	37.65	30.66	37.72	0.000185	2.13	994.91	124.73	0.13
North Main	reach 1	150000	3193.00	27.92	40.48	31.47	40.54	0.000182	2.34	1381.59	130.97	0.14
North Main	reach 1	150000	4299.00	27.92	40.83	32.23	40.96	0.000309	2.99	1578.51	1719.10	0.18
North Main	reach 1	150000	9227.00	27.92	41.82	34.86	42.21	0.000886	5.22	3144.16	3267.90	0.31

HEC-DAS Plan P-259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	148000.	2121.00	27.14	37.35	29.94	37.41	0.000142	2.02	1047.77	128.33	0.12
North Main	reach 1	148000.	3193.00	27.14	40.14	30.74	40.21	0.000188	2.18	1695.75	1190.53	0.13
North Main	reach 1	148000.	4299.00	27.14	40.57	31.48	40.80	0.000101	1.74	8671.87	5748.94	0.11
North Main	reach 1	148000.	9227.00	27.14	41.54	34.13	41.57	0.000125	2.03	13844.97	7839.07	0.12
North Main	reach 1	147159	2121.00	27.14	37.24	29.81	37.30	0.000129	1.95	1088.65	129.66	0.12
North Main	reach 1	147159	3193.00	27.14	39.99	30.59	40.04	0.000243	1.91	2702.34	3993.30	0.15
North Main	reach 1	147159	4299.00	27.14	40.51	31.30	40.52	0.000090	1.14	9847.18	7985.39	0.09
North Main	reach 1	147159	9227.00	27.14	41.47	33.84	41.48	0.000085	1.22	17370.06	8000.00	0.09
North Main	reach 1	147111	2121.00	27.14	37.23	29.81	37.29	0.000130	1.95	1087.83	129.64	0.12
North Main	reach 1	147111	3193.00	27.14	39.97	30.59	40.03	0.000247	1.92	2650.17	3885.17	0.15
North Main	reach 1	147111	4299.00	27.14	40.50	31.30	40.51	0.000091	1.14	9811.12	7985.00	0.09
North Main	reach 1	147111	9227.00	27.14	41.47	33.84	41.48	0.000085	1.22	17398.80	8000.00	0.09
North Main	reach 1	146000.	2121.00	27.13	37.07	29.86	37.13	0.000148	2.06	1030.92	125.27	0.13
North Main	reach 1	146000.	3193.00	27.13	39.74	30.65	39.80	0.000162	2.13	2261.73	2427.94	0.13
North Main	reach 1	146000.	4299.00	27.13	40.42	31.39	40.44	0.000053	1.25	10766.31	7813.36	0.08
North Main	reach 1	146000.	9227.00	27.13	41.38	33.97	41.39	0.000085	1.45	18261.81	7829.19	0.09
North Main	reach 1	144000.	2121.00	27.12	36.74	29.88	36.82	0.000171	2.17	975.79	121.31	0.14
North Main	reach 1	144000.	3193.00	27.12	39.33	30.69	39.42	0.000227	2.43	1314.20	171.48	0.15
North Main	reach 1	144000.	4299.00	27.12	40.27	31.42	40.29	0.000099	1.69	7414.50	7768.89	0.10
North Main	reach 1	144000.	9227.00	27.12	41.20	34.04	41.22	0.000112	1.88	14727.72	7815.32	0.11
North Main	reach 1	143293	2121.00	27.12	36.61	29.88	36.68	0.000177	2.18	972.47	123.80	0.14
North Main	reach 1	143293	3193.00	27.12	39.16	30.68	39.25	0.000211	2.44	1309.27	161.08	0.15
North Main	reach 1	143293	4299.00	27.12	40.21	31.41	40.22	0.000072	1.13	9857.59	7742.43	0.08
North Main	reach 1	143293	9227.00	27.12	41.14	34.03	41.14	0.000089	1.18	17174.79	8000.00	0.09
North Main	reach 1	143179	2121.00	27.12	36.60	29.88	36.67	0.000177	2.18	971.28	123.78	0.14
North Main	reach 1	143179	3193.00	27.12	39.15	30.68	39.24	0.000211	2.44	1307.36	160.22	0.15
North Main	reach 1	143179	4299.00	27.12	40.21	31.42	40.22	0.000072	1.13	9826.68	7741.12	0.08
North Main	reach 1	143179	9227.00	27.12	41.13	34.03	41.14	0.000089	1.22	17132.55	8000.00	0.09
North Main	reach 1	142000.	2121.00	27.13	36.35	30.02	36.44	0.000221	2.36	899.80	120.75	0.15
North Main	reach 1	142000.	3193.00	27.13	36.86	30.86	38.97	0.000253	2.61	1221.69	155.69	0.16
North Main	reach 1	142000.	4299.00	27.13	39.97	31.63	40.03	0.000195	2.34	4305.02	3914.41	0.15
North Main	reach 1	142000.	9227.00	27.13	41.06	34.33	41.06	0.000050	1.22	20172.93	7843.19	0.07
North Main	reach 1	141221	2121.00	26.88	36.19	29.55	36.27	0.000202	2.32	914.91	117.24	0.15
North Main	reach 1	141221	3193.00	26.88	38.62	30.40	38.71	0.000431	2.35	1357.69	2172.61	0.20
North Main	reach 1	141221	4299.00	26.88	39.89	31.17	39.91	0.000113	1.36	6723.09	3992.87	0.10
North Main	reach 1	141221	9227.00	26.88	41.04	33.89	41.04	0.000027	0.74	25388.10	8000.00	0.05
North Main	reach 1	141154	2121.00	26.88	36.18	29.55	36.28	0.000203	2.32	913.28	117.18	0.15
North Main	reach 1	141154	3193.00	26.88	38.59	30.39	38.68	0.000450	2.38	1351.29	310.99	0.20
North Main	reach 1	141154	4299.00	26.88	39.88	31.17	39.90	0.000114	1.35	6711.24	3992.36	0.10
North Main	reach 1	141154	9227.00	26.88	41.04	33.89	41.04	0.000027	0.73	25371.79	8000.00	0.05
North Main	reach 1	140000.	2121.00	26.84	35.94	29.39	36.02	0.000206	2.35	903.83	115.34	0.15
North Main	reach 1	140000.	3193.00	26.84	38.19	30.22	38.30	0.000242	2.62	1587.63	1315.70	0.16
North Main	reach 1	140000.	4299.00	26.84	39.71	30.99	39.75	0.000145	1.93	5337.27	3613.29	0.12
North Main	reach 1	140000.	9227.00	26.84	41.00	33.68	41.00	0.000036	1.03	22714.07	7882.90	0.06
North Main	reach 1	138000.	2121.00	25.82	35.59	28.39	35.66	0.000158	2.12	1002.24	122.24	0.13
North Main	reach 1	138000.	3193.00	25.82	37.76	29.22	37.86	0.000195	2.49	1280.13	142.72	0.15
North Main	reach 1	138000.	4299.00	25.82	39.24	29.97	39.36	0.000260	2.72	2086.29	2076.45	0.17
North Main	reach 1	138000.	9227.00	25.82	40.90	32.83	40.91	0.000064	1.45	17983.23	7842.95	0.08
North Main	reach 1	138000.	2160.00	25.82	35.28	28.22	35.35	0.000154	2.10	1028.09	123.81	0.13
North Main	reach 1	138000.	3229.00	25.82	37.40	28.99	37.49	0.000173	2.49	1299.06	131.80	0.14
North Main	reach 1	136000.	4321.00	25.82	38.75	29.68	38.89	0.000211	2.92	1481.12	136.91	0.16
North Main	reach 1	136000.	9267.00	25.82	40.71	32.23	40.73	0.000123	1.95	12661.75	7763.30	0.12
North Main	reach 1	135932	2160.00	25.83	35.27	28.27	35.34	0.000156	2.10	1027.31	125.09	0.13
North Main	reach 1	135932	3229.00	25.83	37.39	29.04	37.49	0.000173	2.48	1300.88	132.86	0.14
North Main	reach 1	135932	4321.00	25.83	38.74	29.75	38.88	0.000211	2.91	1483.88	137.81	0.16
North Main	reach 1	135932	9267.00	25.83	40.70	32.30	40.73	0.000105	2.08	12845.52	6611.10	0.11
North Main	reach 1	135888	2160.00	25.83	35.26	28.27	35.33	0.000156	2.10	1026.42	125.07	0.13
North Main	reach 1	135888	3229.00	25.83	37.38	29.04	37.48	0.000173	2.48	1299.62	132.84	0.14
North Main	reach 1	135888	4321.00	25.83	38.74	29.75	38.87	0.000211	2.91	1482.80	137.78	0.16
North Main	reach 1	135888	9267.00	25.83	40.69	32.30	40.72	0.000106	2.09	12804.85	6598.99	0.11
North Main	reach 1	134000.	2160.00	25.83	34.92	28.62	35.00	0.000196	2.27	950.46	123.02	0.14
North Main	reach 1	134000.	3229.00	25.83	37.01	29.41	37.12	0.000209	2.65	1280.81	371.41	0.15
North Main	reach 1	134000.	4321.00	25.83	38.32	30.09	38.42	0.000258	2.89	2559.32	1595.77	0.17
North Main	reach 1	134000.	9267.00	25.83	40.36	32.61	40.43	0.000237	2.81	8319.82	6021.02	0.16
North Main	reach 1	132000.	2160.00	25.57	34.53	28.21	34.61	0.000200	2.25	959.22	128.46	0.15
North Main	reach 1	132000.	3225.00	25.57	36.59	28.98	36.70	0.000213	2.61	1234.37	138.30	0.15
North Main	reach 1	132000.	4273.00	25.57	37.76	29.67	37.90	0.000261	3.05	1399.29	562.85	0.17

HFC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	132000	9224.00	25.57	39.16	32.22	39.63	0.000882	5.47	2054.01	2065.01	0.32
North Main	reach 1	130750	2160.00	25.57	34.24	28.23	34.33	0.000234	2.41	895.39	121.28	0.16
North Main	reach 1	130750	3225.00	25.57	36.29	29.02	36.41	0.000249	2.80	1151.40	129.56	0.17
North Main	reach 1	130750	4273.00	25.57	37.41	29.70	37.55	0.000318	3.08	1878.57	1075.62	0.19
North Main	reach 1	130750	9224.00	25.57	38.03	32.31	38.48	0.001026	5.76	2489.87	1708.19	0.34
North Main	reach 1	130696	2160.00	25.57	34.23	28.23	34.32	0.000236	2.42	893.80	121.21	0.16
North Main	reach 1	130696	3225.00	25.57	36.27	29.02	36.39	0.000250	2.81	1149.59	129.50	0.17
North Main	reach 1	130696	4273.00	25.57	37.39	29.70	37.53	0.000320	3.07	1861.47	1058.28	0.19
North Main	reach 1	130696	9224.00	25.57	37.96	32.31	38.43	0.001073	5.86	2409.34	1641.93	0.35
North Main	reach 1	129441	2160.00	24.36	33.98	27.26	34.06	0.000185	2.26	956.74	118.77	0.14
North Main	reach 1	129441	3225.00	24.36	36.00	28.06	36.11	0.000209	2.88	1204.53	125.92	0.15
North Main	reach 1	129441	4273.00	24.36	37.00	28.78	37.16	0.000273	3.21	1331.79	129.45	0.18
North Main	reach 1	129441	9224.00	24.36	38.05	31.39	38.06	0.000064	1.51	16384.07	5634.29	0.09
North Main	reach 1	128185	2160.00	24.36	33.78	28.95	33.84	0.000166	2.16	1001.86	122.65	0.13
North Main	reach 1	128185	3225.00	24.36	35.78	27.71	35.86	0.000189	2.57	1253.37	129.31	0.15
North Main	reach 1	128185	4273.00	24.36	36.86	28.37	36.81	0.000335	3.11	1379.89	184.15	0.19
North Main	reach 1	128185	9224.00	24.36	37.87	30.82	37.90	0.000184	2.22	8434.29	3959.25	0.14
North Main	reach 1	128137	2160.00	24.36	33.75	28.95	33.82	0.000167	2.16	1000.15	122.60	0.13
North Main	reach 1	128137	3225.00	24.36	35.74	27.71	35.85	0.000190	2.58	1251.30	129.28	0.15
North Main	reach 1	128137	4273.00	24.36	36.84	28.37	36.79	0.000328	3.12	1375.24	179.63	0.19
North Main	reach 1	128137	9224.00	24.36	37.85	30.92	37.89	0.000186	2.23	8395.95	3957.47	0.14
North Main	reach 1	128000	2160.00	24.36	33.72	27.04	33.80	0.000179	2.20	982.55	124.51	0.14
North Main	reach 1	128000	3225.00	24.36	35.71	27.82	35.82	0.000232	2.80	1241.73	148.78	0.16
North Main	reach 1	128000	4273.00	24.36	36.59	28.51	36.74	0.000344	3.09	1394.58	312.48	0.19
North Main	reach 1	128000	9224.00	24.36	37.82	31.13	37.86	0.000188	2.27	8557.73	3922.62	0.14
North Main	reach 1	128275	2160.00	24.02	33.43	26.85	33.50	0.000167	2.11	1024.23	132.07	0.13
North Main	reach 1	128275	3225.00	24.02	35.37	27.63	35.46	0.000178	2.48	1590.91	1019.10	0.14
North Main	reach 1	128275	4273.00	24.02	36.17	28.30	36.26	0.000213	2.69	2887.17	2783.58	0.15
North Main	reach 1	128275	9224.00	24.02	37.35	30.79	37.46	0.000325	3.49	7347.44	4601.57	0.19
North Main	reach 1	128253	2160.00	24.02	33.42	26.84	33.49	0.000168	2.11	1022.80	132.04	0.13
North Main	reach 1	128253	3225.00	24.02	35.37	27.63	35.46	0.000178	2.48	1589.95	1017.99	0.14
North Main	reach 1	128253	4273.00	24.02	36.18	28.30	36.26	0.000214	2.70	2873.33	2765.19	0.16
North Main	reach 1	128253	9224.00	24.02	37.34	30.79	37.46	0.000328	3.51	7310.09	4591.08	0.19
North Main	reach 1	128194	2160.00	24.02	33.39	27.00	33.48	0.000214	2.36	916.91	120.26	0.15
North Main	reach 1	128194	3225.00	24.02	35.38	27.81	35.44	0.000161	2.24	3019.84	2355.48	0.13
North Main	reach 1	128194	4273.00	24.02	36.20	28.52	36.23	0.000124	1.83	6479.58	4664.65	0.12
North Main	reach 1	128194	9224.00	24.02	37.39	31.20	37.42	0.000135	2.07	12779.40	5885.94	0.12
North Main	reach 1	128142	2160.00	24.02	33.37	27.00	33.46	0.000215	2.36	914.69	120.18	0.15
North Main	reach 1	128142	3225.00	24.02	35.37	27.81	35.44	0.000162	2.24	3007.54	2350.07	0.13
North Main	reach 1	128142	4273.00	24.02	36.20	28.52	36.23	0.000124	1.83	6474.45	4663.17	0.12
North Main	reach 1	128142	9224.00	24.02	37.38	31.20	37.41	0.000136	2.08	12726.59	5878.94	0.12
North Main	reach 1	128000	2160.00	24.02	33.36	26.73	33.43	0.000178	2.17	993.24	126.44	0.14
North Main	reach 1	128000	3225.00	24.02	35.37	27.49	35.41	0.000136	1.88	3504.57	2117.90	0.12
North Main	reach 1	128000	4273.00	24.02	36.20	28.17	36.21	0.000080	1.30	8796.50	5292.03	0.08
North Main	reach 1	128000	9224.00	24.02	37.37	30.72	37.39	0.000086	1.67	15211.23	6906.66	0.10
North Main	reach 1	124276	2160.00	23.63	32.99	26.63	33.08	0.000230	2.46	878.30	113.11	0.16
North Main	reach 1	124276	3225.00	23.63	34.95	27.45	35.08	0.000280	2.91	1107.45	1024.50	0.17
North Main	reach 1	124276	4273.00	23.63	35.83	28.17	35.99	0.000318	3.35	1697.05	4336.45	0.19
North Main	reach 1	124276	9224.00	23.63	36.39	30.90	36.97	0.001107	6.44	2268.74	5479.79	0.35
North Main	reach 1	124185	2160.00	23.63	32.97	26.58	33.06	0.000225	2.44	884.81	112.62	0.15
North Main	reach 1	124185	3225.00	23.63	34.92	27.40	35.05	0.000255	2.90	1110.76	893.47	0.17
North Main	reach 1	124185	4273.00	23.63	35.86	28.11	35.95	0.000203	2.64	4051.20	5027.21	0.15
North Main	reach 1	124185	9224.00	23.63	36.88	30.85	36.78	0.000380	3.41	7867.72	6464.90	0.20
North Main	reach 1	124085	2160.00	23.63	32.95	26.61	33.05	0.000230	2.47	874.52	111.40	0.16
North Main	reach 1	124085	3225.00	23.63	34.89	27.43	35.02	0.000263	2.94	1096.59	1353.72	0.17
North Main	reach 1	124085	4273.00	23.63	35.86	28.15	35.93	0.000216	2.52	4370.43	5129.73	0.15
North Main	reach 1	124085	9224.00	23.63	36.85	30.86	36.75	0.000353	3.42	8146.59	6179.51	0.20
North Main	reach 1	124000	2160.00	23.63	32.94	26.61	33.03	0.000227	2.42	890.81	116.47	0.15
North Main	reach 1	124000	3225.00	23.63	34.90	27.43	34.99	0.000223	2.59	2107.24	1952.96	0.16
North Main	reach 1	124000	4273.00	23.63	35.86	28.16	35.91	0.000186	2.20	4694.59	4335.50	0.14
North Main	reach 1	124000	9224.00	23.63	36.83	30.87	36.71	0.000368	3.14	7950.00	6086.50	0.20
North Main	reach 1	122908	2160.00	23.63	32.89	26.51	32.78	0.000223	2.36	914.22	123.12	0.15
North Main	reach 1	122908	3225.00	23.63	34.81	27.31	34.73	0.000248	2.78	1158.53	1881.79	0.17
North Main	reach 1	122908	4273.00	23.63	35.45	28.00	35.63	0.000333	3.36	1270.44	2800.25	0.19
North Main	reach 1	122908	9224.00	23.63	36.44	30.61	36.47	0.000136	2.25	13338.49	6903.44	0.13
North Main	reach 1	122857	2160.00	23.63	32.98	26.52	32.77	0.000224	2.37	912.78	123.06	0.15



HEC-DAS Plan D 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	122857	3225.00	23.63	34.60	27.31	34.72	0.000249	2.79	1156.80	1865.42	0.17
North Main	reach 1	122857	4273.00	23.63	35.43	28.00	35.61	0.000335	3.37	1268.03	2782.16	0.19
North Main	reach 1	122857	9224.00	23.63	36.42	30.61	36.45	0.000138	2.27	13262.13	6892.38	0.13
North Main	reach 1	122000	2160.00	23.45	32.50	26.32	32.58	0.000213	2.33	925.59	122.03	0.15
North Main	reach 1	122000	3225.00	23.45	34.39	27.10	34.51	0.000238	2.78	1244.51	584.92	0.18
North Main	reach 1	122000	4273.00	23.45	35.37	27.77	35.41	0.000114	2.01	6073.21	4800.98	0.11
North Main	reach 1	122000	9224.00	23.45	36.27	30.34	36.31	0.000198	2.48	10937.85	6398.09	0.15
North Main	reach 1	120000	2160.00	23.41	32.05	26.02	32.14	0.000229	2.38	906.55	122.83	0.15
North Main	reach 1	120000	3225.00	23.41	33.89	26.80	34.01	0.000261	2.83	1139.15	130.71	0.17
North Main	reach 1	120000	4273.00	23.41	34.85	27.47	35.03	0.000345	3.37	1287.33	137.94	0.20
North Main	reach 1	120000	9224.00	23.41	35.92	30.05	35.95	0.000168	2.17	10700.21	5479.48	0.13
North Main	reach 1	118000	2160.00	23.26	31.56	25.88	31.66	0.000257	2.48	872.31	121.53	0.16
North Main	reach 1	118000	3225.00	23.26	33.32	26.64	33.46	0.000293	2.95	1092.71	128.39	0.18
North Main	reach 1	118000	4273.00	23.26	34.08	27.32	34.28	0.000411	3.59	1190.63	134.52	0.21
North Main	reach 1	118000	9224.00	23.26	35.29	29.87	35.41	0.000485	3.66	6286.86	4125.37	0.23
North Main	reach 1	116000	2160.00	23.27	31.01	25.79	31.11	0.000290	2.54	856.81	126.06	0.17
North Main	reach 1	116000	3241.00	23.27	32.70	26.51	32.84	0.000323	3.01	1075.78	132.34	0.19
North Main	reach 1	116000	4459.00	23.27	33.42	27.25	33.51	0.000334	2.87	3773.85	4127.86	0.19
North Main	reach 1	116000	9225.00	23.27	34.67	29.58	34.71	0.000243	2.55	9933.90	5800.43	0.16
North Main	reach 1	114000	2160.00	21.89	30.54	24.55	30.82	0.000206	2.28	956.29	127.40	0.15
North Main	reach 1	114000	3241.00	21.89	32.25	25.28	32.32	0.000204	2.28	3186.98	3989.06	0.15
North Main	reach 1	114000	4459.00	21.89	33.10	25.99	33.13	0.000117	1.82	7330.25	5638.25	0.11
North Main	reach 1	114000	9225.00	21.89	34.41	28.31	34.43	0.000069	1.72	15279.67	6455.02	0.10
North Main	reach 1	113338	2180.00	21.88	30.39	24.81	30.47	0.000232	2.36	924.72	128.95	0.16
North Main	reach 1	113338	3241.00	21.88	32.02	25.34	32.15	0.000272	2.84	1141.41	1933.92	0.17
North Main	reach 1	113338	4459.00	21.88	32.78	26.06	32.98	0.000398	3.58	1244.57	5080.87	0.21
North Main	reach 1	113338	9225.00	21.88	34.37	28.45	34.38	0.000060	1.31	18011.08	7121.93	0.08
North Main	reach 1	113284	2180.00	21.88	30.38	24.55	30.48	0.000219	2.30	947.76	131.28	0.15
North Main	reach 1	113284	3241.00	21.88	32.01	25.27	32.13	0.000259	2.77	1168.09	1910.25	0.17
North Main	reach 1	113284	4459.00	21.88	32.76	26.01	32.95	0.000379	3.50	1272.50	5258.20	0.21
North Main	reach 1	113284	9225.00	21.88	33.62	28.33	34.30	0.001241	6.82	1393.97	6471.77	0.38
North Main	reach 1	112624	2180.00	22.02	30.17	24.84	30.28	0.000317	2.65	821.13	121.54	0.18
North Main	reach 1	112624	3241.00	22.02	31.77	25.83	31.93	0.000368	3.17	1030.88	280.47	0.20
North Main	reach 1	112624	4459.00	22.02	32.57	26.42	32.68	0.000377	3.03	3700.79	4577.75	0.20
North Main	reach 1	112624	9225.00	22.02	33.72	28.91	33.76	0.000292	2.50	10381.81	6504.00	0.17
North Main	reach 1	112620	Inline Weir									
North Main	reach 1	112604	2180.00	20.05	30.16	22.82	30.23	0.000155	2.12	1029.71	123.84	0.13
North Main	reach 1	112604	3241.00	20.05	31.76	23.62	31.87	0.000203	2.63	1246.68	349.59	0.15
North Main	reach 1	112604	4459.00	20.05	32.56	24.44	32.65	0.000247	2.69	3929.24	4556.64	0.16
North Main	reach 1	112604	9225.00	20.05	33.71	27.00	33.75	0.000243	2.49	10574.19	6476.19	0.16
North Main	reach 1	112000	2180.00	20.06	30.07	22.79	30.14	0.000156	2.12	1026.26	123.76	0.13
North Main	reach 1	112000	3241.00	20.06	31.64	23.60	31.74	0.000223	2.82	1378.73	960.36	0.16
North Main	reach 1	112000	4459.00	20.06	32.45	24.40	32.50	0.000198	2.26	5140.93	4730.20	0.14
North Main	reach 1	112000	9225.00	20.06	33.59	26.96	33.62	0.000183	2.23	11683.81	6337.92	0.14
North Main	reach 1	110000	2536.00	19.82	29.86	22.84	29.76	0.000225	2.53	1001.33	121.37	0.16
North Main	reach 1	110000	3783.00	19.82	31.15	23.73	31.24	0.000282	2.66	2321.17	1108.53	0.17
North Main	reach 1	110000	5288.00	19.82	31.89	24.87	31.99	0.000304	2.95	3215.34	1252.87	0.18
North Main	reach 1	110000	9904.00	19.82	33.27	27.03	33.29	0.000149	2.08	14170.52	7653.07	0.13
North Main	reach 1	108000	2536.00	19.53	29.21	22.48	29.31	0.000223	2.52	1007.74	122.87	0.15
North Main	reach 1	108000	3783.00	19.53	30.83	23.35	30.88	0.000138	2.16	5067.97	4879.18	0.12
North Main	reach 1	108000	5288.00	19.53	31.70	24.27	31.72	0.000083	1.71	9417.54	5147.36	0.10
North Main	reach 1	108000	9904.00	19.53	33.12	26.60	33.13	0.000067	1.44	17522.64	6238.21	0.09
North Main	reach 1	107667	2536.00	19.53	29.14		29.24	0.000239	2.54	999.32	126.88	0.16
North Main	reach 1	107667	3783.00	19.53	30.65		30.81	0.000316	3.18	1198.46	137.58	0.19
North Main	reach 1	107667	5288.00	19.53	31.39		31.64	0.000495	4.07	1309.85	171.48	0.24
North Main	reach 1	107667	9904.00	19.53	32.33	26.60	33.00	0.001384	6.67	2201.47	4316.84	0.39
North Main	reach 1	107600	2536.00	19.53	29.12		29.22	0.000240	2.54	997.20	126.78	0.16
North Main	reach 1	107600	3783.00	19.53	30.63		30.78	0.000321	3.16	1195.33	136.86	0.19
North Main	reach 1	107600	5288.00	19.53	31.35		31.61	0.000500	4.08	1303.78	169.15	0.24
North Main	reach 1	107600	9904.00	19.53	32.16	26.60	32.90	0.001489	6.95	1634.99	2203.75	0.41
North Main	reach 1	106000	2536.00	19.52	28.71	22.42	28.82	0.000259	2.64	962.14	122.25	0.17
North Main	reach 1	106000	3783.00	19.52	30.01	23.28	30.18	0.000445	3.34	1132.02	151.62	0.22
North Main	reach 1	106000	5288.00	19.52	30.70	24.20	30.80	0.000452	2.95	4262.40	5248.28	0.21
North Main	reach 1	106000	9904.00	19.52	31.61	26.50	31.66	0.000357	2.82	10871.54	8949.86	0.19
North Main	reach 1	104000	2536.00	18.87	28.19	21.96	28.30	0.000261	2.84	960.26	122.50	0.17
North Main	reach 1	104000	3783.00	18.87	29.72	22.83	29.75	0.000109	1.67	5423.92	2728.63	0.11

HEC-RAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	104000	5288.00	18.87	30.37	23.74	30.39	0.000109	1.55	7853.98	3971.04	0.11
North Main	reach 1	104000	9904.00	18.87	31.16	26.00	31.19	0.000164	2.02	10948.55	4164.87	0.13
North Main	reach 1	102396	2536.00	18.36	27.78	21.42	27.87	0.000272	2.70	940.54	120.12	0.17
North Main	reach 1	102396	3783.00	18.36	29.27	22.32	29.45	0.000358	3.36	1127.11	1663.33	0.20
North Main	reach 1	102396	5288.00	18.36	30.06	23.28	30.14	0.000227	2.76	6722.52	10540.27	0.18
North Main	reach 1	102396	9904.00	18.36	30.90	25.85	30.92	0.000187	2.30	16122.87	11400.00	0.14
North Main	reach 1	102314	2536.00	18.36	27.74	21.42	27.85	0.000274	2.70	937.78	120.02	0.17
North Main	reach 1	102314	3783.00	18.36	29.24	22.32	29.42	0.000380	3.37	1123.24	1648.89	0.20
North Main	reach 1	102314	5288.00	18.36	30.04	23.26	30.12	0.000237	2.82	8498.04	10189.24	0.18
North Main	reach 1	102314	9904.00	18.36	30.87	25.85	30.90	0.000174	2.34	15884.85	11400.00	0.14
North Main	reach 1	102000	2536.00	18.36	27.87	21.21	27.77	0.000219	2.47	1025.90	128.77	0.16
North Main	reach 1	102000	3783.00	18.36	29.25	22.04	29.31	0.000171	2.19	4293.65	3858.49	0.14
North Main	reach 1	102000	5288.00	18.36	30.02	22.91	30.05	0.000139	1.90	10003.10	10766.13	0.12
North Main	reach 1	102000	9904.00	18.36	30.84	25.10	30.88	0.000103	1.72	18837.14	10778.20	0.11
North Main	reach 1	100000	2536.00	18.35	27.14	21.29	27.25	0.000304	2.78	917.37	123.02	0.18
North Main	reach 1	100000	3783.00	18.35	28.62	22.15	28.80	0.000390	3.43	1104.45	129.18	0.21
North Main	reach 1	100000	5288.00	18.35	29.18	23.06	29.48	0.000753	4.47	1253.28	728.38	0.28
North Main	reach 1	100000	9904.00	18.35	30.33	25.35	30.45	0.000528	3.73	8992.18	10724.58	0.24
North Main	reach 1	98000	2536.00	17.13	28.84	20.19	28.73	0.000219	2.45	1114.88	692.02	0.15
North Main	reach 1	98000	3783.00	17.13	28.14	21.02	28.20	0.000214	2.22	3336.73	1949.67	0.15
North Main	reach 1	98000	5288.00	17.13	28.84	21.89	28.89	0.000208	2.28	5308.85	3193.00	0.15
North Main	reach 1	98000	9904.00	17.13	29.72	24.09	29.76	0.000228	2.53	10240.74	5182.89	0.16
North Main	reach 1	97100	2536.00	18.79	28.44	20.08	28.53	0.000230	2.43	1043.98	161.90	0.18
North Main	reach 1	97100	3783.00	18.79	27.88	20.93	27.98	0.000261	2.73	2411.51	2274.99	0.17
North Main	reach 1	97100	5288.00	18.79	28.41	21.81	28.48	0.000259	2.81	5080.37	4282.63	0.17
North Main	reach 1	97100	9904.00	18.79	29.50	24.02	29.54	0.000252	2.46	11300.51	7074.04	0.18
North Main	reach 1	97052	2536.00	18.79	28.43	20.08	28.52	0.000231	2.43	1042.39	161.88	0.18
North Main	reach 1	97052	3783.00	18.79	27.88	20.93	27.97	0.000262	2.74	2377.87	2250.42	0.17
North Main	reach 1	97052	5288.00	18.79	28.40	21.81	28.47	0.000267	2.61	5024.26	4228.88	0.17
North Main	reach 1	97052	9904.00	18.79	29.49	24.02	29.53	0.000259	2.42	11221.31	7045.55	0.18
North Main	reach 1	96000	2536.00	18.79	28.17	19.81	28.27	0.000238	2.54	998.13	128.63	0.16
North Main	reach 1	96000	3783.00	18.79	27.59	20.65	27.87	0.000296	2.52	3111.77	3102.32	0.17
North Main	reach 1	96000	5288.00	18.79	28.32	21.54	28.33	0.000064	1.21	12115.32	7351.11	0.08
North Main	reach 1	96000	9904.00	18.79	29.40	23.79	29.41	0.000059	1.24	21273.71	9578.00	0.06
North Main	reach 1	94000	2536.00	18.80	25.85	19.73	25.89	0.000134	1.88	1787.88	313.73	0.12
North Main	reach 1	94000	3783.00	18.80	27.17	20.57	27.23	0.000159	2.22	2895.58	1778.22	0.13
North Main	reach 1	94000	5288.00	18.80	28.08	21.48	28.12	0.000171	2.28	5228.49	3800.88	0.14
North Main	reach 1	94000	9904.00	18.80	29.23	23.71	29.25	0.000113	1.74	16392.89	9122.12	0.11
North Main	reach 1	92434	2536.00	18.79	25.50	19.51	25.81	0.000280	2.60	978.45	127.54	0.17
North Main	reach 1	92434	3783.00	18.79	26.88	20.32	26.85	0.000373	3.35	1132.90	191.91	0.20
North Main	reach 1	92434	5288.00	18.79	27.45	21.18	27.70	0.000504	4.08	2011.54	2081.73	0.24
North Main	reach 1	92434	9904.00	18.79	28.70	23.37	28.90	0.000548	4.51	6439.68	5027.74	0.25
North Main	reach 1	92378	2536.00	18.79	25.48	19.51	25.59	0.000282	2.60	974.48	127.48	0.17
North Main	reach 1	92378	3783.00	18.79	26.86	20.33	26.83	0.000376	3.38	1128.87	181.39	0.20
North Main	reach 1	92378	5288.00	18.79	27.42	21.19	27.87	0.000516	4.10	1937.63	1998.18	0.24
North Main	reach 1	92378	9904.00	18.79	28.64	23.37	28.88	0.000587	4.88	6137.17	4883.15	0.28
North Main	reach 1	92000	2536.00	18.79	25.37	19.53	25.49	0.000284	2.70	939.75	123.39	0.17
North Main	reach 1	92000	3783.00	18.79	26.49	20.35	26.88	0.000415	3.50	1088.48	230.80	0.21
North Main	reach 1	92000	5288.00	18.79	27.17	21.24	27.45	0.000585	4.38	1721.87	1870.99	0.28
North Main	reach 1	92000	9904.00	18.79	28.28	23.45	28.57	0.000820	5.31	4780.04	3922.24	0.32
North Main	reach 1	91033	2536.00	18.48	25.08	19.61	25.19	0.000339	2.83	895.85	128.17	0.19
North Main	reach 1	91033	3783.00	18.48	26.04	20.45	26.24	0.000498	3.66	1255.88	1536.32	0.23
North Main	reach 1	91033	5288.00	18.48	26.63	21.34	26.86	0.000596	4.15	2582.24	2791.58	0.25
North Main	reach 1	91033	9904.00	18.48	27.47	23.57	27.72	0.000807	5.08	5555.45	4293.82	0.30
North Main	reach 1	91030	Inline Weir									
North Main	reach 1	91000	2536.00	14.79	25.08	17.88	25.15	0.000198	2.41	1051.48	125.51	0.15
North Main	reach 1	91000	3783.00	14.79	26.03	18.76	26.18	0.000308	3.15	1802.02	2143.70	0.18
North Main	reach 1	91000	5288.00	14.79	26.83	19.70	26.79	0.000383	3.53	3512.81	4217.55	0.20
North Main	reach 1	91000	9904.00	14.79	27.46	22.09	27.61	0.000451	4.08	8222.37	7000.24	0.23
North Main	reach 1	90000	2536.00	14.79	24.90	17.82	24.97	0.000147	2.13	1783.43	922.88	0.13
North Main	reach 1	90000	3783.00	14.79	25.89	18.48	25.95	0.000151	2.27	4337.28	3780.10	0.13
North Main	reach 1	90000	5288.00	14.79	26.48	19.35	26.53	0.000150	2.33	6929.85	4954.12	0.13
North Main	reach 1	90000	9904.00	14.79	27.20	21.82	27.25	0.000281	2.69	11017.18	6438.98	0.17
North Main	reach 1	88000	2536.00	14.78	24.58	17.87	24.65	0.000189	2.22	1881.28	1502.81	0.14
North Main	reach 1	88000	3783.00	14.78	25.68	18.53	25.71	0.000089	1.89	6898.80	5189.42	0.10
North Main	reach 1	88000	5288.00	14.78	26.28	19.43	26.30	0.000088	1.59	10420.85	6552.87	0.10



HEC-RAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	88000	9904.00	14.78	26.80	21.73	26.82	0.000189	2.04	14125.86	7780.89	0.13
North Main	reach 1	87169	2536.00	14.78	24.38	17.78	24.48	0.000232	2.54	998.26	1571.32	0.16
North Main	reach 1	87169	3783.00	14.78	25.38	18.64	25.58	0.000384	3.36	1124.35	5594.26	0.20
North Main	reach 1	87169	5288.00	14.78	25.81	19.58	26.12	0.000617	4.49	1178.89	6357.74	0.26
North Main	reach 1	87169	9904.00	14.78	26.66	21.88	26.69	0.000151	2.34	14300.84	7873.65	0.13
North Main	reach 1	87084	2536.00	14.78	24.38	17.77	24.46	0.000234	2.55	995.72	1562.17	0.16
North Main	reach 1	87084	3783.00	14.78	25.35	18.64	25.53	0.000368	3.38	1120.18	5535.67	0.20
North Main	reach 1	87084	5288.00	14.78	25.75	19.58	26.07	0.000629	4.51	1171.28	6254.34	0.26
North Main	reach 1	87084	9904.00	14.78	26.84	21.87	26.67	0.000155	2.37	14125.34	7833.97	0.13
North Main	reach 1	86000	2536.00	14.31	24.18	17.28	24.24	0.000168	2.18	2027.88	2006.07	0.13
North Main	reach 1	86000	3783.00	14.31	25.23	18.14	25.27	0.000129	1.86	5326.19	3859.34	0.12
North Main	reach 1	86000	5288.00	14.31	25.66	19.06	25.69	0.000148	2.03	7153.82	4818.58	0.13
North Main	reach 1	86000	9904.00	14.31	26.44	21.33	26.48	0.000195	2.41	11716.62	6811.58	0.15
North Main	reach 1	84000	2578.00	13.58	23.82	16.44	23.91	0.000171	2.30	1119.50	127.10	0.14
North Main	reach 1	84000	3822.00	13.58	25.00	17.28	25.03	0.000102	1.90	5058.26	3050.88	0.11
North Main	reach 1	84000	5333.00	13.58	25.40	18.17	25.43	0.000115	1.96	8762.25	9323.48	0.11
North Main	reach 1	84000	10123.00	13.58	26.11	20.51	26.13	0.000144	2.06	15478.55	9605.45	0.12
North Main	reach 1	82000	2578.00	12.94	23.47	15.96	23.56	0.000177	2.36	1093.35	123.29	0.14
North Main	reach 1	82000	3822.00	12.94	24.75	16.84	24.80	0.000135	2.07	5018.31	4317.16	0.12
North Main	reach 1	82000	5333.00	12.94	25.05	17.78	25.11	0.000226	2.51	8699.33	10717.01	0.18
North Main	reach 1	82000	10123.00	12.94	25.75	20.19	25.78	0.000228	2.28	14178.09	10798.23	0.15
North Main	reach 1	81854	2578.00	12.94	23.47	15.85	23.54	0.000155	2.18	1182.81	136.87	0.13
North Main	reach 1	81854	3822.00	12.94	24.64	16.70	24.78	0.000234	2.84	1348.70	5203.00	0.16
North Main	reach 1	81854	5333.00	12.94	25.01	17.58	25.08	0.000188	2.59	6976.01	11286.96	0.15
North Main	reach 1	81854	10123.00	12.94	25.71	19.89	25.76	0.000179	2.80	14918.39	11348.36	0.14
North Main	reach 1	81817	2578.00	12.94	23.46	15.85	23.53	0.000155	2.18	1182.00	136.84	0.13
North Main	reach 1	81817	3822.00	12.94	24.63	16.70	24.78	0.000234	2.84	1345.40	5048.37	0.16
North Main	reach 1	81817	5333.00	12.94	25.00	17.60	25.08	0.000191	2.61	6885.98	11286.80	0.15
North Main	reach 1	81817	10123.00	12.94	25.70	19.89	25.74	0.000183	2.63	14747.41	11345.57	0.15
North Main	reach 1	80000	2578.00	12.93	23.12	15.92	23.21	0.000198	2.44	1055.15	122.67	0.15
North Main	reach 1	80000	3822.00	12.93	24.19	16.80	24.31	0.000255	2.87	2874.02	4788.28	0.17
North Main	reach 1	80000	5333.00	12.93	24.42	17.72	24.57	0.000420	3.47	4175.32	6493.58	0.21
North Main	reach 1	80000	10123.00	12.93	25.16	20.13	25.26	0.000409	3.55	10868.85	10718.85	0.21
North Main	reach 1	78000	2578.00	12.95	22.66	16.00	22.76	0.000260	2.60	1074.36	586.67	0.17
North Main	reach 1	78000	3822.00	12.95	23.59	16.89	23.70	0.000381	2.86	2753.20	3331.09	0.20
North Main	reach 1	78000	5333.00	12.95	23.90	17.84	23.94	0.000223	2.19	7440.94	7121.55	0.15
North Main	reach 1	78000	10123.00	12.95	24.58	20.29	24.59	0.000260	2.50	12853.10	9307.81	0.16
North Main	reach 1	76000	2578.00	12.94	22.14	15.84	22.25	0.000255	2.63	979.33	135.38	0.16
North Main	reach 1	76000	3822.00	12.94	23.01	16.69	23.08	0.000245	2.49	4409.54	5864.77	0.18
North Main	reach 1	76000	5333.00	12.94	23.27	17.60	23.34	0.000310	2.78	5993.83	6512.10	0.18
North Main	reach 1	76000	10123.00	12.94	23.90	19.96	23.98	0.000389	3.05	10602.97	8072.84	0.20
North Main	reach 1	74000	2578.00	11.86	21.65	15.00	21.75	0.000245	2.60	994.14	128.50	0.18
North Main	reach 1	74000	3822.00	11.86	22.53	15.90	22.60	0.000238	2.44	4744.61	6866.55	0.16
North Main	reach 1	74000	5333.00	11.86	22.83	16.85	22.86	0.000184	2.20	8994.39	9596.74	0.14
North Main	reach 1	74000	10123.00	11.86	23.29	19.27	23.33	0.000254	2.65	13446.80	9607.12	0.17
North Main	reach 1	72000	2578.00	10.58	21.23	13.75	21.31	0.000198	2.29	1127.22	146.38	0.15
North Main	reach 1	72000	3822.00	10.58	22.03	14.65	22.11	0.000239	2.46	4295.28	8009.64	0.16
North Main	reach 1	72000	5333.00	10.58	22.41	15.58	22.46	0.000217	2.38	7315.85	8014.13	0.15
North Main	reach 1	72000	10123.00	10.58	23.05	17.94	23.06	0.000090	1.51	20406.07	10762.50	0.09
North Main	reach 1	70000	2578.00	10.48	20.83	13.51	20.92	0.000192	2.41	1081.67	394.04	0.14
North Main	reach 1	70000	3822.00	10.48	21.47	14.40	21.58	0.000288	2.81	3201.54	4939.75	0.18
North Main	reach 1	70000	5333.00	10.48	21.79	15.34	21.90	0.000389	3.08	4973.53	6109.18	0.20
North Main	reach 1	70000	10123.00	10.48	22.74	17.78	22.79	0.000268	2.71	11430.07	6862.81	0.17
North Main	reach 1	69780	2578.00	10.48	20.80	13.41	20.88	0.000166	2.21	1166.80	3278.80	0.13
North Main	reach 1	69780	3822.00	10.48	21.35	14.25	21.50	0.000303	3.07	1244.22	7103.84	0.18
North Main	reach 1	69780	5333.00	10.48	21.80	15.13	21.82	0.000093	1.74	10826.59	8415.91	0.10
North Main	reach 1	69780	10123.00	10.48	22.74	17.46	22.75	0.000083	1.72	19107.21	8941.59	0.10
North Main	reach 1	69693	2578.00	10.48	20.79	13.41	20.87	0.000166	2.21	1165.01	3257.49	0.13
North Main	reach 1	69693	3822.00	10.48	21.34	14.25	21.49	0.000304	3.08	1242.80	7069.03	0.18
North Main	reach 1	69693	5333.00	10.48	21.79	15.13	21.82	0.000094	1.75	10771.21	8402.97	0.10
North Main	reach 1	69693	10123.00	10.48	22.73	17.46	22.75	0.000083	1.72	19056.54	8940.28	0.10
North Main	reach 1	68373	2850.00	10.48	20.73	13.65	20.74	0.000043	1.00	8956.29	7245.83	0.07
North Main	reach 1	68373	4215.00	10.48	21.35	14.52	21.36	0.000028	0.85	16010.77	10764.10	0.05
North Main	reach 1	68373	5778.00	10.48	21.73	15.38	21.74	0.000029	0.88	20106.46	10779.93	0.06
North Main	reach 1	68373	11383.00	10.48	22.66	17.85	22.67	0.000034	1.02	30156.39	10815.47	0.06
North Main	reach 1	67000	2850.00	10.28	20.61	13.52	20.64	0.000101	1.75	5334.78	6337.62	0.10

HEC-DAS Plan P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	87000	4215.00	10.28	21.27	14.45	21.28	0.000087	1.35	10812.77	9384.35	0.08
North Main	reach 1	87000	5778.00	10.28	21.66	15.39	21.67	0.000066	1.26	14434.16	9431.55	0.08
North Main	reach 1	87000	11383.00	10.28	22.59	18.12	22.60	0.000067	1.31	23260.29	9459.70	0.08
North Main	reach 1	86000	2850.00	10.28	20.43	13.68	20.50	0.000185	2.29	3250.77	5129.26	0.14
North Main	reach 1	86000	4215.00	10.28	21.19	14.64	21.21	0.000099	1.55	9117.84	8048.66	0.10
North Main	reach 1	86000	5778.00	10.28	21.58	15.60	21.59	0.000095	1.42	12281.79	8087.50	0.10
North Main	reach 1	86000	11383.00	10.28	22.52	18.39	22.53	0.000093	1.45	19855.80	8109.24	0.10
North Main	reach 1	85430	2850.00	10.28	20.23	13.64	20.36	0.000299	2.89	986.55	4701.56	0.18
North Main	reach 1	85430	4215.00	10.28	21.13	14.60	21.15	0.000094	1.69	9587.19	9380.59	0.10
North Main	reach 1	85430	5778.00	10.28	21.53	15.56	21.54	0.000090	1.51	13511.23	10486.81	0.10
North Main	reach 1	85430	11383.00	10.28	22.47	18.36	22.48	0.000074	1.48	24351.04	11800.00	0.09
North Main	reach 1	85374	2850.00	10.28	20.21	13.64	20.34	0.000301	2.90	984.39	4678.64	0.18
North Main	reach 1	85374	4215.00	10.28	21.13	14.60	21.15	0.000095	1.71	9531.93	9343.42	0.10
North Main	reach 1	85374	5778.00	10.28	21.52	15.56	21.54	0.000090	1.55	13448.81	10469.67	0.10
North Main	reach 1	85374	11383.00	10.28	22.47	18.36	22.48	0.000074	1.49	24297.30	11800.00	0.09
North Main	reach 1	84000	2850.00	10.18	19.79	13.29	19.91	0.000319	2.73	1044.97	148.42	0.18
North Main	reach 1	84000	4215.00	10.18	20.96	14.18	20.99	0.000144	1.85	6391.61	4997.31	0.12
North Main	reach 1	84000	5778.00	10.18	21.43	15.06	21.44	0.000052	1.15	16511.52	10391.82	0.07
North Main	reach 1	84000	11383.00	10.18	22.39	17.67	22.39	0.000053	1.23	27215.07	11836.88	0.08
North Main	reach 1	82000	2850.00	10.03	19.02	13.20	19.15	0.000451	2.99	951.67	153.11	0.21
North Main	reach 1	82000	4215.00	10.03	20.72	14.12	20.74	0.000106	1.59	6920.97	4918.06	0.10
North Main	reach 1	82000	5778.00	10.03	21.28	15.03	21.30	0.000098	1.59	10147.36	6539.75	0.10
North Main	reach 1	82000	11383.00	10.03	22.22	17.65	22.23	0.000128	1.93	16966.25	7678.75	0.12
North Main	reach 1	80000	2850.00	9.59	18.13	12.76	18.29	0.000414	3.20	889.53	119.96	0.21
North Main	reach 1	80000	4215.00	9.59	20.24	13.65	20.37	0.000402	3.08	2683.60	4504.72	0.20
North Main	reach 1	80000	5778.00	9.59	20.94	14.55	21.00	0.000253	2.49	7537.57	8621.92	0.16
North Main	reach 1	80000	11383.00	9.59	21.90	17.17	21.93	0.000187	2.28	16551.31	10162.23	0.14
North Main	reach 1	58000	2850.00	9.33	17.00	12.78	17.22	0.000700	3.82	748.18	115.66	0.26
North Main	reach 1	58000	4215.00	9.33	19.07	13.69	19.35	0.000848	4.24	993.40	123.36	0.26
North Main	reach 1	58000	5778.00	9.33	20.66	14.58	20.68	0.000106	1.79	12478.28	10820.70	0.11
North Main	reach 1	58000	11383.00	9.33	21.69	17.26	21.69	0.000076	1.43	23666.50	11221.57	0.09
North Main	reach 1	57448	2850.00	9.38	16.58	12.75	16.81	0.000826	3.96	719.14	120.17	0.29
North Main	reach 1	57448	4215.00	9.38	18.69	13.65	18.97	0.000707	4.28	985.49	130.06	0.27
North Main	reach 1	57448	5778.00	9.38	20.41	14.54	20.56	0.000399	3.55	4285.61	5116.78	0.21
North Main	reach 1	57448	11383.00	9.38	21.55	17.14	21.62	0.000286	3.18	12316.79	9004.55	0.18
North Main	reach 1	57404	2850.00	9.38	16.52	12.74	16.77	0.000844	3.99	714.16	119.98	0.29
North Main	reach 1	57404	4215.00	9.38	18.66	13.65	18.94	0.000717	4.30	981.01	129.92	0.28
North Main	reach 1	57404	5778.00	9.38	20.39	14.54	20.54	0.000414	3.61	4153.63	5015.86	0.21
North Main	reach 1	57404	11383.00	9.38	21.53	17.14	21.60	0.000294	3.22	12151.08	8941.29	0.18
North Main	reach 1	56867	2850.00	9.80	16.13	12.52	16.33	0.000744	3.63	785.64	139.19	0.27
North Main	reach 1	56867	4215.00	9.80	18.36	13.30	18.58	0.000574	3.81	1107.44	149.59	0.25
North Main	reach 1	56867	5778.00	9.80	19.96	14.08	20.28	0.000596	4.28	1356.97	158.80	0.26
North Main	reach 1	56867	11383.00	9.80	21.20	16.40	21.38	0.000567	4.26	6119.36	2968.23	0.25
North Main	reach 1	56865	Inline Weir									
North Main	reach 1	56857	2850.00	7.31	16.12	10.12	16.23	0.000266	2.64	1080.77	141.52	0.17
North Main	reach 1	56857	4215.00	7.31	18.35	10.94	18.49	0.000265	2.99	1407.54	151.42	0.17
North Main	reach 1	56857	5778.00	7.31	19.97	11.75	20.16	0.000307	3.48	1659.43	158.65	0.19
North Main	reach 1	56857	11383.00	7.31	21.19	14.15	21.36	0.000377	4.06	6395.32	2937.28	0.21
North Main	reach 1	56000	2850.00	6.74	15.92	9.56	16.01	0.000222	2.49	1143.18	141.65	0.15
North Main	reach 1	56000	4215.00	6.74	18.15	10.34	18.27	0.000228	2.87	1485.83	231.26	0.16
North Main	reach 1	56000	5778.00	6.74	19.75	11.16	19.91	0.000254	3.27	2036.02	394.65	0.17
North Main	reach 1	56000	11383.00	6.74	21.01	13.51	21.09	0.000227	3.05	8290.17	2773.46	0.16
North Main	reach 1	54000	2850.00	6.00	15.53	8.77	15.61	0.000182	2.31	1232.74	147.02	0.14
North Main	reach 1	54000	4215.00	6.00	17.71	9.54	17.83	0.000216	2.69	1565.86	167.92	0.16
North Main	reach 1	54000	5778.00	6.00	19.23	10.31	19.36	0.000285	3.15	1834.16	190.71	0.18
North Main	reach 1	54000	11383.00	6.00	20.69	12.63	20.73	0.000137	2.36	12389.47	4557.34	0.13
North Main	reach 1	52275	2856.00	5.83	15.21	8.51	15.29	0.000188	2.31	1235.29	151.41	0.14
North Main	reach 1	52275	4210.00	5.83	17.34	9.28	17.45	0.000220	2.67	1577.64	175.42	0.16
North Main	reach 1	52275	5767.00	5.83	18.71	10.07	18.86	0.000315	3.14	1837.81	210.07	0.19
North Main	reach 1	52275	10840.00	5.83	20.41	12.19	20.46	0.000185	2.53	13839.80	10331.61	0.15
North Main	reach 1	51585	2856.00	5.69	15.03	8.64	15.14	0.000257	2.66	1074.91	134.91	0.17
North Main	reach 1	51585	4210.00	5.69	17.13	9.48	17.28	0.000273	3.08	1368.10	143.42	0.18
North Main	reach 1	51585	5767.00	5.69	18.40	10.35	18.62	0.000393	3.69	1561.59	162.67	0.21
North Main	reach 1	51585	10840.00	5.69	20.28	12.67	20.35	0.000202	2.96	12785.31	9108.39	0.15
North Main	reach 1	51519	2856.00	5.69	15.01	8.64	15.12	0.000258	2.66	1072.53	134.83	0.17
North Main	reach 1	51519	4210.00	5.69	17.11	9.48	17.26	0.000274	3.08	1365.43	143.37	0.18

HFC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch. El. (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Val Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	61519	5787.00	5.69	18.38	10.35	18.59	0.000397	3.70	1557.12	162.67	0.21
North Main	reach 1	51519	10840.00	5.69	20.26	12.67	20.34	0.000206	2.98	12647.11	9052.06	0.16
North Main	reach 1	50000	2856.00	5.58	14.65	8.38	14.74	0.000232	2.49	1147.87	148.56	0.16
North Main	reach 1	50000	4210.00	5.58	16.68	9.17	16.81	0.000313	2.84	1484.82	197.83	0.16
North Main	reach 1	50000	5787.00	5.58	18.15	9.97	18.20	0.000152	2.18	4678.79	1427.95	0.13
North Main	reach 1	50000	10840.00	5.58	20.16	12.16	20.18	0.000058	1.48	18759.63	5872.55	0.08
North Main	reach 1	48000	2856.00	4.89	14.22	7.67	14.30	0.000209	2.32	1229.88	162.74	0.15
North Main	reach 1	48000	4210.00	4.89	16.12	8.43	16.23	0.000264	2.67	1579.35	202.53	0.17
North Main	reach 1	48000	5787.00	4.89	17.84	9.21	17.90	0.000145	2.19	4013.72	921.21	0.13
North Main	reach 1	48000	10840.00	4.89	20.02	11.90	20.05	0.000077	1.80	18749.13	8867.87	0.10
North Main	reach 1	47232	2856.00	4.94	13.99	7.97	14.11	0.000290	2.73	1046.93	139.14	0.18
North Main	reach 1	47232	4210.00	4.94	15.84	8.83	16.00	0.000327	3.21	1313.13	149.76	0.19
North Main	reach 1	47232	5787.00	4.94	17.49	9.67	17.70	0.000402	3.86	1574.81	171.27	0.21
North Main	reach 1	47232	10840.00	4.94	19.93	11.96	19.97	0.000141	2.27	13461.90	5173.60	0.13
North Main	reach 1	48000	2856.00	4.90	13.66	7.76	13.77	0.000281	2.58	1182.24	175.62	0.17
North Main	reach 1	48000	4210.00	4.90	15.49	8.56	15.82	0.000273	2.94	1754.79	601.93	0.17
North Main	reach 1	48000	5787.00	4.90	17.19	9.39	17.30	0.000226	2.91	3010.88	811.70	0.16
North Main	reach 1	48000	10840.00	4.90	19.83	11.64	19.85	0.000068	1.66	18693.98	7787.86	0.09
North Main	reach 1	44000	2856.00	4.68	13.14	7.31	13.24	0.000260	2.58	1107.34	147.26	0.17
North Main	reach 1	44000	4210.00	4.68	14.90	8.08	15.05	0.000285	3.07	1372.30	154.07	0.18
North Main	reach 1	44000	5787.00	4.68	16.52	8.85	16.71	0.000381	3.53	1635.65	180.39	0.21
North Main	reach 1	44000	10840.00	4.68	19.46	10.97	19.59	0.000290	3.38	5551.00	2003.75	0.18
North Main	reach 1	43141	2856.00	4.68	12.92	7.27	13.02	0.000287	2.57	1110.48	151.77	0.17
North Main	reach 1	43141	4210.00	4.68	14.64	8.01	14.79	0.000301	3.05	1379.05	158.81	0.18
North Main	reach 1	43141	5787.00	4.68	16.21	8.77	16.40	0.000340	3.53	1663.06	325.71	0.20
North Main	reach 1	43141	10840.00	4.68	19.40	10.83	19.44	0.000140	2.26	12691.30	6259.89	0.13
North Main	reach 1	42941	2856.00	4.24	12.88	7.07	12.97	0.000236	2.40	1190.73	166.05	0.16
North Main	reach 1	42941	4210.00	4.24	14.60	7.80	14.72	0.000265	2.84	1483.38	174.31	0.17
North Main	reach 1	42941	5787.00	4.24	16.16	8.54	16.33	0.000295	3.27	1785.67	319.84	0.18
North Main	reach 1	42941	10840.00	4.24	19.35	10.57	19.41	0.000281	2.47	9819.11	6199.40	0.17
North Main	reach 1	42938	Inline Weir									
North Main	reach 1	42932	2856.00	3.60	12.88	8.09	12.94	0.000146	2.04	1397.61	172.39	0.13
North Main	reach 1	42932	4210.00	3.60	14.59	8.79	14.69	0.000175	2.48	1699.24	179.03	0.14
North Main	reach 1	42932	5787.00	3.60	16.15	7.51	16.28	0.000206	2.91	2008.33	308.83	0.16
North Main	reach 1	42932	10840.00	3.60	19.34	9.46	19.40	0.000228	2.51	9726.34	6147.82	0.16
North Main	reach 1	42366	2856.00	3.60	12.84	5.57	12.88	0.000081	1.56	1833.45	217.52	0.09
North Main	reach 1	42366	4210.00	3.60	14.55	6.14	14.60	0.000098	1.91	2209.10	223.52	0.11
North Main	reach 1	42366	5787.00	3.60	16.10	6.73	16.18	0.000116	2.25	2560.23	227.38	0.12
North Main	reach 1	42366	10840.00	3.60	19.27	8.36	19.34	0.000109	2.47	10088.80	5540.16	0.12
North Main	reach 1	42319	2856.00	3.60	12.83	5.57	12.87	0.000081	1.56	1831.34	217.48	0.09
North Main	reach 1	42313	4210.00	3.60	14.54	6.14	14.59	0.000098	1.91	2206.46	223.47	0.11
North Main	reach 1	42313	5787.00	3.60	16.09	6.73	16.17	0.000116	2.26	2557.07	227.33	0.12
North Main	reach 1	42313	10840.00	3.60	19.26	8.35	19.34	0.000109	2.48	10035.17	5522.97	0.12
North Main	reach 1	42000	2856.00	3.60	12.81	5.49	12.85	0.000073	1.49	1910.48	223.31	0.09
North Main	reach 1	42000	4210.00	3.60	14.51	6.04	14.56	0.000090	1.83	2294.32	229.28	0.10
North Main	reach 1	42000	5787.00	3.60	16.06	6.60	16.13	0.000107	2.17	2654.13	234.75	0.11
North Main	reach 1	42000	10840.00	3.60	19.20	8.15	19.30	0.000125	2.68	8887.14	6421.69	0.13
North Main	reach 1	40000	2856.00	3.15	12.67	5.14	12.70	0.000070	1.47	1943.61	225.86	0.09
North Main	reach 1	40000	4210.00	3.15	14.32	5.70	14.38	0.000086	1.81	2323.21	231.32	0.10
North Main	reach 1	40000	5787.00	3.15	15.85	6.28	15.92	0.000104	2.15	2678.72	235.94	0.11
North Main	reach 1	40000	10840.00	3.15	18.85	7.86	18.99	0.000170	3.13	4391.19	2692.45	0.15
North Main	reach 1	38000	2856.00	3.14	12.52	5.06	12.55	0.000071	1.48	1934.94	225.46	0.09
North Main	reach 1	38000	4210.00	3.14	14.14	5.61	14.19	0.000089	1.83	2306.06	232.02	0.10
North Main	reach 1	38000	5787.00	3.14	15.63	6.19	15.71	0.000108	2.17	2656.48	237.23	0.11
North Main	reach 1	38000	10840.00	3.14	18.47	7.76	18.64	0.000188	3.24	3343.06	246.27	0.16
North Main	reach 1	36000	2856.00	3.15	12.35	5.10	12.39	0.000080	1.55	1837.77	217.08	0.09
North Main	reach 1	36000	4210.00	3.15	13.94	5.67	14.00	0.000101	1.93	2165.84	222.65	0.11
North Main	reach 1	36000	5787.00	3.15	15.39	6.25	15.47	0.000124	2.30	2511.85	227.82	0.12
North Main	reach 1	36000	10840.00	3.15	18.04	7.85	18.23	0.000223	3.46	3129.20	237.31	0.17
North Main	reach 1	34000	2856.00	3.16	12.19	5.20	12.23	0.000091	1.61	1771.11	220.20	0.10
North Main	reach 1	34000	4210.00	3.16	13.72	5.78	13.78	0.000115	1.99	2112.58	227.11	0.12
North Main	reach 1	34000	5787.00	3.16	15.12	6.38	15.20	0.000139	2.37	2433.88	231.83	0.13
North Main	reach 1	34000	10840.00	3.16	17.54	8.01	17.75	0.000256	3.81	3006.62	240.13	0.18
North Main	reach 1	32548	2856.00	3.16	12.05	5.27	12.09	0.000097	1.65	1728.14	215.56	0.10
North Main	reach 1	32548	4210.00	3.16	13.54	5.87	13.61	0.000123	2.05	2052.29	221.48	0.12
North Main	reach 1	32548	5787.00	3.16	14.90	6.46	14.99	0.000150	2.45	2356.64	225.98	0.13

HFC-DAS Plan P-25X-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	32548	10840.00	3.18	17.13	8.09	17.35	0.000289	3.78	2988.09	233.38	0.19
North Main	reach 1	32504	2858.00	3.18	12.05	5.27	12.09	0.000097	1.88	1725.20	216.55	0.10
North Main	reach 1	32504	4210.00	3.18	13.54	5.87	13.80	0.000123	2.05	2051.07	221.48	0.12
North Main	reach 1	32504	5767.00	3.18	14.89	6.46	14.99	0.000150	2.45	2355.12	225.98	0.13
North Main	reach 1	32504	10840.00	3.18	17.11	8.09	17.34	0.000290	3.78	2884.89	233.32	0.19
North Main	reach 1	32000	2858.00	3.18	12.00	5.18	12.04	0.000089	1.59	1792.44	221.24	0.10
North Main	reach 1	32000	4210.00	3.18	13.48	5.72	13.54	0.000113	1.98	2122.93	228.56	0.11
North Main	reach 1	32000	5767.00	3.16	14.83	6.29	14.91	0.000140	2.37	2431.27	231.41	0.13
North Main	reach 1	32000	10840.00	3.16	16.97	7.85	17.18	0.000304	3.87	2953.08	250.94	0.18
North Main	reach 1	30000	2858.00	2.92	11.83	4.85	11.87	0.000081	1.55	1845.03	222.78	0.09
North Main	reach 1	30000	4210.00	2.92	13.26	5.41	13.32	0.000107	1.94	2185.81	227.21	0.11
North Main	reach 1	30000	5767.00	2.92	14.55	5.97	14.64	0.000134	2.34	2482.07	231.23	0.13
North Main	reach 1	30000	10840.00	2.92	16.43	7.53	16.61	0.000259	3.58	4400.49	2825.21	0.18
North Main	reach 1	29585	3102.00	2.90	11.78	5.02	11.83	0.000108	1.78	1759.30	216.39	0.11
North Main	reach 1	29585	4262.00	2.90	13.20	5.51	13.27	0.000123	2.08	2070.85	221.85	0.12
North Main	reach 1	29585	5805.00	2.90	14.48	6.09	14.58	0.000153	2.48	2357.05	228.38	0.13
North Main	reach 1	29585	10731.00	2.90	16.28	7.63	16.49	0.000320	3.88	2764.14	4672.47	0.20
North Main	reach 1	29523	3102.00	2.90	11.78	5.02	11.82	0.000108	1.78	1757.82	216.37	0.11
North Main	reach 1	29523	4262.00	2.90	13.20	5.51	13.28	0.000123	2.08	2068.83	221.82	0.12
North Main	reach 1	29523	5805.00	2.90	14.47	6.09	14.57	0.000153	2.47	2354.86	226.35	0.13
North Main	reach 1	29523	10731.00	2.90	16.24	7.64	16.47	0.000321	3.89	2759.28	4667.86	0.20
North Main	reach 1	28000	3102.00	2.90	11.61	5.03	11.68	0.000109	1.75	1773.74	223.04	0.11
North Main	reach 1	28000	4262.00	2.90	13.01	5.52	13.08	0.000123	2.04	2088.87	227.50	0.12
North Main	reach 1	28000	5805.00	2.90	14.24	6.09	14.33	0.000154	2.45	2371.23	231.42	0.13
North Main	reach 1	28000	10731.00	2.90	15.98	7.62	16.07	0.000178	2.88	8058.15	3648.90	0.15
North Main	reach 1	28000	3102.00	2.90	11.37	5.04	11.42	0.000125	1.83	1891.15	219.82	0.12
North Main	reach 1	28000	4262.00	2.90	12.74	5.53	12.81	0.000141	2.14	1995.44	225.09	0.13
North Main	reach 1	28000	5805.00	2.90	13.93	6.11	14.02	0.000189	2.47	2758.88	685.89	0.14
North Main	reach 1	28000	10731.00	2.90	15.48	7.67	15.61	0.000309	3.34	6031.40	4592.12	0.19
North Main	reach 1	24000	3102.00	2.90	11.11	4.93	11.18	0.000126	1.83	1698.92	222.85	0.12
North Main	reach 1	24000	4262.00	2.90	12.45	5.40	12.51	0.000141	2.08	2432.95	1099.24	0.13
North Main	reach 1	24000	5805.00	2.90	13.83	5.95	13.70	0.000147	2.18	4242.82	1808.70	0.13
North Main	reach 1	24000	10731.00	2.90	15.40	7.45	15.41	0.000034	1.12	23300.99	8092.03	0.08
North Main	reach 1	22000	3102.00	2.90	10.84	4.92	10.89	0.000137	1.87	1858.08	222.89	0.12
North Main	reach 1	22000	4262.00	2.90	12.14	5.38	12.21	0.000154	2.19	1958.72	238.85	0.13
North Main	reach 1	22000	5805.00	2.90	13.25	5.92	13.35	0.000194	2.63	2237.11	316.52	0.15
North Main	reach 1	22000	10731.00	2.90	15.02	7.41	15.23	0.000345	3.86	3874.17	1384.99	0.20
North Main	reach 1	20000	3102.00	2.23	10.58	4.53	10.61	0.000144	1.93	1809.98	215.15	0.12
North Main	reach 1	20000	4262.00	2.23	11.81	5.01	11.89	0.000166	2.26	1883.24	219.94	0.14
North Main	reach 1	20000	5805.00	2.23	12.82	5.58	12.94	0.000218	2.75	2107.98	223.81	0.16
North Main	reach 1	20000	10731.00	2.23	14.09	7.12	14.40	0.000502	4.48	2393.31	228.82	0.24
North Main	reach 1	19889	3102.00	2.23	10.54	4.62	10.60	0.000157	1.99	1581.04	212.53	0.13
North Main	reach 1	19889	4262.00	2.23	11.79	5.13	11.88	0.000180	2.33	1830.67	217.78	0.14
North Main	reach 1	19889	5805.00	2.23	12.80	5.71	12.92	0.000234	2.83	2051.80	221.51	0.16
North Main	reach 1	19889	10731.00	2.23	14.01	7.29	14.34	0.000545	4.62	2351.57	425.41	0.25
North Main	reach 1	19835	3102.00	2.23	10.53	4.62	10.59	0.000157	1.99	1559.19	212.49	0.13
North Main	reach 1	19835	4262.00	2.23	11.78	5.13	11.87	0.000181	2.33	1828.47	217.74	0.14
North Main	reach 1	19835	5805.00	2.23	12.79	5.71	12.91	0.000235	2.83	2048.85	221.48	0.16
North Main	reach 1	19835	10731.00	2.23	13.98	7.29	14.31	0.000550	4.63	2338.14	413.53	0.25
North Main	reach 1	18000	3102.00	2.22	10.23	4.53	10.29	0.000188	2.03	1527.43	211.95	0.13
North Main	reach 1	18000	4262.00	2.22	11.43	5.02	11.52	0.000195	2.39	1785.44	216.59	0.15
North Main	reach 1	18000	5805.00	2.22	12.33	5.59	12.46	0.000258	2.91	2250.39	1871.48	0.17
North Main	reach 1	18000	10731.00	2.22	12.95	7.14	13.24	0.000594	4.58	4409.70	5083.15	0.26
North Main	reach 1	18000	3102.00	2.22	9.87	4.30	9.93	0.000182	2.09	1482.88	208.46	0.14
North Main	reach 1	18000	4262.00	2.22	11.01	4.79	11.11	0.000214	2.47	1724.28	212.85	0.15
North Main	reach 1	18000	5805.00	2.22	12.18	5.37	12.20	0.000063	1.42	11822.73	6913.68	0.08
North Main	reach 1	18000	10731.00	2.22	12.70	6.93	12.72	0.000115	1.92	15403.85	6931.46	0.11
North Main	reach 1	14000	3102.00	2.03	9.50	4.07	9.57	0.000181	2.07	1498.16	212.55	0.14
North Main	reach 1	14000	4262.00	2.03	10.58	4.54	10.68	0.000217	2.47	1727.11	215.74	0.15
North Main	reach 1	14000	5805.00	2.03	11.83	5.11	11.96	0.000261	2.90	2000.14	224.44	0.17
North Main	reach 1	14000	10731.00	2.03	12.46	6.63	12.48	0.000125	1.99	14819.79	6924.52	0.12
North Main	reach 1	12000	3102.00	1.79	9.10	3.96	9.18	0.000218	2.20	1408.58	208.81	0.15
North Main	reach 1	12000	4262.00	1.79	10.09	4.45	10.20	0.000283	2.64	1818.87	212.02	0.17
North Main	reach 1	12000	5805.00	1.79	11.24	5.02	11.39	0.000314	3.12	1862.10	215.97	0.19
North Main	reach 1	12000	10731.00	1.79	12.37	6.57	12.38	0.000028	0.90	33767.20	13721.03	0.06
North Main	reach 1	10000	3241.00	1.80	8.58	3.99	8.67	0.000295	2.48	1316.96	208.92	0.17

HEC-RAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
North Main	reach 1	10000	4357.00	1.80	9.48	4.45	9.59	0.000352	2.90	1503.88	213.74	0.19
North Main	reach 1	10000	5818.00	1.80	10.45	4.99	10.83	0.000487	3.37	1724.58	240.80	0.22
North Main	reach 1	10000	10743.00	1.80	11.75	6.53	12.17	0.000995	5.23	2055.32	282.01	0.33
North Main	reach 1	8000	3291.00	1.73	7.80	3.99	7.93	0.000470	2.89	1138.93	202.98	0.21
North Main	reach 1	8000	4457.00	1.73	8.50	4.48	8.89	0.000593	3.48	1281.11	204.75	0.25
North Main	reach 1	8000	5888.00	1.73	9.20	5.01	9.48	0.000734	4.12	1425.21	207.20	0.28
North Main	reach 1	8000	10712.00	1.73	11.00	11.00	11.07	0.000298	2.99	10500.98	8877.30	0.18
North Main	reach 1	9000	3291.00	1.77	6.88	3.68	6.97	0.000486	2.68	1307.17	296.77	0.21
North Main	reach 1	9000	4457.00	1.77	7.23	4.11	7.40	0.000899	3.34	1416.89	301.04	0.26
North Main	reach 1	9000	5888.00	1.77	7.43	4.58	7.89	0.001072	4.23	1475.75	303.30	0.32
North Main	reach 1	9000	10712.00	1.77	7.66	5.88	8.47	0.003095	7.37	1547.89	306.07	0.55
North Main	reach 1	4068	3291.00	1.84	5.80	3.41	5.90	0.000621	2.52	1303.51	352.71	0.23
North Main	reach 1	4068	4457.00	1.84	6.15	3.74	6.22	0.000511	2.42	4852.86	16473.98	0.21
North Main	reach 1	4068	5888.00	1.84	6.37	4.10	6.41	0.000408	2.24	8558.91	16880.40	0.19
North Main	reach 1	4068	10712.00	1.84	6.85	5.15	6.87	0.000301	2.08	16955.58	17800.98	0.17
North Main	reach 1	4024	3291.00	1.84	5.79	3.41	5.89	0.000629	2.53	1298.54	352.84	0.23
North Main	reach 1	4024	4457.00	1.84	6.13	3.74	6.21	0.000531	2.47	4858.88	16453.51	0.22
North Main	reach 1	4024	5888.00	1.84	6.38	4.10	6.41	0.000421	2.27	8399.91	16844.12	0.19
North Main	reach 1	4024	10712.00	1.84	6.85	5.14	6.87	0.000301	2.06	16955.58	17800.98	0.17
North Main	reach 1	2000	3575.00	1.72	4.18	2.81	4.25	0.001056	2.41	1484.15	642.56	0.28
North Main	reach 1	2000	4920.00	1.72	4.43	3.05	4.58	0.001398	2.97	1654.04	644.18	0.33
North Main	reach 1	2000	6522.00	1.72	4.68	3.32	4.88	0.001803	3.59	1816.57	645.72	0.38
North Main	reach 1	2000	10850.00	1.72	5.13	3.91	5.54	0.003049	5.14	2109.80	648.49	0.50
North Main	reach 1	0	3575.00	1.41	3.59	1.98	3.60	0.000155	0.77	8745.72	7371.77	0.10
North Main	reach 1	0	4920.00	1.41	3.85	2.12	3.85	0.000155	0.84	8654.40	7646.04	0.10
North Main	reach 1	0	6522.00	1.41	4.10	2.28	4.11	0.000155	0.90	10901.75	10307.77	0.11
North Main	reach 1	0	10850.00	1.41	4.62	2.83	4.63	0.000155	1.03	16375.00	10712.36	0.11

**HEC-RAS MODEL**  
**PROPOSED CONDITIONS**  
**50% DIVERSION**

HEC-RAS Plan: P 50% D

River	Reach	River Sta	Q Total (cfs)	Min.Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
La Sal Vieja	Reach 1	15080	923.00	24.30	31.85	26.73	31.92	0.000356	2.22	415.85	70.19	0.16
La Sal Vieja	Reach 1	15080	1531.00	24.30	34.44	27.65	34.54	0.000329	2.50	611.54	80.57	0.16
La Sal Vieja	Reach 1	15080	2121.00	24.30	36.53	28.41	36.64	0.000311	2.69	788.49	88.93	0.16
La Sal Vieja	Reach 1	15060	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.47	99.86	0.06
La Sal Vieja	Reach 1	15050	923.00	24.30	31.84	26.73	31.92	0.000357	2.22	415.48	70.17	0.16
La Sal Vieja	Reach 1	15050	1531.00	24.30	34.44	27.65	34.54	0.000329	2.51	611.18	80.58	0.16
La Sal Vieja	Reach 1	15050	2121.00	24.30	36.53	28.41	36.64	0.000311	2.69	788.14	88.91	0.16
La Sal Vieja	Reach 1	15050	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.43	99.86	0.06
La Sal Vieja	Reach 1	15010	923.00	24.30	31.84	27.73	31.91	0.000358	2.22	415.11	70.15	0.16
La Sal Vieja	Reach 1	15010	1531.00	24.30	34.43	27.65	34.53	0.000330	2.51	610.82	80.54	0.16
La Sal Vieja	Reach 1	15010	2121.00	24.30	36.52	28.41	36.64	0.000311	2.69	787.78	88.89	0.16
La Sal Vieja	Reach 1	15010	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.39	99.86	0.06
La Sal Vieja	Reach 1	15000	923.00	24.30	31.83		31.91	0.000358	2.23	414.75	70.13	0.16
La Sal Vieja	Reach 1	15000	1531.00	24.30	34.43		34.53	0.000331	2.51	610.46	80.52	0.16
La Sal Vieja	Reach 1	15000	2121.00	24.30	36.52		36.63	0.000312	2.69	787.42	88.88	0.16
La Sal Vieja	Reach 1	15000	1107.00	24.30	39.26		39.28	0.000039	1.06	1046.35	99.85	0.06
La Sal Vieja	Reach 1	12500	923.00	23.30	30.96		31.03	0.000338	2.18	423.57	70.83	0.16
La Sal Vieja	Reach 1	12500	1531.00	23.30	33.63		33.72	0.000307	2.44	626.72	81.32	0.16
La Sal Vieja	Reach 1	12500	2121.00	23.30	35.77		35.87	0.000289	2.62	809.56	89.87	0.15
La Sal Vieja	Reach 1	12500	1107.00	23.30	39.18		39.20	0.000031	0.97	1140.05	103.54	0.05
La Sal Vieja	Reach 1	9650	923.00	22.16	30.05		30.12	0.000302	2.10	440.24	71.57	0.15
La Sal Vieja	Reach 1	9650	1531.00	22.16	32.81		32.90	0.000274	2.34	652.95	82.61	0.15
La Sal Vieja	Reach 1	9650	2121.00	22.16	35.00		35.09	0.000258	2.52	842.97	91.35	0.15
La Sal Vieja	Reach 1	9650	1107.00	22.16	39.12		39.13	0.000024	0.88	1253.60	107.84	0.05
La Sal Vieja	Reach 1	7500	923.00	21.30	29.44		29.50	0.000270	2.01	458.24	72.57	0.14
La Sal Vieja	Reach 1	7500	1531.00	21.30	32.26		32.34	0.000246	2.26	678.46	83.83	0.14
La Sal Vieja	Reach 1	7500	2121.00	21.30	34.47		34.56	0.000234	2.43	873.94	92.69	0.14
La Sal Vieja	Reach 1	7500	1107.00	21.30	39.07		39.08	0.000020	0.82	1342.54	111.09	0.04
La Sal Vieja	Reach 1	4100	923.00	19.94	28.64		28.69	0.000212	1.85	499.35	74.80	0.13
La Sal Vieja	Reach 1	4100	1531.00	19.94	31.51		31.58	0.000200	2.09	730.84	86.29	0.13
La Sal Vieja	Reach 1	4100	2121.00	19.94	33.76		33.84	0.000194	2.27	934.61	95.27	0.13
La Sal Vieja	Reach 1	4100	1107.00	19.94	39.03		39.03	0.000015	0.74	1491.88	116.34	0.04
La Sal Vieja	Reach 1	1000	923.00	18.70	28.08	21.13	28.12	0.000160	1.67	551.10	77.52	0.11
La Sal Vieja	Reach 1	1000	1531.00	18.70	30.97	22.05	31.03	0.000160	1.93	791.73	89.07	0.11
La Sal Vieja	Reach 1	1000	2121.00	18.70	33.22	22.81	33.29	0.000160	2.12	1002.52	98.08	0.12
La Sal Vieja	Reach 1	1000	1107.00	18.70	39.00	21.43	39.00	0.000006	0.55	4567.38	1082.00	0.02
raymondville	Reach 8	296300	629.00	70.00	77.60		77.67	0.000461	2.19	287.09	60.58	0.18
raymondville	Reach 8	296300	1287.00	70.00	80.30		80.35	0.000278	2.03	1625.49	3000.00	0.16
raymondville	Reach 8	296300	2370.00	70.00	82.66		82.66	0.000017	0.61	8705.56	3000.00	0.04
raymondville	Reach 8	296300	6583.00	70.00	86.09		86.09	0.000011	0.60	19003.37	3000.00	0.03
raymondville	Reach 8	295300	629.00	69.54	77.14		77.21	0.000461	2.19	287.05	60.58	0.18
raymondville	Reach 8	295300	1287.00	69.54	79.96		80.04	0.000351	2.30	1051.72	1878.68	0.18
raymondville	Reach 8	295300	2370.00	69.54	82.64		82.65	0.000015	0.58	9055.57	3000.00	0.04
raymondville	Reach 8	295300	6583.00	69.54	86.08		86.08	0.000010	0.60	19369.54	3000.00	0.03
raymondville	Reach 8	293500	629.00	68.71	76.32	71.77	76.39	0.000458	2.19	287.73	60.65	0.18
raymondville	Reach 8	293500	1287.00	68.71	79.20	73.22	79.31	0.000464	2.64	487.54	77.95	0.19
raymondville	Reach 8	293500	2370.00	68.71	82.41	74.90	82.56	0.000465	3.08	768.35	97.19	0.19
raymondville	Reach 8	293500	6583.00	68.71	86.03	78.94	86.04	0.000088	1.61	9256.79	3000.00	0.09
raymondville	Reach 8	291800	629.00	87.93	75.54	70.99	75.61	0.000458	2.19	287.73	60.64	0.18
raymondville	Reach 8	291800	1287.00	87.93	78.41	72.44	78.52	0.000465	2.64	486.93	77.90	0.19
raymondville	Reach 8	291800	2370.00	87.93	81.62	74.12	81.77	0.000466	3.09	767.52	97.14	0.19
raymondville	Reach 8	291800	6583.00	87.93	85.89	78.16	85.91	0.000067	1.41	9200.27	3000.00	0.08
raymondville	Reach 8	289400	629.00	66.82	74.44	69.88	74.51	0.000455	2.18	288.53	60.72	0.18
raymondville	Reach 8	289400	1287.00	66.82	77.30	71.33	77.41	0.000465	2.64	486.93	77.90	0.19
raymondville	Reach 8	289400	2370.00	66.82	80.51	73.01	80.66	0.000466	3.09	767.52	97.14	0.19
raymondville	Reach 8	289400	6583.00	66.82	85.75	77.05	85.76	0.000054	1.32	9693.57	3000.00	0.07
raymondville	Reach 8	287000	629.00	65.72	73.35		73.43	0.000451	2.17	289.34	60.80	0.18
raymondville	Reach 8	287000	1287.00	65.72	76.18		76.29	0.000470	2.55	485.14	77.76	0.19
raymondville	Reach 8	287000	2370.00	65.72	79.39		79.53	0.000470	3.10	765.25	96.99	0.19
raymondville	Reach 8	287000	6583.00	65.72	85.08		85.41	0.000701	4.65	1415.00	140.57	0.25
raymondville	Reach 8	285100	629.00	64.84	72.50	67.90	72.58	0.000444	2.16	291.21	60.99	0.17
raymondville	Reach 8	285100	1287.00	64.84	75.28	69.35	75.39	0.000473	2.66	483.84	77.66	0.19
raymondville	Reach 8	285100	2370.00	64.84	78.49	71.03	78.64	0.000472	3.10	763.78	96.90	0.19
raymondville	Reach 8	285100	6583.00	64.84	83.60	75.07	83.98	0.000814	4.92	1337.39	127.57	0.27



HEC-RAS Plan: P 50% D (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	283500	629.00	64.11	71.79	67.17	71.86	0.000439	2.15	292.33	61.10	0.17
raymondville	Reach 8	283500	1287.00	64.11	74.52	68.82	74.83	0.000481	2.67	481.17	77.45	0.19
raymondville	Reach 8	283500	2370.00	64.11	77.73	70.30	77.88	0.000477	3.12	760.81	96.72	0.20
raymondville	Reach 8	283500	6583.00	64.11	82.21	74.35	82.61	0.000910	5.10	1514.02	1562.61	0.29
raymondville	Reach 8	281800	629.00	63.33	71.06		71.13	0.000428	2.13	295.07	61.37	0.17
raymondville	Reach 8	281800	1287.00	63.33	73.69		73.80	0.000490	2.70	477.52	77.17	0.19
raymondville	Reach 8	281800	2370.00	63.33	76.91		77.06	0.000483	3.13	757.16	96.49	0.20
raymondville	Reach 8	281800	6583.00	63.33	81.99		82.02	0.000133	2.06	7781.97	3000.00	0.12
raymondville	Reach 8	279700	656.00	62.36	70.12		70.19	0.000458	2.21	296.80	61.54	0.18
raymondville	Reach 8	279700	1240.00	62.36	72.70		72.81	0.000459	2.60	476.21	77.07	0.18
raymondville	Reach 8	279700	2315.00	62.36	75.93		76.07	0.000484	3.06	755.69	96.40	0.19
raymondville	Reach 8	279700	6197.00	62.36	81.67		81.72	0.000164	2.31	5405.04	1733.32	0.13
raymondville	Reach 8	275500	656.00	60.43	68.18		68.26	0.000460	2.21	296.42	61.50	0.18
raymondville	Reach 8	275500	1240.00	60.43	70.78		70.88	0.000458	2.60	476.36	77.08	0.18
raymondville	Reach 8	275500	2315.00	60.43	73.97		74.12	0.000467	3.07	753.39	96.26	0.19
raymondville	Reach 8	275500	6197.00	60.43	80.27		80.55	0.000551	4.19	1481.86	155.90	0.22
raymondville	Reach 8	273500	656.00	59.51	67.26		67.34	0.000460	2.21	296.49	61.51	0.18
raymondville	Reach 8	273500	1240.00	59.51	69.86		69.97	0.000457	2.60	476.76	77.11	0.18
raymondville	Reach 8	273500	2315.00	59.51	73.04		73.18	0.000470	3.08	751.69	96.15	0.19
raymondville	Reach 8	273500	6197.00	59.51	79.13		79.41	0.000583	4.28	1448.89	132.71	0.23
raymondville	Reach 8	272300	656.00	58.96	66.71		68.79	0.000460	2.21	296.40	61.50	0.18
raymondville	Reach 8	272300	1240.00	58.96	69.31		69.42	0.000457	2.60	476.89	77.12	0.18
raymondville	Reach 8	272300	2315.00	58.96	72.47		72.62	0.000473	3.09	750.12	96.05	0.19
raymondville	Reach 8	272300	6197.00	58.96	78.40		78.70	0.000608	4.35	1425.84	131.66	0.23
raymondville	Reach 8	270300	656.00	58.04	65.79		65.87	0.000460	2.21	296.40	61.50	0.18
raymondville	Reach 8	270300	1240.00	58.04	68.39		68.50	0.000457	2.60	476.89	77.12	0.18
raymondville	Reach 8	270300	2315.00	58.04	71.53		71.67	0.000477	3.10	747.89	95.91	0.20
raymondville	Reach 8	270300	6197.00	58.04	77.57		77.98	0.000365	3.48	2781.81	2078.27	0.19
raymondville	Reach 8	268100	656.00	57.02	64.78		64.86	0.000457	2.21	297.14	61.57	0.18
raymondville	Reach 8	268100	1240.00	57.02	67.39		67.50	0.000453	2.59	478.40	77.24	0.18
raymondville	Reach 8	268100	2315.00	57.02	70.47		63.15	0.000482	3.11	744.46	95.70	0.20
raymondville	Reach 8	268100	6197.00	57.02	76.39		66.96	0.000820	4.38	1415.92	131.21	0.23
raymondville	Reach 8	266400	656.00	56.24	64.00		59.37	0.000457	2.21	297.14	61.57	0.18
raymondville	Reach 8	266400	1240.00	56.24	66.62		60.66	0.000451	2.59	479.10	77.29	0.18
raymondville	Reach 8	266400	2315.00	56.24	69.64		62.37	0.000491	3.13	739.75	95.40	0.20
raymondville	Reach 8	266400	6197.00	56.24	75.90		66.18	0.000246	2.90	3718.53	2889.75	0.18
raymondville	Reach 8	264100	656.00	55.18	62.96		58.31	0.000453	2.20	298.01	61.65	0.18
raymondville	Reach 8	264100	1240.00	55.18	65.59		59.60	0.000446	2.58	481.39	77.47	0.18
raymondville	Reach 8	264100	2315.00	55.18	68.49		61.31	0.000508	3.17	731.26	94.87	0.20
raymondville	Reach 8	264100	6197.00	55.18	75.04		65.12	0.000431	3.77	2591.51	3000.00	0.21
raymondville	Reach 8	262450	656.00	54.42	62.21		57.55	0.000449	2.19	299.00	61.75	0.18
raymondville	Reach 8	262450	1240.00	54.42	64.86		58.84	0.000440	2.56	483.78	77.68	0.18
raymondville	Reach 8	262450	2315.00	54.42	67.84		60.55	0.000523	3.20	722.48	94.31	0.20
raymondville	Reach 8	262450	6197.00	54.42	74.14		64.36	0.000568	4.24	1462.67	133.33	0.23
raymondville	Reach 8	260550	770.00	53.56	61.34		61.43	0.000456	2.28	337.48	66.71	0.18
raymondville	Reach 8	260550	1434.00	53.56	64.00		64.12	0.000452	2.67	536.18	82.67	0.19
raymondville	Reach 8	260550	2395.00	53.56	66.72		66.87	0.000455	3.06	783.21	98.99	0.19
raymondville	Reach 8	260550	6408.00	53.56	73.10		73.37	0.000535	4.17	1536.44	137.25	0.22
raymondville	Reach 8	259250	770.00	52.96	60.76		60.84	0.000453	2.27	338.49	66.80	0.18
raymondville	Reach 8	259250	1434.00	52.96	63.43		63.54	0.000448	2.67	537.99	82.80	0.18
raymondville	Reach 8	259250	2395.00	52.96	66.14		66.29	0.000452	3.05	784.93	99.09	0.19
raymondville	Reach 8	259250	6408.00	52.96	72.40		72.67	0.000548	4.21	1522.23	136.62	0.22
raymondville	Reach 8	258000	770.00	52.39	60.20		60.28	0.000451	2.27	338.87	66.83	0.18
raymondville	Reach 8	258000	1434.00	52.39	62.87		62.98	0.000446	2.66	539.00	82.87	0.18
raymondville	Reach 8	258000	2395.00	52.39	65.58		65.72	0.000451	3.05	785.53	99.13	0.19
raymondville	Reach 8	258000	6408.00	52.39	71.69		71.98	0.000566	4.26	1504.10	135.83	0.23
raymondville	Reach 8	255800	770.00	51.37	59.21		59.28	0.000444	2.26	340.88	67.01	0.18
raymondville	Reach 8	255800	1434.00	51.37	61.90		62.01	0.000437	2.64	543.21	83.18	0.18
raymondville	Reach 8	255800	2395.00	51.37	64.58		64.73	0.000447	3.04	786.03	99.28	0.19
raymondville	Reach 8	255800	6408.00	51.37	70.39		70.69	0.000607	4.37	1465.64	134.12	0.23
raymondville	Reach 8	252200	770.00	49.72	57.65		57.73	0.000421	2.22	347.52	67.60	0.17
raymondville	Reach 8	252200	1434.00	49.72	60.37		60.48	0.000415	2.59	553.36	83.91	0.18
raymondville	Reach 8	252200	2395.00	49.72	62.99		63.13	0.000439	3.02	793.83	99.63	0.19



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	252200	6408.00	49.72	87.93		68.27	0.000743	4.72	1358.53	129.24	0.28
raymondville	Reach 8	250350	770.00	48.87	56.89		56.97	0.000402	2.18	353.68	68.15	0.17
raymondville	Reach 8	250350	1434.00	48.87	59.62		59.72	0.000389	2.55	561.74	84.50	0.17
raymondville	Reach 8	250350	2395.00	48.87	62.19		62.33	0.000432	3.00	798.44	99.91	0.19
raymondville	Reach 8	250350	6408.00	48.87	66.37		66.76	0.000893	5.05	1288.30	124.98	0.28
raymondville	Reach 8	248900	770.00	48.20	56.33		56.40	0.000380	2.13	360.92	68.79	0.16
raymondville	Reach 8	248900	1434.00	48.20	59.06		59.16	0.000382	2.51	570.83	85.15	0.17
raymondville	Reach 8	248900	2395.00	48.20	61.57		61.71	0.000424	2.98	803.58	100.22	0.19
raymondville	Reach 8	248900	6408.00	48.20	64.83		65.31	0.001127	5.51	1162.86	119.82	0.31
raymondville	Reach 8	245400	770.00	46.59	55.15	49.63	55.21	0.000307	1.97	390.69	71.33	0.15
raymondville	Reach 8	245400	1434.00	46.59	57.83	50.93	57.91	0.000329	2.38	603.47	87.41	0.16
raymondville	Reach 8	245400	2395.00	46.59	60.14	52.32	60.27	0.000395	2.90	911.63	758.35	0.18
raymondville	Reach 8	245400	6408.00	46.59	64.17	56.09	64.19	0.000123	1.93	6405.04	1616.34	0.11
raymondville	Reach 8	242800	770.00	45.39	54.45	48.43	54.50	0.000241	1.80	427.34	74.35	0.13
raymondville	Reach 8	242800	1434.00	45.39	57.05	49.73	57.12	0.000280	2.24	640.70	89.93	0.15
raymondville	Reach 8	242800	2395.00	45.39	59.15	51.12	59.27	0.000373	2.84	842.91	102.54	0.17
raymondville	Reach 8	242800	6408.00	45.39	63.82	54.90	63.85	0.000138	2.06	6027.32	1567.96	0.11
raymondville	Reach 8	240200	831.00	44.20	53.86		53.91	0.000212	1.75	473.53	77.99	0.13
raymondville	Reach 8	240200	1497.00	44.20	56.36		56.43	0.000253	2.18	686.66	92.95	0.14
raymondville	Reach 8	240200	2298.00	44.20	58.28		58.38	0.000310	2.62	875.98	104.46	0.16
raymondville	Reach 8	240200	5757.00	44.20	62.98		63.23	0.000519	4.02	1433.72	132.68	0.22
raymondville	Reach 8	235900	831.00	42.22	53.20		53.23	0.000122	1.43	581.01	85.86	0.10
raymondville	Reach 8	235900	1497.00	42.22	55.48		55.54	0.000172	1.89	793.13	99.59	0.12
raymondville	Reach 8	235900	2298.00	42.22	57.13		57.21	0.000239	2.38	964.63	109.43	0.14
raymondville	Reach 8	235900	5757.00	42.22	60.88		61.09	0.000475	3.83	2032.83	933.67	0.21
raymondville	Reach 8	233900	831.00	41.30	53.12		53.12	0.000027	0.77	1918.23	673.88	0.05
raymondville	Reach 8	233900	1497.00	41.30	55.43		55.44	0.000019	0.76	3817.40	1021.34	0.04
raymondville	Reach 8	233900	2298.00	41.30	57.09		57.10	0.000019	0.83	5897.06	1485.85	0.04
raymondville	Reach 8	233900	5757.00	41.30	60.93		60.93	0.000017	0.96	13632.63	2516.23	0.04
raymondville	Reach 8	231612	831.00	40.87	52.92		52.98	0.000248	2.02	410.78	58.20	0.13
raymondville	Reach 8	231612	1497.00	40.87	55.31		55.34	0.000140	1.81	1532.76	658.87	0.11
raymondville	Reach 8	231612	2298.00	40.87	56.99		57.01	0.000092	1.64	2776.09	816.19	0.09
raymondville	Reach 8	231612	5757.00	40.87	60.84		60.86	0.000065	1.69	7624.78	2095.21	0.08
raymondville	Reach 8	227684	831.00	40.09	51.92		51.99	0.000258	2.05	405.05	57.90	0.14
raymondville	Reach 8	227684	1497.00	40.09	54.41		54.52	0.000341	2.64	624.80	260.35	0.16
raymondville	Reach 8	227684	2298.00	40.09	56.35		56.43	0.000288	2.61	1376.72	499.89	0.15
raymondville	Reach 8	227684	5757.00	40.09	60.39		60.45	0.000184	2.72	4560.16	2057.54	0.13
raymondville	Reach 8	225004	831.00	39.55	51.18		51.26	0.000291	2.15	387.01	56.53	0.14
raymondville	Reach 8	225004	1497.00	39.55	53.37		53.49	0.000429	2.88	519.93	65.26	0.18
raymondville	Reach 8	225004	2298.00	39.55	55.22		55.42	0.000561	3.55	648.00	72.69	0.21
raymondville	Reach 8	225004	5757.00	39.55	59.68		59.80	0.000330	3.47	3578.83	1339.66	0.17
raymondville	Reach 8	222418	831.00	39.03	51.03		51.03	0.000034	0.85	2176.38	925.74	0.05
raymondville	Reach 8	222418	1497.00	39.03	53.34		53.34	0.000016	0.69	4572.37	1152.72	0.04
raymondville	Reach 8	222418	2298.00	39.03	55.25		55.25	0.000015	0.73	6999.62	1815.09	0.04
raymondville	Reach 8	222418	5757.00	39.03	59.68		59.69	0.000011	0.76	16649.82	2625.92	0.03
raymondville	Reach 8	220780	831.00	38.71	50.85		50.91	0.000240	2.00	416.06	58.55	0.13
raymondville	Reach 8	220780	1497.00	38.71	53.15		53.26	0.000350	2.67	561.20	67.74	0.16
raymondville	Reach 8	220780	2298.00	38.71	54.99		55.16	0.000469	3.32	692.90	75.11	0.19
raymondville	Reach 8	220780	5757.00	38.71	59.12		59.58	0.000978	5.48	1195.68	583.57	0.29
raymondville	Reach 8	217688	831.00	38.09	50.09		50.15	0.000252	2.03	408.60	58.05	0.14
raymondville	Reach 8	217688	1497.00	38.09	51.95		52.07	0.000421	2.86	523.40	65.49	0.18
raymondville	Reach 8	217688	2298.00	38.09	53.24		53.46	0.000656	3.76	611.29	70.65	0.23
raymondville	Reach 8	217688	5757.00	38.09	57.24		57.41	0.000491	4.03	2833.51	1076.17	0.21
raymondville	Reach 8	215481	831.00	37.65	49.51		49.58	0.000266	2.08	400.23	57.47	0.14
raymondville	Reach 8	215481	1497.00	37.65	51.20		51.28	0.000299	2.48	1013.24	604.76	0.15
raymondville	Reach 8	215481	2298.00	37.65	52.60		52.65	0.000212	2.31	1967.73	765.85	0.13
raymondville	Reach 8	215481	5757.00	37.65	56.99		57.01	0.000077	1.79	7438.04	2229.71	0.08
raymondville	Reach 8	213503	831.00	37.25	48.99		49.06	0.000263	2.07	401.87	57.72	0.14
raymondville	Reach 8	213503	1497.00	37.25	50.69		50.74	0.000242	2.17	1209.65	578.46	0.14
raymondville	Reach 8	213503	2298.00	37.25	52.26		52.29	0.000152	1.94	2252.21	755.59	0.11
raymondville	Reach 8	213503	5757.00	37.25	56.86		56.87	0.000063	1.62	8906.80	2739.35	0.08
raymondville	Reach 8	211888	831.00	36.93	48.59		48.65	0.000232	1.93	656.03	643.65	0.13
raymondville	Reach 8	211888	1497.00	36.93	50.53		50.54	0.000068	1.19	2929.33	1552.12	0.07

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	211888	2298.00	36.93	52.18		52.19	0.000031	0.90	5951.17	2058.93	0.05
raymondville	Reach 8	211888	5757.00	36.93	56.83		56.83	0.000011	0.68	20601.59	4951.01	0.03
raymondville	Reach 8	210380	831.00	36.63	48.18		48.25	0.000296	2.16	384.34	56.38	0.15
raymondville	Reach 8	210380	1497.00	36.63	50.18		50.32	0.000463	2.96	505.35	64.39	0.19
raymondville	Reach 8	210380	2298.00	36.63	51.82		52.04	0.000641	3.73	616.64	70.97	0.22
raymondville	Reach 8	210380	5757.00	36.63	56.37		56.74	0.000916	5.20	2066.04	2204.40	0.28
raymondville	Reach 8	210328	831.00	36.62	48.16		48.23	0.000297	2.16	384.03	56.36	0.15
raymondville	Reach 8	210328	1497.00	36.62	50.16		50.30	0.000464	2.97	504.76	64.36	0.19
raymondville	Reach 8	210328	2298.00	36.62	51.80		52.02	0.000644	3.73	615.54	70.91	0.22
raymondville	Reach 8	210328	5757.00	36.62	56.29		56.69	0.000969	5.34	1901.08	2083.91	0.28
raymondville	Reach 8	208056	831.00	36.16	47.48		47.53	0.000320	2.23	373.45	55.68	0.15
raymondville	Reach 8	208056	1497.00	36.16	48.94		49.11	0.000592	3.25	460.78	61.81	0.21
raymondville	Reach 8	208056	2298.00	36.16	49.91		50.21	0.000999	4.40	522.16	65.48	0.27
raymondville	Reach 8	208056	5757.00	36.16	51.26		52.62	0.004072	9.38	613.79	70.85	0.58
raymondville	Reach 8	205823	831.00	35.72	46.80		46.86	0.000280	2.06	598.00	406.02	0.14
raymondville	Reach 8	205823	1497.00	35.72	48.39		48.42	0.000172	1.85	1930.33	1518.01	0.11
raymondville	Reach 8	205823	2298.00	35.72	49.63		49.65	0.000091	1.48	4214.62	2509.09	0.09
raymondville	Reach 8	205823	5757.00	35.72	51.83		51.84	0.000051	1.27	11847.62	3801.30	0.07
raymondville	Reach 8	203593	831.00	35.27	46.00		46.10	0.000419	2.46	337.71	52.93	0.17
raymondville	Reach 8	203593	1497.00	35.27	47.51		47.70	0.000750	3.55	421.84	58.95	0.23
raymondville	Reach 8	203593	2298.00	35.27	48.80		49.12	0.001114	4.58	501.21	64.11	0.29
raymondville	Reach 8	203593	5757.00	35.27	51.61		51.64	0.000192	2.32	7524.88	4090.83	0.13
raymondville	Reach 8	202962	831.00	35.14	45.73		45.82	0.000446	2.52	329.94	52.34	0.18
raymondville	Reach 8	202962	1497.00	35.14	46.97		47.19	0.000875	3.76	398.21	57.32	0.25
raymondville	Reach 8	202962	2298.00	35.14	47.92		48.32	0.001447	5.06	454.50	61.12	0.33
raymondville	Reach 8	202962	5757.00	35.14	51.47		51.51	0.000228	2.52	6969.73	3978.62	0.14
raymondville	Reach 8	200600	831.00	34.67	44.95		45.00	0.000273	2.04	763.32	609.63	0.14
raymondville	Reach 8	200600	1497.00	34.67	46.61		46.62	0.000095	1.40	2582.39	1292.30	0.09
raymondville	Reach 8	200600	2298.00	34.67	47.76		47.77	0.000067	1.28	4184.00	1491.97	0.07
raymondville	Reach 8	200600	5757.00	34.67	51.25		51.26	0.000057	1.45	13563.64	6000.00	0.07
raymondville	Reach 8	200550	831.00	34.66	44.94		44.99	0.000276	2.04	757.71	607.80	0.14
raymondville	Reach 8	200550	1497.00	34.66	46.80		46.61	0.000096	1.40	2575.88	1291.60	0.09
raymondville	Reach 8	200550	2298.00	34.66	47.76		47.77	0.000067	1.28	4179.35	1491.26	0.07
raymondville	Reach 8	200550	5757.00	34.66	51.25		51.26	0.000057	1.45	13566.72	6000.00	0.07
raymondville	Reach 8	198245	831.00	34.20	43.91		44.04	0.000655	2.91	285.77	48.84	0.21
raymondville	Reach 8	198245	1497.00	34.20	46.23		46.28	0.000242	2.19	1615.65	1104.66	0.14
raymondville	Reach 8	198245	2298.00	34.20	47.55		47.57	0.000123	1.72	3340.08	1518.92	0.10
raymondville	Reach 8	198245	5757.00	34.20	51.15		51.15	0.000033	1.11	14497.42	4867.34	0.05
raymondville	Reach 8	196303	831.00	31.67	43.10		43.17	0.000315	2.21	375.47	55.71	0.15
raymondville	Reach 8	196303	1497.00	31.67	45.57		45.68	0.000395	2.77	663.13	455.79	0.17
raymondville	Reach 8	196303	2298.00	31.67	47.12		47.20	0.000324	2.67	1589.43	810.89	0.16
raymondville	Reach 8	196303	5757.00	31.67	51.04		51.05	0.000101	1.80	7571.85	3343.04	0.09
raymondville	Reach 8	194638	831.00	31.17	42.57		42.65	0.000319	2.22	373.83	55.59	0.15
raymondville	Reach 8	194638	1497.00	31.17	44.95		45.05	0.000366	2.65	817.16	547.40	0.17
raymondville	Reach 8	194638	2298.00	31.17	46.72		46.77	0.000203	2.13	2147.96	920.16	0.13
raymondville	Reach 8	194638	5757.00	31.17	50.94		50.95	0.000044	1.23	12467.66	4365.30	0.06
raymondville	Reach 8	193324	831.00	30.77	42.15	35.21	42.22	0.000322	2.23	372.69	55.51	0.15
raymondville	Reach 8	193324	1497.00	30.77	44.37	36.81	44.50	0.000462	2.96	505.77	64.39	0.19
raymondville	Reach 8	193324	2298.00	30.77	46.11	38.25	46.32	0.000621	3.68	623.83	71.35	0.22
raymondville	Reach 8	193324	5757.00	30.77	50.79	42.39	50.84	0.000199	2.50	5478.02	2922.12	0.13
raymondville	Reach 8	192642	831.00	30.57	41.93	35.01	42.00	0.000324	2.24	371.53	55.43	0.15
raymondville	Reach 8	192642	1497.00	30.57	44.04	36.61	44.16	0.000482	3.01	497.85	63.88	0.19
raymondville	Reach 8	192642	2298.00	30.57	45.65	38.05	45.88	0.000672	3.79	605.82	70.33	0.23
raymondville	Reach 8	192642	5757.00	30.57	49.92	42.20	50.50	0.001295	6.11	942.63	87.41	0.33
raymondville	Reach 8	191137	831.00	30.12	41.43		41.51	0.000330	2.25	369.11	55.25	0.15
raymondville	Reach 8	191137	1497.00	30.12	43.26		43.41	0.000541	3.14	476.70	62.56	0.20
raymondville	Reach 8	191137	2298.00	30.12	44.48		44.74	0.000845	4.13	555.94	67.44	0.25
raymondville	Reach 8	191137	5757.00	30.12	46.77		47.76	0.002648	7.98	721.06	76.61	0.46
raymondville	Reach 8	188680	831.00	29.38	40.76		40.83	0.000233	1.90	685.59	447.56	0.13
raymondville	Reach 8	188680	1497.00	29.38	42.80		42.82	0.000122	1.56	1944.61	843.88	0.10
raymondville	Reach 8	188680	2298.00	29.38	44.18		44.19	0.000084	1.44	3274.47	1071.41	0.08
raymondville	Reach 8	188680	5757.00	29.38	46.82		46.84	0.000090	1.75	6662.34	1482.12	0.09
raymondville	Reach 8	187150	831.00	28.82	40.33		40.41	0.000317	2.22	374.76	55.67	0.15

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Chl El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	187150	1497.00	28.92	42.33		42.47	0.000492	3.03	493.91	63.66	0.19
raymondville	Reach 8	187150	2298.00	28.92	43.64		43.88	0.000753	3.96	580.41	68.88	0.24
raymondville	Reach 8	187150	5757.00	28.92	46.09		46.47	0.001144	5.63	1804.72	742.81	0.31
raymondville	Reach 8	187100	831.00	28.91	40.32		40.39	0.000318	2.22	374.38	55.64	0.15
raymondville	Reach 8	187100	1497.00	28.91	42.31		42.45	0.000494	3.04	492.93	63.60	0.19
raymondville	Reach 8	187100	2298.00	28.91	43.60		43.85	0.000758	3.97	578.97	68.80	0.24
raymondville	Reach 8	187100	5757.00	28.91	46.02		46.41	0.001207	5.76	1747.47	729.26	0.31
raymondville	Reach 8	184550	831.00	28.14	39.51		39.59	0.000316	2.21	417.62	271.86	0.15
raymondville	Reach 8	184550	1497.00	28.14	42.07		42.08	0.000059	1.16	3439.76	1927.66	0.07
raymondville	Reach 8	184550	2298.00	28.14	43.59		43.59	0.000026	0.86	6661.29	2342.67	0.05
raymondville	Reach 8	184550	5757.00	28.14	46.07		46.07	0.000029	1.04	13860.39	3648.47	0.05
raymondville	Reach 8	184500	831.00	28.13	39.50		39.57	0.000317	2.21	413.97	260.76	0.15
raymondville	Reach 8	184500	1497.00	28.13	42.06		42.07	0.000059	1.16	3434.16	1926.88	0.07
raymondville	Reach 8	184500	2298.00	28.13	43.59		43.59	0.000026	0.86	6658.77	2341.96	0.05
raymondville	Reach 8	184500	5757.00	28.13	46.07		46.07	0.000029	1.04	13855.65	3647.85	0.05
raymondville	Reach 8	183033	831.00	27.66	38.99	32.10	39.07	0.000328	2.25	369.86	55.31	0.15
raymondville	Reach 8	183033	1497.00	27.66	41.81	33.70	41.90	0.000273	2.46	870.11	390.26	0.15
raymondville	Reach 8	183033	2298.00	27.66	43.43	35.14	43.50	0.000220	2.48	1662.21	589.07	0.13
raymondville	Reach 8	183033	5757.00	27.66	45.85	39.29	45.95	0.000337	3.52	3609.69	1136.75	0.17
raymondville	Reach 8	181219	831.00	27.11	38.38		38.46	0.000335	2.26	366.96	55.10	0.15
raymondville	Reach 8	181219	1497.00	27.11	41.27		41.37	0.000320	2.59	752.69	327.91	0.16
raymondville	Reach 8	181219	2298.00	27.11	43.00		43.08	0.000245	2.55	1753.26	879.75	0.14
raymondville	Reach 8	181219	5757.00	27.11	45.36		45.42	0.000243	2.92	4650.96	1531.27	0.15
raymondville	Reach 8	179129	831.00	26.49	37.67		37.75	0.000349	2.30	361.61	54.71	0.16
raymondville	Reach 8	179129	1497.00	26.49	40.76		40.81	0.000214	2.14	1475.93	1351.31	0.13
raymondville	Reach 8	179129	2298.00	26.49	42.87		42.88	0.000042	1.10	5675.07	2510.56	0.06
raymondville	Reach 8	179129	5757.00	26.49	45.25		45.25	0.000034	1.13	12157.70	3317.94	0.06
raymondville	Reach 8	178000	831.00	26.15	37.27	30.59	37.35	0.000357	2.32	358.36	54.47	0.16
raymondville	Reach 8	178000	1497.00	26.15	40.38	32.19	40.50	0.000365	2.73	557.67	124.20	0.17
raymondville	Reach 8	178000	2298.00	26.15	42.67	33.63	42.77	0.000269	2.76	1342.23	1666.24	0.15
raymondville	Reach 8	178000	5757.00	26.15	45.17	37.77	45.19	0.000094	1.87	8928.33	3610.65	0.09
raymondville	Reach 8	177727	831.00	26.07	37.17	30.51	37.25	0.000360	2.33	357.38	54.40	0.16
raymondville	Reach 8	177727	1497.00	26.07	40.28	32.11	40.40	0.000371	2.74	551.94	100.27	0.17
raymondville	Reach 8	177727	2298.00	26.07	42.59	33.55	42.70	0.000277	2.79	1302.86	1622.75	0.15
raymondville	Reach 8	177727	5757.00	26.07	45.15	37.69	45.17	0.000098	1.80	8836.10	3604.03	0.09
raymondville	Reach 8	175705	831.00	25.46	36.42	29.90	36.50	0.000382	2.38	349.66	53.83	0.16
raymondville	Reach 8	175705	1497.00	25.46	39.50	31.50	39.62	0.000398	2.80	534.47	66.15	0.17
raymondville	Reach 8	175705	2298.00	25.46	41.99	32.94	42.10	0.000313	2.84	1213.69	551.88	0.16
raymondville	Reach 8	175705	5757.00	25.46	44.72	37.08	44.83	0.000328	3.42	3480.51	1068.56	0.17
raymondville	Reach 8	175125	831.00	25.28	36.19	29.71	36.28	0.000389	2.39	347.25	53.65	0.17
raymondville	Reach 8	175125	1497.00	25.28	39.26	31.32	39.39	0.000406	2.82	530.83	65.93	0.18
raymondville	Reach 8	175125	2298.00	25.28	41.79	32.76	41.91	0.000337	2.93	1121.47	503.47	0.16
raymondville	Reach 8	175125	5757.00	25.28	44.50	36.91	44.63	0.000369	3.60	3261.63	1024.69	0.18
raymondville	Reach 8	173785	831.00	24.88	35.64		35.74	0.000414	2.45	339.31	53.06	0.17
raymondville	Reach 8	173785	1497.00	24.88	38.69		38.82	0.000430	2.88	519.52	65.24	0.18
raymondville	Reach 8	173785	2298.00	24.88	41.27		41.42	0.000391	3.16	880.94	318.55	0.18
raymondville	Reach 8	173785	5757.00	24.88	43.73		43.97	0.000618	4.61	2442.72	938.67	0.23
raymondville	Reach 8	171741	831.00	24.27	34.75		34.85	0.000467	2.56	324.32	51.91	0.18
raymondville	Reach 8	171741	1497.00	24.27	37.76		37.90	0.000478	3.00	499.08	63.97	0.19
raymondville	Reach 8	171741	2298.00	24.27	40.36		40.54	0.000484	3.37	722.46	240.52	0.20
raymondville	Reach 8	171741	5757.00	24.27	42.93		43.02	0.000335	3.30	4140.50	1657.83	0.17
raymondville	Reach 8	171691	831.00	24.25	34.73		34.83	0.000467	2.56	324.25	51.90	0.18
raymondville	Reach 8	171691	1497.00	24.25	37.74		37.88	0.000478	3.00	498.97	63.96	0.19
raymondville	Reach 8	171691	2298.00	24.25	40.34		40.52	0.000485	3.37	719.14	223.07	0.20
raymondville	Reach 8	171691	5757.00	24.25	42.90		42.99	0.000343	3.33	4097.04	1655.17	0.17
raymondville	Reach 8	169710	831.00	23.66	33.69		33.81	0.000567	2.75	301.69	50.14	0.20
raymondville	Reach 8	169710	1497.00	23.66	36.70		36.86	0.000560	3.18	470.54	62.16	0.20
raymondville	Reach 8	169710	2298.00	23.66	39.28		39.48	0.000570	3.57	644.01	72.47	0.21
raymondville	Reach 8	169710	5757.00	23.66	42.17		42.27	0.000389	3.48	3963.60	1756.63	0.18
raymondville	Reach 8	168304	1523.00	23.63	33.08		33.19	0.000392	2.65	575.29	79.79	0.17
raymondville	Reach 8	168304	2763.00	23.63	35.98		36.15	0.000472	3.35	823.57	91.40	0.20
raymondville	Reach 8	168304	4255.00	23.63	38.43		38.68	0.000557	4.02	1059.71	101.21	0.22
raymondville	Reach 8	168304	9289.00	23.63	41.73		41.82	0.000282	3.28	9136.51	5933.98	0.16

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	167456	1523.00	23.54	32.72		32.83	0.000438	2.75	553.90	78.71	0.18
raymondville	Reach 8	167456	2763.00	23.54	35.54		35.73	0.000527	3.49	791.98	90.00	0.21
raymondville	Reach 8	167456	4255.00	23.54	37.90		38.18	0.000626	4.19	1018.09	99.47	0.23
raymondville	Reach 8	167456	9289.00	23.54	41.52		41.59	0.000248	3.08	9631.57	5821.31	0.15
raymondville	Reach 8	166128	1523.00	23.41	32.05		32.19	0.000544	2.97	512.27	76.56	0.20
raymondville	Reach 8	166128	2763.00	23.41	34.73		34.95	0.000658	3.78	731.31	87.26	0.23
raymondville	Reach 8	166128	4255.00	23.41	36.92		37.24	0.000795	4.56	932.10	96.03	0.26
raymondville	Reach 8	166128	9289.00	23.41	41.13		41.22	0.000312	3.40	8867.73	6000.00	0.17
raymondville	Reach 8	166078	1523.00	23.40	32.02		32.16	0.000549	2.98	510.87	76.49	0.20
raymondville	Reach 8	166078	2763.00	23.40	34.69		34.91	0.000663	3.79	729.16	87.16	0.23
raymondville	Reach 8	166078	4255.00	23.40	36.87		37.20	0.000802	4.58	928.97	95.89	0.26
raymondville	Reach 8	166078	9289.00	23.40	41.10		41.20	0.000325	3.47	8689.01	6000.00	0.17
raymondville	reach 2	164919	671.00	22.94	31.79		31.81	0.000097	1.27	528.14	77.39	0.09
raymondville	reach 2	164919	1363.00	22.94	34.39		34.45	0.000153	1.83	743.38	87.81	0.11
raymondville	reach 2	164919	2177.00	22.94	36.52		36.60	0.000204	2.32	939.22	96.32	0.13
raymondville	reach 2	164919	8918.00	22.94	40.88		40.77	0.000424	3.50	5282.25	3407.14	0.19
raymondville	reach 2	164431.*	671.00	22.89	31.74		31.77	0.000097	1.27	528.29	77.39	0.09
raymondville	reach 2	164431.*	1363.00	22.89	34.32		34.37	0.000156	1.84	741.17	88.70	0.11
raymondville	reach 2	164431.*	2177.00	22.89	36.41		36.50	0.000215	2.31	940.47	101.27	0.13
raymondville	reach 2	164431.*	8918.00	22.89	40.46		40.57	0.000411	3.46	5767.42	3779.35	0.19
raymondville	reach 2	163943.*	671.00	22.85	31.69		31.72	0.000097	1.27	527.87	77.39	0.09
raymondville	reach 2	163943.*	1363.00	22.85	34.24		34.29	0.000156	1.85	737.94	87.58	0.11
raymondville	reach 2	163943.*	2177.00	22.85	36.31		36.39	0.000216	2.34	929.68	98.42	0.13
raymondville	reach 2	163943.*	8918.00	22.85	40.30		40.38	0.000325	3.02	6826.63	4310.54	0.17
raymondville	reach 2	163456	671.00	22.80	31.65	24.72	31.67	0.000097	1.27	528.02	77.39	0.09
raymondville	reach 2	163456	1363.00	22.80	34.16	25.83	34.22	0.000158	1.85	735.47	87.46	0.11
raymondville	reach 2	163456	2177.00	22.80	36.20	26.87	36.29	0.000214	2.36	922.14	860.16	0.13
raymondville	reach 2	163456	8918.00	22.80	40.20	32.33	40.24	0.000223	2.40	9258.84	5398.27	0.14
raymondville	reach 2	161457	671.00	22.59	31.45		31.48	0.000096	1.27	529.25	77.45	0.09
raymondville	reach 2	161457	1363.00	22.59	33.83		33.89	0.000184	1.88	725.02	86.97	0.11
raymondville	reach 2	161457	2177.00	22.59	35.86		35.91	0.000159	2.03	1575.87	1020.42	0.12
raymondville	reach 2	161457	8918.00	22.59	40.10		40.11	0.000028	1.04	14962.00	6000.00	0.05
raymondville	reach 2	159438	671.00	22.38	31.26		31.28	0.000096	1.26	530.50	77.51	0.09
raymondville	reach 2	159438	1363.00	22.38	33.49		33.54	0.000172	1.91	713.23	86.43	0.12
raymondville	reach 2	159438	2177.00	22.38	35.42		35.52	0.000238	2.45	888.20	94.18	0.14
raymondville	reach 2	159438	8918.00	22.38	39.96		39.99	0.000160	2.42	9714.32	5982.77	0.12
raymondville	reach 2	157410	671.00	22.18	31.06		31.09	0.000095	1.26	530.99	77.54	0.09
raymondville	reach 2	157410	1363.00	22.18	33.13		33.19	0.000181	1.95	699.48	85.79	0.12
raymondville	reach 2	157410	2177.00	22.18	34.91		35.01	0.000261	2.53	859.10	92.93	0.15
raymondville	reach 2	157410	8918.00	22.18	36.55		39.21	0.001420	6.76	2042.48	2416.53	0.35
raymondville	reach 2	157293.*	671.00	22.17	31.05		31.08	0.000096	1.26	530.90	77.53	0.09
raymondville	reach 2	157293.*	1363.00	22.17	33.11		33.16	0.000182	1.95	698.43	85.74	0.12
raymondville	reach 2	157293.*	2177.00	22.17	34.88		34.98	0.000263	2.54	856.85	92.84	0.15
raymondville	reach 2	157293.*	8918.00	22.17	38.44		39.01	0.001460	6.48	2369.00	2732.65	0.35
raymondville	reach 2	157176.*	671.00	22.16	31.04		31.07	0.000096	1.26	530.83	77.53	0.09
raymondville	reach 2	157176.*	1363.00	22.16	33.08		33.14	0.000183	1.95	697.41	85.70	0.12
raymondville	reach 2	157176.*	2177.00	22.16	34.85		34.95	0.000265	2.55	854.65	92.75	0.15
raymondville	reach 2	157176.*	8918.00	22.16	38.38		38.81	0.001265	5.83	3057.09	3793.86	0.33
raymondville	reach 2	157059.*	671.00	22.14	31.03		31.06	0.000095	1.26	531.47	77.56	0.08
raymondville	reach 2	157059.*	1363.00	22.14	33.06		33.12	0.000183	1.96	697.15	85.68	0.12
raymondville	reach 2	157059.*	2177.00	22.14	34.81		34.91	0.000276	2.55	855.37	96.41	0.15
raymondville	reach 2	157059.*	8918.00	22.14	38.43		38.64	0.000730	4.59	4968.48	6000.00	0.25
raymondville	reach 2	156942.*	671.00	22.13	31.02		31.04	0.000095	1.26	531.40	77.58	0.09
raymondville	reach 2	156942.*	1363.00	22.13	33.04		33.10	0.000187	1.95	697.48	87.44	0.12
raymondville	reach 2	156942.*	2177.00	22.13	34.78		34.88	0.000274	2.54	857.36	96.51	0.15
raymondville	reach 2	156942.*	8918.00	22.13	38.47		38.55	0.000304	3.12	7592.00	6000.00	0.16
raymondville	reach 2	156825	671.00	22.12	31.01		31.03	0.000095	1.26	531.31	77.55	0.09
raymondville	reach 2	156825	1363.00	22.12	33.02		33.08	0.000184	1.96	695.09	85.58	0.12
raymondville	reach 2	156825	2177.00	22.12	34.74		34.84	0.000270	2.56	848.79	92.49	0.15
raymondville	reach 2	156825	8918.00	22.12	38.47		38.50	0.000156	2.33	9896.59	6000.00	0.12
raymondville	reach 2	155106	671.00	21.94	30.84		30.86	0.000095	1.26	531.93	77.58	0.08
raymondville	reach 2	155106	1363.00	21.94	32.69		32.75	0.000194	2.00	682.49	84.99	0.12
raymondville	reach 2	155106	2177.00	21.94	34.25		34.36	0.000297	2.66	819.94	91.23	0.16
raymondville	reach 2	155106	8918.00	21.94	37.92		38.06	0.000491	4.02	5731.63	4558.87	0.21

HEC-RAS Plan- P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	153062	671.00	21.73	30.64		30.67	0.000094	1.26	533.21	77.65	0.08
raymondville	reach 2	153062	1363.00	21.73	32.27		32.34	0.000209	2.05	665.15	84.17	0.13
raymondville	reach 2	153062	2177.00	21.73	33.58		33.71	0.000342	2.79	778.94	89.42	0.17
raymondville	reach 2	153062	8918.00	21.73	37.36		37.41	0.000207	2.67	6461.61	2350.51	0.14
raymondville	reach 2	151635	671.00	21.59	30.50		30.53	0.000094	1.26	533.21	77.65	0.08
raymondville	reach 2	151635	1363.00	21.59	31.96		32.03	0.000222	2.10	650.47	83.47	0.13
raymondville	reach 2	151635	2177.00	21.59	33.04		33.17	0.000390	2.93	743.24	87.81	0.18
raymondville	reach 2	151635	8918.00	21.59	36.83		36.97	0.000489	4.00	4256.13	1820.58	0.21
raymondville	reach 2	150792	942.00	21.50	30.35		30.40	0.000191	1.78	526.30	77.40	0.12
raymondville	reach 2	150792	1823.00	21.50	31.63		31.76	0.000433	2.89	630.80	82.53	0.18
raymondville	reach 2	150792	2704.00	21.50	32.50		32.73	0.000701	3.84	703.88	85.99	0.24
raymondville	reach 2	150792	9738.00	21.50	36.44	31.53	36.55	0.000485	3.91	5644.83	3282.83	0.21
raymondville	reach 2	149670	787.00	21.30	30.17		30.21	0.000132	1.48	530.09	77.49	0.10
raymondville	reach 2	149670	1264.00	21.30	31.30		31.37	0.000218	2.04	620.36	82.02	0.13
raymondville	reach 2	149670	1810.00	21.30	31.98		32.09	0.000351	2.68	676.39	84.71	0.17
raymondville	reach 2	149670	6269.00	21.30	34.98	29.06	35.66	0.001633	6.59	1016.56	1023.39	0.37
raymondville	reach 2	149620	787.00	21.29	30.17		30.20	0.000132	1.48	530.35	77.50	0.10
raymondville	reach 2	149620	1264.00	21.29	31.29		31.36	0.000218	2.04	620.28	82.01	0.13
raymondville	reach 2	149620	1810.00	21.29	31.96		32.07	0.000352	2.68	675.73	84.67	0.17
raymondville	reach 2	149620	6269.00	21.29	34.89	29.05	35.58	0.001679	6.66	943.72	337.32	0.38
raymondville	reach 2	147820	787.00	21.09	29.89		29.92	0.000136	1.50	524.44	77.20	0.10
raymondville	reach 2	147820	1264.00	21.09	31.16		31.16	0.000051	0.99	3594.70	2960.94	0.06
raymondville	reach 2	147820	1810.00	21.09	31.88		31.89	0.000033	0.82	5771.46	3035.70	0.05
raymondville	reach 2	147820	6269.00	21.09	35.29		35.29	0.000012	0.64	21798.52	6000.00	0.03
raymondville	reach 2	145820	787.00	20.88	29.61		29.65	0.000140	1.52	519.21	76.92	0.10
raymondville	reach 2	145820	1264.00	20.88	31.04		31.05	0.000060	1.08	3295.58	2967.47	0.07
raymondville	reach 2	145820	1810.00	20.88	31.81		31.82	0.000035	0.86	5613.27	3042.87	0.05
raymondville	reach 2	145820	6269.00	20.88	35.26		35.26	0.000012	0.64	22079.63	6000.00	0.03
raymondville	reach 2	142669	787.00	20.57	29.19		29.23	0.000147	1.54	510.55	76.48	0.11
raymondville	reach 2	142669	1264.00	20.57	30.71		30.78	0.000207	2.00	631.80	82.57	0.13
raymondville	reach 2	142669	1810.00	20.57	31.50		31.61	0.000321	2.59	698.25	85.73	0.16
raymondville	reach 2	142669	6269.00	20.57	34.66		35.12	0.001144	5.71	1870.85	1748.73	0.31
raymondville	reach 2	142619	787.00	20.57	29.18		29.22	0.000147	1.54	509.98	76.44	0.11
raymondville	reach 2	142619	1264.00	20.57	30.70		30.77	0.000208	2.00	630.92	82.53	0.13
raymondville	reach 2	142619	1810.00	20.57	31.49		31.59	0.000323	2.60	696.82	85.67	0.16
raymondville	reach 2	142619	6269.00	20.57	34.55		35.05	0.001245	5.91	1689.91	1599.25	0.33
raymondville	reach 2	140677	787.00	20.38	28.88		28.92	0.000154	1.57	501.48	76.00	0.11
raymondville	reach 2	140677	1264.00	20.38	30.34		30.39	0.000183	1.86	1204.57	1827.71	0.12
raymondville	reach 2	140677	1810.00	20.38	31.24		31.26	0.000109	1.50	2886.29	1912.18	0.09
raymondville	reach 2	140677	6269.00	20.38	34.72		34.72	0.000040	1.07	13492.55	4418.35	0.06
raymondville	reach 2	138658	787.00	20.17	28.56		28.60	0.000162	1.60	493.10	75.56	0.11
raymondville	reach 2	138658	1264.00	20.17	29.89		29.96	0.000243	2.12	597.44	80.89	0.14
raymondville	reach 2	138658	1810.00	20.17	30.99		31.02	0.000135	1.67	2643.08	2100.07	0.10
raymondville	reach 2	138658	6269.00	20.17	34.66		34.67	0.000020	0.82	18833.83	5933.19	0.04
raymondville	reach 2	138000	787.00	20.10	28.45		28.49	0.000165	1.61	490.25	75.41	0.11
raymondville	reach 2	138000	1264.00	20.10	29.73		29.80	0.000252	2.14	589.82	80.51	0.14
raymondville	reach 2	138000	1810.00	20.10	30.77		30.88	0.000352	2.68	675.56	84.67	0.17
raymondville	reach 2	138000	6269.00	20.10	34.51		34.58	0.000304	3.00	6973.89	6000.00	0.16
raymondville	reach 2	137950	787.00	20.10	28.44		28.48	0.000165	1.61	489.61	75.37	0.11
raymondville	reach 2	137950	1264.00	20.10	29.72		29.79	0.000253	2.15	588.78	80.46	0.14
raymondville	reach 2	137950	1810.00	20.10	30.75		30.86	0.000355	2.69	674.00	84.59	0.17
raymondville	reach 2	137950	6269.00	20.10	34.50		34.57	0.000308	3.02	6922.23	6000.00	0.16
raymondville	reach 2	136663	787.00	20.09	28.22		28.26	0.000182	1.66	473.42	74.51	0.12
raymondville	reach 2	136663	1264.00	20.09	29.36		29.44	0.000290	2.25	561.19	79.08	0.15
raymondville	reach 2	136663	1810.00	20.09	30.40		30.46	0.000251	2.25	2046.72	3581.38	0.14
raymondville	reach 2	136663	6269.00	20.09	34.49		34.49	0.000014	0.70	21724.92	6000.00	0.04
raymondville	reach 2	134669	787.00	19.96	27.89		27.92	0.000153	1.51	877.69	1036.26	0.11
raymondville	reach 2	134669	1264.00	19.96	29.27		29.27	0.000032	0.79	4658.17	3873.69	0.05
raymondville	reach 2	134669	1810.00	19.96	30.39		30.39	0.000012	0.53	10593.80	5961.92	0.03
raymondville	reach 2	134669	6269.00	19.96	34.48		34.48	0.000003	0.36	35156.31	8000.00	0.02
raymondville	reach 2	132609	787.00	19.75	27.81		27.81	0.000023	0.64	2918.45	1533.25	0.04
raymondville	reach 2	132609	1264.00	19.75	29.22		29.23	0.000012	0.52	7624.43	4786.89	0.03
raymondville	reach 2	132609	1810.00	19.75	30.38		30.38	0.000006	0.39	13540.18	5921.56	0.02



HEC-RAS Plan- P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	132808	6269.00	19.75	34.47		34.47	0.000003	0.33	38122.96	6000.00	0.02
raymondville	reach 2	129500	787.00	19.43	27.73		27.73	0.000041	0.86	2059.78	1193.99	0.06
raymondville	reach 2	129500	1264.00	19.43	29.18		29.18	0.000021	0.70	4915.23	3859.59	0.04
raymondville	reach 2	129500	1810.00	19.43	30.36		30.36	0.000010	0.51	9919.85	4556.68	0.03
raymondville	reach 2	129500	6269.00	19.43	34.47		34.47	0.000004	0.44	31169.48	5611.03	0.02
raymondville	reach 2	129450	787.00	19.43	27.73		27.73	0.000041	0.86	2057.32	1193.29	0.06
raymondville	reach 2	129450	1264.00	19.43	29.18		29.18	0.000021	0.70	4911.13	3858.08	0.04
raymondville	reach 2	129450	1810.00	19.43	30.36		30.36	0.000010	0.51	9917.47	4556.44	0.03
raymondville	reach 2	129450	6269.00	19.43	34.46		34.46	0.000004	0.44	31121.15	5610.61	0.02
raymondville	reach 2	127700	787.00	19.25	27.64		27.65	0.000063	1.08	1380.91	718.09	0.07
raymondville	reach 2	127700	1264.00	19.25	29.13		29.14	0.000041	0.98	2828.14	1145.99	0.06
raymondville	reach 2	127700	1810.00	19.25	30.33		30.33	0.000035	1.00	4594.18	2336.10	0.06
raymondville	reach 2	127700	6269.00	19.25	34.45		34.45	0.000010	0.66	22598.80	4740.51	0.03
raymondville	reach 2	128465	787.00	19.12	27.53		27.55	0.000100	1.09	959.83	409.99	0.08
raymondville	reach 2	128465	1264.00	19.12	29.06		29.08	0.000075	1.12	1847.73	975.94	0.06
raymondville	reach 2	128465	1810.00	19.12	30.27		30.28	0.000054	1.08	4685.94	4387.37	0.07
raymondville	reach 2	128465	6269.00	19.12	34.45		34.45	0.000006	0.48	28352.33	6000.00	0.02
raymondville	reach 2	124374	787.00	18.91	27.41		27.42	0.000040	0.87	2218.04	1638.86	0.06
raymondville	reach 2	124374	1264.00	18.91	29.01		29.02	0.000014	0.59	5860.52	2794.06	0.03
raymondville	reach 2	124374	1810.00	18.91	30.25		30.25	0.000008	0.47	10824.64	4200.33	0.03
raymondville	reach 2	124374	6269.00	18.91	34.45		34.45	0.000005	0.46	30788.52	6000.00	0.02
raymondville	reach 2	124318	787.00	18.90	27.41		27.42	0.000043	0.75	2214.57	1638.54	0.06
raymondville	reach 2	124318	1264.00	18.90	29.01		29.01	0.000014	0.51	5838.29	2779.36	0.03
raymondville	reach 2	124318	1810.00	18.90	30.24		30.25	0.000008	0.42	10610.97	4199.82	0.03
raymondville	reach 2	124318	6269.00	18.90	34.44		34.45	0.000005	0.42	30781.88	6000.00	0.02
raymondville	reach 2	122094	787.00	18.67	27.36		27.36	0.000023	0.62	2850.12	1518.27	0.04
raymondville	reach 2	122094	1264.00	18.67	28.98		28.98	0.000011	0.48	5505.84	1782.21	0.03
raymondville	reach 2	122094	1810.00	18.67	30.23		30.24	0.000009	0.48	8445.86	3654.54	0.03
raymondville	reach 2	122094	6269.00	18.67	34.44		34.44	0.000006	0.49	27925.87	5233.10	0.02
raymondville	reach 2	121688.*	787.00	18.63	27.32		27.35	0.000127	1.43	734.52	792.20	0.10
raymondville	reach 2	121688.*	1264.00	18.63	28.95		28.96	0.000055	1.06	2680.49	1517.40	0.07
raymondville	reach 2	121688.*	1810.00	18.63	30.22		30.23	0.000026	0.80	6095.84	3258.54	0.05
raymondville	reach 2	121688.*	6269.00	18.63	34.44		34.44	0.000009	0.62	24545.21	5619.88	0.03
raymondville	reach 2	121283.*	787.00	18.59	27.28		27.31	0.000121	1.41	701.20	273.34	0.10
raymondville	reach 2	121283.*	1264.00	18.59	28.90		28.93	0.000120	1.56	1654.73	1505.94	0.10
raymondville	reach 2	121283.*	1810.00	18.59	30.21		30.22	0.000044	1.02	4663.45	3013.18	0.06
raymondville	reach 2	121283.*	6269.00	18.59	34.44		34.44	0.000012	0.69	22379.71	5560.63	0.03
raymondville	reach 2	120677.*	787.00	18.55	27.24		27.27	0.000114	1.37	784.82	362.31	0.09
raymondville	reach 2	120677.*	1264.00	18.55	28.89		28.90	0.000066	1.18	2615.84	1836.20	0.07
raymondville	reach 2	120677.*	1810.00	18.55	30.21		30.22	0.000028	0.81	5247.69	2101.34	0.05
raymondville	reach 2	120677.*	6269.00	18.55	34.44		34.44	0.000012	0.67	20864.48	5340.95	0.03
raymondville	reach 2	120472.*	787.00	18.51	27.21		27.23	0.000089	1.21	1195.00	938.08	0.08
raymondville	reach 2	120472.*	1264.00	18.51	28.89		28.89	0.000034	0.83	3737.94	2030.14	0.05
raymondville	reach 2	120472.*	1810.00	18.51	30.21		30.21	0.000017	0.64	6558.18	2378.51	0.04
raymondville	reach 2	120472.*	6269.00	18.51	34.44		34.44	0.000010	0.59	20013.16	4549.03	0.03
raymondville	reach 2	120067	787.00	18.47	27.20	20.60	27.21	0.000052	0.92	1940.45	1482.05	0.06
raymondville	reach 2	120067	1264.00	18.47	28.88	21.36	28.89	0.000017	0.59	4949.31	2082.55	0.04
raymondville	reach 2	120067	1810.00	18.47	30.21	22.09	30.21	0.000010	0.50	6572.85	3044.47	0.03
raymondville	reach 2	120067	6269.00	18.47	34.44	26.87	34.44	0.000007	0.49	21469.04	3052.93	0.02
raymondville	reach 2	119652.*	787.00	18.43	27.19	20.56	27.20	0.000052	0.93	1844.15	1285.33	0.06
raymondville	reach 2	119652.*	1264.00	18.43	28.88	21.32	28.88	0.000018	0.62	4811.31	2078.38	0.04
raymondville	reach 2	119652.*	1810.00	18.43	30.21	22.05	30.21	0.000011	0.52	8337.05	3044.55	0.03
raymondville	reach 2	119652.*	6269.00	18.43	34.44	25.82	34.44	0.000007	0.51	21638.34	3857.47	0.03
raymondville	reach 2	119237.*	787.00	18.38	27.17	20.51	27.18	0.000053	0.95	1796.85	1251.97	0.06
raymondville	reach 2	119237.*	1264.00	18.38	28.88	21.27	28.88	0.000020	0.65	4670.26	2072.19	0.04
raymondville	reach 2	119237.*	1810.00	18.38	30.20	22.00	30.20	0.000012	0.55	8100.17	3044.64	0.03
raymondville	reach 2	119237.*	6269.00	18.38	34.44	26.92	34.44	0.000007	0.52	23885.00	5450.79	0.03
raymondville	reach 2	118822.*	787.00	18.34	27.16	20.47	27.17	0.000054	0.97	1753.89	1237.40	0.06
raymondville	reach 2	118822.*	1264.00	18.34	28.87	21.23	28.88	0.000020	0.68	4582.60	2168.61	0.04
raymondville	reach 2	118822.*	1810.00	18.34	30.20	21.96	30.20	0.000012	0.58	8174.30	3328.79	0.03
raymondville	reach 2	118822.*	6269.00	18.34	34.43	26.99	34.43	0.000006	0.51	26901.30	5725.40	0.02
raymondville	reach 2	118407	787.00	18.30	27.15	20.43	27.16	0.000048	0.96	1893.06	1419.20	0.06
raymondville	reach 2	118407	1264.00	18.30	28.87	21.19	28.87	0.000017	0.65	5088.99	2323.60	0.04

HEC-RAS Plan B 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
raymondville	reach 2	118407	1810.00	18.30	30.20	21.92	30.20	0.000011	0.57	9127.18	3910.14	0.03
raymondville	reach 2	118407	6269.00	18.30	34.43	26.58	34.43	0.000005	0.47	30521.75	6000.00	0.02
raymondville	reach 2	118184.*	787.00	18.28	27.13		27.14	0.000049	0.95	1870.60	1432.74	0.06
raymondville	reach 2	118184.*	1264.00	18.28	28.87		28.87	0.000017	0.64	5090.56	2343.28	0.04
raymondville	reach 2	118184.*	1810.00	18.28	30.20		30.20	0.000010	0.55	9026.94	3677.38	0.03
raymondville	reach 2	118184.*	6269.00	18.28	34.43		34.43	0.000005	0.50	28674.48	6000.00	0.02
raymondville	reach 2	117962.*	787.00	18.25	27.12		27.13	0.000051	0.95	1844.45	1449.63	0.06
raymondville	reach 2	117962.*	1264.00	18.25	28.86		28.86	0.000017	0.63	5096.18	2443.60	0.04
raymondville	reach 2	117962.*	1810.00	18.25	30.20		30.20	0.000009	0.51	9012.02	3285.14	0.03
raymondville	reach 2	117962.*	6269.00	18.25	34.43		34.43	0.000005	0.50	27451.63	5249.63	0.02
raymondville	reach 2	117739.*	787.00	18.23	27.11		27.12	0.000054	0.94	1815.30	1470.51	0.06
raymondville	reach 2	117739.*	1264.00	18.23	28.86		28.86	0.000017	0.62	5104.73	2467.34	0.04
raymondville	reach 2	117739.*	1810.00	18.23	30.19		30.19	0.000009	0.50	9012.45	3275.17	0.03
raymondville	reach 2	117739.*	6269.00	18.23	34.43		34.43	0.000005	0.49	26895.62	4768.23	0.02
raymondville	reach 2	117517.*	787.00	18.20	27.09		27.10	0.000057	0.94	1788.59	1499.68	0.07
raymondville	reach 2	117517.*	1264.00	18.20	28.85		28.86	0.000017	0.61	5117.10	2459.94	0.04
raymondville	reach 2	117517.*	1810.00	18.20	30.19		30.19	0.000009	0.49	9017.24	3247.21	0.03
raymondville	reach 2	117517.*	6269.00	18.20	34.43		34.43	0.000005	0.48	26536.45	4484.41	0.02
raymondville	reach 2	117295	787.00	18.18	27.08		27.09	0.000061	0.95	1760.68	1519.68	0.07
raymondville	reach 2	117295	1264.00	18.18	28.85		28.85	0.000017	0.59	5142.55	2436.79	0.04
raymondville	reach 2	117295	1810.00	18.18	30.19		30.19	0.000009	0.48	9025.28	3226.10	0.03
raymondville	reach 2	117295	6269.00	18.18	34.43		34.43	0.000005	0.48	26318.72	4393.32	0.02
raymondville	reach 2	114850	787.00	17.93	26.84		26.88	0.000130	1.48	533.13	77.65	0.10
raymondville	reach 2	114850	1264.00	17.93	28.70		28.75	0.000166	1.85	684.33	85.08	0.11
raymondville	reach 2	114850	1810.00	17.93	30.04		30.12	0.000218	2.26	803.21	141.20	0.13
raymondville	reach 2	114850	6269.00	17.93	34.39		34.40	0.000050	1.34	12583.89	5264.93	0.07
raymondville	reach 2	114401.*	787.00	17.88	26.78		26.82	0.000130	1.44	545.07	82.90	0.10
raymondville	reach 2	114401.*	1264.00	17.88	28.63		28.68	0.000164	1.79	706.93	92.33	0.11
raymondville	reach 2	114401.*	1810.00	17.88	29.96		30.03	0.000213	2.17	833.81	99.02	0.13
raymondville	reach 2	114401.*	6269.00	17.88	34.38		34.39	0.000026	0.98	16296.71	5184.22	0.05
raymondville	reach 2	113953.*	787.00	17.84	26.73		26.76	0.000135	1.42	554.55	89.29	0.10
raymondville	reach 2	113953.*	1264.00	17.84	28.56		28.61	0.000168	1.73	730.15	101.83	0.11
raymondville	reach 2	113953.*	1810.00	17.84	29.87		29.94	0.000198	2.04	1129.48	1247.91	0.13
raymondville	reach 2	113953.*	6269.00	17.84	34.38		34.38	0.000015	0.76	19707.32	5042.97	0.04
raymondville	reach 2	113504.*	787.00	17.79	26.67		26.70	0.000145	1.40	563.98	98.56	0.10
raymondville	reach 2	113504.*	1264.00	17.79	28.49		28.53	0.000159	1.63	940.55	992.65	0.11
raymondville	reach 2	113504.*	1810.00	17.79	29.85		29.87	0.000085	1.35	3260.48	2854.36	0.08
raymondville	reach 2	113504.*	6269.00	17.79	34.37		34.38	0.000010	0.61	22803.68	4883.94	0.03
raymondville	reach 2	113056.*	787.00	17.75	26.61		26.64	0.000163	1.36	601.70	307.54	0.11
raymondville	reach 2	113056.*	1264.00	17.75	28.48		28.49	0.000064	1.04	2511.34	1707.79	0.07
raymondville	reach 2	113056.*	1810.00	17.75	29.84		29.85	0.000027	0.77	5920.53	3158.13	0.05
raymondville	reach 2	113056.*	6269.00	17.75	34.37		34.37	0.000006	0.50	25574.71	4717.33	0.02
raymondville	reach 2	112808	787.00	17.70	26.58		26.59	0.000083	0.97	1452.85	1161.18	0.08
raymondville	reach 2	112808	1264.00	17.70	28.47		28.47	0.000022	0.62	4679.64	2444.49	0.04
raymondville	reach 2	112808	1810.00	17.70	29.83		29.83	0.000010	0.48	8581.92	3199.33	0.03
raymondville	reach 2	112808	6269.00	17.70	34.37		34.37	0.000005	0.43	28039.99	4547.80	0.02
raymondville	reach 2	112513.*	787.00	17.69	26.55		26.58	0.000151	1.33	644.53	360.56	0.10
raymondville	reach 2	112513.*	1264.00	17.69	28.45		28.46	0.000049	0.94	2926.38	1842.74	0.06
raymondville	reach 2	112513.*	1810.00	17.69	29.82		29.82	0.000021	0.68	6717.32	3300.87	0.04
raymondville	reach 2	112513.*	6269.00	17.69	34.36		34.36	0.000006	0.48	27560.39	5179.79	0.02
raymondville	reach 2	112419.*	787.00	17.69	26.54		26.57	0.000140	1.39	566.06	97.17	0.10
raymondville	reach 2	112419.*	1264.00	17.69	28.43		28.46	0.000121	1.48	1380.81	1296.41	0.10
raymondville	reach 2	112419.*	1810.00	17.69	29.81		29.82	0.000048	1.05	4675.87	3375.28	0.06
raymondville	reach 2	112419.*	6269.00	17.69	34.36		34.36	0.000006	0.51	27311.62	5453.20	0.02
raymondville	reach 2	112324.*	787.00	17.68	26.52		26.55	0.000133	1.43	548.91	85.97	0.10
raymondville	reach 2	112324.*	1264.00	17.68	28.41		28.46	0.000162	1.75	721.41	96.63	0.11
raymondville	reach 2	112324.*	1810.00	17.68	29.76		29.80	0.000134	1.76	2338.52	3352.67	0.11
raymondville	reach 2	112324.*	6269.00	17.68	34.35		34.35	0.000007	0.53	27093.96	5726.60	0.03
raymondville	reach 2	112230	787.00	17.67	26.50		26.54	0.000134	1.49	527.18	77.34	0.10
raymondville	reach 2	112230	1264.00	17.67	28.39		28.44	0.000169	1.86	679.85	84.87	0.12
raymondville	reach 2	112230	1810.00	17.67	29.70		29.78	0.000224	2.28	794.81	90.13	0.14
raymondville	reach 2	112230	6269.00	17.67	34.35		34.35	0.000008	0.55	26916.99	6000.00	0.03
raymondville	reach 2	110808	787.00	17.50	26.29		26.32	0.000137	1.50	523.67	77.16	0.10

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Cnt W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
raymondville	reach 2	110608	1264.00	17.50	28.11		28.17	0.000175	1.88	671.06	84.45	0.12
raymondville	reach 2	110608	1810.00	17.50	29.32		29.41	0.000239	2.33	776.02	89.29	0.14
raymondville	reach 2	110608	6269.00	17.50	34.34		34.34	0.000008	0.56	26858.69	6000.00	0.03
raymondville	reach 3 (south)	144530	201.00	21.30	32.28		32.28	0.000004	0.29	701.91	85.90	0.02
raymondville	reach 3 (south)	144530	343.00	21.30	34.50		34.50	0.000006	0.38	902.40	94.78	0.02
raymondville	reach 3 (south)	144530	528.00	21.30	36.56		36.56	0.000002	0.23	6508.89	3516.52	0.01
raymondville	reach 3 (south)	144530	1148.00	21.30	39.18		39.18	0.000001	0.17	15719.43	3516.52	0.01
raymondville	reach 3 (south)	144230	201.00	21.30	32.27		32.28	0.000004	0.29	701.81	85.90	0.02
raymondville	reach 3 (south)	144230	343.00	21.30	34.49		34.50	0.000006	0.38	902.30	94.78	0.02
raymondville	reach 3 (south)	144230	528.00	21.30	36.56		36.56	0.000002	0.23	6507.19	3516.52	0.01
raymondville	reach 3 (south)	144230	1148.00	21.30	39.18		39.18	0.000001	0.17	15718.71	3516.52	0.01
raymondville	reach 3 (south)	144030	201.00	26.10	32.23	27.56	32.27	0.000175	1.64	122.49	44.51	0.12
raymondville	reach 3 (south)	144030	343.00	26.10	34.42	28.19	34.48	0.000184	2.06	166.35	53.28	0.13
raymondville	reach 3 (south)	144030	528.00	26.10	36.44	28.88	36.55	0.000210	2.55	208.83	61.38	0.14
raymondville	reach 3 (south)	144030	1148.00	26.10	39.11	30.77	39.17	0.000171	1.89	884.59	2554.83	0.12
raymondville	reach 3 (south)	144020	201.00	26.10	32.23	27.56	32.27	0.000175	1.64	122.48	44.51	0.12
raymondville	reach 3 (south)	144020	343.00	26.10	34.42	28.19	34.48	0.000184	2.06	166.31	53.27	0.13
raymondville	reach 3 (south)	144020	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.78	61.37	0.14
raymondville	reach 3 (south)	144020	1148.00	26.10	39.11	30.78	39.17	0.000171	1.90	880.73	2554.83	0.12
raymondville	reach 3 (south)	144005	Culvert									
raymondville	reach 3 (south)	143990	201.00	26.10	31.94	27.56	31.98	0.000206	1.72	116.67	43.35	0.13
raymondville	reach 3 (south)	143990	343.00	26.10	33.75	28.19	33.83	0.000243	2.24	152.94	50.60	0.14
raymondville	reach 3 (south)	143990	528.00	26.10	34.80	28.88	34.95	0.000374	3.03	173.99	54.81	0.18
raymondville	reach 3 (south)	143990	1148.00	26.10	35.97	30.78	36.49	0.001184	5.82	197.31	59.48	0.33
raymondville	reach 3 (south)	143980	201.00	26.10	31.95		31.97	0.000133	1.08	185.39	43.39	0.09
raymondville	reach 3 (south)	143980	343.00	26.10	33.77		33.80	0.000136	1.26	271.30	50.70	0.10
raymondville	reach 3 (south)	143980	528.00	26.10	34.85		34.89	0.000191	1.61	328.21	55.01	0.12
raymondville	reach 3 (south)	143980	1148.00	26.10	36.16		36.29	0.000513	2.84	403.69	60.25	0.19
raymondville	reach 3 (south)	141900	201.00	25.82	31.67		31.69	0.000133	1.08	185.51	43.41	0.09
raymondville	reach 3 (south)	141900	343.00	25.82	33.49		33.52	0.000136	1.26	271.18	50.69	0.10
raymondville	reach 3 (south)	141900	528.00	25.82	34.63		34.64	0.000080	1.08	2348.18	4003.38	0.08
raymondville	reach 3 (south)	141900	1148.00	25.82	36.14		36.14	0.000019	0.61	10068.07	5795.82	0.04
raymondville	reach 3 (south)	140581	201.00	25.65	31.50		31.52	0.000133	1.08	185.60	43.41	0.09
raymondville	reach 3 (south)	140581	343.00	25.65	33.32		33.35	0.000131	1.24	379.03	714.63	0.09
raymondville	reach 3 (south)	140581	528.00	25.65	34.56		34.56	0.000051	0.87	2777.10	3163.12	0.06
raymondville	reach 3 (south)	140581	1148.00	25.65	36.11		36.11	0.000018	0.59	9638.91	5412.82	0.04
raymondville	reach 3 (south)	139474	201.00	25.51	31.36		31.37	0.000134	1.08	185.27	43.38	0.09
raymondville	reach 3 (south)	139474	343.00	25.51	33.18		33.20	0.000135	1.26	302.09	406.32	0.10
raymondville	reach 3 (south)	139474	528.00	25.51	34.49		34.49	0.000057	0.91	2549.30	3011.65	0.06
raymondville	reach 3 (south)	139474	1148.00	25.51	36.09		36.09	0.000019	0.60	9488.58	5381.92	0.04
raymondville	reach 3 (south)	138076	201.00	25.32	31.16		31.18	0.000134	1.09	184.99	43.36	0.09
raymondville	reach 3 (south)	138076	343.00	25.32	32.97		33.00	0.000137	1.27	270.13	50.61	0.10
raymondville	reach 3 (south)	138076	528.00	25.32	34.39		34.40	0.000064	0.97	2277.27	2815.14	0.07
raymondville	reach 3 (south)	138076	1148.00	25.32	36.05		36.05	0.000019	0.62	9287.17	5336.41	0.04
raymondville	reach 3 (south)	138026	201.00	25.14	30.96		30.98	0.000136	1.09	184.27	43.29	0.09
raymondville	reach 3 (south)	138026	343.00	25.14	32.77		32.79	0.000139	1.28	268.92	50.51	0.10
raymondville	reach 3 (south)	138026	528.00	25.14	34.29		34.30	0.000073	1.03	2002.33	2600.91	0.07
raymondville	reach 3 (south)	138026	1148.00	25.14	36.01		36.01	0.000020	0.63	9099.30	5290.90	0.04
raymondville	reach 3 (south)	136620	201.00	24.96	30.77		30.79	0.000137	1.10	183.52	43.21	0.09
raymondville	reach 3 (south)	136620	343.00	24.96	32.56		32.59	0.000141	1.28	267.65	50.40	0.10
raymondville	reach 3 (south)	136620	528.00	24.96	34.16		34.18	0.000098	1.18	1433.57	1914.82	0.08
raymondville	reach 3 (south)	136620	1148.00	24.96	35.97		35.98	0.000026	0.71	7937.00	5068.16	0.04
raymondville	reach 3 (south)	135048	201.00	24.75	30.56		30.58	0.000139	1.09	183.65	43.24	0.09
raymondville	reach 3 (south)	135048	343.00	24.75	32.34		32.37	0.000142	1.28	267.17	50.38	0.10
raymondville	reach 3 (south)	135048	528.00	24.75	33.99		34.02	0.000116	1.29	1037.30	1430.42	0.09
raymondville	reach 3 (south)	135048	1148.00	24.75	35.93		35.93	0.000036	0.83	6296.46	3959.02	0.05
raymondville	reach 3 (south)	133745	201.00	24.58	30.37		30.39	0.000139	1.10	182.79	43.16	0.09
raymondville	reach 3 (south)	133745	343.00	24.58	32.16		32.18	0.000143	1.29	266.36	50.31	0.10
raymondville	reach 3 (south)	133745	528.00	24.58	33.83		33.86	0.000128	1.36	831.27	1202.42	0.10
raymondville	reach 3 (south)	133745	1148.00	24.58	35.88		35.88	0.000038	0.85	6107.17	3896.12	0.05
raymondville	reach 3 (south)	132244	201.00	24.39	30.15		30.17	0.000141	1.11	181.71	43.05	0.09
raymondville	reach 3 (south)	132244	343.00	24.39	31.94		31.96	0.000145	1.30	264.77	50.18	0.10
raymondville	reach 3 (south)	132244	528.00	24.39	33.62		33.65	0.000141	1.43	622.26	914.06	0.10



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	132244	1148.00	24.39	35.83		35.83	0.000034	0.82	6965.90	5067.66	0.05
raymondville	reach 3 (south)	130592	201.00	24.17	29.93		29.95	0.000142	1.11	181.39	43.02	0.10
raymondville	reach 3 (south)	130592	343.00	24.17	31.70		31.73	0.000146	1.30	264.05	50.12	0.10
raymondville	reach 3 (south)	130592	528.00	24.17	33.38		33.41	0.000156	1.49	353.73	56.83	0.11
raymondville	reach 3 (south)	130592	1148.00	24.17	35.79		35.79	0.000020	0.65	10069.91	6500.00	0.04
raymondville	reach 3 (south)	129120	201.00	23.98	29.72		29.74	0.000144	1.11	180.53	42.94	0.10
raymondville	reach 3 (south)	129120	343.00	23.98	31.48		31.51	0.000148	1.31	282.71	50.02	0.10
raymondville	reach 3 (south)	129120	528.00	23.98	33.14		33.18	0.000159	1.50	351.28	56.66	0.11
raymondville	reach 3 (south)	129120	1148.00	23.98	35.77		35.77	0.000020	0.66	9934.56	6500.00	0.04
raymondville	reach 3 (south)	127694	201.00	23.79	29.51		29.53	0.000146	1.12	179.68	42.86	0.10
raymondville	reach 3 (south)	127694	343.00	23.79	31.27		31.29	0.000150	1.31	261.36	49.91	0.10
raymondville	reach 3 (south)	127694	528.00	23.79	32.91		32.95	0.000162	1.51	348.83	56.49	0.11
raymondville	reach 3 (south)	127694	1148.00	23.79	35.75		35.75	0.000021	0.67	9799.36	6500.00	0.04
raymondville	reach 3 (south)	126200	201.00	23.60	29.29		29.31	0.000148	1.13	178.42	42.75	0.10
raymondville	reach 3 (south)	126200	343.00	23.60	31.04		31.07	0.000153	1.32	259.53	49.76	0.10
raymondville	reach 3 (south)	126200	528.00	23.60	32.67		32.70	0.000166	1.53	345.76	56.27	0.11
raymondville	reach 3 (south)	126200	1148.00	23.60	35.73		35.73	0.000021	0.68	9664.30	6500.00	0.04
raymondville	reach 3 (south)	126152	201.00	23.59	29.28		29.30	0.000148	1.13	178.53	42.76	0.10
raymondville	reach 3 (south)	126152	343.00	23.59	31.03		31.06	0.000153	1.32	259.65	49.77	0.10
raymondville	reach 3 (south)	126152	528.00	23.59	32.66		32.69	0.000165	1.53	345.86	56.27	0.11
raymondville	reach 3 (south)	126152	1148.00	23.59	35.72		35.73	0.000021	0.68	9658.00	6500.00	0.04
raymondville	reach 3 (south)	124435	201.00	23.37	29.02		29.04	0.000152	1.14	176.90	42.61	0.10
raymondville	reach 3 (south)	124435	343.00	23.37	30.77		30.79	0.000157	1.33	257.33	49.58	0.10
raymondville	reach 3 (south)	124435	528.00	23.37	32.37		32.41	0.000171	1.54	341.96	56.00	0.11
raymondville	reach 3 (south)	124435	1148.00	23.37	35.69		35.69	0.000022	0.70	9430.25	6500.00	0.04
raymondville	reach 3 (south)	123138	201.00	23.20	28.82		28.84	0.000155	1.14	175.65	42.49	0.10
raymondville	reach 3 (south)	123138	343.00	23.20	30.56		30.59	0.000160	1.34	255.56	49.44	0.10
raymondville	reach 3 (south)	123138	528.00	23.20	32.14		32.18	0.000175	1.56	338.90	55.78	0.11
raymondville	reach 3 (south)	123138	1148.00	23.20	35.65		35.65	0.000023	0.72	9199.52	6500.00	0.04
raymondville	reach 3 (south)	121629	201.00	23.01	28.59		28.60	0.000161	1.16	173.29	42.27	0.10
raymondville	reach 3 (south)	121629	343.00	23.01	30.31		30.34	0.000165	1.36	252.51	49.19	0.11
raymondville	reach 3 (south)	121629	528.00	23.01	31.87		31.90	0.000182	1.58	333.97	55.42	0.11
raymondville	reach 3 (south)	121629	1148.00	23.01	35.61		35.62	0.000024	0.74	8970.19	6500.00	0.04
raymondville	reach 3 (south)	120128	201.00	22.81	28.33		28.35	0.000166	1.17	171.37	42.08	0.10
raymondville	reach 3 (south)	120128	343.00	22.81	30.06		30.09	0.000170	1.37	249.96	48.99	0.11
raymondville	reach 3 (south)	120128	528.00	22.81	31.59		31.63	0.000189	1.60	329.61	55.11	0.12
raymondville	reach 3 (south)	120128	1148.00	22.81	35.58		35.58	0.000025	0.76	8741.66	6500.00	0.04
raymondville	reach 3 (south)	120078	201.00	22.80	28.32		28.34	0.000166	1.17	171.44	42.09	0.10
raymondville	reach 3 (south)	120078	343.00	22.80	30.05		30.08	0.000170	1.37	250.03	48.99	0.11
raymondville	reach 3 (south)	120078	528.00	22.80	31.58		31.62	0.000189	1.60	329.64	55.11	0.12
raymondville	reach 3 (south)	120078	1148.00	22.80	35.57		35.58	0.000025	0.76	8734.05	6500.00	0.04
raymondville	reach 3 (south)	118101	201.00	22.55	27.98		28.00	0.000177	1.20	167.65	41.73	0.11
raymondville	reach 3 (south)	118101	343.00	22.55	29.70		29.73	0.000179	1.40	245.30	48.60	0.11
raymondville	reach 3 (south)	118101	528.00	22.55	31.19		31.23	0.000201	1.64	322.06	54.56	0.12
raymondville	reach 3 (south)	118101	1148.00	22.55	35.52		35.53	0.000027	0.79	8413.48	6500.00	0.05
raymondville	reach 3 (south)	118051	201.00	22.54	27.97		28.00	0.000176	1.20	167.70	41.73	0.11
raymondville	reach 3 (south)	118051	343.00	22.54	29.69		29.72	0.000179	1.40	245.35	48.61	0.11
raymondville	reach 3 (south)	118051	528.00	22.54	31.18		31.22	0.000201	1.64	322.06	54.56	0.12
raymondville	reach 3 (south)	118051	1148.00	22.54	35.51		35.52	0.000027	0.79	8344.09	6500.00	0.05
raymondville	reach 3 (south)	116902	201.00	22.39	27.77		27.79	0.000184	1.22	165.31	41.50	0.11
raymondville	reach 3 (south)	116902	343.00	22.39	29.48		29.51	0.000185	1.41	242.45	48.37	0.11
raymondville	reach 3 (south)	116902	528.00	22.39	30.94		30.99	0.000209	1.66	317.32	54.21	0.12
raymondville	reach 3 (south)	116902	1148.00	22.39	35.48		35.48	0.000028	0.81	8145.38	6500.00	0.05
raymondville	reach 3 (south)	114860	201.00	22.13	27.37		27.39	0.000202	1.26	159.64	40.95	0.11
raymondville	reach 3 (south)	114860	343.00	22.13	29.10		29.13	0.000198	1.45	236.58	47.88	0.11
raymondville	reach 3 (south)	114860	528.00	22.13	30.49		30.54	0.000229	1.72	307.23	53.46	0.13
raymondville	reach 3 (south)	114860	1148.00	22.13	35.40		35.41	0.000053	1.11	4083.30	2554.83	0.06
raymondville	reach 3 (south)	113007	201.00	21.88	26.97		27.00	0.000225	1.31	153.64	40.36	0.12
raymondville	reach 3 (south)	113007	343.00	21.88	28.72		28.75	0.000213	1.49	230.29	47.35	0.12
raymondville	reach 3 (south)	113007	528.00	21.88	30.05		30.10	0.000251	1.78	296.74	52.67	0.13
raymondville	reach 3 (south)	113007	1148.00	21.88	35.20		35.25	0.000155	1.83	805.82	1017.57	0.11
raymondville	reach 3 (south)	112058	201.00	21.76	26.75		26.78	0.000243	1.34	149.48	39.95	0.12
raymondville	reach 3 (south)	112058	343.00	21.76	28.51		28.55	0.000224	1.52	226.12	47.00	0.12

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq-ft)	Top Width (ft)	Froude # Chi
raymondville	reach 3 (south)	112058	528.00	21.76	29.80		29.85	0.000268	1.82	290.01	52.15	0.14
raymondville	reach 3 (south)	112058	1148.00	21.76	35.04		35.10	0.000161	1.85	663.56	1085.61	0.11
raymondville	reach 3 (south)	112008	201.00	21.75	26.73		26.76	0.000244	1.35	149.38	39.94	0.12
raymondville	reach 3 (south)	112008	343.00	21.75	28.50		28.53	0.000224	1.52	226.05	46.99	0.12
raymondville	reach 3 (south)	112008	528.00	21.75	29.78		29.84	0.000268	1.82	289.81	52.14	0.14
raymondville	reach 3 (south)	112008	1148.00	21.75	35.04		35.09	0.000161	1.85	656.03	1085.61	0.11
raymondville	reach 3 (south)	110270	201.00	21.53	26.27		26.30	0.000295	1.44	139.54	38.94	0.13
raymondville	reach 3 (south)	110270	343.00	21.53	28.08		28.12	0.000251	1.58	216.94	46.21	0.13
raymondville	reach 3 (south)	110270	528.00	21.53	29.28		29.34	0.000310	1.92	275.05	50.99	0.15
raymondville	reach 3 (south)	110270	1148.00	21.53	34.75		34.81	0.000165	1.87	614.08	72.89	0.11
raymondville	reach 1	109185	907.00	17.51	26.09		26.12	0.000143	1.53	592.51	88.35	0.10
raymondville	reach 1	109185	1437.00	17.51	27.86		27.91	0.000178	1.90	755.26	95.44	0.12
raymondville	reach 1	109185	1991.00	17.51	28.98		29.06	0.000232	2.30	865.22	99.94	0.14
raymondville	reach 1	109185	6391.00	17.51	33.95		34.27	0.000603	4.53	1411.30	119.82	0.23
raymondville	reach 1	109050	907.00	17.49	26.07		26.10	0.000142	1.53	592.56	88.36	0.10
raymondville	reach 1	109050	1437.00	17.49	27.83		27.89	0.000178	1.90	754.87	95.42	0.12
raymondville	reach 1	109050	1991.00	17.49	28.95		29.03	0.000232	2.30	864.06	99.89	0.14
raymondville	reach 1	109050	6391.00	17.49	33.87		34.19	0.000612	4.55	1403.41	119.55	0.23
raymondville	reach 1	108145	907.00	17.35	26.01		26.04	0.000137	1.51	599.92	88.69	0.10
raymondville	reach 1	108145	1437.00	17.35	27.78		27.82	0.000174	1.89	761.33	95.69	0.12
raymondville	reach 1	108145	1991.00	17.35	28.85		28.94	0.000229	2.29	868.43	100.07	0.14
raymondville	reach 1	108145	6391.00	17.35	33.73		33.91	0.000521	3.68	3452.55	2918.87	0.21
raymondville	reach 1	107740	907.00	17.35	25.95		25.99	0.000141	1.52	594.87	88.46	0.10
raymondville	reach 1	107740	1437.00	17.35	27.69		27.74	0.000178	1.90	754.41	95.40	0.12
raymondville	reach 1	107740	1991.00	17.35	28.76		28.84	0.000237	2.32	858.81	99.66	0.14
raymondville	reach 1	107740	6391.00	17.35	33.38		33.64	0.000742	4.28	2445.13	2768.45	0.25
raymondville	reach 1	106578	907.00	17.16	25.79	19.46	25.83	0.000139	1.52	597.30	88.57	0.10
raymondville	reach 1	106578	1437.00	17.16	27.46	20.15	27.54	0.000180	1.91	752.68	95.33	0.12
raymondville	reach 1	106578	1991.00	17.16	28.48	20.77	28.56	0.000244	2.34	849.80	99.32	0.14
raymondville	reach 1	106578	6391.00	17.16	32.68	24.30	32.85	0.000586	3.69	3683.49	3335.41	0.22
raymondville	reach 1	106370	907.00	17.13	25.76	19.43	25.80	0.000138	1.50	608.30	90.80	0.10
raymondville	reach 1	106370	1437.00	17.13	27.44	20.11	27.50	0.000175	1.88	765.11	98.01	0.12
raymondville	reach 1	106370	1991.00	17.13	28.43	20.73	28.51	0.000239	2.31	863.76	102.23	0.14
raymondville	reach 1	106370	6391.00	17.13	32.52	24.27	32.71	0.000685	3.92	3188.22	3001.19	0.23
raymondville	reach 1	105922.*	907.00	17.06	25.70	19.36	25.74	0.000137	1.50	604.70	90.25	0.10
raymondville	reach 1	105922.*	1437.00	17.06	27.36	20.04	27.42	0.000177	1.89	760.47	97.25	0.12
raymondville	reach 1	105922.*	1991.00	17.06	28.31	20.66	28.40	0.000244	2.33	854.76	101.25	0.14
raymondville	reach 1	105922.*	6391.00	17.06	31.89	24.21	32.30	0.001214	5.10	1253.09	153.41	0.31
raymondville	reach 1	105474.*	907.00	16.99	25.64	19.29	25.67	0.000137	1.50	603.25	89.72	0.10
raymondville	reach 1	105474.*	1437.00	16.99	27.28	19.97	27.34	0.000179	1.90	756.03	96.51	0.12
raymondville	reach 1	105474.*	1991.00	16.99	28.19	20.59	28.26	0.000250	2.35	846.05	100.30	0.14
raymondville	reach 1	105474.*	6391.00	16.99	31.35	24.14	31.80	0.001036	5.39	1184.84	117.34	0.30
raymondville	reach 1	105026.*	907.00	16.91	25.58	19.21	25.61	0.000136	1.51	602.63	89.24	0.10
raymondville	reach 1	105026.*	1437.00	16.91	27.20	19.89	27.25	0.000181	1.91	752.53	95.83	0.12
raymondville	reach 1	105026.*	1991.00	16.91	28.08	20.51	28.16	0.000255	2.37	838.38	99.40	0.14
raymondville	reach 1	105026.*	6391.00	16.91	30.80	24.07	31.30	0.001178	5.69	1124.11	112.81	0.32
raymondville	reach 1	104578	907.00	16.84	25.52	19.14	25.55	0.000136	1.51	601.46	88.76	0.10
raymondville	reach 1	104578	1437.00	16.84	27.12	19.83	27.17	0.000182	1.92	748.52	95.15	0.12
raymondville	reach 1	104578	1991.00	16.84	27.96	20.44	28.05	0.000260	2.40	830.27	98.53	0.15
raymondville	reach 1	104578	6391.00	16.84	30.16	24.00	30.73	0.001356	6.05	1056.56	107.32	0.34
raymondville	reach 1	102128	907.00	16.43	25.11		25.15	0.000204	1.49	637.77	416.07	0.12
raymondville	reach 1	102128	1437.00	16.43	26.80		26.82	0.000110	1.33	1880.09	1113.10	0.09
raymondville	reach 1	102128	1991.00	16.43	27.66		27.88	0.000088	1.30	2959.08	1377.65	0.08
raymondville	reach 1	102128	6391.00	16.43	29.79		29.81	0.000132	1.88	8441.27	3448.42	0.11
raymondville	reach 1	100615	907.00	16.19	24.89	18.48	24.92	0.000118	1.36	567.00	104.73	0.09
raymondville	reach 1	100615	1437.00	16.19	26.65	19.15	26.67	0.000087	1.37	1787.88	1013.71	0.09
raymondville	reach 1	100615	1991.00	16.19	27.53	19.75	27.56	0.000079	1.40	3023.18	1663.03	0.08
raymondville	reach 1	100615	6391.00	16.19	29.61	23.11	29.83	0.000111	1.90	8967.18	3592.91	0.10
raymondville	reach 1	100117	907.00	16.10	24.82	18.40	24.85	0.000134	1.50	605.12	88.92	0.10
raymondville	reach 1	100117	1437.00	16.10	26.60	19.08	26.62	0.000125	1.42	1617.46	904.60	0.10
raymondville	reach 1	100117	1991.00	16.10	27.48	19.70	27.50	0.000109	1.44	2550.83	1274.74	0.08
raymondville	reach 1	100117	6391.00	16.10	29.54	23.26	29.56	0.000139	1.92	10012.96	6000.00	0.11
raymondville	reach 1	99117	907.00	15.78	24.58		24.60	0.000131	1.49	610.77	89.18	0.10

River	Reach	River Sta	Q Total	Mfn Ch El	W.S. Elev	Ch W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
raymondville	reach 1	88117	1437.00	15.78	29.47	15.78	29.47	0.000018	0.60	4390.58	5519.96	0.04
raymondville	reach 1	88117	1891.00	15.78	29.47	15.78	29.47	0.000018	0.60	4390.58	5519.96	0.04
raymondville	reach 1	88117	1437.00	15.78	29.47	15.78	29.47	0.000018	0.60	4390.58	5519.96	0.04
raymondville	reach 1	88117	907.00	15.45	24.30	15.45	24.30	0.000127	1.47	617.34	89.47	0.10
raymondville	reach 1	98117	1437.00	15.45	26.33	15.45	26.33	0.000139	1.33	1908.02	1990.57	0.10
raymondville	reach 1	98117	1991.00	15.45	27.35	15.45	27.35	0.000068	1.05	457.95	3566.25	0.07
raymondville	reach 1	98117	6391.00	15.45	29.41	15.45	29.41	0.000051	1.08	13730.04	5545.91	0.07
raymondville	reach 1	98341	1437.00	15.32	24.22	15.32	24.22	0.000099	1.24	731.46	116.54	0.09
raymondville	reach 1	98341	1437.00	15.32	26.23	15.32	26.23	0.000108	1.32	1543.45	1398.81	0.09
raymondville	reach 1	98341	1991.00	15.32	27.29	15.32	27.29	0.000076	1.23	3618.51	3264.73	0.08
raymondville	reach 1	98341	6391.00	15.32	29.36	15.32	29.36	0.000060	1.28	13091.03	5671.08	0.07
raymondville	reach 1	94117	907.00	15.12	24.08	15.12	24.11	0.000121	1.45	626.93	89.90	0.10
raymondville	reach 1	94117	1437.00	15.12	26.05	15.12	26.09	0.000164	1.62	1156.26	994.65	0.11
raymondville	reach 1	94117	1991.00	15.12	27.16	15.12	27.19	0.000124	1.57	2507.17	2033.72	0.10
raymondville	reach 1	94117	6391.00	15.12	29.23	15.12	29.26	0.000152	2.04	9061.34	5186.85	0.12
raymondville	reach 1	82117	907.00	14.79	23.85	14.79	23.88	0.000116	1.43	635.60	90.28	0.09
raymondville	reach 1	82117	1437.00	14.79	25.70	14.79	25.74	0.000185	1.70	928.09	335.00	0.12
raymondville	reach 1	82117	1991.00	14.79	26.85	14.79	26.89	0.000168	1.80	1542.43	678.18	0.12
raymondville	reach 1	82117	6391.00	14.79	28.68	14.79	28.79	0.000408	3.25	4256.77	2135.48	0.19
raymondville	reach 1	90857	1437.00	14.45	25.29	14.45	25.34	0.000206	1.75	898.78	451.46	0.12
raymondville	reach 1	90857	1991.00	14.45	26.64	14.45	26.57	0.000142	1.64	2343.84	2076.62	0.11
raymondville	reach 1	90857	6391.00	14.45	28.21	14.45	28.24	0.000175	2.09	8468.15	4853.37	0.12
raymondville	reach 1	90018	907.00	14.45	23.61	14.45	23.64	0.000112	1.41	644.82	90.69	0.09
raymondville	reach 1	90018	1437.00	14.45	25.29	14.45	25.33	0.000207	1.75	899.03	449.82	0.12
raymondville	reach 1	90018	1991.00	14.45	26.53	14.45	26.57	0.000143	1.65	2329.39	2074.55	0.11
raymondville	reach 1	90018	6391.00	14.45	28.20	14.45	28.23	0.000178	2.10	8429.00	4852.68	0.12
raymondville	reach 1	88117	907.00	14.14	23.40	14.14	23.43	0.000107	1.39	654.18	91.10	0.08
raymondville	reach 1	88117	1437.00	14.14	24.95	14.14	25.00	0.000151	1.80	799.67	97.28	0.11
raymondville	reach 1	88117	1991.00	14.14	26.23	14.14	26.27	0.000165	1.75	2485.91	4246.14	0.11
raymondville	reach 1	88117	6391.00	14.14	27.96	14.14	27.97	0.000103	1.59	11093.13	5612.17	0.09
raymondville	reach 1	88117	1375.00	13.81	23.02	13.81	23.09	0.000252	2.12	649.04	90.88	0.14
raymondville	reach 1	88117	2192.00	13.81	24.36	13.81	24.49	0.000384	2.83	775.02	96.26	0.18
raymondville	reach 1	88117	3163.00	13.81	25.72	13.81	25.78	0.000329	2.39	3141.80	3310.11	0.16
raymondville	reach 1	84597.7	7349.00	13.56	26.33	13.56	27.05	0.000978	1.39	13723.53	6000.00	0.08
raymondville	reach 1	84597.7	2192.00	13.56	23.73	13.56	23.86	0.000451	2.91	752.77	101.83	0.19
raymondville	reach 1	84597.7	3163.00	13.56	24.86	13.56	25.06	0.000628	3.63	871.83	108.58	0.23
raymondville	reach 1	84597.7	7349.00	13.56	26.33	13.56	27.05	0.001954	6.88	1560.16	3517.90	0.41
raymondville	reach 1	84501.5	1375.00	13.54	22.60	13.54	22.67	0.000278	2.15	640.57	95.21	0.15
raymondville	reach 1	84501.5	2192.00	13.54	23.68	13.54	23.81	0.000469	2.93	748.28	103.41	0.19
raymondville	reach 1	84501.5	3163.00	13.54	24.79	13.54	25.00	0.000662	3.65	867.71	111.80	0.23
raymondville	reach 1	84501.5	7349.00	13.54	26.20	13.54	26.85	0.001927	6.67	1980.03	4307.31	0.40
raymondville	reach 1	84405.4	1375.00	13.53	22.57	13.53	22.64	0.000275	2.16	636.15	92.55	0.15
raymondville	reach 1	84405.4	2192.00	13.53	23.63	13.53	23.77	0.000487	2.96	740.50	103.44	0.19
raymondville	reach 1	84405.4	3163.00	13.53	24.71	13.53	24.93	0.000708	3.69	858.19	114.48	0.24
raymondville	reach 1	84405.4	7349.00	13.53	26.18	13.53	26.62	0.001539	5.85	2926.47	4335.26	0.36
raymondville	reach 1	84309.2	1375.00	13.51	22.54	13.51	22.62	0.000269	2.17	634.54	90.49	0.14
raymondville	reach 1	84309.2	2192.00	13.51	23.59	13.51	23.73	0.000481	2.99	732.29	99.40	0.19
raymondville	reach 1	84309.2	3163.00	13.51	24.64	13.51	24.86	0.000757	3.74	845.25	115.71	0.24
raymondville	reach 1	84309.2	7349.00	13.51	26.16	13.51	26.44	0.001159	4.97	3875.90	4352.92	0.31
raymondville	reach 1	84213.1	1375.00	13.50	22.52	13.50	22.59	0.000271	2.17	632.53	90.29	0.14
raymondville	reach 1	84213.1	2192.00	13.50	23.54	13.50	23.68	0.000492	3.01	727.24	94.41	0.19
raymondville	reach 1	84213.1	3163.00	13.50	24.56	13.50	24.79	0.000773	3.82	828.76	111.58	0.25
raymondville	reach 1	84213.1	7349.00	13.50	26.13	13.50	26.32	0.000960	4.41	4748.71	5457.10	0.28

HFC-RAS Plan - P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	84117	1375.00	13.48	22.49		22.58	0.000273	2.18	631.29	90.09	0.14
raymondville	reach 1	84117	2192.00	13.48	23.50		23.64	0.000467	3.03	723.94	94.11	0.19
raymondville	reach 1	84117	3163.00	13.48	24.49		24.72	0.000683	3.86	819.13	98.08	0.24
raymondville	reach 1	84117	7349.00	13.48	26.10		26.21	0.000727	3.73	5777.30	6000.00	0.24
raymondville	reach 1	83617.*	1375.00	13.40	22.35		22.42	0.000283	2.20	625.05	90.47	0.15
raymondville	reach 1	83617.*	2192.00	13.40	23.25		23.40	0.000503	3.09	708.39	94.58	0.20
raymondville	reach 1	83617.*	3163.00	13.40	24.06		24.30	0.001067	3.94	872.43	547.90	0.28
raymondville	reach 1	83617.*	7349.00	13.40	25.73		25.85	0.000726	3.82	5277.34	4437.51	0.24
raymondville	reach 1	83117.*	1375.00	13.31	22.19		22.27	0.000295	2.22	620.18	91.89	0.15
raymondville	reach 1	83117.*	2192.00	13.31	22.96		23.10	0.000715	3.06	789.72	428.49	0.23
raymondville	reach 1	83117.*	3163.00	13.31	23.59		23.79	0.000928	3.74	1174.92	892.46	0.26
raymondville	reach 1	83117.*	7349.00	13.31	25.35		25.49	0.000737	3.94	4925.86	4416.91	0.25
raymondville	reach 1	82617.*	1375.00	13.23	22.04		22.10	0.000355	2.07	794.32	509.52	0.16
raymondville	reach 1	82617.*	2192.00	13.23	22.70		22.79	0.000499	2.66	1174.17	650.53	0.19
raymondville	reach 1	82617.*	3163.00	13.23	23.26		23.39	0.000828	3.17	1692.56	1088.98	0.22
raymondville	reach 1	82617.*	7349.00	13.23	25.00		25.13	0.000682	3.87	4655.06	4411.25	0.24
raymondville	reach 1	82117	1375.00	13.15	21.93		21.97	0.000197	1.63	1273.52	647.18	0.12
raymondville	reach 1	82117	2192.00	13.15	22.54		22.59	0.000293	2.13	1808.64	1064.45	0.15
raymondville	reach 1	82117	3163.00	13.15	23.05		23.12	0.000384	2.57	2382.97	1339.99	0.17
raymondville	reach 1	82117	7349.00	13.15	24.79		24.86	0.000393	3.03	5450.19	2277.35	0.18
raymondville	reach 1	80117	1375.00	12.82	21.70		21.71	0.000083	0.98	3376.75	3096.95	0.08
raymondville	reach 1	80117	2192.00	12.82	22.31		22.32	0.000074	0.99	5533.88	4008.02	0.07
raymondville	reach 1	80117	3163.00	12.82	22.84		22.85	0.000063	0.97	7693.59	4113.29	0.07
raymondville	reach 1	80117	7349.00	12.82	24.65		24.65	0.000041	0.94	17197.49	5896.62	0.06
raymondville	reach 1	79415	1375.00	12.71	21.53		21.61	0.000295	2.24	614.59	89.35	0.15
raymondville	reach 1	79415	2192.00	12.71	22.01		22.19	0.000615	3.33	657.97	91.27	0.22
raymondville	reach 1	79415	3163.00	12.71	22.38		22.70	0.001109	4.57	691.62	92.73	0.30
raymondville	reach 1	79415	7349.00	12.71	22.85	20.48	24.40	0.005015	9.99	735.60	94.61	0.63
raymondville	reach 1	78117	1375.00	12.50	21.38		21.39	0.000095	1.11	3435.36	4035.66	0.08
raymondville	reach 1	78117	2192.00	12.50	21.92		21.92	0.000074	1.04	5608.79	4088.38	0.07
raymondville	reach 1	78117	3163.00	12.50	22.37		22.37	0.000072	1.08	7640.73	4624.68	0.07
raymondville	reach 1	78117	7349.00	12.50	23.63		23.63	0.000073	1.23	14226.35	5831.91	0.08
raymondville	reach 1	76117	1375.00	12.17	21.26		21.27	0.000048	0.80	4682.51	4195.95	0.06
raymondville	reach 1	76117	2192.00	12.17	21.82		21.82	0.000041	0.79	7023.33	4250.33	0.06
raymondville	reach 1	76117	3163.00	12.17	22.26		22.27	0.000044	0.85	9034.62	4688.01	0.06
raymondville	reach 1	76117	7349.00	12.17	23.51		23.51	0.000056	1.07	15549.53	6000.00	0.07
raymondville	reach 1	74240	1375.00	11.86	21.17		21.18	0.000047	0.80	4494.79	4232.22	0.06
raymondville	reach 1	74240	2192.00	11.86	21.74		21.74	0.000041	0.79	6911.84	4302.02	0.06
raymondville	reach 1	74240	3163.00	11.86	22.18		22.18	0.000045	0.86	8908.75	4853.96	0.06
raymondville	reach 1	74240	7349.00	11.86	23.40		23.41	0.000056	1.08	15335.94	6000.00	0.07
raymondville	reach 1	74117	1375.00	11.84	21.17		21.17	0.000048	0.80	4471.24	4231.47	0.06
raymondville	reach 1	74117	2192.00	11.84	21.73		21.74	0.000041	0.80	6891.50	4301.38	0.06
raymondville	reach 1	74117	3163.00	11.84	22.17		22.18	0.000045	0.87	8883.59	4853.27	0.06
raymondville	reach 1	74117	7349.00	11.84	23.39		23.40	0.000057	1.09	15295.76	6000.00	0.07
raymondville	reach 1	71592	1375.00	11.42	21.07		21.07	0.000049	0.83	4485.14	4151.35	0.06
raymondville	reach 1	71592	2192.00	11.42	21.65		21.66	0.000041	0.80	6930.08	4208.80	0.06
raymondville	reach 1	71592	3163.00	11.42	22.09		22.09	0.000046	0.89	8799.48	4645.34	0.06
raymondville	reach 1	71592	7349.00	11.42	23.28		23.29	0.000062	1.15	14757.04	6000.00	0.07
raymondville	reach 1	69075	1526.00	11.01	20.90		20.91	0.000084	1.08	3606.57	3352.59	0.08
raymondville	reach 1	69075	2336.00	11.01	21.53		21.53	0.000058	0.96	6508.13	4919.63	0.07
raymondville	reach 1	69075	3404.00	11.01	21.95		21.96	0.000059	1.02	8604.58	4972.46	0.07
raymondville	reach 1	69075	8267.00	11.01	23.11		23.11	0.000074	1.26	15482.19	6000.00	0.08
raymondville	reach 1	66802	1526.00	10.64	20.67		20.68	0.000102	1.20	3503.77	4275.70	0.09
raymondville	reach 1	66802	2336.00	10.64	21.39		21.40	0.000055	0.94	6919.63	5141.80	0.06
raymondville	reach 1	66802	3404.00	10.64	21.81		21.82	0.000055	0.99	9107.36	5183.02	0.07
raymondville	reach 1	66802	8267.00	10.64	22.92		22.93	0.000074	1.26	15615.29	6000.00	0.08
raymondville	reach 1	64802	1526.00	10.31	20.37		20.40	0.000203	1.66	2109.90	3884.78	0.12
raymondville	reach 1	64802	2336.00	10.31	21.25		21.26	0.000077	1.12	5962.05	5435.81	0.08
raymondville	reach 1	64802	3404.00	10.31	21.68		21.68	0.000072	1.13	8274.01	5477.33	0.08
raymondville	reach 1	64802	8267.00	10.31	22.75		22.76	0.000091	1.40	14549.02	6000.00	0.09
raymondville	reach 1	62802	1526.00	9.98	19.89		19.96	0.000236	2.14	713.86	93.69	0.14
raymondville	reach 1	62802	2336.00	9.98	21.10		21.11	0.000077	1.13	6254.29	6000.00	0.08
raymondville	reach 1	62802	3404.00	9.98	21.54		21.55	0.000087	1.09	8893.98	6000.00	0.07
raymondville	reach 1	62802	8267.00	9.98	22.58		22.59	0.000083	1.34	15126.04	6000.00	0.08

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	61180	1526.00	9.85	19.39		19.47	0.000251	2.18	698.46	93.02	0.14
raymondville	reach 1	61180	2336.00	9.65	20.73		20.82	0.000301	2.57	1624.80	2284.27	0.16
raymondville	reach 1	61180	3404.00	9.65	21.17		21.25	0.000478	2.75	2891.50	3505.81	0.19
raymondville	reach 1	61180	8267.00	9.65	22.21		22.26	0.000418	2.84	8114.82	6000.00	0.18
raymondville	reach 1	61130	1526.00	9.64	19.38		19.46	0.000251	2.19	698.22	93.01	0.14
raymondville	reach 1	61130	2336.00	9.64	20.72		20.82	0.000302	2.58	1608.15	2261.06	0.16
raymondville	reach 1	61130	3404.00	9.64	21.15		21.24	0.000493	2.79	2828.26	3450.36	0.19
raymondville	reach 1	61130	8267.00	9.64	22.18		22.23	0.000441	2.91	7929.01	6000.00	0.19
raymondville	reach 1	60777	1526.00	9.58	19.29		19.37	0.000254	2.19	695.47	92.90	0.14
raymondville	reach 1	60777	2336.00	9.58	20.72		20.73	0.000126	1.42	5052.51	6000.00	0.10
raymondville	reach 1	60777	3404.00	9.58	21.13		21.14	0.000104	1.34	7538.68	6000.00	0.09
raymondville	reach 1	60777	8267.00	9.58	22.14		22.15	0.000116	1.55	13580.94	8000.00	0.10
raymondville	reach 1	58786	1526.00	9.26	18.76		18.84	0.000276	2.26	675.91	92.05	0.15
raymondville	reach 1	58786	2336.00	9.26	20.22		20.30	0.000419	2.50	2102.57	6000.00	0.18
raymondville	reach 1	58786	3404.00	9.26	20.84		20.87	0.000187	1.78	5648.08	6000.00	0.12
raymondville	reach 1	58786	8267.00	9.26	21.86		21.87	0.000169	1.85	11926.61	6000.00	0.12
raymondville	reach 1	56696	1526.00	8.92	18.15		18.23	0.000307	2.34	650.90	90.96	0.15
raymondville	reach 1	56696	2336.00	8.92	19.22		19.37	0.000478	3.11	750.54	95.24	0.20
raymondville	reach 1	56696	3404.00	8.92	19.86	13.85	20.13	0.000809	4.19	812.73	97.82	0.26
raymondville	reach 1	56696	8267.00	8.92	21.27		21.32	0.000450	2.92	8326.42	6000.00	0.19
raymondville	reach 1	56644	1526.00	8.91	18.13		18.22	0.000308	2.35	650.34	90.93	0.15
raymondville	reach 1	56644	2336.00	8.91	19.19		19.34	0.000481	3.12	749.05	95.18	0.20
raymondville	reach 1	56644	3404.00	8.91	19.83		20.10	0.000816	4.20	810.28	97.72	0.26
raymondville	reach 1	56644	8267.00	8.91	21.24		21.29	0.000475	2.99	8153.10	6000.00	0.19
raymondville	reach 1	56166.2*	1526.00	8.83	17.98		18.07	0.000317	2.37	643.87	90.64	0.16
raymondville	reach 1	56166.2*	2336.00	8.83	19.00		19.12	0.000420	2.90	1231.68	1015.18	0.18
raymondville	reach 1	56166.2*	3404.00	8.83	19.63		19.76	0.000504	3.28	2003.62	1344.99	0.20
raymondville	reach 1	56166.2*	8267.00	8.83	21.04		21.08	0.000393	2.70	8594.56	6000.00	0.18
raymondville	reach 1	55688.5*	1526.00	8.75	17.90		17.94	0.000186	1.81	1538.83	998.44	0.12
raymondville	reach 1	55688.5*	2336.00	8.75	18.96		18.99	0.000149	1.73	2794.32	1314.39	0.11
raymondville	reach 1	55688.5*	3404.00	8.75	19.56		19.59	0.000176	1.94	3676.24	2866.30	0.12
raymondville	reach 1	55688.5*	8267.00	8.75	20.90		20.93	0.000251	2.15	9447.60	5567.23	0.14
raymondville	reach 1	55210.7*	1526.00	8.67	17.88		17.88	0.000058	1.01	3048.50	1273.89	0.07
raymondville	reach 1	55210.7*	2336.00	8.67	18.94		18.94	0.000050	1.00	4437.16	1346.76	0.06
raymondville	reach 1	55210.7*	3404.00	8.67	19.53		19.54	0.000066	1.19	5677.42	3319.73	0.07
raymondville	reach 1	55210.7*	8267.00	8.67	20.82		20.83	0.000148	1.66	11064.27	4720.67	0.11
raymondville	reach 1	54733	1597.00	8.59	17.71	11.76	17.81	0.000351	2.49	641.53	90.54	0.16
raymondville	reach 1	54733	2442.00	8.59	18.70	12.65	18.88	0.000559	3.33	733.24	94.51	0.21
raymondville	reach 1	54733	3556.00	8.59	19.09	13.65	19.43	0.001029	4.62	770.41	96.07	0.29
raymondville	reach 1	54733	8659.00	8.59	20.45	17.14	20.65	0.001327	4.84	4849.32	4363.73	0.32
raymondville	reach 1	54238.*	1597.00	8.51	17.53		17.63	0.000371	2.52	634.35	171.60	0.17
raymondville	reach 1	54238.*	2442.00	8.51	18.50		18.59	0.000514	2.66	1648.30	1764.18	0.19
raymondville	reach 1	54238.*	3556.00	8.51	18.85		18.95	0.000665	3.14	2328.21	2084.62	0.22
raymondville	reach 1	54238.*	8659.00	8.51	20.01		20.12	0.000812	3.90	5180.70	2903.50	0.25
raymondville	reach 1	53743.*	1597.00	8.43	17.46		17.48	0.000191	1.56	2042.39	1694.57	0.12
raymondville	reach 1	53743.*	2442.00	8.43	18.45		18.46	0.000113	1.34	3982.60	2184.92	0.09
raymondville	reach 1	53743.*	3556.00	8.43	18.76		18.78	0.000162	1.66	4695.92	2308.97	0.11
raymondville	reach 1	53743.*	8659.00	8.43	19.82		19.86	0.000322	2.56	7381.26	2808.31	0.16
raymondville	reach 1	53248.*	1597.00	8.35	17.44		17.45	0.000039	0.77	4394.87	2117.40	0.05
raymondville	reach 1	53248.*	2442.00	8.35	18.44		18.44	0.000031	0.75	6636.62	2384.50	0.05
raymondville	reach 1	53248.*	3556.00	8.35	18.74		18.75	0.000049	0.98	7370.90	2463.46	0.06
raymondville	reach 1	53248.*	8659.00	8.35	19.74		19.75	0.000134	1.75	10093.62	2908.68	0.11
raymondville	reach 1	52753	1379.00	8.27	17.43		17.43	0.000008	0.38	7021.92	2287.02	0.03
raymondville	reach 1	52753	2028.00	8.27	18.43		18.43	0.000008	0.42	9460.87	2647.14	0.03
raymondville	reach 1	52753	3083.00	8.27	18.73		18.73	0.000015	0.58	10273.66	2735.49	0.04
raymondville	reach 1	52753	8075.00	8.27	19.71		19.71	0.000055	1.18	13086.03	3020.21	0.07
raymondville	reach 1	52344.3*	1379.00	8.20	17.42		17.42	0.000014	0.47	5859.04	2296.99	0.03
raymondville	reach 1	52344.3*	2028.00	8.20	18.42		18.42	0.000012	0.48	8383.16	2672.38	0.03
raymondville	reach 1	52344.3*	3083.00	8.20	18.72		18.72	0.000022	0.66	9200.71	2758.48	0.04
raymondville	reach 1	52344.3*	8075.00	8.20	19.67		19.68	0.000073	1.30	11975.70	3053.95	0.08
raymondville	reach 1	51935.7*	1379.00	8.13	17.40		17.41	0.000024	0.57	4856.84	2290.74	0.04
raymondville	reach 1	51935.7*	2028.00	8.13	18.41		18.41	0.000017	0.54	7336.56	2653.72	0.04
raymondville	reach 1	51935.7*	3083.00	8.13	18.70		18.70	0.000030	0.74	8126.71	2747.27	0.05

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/m)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chf
raymondville	reach 1	51935.7*	8075.00	8.13	19.63		19.64	0.000098	1.44	10837.42	3081.28	0.09
raymondville	reach 1	51527.1*	1379.00	8.07	17.39		17.39	0.000034	0.64	4146.68	1897.47	0.05
raymondville	reach 1	51527.1*	2028.00	8.07	18.40		18.40	0.000024	0.60	6355.32	2511.18	0.04
raymondville	reach 1	51527.1*	3083.00	8.07	18.68		18.68	0.000042	0.81	7089.48	2656.74	0.06
raymondville	reach 1	51527.1*	8075.00	8.07	19.58		19.59	0.000133	1.59	9665.95	3103.90	0.10
raymondville	reach 1	51118.5*	1379.00	8.00	17.38		17.38	0.000027	0.69	4109.22	1591.54	0.05
raymondville	reach 1	51118.5*	2028.00	8.00	18.38		18.39	0.000023	0.69	5850.64	1828.17	0.04
raymondville	reach 1	51118.5*	3083.00	8.00	18.66		18.67	0.000044	0.95	6362.11	1893.45	0.06
raymondville	reach 1	51118.5*	8075.00	8.00	19.51		19.52	0.000176	1.72	8483.96	3003.24	0.12
raymondville	reach 1	50710	1379.00	7.93	17.27	10.84	17.34	0.000239	2.08	661.63	91.43	0.14
raymondville	reach 1	50710	2028.00	7.93	18.23	11.57	18.34	0.000360	2.70	750.87	95.25	0.17
raymondville	reach 1	50710	3083.00	7.93	18.34	12.60	18.59	0.000800	4.05	761.35	95.69	0.25
raymondville	reach 1	50710	8075.00	7.93	19.44	16.13	19.46	0.000169	1.97	7963.22	2102.97	0.12
raymondville	reach 1	50308.0*	1379.00	7.86	17.17	10.77	17.24	0.000243	2.09	658.44	91.28	0.14
raymondville	reach 1	50308.0*	2028.00	7.86	18.08	11.50	18.19	0.000371	2.73	742.73	94.90	0.17
raymondville	reach 1	50308.0*	3083.00	7.86	18.46	12.53	18.47	0.000448	1.00	6214.72	1925.47	0.06
raymondville	reach 1	50308.0*	8075.00	7.86	19.37	16.06	19.39	0.000168	1.95	8052.26	2132.95	0.12
raymondville	reach 1	49908.0*	1379.00	7.80	17.07	10.71	17.14	0.000247	2.11	654.55	91.11	0.14
raymondville	reach 1	49908.0*	2028.00	7.80	17.91	11.44	18.03	0.000386	2.77	732.86	94.49	0.18
raymondville	reach 1	49908.0*	3083.00	7.80	18.45	12.47	18.45	0.000046	0.98	6371.67	1996.75	0.06
raymondville	reach 1	49908.0*	8075.00	7.80	19.31	16.00	19.33	0.000167	1.96	8179.27	2238.62	0.12
raymondville	reach 1	49504.0*	1379.00	7.73	16.96	10.65	17.03	0.000250	2.12	651.39	90.98	0.14
raymondville	reach 1	49504.0*	2028.00	7.73	17.75	11.37	17.87	0.000400	2.80	723.78	94.11	0.18
raymondville	reach 1	49504.0*	3083.00	7.73	18.43	12.40	18.43	0.000042	0.94	6351.61	2053.50	0.06
raymondville	reach 1	49504.0*	8075.00	7.73	19.24	15.93	19.26	0.000171	1.98	8334.16	2396.40	0.12
raymondville	reach 1	49102.0*	1379.00	7.67	16.88	10.58	16.93	0.000255	2.13	647.60	90.82	0.14
raymondville	reach 1	49102.0*	2028.00	7.67	17.57	11.31	17.70	0.000417	2.84	713.18	93.66	0.18
raymondville	reach 1	49102.0*	3083.00	7.67	18.33	12.34	18.39	0.000294	2.49	2230.53	2153.48	0.15
raymondville	reach 1	49102.0*	8075.00	7.67	19.17	15.87	19.19	0.000178	1.66	8515.62	2496.08	0.12
raymondville	reach 1	48700	1379.00	7.60	16.76	10.51	16.83	0.000258	2.14	644.38	90.67	0.14
raymondville	reach 1	48700	2028.00	7.60	17.39	11.24	17.52	0.000435	2.88	703.20	93.23	0.19
raymondville	reach 1	48700	3083.00	7.60	17.93	12.27	18.19	0.000824	4.09	753.45	95.36	0.26
raymondville	reach 1	48700	8075.00	7.60	19.10	15.80	19.11	0.000167	1.62	8703.17	2509.54	0.11
raymondville	reach 1	48516.6*	1379.00	7.57	16.71	10.49	16.78	0.000260	2.15	642.63	90.60	0.14
raymondville	reach 1	48516.6*	2028.00	7.57	17.31	11.21	17.44	0.000444	2.91	697.90	93.01	0.19
raymondville	reach 1	48516.6*	3083.00	7.57	17.76	12.24	18.03	0.000868	4.17	739.91	94.80	0.26
raymondville	reach 1	48516.6*	8075.00	7.57	19.07	15.77	19.08	0.000169	1.66	8721.67	2564.78	0.11
raymondville	reach 1	48333.3*	1379.00	7.54	16.66	10.46	16.73	0.000262	2.15	640.85	90.52	0.14
raymondville	reach 1	48333.3*	2028.00	7.54	17.22	11.18	17.36	0.000454	2.93	692.58	92.78	0.19
raymondville	reach 1	48333.3*	3083.00	7.54	17.57	12.21	17.85	0.000919	4.25	725.14	94.17	0.27
raymondville	reach 1	48333.3*	8075.00	7.54	19.04	15.74	19.06	0.000175	1.72	8837.31	2922.33	0.12
raymondville	reach 1	48150	1379.00	7.51	16.61	10.42	16.68	0.000264	2.18	639.34	90.45	0.14
raymondville	reach 1	48150	2028.00	7.51	17.14	11.15	17.27	0.000464	2.95	687.55	92.56	0.19
raymondville	reach 1	48150	3083.00	7.51	17.39	12.18	17.68	0.000974	4.34	710.76	93.56	0.28
raymondville	reach 1	48150	8075.00	7.51	19.01	15.71	19.03	0.000170	1.73	9125.38	3194.08	0.12
raymondville	reach 1	47896.*	1379.00	7.43	16.48	10.35	16.55	0.000272	2.17	635.16	91.12	0.14
raymondville	reach 1	47896.*	2028.00	7.43	16.86	11.08	17.00	0.000733	3.00	676.86	2253.86	0.23
raymondville	reach 1	47896.*	3083.00	7.43	17.42	12.10	17.43	0.000152	1.45	4581.07	2375.81	0.11
raymondville	reach 1	47896.*	8075.00	7.43	18.89	15.63	18.91	0.000197	1.92	8768.13	3505.30	0.13
raymondville	reach 1	47222.*	1379.00	7.36	16.33	10.28	16.40	0.000383	2.13	646.88	1927.97	0.17
raymondville	reach 1	47222.*	2028.00	7.36	16.80	11.01	16.81	0.000164	1.47	3043.55	2112.38	0.11
raymondville	reach 1	47222.*	3083.00	7.36	17.31	12.04	17.33	0.000177	1.62	4257.58	2550.09	0.12
raymondville	reach 1	47222.*	8075.00	7.36	18.77	16.21	18.80	0.000213	2.05	8681.00	3764.70	0.13
raymondville	reach 1	46758.*	1379.00	7.28	16.28	10.20	16.30	0.000105	1.16	2278.75	1378.76	0.09
raymondville	reach 1	46758.*	2028.00	7.28	16.73	10.93	16.74	0.000129	1.36	2999.98	1898.88	0.10
raymondville	reach 1	46758.*	3083.00	7.28	17.21	11.96	17.23	0.000187	1.72	4094.91	2493.54	0.12
raymondville	reach 1	46758.*	8075.00	7.28	18.65	16.02	18.68	0.000215	2.11	8779.32	3736.42	0.13
raymondville	reach 1	46294.*	1379.00	7.21	16.25	10.13	16.26	0.000068	0.97	2750.11	1542.42	0.07
raymondville	reach 1	46294.*	2028.00	7.21	16.68	10.86	16.69	0.000090	1.18	3451.58	1808.94	0.08
raymondville	reach 1	46294.*	3083.00	7.21	17.14	11.88	17.15	0.000123	1.44	4425.50	2288.09	0.10
raymondville	reach 1	46294.*	8075.00	7.21	18.54	15.51	18.57	0.000211	2.14	8979.73	3765.56	0.13
raymondville	reach 1	45830	1379.00	7.13	16.23	10.04	16.23	0.000040	0.78	3460.61	1847.87	0.06
raymondville	reach 1	45830	2028.00	7.13	16.65	10.77	16.65	0.000057	0.97	4263.99	2000.42	0.07

HFC-RAC Plan P 50% D (Continued)

River	Reach	River Sta	Q.Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	45830	3083.00	7.13	17.09	11.80	17.10	0.000085	1.24	5198.75	2380.27	0.08
raymondville	reach 1	45830	8075.00	7.13	18.45	15.00	18.48	0.000194	2.11	9289.65	3724.06	0.13
raymondville	reach 1	45414.*	1379.00	7.06	16.20	9.97	16.21	0.000042	0.80	3444.77	1910.18	0.06
raymondville	reach 1	45414.*	2028.00	7.06	16.62	10.70	16.62	0.000059	0.99	4269.74	2081.68	0.07
raymondville	reach 1	45414.*	3083.00	7.06	17.05	11.73	17.06	0.000088	1.25	5197.37	2281.05	0.08
raymondville	reach 1	45414.*	8075.00	7.06	18.38	15.00	18.41	0.000180	2.03	9557.38	3776.82	0.12
raymondville	reach 1	44998.*	1379.00	6.99	16.18	9.91	16.19	0.000045	0.84	3457.71	2023.19	0.06
raymondville	reach 1	44998.*	2028.00	6.99	16.59	10.63	16.59	0.000060	1.00	4292.31	2119.09	0.07
raymondville	reach 1	44998.*	3083.00	6.99	17.02	11.66	17.03	0.000095	1.32	5297.31	2726.36	0.09
raymondville	reach 1	44998.*	8075.00	6.99	18.32	15.00	18.34	0.000169	1.96	9904.06	4211.33	0.12
raymondville	reach 1	44582.*	1379.00	6.93	16.15	9.84	16.16	0.000047	0.85	3477.69	2096.29	0.06
raymondville	reach 1	44582.*	2028.00	6.93	16.56	10.57	16.56	0.000072	1.10	4408.33	2703.11	0.07
raymondville	reach 1	44582.*	3083.00	6.93	16.98	11.60	16.99	0.000094	1.31	5597.69	2890.94	0.09
raymondville	reach 1	44582.*	8075.00	6.93	18.26	15.00	18.27	0.000157	1.89	10691.21	4439.31	0.11
raymondville	reach 1	44186.*	1379.00	6.86	16.13	9.77	16.13	0.000054	0.92	3620.12	2715.79	0.06
raymondville	reach 1	44186.*	2028.00	6.86	16.52	10.50	16.53	0.000063	1.03	4724.81	2811.32	0.07
raymondville	reach 1	44186.*	3083.00	6.86	16.94	11.53	16.95	0.000081	1.22	6082.18	3763.13	0.08
raymondville	reach 1	44186.*	8075.00	6.86	18.21	15.00	18.22	0.000125	1.68	11546.37	4439.09	0.10
raymondville	reach 1	43750	1379.00	6.79	16.10	9.70	16.10	0.000045	0.84	4033.88	3411.95	0.06
raymondville	reach 1	43750	2028.00	6.79	16.49	10.43	16.50	0.000051	0.93	5429.60	3611.31	0.06
raymondville	reach 1	43750	3083.00	6.79	16.90	11.46	16.91	0.000071	1.14	6987.98	3998.02	0.08
raymondville	reach 1	43750	8075.00	6.79	18.16	15.00	18.17	0.000100	1.51	12404.17	4439.10	0.09
raymondville	reach 1	43313.6*	1379.00	6.72	16.07		16.07	0.000061	0.96	3524.66	3343.68	0.07
raymondville	reach 1	43313.6*	2028.00	6.72	16.46		16.47	0.000067	1.05	4924.73	3722.27	0.07
raymondville	reach 1	43313.6*	3083.00	6.72	16.87		16.88	0.000086	1.24	6498.01	3977.38	0.08
raymondville	reach 1	43313.6*	8075.00	6.72	18.11		18.13	0.000115	1.59	11877.71	4448.02	0.10
raymondville	reach 1	42877.2*	1379.00	6.65	16.03		16.04	0.000086	1.12	2998.04	3368.64	0.08
raymondville	reach 1	42877.2*	2028.00	6.65	16.42		16.43	0.000096	1.24	4433.32	3806.70	0.09
raymondville	reach 1	42877.2*	3083.00	6.65	16.82		16.83	0.000108	1.36	5970.02	3937.15	0.09
raymondville	reach 1	42877.2*	8075.00	6.65	18.06		18.07	0.000134	1.70	11316.76	4472.91	0.11
raymondville	reach 1	42440.8*	1379.00	6.57	15.96		15.99	0.000130	1.35	2451.87	3203.25	0.10
raymondville	reach 1	42440.8*	2028.00	6.57	16.37		16.38	0.000125	1.39	3912.72	3724.01	0.10
raymondville	reach 1	42440.8*	3083.00	6.57	16.76		16.77	0.000138	1.52	5396.47	3847.86	0.10
raymondville	reach 1	42440.8*	8075.00	6.57	17.99		18.01	0.000159	1.83	10718.18	4526.56	0.11
raymondville	reach 1	42004.4*	1379.00	6.50	15.89		15.91	0.000172	1.53	1917.07	2622.09	0.11
raymondville	reach 1	42004.4*	2028.00	6.50	16.30		16.32	0.000172	1.60	3346.87	3697.12	0.11
raymondville	reach 1	42004.4*	3083.00	6.50	16.68		16.70	0.000184	1.72	4767.86	3750.12	0.12
raymondville	reach 1	42004.4*	8075.00	6.50	17.91		17.93	0.000204	2.04	10227.22	5443.37	0.13
raymondville	reach 1	41568	1379.00	6.43	15.79		15.83	0.000220	1.69	1498.21	2010.91	0.13
raymondville	reach 1	41568	2028.00	6.43	16.19		16.23	0.000259	1.92	2653.07	3659.27	0.14
raymondville	reach 1	41568	3083.00	6.43	16.58		16.61	0.000264	2.02	4072.52	3721.38	0.14
raymondville	reach 1	41568	8075.00	6.43	17.83		17.85	0.000213	2.05	10612.49	6000.00	0.13
raymondville	reach 1	39543	1379.00	6.10	15.62		15.62	0.000055	0.70	4950.07	5100.64	0.06
raymondville	reach 1	39543	2028.00	6.10	16.02		16.02	0.000050	0.71	7033.92	6000.00	0.06
raymondville	reach 1	39543	3083.00	6.10	16.39		16.39	0.000054	0.78	9244.04	6000.00	0.06
raymondville	reach 1	39543	8075.00	6.10	17.63		17.63	0.000061	0.96	16662.43	6000.00	0.07
raymondville	reach 1	37135	1379.00	5.71	15.55	8.63	15.55	0.000017	0.47	6466.45	4749.90	0.04
raymondville	reach 1	37135	2028.00	5.71	15.95	9.35	15.95	0.000020	0.54	8453.75	5104.93	0.04
raymondville	reach 1	37135	3083.00	5.71	16.29	10.38	16.29	0.000031	0.70	10242.68	5378.81	0.05
raymondville	reach 1	37135	8075.00	5.71	17.49	13.91	17.49	0.000053	1.03	16885.75	5694.04	0.07
raymondville	reach 1	34845	1714.00	5.33	15.40		15.44	0.000220	1.73	2510.61	4563.81	0.13
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4499.93	4727.52	0.10
raymondville	reach 1	34845	2856.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.38	0.09
raymondville	reach 1	34845	7259.00	5.33	17.31		17.33	0.000120	1.55	12176.96	6000.00	0.10
raymondville	reach 1	34786	1714.00	5.32	15.38		15.42	0.000242	1.81	2317.11	4556.48	0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.59	4722.59	0.10
raymondville	reach 1	34786	2856.00	5.32	16.15		16.16	0.000114	1.36	5918.32	4853.13	0.09
raymondville	reach 1	34786	7259.00	5.32	17.31		17.32	0.000123	1.57	12023.85	6000.00	0.10
raymondville	reach 1	32585	1714.00	4.96	14.67		14.74	0.000408	2.28	1043.70	1133.11	0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000246	1.92	2999.29	3852.55	0.14
raymondville	reach 1	32585	2856.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89	0.11
raymondville	reach 1	32585	7259.00	4.96	17.00		17.01	0.000157	1.79	10802.48	5488.50	0.11
raymondville	reach 1	30584	1714.00	4.63	13.82		13.93	0.000393	2.65	651.73	114.58	0.17



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	30564	2255.00	4.63	14.61		14.75	0.000475	3.05	912.78	898.14	0.19
raymondville	reach 1	30564	2856.00	4.63	15.25		15.37	0.000441	3.04	2048.00	3095.80	0.19
raymondville	reach 1	30564	7259.00	4.63	18.54		16.57	0.000304	2.32	8905.81	6000.00	0.15
raymondville	reach 1	29170	1714.00	4.40	13.22		13.34	0.000459	2.79	613.82	89.31	0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	668.09	91.71	0.22
raymondville	reach 1	29170	2856.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.63	0.26
raymondville	reach 1	29170	7259.00	4.40	16.00		16.07	0.000612	3.24	6769.10	6000.00	0.22
raymondville	reach 1	28867.7*	1714.00	4.35	13.07		13.19	0.000482	2.83	605.36	89.47	0.19
raymondville	reach 1	28867.7*	2255.00	4.35	13.61		13.79	0.000689	3.45	654.05	91.93	0.23
raymondville	reach 1	28867.7*	2856.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14	0.27
raymondville	reach 1	28867.7*	7259.00	4.35	15.80		15.89	0.000689	3.51	6282.37	6000.00	0.23
raymondville	reach 1	28565.5*	1714.00	4.30	12.92		13.04	0.000497	2.83	665.41	316.05	0.19
raymondville	reach 1	28565.5*	2255.00	4.30	13.40		13.55	0.000888	3.24	889.85	549.79	0.25
raymondville	reach 1	28565.5*	2856.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05	0.27
raymondville	reach 1	28565.5*	7259.00	4.30	15.59		15.69	0.000739	3.70	5738.40	5786.85	0.24
raymondville	reach 1	28263.2*	1714.00	4.25	12.81		12.88	0.000468	2.31	1071.21	578.72	0.18
raymondville	reach 1	28263.2*	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.64	633.89	0.19
raymondville	reach 1	28263.2*	2856.00	4.25	13.62		13.72	0.000606	2.87	1589.04	750.20	0.21
raymondville	reach 1	28263.2*	7259.00	4.25	15.38		15.49	0.000715	3.70	5492.24	5204.39	0.24
raymondville	reach 1	27961	1714.00	4.20	12.74		12.77	0.000235	1.70	1570.27	639.60	0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.90	746.39	0.15
raymondville	reach 1	27961	2856.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.85	0.16
raymondville	reach 1	27961	7259.00	4.20	15.19		15.28	0.000846	3.57	5478.46	4782.91	0.23
raymondville	reach 1	27505.2*	1714.00	4.13	12.63		12.67	0.000249	1.74	1577.57	724.39	0.13
raymondville	reach 1	27505.2*	2255.00	4.13	13.03		13.07	0.000298	1.98	1886.89	821.50	0.15
raymondville	reach 1	27505.2*	2856.00	4.13	13.38		13.42	0.000337	2.19	2179.60	860.85	0.16
raymondville	reach 1	27505.2*	7259.00	4.13	14.90		14.99	0.000635	3.49	5891.28	5108.96	0.23
raymondville	reach 1	27049.4*	1714.00	4.05	12.52		12.55	0.000265	1.74	1619.24	824.81	0.14
raymondville	reach 1	27049.4*	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49	0.15
raymondville	reach 1	27049.4*	2856.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16	0.16
raymondville	reach 1	27049.4*	7259.00	4.05	14.67		14.73	0.000470	2.98	6901.93	5380.90	0.19
raymondville	reach 1	26593.6*	1714.00	3.98	12.42		12.45	0.000234	1.66	1768.68	1096.39	0.13
raymondville	reach 1	26593.6*	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.49	1364.94	0.14
raymondville	reach 1	26593.6*	2856.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10	0.15
raymondville	reach 1	26593.6*	7259.00	3.98	14.54		14.57	0.000267	2.24	8709.15	5131.83	0.15
raymondville	reach 1	26137.8*	1714.00	3.90	12.34		12.36	0.000185	1.48	2192.22	1558.28	0.12
raymondville	reach 1	26137.8*	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.80	3244.14	0.13
raymondville	reach 1	26137.8*	2856.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4080.54	0.13
raymondville	reach 1	26137.8*	7259.00	3.90	14.46		14.47	0.000140	1.62	10876.60	4909.53	0.11
raymondville	reach 1	25682	1714.00	3.83	12.28		12.30	0.000131	1.25	3534.63	4063.17	0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.18	4115.05	0.09
raymondville	reach 1	25682	2856.00	3.83	12.95		12.96	0.000091	1.13	6283.81	4163.46	0.08
raymondville	reach 1	25682	7259.00	3.83	14.43		14.43	0.000078	1.22	13232.35	4899.50	0.08
raymondville	reach 1	25281.*	1714.00	3.76	12.25		12.25	0.000100	1.11	4044.36	4054.57	0.09
raymondville	reach 1	25281.*	2255.00	3.76	12.80		12.81	0.000082	1.05	5490.53	4121.23	0.08
raymondville	reach 1	25281.*	2856.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4654.45	0.08
raymondville	reach 1	25281.*	7259.00	3.76	14.40		14.41	0.000074	1.20	14400.93	6000.00	0.08
raymondville	reach 1	24880.*	1714.00	3.70	12.22		12.22	0.000071	0.95	4652.36	3810.09	0.07
raymondville	reach 1	24880.*	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.35	4209.63	0.07
raymondville	reach 1	24880.*	2856.00	3.70	12.90		12.91	0.000063	0.97	7572.73	4663.09	0.07
raymondville	reach 1	24880.*	7259.00	3.70	14.38		14.39	0.000058	1.08	15688.30	6000.00	0.07
raymondville	reach 1	24479.*	1714.00	3.63	12.20		12.20	0.000051	0.82	5339.50	3891.36	0.06
raymondville	reach 1	24479.*	2255.00	3.63	12.56		12.56	0.000048	0.83	6808.78	4400.81	0.06
raymondville	reach 1	24479.*	2856.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4996.58	0.06
raymondville	reach 1	24479.*	7259.00	3.63	14.36		14.37	0.000046	0.97	16937.71	6000.00	0.06
raymondville	reach 1	24078.*	1714.00	3.57	12.18		12.19	0.000037	0.70	6186.50	4144.97	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000036	0.73	7758.83	4865.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5466.29	0.05
raymondville	reach 1	24078.*	7259.00	3.57	14.34		14.34	0.000037	0.88	18200.47	6000.00	0.06
raymondville	reach 1	23677	1714.00	3.50	12.16		12.17	0.000027	0.60	7145.76	4682.75	0.04
raymondville	reach 1	23677	2255.00	3.50	12.52		12.53	0.000026	0.62	8905.42	5218.65	0.04
raymondville	reach 1	23677	2856.00	3.50	12.85		12.85	0.000027	0.66	10699.55	5674.64	0.05
raymondville	reach 1	23677	7259.00	3.50	14.32		14.32	0.000030	0.80	19463.71	6000.00	0.05



HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	21680	1714.00	3.17	12.13		12.13	0.000013	0.42	10238.61	6000.00	0.03
raymondville	reach 1	21680	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.19	6000.00	0.03
raymondville	reach 1	21680	2856.00	3.17	12.82		12.82	0.000013	0.44	14380.32	6000.00	0.03
raymondville	reach 1	21680	7259.00	3.17	14.28		14.28	0.000018	0.60	23116.21	6000.00	0.04
raymondville	reach 1	19606	1714.00	2.83	12.11		12.11	0.000013	0.42	10017.37	5923.16	0.03
raymondville	reach 1	19606	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.52	6000.00	0.03
raymondville	reach 1	19606	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19606	7259.00	2.83	14.25		14.25	0.000018	0.61	22848.45	6000.00	0.04
raymondville	reach 1	19152.2*	1714.00	2.75	12.10		12.10	0.000014	0.45	9715.97	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.46		12.46	0.000013	0.45	11917.39	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7259.00	2.75	14.23		14.23	0.000019	0.63	22540.89	6000.00	0.04
raymondville	reach 1	18698.5*	1714.00	2.68	12.08		12.08	0.000016	0.47	9418.09	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.68	12.45		12.45	0.000015	0.47	11607.85	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.68	12.77		12.77	0.000015	0.49	13547.96	6000.00	0.03
raymondville	reach 1	18698.5*	7259.00	2.68	14.22		14.22	0.000020	0.64	22234.52	6000.00	0.04
raymondville	reach 1	18244.7*	1714.00	2.61	12.07		12.07	0.000017	0.49	9110.37	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.61	12.43		12.43	0.000016	0.49	11288.46	6000.00	0.03
raymondville	reach 1	18244.7*	2856.00	2.61	12.76		12.76	0.000016	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7259.00	2.61	14.20		14.20	0.000021	0.66	21918.51	6000.00	0.04
raymondville	reach 1	17791.*	1714.00	2.53	12.05		12.05	0.000019	0.52	8812.48	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.92	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.63	6000.00	0.04
raymondville	reach 1	17791.*	7259.00	2.53	14.19		14.19	0.000022	0.68	21612.34	6000.00	0.04
raymondville	reach 1	17337.2*	1714.00	2.45	12.04		12.04	0.000021	0.55	8516.46	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10671.24	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7259.00	2.45	14.17		14.17	0.000023	0.70	21308.04	6000.00	0.04
raymondville	reach 1	16883.5*	1714.00	2.38	12.03		12.03	0.000024	0.58	8210.00	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.11	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7259.00	2.38	14.16		14.16	0.000024	0.71	20993.29	6000.00	0.04
raymondville	reach 1	16429.7*	1714.00	2.31	12.00		12.01	0.000027	0.62	7863.27	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.55	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.16	6000.00	0.04
raymondville	reach 1	16429.7*	7259.00	2.31	14.14		14.14	0.000025	0.73	20685.10	6000.00	0.05
raymondville	reach 1	15976	1714.00	2.23	11.98		11.98	0.000029	0.64	7522.41	5762.30	0.05
raymondville	reach 1	15976	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.48	6000.00	0.04
raymondville	reach 1	15976	2856.00	2.23	12.68		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15976	7259.00	2.23	14.12		14.13	0.000026	0.75	20378.41	6000.00	0.05
raymondville	reach 1	15517.2*	1714.00	2.16	11.94		11.96	0.000132	1.39	3703.64	5538.15	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.29	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.67		12.67	0.000069	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7259.00	2.16	14.10		14.10	0.000050	1.05	16469.44	6000.00	0.06
raymondville	reach 1	15058.4*	1714.00	2.08	11.82		11.87	0.000256	1.92	1508.19	1757.45	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.78	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7259.00	2.08	14.06		14.07	0.000112	1.57	12477.44	6000.00	0.10
raymondville	reach 1	14599.6*	1714.00	2.01	11.68		11.73	0.000291	2.03	1232.99	763.58	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.95	1250.95	0.16
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.76	2029.68	0.17
raymondville	reach 1	14599.6*	7259.00	2.01	13.95		13.99	0.000303	2.57	8052.72	5870.67	0.16
raymondville	reach 1	14140.8*	1714.00	1.93	11.53		11.59	0.000322	2.12	1101.86	656.86	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.65	0.20
raymondville	reach 1	14140.8*	7259.00	1.93	13.65		13.77	0.000703	3.84	4608.66	3226.77	0.24
raymondville	reach 1	13682	1714.00	1.86	11.37		11.44	0.000350	2.18	1008.04	528.14	0.16
raymondville	reach 1	13682	2255.00	1.86	11.63		11.73	0.000486	2.65	1160.21	615.43	0.19
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000633	3.11	1323.90	713.65	0.22
raymondville	reach 1	13682	7259.00	1.86	12.96		13.29	0.001575	5.45	2317.48	1442.29	0.35
raymondville	reach 1	11672	1714.00	1.53	10.91		10.94	0.000176	1.52	3110.62	4478.22	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000186	1.52	4277.29	4718.76	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7259.00	1.53	12.30		12.31	0.000203	1.89	9955.04	5302.67	0.13

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/n)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	9670	1714.00	1.20	10.34		10.40	0.000425	2.22	1627.95	3473.45	0.17
raymondville	reach 1	9670	2255.00	1.20	10.72		10.76	0.000279	1.89	3335.57	4974.57	0.14
raymondville	reach 1	9670	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9670	7259.00	1.20	11.83		11.85	0.000271	2.10	8860.58	5023.75	0.14
raymondville	reach 1	6234	1714.00	0.64	8.37		8.54	0.000749	3.30	518.92	84.98	0.24
raymondville	reach 1	6234	2255.00	0.64	8.91		9.15	0.001009	3.99	565.55	87.13	0.28
raymondville	reach 1	6234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.63	3570.69	0.30
raymondville	reach 1	6234	7259.00	0.64	10.84		10.86	0.000341	2.33	8788.02	6000.00	0.16
raymondville	reach 1	4339	1714.00	0.31	7.55	3.81	7.57	0.000310	1.18	1447.37	591.68	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	4.20	7.95	0.000363	1.34	1677.41	638.31	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.46	8.30	0.000413	1.50	1907.36	680.49	0.16
raymondville	reach 1	4339	7259.00	0.31	9.81	6.59	9.90	0.000714	2.39	3037.40	810.57	0.22
raymondville	reach 1	4300	1714.00	0.30	7.53	3.60	7.56	0.000318	1.19	1435.04	590.10	0.13
raymondville	reach 1	4300	2255.00	0.30	7.91	4.19	7.93	0.000372	1.36	1663.07	636.45	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	5.48	8.29	0.000424	1.51	1890.92	679.46	0.16
raymondville	reach 1	4300	7259.00	0.30	9.78	6.57	9.87	0.000732	2.41	3007.78	805.98	0.22
raymondville	reach 1	3878.00*	1714.00	0.23	7.38		7.40	0.000372	1.28	1335.20	554.59	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.76	0.000434	1.47	1537.04	586.85	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000488	1.65	1728.20	603.07	0.17
raymondville	reach 1	3878.00*	7259.00	0.23	9.46		9.55	0.000785	2.53	3657.83	2840.00	0.23
raymondville	reach 1	3456.00*	1714.00	0.16	7.21		7.24	0.000419	1.41	1216.84	480.84	0.16
raymondville	reach 1	3456.00*	2255.00	0.16	7.52		7.56	0.000508	1.65	1382.54	648.38	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.87	0.000612	1.86	1598.26	851.34	0.19
raymondville	reach 1	3456.00*	7259.00	0.16	9.18		9.25	0.000633	2.39	4615.22	2820.02	0.21
raymondville	reach 1	3034.00*	1714.00	0.09	6.99		7.03	0.000540	1.82	1145.94	921.56	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.28		7.33	0.000571	1.79	1675.32	1901.01	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.62	0.000547	1.86	2240.99	2009.77	0.18
raymondville	reach 1	3034.00*	7259.00	0.09	8.98		9.02	0.000423	2.10	5818.63	2860.38	0.17
raymondville	reach 1	2612.00*	1714.00	0.02	6.84		6.88	0.000307	1.41	2172.83	2204.72	0.14
raymondville	reach 1	2612.00*	2255.00	0.02	7.14		7.16	0.000265	1.44	2834.88	2238.12	0.14
raymondville	reach 1	2612.00*	2856.00	0.02	7.44		7.45	0.000264	1.46	3509.37	2277.21	0.13
raymondville	reach 1	2612.00*	7259.00	0.02	8.88		8.88	0.000253	1.77	7220.98	2870.48	0.14
raymondville	reach 1	2190	1714.00	-0.05	6.78		6.79	0.000097	0.99	3642.65	2179.82	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.07		7.08	0.000113	1.12	4299.49	2443.63	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000115	1.17	5037.81	2479.29	0.09
raymondville	reach 1	2190	7259.00	-0.05	8.78		8.79	0.000157	1.61	8747.43	2913.11	0.11
raymondville	reach 1	0	1714.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3264.59	2522.02	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	3.48	6.79	0.000160	1.21	3950.11	2543.12	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	5.55	7.09	0.000160	1.27	4757.25	3325.34	0.10
raymondville	reach 1	0	7259.00	-0.41	8.43	5.14	8.44	0.000160	1.51	9370.64	3429.49	0.11
North Main	reach 4	331370	410.00	96.81	103.97	99.87	104.06	0.000492	2.44	168.35	36.91	0.20
North Main	reach 4	331370	573.00	96.81	105.23	100.50	105.34	0.000479	2.63	217.96	41.60	0.20
North Main	reach 4	331370	770.00	96.81	106.53	101.12	106.66	0.000463	2.80	275.18	46.43	0.20
North Main	reach 4	331370	1392.00	96.81	109.54	102.69	109.70	0.000453	3.23	431.50	57.59	0.21
North Main	reach 4	330227	410.00	96.76	103.48	99.35	103.55	0.000399	2.23	183.83	39.69	0.18
North Main	reach 4	330227	573.00	96.76	104.76	99.90	104.85	0.000387	2.41	237.54	44.25	0.18
North Main	reach 4	330227	770.00	96.76	106.07	100.47	106.18	0.000374	2.58	298.98	48.95	0.18
North Main	reach 4	330227	1392.00	96.76	109.08	101.93	109.23	0.000374	3.01	462.46	59.45	0.19
North Main	reach 4	330128	410.00	96.76	103.44	99.26	103.52	0.000413	2.31	177.44	36.28	0.18
North Main	reach 4	330128	573.00	96.76	104.71	99.81	104.81	0.000421	2.53	226.49	40.84	0.19
North Main	reach 4	330128	770.00	96.76	106.02	100.40	106.13	0.000423	2.72	283.12	45.91	0.19
North Main	reach 4	330128	1392.00	96.76	109.02	101.86	109.18	0.000435	3.17	438.74	57.61	0.20
North Main	reach 4	330078	410.00	96.76	103.41	99.26	103.50	0.000419	2.32	176.65	36.22	0.19
North Main	reach 4	330078	573.00	96.76	104.69	99.80	104.79	0.000426	2.54	225.58	40.75	0.19
North Main	reach 4	330078	770.00	96.76	106.00	100.39	106.11	0.000427	2.73	282.09	45.83	0.19
North Main	reach 4	330078	1392.00	96.76	109.00	101.86	109.16	0.000438	3.18	437.41	57.52	0.20
North Main	reach 4	329975	410.00	97.01	103.29	100.02	103.43	0.000858	3.01	136.16	32.79	0.26
North Main	reach 4	329975	573.00	97.01	104.57	100.64	104.73	0.000776	3.16	181.05	37.34	0.25
North Main	reach 4	329975	770.00	97.01	105.88	101.29	106.05	0.000711	3.31	232.97	41.99	0.25
North Main	reach 4	329975	1392.00	97.01	108.88	102.88	109.10	0.000648	3.71	375.18	52.67	0.25
North Main	reach 4	328000	410.00	95.26	102.35	97.87	102.42	0.000330	2.09	196.40	40.45	0.17
North Main	reach 4	328000	573.00	95.26	103.69	98.42	103.76	0.000321	2.26	253.61	45.11	0.17
North Main	reach 4	328000	770.00	95.26	105.04	99.00	105.13	0.000313	2.42	317.95	49.83	0.17

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # CH
North Main	reach 4	328000	1392.00	95.26	108.06	100.47	108.19	0.000329	2.88	484.17	60.35	0.18
North Main	reach 4	328000	410.00	94.56	101.63	97.39	101.70	0.000385	2.19	187.63	40.83	0.18
North Main	reach 4	328000	573.00	94.56	103.01	97.95	103.09	0.000354	2.31	247.67	46.27	0.18
North Main	reach 4	328000	770.00	94.56	104.39	98.54	104.49	0.000332	2.44	315.63	51.75	0.17
North Main	reach 4	328000	1392.00	94.56	107.40	100.02	107.52	0.000335	2.85	488.77	63.48	0.18
North Main	reach 4	324083	410.00	94.05	101.03	96.40	101.09	0.000267	1.90	216.21	44.36	0.15
North Main	reach 4	324083	573.00	94.05	102.46	96.92	102.52	0.000249	2.02	283.23	49.81	0.15
North Main	reach 4	324083	770.00	94.05	103.87	97.47	103.95	0.000238	2.15	357.59	55.24	0.15
North Main	reach 4	324083	1392.00	94.05	106.85	98.88	106.96	0.000257	2.58	539.10	66.67	0.16
North Main	reach 4	324005	410.00	94.05	101.01	96.40	101.07	0.000270	1.90	215.24	44.28	0.15
North Main	reach 4	324005	573.00	94.05	102.44	96.92	102.50	0.000251	2.03	282.22	49.73	0.15
North Main	reach 4	324005	770.00	94.05	103.85	97.47	103.93	0.000240	2.16	356.52	55.16	0.15
North Main	reach 4	324005	1392.00	94.05	106.83	98.88	106.94	0.000259	2.59	537.70	66.59	0.16
North Main	reach 4	322000	410.00	93.17	100.42	95.84	100.48	0.000317	2.04	200.55	41.49	0.16
North Main	reach 4	322000	573.00	93.17	101.89	96.40	101.96	0.000288	2.16	265.68	47.02	0.16
North Main	reach 4	322000	770.00	93.17	103.33	96.99	103.41	0.000273	2.28	337.43	52.45	0.16
North Main	reach 4	322000	1392.00	93.17	106.29	98.48	106.37	0.000302	2.42	435.48	56.10	0.17
North Main	reach 4	320965	410.00	93.05	100.00	95.85	100.09	0.000484	2.40	171.18	36.63	0.20
North Main	reach 4	320965	573.00	93.05	101.51	96.44	101.61	0.000404	2.48	230.60	41.82	0.19
North Main	reach 4	320965	770.00	93.05	102.98	97.06	103.08	0.000373	2.61	295.49	46.85	0.18
North Main	reach 4	320965	1392.00	93.05	105.84	98.63	106.00	0.000408	3.13	444.07	56.65	0.20
North Main	reach 4	320873	410.00	93.05	99.95	95.85	100.04	0.000476	2.42	169.52	36.47	0.20
North Main	reach 4	320873	573.00	93.05	101.47	96.44	101.57	0.000412	2.50	228.96	41.69	0.19
North Main	reach 4	320873	770.00	93.05	102.94	97.06	103.05	0.000379	2.62	293.80	46.72	0.18
North Main	reach 4	320873	1392.00	93.05	105.81	98.63	105.96	0.000414	3.15	441.82	56.52	0.20
North Main	reach 4	320000	410.00	92.95	99.57	95.52	99.65	0.000417	2.25	182.22	40.31	0.19
North Main	reach 4	320000	573.00	92.95	101.16	96.08	101.24	0.000341	2.28	250.98	46.39	0.17
North Main	reach 4	320000	770.00	92.95	102.66	96.67	102.74	0.000306	2.37	324.79	52.12	0.17
North Main	reach 4	320000	1392.00	92.95	105.50	98.13	105.63	0.000333	2.85	488.83	63.07	0.18
North Main	reach 4	318000	410.00	91.12	98.87	93.95	98.94	0.000306	2.05	200.37	39.67	0.16
North Main	reach 4	318000	573.00	91.12	100.58	94.56	100.65	0.000259	2.10	273.15	45.76	0.15
North Main	reach 4	318000	770.00	91.12	102.12	95.19	102.20	0.000244	2.21	348.07	51.27	0.15
North Main	reach 4	318000	1392.00	91.12	104.88	96.76	105.00	0.000297	2.77	503.02	61.12	0.17
North Main	reach 4	317530	410.00	91.23	98.72	94.19	98.79	0.000330	2.04	201.31	43.71	0.17
North Main	reach 4	317530	573.00	91.23	100.46	94.78	100.52	0.000256	2.02	283.94	51.52	0.15
North Main	reach 4	317530	770.00	91.23	102.02	95.39	102.08	0.000228	2.08	369.59	58.52	0.15
North Main	reach 4	317530	1392.00	91.23	104.76	96.87	104.86	0.000261	2.54	547.10	70.81	0.16
North Main	reach 4	317452	410.00	91.23	98.70	94.20	98.76	0.000335	2.05	200.14	43.59	0.17
North Main	reach 4	317452	573.00	91.23	100.44	94.78	100.50	0.000259	2.03	282.88	51.43	0.15
North Main	reach 4	317452	770.00	91.23	102.00	95.39	102.07	0.000230	2.09	368.52	58.44	0.15
North Main	reach 4	317452	1392.00	91.23	104.74	96.87	104.84	0.000263	2.55	545.61	70.72	0.16
North Main	reach 4	317000	410.00	90.93	98.54	93.87	98.61	0.000347	2.14	191.70	39.29	0.17
North Main	reach 4	317000	573.00	90.93	100.31	94.48	100.38	0.000277	2.15	267.13	45.81	0.16
North Main	reach 4	317000	770.00	90.93	101.88	95.12	101.96	0.000255	2.24	343.49	51.59	0.15
North Main	reach 4	317000	1392.00	90.93	104.59	96.68	104.71	0.000310	2.80	496.84	61.57	0.17
North Main	reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001841	1.80	22.17	21.96	0.32
North Main	reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002312	2.65	37.72	24.65	0.38
North Main	reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000288	1.56	120.45	35.70	0.15
North Main	reach 2	157900	515.00	90.87	97.21	93.55	97.32	0.000598	2.69	191.49	42.97	0.22
North Main	reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.67	0.81
North Main	reach 2	157788	100.00	90.87	92.31	91.74	92.45	0.003574	2.99	33.50	25.30	0.46
North Main	reach 2	157788	188.00	90.87	95.38	92.18	95.42	0.000255	1.51	124.60	34.57	0.14
North Main	reach 2	157788	515.00	90.87	97.15	93.35	97.26	0.000589	2.67	192.67	42.38	0.22
North Main	reach 2	157777	Inline Weir									
North Main	reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002112	2.10	19.01	16.28	0.34
North Main	reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	69.99	26.04	0.15
North Main	reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.34	38.01	0.09
North Main	reach 2	157707	515.00	88.33	97.14	91.83	97.22	0.000300	2.13	241.69	44.87	0.16
North Main	reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000559	1.34	29.84	18.32	0.19
North Main	reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000160	1.10	91.02	28.83	0.11
North Main	reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000067	0.94	199.78	41.37	0.06
North Main	reach 2	157442	515.00	87.38	97.09	91.01	97.15	0.000209	1.86	277.48	48.25	0.14

HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000663	1.42	28.10	17.93	0.20
North Main	reach 2	157290	100.00	87.38	92.23	88.88	92.25	0.000164	1.11	90.10	29.70	0.11
North Main	reach 2	157290	188.00	87.38	95.35	89.49	95.36	0.000068	0.94	199.22	41.32	0.08
North Main	reach 2	157290	515.00	87.38	97.05	91.01	97.11	0.000213	1.87	275.49	48.09	0.14
North Main	reach 2	158900	40.00	87.38	89.39	88.06	89.41	0.000376	1.10	36.30	22.48	0.15
North Main	reach 2	158900	100.00	87.38	92.18	88.52	92.19	0.000091	0.88	113.32	32.70	0.08
North Main	reach 2	158900	188.00	87.38	95.33	89.03	95.34	0.000043	0.80	234.28	44.25	0.06
North Main	reach 2	158900	515.00	87.38	96.99	90.35	97.04	0.000148	1.64	313.18	50.38	0.12
North Main	reach 2	155952	40.00	87.33	88.96	87.94	88.96	0.000543	1.17	34.27	26.17	0.18
North Main	reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000058	0.70	141.99	42.08	0.07
North Main	reach 2	155952	188.00	87.33	95.30	88.80	95.31	0.000026	0.62	301.67	58.14	0.05
North Main	reach 2	155952	515.00	87.33	96.90	89.97	96.92	0.000089	1.29	400.70	66.18	0.09
North Main	reach 2	155846	40.00	87.31	88.90	87.84	88.92	0.000569	1.24	32.31	23.03	0.18
North Main	reach 2	155846	100.00	87.31	92.11	88.28	92.12	0.000071	0.81	123.88	33.81	0.07
North Main	reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000036	0.76	246.43	43.18	0.06
North Main	reach 2	155846	515.00	87.31	96.88	90.02	96.92	0.000135	1.62	318.26	47.82	0.11
North Main	reach 2	155779	40.00	87.31	88.88	87.70	88.89	0.000235	0.82	48.64	33.28	0.12
North Main	reach 2	155779	100.00	87.31	92.11	88.02	92.11	0.000033	0.58	171.23	42.65	0.05
North Main	reach 2	155779	188.00	87.31	95.30	88.39	95.30	0.000018	0.59	321.20	51.45	0.04
North Main	reach 2	155779	515.00	87.31	96.87	89.38	96.90	0.000073	1.27	405.83	55.80	0.08
North Main	reach 2	155696	40.00	87.31	88.84	87.78	88.88	0.000445	1.09	36.60	26.02	0.16
North Main	reach 2	155696	100.00	87.31	92.09	88.16	92.10	0.000056	0.74	135.98	35.24	0.07
North Main	reach 2	155696	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	263.17	44.43	0.05
North Main	reach 2	155696	515.00	87.31	96.85	89.76	96.89	0.000119	1.53	336.45	48.95	0.10
North Main	reach 2	154900	40.00	86.57	88.63	87.06	88.64	0.000178	0.82	48.90	26.95	0.11
North Main	reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000036	0.63	158.79	37.28	0.05
North Main	reach 2	154900	188.00	86.57	95.26	87.90	95.26	0.000023	0.64	293.74	46.94	0.05
North Main	reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000082	1.40	368.50	51.52	0.09
North Main	reach 2	153295	40.00	85.60	88.42	86.21	88.42	0.000105	0.72	55.56	24.50	0.08
North Main	reach 2	153295	100.00	85.60	92.00	86.68	92.00	0.000031	0.61	164.15	36.16	0.05
North Main	reach 2	153295	188.00	85.60	95.23	87.20	95.24	0.000022	0.63	298.61	47.20	0.04
North Main	reach 2	153295	515.00	85.60	96.63	88.55	96.68	0.000083	1.40	367.98	52.05	0.09
North Main	reach 2	153200	40.00	85.60	88.40	86.21	88.41	0.000107	0.72	55.23	24.45	0.08
North Main	reach 2	153200	100.00	85.60	91.99	86.68	91.99	0.000031	0.61	163.74	36.13	0.05
North Main	reach 2	153200	188.00	85.60	95.22	87.20	95.23	0.000022	0.63	298.22	47.17	0.04
North Main	reach 2	153200	515.00	85.60	96.61	88.54	96.64	0.000094	1.40	367.00	51.98	0.09
North Main	reach 2	152900	40.00	85.22	88.38	85.96	88.39	0.000058	0.57	70.79	28.92	0.06
North Main	reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.31	40.41	0.04
North Main	reach 2	152900	188.00	85.22	95.21	86.82	95.22	0.000015	0.55	342.99	50.86	0.04
North Main	reach 2	152900	515.00	85.22	96.59	88.03	96.61	0.000067	1.24	416.08	55.31	0.08
North Main	reach 2	150900	40.00	84.97	88.30	85.46	88.30	0.000031	0.45	89.75	32.91	0.05
North Main	reach 2	150900	100.00	84.97	91.95	85.85	91.96	0.000013	0.43	233.20	45.64	0.03
North Main	reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.44	56.95	0.03
North Main	reach 2	150900	515.00	84.97	96.48	87.43	96.50	0.000048	1.08	475.59	61.49	0.07
North Main	reach 2	150637	40.00	84.27	88.29	85.01	88.29	0.000016	0.34	116.49	37.80	0.03
North Main	reach 2	150637	100.00	84.27	91.95	85.36	91.95	0.000008	0.38	279.45	52.07	0.03
North Main	reach 2	150637	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.43	65.39	0.03
North Main	reach 2	150637	515.00	84.27	96.48	86.81	96.49	0.000046	0.92	580.11	91.92	0.07
North Main	reach 2	150569	40.00	84.27	88.28	85.01	88.28	0.000016	0.34	116.12	37.76	0.03
North Main	reach 2	150569	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.25	52.06	0.03
North Main	reach 2	150569	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.20	65.37	0.03
North Main	reach 2	150569	515.00	84.27	96.47	86.81	96.49	0.000046	0.92	559.82	91.81	0.07
North Main	reach 2	148900	40.00	84.27	88.25	84.79	88.25	0.000021	0.39	101.30	32.33	0.04
North Main	reach 2	148900	100.00	84.27	91.93	85.20	91.94	0.000011	0.41	244.19	45.30	0.03
North Main	reach 2	148900	188.00	84.27	95.18	85.67	95.18	0.000010	0.46	409.68	56.76	0.03
North Main	reach 2	148900	515.00	84.27	96.39	86.90	96.41	0.000046	1.07	481.05	61.05	0.07
North Main	reach 2	147966	40.00	83.76	88.22	84.95	88.23	0.000073	0.68	58.84	20.32	0.07
North Main	reach 2	147966	100.00	83.76	91.92	85.61	91.93	0.000034	0.65	154.09	31.16	0.05
North Main	reach 2	147966	188.00	83.76	95.17	86.29	95.17	0.000027	0.69	271.07	41.28	0.05
North Main	reach 2	147966	515.00	83.76	96.30	87.99	96.34	0.000130	1.61	319.97	45.39	0.11
North Main	reach 2	147814	40.00	83.76	88.21	84.77	88.22	0.000044	0.55	72.89	24.54	0.06
North Main	reach 2	147814	100.00	83.76	91.91	85.35	91.92	0.000021	0.53	187.09	37.16	0.04
North Main	reach 2	147814	188.00	83.76	95.16	85.97	95.16	0.000017	0.58	325.48	48.15	0.04
North Main	reach 2	147814	515.00	83.76	96.29	87.51	96.32	0.000083	1.35	382.20	51.98	0.09

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 2	148900	40.00	83.26	88.19	84.07	88.20	0.000018	0.39	102.51	29.93	0.04
North Main	reach 2	148900	100.00	83.26	91.90	84.58	91.90	0.000011	0.42	237.52	42.94	0.03
North Main	reach 2	148900	188.00	83.26	95.15	85.14	95.15	0.000010	0.48	395.38	54.33	0.03
North Main	reach 2	148900	515.00	83.26	98.23	86.55	96.25	0.000052	1.13	456.35	58.14	0.07
North Main	reach 2	145333	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	118.95	32.21	0.03
North Main	reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.13	45.25	0.03
North Main	reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.49	57.85	0.03
North Main	reach 2	145333	515.00	83.11	96.16	86.08	96.17	0.000044	1.05	490.52	61.67	0.07
North Main	reach 2	145285	40.00	83.11	88.17	83.73	88.18	0.000012	0.34	118.85	32.20	0.03
North Main	reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.03	45.24	0.03
North Main	reach 2	145285	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.37	57.84	0.03
North Main	reach 2	145285	515.00	83.11	96.16	86.08	96.17	0.000030	0.87	1054.06	2238.25	0.05
North Main	reach 2	144900	40.00	83.06	88.17	83.56	88.17	0.000007	0.27	148.89	37.56	0.02
North Main	reach 2	144900	100.00	83.06	91.88	83.95	91.89	0.000006	0.32	310.77	49.66	0.02
North Main	reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	568.20	503.93	0.02
North Main	reach 2	144900	515.00	83.06	96.15	85.56	96.16	0.000019	0.73	1731.94	2334.51	0.04
North Main	reach 2	144259	482.00	78.00	88.11	80.37	88.13	0.000062	1.34	359.48	49.85	0.09
North Main	reach 2	144259	1051.00	78.00	91.79	81.85	91.84	0.000079	1.88	563.65	61.85	0.10
North Main	reach 2	144259	1858.00	78.00	94.98	83.44	95.08	0.000097	2.51	780.00	73.71	0.12
North Main	reach 2	144259	4804.00	78.00	95.35	87.38	95.92	0.000563	6.15	1413.60	7568.91	0.29
North Main	reach 2	144227	Culvert									
North Main	reach 2	144198	482.00	78.00	88.00	80.37	88.02	0.000065	1.36	354.03	49.54	0.09
North Main	reach 2	144198	1051.00	78.00	91.21	81.85	91.27	0.000096	2.00	528.25	59.68	0.11
North Main	reach 2	144198	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.53	67.09	0.15
North Main	reach 2	144198	4804.00	78.00	95.37	87.38	95.90	0.000537	6.02	1658.58	7701.31	0.29
North Main	reach 2	143768	482.00	80.00	87.91	83.00	87.97	0.000190	1.95	246.76	47.41	0.15
North Main	reach 2	143768	1051.00	80.00	91.10	84.46	91.20	0.000198	2.53	416.88	59.30	0.16
North Main	reach 2	143768	1858.00	80.00	93.03	85.98	93.22	0.000287	3.55	538.08	66.48	0.20
North Main	reach 2	143768	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8006.19	8954.66	0.20
North Main	reach 2	142844	482.00	80.00	87.76	82.81	87.81	0.000165	1.84	261.35	49.47	0.14
North Main	reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000178	2.41	437.07	61.03	0.15
North Main	reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.29	67.80	0.20
North Main	reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11670.98	9169.22	0.14
North Main	reach 2	142821	Bridge									
North Main	reach 2	142771	482.00	80.00	87.73	82.51	87.78	0.000163	1.85	260.49	48.45	0.14
North Main	reach 2	142771	1051.00	80.00	90.91	83.97	91.00	0.000181	2.43	433.27	60.03	0.16
North Main	reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.61	66.21	0.20
North Main	reach 2	142771	4804.00	80.00	95.18	89.25	95.30	0.000237	3.76	8202.92	8923.67	0.19
North Main	reach 2	141205	482.00	80.00	87.49	82.36	87.54	0.000147	1.78	271.03	49.44	0.13
North Main	reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.38	443.08	59.96	0.15
North Main	reach 2	141205	1858.00	80.00	92.33	85.15	92.52	0.000273	3.43	549.53	65.68	0.20
North Main	reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000124	2.73	11457.00	8885.67	0.14
North Main	reach 2	140152	482.00	80.00	87.31	82.62	87.37	0.000201	1.95	246.67	50.16	0.16
North Main	reach 2	140152	1051.00	80.00	90.44	84.06	90.53	0.000209	2.47	425.08	63.79	0.17
North Main	reach 2	140152	1858.00	80.00	92.02	85.54	92.21	0.000327	3.55	530.98	70.58	0.22
North Main	reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11249.08	9008.84	0.14
North Main	reach 2	140137	Bridge									
North Main	reach 2	140107	482.00	78.00	87.31	80.62	87.34	0.000087	1.46	329.90	54.16	0.10
North Main	reach 2	140107	1051.00	78.00	90.44	82.15	90.50	0.000117	2.03	519.23	66.79	0.13
North Main	reach 2	140107	1858.00	78.00	91.89	83.72	92.04	0.000209	3.03	620.84	72.70	0.17
North Main	reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.36	11295.36	6548.52	0.12
North Main	reach 2	138870	482.00	78.00	87.21	80.28	87.25	0.000066	1.70	358.83	56.05	0.10
North Main	reach 2	138870	1051.00	78.00	90.28	81.68	90.37	0.000109	2.65	548.10	67.43	0.13
North Main	reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.50	72.06	0.20
North Main	reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.82	13699.41	8905.65	0.12
North Main	reach 2	137387	482.00	78.00	87.11	80.28	87.16	0.000069	1.72	353.27	55.80	0.10
North Main	reach 2	137387	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.50	67.02	0.14
North Main	reach 2	137387	1858.00	78.00	91.14	83.26	91.39	0.000265	4.32	608.07	70.84	0.21
North Main	reach 2	137387	4804.00	78.00	94.26	87.47	94.51	0.000311	5.42	4574.17	8308.34	0.24
North Main	reach 2	137384	482.00	78.00	87.11	80.28	87.15	0.000069	1.73	352.94	55.78	0.10
North Main	reach 2	137384	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.38	67.01	0.14



HEC-RAS Plan - P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	137384	1858.00	78.00	91.13	83.26	91.39	0.000265	4.33	607.75	70.82	0.21
North Main	reach 2	137384	4804.00	78.00	94.26	87.48	94.51	0.000312	5.43	4563.01	8303.33	0.24
North Main	reach 2	137349	Bridge									
North Main	reach 2	137334	482.00	78.00	87.09	80.28	87.13	0.000070	1.73	351.96	55.71	0.10
North Main	reach 2	137334	1051.00	78.00	90.10	81.69	90.21	0.000115	2.70	537.00	66.99	0.14
North Main	reach 2	137334	1858.00	78.00	91.12	83.26	91.37	0.000266	4.33	606.77	70.77	0.21
North Main	reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000551	7.05	2875.40	7114.87	0.32
North Main	reach 2	137249	482.00	78.00	87.07	80.54	87.13	0.000093	1.98	319.56	52.68	0.12
North Main	reach 2	137249	1051.00	78.00	90.06	82.09	90.19	0.000151	3.06	495.04	64.52	0.16
North Main	reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.69	67.93	0.24
North Main	reach 2	137249	4804.00	78.00	92.13	88.26	93.82	0.001684	11.41	812.51	3625.71	0.54
North Main	reach 2	137150	482.00	78.00	87.07	80.41	87.12	0.000081	1.85	333.21	53.71	0.11
North Main	reach 2	137150	1051.00	78.00	90.06	81.88	90.17	0.000133	2.88	510.40	64.88	0.15
North Main	reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.65	573.00	68.36	0.23
North Main	reach 2	137150	4804.00	78.00	92.02	87.85	93.63	0.001565	10.97	646.32	2219.61	0.52
North Main	reach 2	135957	482.00	78.00	86.99	80.18	87.03	0.000064	1.64	363.76	57.03	0.10
North Main	reach 2	135957	1051.00	78.00	89.93	81.52	90.02	0.000107	2.58	547.33	67.85	0.13
North Main	reach 2	135957	1858.00	78.00	90.78	83.04	90.96	0.000210	3.79	1404.49	1303.38	0.19
North Main	reach 2	135957	4804.00	78.00	91.89	87.09	92.28	0.000538	6.43	3675.88	2911.60	0.31
North Main	reach 2	135841	482.00	78.00	86.97	80.23	87.02	0.000068	1.70	352.95	55.69	0.10
North Main	reach 2	135841	1051.00	78.00	89.90	81.60	90.00	0.000115	2.67	531.58	66.34	0.14
North Main	reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000249	4.11	1166.26	1394.76	0.20
North Main	reach 2	135841	4804.00	78.00	91.79	87.27	92.20	0.000604	6.76	3722.67	5968.56	0.32
North Main	reach 2	135233	482.00	78.00	86.94	80.32	86.98	0.000086	1.57	343.02	54.99	0.10
North Main	reach 2	135233	1051.00	78.00	89.85	81.73	89.94	0.000108	2.46	518.88	66.03	0.13
North Main	reach 2	135233	1858.00	78.00	90.68	83.13	90.78	0.000151	3.06	2880.99	3640.15	0.18
North Main	reach 2	135233	4804.00	78.00	91.99	86.98	92.00	0.000054	1.95	17110.72	9184.99	0.09
North Main	reach 2	134690	482.00	78.00	86.93	80.04	86.95	0.000046	1.33	402.87	63.61	0.08
North Main	reach 2	134690	1051.00	78.00	89.82	81.31	89.88	0.000069	1.99	951.25	598.39	0.11
North Main	reach 2	134690	1858.00	78.00	90.66	82.63	90.71	0.000084	2.30	4700.11	8801.00	0.12
North Main	reach 2	134690	4804.00	78.00	91.97	86.09	91.98	0.000041	1.73	18918.18	9799.69	0.08
North Main	reach 2	134647	Bridge									
North Main	reach 2	134606	482.00	78.00	86.88	81.96	86.94	0.000134	2.02	312.27	70.30	0.14
North Main	reach 2	134606	1051.00	78.00	89.72	83.30	89.81	0.000141	2.60	1308.43	1865.97	0.15
North Main	reach 2	134606	1858.00	78.00	90.62	84.81	90.66	0.000108	2.42	5361.39	8767.69	0.13
North Main	reach 2	134606	4804.00	78.00	91.96	90.76	91.96	0.000042	1.64	19593.63	9786.96	0.08
North Main	reach 2	134537	482.00	78.00	86.89	80.04	86.92	0.000047	1.34	400.46	63.45	0.08
North Main	reach 2	134537	1051.00	78.00	89.73	81.31	89.79	0.000073	2.03	895.85	574.64	0.11
North Main	reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000095	2.43	4427.87	8738.24	0.12
North Main	reach 2	134537	4804.00	78.00	91.95	86.09	91.96	0.000043	1.76	18672.14	9780.59	0.09
North Main	reach 2	132334	962.00	78.00	86.50	81.36	86.63	0.000272	2.87	346.60	58.13	0.19
North Main	reach 2	132334	1985.00	78.00	89.09	83.16	89.36	0.000387	4.22	676.93	2169.80	0.24
North Main	reach 2	132334	3435.00	78.00	90.21	84.98	90.30	0.000206	3.34	6543.08	8425.09	0.18
North Main	reach 2	132334	8788.00	78.00	91.79	90.51	91.80	0.000098	2.51	21371.59	9649.58	0.13
North Main	reach 2	131888	962.00	78.00	86.33	81.34	86.45	0.000266	2.78	356.85	61.90	0.19
North Main	reach 2	131888	1985.00	78.00	89.00	83.09	89.14	0.000239	3.29	1927.03	2840.76	0.19
North Main	reach 2	131888	3435.00	78.00	90.09	84.81	90.16	0.000191	3.17	5777.46	7576.36	0.17
North Main	reach 2	131888	8788.00	78.00	91.71	89.89	91.73	0.000114	2.70	19225.05	8692.08	0.14
North Main	reach 2	130701	962.00	78.00	86.25	80.24	86.28	0.000095	1.68	1063.06	280.21	0.11
North Main	reach 2	130701	1985.00	78.00	88.92	81.50	88.96	0.000099	2.13	2228.54	1502.05	0.12
North Main	reach 2	130701	3435.00	78.00	89.95	82.88	90.00	0.000137	2.69	4748.99	3180.18	0.15
North Main	reach 2	130701	8788.00	78.00	91.59	88.50	91.62	0.000129	2.67	17386.30	8452.56	0.15
North Main	reach 2	130046	962.00	78.00	86.02	81.30	86.18	0.000328	3.01	326.89	57.19	0.21
North Main	reach 2	130046	1985.00	78.00	88.65	83.09	88.84	0.000327	3.77	1652.70	3275.01	0.22
North Main	reach 2	130046	3435.00	78.00	89.84	84.88	89.90	0.000167	2.92	6590.23	8060.06	0.16
North Main	reach 2	130046	8788.00	78.00	91.54	89.69	91.55	0.000069	2.08	23789.34	9342.46	0.11
North Main	reach 2	128081	962.00	78.00	85.36	81.03	85.50	0.000373	3.04	319.51	190.90	0.22
North Main	reach 2	128081	1985.00	78.00	88.06	82.73	88.22	0.000310	3.56	1717.88	3157.66	0.21
North Main	reach 2	128081	3435.00	78.00	89.55	84.47	89.60	0.000150	2.75	6730.66	6681.92	0.15
North Main	reach 2	128081	8788.00	78.00	91.43	89.09	91.44	0.000047	1.72	27404.56	9636.93	0.08
North Main	reach 2	128032	962.00	78.00	85.34	81.04	85.48	0.000379	3.06	317.80	183.25	0.22
North Main	reach 2	128032	1985.00	78.00	88.04	82.72	88.20	0.000317	3.59	1680.66	3123.65	0.22

HFC-PAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	128032	3435.00	78.00	89.54	84.47	89.59	0.000152	2.76	6715.33	6707.83	0.15
North Main	reach 2	128032	8788.00	78.00	91.42	88.09	91.43	0.000046	1.71	27437.98	9653.25	0.09
North Main	reach 2	126984	962.00	76.00	85.03	79.67	85.14	0.000270	2.72	356.32	1363.01	0.19
North Main	reach 2	126984	1985.00	76.00	87.90	81.51	87.96	0.000137	2.47	3148.42	4076.70	0.14
North Main	reach 2	126984	3435.00	76.00	89.44	83.42	89.47	0.000077	2.06	8314.76	6523.50	0.11
North Main	reach 2	126984	8788.00	76.00	91.39	88.13	91.40	0.000028	1.38	31429.64	9053.18	0.07
North Main	reach 2	126599	962.00	76.00	84.92	79.66	85.04	0.000278	2.72	355.67	60.10	0.19
North Main	reach 2	126599	1985.00	76.00	87.65	81.48	87.67	0.000338	3.80	766.54	984.58	0.22
North Main	reach 2	126599	3435.00	76.00	89.33	83.39	89.42	0.000183	3.14	5455.91	6402.58	0.17
North Main	reach 2	126599	8788.00	76.00	91.37	89.23	91.38	0.000056	1.95	24637.84	8887.88	0.10
North Main	reach 2	125566	962.00	76.00	84.59	79.66	84.72	0.000336	2.90	332.71	57.27	0.21
North Main	reach 2	125566	1985.00	76.00	87.26	81.48	87.49	0.000382	3.94	880.71	956.27	0.23
North Main	reach 2	125566	3435.00	76.00	89.11	83.38	89.21	0.000213	3.34	4472.37	4067.18	0.18
North Main	reach 2	125566	8788.00	76.00	91.28	88.92	91.30	0.000101	2.60	19849.31	9254.14	0.13
North Main	reach 2	124578	962.00	76.00	84.30	79.24	84.42	0.000267	2.80	352.93	60.05	0.19
North Main	reach 2	124578	1985.00	76.00	86.84	81.00	87.11	0.000384	4.15	519.00	70.60	0.24
North Main	reach 2	124578	3435.00	76.00	88.68	82.77	88.92	0.000364	4.56	2420.12	2013.12	0.24
North Main	reach 2	124578	8788.00	76.00	90.95	89.11	91.12	0.000368	5.18	8974.19	6475.50	0.25
North Main	reach 2	124360	962.00	76.00	84.20	79.51	84.35	0.000348	3.12	317.37	55.93	0.21
North Main	reach 2	124360	1985.00	76.00	86.76	81.36	87.02	0.000419	4.26	801.33	438.72	0.25
North Main	reach 2	124360	3435.00	76.00	88.56	83.15	88.83	0.000433	4.88	1956.19	2395.60	0.26
North Main	reach 2	124360	8788.00	76.00	90.96	88.79	91.03	0.000210	3.89	12958.70	5747.30	0.19
North Main	reach 2	124036	962.00	76.00	84.09	79.38	84.23	0.000347	3.11	317.08	55.23	0.21
North Main	reach 2	124036	1985.00	76.00	86.60	81.22	86.87	0.000439	4.34	740.10	404.14	0.25
North Main	reach 2	124036	3435.00	76.00	88.38	83.03	88.68	0.000470	5.06	1807.45	2264.67	0.27
North Main	reach 2	124036	8788.00	76.00	90.88	88.75	90.95	0.000230	4.06	12401.76	5635.23	0.20
North Main	reach 2	122198	962.00	76.00	83.41	79.14	83.56	0.000395	3.13	311.31	57.36	0.23
North Main	reach 2	122198	1985.00	76.00	86.00	80.87	86.16	0.000324	3.60	1385.67	867.71	0.22
North Main	reach 2	122198	3435.00	76.00	88.02	82.63	88.10	0.000191	3.18	4322.91	2034.01	0.17
North Main	reach 2	122198	8788.00	76.00	90.51	87.29	90.57	0.000190	3.66	10975.24	5352.72	0.18
North Main	reach 2	120752	962.00	76.00	82.48	79.42	82.73	0.000888	4.09	235.95	50.57	0.33
North Main	reach 2	120752	1985.00	76.00	84.90	81.24	85.38	0.000967	5.58	371.26	61.15	0.36
North Main	reach 2	120752	3435.00	76.00	87.39	83.02	87.66	0.000519	4.98	2491.66	1818.38	0.28
North Main	reach 2	120752	8788.00	76.00	90.14	87.94	90.24	0.000281	4.32	8316.27	2866.94	0.22
North Main	reach 2	120467	962.00	76.00	82.23	79.23	82.48	0.000889	4.01	240.21	52.10	0.33
North Main	reach 2	120467	1985.00	76.00	84.64	80.99	85.10	0.000940	5.43	378.71	62.60	0.36
North Main	reach 2	120467	3435.00	76.00	86.86	82.74	87.43	0.000922	6.44	1246.58	1559.12	0.37
North Main	reach 2	120467	8788.00	76.00	90.07	88.05	90.16	0.000255	4.13	10009.17	4259.59	0.21
North Main	reach 2	119740	962.00	76.00	80.02	79.23	80.80	0.004596	7.09	135.72	42.48	0.70
North Main	reach 2	119740	1985.00	76.00	82.91	80.98	83.72	0.002416	7.22	276.46	55.04	0.55
North Main	reach 2	119740	3435.00	76.00	84.42	82.74	85.88	0.003139	9.71	364.66	1231.95	0.65
North Main	reach 2	119740	8788.00	76.00	89.84	87.55	89.92	0.000249	4.03	8303.52	6802.47	0.20
North Main	reach 2	119730	962.00	72.00	80.35	75.11	80.44	0.000190	2.35	424.08	75.84	0.16
North Main	reach 2	119730	1985.00	72.00	83.22	76.74	83.39	0.000234	3.31	677.99	115.84	0.19
North Main	reach 2	119730	3435.00	72.00	84.97	78.35	85.30	0.000378	4.72	925.74	1435.09	0.25
North Main	reach 2	119730	8788.00	72.00	89.47	82.35	89.83	0.000376	5.90	3924.12	5735.23	0.26
North Main	reach 2	118784	962.00	72.00	80.20	75.11	80.29	0.000206	2.40	412.82	75.06	0.17
North Main	reach 2	118784	1985.00	72.00	83.06	76.74	83.21	0.000225	3.21	1011.21	544.01	0.19
North Main	reach 2	118784	3435.00	72.00	84.84	78.35	85.00	0.000238	3.71	2374.28	3234.19	0.20
North Main	reach 2	118784	8788.00	72.00	89.50	84.23	89.55	0.000103	3.09	10186.03	5023.58	0.14
North Main	reach 2	118761	962.00	70.00	80.21	73.45	80.28	0.000155	2.24	440.32	69.28	0.15
North Main	reach 2	118761	1985.00	70.00	83.05	75.48	83.19	0.000199	3.16	1014.93	538.19	0.17
North Main	reach 2	118761	3435.00	70.00	84.82	77.48	84.99	0.000230	3.77	2275.67	828.67	0.19
North Main	reach 2	118761	8788.00	70.00	89.48	83.99	89.55	0.000116	3.34	10701.06	2516.54	0.14
North Main	reach 2	118735	Culvert									
North Main	reach 2	118709	962.00	70.00	79.21		79.31	0.000251	2.60	373.85	63.96	0.18
North Main	reach 2	118709	1985.00	70.00	82.16		82.37	0.000295	3.62	626.08	340.45	0.21
North Main	reach 2	118709	3435.00	70.00	84.79		84.96	0.000233	3.80	2253.60	826.32	0.19
North Main	reach 2	118709	8788.00	70.00	89.47		89.53	0.000117	3.35	10662.86	2513.21	0.14
North Main	reach 2	118635	962.00	72.00	79.17		79.28	0.000323	2.77	350.66	66.76	0.20
North Main	reach 2	118635	1985.00	72.00	82.14		82.35	0.000333	3.72	614.17	407.63	0.22
North Main	reach 2	118635	3435.00	72.00	84.77		84.94	0.000243	3.79	2274.60	885.90	0.20
North Main	reach 2	118635	8788.00	72.00	89.46		89.52	0.000110	3.22	10886.87	2526.01	0.14

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	118513	962.00	72.00	79.14		79.25	0.000304	2.73	354.88	64.78	0.20
North Main	reach 2	118513	1985.00	72.00	82.11		82.31	0.000315	3.65	658.36	374.33	0.22
North Main	reach 2	118513	3435.00	72.00	84.73		84.90	0.000241	3.79	2242.88	856.53	0.20
North Main	reach 2	118513	8788.00	72.00	89.44		89.50	0.000113	3.27	10748.40	2508.69	0.14
North Main	reach 2	117690	1120.00	70.00	78.88	73.75	79.05	0.000338	3.31	352.06	57.01	0.21
North Main	reach 2	117690	2355.00	70.00	81.67	75.82	82.05	0.000494	4.95	529.86	70.24	0.27
North Main	reach 2	117690	4175.00	70.00	83.82	77.91	84.57	0.000793	7.13	698.29	88.23	0.36
North Main	reach 2	117690	10250.00	70.00	89.13	83.24	89.37	0.000324	5.79	7937.50	6047.81	0.24
North Main	reach 2	117193	1120.00	70.00	78.74	73.66	78.91	0.000342	3.31	345.52	53.83	0.22
North Main	reach 2	117193	2355.00	70.00	81.48	75.71	81.84	0.000513	5.00	516.49	74.56	0.28
North Main	reach 2	117193	4175.00	70.00	83.45	77.78	84.24	0.000847	7.24	679.56	87.41	0.37
North Main	reach 2	117193	10250.00	70.00	86.93	83.27	88.93	0.001722	12.24	1673.92	499.71	0.55
North Main	reach 2	116403	1120.00	70.00	78.52	74.20	78.69	0.000388	3.35	350.00	65.36	0.23
North Main	reach 2	116403	2355.00	70.00	81.16	76.04	81.52	0.000544	4.91	550.42	93.52	0.29
North Main	reach 2	116403	4175.00	70.00	82.98	77.98	83.71	0.000885	7.06	748.10	124.08	0.38
North Main	reach 2	116403	10250.00	70.00	85.99	82.86	87.83	0.001832	11.94	1827.11	587.87	0.56
North Main	reach 2	116161	1120.00	70.00	78.47	73.29	78.60	0.000274	2.92	401.39	71.47	0.19
North Main	reach 2	116161	2355.00	70.00	81.10	75.18	81.39	0.000403	4.38	627.01	106.99	0.25
North Main	reach 2	116161	4175.00	70.00	82.89	77.13	83.48	0.000681	6.37	850.23	144.87	0.33
North Main	reach 2	116161	10250.00	70.00	85.79	82.12	87.36	0.001506	11.00	1913.22	595.77	0.51
North Main	reach 2	115322	1120.00	70.00	78.15	74.01	78.32	0.000389	3.42	414.19	105.99	0.23
North Main	reach 2	115322	2355.00	70.00	80.81	75.78	81.03	0.000388	4.26	1302.89	647.58	0.24
North Main	reach 2	115322	4175.00	70.00	82.78	77.95	82.97	0.000348	4.58	2844.12	941.58	0.24
North Main	reach 2	115322	10250.00	70.00	86.12	82.27	86.35	0.000420	5.97	8200.57	3254.97	0.27
North Main	reach 2	115218	1120.00	70.00	78.15	73.19	78.28	0.000257	2.95	482.12	108.60	0.19
North Main	reach 2	115218	2355.00	70.00	80.80	74.98	80.99	0.000301	3.91	1290.27	592.82	0.22
North Main	reach 2	115218	4175.00	70.00	82.73	77.05	82.93	0.000315	4.50	2740.58	925.18	0.23
North Main	reach 2	115218	10250.00	70.00	86.05	82.15	86.30	0.000406	6.01	7987.02	3140.25	0.27
North Main	reach 2	115057	1120.00	70.00	78.10	73.09	78.24	0.000277	3.06	418.77	356.19	0.20
North Main	reach 2	115057	2355.00	70.00	80.85	74.83	80.92	0.000145	2.73	2924.14	1306.25	0.15
North Main	reach 2	115057	4175.00	70.00	82.81	76.81	82.86	0.000117	2.76	6420.04	2312.42	0.14
North Main	reach 2	115057	10250.00	70.00	86.18	80.91	86.21	0.000084	2.76	18449.36	5055.13	0.12
North Main	reach 2	114848	1120.00	70.00	78.06	72.89	78.18	0.000243	2.72	441.19	445.15	0.18
North Main	reach 2	114848	2355.00	70.00	80.85	74.60	80.89	0.000095	2.13	4173.08	2589.37	0.12
North Main	reach 2	114848	4175.00	70.00	82.81	76.48	82.83	0.000062	1.94	8889.21	4193.40	0.10
North Main	reach 2	114848	10250.00	70.00	86.18	80.55	86.19	0.000049	2.04	21768.11	8958.52	0.09
North Main	reach 2	114615	1120.00	70.00	78.03	72.77	78.13	0.000217	2.57	442.95	70.92	0.17
North Main	reach 2	114615	2355.00	70.00	80.80	74.43	80.86	0.000122	2.41	3678.31	2681.93	0.14
North Main	reach 2	114615	4175.00	70.00	82.79	76.24	82.81	0.000061	1.94	8928.37	4195.17	0.10
North Main	reach 2	114615	10250.00	70.00	86.17	80.98	86.19	0.000046	1.98	22372.04	8714.05	0.09
North Main	reach 2	114800	Bridge									
North Main	reach 2	114585	1120.00	70.00	78.01	72.77	78.11	0.000219	2.58	441.25	70.60	0.17
North Main	reach 2	114585	2355.00	70.00	80.76	74.43	80.82	0.000126	2.45	3610.78	2655.59	0.14
North Main	reach 2	114585	4175.00	70.00	82.77	76.24	82.79	0.000062	1.94	8915.66	4180.20	0.10
North Main	reach 2	114585	10250.00	70.00	86.15	80.98	86.17	0.000046	1.98	22364.01	8675.10	0.09
North Main	reach 2	114500	1120.00	70.00	77.99	72.77	78.10	0.000221	2.58	440.10	70.47	0.17
North Main	reach 2	114500	2355.00	70.00	80.75	74.43	80.81	0.000128	2.46	3620.33	2646.67	0.14
North Main	reach 2	114500	4175.00	70.00	82.77	76.24	82.79	0.000061	1.93	9099.36	4223.50	0.10
North Main	reach 2	114500	10250.00	70.00	86.14	80.95	86.15	0.000044	1.94	22744.03	8653.40	0.09
North Main	reach 2	113500	1120.00	70.00	77.89	72.96	77.83	0.000318	2.98	380.21	63.22	0.21
North Main	reach 2	113500	2355.00	70.00	80.33	74.73	80.58	0.000400	4.19	1226.25	2274.23	0.24
North Main	reach 2	113500	4175.00	70.00	82.89	76.81	82.72	0.000084	2.23	8513.45	4128.55	0.12
North Main	reach 2	113500	10250.00	70.00	86.11	81.82	86.12	0.000042	1.88	23322.41	9405.80	0.09
North Main	reach 3 (south)	315796	410.00	90.87	98.19	93.28	98.24	0.000281	1.92	213.14	41.35	0.15
North Main	reach 3 (south)	315796	573.00	90.87	100.03	93.83	100.09	0.000210	1.94	295.09	47.55	0.14
North Main	reach 3 (south)	315796	770.00	90.87	101.82	94.40	101.88	0.000198	2.05	374.81	52.89	0.14
North Main	reach 3 (south)	315796	1392.00	90.87	104.32	95.86	104.40	0.000201	2.33	833.94	299.87	0.14
North Main	reach 3 (south)	315434	410.00	90.87	98.11	93.05	98.15	0.000188	1.64	249.95	49.43	0.13
North Main	reach 3 (south)	315434	573.00	90.87	99.98	93.55	100.02	0.000146	1.64	349.58	57.14	0.12
North Main	reach 3 (south)	315434	770.00	90.87	101.57	94.08	101.62	0.000137	1.73	445.82	63.71	0.12
North Main	reach 3 (south)	315434	1392.00	90.87	104.36	95.42	104.36	0.000020	0.74	4440.17	1324.78	0.04
North Main	reach 3 (south)	315287	569.00	90.32	98.01	93.48	98.10	0.000414	2.44	233.86	45.45	0.19



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	315287	889.00	90.32	99.86	94.34	99.97	0.000413	2.74	323.89	52.27	0.19
North Main	reach 3 (south)	315287	1298.00	90.32	101.41	95.26	101.57	0.000467	3.17	409.54	58.09	0.21
North Main	reach 3 (south)	315287	2652.00	90.32	103.98	97.50	104.32	0.000802	4.63	572.89	68.01	0.28
North Main	reach 3 (south)	314000	569.00	89.95	97.40	93.03	97.51	0.000507	2.67	213.51	41.89	0.21
North Main	reach 3 (south)	314000	889.00	89.95	99.25	93.94	98.39	0.000506	3.00	296.66	48.39	0.21
North Main	reach 3 (south)	314000	1298.00	89.95	100.70	94.90	100.89	0.000590	3.50	370.79	53.52	0.23
North Main	reach 3 (south)	314000	2652.00	89.95	102.55	97.28	103.03	0.001259	5.58	475.57	60.03	0.35
North Main	reach 3 (south)	313862	569.00	89.95	97.33	93.03	97.44	0.000528	2.71	210.31	41.62	0.21
North Main	reach 3 (south)	313862	889.00	89.95	99.17	93.94	99.31	0.000523	3.03	292.98	48.12	0.22
North Main	reach 3 (south)	313862	1298.00	89.95	100.61	94.89	100.81	0.000611	3.55	366.06	53.21	0.24
North Main	reach 3 (south)	313862	2652.00	89.95	102.34	97.28	102.85	0.001350	5.72	463.40	59.31	0.36
North Main	reach 3 (south)	312000	569.00	89.03	96.49	91.86	96.58	0.000400	2.43	234.30	44.40	0.19
North Main	reach 3 (south)	312000	889.00	89.03	98.33	92.72	98.45	0.000410	2.76	321.85	50.74	0.19
North Main	reach 3 (south)	312000	1298.00	89.03	100.17	93.63	100.21	0.000175	1.98	1974.41	1928.17	0.13
North Main	reach 3 (south)	312000	2652.00	89.03	102.52	95.91	102.52	0.000031	0.93	8452.60	3258.17	0.06
North Main	reach 3 (south)	311185	569.00	88.28	96.30	90.77	96.35	0.000194	1.79	318.63	57.19	0.13
North Main	reach 3 (south)	311185	889.00	88.28	98.13	91.55	98.20	0.000208	2.06	430.78	65.18	0.14
North Main	reach 3 (south)	311185	1298.00	88.28	99.96	92.37	100.04	0.000220	2.33	557.05	73.12	0.15
North Main	reach 3 (south)	311185	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7392.17	3587.45	0.07
North Main	reach 3 (south)	311119	569.00	88.28	96.29	90.77	96.34	0.000195	1.79	317.87	57.14	0.13
North Main	reach 3 (south)	311119	889.00	88.28	98.12	91.55	98.19	0.000209	2.07	429.84	65.12	0.14
North Main	reach 3 (south)	311119	1298.00	88.28	99.95	92.37	100.03	0.000221	2.33	555.95	73.06	0.15
North Main	reach 3 (south)	311119	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7381.88	3587.31	0.07
North Main	reach 3 (south)	310000	569.00	88.03	96.04	90.56	96.10	0.000235	1.99	285.74	48.91	0.15
North Main	reach 3 (south)	310000	889.00	88.03	97.84	91.36	97.92	0.000263	2.34	379.22	54.87	0.16
North Main	reach 3 (south)	310000	1298.00	88.03	99.63	92.23	99.75	0.000289	2.69	482.97	60.69	0.17
North Main	reach 3 (south)	310000	2652.00	88.03	102.43	94.45	102.44	0.000065	1.33	6497.51	3211.86	0.08
North Main	reach 3 (south)	308000	569.00	87.73	95.54	90.26	95.60	0.000260	2.07	275.22	48.06	0.15
North Main	reach 3 (south)	308000	889.00	87.73	97.27	91.07	97.37	0.000294	2.44	383.85	53.76	0.17
North Main	reach 3 (south)	308000	1298.00	87.73	99.01	91.93	99.13	0.000326	2.81	461.85	59.46	0.18
North Main	reach 3 (south)	308000	2652.00	87.73	102.26	94.15	102.28	0.000097	1.66	5631.20	3536.34	0.09
North Main	reach 3 (south)	307236	569.00	87.73	95.26	90.64	95.35	0.000419	2.45	231.79	44.90	0.19
North Main	reach 3 (south)	307236	889.00	87.73	96.96	91.54	97.09	0.000449	2.83	314.06	51.55	0.20
North Main	reach 3 (south)	307236	1298.00	87.73	98.67	92.47	98.83	0.000470	3.18	407.67	57.79	0.21
North Main	reach 3 (south)	307236	2652.00	87.73	102.10	94.76	102.15	0.000419	2.37	2671.78	2607.12	0.19
North Main	reach 3 (south)	307136	569.00	87.73	95.21	90.64	95.31	0.000429	2.48	229.78	44.73	0.19
North Main	reach 3 (south)	307136	889.00	87.73	96.92	91.54	97.04	0.000459	2.85	311.58	51.36	0.20
North Main	reach 3 (south)	307136	1298.00	87.73	98.62	92.47	98.78	0.000480	3.21	404.74	57.62	0.21
North Main	reach 3 (south)	307136	2652.00	87.73	102.05	94.76	102.11	0.000451	2.46	2547.95	2499.39	0.20
North Main	reach 3 (south)	306000	569.00	86.38	94.67	90.06	94.78	0.000502	2.65	214.49	42.05	0.21
North Main	reach 3 (south)	306000	889.00	86.38	96.33	91.07	96.47	0.000548	3.07	289.23	48.33	0.22
North Main	reach 3 (south)	306000	1298.00	86.38	98.00	92.08	98.18	0.000581	3.46	375.28	54.75	0.23
North Main	reach 3 (south)	306000	2652.00	86.38	101.03	94.52	101.38	0.000835	4.74	559.56	66.51	0.29
North Main	reach 3 (south)	304000	569.00	86.39	93.77	89.22	93.86	0.000420	2.47	230.69	44.48	0.19
North Main	reach 3 (south)	304000	889.00	86.39	95.31	90.10	95.44	0.000483	2.93	303.41	49.84	0.21
North Main	reach 3 (south)	304000	1298.00	86.39	96.89	91.02	97.07	0.000531	3.36	386.81	55.36	0.22
North Main	reach 3 (south)	304000	2652.00	86.39	99.17	93.30	99.57	0.000986	5.08	521.62	63.26	0.31
North Main	reach 3 (south)	302338	569.00	86.39	93.04	89.14	93.12	0.000466	2.38	239.21	54.82	0.20
North Main	reach 3 (south)	302338	889.00	86.39	94.51	89.94	94.63	0.000491	2.72	326.29	63.36	0.21
North Main	reach 3 (south)	302338	1298.00	86.39	96.08	90.78	96.22	0.000484	3.00	432.22	71.56	0.22
North Main	reach 3 (south)	302338	2652.00	86.39	99.07	92.81	99.08	0.000888	1.03	5321.13	2125.54	0.09
North Main	reach 3 (south)	302274	569.00	86.39	92.97	89.45	93.09	0.000699	2.71	209.71	53.34	0.24
North Main	reach 3 (south)	302274	889.00	86.39	94.45	90.31	94.59	0.000664	3.02	293.94	60.94	0.24
North Main	reach 3 (south)	302274	1298.00	86.39	96.01	91.23	96.18	0.000629	3.28	395.83	69.63	0.24
North Main	reach 3 (south)	302274	2652.00	86.39	99.05	93.33	99.07	0.001144	1.84	4050.19	2018.01	0.12
North Main	reach 3 (south)	301922	569.00	86.39	92.82	88.68	92.90	0.000368	2.24	253.92	52.64	0.18
North Main	reach 3 (south)	301922	889.00	86.39	94.29	89.41	94.40	0.000413	2.85	335.38	58.64	0.20
North Main	reach 3 (south)	301922	1298.00	86.39	95.85	90.19	95.99	0.000437	3.01	431.69	64.76	0.21
North Main	reach 3 (south)	301922	2652.00	86.39	98.97	92.18	99.01	0.000178	2.13	3472.22	2124.79	0.13
North Main	reach 3 (south)	301915	569.00	86.39	92.82	88.66	92.89	0.000357	2.22	256.67	52.84	0.18
North Main	reach 3 (south)	301915	889.00	86.39	94.28	89.38	94.39	0.000401	2.63	338.17	58.49	0.19
North Main	reach 3 (south)	301915	1298.00	86.39	95.84	90.15	95.98	0.000429	2.99	434.17	64.82	0.20
North Main	reach 3 (south)	301915	2652.00	86.39	98.98	92.13	99.00	0.000118	1.59	4746.56	2553.02	0.11

Reach	River Sta	Q Total	Min Ch El	WS, Elev	Chl W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/m)	(ft/s)	(sq ft)	(ft)	(ft)
North Main	reach 3 (south)	301865	86.39	92.80	88.66	92.87	0.000381	2.23	255.68	58.41	0.18
North Main	reach 3 (south)	301865	86.39	94.28	89.38	94.37	0.004051	2.64	336.84	58.41	0.19
North Main	reach 3 (south)	301865	86.39	95.81	90.15	95.95	0.000433	3.00	432.70	64.72	0.20
North Main	reach 3 (south)	301885	86.39	98.98	92.13	99.98	0.000118	1.59	4730.86	2552.40	0.11
North Main	reach 3 (south)	301721	86.39	92.68	89.08	92.80	0.00637	2.80	203.41	45.33	0.23
North Main	reach 3 (south)	301721	86.39	95.62	89.80	94.28	0.00695	3.25	273.19	51.58	0.25
North Main	reach 3 (south)	301721	86.39	98.89	90.77	95.87	0.000711	3.63	358.04	58.28	0.26
North Main	reach 3 (south)	301655	86.39	94.07	89.90	94.24	0.000713	3.29	270.82	51.38	0.25
North Main	reach 3 (south)	301655	86.39	92.64	89.08	92.78	0.00655	2.83	201.35	45.13	0.24
North Main	reach 3 (south)	301655	86.39	95.81	90.78	96.82	0.000728	3.66	355.06	58.06	0.26
North Main	reach 3 (south)	300000	86.39	90.99	88.74	91.20	0.001441	3.73	152.58	40.80	0.34
North Main	reach 3 (south)	300000	86.39	92.35	89.50	92.63	0.001382	4.21	211.34	45.24	0.34
North Main	reach 3 (south)	300000	86.39	93.98	90.32	94.28	0.001226	4.50	288.24	50.42	0.33
North Main	reach 3 (south)	300000	86.39	97.20	92.41	97.89	0.001331	5.66	468.18	60.85	0.36
North Main	reach 3 (south)	299385	86.39	89.70	88.37	90.00	0.002731	4.37	130.23	44.81	0.45
North Main	reach 3 (south)	299385	86.39	91.47	89.04	91.74	0.001513	4.16	213.85	50.11	0.35
North Main	reach 3 (south)	299385	86.39	93.28	89.75	93.65	0.001087	4.20	308.85	54.66	0.31
North Main	reach 3 (south)	299385	86.39	96.46	91.65	96.90	0.001193	5.37	493.72	63.33	0.34
North Main	reach 3 (south)	299378	Inline Weir								
North Main	reach 3 (south)	299365	83.41	89.89	85.83	89.81	0.00576	2.74	207.64	43.06	0.22
North Main	reach 3 (south)	299365	83.41	91.46	86.72	91.61	0.00559	3.08	288.53	48.85	0.22
North Main	reach 3 (south)	299365	83.41	93.27	87.58	93.45	0.00548	3.40	381.83	54.28	0.23
North Main	reach 3 (south)	299365	83.41	96.44	89.77	96.78	0.000774	4.87	568.43	64.49	0.28
North Main	reach 3 (south)	299000	81.06	89.31	84.78	89.36	0.000196	1.81	314.52	55.58	0.13
North Main	reach 3 (south)	299000	81.06	91.06	86.59	91.13	0.000219	2.13	417.90	62.70	0.15
North Main	reach 3 (south)	299000	81.06	92.87	85.37	92.98	0.000235	2.41	537.80	70.05	0.15
North Main	reach 3 (south)	298000	81.06	95.82	87.47	96.01	0.000381	3.48	762.64	82.10	0.20
North Main	reach 3 (south)	297659	81.21	89.28	83.77	89.30	0.000165	1.64	345.97	62.94	0.12
North Main	reach 3 (south)	297659	81.21	91.00	85.28	91.06	0.000178	1.92	462.05	70.12	0.13
North Main	reach 3 (south)	297659	81.21	92.81	85.28	92.88	0.000189	2.18	595.10	77.82	0.14
North Main	reach 3 (south)	297659	81.21	95.73	87.23	95.88	0.000307	3.15	840.66	90.28	0.18
North Main	reach 3 (south)	297577	81.21	89.24	83.77	89.28	0.000166	1.65	344.89	62.87	0.12
North Main	reach 3 (south)	297577	81.21	90.98	84.51	91.04	0.000180	1.93	460.74	70.04	0.13
North Main	reach 3 (south)	297577	81.21	92.79	85.28	92.86	0.000190	2.19	593.96	77.53	0.14
North Main	reach 3 (south)	297577	81.21	95.70	87.23	95.85	0.000310	3.17	837.70	90.14	0.18
North Main	reach 3 (south)	296000	80.22	89.01	82.79	89.05	0.000133	1.58	380.63	58.13	0.11
North Main	reach 3 (south)	296000	80.22	90.72	83.57	90.78	0.000160	1.91	465.01	64.08	0.13
North Main	reach 3 (south)	296000	80.22	92.49	84.40	92.57	0.000181	2.22	583.95	70.23	0.14
North Main	reach 3 (south)	296000	80.22	95.34	86.38	95.43	0.000218	2.73	2012.02	1180.86	0.15
North Main	reach 3 (south)	294000	80.54	88.68	83.32	88.73	0.000186	1.75	324.64	58.20	0.13
North Main	reach 3 (south)	294000	80.54	90.34	84.88	90.41	0.000210	2.05	451.46	70.05	0.14
North Main	reach 3 (south)	294000	80.54	92.07	84.88	92.16	0.000229	2.40	541.46	78.05	0.16
North Main	reach 3 (south)	294000	80.54	94.63	86.85	94.84	0.000416	3.62	733.03	79.39	0.21
North Main	reach 3 (south)	292000	80.24	88.35	82.68	88.39	0.000160	1.64	347.83	62.15	0.12
North Main	reach 3 (south)	292000	80.24	89.95	83.43	90.01	0.000185	1.97	452.09	67.65	0.13
North Main	reach 3 (south)	292000	80.24	91.84	84.23	91.72	0.000203	2.27	517.30	73.44	0.14
North Main	reach 3 (south)	292000	80.24	93.80	86.21	94.00	0.000416	3.59	737.90	80.87	0.21
North Main	reach 3 (south)	290823	80.24	88.14	82.70	88.18	0.000189	1.78	324.13	58.83	0.13
North Main	reach 3 (south)	290823	80.24	89.70	83.46	89.77	0.000224	2.11	422.02	65.92	0.15
North Main	reach 3 (south)	290823	80.24	91.37	84.26	91.46	0.000247	2.41	537.89	73.44	0.16
North Main	reach 3 (south)	290823	80.24	93.41	86.27	93.53	0.000350	3.15	1414.73	529.95	0.18
North Main	reach 3 (south)	290745	80.24	88.12	82.70	88.17	0.000190	1.76	323.24	58.77	0.13
North Main	reach 3 (south)	290745	80.24	89.69	83.46	89.76	0.000226	2.11	420.84	65.84	0.15
North Main	reach 3 (south)	290745	80.24	91.35	84.27	91.44	0.000248	2.42	536.53	73.35	0.16
North Main	reach 3 (south)	290745	80.24	93.38	86.27	93.50	0.000385	3.14	1399.83	528.53	0.20
North Main	reach 3 (south)	290000	80.24	88.00	82.40	88.04	0.000156	1.65	344.71	59.01	0.12
North Main	reach 3 (south)	290000	80.24	89.54	83.85	89.60	0.000192	2.02	439.75	64.45	0.14
North Main	reach 3 (south)	290000	80.24	91.18	83.85	91.27	0.000219	2.36	550.41	70.27	0.15
North Main	reach 3 (south)	290000	80.24	93.12	85.78	93.24	0.000322	3.12	1783.28	1147.92	0.18
North Main	reach 3 (south)	288232	80.38	87.68	82.52	87.74	0.000183	1.71	332.27	61.39	0.13
North Main	reach 3 (south)	288232	80.38	89.17	83.21	89.24	0.000222	2.08	427.44	67.79	0.15

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	288232	1298.00	80.38	90.77	83.94	90.86	0.000248	2.40	541.32	74.73	0.16
North Main	reach 3 (south)	288232	2652.00	80.38	92.71	85.85	92.76	0.000203	2.39	3217.41	2435.99	0.15
North Main	reach 3 (south)	288185	569.00	80.38	87.68	82.52	87.73	0.000184	1.72	331.50	81.33	0.13
North Main	reach 3 (south)	288185	889.00	80.38	89.15	83.21	89.22	0.000223	2.08	426.40	67.72	0.15
North Main	reach 3 (south)	288185	1298.00	80.38	90.75	83.94	90.84	0.000248	2.40	540.05	74.66	0.16
North Main	reach 3 (south)	288185	2652.00	80.38	92.70	85.85	92.75	0.000205	2.40	3195.91	2421.62	0.15
North Main	reach 3 (south)	288000	569.00	80.38	87.63	82.62	87.69	0.000237	1.95	291.92	52.81	0.15
North Main	reach 3 (south)	288000	889.00	80.38	89.09	83.34	89.18	0.000293	2.39	372.39	57.85	0.17
North Main	reach 3 (south)	288000	1298.00	80.38	90.67	84.14	90.79	0.000331	2.77	468.24	63.34	0.18
North Main	reach 3 (south)	288000	2652.00	80.38	92.70	86.17	92.71	0.000149	1.30	5083.19	3049.28	0.11
North Main	reach 3 (south)	286897	1044.00	80.37	87.19	82.89	87.30	0.000456	2.68	389.81	73.49	0.20
North Main	reach 3 (south)	286897	1567.00	80.37	88.56	83.85	88.71	0.000522	3.17	495.03	80.16	0.22
North Main	reach 3 (south)	286897	2228.00	80.37	90.00	84.48	90.29	0.000549	3.58	623.09	86.90	0.24
North Main	reach 3 (south)	286897	4412.00	80.37	92.30	86.61	92.42	0.000458	3.43	3237.59	2071.95	0.22
North Main	reach 3 (south)	286000	1044.00	80.36	86.65	82.98	86.81	0.000659	3.13	333.79	65.67	0.24
North Main	reach 3 (south)	286000	1567.00	80.36	87.93	83.74	88.14	0.000763	3.72	420.77	70.79	0.27
North Main	reach 3 (south)	286000	2228.00	80.36	89.42	84.58	89.69	0.000797	4.20	530.32	76.49	0.28
North Main	reach 3 (south)	286000	4412.00	80.36	91.58	86.76	91.86	0.000818	4.79	2375.36	2202.79	0.29
North Main	reach 3 (south)	284529	1044.00	80.36	83.43	83.06	84.33	0.009023	7.61	137.11	51.53	0.82
North Main	reach 3 (south)	284529	1567.00	80.36	85.29	83.84	85.95	0.003854	6.51	240.78	59.95	0.57
North Main	reach 3 (south)	284529	2228.00	80.36	87.18	84.71	87.77	0.002406	6.14	362.73	68.72	0.47
North Main	reach 3 (south)	284529	4412.00	80.36	90.51	86.91	90.58	0.000837	2.97	3269.05	2199.42	0.27
North Main	reach 3 (south)	284517	Inline Weir									
North Main	reach 3 (south)	284500	1044.00	74.78	83.42	77.76	83.51	0.000307	2.48	421.04	64.96	0.17
North Main	reach 3 (south)	284500	1567.00	74.78	85.28	78.62	85.41	0.000331	2.86	548.62	71.88	0.18
North Main	reach 3 (south)	284500	2228.00	74.78	87.17	79.55	87.33	0.000353	3.22	691.18	78.89	0.19
North Main	reach 3 (south)	284500	4412.00	74.78	90.50	81.95	90.57	0.000429	2.58	3622.57	2201.84	0.20
North Main	reach 3 (south)	284287	1044.00	74.78	83.33	77.89	83.44	0.000369	2.68	388.89	60.65	0.19
North Main	reach 3 (south)	284287	1567.00	74.78	85.18	78.79	85.33	0.000396	3.09	507.39	67.19	0.20
North Main	reach 3 (south)	284287	2228.00	74.78	87.06	79.75	87.25	0.000422	3.49	639.95	73.82	0.21
North Main	reach 3 (south)	284287	4412.00	74.78	90.39	82.22	90.46	0.000594	2.51	3314.31	2077.42	0.22
North Main	reach 3 (south)	284201	1044.00	74.78	83.29	77.89	83.40	0.000376	2.70	386.48	60.51	0.19
North Main	reach 3 (south)	284201	1567.00	74.78	85.14	78.79	85.29	0.000403	3.11	504.58	67.04	0.20
North Main	reach 3 (south)	284201	2228.00	74.78	87.02	79.75	87.21	0.000428	3.50	636.72	73.67	0.21
North Main	reach 3 (south)	284201	4412.00	74.78	89.99	82.22	90.33	0.002038	4.68	942.80	237.58	0.41
North Main	reach 3 (south)	284000	1044.00	73.32	83.23	77.22	83.33	0.000305	2.44	427.34	66.52	0.17
North Main	reach 3 (south)	284000	1567.00	73.32	85.09	78.40	85.21	0.000325	2.82	556.58	73.05	0.18
North Main	reach 3 (south)	284000	2228.00	73.32	86.96	79.45	87.12	0.000346	3.18	699.89	79.59	0.19
North Main	reach 3 (south)	284000	4412.00	73.32	89.79	81.75	90.13	0.000602	4.70	938.35	89.41	0.26
North Main	reach 3 (south)	282000	1044.00	73.33	82.71	76.35	82.79	0.000235	2.26	462.37	66.88	0.15
North Main	reach 3 (south)	282000	1567.00	73.33	84.50	77.22	84.61	0.000272	2.66	588.16	73.65	0.17
North Main	reach 3 (south)	282000	2228.00	73.33	86.33	78.15	86.48	0.000304	3.05	729.46	80.57	0.18
North Main	reach 3 (south)	282000	4412.00	73.33	88.53	80.56	88.88	0.000642	4.82	915.22	88.85	0.26
North Main	reach 3 (south)	280327	1044.00	73.32	82.24	76.48	82.34	0.000311	2.49	419.60	65.13	0.17
North Main	reach 3 (south)	280327	1567.00	73.32	83.96	77.37	84.09	0.000354	2.91	537.61	72.20	0.19
North Main	reach 3 (south)	280327	2228.00	73.32	85.73	78.34	85.90	0.000392	3.32	671.86	79.95	0.20
North Main	reach 3 (south)	280327	4412.00	73.32	87.82	80.79	87.97	0.000416	3.62	2753.43	1266.06	0.21
North Main	reach 3 (south)	280263	1044.00	73.32	82.22	76.48	82.32	0.000314	2.50	418.26	65.05	0.17
North Main	reach 3 (south)	280263	1567.00	73.32	83.94	77.37	84.07	0.000357	2.92	535.90	72.10	0.19
North Main	reach 3 (south)	280263	2228.00	73.32	85.70	78.34	85.88	0.000395	3.33	669.75	79.78	0.20
North Main	reach 3 (south)	280263	4412.00	73.32	87.79	80.78	87.94	0.000427	3.67	2712.52	1265.06	0.21
North Main	reach 3 (south)	280000	1044.00	73.32	82.14	76.38	82.24	0.000307	2.49	418.66	63.76	0.17
North Main	reach 3 (south)	280000	1567.00	73.32	83.84	77.25	83.97	0.000354	2.94	532.47	70.04	0.19
North Main	reach 3 (south)	280000	2228.00	73.32	85.59	78.21	85.77	0.000395	3.37	661.03	76.52	0.20
North Main	reach 3 (south)	280000	4412.00	73.32	87.68	80.64	87.83	0.000410	3.73	2699.48	1203.64	0.21
North Main	reach 3 (south)	278000	1044.00	73.32	81.32	76.63	81.46	0.000504	2.96	352.18	60.61	0.22
North Main	reach 3 (south)	278000	1567.00	73.32	82.90	77.54	83.09	0.000563	3.46	452.96	66.82	0.23
North Main	reach 3 (south)	278000	2228.00	73.32	84.56	78.50	84.80	0.000610	3.91	569.41	73.87	0.25
North Main	reach 3 (south)	278000	4412.00	73.32	87.10	80.94	87.16	0.000254	2.81	4149.13	1754.65	0.16
North Main	reach 3 (south)	276000	1044.00	74.04	80.08	76.67	80.25	0.000745	3.27	319.66	64.43	0.26
North Main	reach 3 (south)	276000	1567.00	74.04	81.56	77.41	81.78	0.000765	3.74	419.03	69.84	0.27
North Main	reach 3 (south)	276000	2228.00	74.04	83.16	78.25	83.43	0.000768	4.16	535.19	75.75	0.28
North Main	reach 3 (south)	276000	4412.00	74.04	85.50	80.41	86.06	0.001695	5.98	737.30	110.50	0.41

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chf
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
North Main	reach 3 (south)	275122	1044.00	74.04	78.74	78.94	79.13	0.002514	5.01	208.44	55.88	0.48
North Main	reach 3 (south)	275122	1567.00	74.04	80.36	77.75	80.77	0.001874	5.15	304.29	61.91	0.41
North Main	reach 3 (south)	275122	2228.00	74.04	82.03	78.65	82.48	0.001563	5.40	412.25	67.42	0.39
North Main	reach 3 (south)	275122	4412.00	74.04	84.01	80.88	84.48	0.001853	6.18	1661.38	1565.81	0.42
North Main	reach 3 (south)	275113	Inline Weir									
North Main	reach 3 (south)	275102	1044.00	70.28	78.73	73.20	78.83	0.000348	2.58	404.98	64.47	0.18
North Main	reach 3 (south)	275102	1567.00	70.28	80.35	74.06	80.49	0.000401	3.05	513.91	70.20	0.20
North Main	reach 3 (south)	275102	2228.00	70.28	82.02	75.00	82.21	0.000448	3.50	636.53	76.62	0.21
North Main	reach 3 (south)	275102	4412.00	70.28	84.00	77.51	84.31	0.000810	4.75	1896.28	1663.35	0.29
North Main	reach 3 (south)	274837	1044.00	70.28	78.74	72.17	78.77	0.000984	1.38	754.80	109.82	0.09
North Main	reach 3 (south)	274837	1567.00	70.28	80.37	72.74	80.42	0.000101	1.67	939.84	117.29	0.10
North Main	reach 3 (south)	274837	2228.00	70.28	82.06	73.36	82.12	0.000115	1.95	1143.81	124.41	0.11
North Main	reach 3 (south)	274837	4412.00	70.28	84.05	75.03	84.14	0.000170	2.59	3608.02	2501.91	0.14
North Main	reach 3 (south)	274000	1044.00	70.28	78.57	72.91	78.85	0.000250	2.24	465.38	72.09	0.18
North Main	reach 3 (south)	274000	1567.00	70.28	80.18	73.68	80.27	0.000296	2.68	585.04	78.59	0.17
North Main	reach 3 (south)	274000	2228.00	70.28	81.81	74.52	81.98	0.000337	3.09	719.95	85.34	0.19
North Main	reach 3 (south)	274000	4412.00	70.28	83.78	76.72	83.92	0.000380	3.59	3569.14	3590.33	0.20
North Main	reach 3 (south)	272412	1044.00	70.28	78.21	72.67	78.28	0.000220	2.08	503.02	80.48	0.15
North Main	reach 3 (south)	272412	1567.00	70.28	79.73	73.39	79.83	0.000261	2.48	630.89	87.17	0.16
North Main	reach 3 (south)	272412	2228.00	70.28	81.32	74.16	81.45	0.000295	2.88	774.77	94.15	0.18
North Main	reach 3 (south)	272412	4412.00	70.28	82.75	76.21	83.11	0.000731	4.83	913.54	100.35	0.28
North Main	reach 3 (south)	271000	1308.00	70.27	77.68	73.02	77.82	0.000460	2.95	442.56	71.55	0.21
North Main	reach 3 (south)	271000	1925.00	70.27	79.09	73.80	79.29	0.000540	3.52	546.79	78.06	0.23
North Main	reach 3 (south)	271000	2703.00	70.27	80.58	74.65	80.84	0.000614	4.08	683.14	80.98	0.25
North Main	reach 3 (south)	271000	5237.00	70.27	82.48	76.90	82.52	0.000201	2.55	5788.17	2953.93	0.15
North Main	reach 3 (south)	269920	1308.00	70.27	76.73	73.80	77.03	0.001290	4.37	299.05	58.43	0.34
North Main	reach 3 (south)	269920	1925.00	70.27	77.94	74.51	78.36	0.001498	5.16	372.71	62.99	0.37
North Main	reach 3 (south)	269920	2703.00	70.27	79.25	75.50	79.79	0.001852	5.90	458.00	67.82	0.40
North Main	reach 3 (south)	269920	5237.00	70.27	82.04	78.02	82.14	0.000740	3.57	3567.52	2733.89	0.28
North Main	reach 3 (south)	269788	1308.00	70.27	76.52	73.60	78.84	0.001453	4.55	286.91	57.64	0.38
North Main	reach 3 (south)	269788	1925.00	70.27	77.69	74.51	78.14	0.001893	5.39	356.96	62.04	0.40
North Main	reach 3 (south)	269788	2703.00	70.27	78.98	75.50	79.55	0.001863	6.16	438.78	66.77	0.42
North Main	reach 3 (south)	269788	5237.00	70.27	81.92	78.02	82.03	0.000892	3.89	3288.72	2252.07	0.29
North Main	reach 3 (south)	269131	1308.00	70.27	73.88	73.37	74.78	0.009895	8.42	155.13	52.85	0.88
North Main	reach 3 (south)	269131	1925.00	70.27	74.97	74.22	76.09	0.008856	8.51	226.23	57.83	0.78
North Main	reach 3 (south)	269131	2703.00	70.27	76.63	75.13	77.88	0.004581	8.25	327.64	64.30	0.84
North Main	reach 3 (south)	269131	5237.00	70.27	78.81	77.51	80.68	0.005855	10.98	478.85	72.58	0.78
North Main	reach 3 (south)	269121	Inline Weir									
North Main	reach 3 (south)	269108	1308.00	65.34	73.39	68.57	73.57	0.000596	3.38	386.45	60.53	0.24
North Main	reach 3 (south)	269108	1925.00	65.34	74.98	69.48	75.20	0.000684	3.98	485.78	68.13	0.26
North Main	reach 3 (south)	269108	2703.00	65.34	76.62	70.48	76.93	0.000755	4.50	600.85	72.53	0.28
North Main	reach 3 (south)	269108	5237.00	65.34	78.80	73.11	79.52	0.001468	6.81	769.13	82.03	0.39
North Main	reach 3 (south)	268000	1308.00	65.34	72.74	68.42	72.90	0.000600	3.23	404.71	70.78	0.24
North Main	reach 3 (south)	268000	1925.00	65.34	74.23	69.26	74.45	0.000658	3.73	515.42	77.23	0.25
North Main	reach 3 (south)	268000	2703.00	65.34	75.85	70.19	76.12	0.000694	4.19	645.50	84.35	0.27
North Main	reach 3 (south)	268000	5237.00	65.34	76.91	72.53	77.89	0.001856	7.09	738.38	90.28	0.44
North Main	reach 3 (south)	266698	1308.00	65.32	71.74	68.31	71.95	0.000905	3.67	355.61	70.23	0.29
North Main	reach 3 (south)	266698	1925.00	65.32	73.16	69.13	73.43	0.000944	4.19	459.84	76.70	0.30
North Main	reach 3 (south)	266698	2703.00	65.32	74.75	70.01	75.08	0.000933	4.60	587.43	83.93	0.31
North Main	reach 3 (south)	266698	5237.00	65.32	75.87	72.28	78.05	0.000750	4.39	3969.08	3379.30	0.28
North Main	reach 3 (south)	266688	Inline Weir									
North Main	reach 3 (south)	266679	1308.00	61.46	71.73	64.54	71.80	0.000168	2.06	633.19	82.58	0.13
North Main	reach 3 (south)	266679	1925.00	61.46	73.15	65.38	73.26	0.000224	2.55	754.34	88.12	0.15
North Main	reach 3 (south)	266679	2703.00	61.46	74.74	66.24	74.88	0.000271	3.01	898.93	94.49	0.17
North Main	reach 3 (south)	266679	5237.00	61.46	75.86	68.53	78.01	0.000362	3.62	4334.96	3390.99	0.20
North Main	reach 3 (south)	266000	1308.00	59.80	71.86	62.86	71.70	0.000101	1.73	756.64	87.45	0.10
North Main	reach 3 (south)	266000	1925.00	59.80	73.05	63.72	73.12	0.000144	2.18	881.81	92.83	0.12
North Main	reach 3 (south)	266000	2703.00	59.80	74.62	64.63	74.72	0.000178	2.59	1321.83	2117.71	0.14
North Main	reach 3 (south)	266000	5237.00	59.80	75.66	66.95	75.79	0.000277	3.34	4505.49	3329.08	0.18
North Main	reach 3 (south)	265565	1308.00	59.80	71.58	63.58	71.85	0.000165	2.05	638.51	83.16	0.13
North Main	reach 3 (south)	265565	1925.00	59.80	72.94	64.54	73.04	0.000227	2.55	756.07	90.02	0.15

HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	285585	2703.00	59.80	74.55	65.56	74.63	0.000194	2.50	2442.72	2577.99	0.15
North Main	reach 3 (south)	285585	5237.00	59.80	75.60	68.12	75.66	0.000215	2.74	6313.26	3900.65	0.15
North Main	reach 3 (south)	285509	1306.00	59.80	71.57	63.58	71.64	0.000165	2.05	637.72	83.12	0.13
North Main	reach 3 (south)	285509	1925.00	59.80	72.93	64.54	73.03	0.000228	2.55	754.88	89.95	0.16
North Main	reach 3 (south)	285509	2703.00	59.80	74.54	65.57	74.62	0.000196	2.52	2411.61	2501.19	0.15
North Main	reach 3 (south)	285509	5237.00	59.80	75.59	68.13	75.66	0.000217	2.75	6285.53	3900.41	0.15
North Main	reach 3 (south)	284000	1306.00	59.75	71.35	63.05	71.41	0.000134	1.94	672.47	79.85	0.12
North Main	reach 3 (south)	284000	1925.00	59.75	72.61	63.91	72.71	0.000198	2.48	775.92	84.53	0.14
North Main	reach 3 (south)	284000	2703.00	59.75	74.38	64.88	74.41	0.000093	1.80	4775.49	3350.77	0.10
North Main	reach 3 (south)	284000	5237.00	59.75	75.37	67.30	75.39	0.000135	1.83	8421.46	3870.84	0.12
North Main	reach 3 (south)	282000	1306.00	59.40	71.07	62.70	71.13	0.000144	2.00	652.77	77.68	0.12
North Main	reach 3 (south)	282000	1925.00	59.40	72.19	63.83	72.29	0.000220	2.60	741.76	81.88	0.15
North Main	reach 3 (south)	282000	2703.00	59.40	73.88	64.61	73.99	0.000775	2.71	998.81	280.60	0.25
North Main	reach 3 (south)	282000	5237.00	59.40	75.08	67.14	75.09	0.000154	1.35	7418.25	3688.42	0.12
North Main	reach 3 (south)	280000	1565.00	59.40	70.74	63.04	70.79	0.000206	1.92	813.96	141.38	0.14
North Main	reach 3 (south)	280000	2291.00	59.40	71.70	63.96	71.79	0.000280	2.36	1109.80	636.34	0.17
North Main	reach 3 (south)	280000	3206.00	59.40	73.16	64.96	73.23	0.000241	2.26	2116.98	724.22	0.16
North Main	reach 3 (south)	280000	6165.00	59.40	74.77	67.44	74.81	0.000216	2.01	6283.72	2307.97	0.15
North Main	reach 3 (south)	258000	1565.00	58.66	70.40	62.05	70.47	0.000134	2.00	783.40	90.06	0.12
North Main	reach 3 (south)	258000	2291.00	58.66	71.17	62.90	71.28	0.000226	2.68	853.62	92.95	0.16
North Main	reach 3 (south)	258000	3206.00	58.66	72.55	63.83	72.70	0.000279	3.16	1407.27	1143.01	0.18
North Main	reach 3 (south)	258000	6165.00	58.66	74.24	66.26	74.34	0.000260	3.24	5860.31	3333.94	0.17
North Main	reach 3 (south)	256881	1565.00	58.71	70.20	62.22	70.27	0.000159	2.10	746.58	91.48	0.13
North Main	reach 3 (south)	256881	2291.00	58.71	70.83	63.12	70.95	0.000277	2.85	804.33	94.30	0.17
North Main	reach 3 (south)	256881	3206.00	58.71	72.15	64.09	72.31	0.000320	3.24	1437.21	944.54	0.19
North Main	reach 3 (south)	256881	6165.00	58.71	74.07	66.57	74.08	0.000124	1.40	10036.97	3979.91	0.11
North Main	reach 3 (south)	256121	1565.00	58.27	70.20	60.74	70.22	0.000042	1.20	1307.47	139.20	0.07
North Main	reach 3 (south)	256121	2291.00	58.27	70.81	61.35	70.85	0.000075	1.64	1394.21	141.97	0.09
North Main	reach 3 (south)	256121	3206.00	58.27	72.08	62.02	72.14	0.000184	1.97	1626.03	2491.28	0.14
North Main	reach 3 (south)	256121	6165.00	58.27	74.04	63.78	74.04	0.000042	1.04	12616.26	3691.26	0.07
North Main	reach 3 (south)	255591	1565.00	58.07	70.14	61.69	70.18	0.000133	1.72	1165.27	2925.53	0.12
North Main	reach 3 (south)	255591	2291.00	58.07	70.73	62.56	70.79	0.000206	2.19	1455.49	2991.82	0.14
North Main	reach 3 (south)	255591	3206.00	58.07	71.97	63.50	72.03	0.000219	2.18	2375.91	3408.82	0.15
North Main	reach 3 (south)	255591	6165.00	58.07	74.02	65.91	74.02	0.000020	0.69	17352.46	3508.22	0.05
North Main	reach 3 (south)	254845	1565.00	58.07	70.09	61.47	70.11	0.000060	1.34	2899.84	3937.21	0.08
North Main	reach 3 (south)	254845	2291.00	58.07	70.65	62.33	70.66	0.000113	1.22	4021.30	4057.50	0.10
North Main	reach 3 (south)	254845	3206.00	58.07	71.94	63.25	71.94	0.000058	0.91	6761.47	4243.89	0.07
North Main	reach 3 (south)	254845	6165.00	58.07	74.01	65.65	74.01	0.000011	0.49	23296.69	4330.02	0.03
North Main	reach 3 (south)	254785	1565.00	58.07	70.09	61.47	70.11	0.000061	1.34	2890.55	3936.80	0.08
North Main	reach 3 (south)	254785	2291.00	58.07	70.64	62.33	70.65	0.000115	1.23	3990.98	4056.68	0.10
North Main	reach 3 (south)	254785	3206.00	58.07	71.93	63.25	71.93	0.000059	0.91	6740.58	4243.06	0.07
North Main	reach 3 (south)	254785	6165.00	58.07	74.01	65.65	74.01	0.000011	0.49	23276.31	4329.97	0.03
North Main	reach 3 (south)	254000	1565.00	58.07	69.97	61.54	70.04	0.000149	2.11	743.02	84.92	0.13
North Main	reach 3 (south)	254000	2291.00	58.07	70.61	62.48	70.61	0.000020	0.68	8891.81	4119.64	0.04
North Main	reach 3 (south)	254000	3206.00	58.07	71.91	63.44	71.91	0.000013	0.56	13020.31	4246.23	0.04
North Main	reach 3 (south)	254000	6165.00	58.07	73.99	65.99	74.00	0.000013	0.63	19831.49	4274.21	0.04
North Main	reach 3 (south)	252000	1565.00	58.08	69.62	61.85	69.70	0.000187	2.24	698.35	87.41	0.14
North Main	reach 3 (south)	252000	2291.00	58.08	70.58	62.80	70.58	0.000023	0.67	8436.64	5956.10	0.05
North Main	reach 3 (south)	252000	3206.00	58.08	71.89	63.81	71.89	0.000014	0.58	12323.81	5964.73	0.04
North Main	reach 3 (south)	252000	6165.00	58.08	73.97	66.38	73.97	0.000014	0.68	18505.63	5975.45	0.04
North Main	reach 3 (south)	250880	1565.00	57.32	69.42	60.90	69.46	0.000214	1.71	915.27	193.03	0.14
North Main	reach 3 (south)	250880	2291.00	57.32	70.54	61.84	70.55	0.000044	0.83	5042.94	4955.65	0.06
North Main	reach 3 (south)	250880	3206.00	57.32	71.87	62.84	71.87	0.000031	0.81	7044.94	4960.88	0.06
North Main	reach 3 (south)	250880	6165.00	57.32	73.95	65.39	73.95	0.000036	1.01	10199.77	4981.62	0.06
North Main	reach 3 (south)	250000	1630.00	57.29	69.31	60.32	69.35	0.000092	1.63	1001.26	119.72	0.10
North Main	reach 3 (south)	250000	2428.00	57.29	70.51	61.17	70.51	0.000058	0.95	5173.87	5006.17	0.07
North Main	reach 3 (south)	250000	3444.00	57.29	71.85	62.10	71.85	0.000035	0.83	7952.69	5055.88	0.06
North Main	reach 3 (south)	250000	6802.00	57.29	73.94	64.50	73.94	0.000007	0.43	30197.91	5097.51	0.03
North Main	reach 3 (south)	248746	1630.00	57.29	69.13	60.88	69.19	0.000165	2.09	778.53	98.91	0.13
North Main	reach 3 (south)	248746	2428.00	57.29	70.37	61.88	70.41	0.000243	1.85	2101.96	3903.02	0.15
North Main	reach 3 (south)	248746	3444.00	57.29	71.77	62.94	71.80	0.000142	1.66	3418.63	3915.08	0.12
North Main	reach 3 (south)	248746	6802.00	57.29	73.93	65.66	73.93	0.000014	0.62	21990.10	3932.74	0.04
North Main	reach 3 (south)	248519	1630.00	57.29	69.09	60.88	69.16	0.000158	2.10	774.85	94.14	0.13

HFC-PAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	248519	2428.00	57.29	70.31	61.88	70.36	0.000261	1.86	2054.60	3902.59	0.15
North Main	reach 3 (south)	248519	3444.00	57.29	71.74	62.94	71.77	0.000145	1.65	3393.20	3914.85	0.12
North Main	reach 3 (south)	248519	6802.00	57.29	73.92	65.66	73.92	0.000014	0.61	21958.90	3932.88	0.04
North Main	reach 3 (south)	248000	1630.00	57.30	68.99	61.28	69.07	0.000185	2.24	726.14	90.46	0.14
North Main	reach 3 (south)	248000	2428.00	57.30	70.28	62.30	70.29	0.000063	1.29	4837.47	3882.15	0.08
North Main	reach 3 (south)	248000	3444.00	57.30	71.72	63.33	71.73	0.000039	1.02	7665.78	3964.60	0.06
North Main	reach 3 (south)	248000	6802.00	57.30	73.91	66.06	73.92	0.000014	0.68	22145.70	4016.60	0.04
North Main	reach 3 (south)	247478	1630.00	57.30	68.61	66.70	68.83	0.001791	3.81	427.55	118.64	0.35
North Main	reach 3 (south)	247478	2428.00	57.30	70.26	67.29	70.26	0.000067	0.81	4906.70	3902.61	0.07
North Main	reach 3 (south)	247478	3444.00	57.30	71.71	67.94	71.71	0.000040	0.78	7524.32	4066.27	0.06
North Main	reach 3 (south)	247478	6802.00	57.30	73.91	70.00	73.91	0.000019	0.66	20518.20	4202.29	0.04
North Main	reach 3 (south)	247400	1630.00	57.30	68.49	66.61	68.70	0.001670	3.63	449.61	129.34	0.34
North Main	reach 3 (south)	247400	2428.00	57.30	70.25	67.15	70.26	0.000067	0.82	4892.11	3894.02	0.07
North Main	reach 3 (south)	247400	3444.00	57.30	71.71	67.79	71.71	0.000040	0.77	7601.89	4058.18	0.06
North Main	reach 3 (south)	247400	6802.00	57.30	73.90	69.49	73.90	0.000020	0.66	20451.14	4194.33	0.04
North Main	reach 3 (south)	246000	1630.00	57.05	67.98	60.62	68.04	0.000203	2.28	714.12	93.48	0.15
North Main	reach 3 (south)	246000	2428.00	57.05	70.12	61.61	70.15	0.000097	1.63	2921.51	3499.10	0.10
North Main	reach 3 (south)	246000	3444.00	57.05	71.61	62.65	71.63	0.000077	1.52	4278.19	3551.03	0.09
North Main	reach 3 (south)	246000	6802.00	57.05	73.88	65.30	73.88	0.000017	0.81	19718.70	3566.16	0.04
North Main	reach 3 (south)	244000	1630.00	57.05	67.28	61.42	67.44	0.000457	3.14	519.56	76.86	0.21
North Main	reach 3 (south)	244000	2428.00	57.05	69.59	62.54	69.77	0.000429	3.42	709.21	87.44	0.21
North Main	reach 3 (south)	244000	3444.00	57.05	71.39	63.72	71.43	0.000139	2.11	3521.11	5914.84	0.12
North Main	reach 3 (south)	244000	6802.00	57.05	73.85	66.66	73.85	0.000007	0.44	32065.66	6013.20	0.03
North Main	reach 3 (south)	242500	1630.00	56.61	66.58	61.05	66.74	0.000467	3.20	509.73	74.37	0.22
North Main	reach 3 (south)	242500	2428.00	56.61	68.94	62.07	69.12	0.000436	3.49	695.95	84.04	0.21
North Main	reach 3 (south)	242500	3444.00	56.61	70.82	63.17	71.06	0.000478	3.96	1029.39	3627.18	0.23
North Main	reach 3 (south)	242500	6802.00	56.61	73.82	66.03	73.83	0.000046	1.34	14367.30	3758.79	0.07
North Main	reach 3 (south)	241505	1630.00	56.61	66.14	60.37	66.29	0.000436	3.13	520.48	73.99	0.21
North Main	reach 3 (south)	241505	2428.00	56.61	68.52	61.41	68.70	0.000412	3.43	707.91	83.62	0.21
North Main	reach 3 (south)	241505	3444.00	56.61	70.34	62.51	70.58	0.000475	3.97	866.88	91.00	0.23
North Main	reach 3 (south)	241505	6802.00	56.61	73.09	65.41	73.65	0.000891	6.00	1132.96	839.50	0.32
North Main	reach 3 (south)	240950	1630.00	56.61	65.88	60.53	66.04	0.000489	3.19	511.21	78.00	0.22
North Main	reach 3 (south)	240950	2428.00	56.61	68.29	61.55	68.47	0.000433	3.41	712.78	89.48	0.21
North Main	reach 3 (south)	240950	3444.00	56.61	70.08	62.64	70.32	0.000486	3.91	880.59	97.74	0.23
North Main	reach 3 (south)	240950	6802.00	56.61	72.59	65.42	73.15	0.000932	5.96	1140.99	314.20	0.33
North Main	reach 3 (south)	240919	1630.00	56.61	65.86	60.53	66.02	0.000492	3.20	509.94	77.92	0.22
North Main	reach 3 (south)	240919	2428.00	56.61	68.27	61.55	68.45	0.000435	3.41	711.50	89.42	0.21
North Main	reach 3 (south)	240919	3444.00	56.61	70.06	62.64	70.30	0.000489	3.92	879.00	97.67	0.23
North Main	reach 3 (south)	240919	6802.00	56.61	72.56	65.42	73.11	0.000941	5.98	1137.19	305.55	0.33
North Main	reach 3 (south)	240000	1630.00	55.47	65.59	59.11	65.69	0.000250	2.48	656.18	87.92	0.16
North Main	reach 3 (south)	240000	2428.00	55.47	68.02	60.01	68.14	0.000241	2.75	881.97	97.77	0.16
North Main	reach 3 (south)	240000	3444.00	55.47	69.77	60.97	69.94	0.000290	3.25	1059.12	104.86	0.18
North Main	reach 3 (south)	240000	6802.00	55.47	71.94	63.53	72.37	0.000647	5.25	1295.53	113.63	0.27
North Main	reach 3 (south)	239550	1630.00	55.23	65.48	58.93	65.57	0.000259	2.52	647.87	87.55	0.16
North Main	reach 3 (south)	239550	2428.00	55.23	67.91	59.85	68.03	0.000248	2.78	874.21	98.22	0.16
North Main	reach 3 (south)	239550	3444.00	55.23	69.64	60.88	69.80	0.000300	3.28	1050.15	105.78	0.18
North Main	reach 3 (south)	239550	6802.00	55.23	71.61	63.48	72.06	0.000697	5.37	1267.72	114.29	0.28
North Main	reach 3 (south)	239468	1630.00	55.23	65.45	58.93	65.55	0.000281	2.52	645.94	87.45	0.16
North Main	reach 3 (south)	239468	2428.00	55.23	67.89	59.86	68.01	0.000250	2.78	872.13	98.13	0.16
North Main	reach 3 (south)	239468	3444.00	55.23	69.61	60.88	69.78	0.000303	3.29	1047.41	105.66	0.18
North Main	reach 3 (south)	239468	6802.00	55.23	71.55	63.48	72.00	0.000708	5.40	1260.48	114.02	0.29
North Main	reach 3 (south)	238000	1630.00	54.74	65.08	58.50	65.18	0.000249	2.51	650.67	85.39	0.16
North Main	reach 3 (south)	238000	2428.00	54.74	67.53	59.41	67.65	0.000242	2.79	871.12	94.61	0.16
North Main	reach 3 (south)	238000	3444.00	54.74	69.18	60.40	69.33	0.000304	3.34	1030.38	100.79	0.18
North Main	reach 3 (south)	238000	6802.00	54.74	71.28	62.99	71.36	0.000219	3.06	6166.98	2449.52	0.16
North Main	reach 3 (south)	237265	1630.00	54.61	64.91	58.13	65.00	0.000245	2.50	651.13	84.36	0.16
North Main	reach 3 (south)	237265	2428.00	54.61	67.36	59.07	67.48	0.000240	2.79	869.70	93.76	0.16
North Main	reach 3 (south)	237265	3444.00	54.61	68.93	60.09	69.11	0.000309	3.37	1021.71	99.78	0.19
North Main	reach 3 (south)	237265	6802.00	54.61	71.24	62.75	71.25	0.000085	1.52	9922.03	2920.57	0.09
North Main	reach 3 (south)	236620	1630.00	54.53	64.75	58.02	64.84	0.000228	2.39	681.06	90.19	0.15
North Main	reach 3 (south)	236620	2428.00	54.53	67.21	58.91	67.32	0.000220	2.65	915.79	100.60	0.15
North Main	reach 3 (south)	236620	3444.00	54.53	68.75	59.89	68.91	0.000282	3.20	1075.95	107.08	0.18
North Main	reach 3 (south)	236620	6802.00	54.53	71.21	62.45	71.22	0.000050	1.47	10830.56	2196.06	0.08



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vej Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 3 (south)	236000	1630.00	54.54	64.57	58.03	64.68	0.000272	2.58	630.72	84.69	0.17
North Main	reach 3 (south)	236000	2428.00	54.54	67.04	58.97	67.16	0.000260	2.85	852.28	95.13	0.17
North Main	reach 3 (south)	236000	3444.00	54.54	68.53	60.02	68.71	0.000338	3.45	998.40	101.43	0.19
North Main	reach 3 (south)	236000	6802.00	54.54	71.16	62.70	71.19	0.000123	1.88	7711.69	2079.66	0.11
North Main	reach 3 (south)	235490	1630.00	54.49	64.38	58.23	64.51	0.000370	2.92	557.41	77.73	0.19
North Main	reach 3 (south)	235490	2428.00	54.49	66.85	59.26	67.01	0.000345	3.18	762.82	88.57	0.19
North Main	reach 3 (south)	235490	3444.00	54.49	68.28	60.37	68.51	0.000450	3.85	893.46	94.82	0.22
North Main	reach 3 (south)	235490	6802.00	54.49	71.01	63.23	71.07	0.000502	2.53	4159.88	1341.23	0.21
North Main	reach 3 (south)	235442	1630.00	54.49	64.36	58.23	64.50	0.000372	2.93	555.96	77.65	0.19
North Main	reach 3 (south)	235442	2428.00	54.49	66.83	59.26	66.99	0.000347	3.19	761.28	88.49	0.19
North Main	reach 3 (south)	235442	3444.00	54.49	68.25	60.37	68.49	0.000453	3.86	891.28	94.72	0.22
North Main	reach 3 (south)	235442	6802.00	54.49	70.97	63.23	71.05	0.000496	2.67	4116.19	1335.40	0.21
North Main	reach 3 (south)	234280	1630.00	53.37	64.19	56.31	64.25	0.000115	1.83	890.21	105.67	0.11
North Main	reach 3 (south)	234280	2428.00	53.37	66.68	57.11	66.75	0.000118	2.08	1165.18	115.74	0.12
North Main	reach 3 (south)	234280	3444.00	53.37	68.04	57.96	68.15	0.000165	2.60	1327.04	121.29	0.14
North Main	reach 3 (south)	234280	6802.00	53.37	70.39	60.24	70.49	0.000457	2.66	4105.99	2074.92	0.21
North Main	below diversion	112500	550.00	70.00	77.61	71.75	77.64	0.000066	1.36	407.26	67.01	0.09
North Main	below diversion	112500	1180.00	70.00	80.24	72.86	80.31	0.000094	1.04	871.14	1331.96	0.12
North Main	below diversion	112500	1975.00	70.00	82.63	73.96	82.84	0.000030	1.34	6519.85	3697.25	0.07
North Main	below diversion	112500	4000.00	70.00	85.89	76.11	85.89	0.000007	0.78	23808.14	9077.23	0.04
North Main	below diversion	111500	550.00	70.00	77.54	71.81	77.57	0.000074	1.43	389.25	65.50	0.10
North Main	below diversion	111500	1180.00	70.00	80.17	72.96	80.21	0.000083	1.90	1480.01	1351.85	0.11
North Main	below diversion	111500	1975.00	70.00	82.60	74.09	82.61	0.000024	1.20	7795.52	4028.21	0.06
North Main	below diversion	111500	4000.00	70.00	85.88	76.26	85.88	0.000007	0.74	26226.59	7762.72	0.03
North Main	below diversion	108769	550.00	70.00	77.33	71.88	77.36	0.000078	1.40	397.77	73.58	0.10
North Main	below diversion	108769	1180.00	70.00	79.88	73.02	79.95	0.000106	2.07	602.60	86.71	0.13
North Main	below diversion	108769	1975.00	70.00	82.43	74.14	82.49	0.000088	2.25	2123.06	1173.00	0.12
North Main	below diversion	108769	4000.00	70.00	85.83	76.22	85.85	0.000027	1.48	16578.35	9892.31	0.07
North Main	below diversion	108564	550.00	70.00	77.31	71.77	77.34	0.000075	1.40	395.76	69.50	0.10
North Main	below diversion	108564	1180.00	70.00	79.84	72.89	79.91	0.000108	2.11	585.42	80.06	0.13
North Main	below diversion	108564	1975.00	70.00	82.34	73.99	82.45	0.000127	2.71	824.42	217.89	0.14
North Main	below diversion	108564	4000.00	70.00	85.83	76.11	85.84	0.000028	1.54	16292.73	9865.38	0.07
North Main	below diversion	108524	Bridge									
North Main	below diversion	108484	550.00	70.00	77.28	71.77	77.32	0.000076	1.41	394.09	69.40	0.10
North Main	below diversion	108484	1180.00	70.00	79.83	72.89	79.90	0.000108	2.11	584.28	80.00	0.13
North Main	below diversion	108484	1975.00	70.00	82.23	73.99	82.34	0.000131	2.74	801.84	184.32	0.15
North Main	below diversion	108484	4000.00	70.00	85.80	76.11	85.82	0.000029	1.56	16118.23	9818.49	0.07
North Main	below diversion	108424	550.00	70.00	77.28	71.78	77.31	0.000077	1.41	393.53	69.36	0.10
North Main	below diversion	108424	1180.00	70.00	79.82	72.89	79.89	0.000109	2.12	583.33	79.95	0.13
North Main	below diversion	108424	1975.00	70.00	82.21	73.99	82.33	0.000132	2.74	799.08	179.79	0.15
North Main	below diversion	108424	4000.00	70.00	85.80	76.11	85.81	0.000030	1.56	16109.48	9809.45	0.07
North Main	below diversion	108200	550.00	70.00	77.26	71.75	77.29	0.000077	1.42	391.31	67.95	0.10
North Main	below diversion	108200	1180.00	70.00	79.79	72.85	79.86	0.000111	2.14	575.96	77.88	0.13
North Main	below diversion	108200	1975.00	70.00	82.18	73.96	82.30	0.000135	2.77	786.67	214.59	0.15
North Main	below diversion	108200	4000.00	70.00	85.78	76.08	85.80	0.000029	1.56	15196.20	9414.98	0.07
North Main	below diversion	107200	550.00	70.00	77.19	71.65	77.21	0.000069	1.34	411.99	70.69	0.10
North Main	below diversion	107200	1180.00	70.00	79.69	72.70	79.75	0.000101	2.04	600.58	80.12	0.12
North Main	below diversion	107200	1975.00	70.00	82.05	73.76	82.16	0.000124	2.66	805.27	224.09	0.14
North Main	below diversion	107200	4000.00	70.00	85.76	75.82	85.77	0.000025	1.44	16171.15	9168.93	0.07
North Main	below diversion	105420	649.00	70.00	77.03	71.91	77.07	0.000088	1.47	442.50	79.59	0.11
North Main	below diversion	105420	1200.00	70.00	79.51	72.74	79.57	0.000091	1.90	652.64	89.94	0.12
North Main	below diversion	105420	1878.00	70.00	81.87	73.56	81.95	0.000095	2.30	876.45	100.31	0.12
North Main	below diversion	105420	3703.00	70.00	85.74	75.33	85.74	0.000015	1.12	16819.74	9057.84	0.05
North Main	below diversion	105350	649.00	70.00	77.01	72.04	77.06	0.000116	1.80	376.41	68.40	0.13
North Main	below diversion	105350	1200.00	70.00	79.47	72.97	79.56	0.000130	2.36	556.54	78.18	0.14
North Main	below diversion	105350	1878.00	70.00	81.80	73.90	81.92	0.000141	2.88	749.09	87.39	0.15
North Main	below diversion	105350	3703.00	70.00	85.73	75.80	85.74	0.000020	1.33	16406.51	9181.95	0.06
North Main	below diversion	105335	Bridge									
North Main	below diversion	105320	649.00	70.00	76.99	72.04	77.04	0.000118	1.81	374.56	68.29	0.13
North Main	below diversion	105320	1200.00	70.00	79.46	72.97	79.54	0.000131	2.37	555.54	78.13	0.14
North Main	below diversion	105320	1878.00	70.00	81.69	73.90	81.82	0.000146	2.91	739.86	86.98	0.15
North Main	below diversion	105320	3703.00	70.00	85.71	75.80	85.72	0.000021	1.34	16222.78	9151.06	0.06





HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	99520	649.00	70.00	76.16	71.89	76.21	0.000185	1.91	338.16	68.04	0.15
North Main	below diversion	99520	1200.00	70.00	78.58	72.79	78.68	0.000189	2.33	515.64	77.89	0.16
North Main	below diversion	99520	1878.00	70.00	80.73	73.70	80.84	0.000202	2.71	892.68	86.78	0.17
North Main	below diversion	99520	3703.00	70.00	84.85	75.63	84.83	0.000224	3.44	1167.67	228.85	0.19
North Main	below diversion	99507	649.00	70.00	76.15		76.21	0.000185	1.91	338.99	68.03	0.15
North Main	below diversion	99507	1200.00	70.00	78.57		78.66	0.000190	2.33	515.44	77.88	0.16
North Main	below diversion	99507	1878.00	70.00	80.72		80.84	0.000202	2.71	892.44	86.77	0.17
North Main	below diversion	99507	3703.00	70.00	84.65		84.82	0.000222	3.42	1224.48	228.66	0.19
North Main	below diversion	98900	665.00	70.00	76.03		76.09	0.000223	2.02	329.47	70.79	0.16
North Main	below diversion	98900	1249.00	70.00	78.45		78.54	0.000194	2.49	510.58	78.66	0.16
North Main	below diversion	98900	1979.00	70.00	80.58		80.72	0.000201	3.01	691.32	95.89	0.17
North Main	below diversion	98900	3903.00	70.00	84.42		84.68	0.000234	4.11	1125.32	206.56	0.20
North Main	below diversion	97900	665.00	70.00	75.80		75.86	0.000236	2.05	324.07	70.86	0.17
North Main	below diversion	97900	1249.00	70.00	78.25		78.35	0.000198	2.49	510.74	80.94	0.17
North Main	below diversion	97900	1979.00	70.00	80.38		80.52	0.000202	3.00	694.34	97.85	0.18
North Main	below diversion	97900	3903.00	70.00	84.20		84.44	0.000231	4.06	1145.58	233.21	0.20
North Main	below diversion	95000	665.00	68.00	75.36		75.40	0.000107	1.68	399.22	69.34	0.12
North Main	below diversion	95000	1249.00	68.00	77.81		77.89	0.000123	2.25	581.45	79.41	0.13
North Main	below diversion	95000	1979.00	68.00	79.88		80.00	0.000148	2.84	754.63	87.94	0.15
North Main	below diversion	95000	3903.00	68.00	83.57		83.81	0.000197	4.00	1287.01	187.90	0.19
North Main	below diversion	94730	665.00	68.00	75.33		75.38	0.000116	1.74	384.45	67.13	0.12
North Main	below diversion	94730	1249.00	68.00	77.78		77.86	0.000133	2.33	560.50	76.91	0.14
North Main	below diversion	94730	1979.00	68.00	79.83		79.96	0.000161	2.95	728.28	84.92	0.16
North Main	below diversion	94730	3903.00	68.00	83.48		83.75	0.000225	4.25	1061.58	98.68	0.20
North Main	below diversion	94655	665.00	68.00	75.32	69.93	75.37	0.000102	1.65	406.37	69.56	0.12
North Main	below diversion	94655	1249.00	68.00	77.77	70.89	77.84	0.000118	2.21	587.88	79.00	0.13
North Main	below diversion	94655	1979.00	68.00	79.81	71.67	79.94	0.000144	2.81	766.76	94.21	0.15
North Main	below diversion	94655	3903.00	68.00	83.49	73.89	83.73	0.000196	3.98	1256.63	224.22	0.18
North Main	below diversion	94635	Bridge									
North Main	below diversion	94620	665.00	68.00	75.30		75.34	0.000103	1.66	404.69	69.47	0.12
North Main	below diversion	94620	1249.00	68.00	77.74		77.81	0.000120	2.22	585.66	78.89	0.13
North Main	below diversion	94620	1979.00	68.00	79.78		79.91	0.000145	2.82	763.92	94.01	0.15
North Main	below diversion	94620	3903.00	68.00	83.44		83.67	0.000198	4.00	1245.23	218.49	0.19
North Main	below diversion	94530	665.00	68.00	75.29		75.33	0.000104	1.66	404.13	69.44	0.12
North Main	below diversion	94530	1249.00	68.00	77.73		77.81	0.000120	2.22	584.92	78.86	0.13
North Main	below diversion	94530	1979.00	68.00	79.77		79.89	0.000146	2.82	762.83	93.94	0.15
North Main	below diversion	94530	3903.00	68.00	83.42		83.66	0.000199	4.01	1241.72	216.69	0.19
North Main	below diversion	92150	665.00	68.00	74.98	70.15	75.04	0.000171	1.93	345.34	64.38	0.15
North Main	below diversion	92150	1249.00	68.00	77.38	71.20	77.48	0.000183	2.46	512.18	74.58	0.16
North Main	below diversion	92150	1979.00	68.00	79.37	72.25	79.51	0.000205	3.05	680.07	95.22	0.18
North Main	below diversion	92150	3903.00	68.00	82.88	74.39	83.15	0.000260	4.25	1095.16	139.78	0.21
North Main	below diversion	92135	Bridge									
North Main	below diversion	92120	665.00	68.00	74.97	70.15	75.03	0.000172	1.93	344.74	64.34	0.15
North Main	below diversion	92120	1249.00	68.00	77.37	71.20	77.46	0.000184	2.46	510.79	74.50	0.16
North Main	below diversion	92120	1979.00	68.00	79.34	72.25	79.49	0.000207	3.06	677.91	95.00	0.18
North Main	below diversion	92120	3903.00	68.00	82.84	74.39	83.12	0.000263	4.26	1090.08	139.46	0.21
North Main	below diversion	91139	665.00	68.00	74.79	70.15	74.86	0.000190	2.00	333.24	63.57	0.15
North Main	below diversion	91139	1249.00	68.00	77.17	71.20	77.27	0.000201	2.53	496.52	73.69	0.17
North Main	below diversion	91139	1979.00	68.00	79.13	72.25	79.28	0.000224	3.14	657.45	92.91	0.18
North Main	below diversion	91139	3903.00	68.00	82.56	74.39	82.85	0.000285	4.37	1050.78	136.91	0.22
North Main	below diversion	91050	665.00	68.00	74.78	70.14	74.84	0.000191	2.00	332.06	63.30	0.15
North Main	below diversion	91050	1249.00	68.00	77.15	71.19	77.25	0.000203	2.54	494.55	73.35	0.17
North Main	below diversion	91050	1979.00	68.00	79.10	72.25	79.26	0.000227	3.15	653.03	90.44	0.18
North Main	below diversion	91050	3903.00	68.00	82.53	74.39	82.82	0.000290	4.40	1040.49	138.68	0.22
North Main	below diversion	88641	665.00	68.00	74.28	70.04	74.35	0.000222	2.09	318.29	63.89	0.16
North Main	below diversion	88641	1249.00	68.00	76.83	71.05	76.74	0.000233	2.61	480.09	73.82	0.18
North Main	below diversion	88641	1979.00	68.00	78.53	72.07	78.69	0.000255	3.22	627.66	81.97	0.19
North Main	below diversion	88641	3903.00	68.00	81.88	74.15	82.13	0.000279	4.18	1607.15	624.18	0.21
North Main	below diversion	88488	665.00	68.00	74.24	70.06	74.31	0.000234	2.13	311.54	62.92	0.17
North Main	below diversion	88488	1249.00	68.00	76.59	71.08	76.70	0.000245	2.66	471.03	72.90	0.18
North Main	below diversion	88488	1979.00	68.00	78.48	72.10	78.64	0.000267	3.27	619.95	90.46	0.20
North Main	below diversion	88488	3903.00	68.00	81.85	74.19	82.09	0.000271	4.11	1642.28	1050.47	0.21

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	88300	665.00	68.00	74.20	70.04	74.27	0.000232	2.13	312.59	63.10	0.17
North Main	below diversion	88300	1249.00	68.00	76.54	71.05	76.65	0.000244	2.65	471.94	72.70	0.18
North Main	below diversion	88300	1979.00	68.00	78.43	72.06	78.59	0.000266	3.27	619.25	89.20	0.20
North Main	below diversion	88300	3903.00	68.00	81.76	74.13	82.03	0.000289	4.24	1540.19	709.87	0.22
North Main	below diversion	87300	665.00	68.00	73.94	70.04	74.02	0.000268	2.24	296.70	61.76	0.18
North Main	below diversion	87300	1249.00	68.00	76.27	71.04	76.39	0.000278	2.77	451.40	70.86	0.19
North Main	below diversion	87300	1979.00	68.00	78.13	72.05	78.31	0.000299	3.40	602.12	171.50	0.21
North Main	below diversion	87300	3903.00	68.00	81.58	74.14	81.75	0.000226	3.72	2564.63	1521.81	0.19
North Main	below diversion	85942	665.00	68.00	73.43	70.19	73.55	0.000453	2.71	245.24	57.03	0.23
North Main	below diversion	85942	1249.00	68.00	75.76	71.25	75.92	0.000426	3.21	389.62	66.74	0.23
North Main	below diversion	85942	1979.00	68.00	77.59	72.31	77.82	0.000435	3.85	518.53	74.53	0.25
North Main	below diversion	85942	3903.00	68.00	81.05	74.46	81.34	0.000382	4.64	1840.31	1288.72	0.25
North Main	below diversion	85850	665.00	68.00	73.40	70.21	73.52	0.000469	2.74	242.87	57.11	0.23
North Main	below diversion	85850	1249.00	68.00	75.74	71.28	75.90	0.000437	3.22	388.22	67.81	0.24
North Main	below diversion	85850	1979.00	68.00	77.55	72.36	77.79	0.000442	3.85	518.69	75.80	0.25
North Main	below diversion	85850	3903.00	68.00	80.99	74.51	81.32	0.000411	4.78	1524.13	1300.66	0.26
North Main	below diversion	85835	Bridge									
North Main	below diversion	85820	665.00	68.00	73.35	70.21	73.47	0.000486	2.77	239.70	56.87	0.24
North Main	below diversion	85820	1249.00	68.00	75.67	71.28	75.84	0.000450	3.25	384.15	67.34	0.24
North Main	below diversion	85820	1979.00	68.00	77.49	72.36	77.72	0.000456	3.89	513.67	75.50	0.25
North Main	below diversion	85820	3903.00	68.00	80.90	74.51	81.23	0.000421	4.81	1556.92	1372.44	0.26
North Main	below diversion	85783	665.00	68.00	73.32	70.21	73.44	0.000494	2.79	238.22	56.75	0.24
North Main	below diversion	85783	1249.00	68.00	75.65	71.28	75.82	0.000456	3.27	382.53	67.23	0.24
North Main	below diversion	85783	1979.00	68.00	77.46	72.36	77.70	0.000461	3.90	511.60	75.39	0.25
North Main	below diversion	85783	3903.00	68.00	80.85	74.52	81.20	0.000446	4.93	1381.61	1297.37	0.27
North Main	below diversion	83100	665.00	66.00	72.50	68.21	72.57	0.000240	2.17	305.93	61.30	0.17
North Main	below diversion	83100	1249.00	66.00	74.84	69.28	74.95	0.000251	2.72	461.13	71.58	0.18
North Main	below diversion	83100	1979.00	66.00	76.57	70.36	76.75	0.000293	3.42	591.78	79.18	0.21
North Main	below diversion	83100	3903.00	66.00	79.85	72.52	80.17	0.000356	4.68	1168.57	627.61	0.24
North Main	below diversion	82100	665.00	66.00	72.17	68.47	72.29	0.000340	2.73	252.88	55.06	0.21
North Main	below diversion	82100	1249.00	66.00	74.46	69.63	74.65	0.000354	3.53	390.75	65.53	0.23
North Main	below diversion	82100	1979.00	66.00	76.07	70.73	76.38	0.000457	4.55	502.09	234.83	0.26
North Main	below diversion	82100	3903.00	66.00	79.04	73.01	79.67	0.000659	6.59	739.41	2197.46	0.33
North Main	below diversion	82000	665.00	66.00	72.14	68.47	72.25	0.000348	2.75	250.87	54.91	0.21
North Main	below diversion	82000	1249.00	66.00	74.42	69.63	74.61	0.000360	3.55	388.23	65.35	0.23
North Main	below diversion	82000	1979.00	66.00	76.01	70.73	76.33	0.000466	4.58	498.35	225.35	0.27
North Main	below diversion	82000	3903.00	66.00	78.96	73.01	79.60	0.000675	6.64	732.49	2145.08	0.34
North Main	below diversion	81100	665.00	66.00	71.79	68.29	71.92	0.000374	2.96	248.90	63.24	0.22
North Main	below diversion	81100	1249.00	66.00	74.05	69.39	74.27	0.000401	3.85	388.13	237.34	0.24
North Main	below diversion	81100	1979.00	66.00	75.50	70.52	75.87	0.000551	5.06	489.31	580.18	0.29
North Main	below diversion	81100	3903.00	66.00	78.23	72.95	78.94	0.000784	7.21	929.50	1432.79	0.37
North Main	below diversion	80100	665.00	66.00	71.42	68.15	71.53	0.000383	2.68	265.04	72.13	0.22
North Main	below diversion	80100	1249.00	66.00	73.72	69.20	73.88	0.000339	3.28	454.86	93.15	0.22
North Main	below diversion	80100	1979.00	66.00	75.07	70.26	75.34	0.000457	4.28	594.16	115.49	0.26
North Main	below diversion	80100	3903.00	66.00	77.71	72.36	78.18	0.000612	5.94	1073.68	812.95	0.32
North Main	below diversion	79100	665.00	66.00	70.85	68.30	71.02	0.000707	3.30	203.18	53.17	0.29
North Main	below diversion	79100	1249.00	66.00	73.22	69.39	73.45	0.000532	3.88	342.26	243.01	0.27
North Main	below diversion	79100	1979.00	66.00	74.32	70.45	74.74	0.000778	5.21	415.65	303.02	0.33
North Main	below diversion	79100	3903.00	66.00	76.44	72.59	77.30	0.001214	7.67	895.11	1762.74	0.43
North Main	below diversion	77548	665.00	66.00	69.02	67.81	69.29	0.001965	4.14	160.57	60.83	0.45
North Main	below diversion	77548	1249.00	66.00	72.57	68.71	72.73	0.000391	3.17	408.53	78.90	0.23
North Main	below diversion	77548	1979.00	66.00	73.28	69.62	73.59	0.000671	4.47	465.43	82.46	0.31
North Main	below diversion	77548	3903.00	66.00	74.13	71.42	75.06	0.001730	7.78	537.88	2212.97	0.50
North Main	below diversion	77538	665.00	62.00	69.11	64.29	69.18	0.000171	2.01	332.87	62.81	0.15
North Main	below diversion	77538	1249.00	62.00	72.60	65.39	72.69	0.000120	2.31	579.64	78.49	0.13
North Main	below diversion	77538	1979.00	62.00	73.34	66.49	73.51	0.000231	3.38	638.18	81.74	0.19
North Main	below diversion	77538	3903.00	62.00	74.29	68.62	74.84	0.000654	6.04	718.19	2666.98	0.32
North Main	below diversion	77419	665.00	62.00	69.10	64.29	69.16	0.000173	2.02	331.82	62.73	0.15
North Main	below diversion	77419	1249.00	62.00	72.60	65.39	72.68	0.000120	2.32	578.94	78.45	0.13
North Main	below diversion	77419	1979.00	62.00	73.31	66.49	73.48	0.000234	3.39	635.83	81.61	0.19
North Main	below diversion	77419	3903.00	62.00	74.19	68.62	74.76	0.000684	6.14	748.98	2868.74	0.33
North Main	below diversion	77357	665.00	62.00	69.09	64.07	69.14	0.000145	1.80	369.26	67.21	0.14
North Main	below diversion	77357	1249.00	62.00	72.60	65.08	72.66	0.000099	2.02	631.55	82.31	0.12

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	77357	1979.00	62.00	73.33	66.10	73.46	0.000190	2.95	692.51	1392.93	0.17
North Main	below diversion	77357	3903.00	62.00	74.26	68.20	74.69	0.000537	5.28	789.41	4150.21	0.29
North Main	below diversion	77343	Bridge									
North Main	below diversion	77329	665.00	62.00	69.07	64.07	69.12	0.000146	1.81	368.23	67.15	0.14
North Main	below diversion	77329	1249.00	62.00	72.59	65.08	72.65	0.000100	2.02	630.53	82.25	0.12
North Main	below diversion	77329	1979.00	62.00	73.30	66.10	73.44	0.000192	2.95	690.44	1025.77	0.17
North Main	below diversion	77329	3903.00	62.00	74.13	68.19	74.40	0.000401	4.52	2465.68	2330.09	0.25
North Main	below diversion	77179	665.00	60.10	69.07	62.21	69.10	0.000080	1.49	446.16	67.13	0.10
North Main	below diversion	77179	1249.00	60.10	72.58	63.28	72.63	0.000070	1.80	708.49	82.24	0.10
North Main	below diversion	77179	1979.00	60.10	73.30	64.39	73.41	0.000138	2.65	768.20	2321.76	0.14
North Main	below diversion	77179	3903.00	60.10	74.14	66.72	74.31	0.000241	3.69	3404.06	2341.55	0.19
North Main	below diversion	77143	Culvert									
North Main	below diversion	77107	665.00	60.10	68.60	62.22	68.64	0.000098	1.60	415.13	65.19	0.11
North Main	below diversion	77107	1249.00	60.10	70.86	63.29	70.93	0.000134	2.19	573.02	74.73	0.14
North Main	below diversion	77107	1979.00	60.10	72.06	64.39	72.20	0.000211	3.01	665.77	79.95	0.17
North Main	below diversion	77107	3903.00	60.10	74.13	66.72	74.29	0.000236	3.64	3654.19	4295.52	0.19
North Main	below diversion	76585	665.00	60.00	68.56	62.15	68.59	0.000077	1.47	452.62	71.20	0.10
North Main	below diversion	76585	1249.00	60.00	70.80	63.19	70.87	0.000101	2.05	623.22	80.85	0.12
North Main	below diversion	76585	1979.00	60.00	71.96	64.25	72.09	0.000166	2.86	720.17	85.85	0.16
North Main	below diversion	76585	3903.00	60.00	73.74	66.39	74.09	0.000370	4.76	879.18	2307.27	0.24
North Main	below diversion	76000	665.00	60.00	68.51	62.14	68.54	0.000081	1.52	439.03	68.25	0.10
North Main	below diversion	76000	1249.00	60.00	70.73	63.19	70.80	0.000108	2.12	612.40	97.22	0.13
North Main	below diversion	76000	1979.00	60.00	71.85	64.25	71.99	0.000180	2.96	730.67	114.33	0.17
North Main	below diversion	76000	3903.00	60.00	73.51	66.40	73.86	0.000394	4.86	1160.05	3883.54	0.25
North Main	below diversion	75929	665.00	60.00	68.50	62.24	68.54	0.000079	1.59	429.45	69.01	0.10
North Main	below diversion	75929	1249.00	60.00	70.73	63.32	70.80	0.000111	2.26	608.69	104.36	0.13
North Main	below diversion	75929	1979.00	60.00	71.83	64.40	71.98	0.000188	3.16	734.67	124.35	0.17
North Main	below diversion	75929	3903.00	60.00	73.64	66.54	73.77	0.000202	3.64	4432.24	4374.48	0.18
North Main	below diversion	75866	665.00	60.00	68.50	62.19	68.53	0.000078	1.59	430.29	67.56	0.10
North Main	below diversion	75866	1249.00	60.00	70.72	63.26	70.79	0.000110	2.26	597.25	90.94	0.13
North Main	below diversion	75866	1979.00	60.00	71.81	64.33	71.97	0.000189	3.17	705.81	106.17	0.17
North Main	below diversion	75866	3903.00	60.00	73.65	66.47	73.75	0.000167	3.32	5105.97	4448.52	0.17
North Main	below diversion	75852	Bridge									
North Main	below diversion	75838	665.00	60.00	68.48	62.19	68.52	0.000079	1.59	429.09	67.49	0.10
North Main	below diversion	75838	1249.00	60.00	70.69	63.26	70.77	0.000112	2.26	594.94	90.51	0.13
North Main	below diversion	75838	1979.00	60.00	71.73	64.33	71.89	0.000194	3.20	698.29	107.59	0.17
North Main	below diversion	75838	3903.00	60.00	73.55	66.46	73.67	0.000186	3.49	4800.15	4398.39	0.18
North Main	below diversion	75752	665.00	60.00	68.47	62.19	68.51	0.000079	1.59	428.70	67.46	0.10
North Main	below diversion	75752	1249.00	60.00	70.68	63.26	70.76	0.000112	2.27	584.17	90.37	0.13
North Main	below diversion	75752	1979.00	60.00	71.72	64.32	71.87	0.000195	3.21	696.67	107.34	0.17
North Main	below diversion	75752	3903.00	60.00	73.32	66.46	73.60	0.000340	4.66	2034.08	4087.30	0.24
North Main	below diversion	75000	665.00	60.00	68.41	62.11	68.45	0.000077	1.58	430.15	66.39	0.10
North Main	below diversion	75000	1249.00	60.00	70.60	63.16	70.68	0.000107	2.22	782.67	527.82	0.13
North Main	below diversion	75000	1979.00	60.00	71.62	64.21	71.73	0.000154	2.85	1535.64	951.82	0.15
North Main	below diversion	75000	3903.00	60.00	73.29	66.35	73.38	0.000151	3.11	5298.96	4480.74	0.16
North Main	below diversion	74000	665.00	60.00	68.32	62.49	68.36	0.000115	1.71	389.72	65.48	0.12
North Main	below diversion	74000	1249.00	60.00	70.48	63.61	70.56	0.000141	2.32	729.50	662.93	0.14
North Main	below diversion	74000	1979.00	60.00	71.48	64.71	71.57	0.000163	2.69	2287.25	2382.56	0.16
North Main	below diversion	74000	3903.00	60.00	73.22	66.93	73.25	0.000087	2.20	7841.30	4315.59	0.12
North Main	below diversion	73000	856.00	60.00	68.17	62.46	68.24	0.000140	2.08	418.51	66.02	0.14
North Main	below diversion	73000	1516.00	60.00	70.28	63.54	70.40	0.000181	2.82	565.83	73.70	0.16
North Main	below diversion	73000	2106.00	60.00	71.17	64.34	71.37	0.000254	3.55	633.24	76.92	0.20
North Main	below diversion	73000	3932.00	60.00	72.80	66.33	73.08	0.000365	4.70	2890.45	3336.73	0.24
North Main	below diversion	72857	856.00	60.00	68.15	62.42	68.22	0.000134	2.04	428.43	67.98	0.14
North Main	below diversion	72857	1516.00	60.00	70.25	63.48	70.37	0.000173	2.75	579.67	75.95	0.16
North Main	below diversion	72857	2106.00	60.00	71.15	64.28	71.33	0.000243	3.47	648.91	79.30	0.19
North Main	below diversion	72857	3932.00	60.00	72.73	66.23	73.03	0.000373	4.75	2635.46	2922.88	0.25
North Main	below diversion	72794	856.00	60.00	68.14	62.56	68.21	0.000157	2.18	399.57	64.00	0.15
North Main	below diversion	72794	1516.00	60.00	70.23	63.66	70.36	0.000202	2.95	570.59	205.89	0.17
North Main	below diversion	72794	2106.00	60.00	71.12	64.49	71.32	0.000268	3.62	783.43	273.04	0.20
North Main	below diversion	72794	3932.00	60.00	72.78	66.51	72.99	0.000312	4.33	3928.62	3999.19	0.22

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	72780	Bridge									
North Main	below diversion	72786	856.00	60.00	68.12	62.56	68.19	0.000158	2.19	398.55	63.94	0.15
North Main	below diversion	72786	1516.00	60.00	70.21	63.66	70.35	0.000203	2.96	566.58	204.41	0.17
North Main	below diversion	72786	2106.00	60.00	71.09	64.49	71.29	0.000271	3.63	775.71	270.89	0.20
North Main	below diversion	72786	3932.00	60.00	72.44	66.51	72.79	0.000465	5.18	2626.23	3740.03	0.27
North Main	below diversion	72680	856.00	60.00	68.11	62.55	68.18	0.000159	2.19	397.78	63.89	0.15
North Main	below diversion	72680	1516.00	60.00	70.19	63.66	70.33	0.000205	2.96	563.34	203.21	0.17
North Main	below diversion	72680	2106.00	60.00	71.07	64.49	71.27	0.000274	3.65	769.74	269.22	0.20
North Main	below diversion	72680	3932.00	60.00	72.34	66.51	72.74	0.000518	5.43	2266.45	3665.21	0.29
North Main	below diversion	71500	856.00	60.00	67.90	62.56	67.99	0.000164	2.32	394.27	66.00	0.15
North Main	below diversion	71500	1516.00	60.00	69.93	63.66	70.08	0.000221	3.17	535.82	73.91	0.18
North Main	below diversion	71500	2106.00	60.00	70.95	64.45	71.02	0.000127	2.58	3900.98	3772.18	0.14
North Main	below diversion	71500	3932.00	60.00	72.44	66.44	72.46	0.000066	2.03	9717.25	4037.91	0.10
North Main	below diversion	70221	856.00	60.00	67.70	62.43	67.78	0.000161	2.26	402.76	68.66	0.15
North Main	below diversion	70221	1516.00	60.00	69.82	63.49	69.86	0.000100	2.12	2480.08	1841.19	0.12
North Main	below diversion	70221	2106.00	60.00	70.87	64.26	70.89	0.000061	1.79	4780.52	3608.61	0.10
North Main	below diversion	70221	3932.00	60.00	72.38	66.21	72.38	0.000057	1.89	8234.33	3718.42	0.10
North Main	below diversion	70158	856.00	60.00	67.70	62.25	67.76	0.000131	1.94	447.53	74.43	0.13
North Main	below diversion	70158	1516.00	60.00	69.77	63.23	69.85	0.000137	2.38	1152.03	681.35	0.14
North Main	below diversion	70158	2106.00	60.00	70.82	63.97	70.88	0.000107	2.26	3285.29	3792.84	0.13
North Main	below diversion	70158	3932.00	60.00	72.34	65.85	72.37	0.000084	2.21	7061.08	4017.59	0.12
North Main	below diversion	70144	Bridge									
North Main	below diversion	70130	856.00	60.00	67.69	62.25	67.75	0.000132	1.94	446.74	74.38	0.13
North Main	below diversion	70130	1516.00	60.00	69.74	63.23	69.82	0.000140	2.39	1131.02	670.96	0.14
North Main	below diversion	70130	2106.00	60.00	70.77	63.97	70.83	0.000113	2.32	3162.71	3787.39	0.13
North Main	below diversion	70130	3932.00	60.00	72.30	65.84	72.33	0.000067	2.24	6960.59	4009.19	0.12
North Main	below diversion	70044	856.00	60.00	67.69	62.25	67.75	0.000132	1.94	446.60	74.37	0.13
North Main	below diversion	70044	1516.00	60.00	69.73	63.23	69.81	0.000141	2.40	1123.68	667.29	0.14
North Main	below diversion	70044	2106.00	60.00	70.76	63.97	70.82	0.000115	2.34	3120.82	3785.51	0.13
North Main	below diversion	70044	3932.00	60.00	72.28	65.84	72.32	0.000088	2.26	6920.90	4005.87	0.12
North Main	below diversion	70000	856.00	60.00	67.69	62.17	67.74	0.000119	1.85	466.74	76.36	0.13
North Main	below diversion	70000	1516.00	60.00	69.72	63.13	69.80	0.000140	2.41	947.73	625.53	0.14
North Main	below diversion	70000	2106.00	60.00	70.74	63.84	70.81	0.000124	2.44	2644.47	3505.75	0.14
North Main	below diversion	70000	3932.00	60.00	72.27	65.66	72.31	0.000101	2.43	6269.65	4000.47	0.13
North Main	below diversion	69000	856.00	60.00	67.58	62.03	67.63	0.000109	1.78	486.42	78.91	0.12
North Main	below diversion	69000	1516.00	60.00	69.58	62.94	69.67	0.000138	2.38	804.07	611.29	0.14
North Main	below diversion	69000	2106.00	60.00	70.60	63.82	70.68	0.000130	2.49	2292.46	4385.26	0.14
North Main	below diversion	69000	3932.00	60.00	72.15	65.40	72.21	0.000111	2.55	5745.20	4780.62	0.13
North Main	below diversion	68000	856.00	60.00	67.39		67.48	0.000212	2.34	368.98	65.45	0.17
North Main	below diversion	68000	1516.00	60.00	69.33		69.48	0.000263	3.14	503.05	73.17	0.19
North Main	below diversion	68000	2106.00	60.00	70.26		70.48	0.000332	3.79	907.16	1374.21	0.22
North Main	below diversion	68000	3932.00	60.00	71.69		72.03	0.000280	3.88	3835.88	2365.54	0.21
North Main	below diversion	66518	856.00	60.00	67.09		67.17	0.000218	2.32	371.46	67.37	0.17
North Main	below diversion	66518	1516.00	60.00	68.94	63.45	69.09	0.000272	3.11	504.01	75.22	0.20
North Main	below diversion	66518	2106.00	60.00	70.00		70.09	0.000191	2.83	2494.32	2160.45	0.17
North Main	below diversion	66518	3932.00	60.00	71.73		71.77	0.000105	2.37	7634.64	3648.48	0.13
North Main	below diversion	66456	856.00	60.00	67.08	62.41	67.16	0.000220	2.32	370.69	67.32	0.17
North Main	below diversion	66456	1516.00	60.00	68.93	63.45	69.08	0.000274	3.11	502.89	75.16	0.20
North Main	below diversion	66456	2106.00	60.00	70.00	64.23	70.09	0.000191	2.83	2492.54	2160.18	0.17
North Main	below diversion	66456	3932.00	60.00	71.73	66.14	71.77	0.000105	2.37	7629.30	3647.40	0.13
North Main	below diversion	66442	Bridge									
North Main	below diversion	66428	856.00	60.00	67.05		67.14	0.000222	2.33	369.25	67.23	0.17
North Main	below diversion	66428	1516.00	60.00	68.82		68.97	0.000287	3.16	494.64	74.70	0.20
North Main	below diversion	66428	2106.00	60.00	69.91		70.02	0.000210	2.95	2313.51	2132.17	0.18
North Main	below diversion	66428	3932.00	60.00	71.68		71.72	0.000111	2.42	7448.11	3610.73	0.13
North Main	below diversion	66342	856.00	60.00	67.04		67.12	0.000225	2.34	368.06	67.15	0.17
North Main	below diversion	66342	1516.00	60.00	68.80		68.95	0.000290	3.17	492.91	74.61	0.20
North Main	below diversion	66342	2106.00	60.00	69.84		69.98	0.000272	3.34	1546.33	1384.94	0.20
North Main	below diversion	66342	3932.00	60.00	71.61		71.69	0.000183	3.11	5369.38	2892.28	0.17
North Main	below diversion	65921.*	856.00	60.00	66.93		67.02	0.000239	2.38	361.01	66.71	0.18
North Main	below diversion	65921.*	1516.00	60.00	68.66		68.82	0.000308	3.23	493.90	203.34	0.21
North Main	below diversion	65921.*	2106.00	60.00	69.70		69.87	0.000303	3.49	1396.53	1360.34	0.21

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch.El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	below diversion	85821*	3932.00	60.00	71.52		71.61	0.000202	3.24	4962.61	2827.78	0.18
North Main	below diversion	85500	856.00	60.00	66.82		66.91	0.000256	2.43	353.33	66.20	0.18
North Main	below diversion	85500	1516.00	60.00	68.51		68.68	0.000327	3.28	526.75	288.08	0.21
North Main	below diversion	85500	2106.00	60.00	69.59		69.74	0.000293	3.40	1640.84	1739.34	0.21
North Main	below diversion	85500	3932.00	60.00	71.47		71.52	0.000151	2.79	5808.82	2659.19	0.15
North Main	below diversion	85133.3*	856.00	60.00	66.68		66.79	0.000338	2.66	322.20	64.53	0.21
North Main	below diversion	85133.3*	1516.00	60.00	68.34		68.54	0.000418	3.56	435.47	73.30	0.24
North Main	below diversion	85133.3*	2106.00	60.00	69.31		69.60	0.000511	4.30	598.09	947.20	0.27
North Main	below diversion	85133.3*	3932.00	60.00	71.29		71.44	0.000320	3.96	3649.92	2149.44	0.22
North Main	below diversion	84766.6*	856.00	60.00	66.55		66.67	0.000380	2.77	309.88	62.89	0.22
North Main	below diversion	84766.6*	1516.00	60.00	68.17		68.39	0.000489	3.70	417.11	69.67	0.25
North Main	below diversion	84766.6*	2106.00	60.00	69.09		69.41	0.000586	4.51	483.21	74.40	0.29
North Main	below diversion	84766.6*	3932.00	60.00	71.06		71.29	0.000467	4.69	2653.52	1531.93	0.27
North Main	below diversion	84400	856.00	60.00	66.42	62.47	66.54	0.000351	2.71	316.04	61.39	0.21
North Main	below diversion	84400	1516.00	60.00	68.02	63.51	68.23	0.000453	3.68	418.46	67.20	0.25
North Main	below diversion	84400	2106.00	60.00	68.88	64.31	69.20	0.000586	4.52	478.05	70.48	0.29
North Main	below diversion	84400	3932.00	60.00	70.71	66.25	71.09	0.000648	5.48	2003.57	1470.07	0.31
North Main	below diversion	82879	856.00	58.00	66.07	60.77	66.15	0.000198	2.18	461.53	710.95	0.16
North Main	below diversion	82879	1516.00	58.00	67.87	61.91	67.90	0.000099	1.85	2346.51	3229.40	0.12
North Main	below diversion	82879	2106.00	58.00	68.84	62.75	68.88	0.000080	1.79	3823.06	4532.18	0.11
North Main	below diversion	82879	3932.00	58.00	70.73	64.80	70.75	0.000067	1.88	6795.70	9041.74	0.10
North Main	below diversion	82817	856.00	58.00	66.11	60.68	66.13	0.000066	1.38	1829.45	3184.64	0.09
North Main	below diversion	82817	1516.00	58.00	67.88	61.79	67.89	0.000035	1.17	4134.84	4945.01	0.07
North Main	below diversion	82817	2106.00	58.00	68.85	62.61	68.85	0.000032	1.21	5557.23	5905.18	0.07
North Main	below diversion	82817	3932.00	58.00	70.73	65.32	70.74	0.000035	1.44	8583.85	9112.48	0.08
North Main	below diversion	82803	Bridge									
North Main	below diversion	82789	856.00	58.00	66.09	60.68	66.11	0.000083	1.35	1922.34	3064.43	0.09
North Main	below diversion	82789	1516.00	58.00	67.87	61.79	67.87	0.000032	1.13	4309.13	4926.44	0.07
North Main	below diversion	82789	2106.00	58.00	68.83	62.61	68.84	0.000030	1.17	5781.04	5889.78	0.07
North Main	below diversion	82789	3932.00	58.00	70.71	65.28	70.72	0.000033	1.39	8872.19	9053.87	0.07
North Main	below diversion	82703	856.00	58.00	66.09	60.68	66.10	0.000057	1.29	2071.57	3061.89	0.09
North Main	below diversion	82703	1516.00	58.00	67.86	61.79	67.87	0.000029	1.08	4579.04	4922.50	0.07
North Main	below diversion	82703	2106.00	58.00	68.83	62.61	68.83	0.000027	1.11	6119.63	5886.99	0.06
North Main	below diversion	82703	3932.00	58.00	70.70	65.23	70.71	0.000030	1.32	9334.89	9034.33	0.07
North Main	below diversion	82600	856.00	58.00	66.09	60.66	66.09	0.000025	0.85	3724.91	2454.21	0.06
North Main	below diversion	82600	1516.00	58.00	67.86	61.78	67.86	0.000012	0.70	7496.22	3823.80	0.04
North Main	below diversion	82600	2106.00	58.00	68.82	62.60	68.83	0.000011	0.72	9685.08	4452.84	0.04
North Main	below diversion	82600	3932.00	58.00	70.70	65.05	70.70	0.000013	0.87	14135.69	7368.73	0.05
North Main	below diversion	81620	856.00	58.00	66.07	60.72	66.07	0.000014	0.68	4455.45	8964.22	0.04
North Main	below diversion	81620	1516.00	58.00	67.84	61.83	67.84	0.000010	0.55	8164.37	9822.36	0.04
North Main	below diversion	81620	2106.00	58.00	68.81	62.60	68.81	0.000010	0.71	11088.44	11204.85	0.04
North Main	below diversion	81620	3932.00	58.00	70.69	64.31	70.69	0.000009	0.77	18089.52	13051.43	0.04
North Main	below diversion	81584	856.00	58.00	65.99	60.55	66.05	0.000148	2.08	448.34	7353.50	0.14
North Main	below diversion	81584	1516.00	58.00	67.81	61.64	67.83	0.000072	1.71	3533.07	9916.56	0.10
North Main	below diversion	81584	2106.00	58.00	68.80	62.42	68.81	0.000041	1.38	6994.93	11814.04	0.08
North Main	below diversion	81584	3932.00	58.00	70.68	64.38	70.69	0.000022	1.14	14022.20	13049.93	0.06
North Main	below diversion	81570	Bridge									
North Main	below diversion	81556	856.00	58.00	65.97	60.55	66.04	0.000149	2.09	446.63	7351.08	0.14
North Main	below diversion	81556	1516.00	58.00	67.78	61.64	67.80	0.000075	1.73	3453.75	9885.23	0.11
North Main	below diversion	81556	2106.00	58.00	68.78	62.42	68.79	0.000041	1.39	6926.97	11797.59	0.08
North Main	below diversion	81556	3932.00	58.00	70.66	64.36	70.67	0.000022	1.14	13945.88	13045.42	0.06
North Main	below diversion	81443	856.00	58.00	66.00	60.56	66.00	0.000031	1.01	3496.54	8113.59	0.07
North Main	below diversion	81443	1516.00	58.00	67.78	61.63	67.78	0.000013	0.76	7927.71	8617.10	0.04
North Main	below diversion	81443	2106.00	58.00	68.78	62.42	68.78	0.000013	0.81	10867.10	9924.81	0.05
North Main	below diversion	81443	3932.00	58.00	70.65	64.73	70.66	0.000010	0.80	19751.77	13043.92	0.04
North Main	below diversion	80700	856.00	58.10	65.98	60.64	65.98	0.000023	0.86	4938.58	8436.84	0.06
North Main	below diversion	80700	1516.00	58.10	67.77	61.71	67.78	0.000007	0.54	13256.39	10387.94	0.03
North Main	below diversion	80700	2106.00	58.10	68.76	62.50	68.77	0.000005	0.49	19242.47	11516.25	0.03
North Main	below diversion	80700	3932.00	58.10	70.65	65.37	70.65	0.000004	0.46	32523.86	13042.42	0.02
North Main	below diversion	58982	856.00	58.00	65.83	60.55	65.90	0.000163	2.15	404.82	3570.03	0.15
North Main	below diversion	58982	1516.00	58.00	67.73	61.62	67.75	0.000065	1.61	4429.63	8089.70	0.10
North Main	below diversion	58982	2106.00	58.00	68.73	62.42	68.74	0.000030	1.17	9703.88	10279.38	0.07

HFC-PAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cht
North Main	below diversion	58982	3932.00	58.00	70.64	64.38	70.64	0.000012	0.83	22298.63	11628.11	0.04
North Main	below diversion	58909	856.00	58.00	65.81	60.58	65.89	0.000184	2.27	384.12	2911.35	0.16
North Main	below diversion	58909	1516.00	58.00	67.61	61.71	67.72	0.000202	2.79	1383.49	5669.59	0.17
North Main	below diversion	58909	2106.00	58.00	68.68	62.55	68.73	0.000110	2.23	4379.21	7552.92	0.13
North Main	below diversion	58909	3932.00	58.00	70.63	64.54	70.64	0.000035	1.44	13965.76	10188.72	0.08
North Main	below diversion	58887	Bridge									
North Main	below diversion	58865	856.00	58.00	65.79	60.58	65.87	0.000185	2.27	383.14	2897.53	0.16
North Main	below diversion	58865	1516.00	58.00	67.49	61.71	67.61	0.000228	2.93	1165.95	5457.01	0.18
North Main	below diversion	58865	2106.00	58.00	68.62	62.54	68.67	0.000118	2.31	4165.09	7449.57	0.13
North Main	below diversion	58865	3932.00	58.00	70.62	64.54	70.62	0.000038	1.45	13863.82	10186.23	0.08
North Main	below diversion	58787	856.00	58.00	65.78	60.58	65.88	0.000187	2.28	382.34	2898.36	0.16
North Main	below diversion	58787	1516.00	58.00	67.49	61.71	67.57	0.000171	2.55	1883.48	5464.02	0.16
North Main	below diversion	58787	2106.00	58.00	68.62	62.54	68.65	0.000078	1.88	5635.84	7703.40	0.11
North Main	below diversion	58787	3932.00	58.00	70.61	64.54	70.61	0.000023	1.16	16988.46	10113.69	0.06
North Main	below diversion	57900	856.00	58.00	65.70	60.46	65.73	0.000100	1.67	1573.29	3278.51	0.12
North Main	below diversion	57900	1516.00	58.00	67.49	61.52	67.50	0.000033	1.12	5031.22	4171.30	0.07
North Main	below diversion	57900	2106.00	58.00	68.60	62.31	68.60	0.000021	0.98	8642.02	6019.19	0.08
North Main	below diversion	57900	3932.00	58.00	70.60	64.25	70.61	0.000015	0.93	19666.96	9598.92	0.05
North Main	below diversion	55821	856.00	58.00	65.42	60.56	65.48	0.000148	2.10	1235.80	2924.45	0.14
North Main	below diversion	55821	1516.00	58.00	67.44	61.64	67.44	0.000022	0.97	8004.15	7494.69	0.06
North Main	below diversion	55821	2106.00	58.00	68.58	62.43	68.58	0.000010	0.71	15415.11	9395.01	0.04
North Main	below diversion	55821	3932.00	58.00	70.60	64.37	70.60	0.000005	0.57	29264.82	10089.58	0.03
North Main	below diversion	55758	856.00	58.00	65.42	60.50	65.48	0.000142	2.06	1266.01	3063.48	0.14
North Main	below diversion	55758	1516.00	58.00	67.43	61.58	67.44	0.000018	0.88	9159.16	8081.28	0.05
North Main	below diversion	55758	2106.00	58.00	68.58	62.36	68.58	0.000008	0.61	16721.69	9367.59	0.03
North Main	below diversion	55758	3932.00	58.00	70.59	64.29	70.59	0.000004	0.53	30447.80	10017.21	0.03
North Main	below diversion	55744	Bridge									
North Main	below diversion	55730	856.00	58.00	65.38	60.50	65.45	0.000165	2.21	850.65	2683.99	0.15
North Main	below diversion	55730	1516.00	58.00	67.41	61.58	67.42	0.000044	1.36	4973.12	6603.06	0.08
North Main	below diversion	55730	2106.00	58.00	68.55	62.36	68.56	0.000020	1.00	10681.47	8821.93	0.06
North Main	below diversion	55730	3932.00	58.00	70.57	64.29	70.57	0.000010	0.79	23569.96	10614.05	0.04
North Main	below diversion	55644	856.00	58.00	65.38	60.50	65.44	0.000156	2.16	1027.17	2261.87	0.15
North Main	below diversion	55644	1516.00	58.00	67.41	61.58	67.41	0.000031	1.14	6153.21	6062.71	0.07
North Main	below diversion	55644	2106.00	58.00	68.54	62.36	68.55	0.000014	0.85	12378.35	8226.04	0.05
North Main	below diversion	55644	3932.00	58.00	70.57	64.29	70.57	0.000008	0.70	26310.33	9969.41	0.04
North Main	below diversion	54900	856.00	58.00	65.27	60.30	65.33	0.000145	2.07	1080.68	2732.27	0.14
North Main	below diversion	54900	1516.00	58.00	67.39	61.31	67.39	0.000015	0.79	9425.06	5152.36	0.05
North Main	below diversion	54900	2106.00	58.00	68.53	62.06	68.54	0.000007	0.61	15880.56	6376.07	0.03
North Main	below diversion	54900	3932.00	58.00	70.56	63.93	70.56	0.000005	0.57	28065.75	7943.42	0.03
North Main	below diversion	53165	856.00	58.00	65.07	60.37	65.10	0.000107	1.82	1480.22	1207.34	0.12
North Main	below diversion	53165	1516.00	58.00	67.35	61.41	67.36	0.000026	1.00	5907.89	2653.95	0.06
North Main	below diversion	53165	2106.00	58.00	68.52	62.15	68.52	0.000018	0.90	9408.11	3396.91	0.05
North Main	below diversion	53165	3932.00	58.00	70.55	64.84	70.56	0.000013	0.89	17688.26	6222.78	0.05
North Main	below diversion	53128	856.00	58.00	65.00	60.30	65.08	0.000180	2.24	410.05	749.97	0.16
North Main	below diversion	53128	1516.00	58.00	67.33	61.29	67.35	0.000060	1.59	3655.95	2430.85	0.10
North Main	below diversion	53128	2106.00	58.00	68.51	62.03	68.52	0.000034	1.30	7202.27	3507.45	0.07
North Main	below diversion	53128	3932.00	58.00	70.55	63.81	70.55	0.000019	1.12	15764.97	6373.63	0.06
North Main	below diversion	53114	Bridge									
North Main	below diversion	53100	856.00	58.00	64.98	60.30	65.06	0.000182	2.24	405.69	87.12	0.16
North Main	below diversion	53100	1516.00	58.00	67.31	61.29	67.33	0.000058	1.58	3946.83	2899.57	0.09
North Main	below diversion	53100	2106.00	58.00	68.49	62.03	68.50	0.000030	1.22	8245.34	4202.27	0.07
North Main	below diversion	53100	3932.00	58.00	70.53	63.81	70.53	0.000016	1.00	18182.89	6486.50	0.05
North Main	below diversion	52987	856.00	58.00	64.96	60.30	65.04	0.000184	2.25	403.97	86.76	0.16
North Main	below diversion	52987	1516.00	58.00	67.30	61.29	67.32	0.000060	1.59	3914.42	2884.17	0.10
North Main	below diversion	52987	2106.00	58.00	68.48	62.03	68.49	0.000030	1.23	8200.20	4195.05	0.07
North Main	below diversion	52987	3932.00	58.00	70.52	63.81	70.53	0.000016	1.00	18149.02	6471.76	0.05
North Main	below diversion	52500	856.00	58.00	64.87	60.26	64.95	0.000194	2.30	385.72	70.37	0.16
North Main	below diversion	52500	1516.00	58.00	67.28	61.25	67.29	0.000046	1.40	4933.91	3263.14	0.08
North Main	below diversion	52500	2106.00	58.00	68.47	61.99	68.47	0.000023	1.07	9472.01	4275.77	0.06
North Main	below diversion	52500	3932.00	58.00	70.52	63.80	70.52	0.000013	0.90	19532.41	6479.62	0.05
North Main	below diversion	50599	856.00	56.00	64.58	58.69	64.85	0.000135	2.08	423.15	67.66	0.14



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
North Main	below diversion	50599	1516.00	56.00	67.03	59.82	67.14	0.000156	2.72	601.59	78.26	0.15
North Main	below diversion	50599	2106.00	56.00	68.20	60.66	68.36	0.000195	3.29	950.12	1055.76	0.18
North Main	below diversion	50599	3932.00	56.00	70.43	62.68	70.47	0.000072	2.27	9471.42	7517.71	0.11
North Main	below diversion	50550	856.00	56.00	64.58	58.52	64.84	0.000129	1.92	445.97	69.20	0.13
North Main	below diversion	50550	1516.00	56.00	67.04	59.60	67.13	0.000142	2.48	628.80	137.73	0.14
North Main	below diversion	50550	2106.00	56.00	68.25	60.43	68.34	0.000142	2.70	2094.50	2967.03	0.15
North Main	below diversion	50550	3932.00	56.00	70.44	62.43	70.46	0.000041	1.65	11529.51	8505.52	0.08
North Main	below diversion	50536	Bridge									
North Main	below diversion	50522	856.00	56.00	64.55	58.51	64.61	0.000132	1.93	443.75	69.07	0.13
North Main	below diversion	50522	1516.00	56.00	66.95	59.60	67.04	0.000146	2.50	620.73	78.59	0.15
North Main	below diversion	50522	2106.00	56.00	68.19	60.43	68.30	0.000148	2.74	1944.35	2695.73	0.15
North Main	below diversion	50522	3932.00	56.00	70.43	62.43	70.44	0.000042	1.66	11437.58	8499.47	0.08
North Main	below diversion	50423	856.00	56.00	64.54	58.52	64.60	0.000132	1.93	443.01	69.03	0.13
North Main	below diversion	50423	1516.00	56.00	66.94	59.61	67.03	0.000147	2.51	619.80	78.54	0.15
North Main	below diversion	50423	2106.00	56.00	68.18	60.43	68.28	0.000149	2.75	1909.11	2628.01	0.15
North Main	below diversion	50423	3932.00	56.00	70.42	62.43	70.43	0.000042	1.67	11399.78	8496.98	0.08
North Main	below diversion	49400	856.00	56.00	64.38	58.54	64.44	0.000141	1.95	439.94	71.12	0.14
North Main	below diversion	49400	1516.00	56.00	66.78	59.63	66.87	0.000150	2.49	623.06	81.82	0.15
North Main	below diversion	49400	2106.00	56.00	68.10	60.43	68.15	0.000083	2.04	4558.72	4524.50	0.11
North Main	below diversion	49400	3932.00	56.00	70.40	62.43	70.41	0.000019	1.11	16913.22	8193.62	0.06
North Main	below diversion	48450	856.00	56.00	64.23	58.67	64.30	0.000151	2.13	412.41	69.36	0.14
North Main	below diversion	48450	1516.00	56.00	66.73	59.80	66.76	0.000066	1.73	4244.10	4480.35	0.10
North Main	below diversion	48450	2106.00	56.00	68.10	60.62	68.10	0.000017	0.97	11189.09	5439.02	0.05
North Main	below diversion	48450	3932.00	56.00	70.39	62.60	70.39	0.000007	0.69	25397.38	8648.12	0.03
North Main	reach 1	233824	2496.00	53.37	64.02	57.06	64.15	0.000302	2.94	850.36	102.25	0.18
North Main	reach 1	233824	3976.00	53.37	66.45	58.33	66.64	0.000343	3.50	1423.00	1034.53	0.20
North Main	reach 1	233824	5665.00	53.37	67.91	59.54	68.04	0.000282	3.36	3664.60	2055.68	0.18
North Main	reach 1	233824	10632.00	53.37	70.32	62.43	70.37	0.000165	2.49	9203.24	2545.57	0.14
North Main	reach 1	232833	2496.00	53.37	63.76	56.74	63.87	0.000246	2.66	936.75	112.49	0.16
North Main	reach 1	232833	3976.00	53.37	66.19	57.92	66.33	0.000259	3.08	1897.01	1347.86	0.17
North Main	reach 1	232833	5665.00	53.37	67.74	59.04	67.82	0.000163	2.61	5168.63	2530.20	0.14
North Main	reach 1	232833	10632.00	53.37	70.22	61.71	70.25	0.000088	2.12	11977.04	2972.63	0.10
North Main	reach 1	232775	2496.00	53.37	63.75	56.74	63.86	0.000247	2.67	935.09	112.43	0.16
North Main	reach 1	232775	3976.00	53.37	66.17	57.91	66.31	0.000261	3.09	1874.89	1329.67	0.17
North Main	reach 1	232775	5665.00	53.37	67.72	59.04	67.80	0.000186	2.63	5115.03	2524.06	0.14
North Main	reach 1	232775	10632.00	53.37	70.21	61.71	70.24	0.000088	2.12	11943.89	2971.63	0.10
North Main	reach 1	232000	2496.00	53.37	63.55	56.62	63.67	0.000252	2.71	921.87	109.16	0.16
North Main	reach 1	232000	3976.00	53.37	66.11	57.75	66.15	0.000125	1.86	5260.32	3110.72	0.12
North Main	reach 1	232000	5665.00	53.37	67.70	58.88	67.71	0.000050	1.29	11107.35	3995.50	0.07
North Main	reach 1	232000	10632.00	53.37	70.18	61.54	70.19	0.000027	1.08	21447.19	4324.71	0.06
North Main	reach 1	230198	2496.00	52.60	63.16	55.77	63.25	0.000203	2.48	1008.31	116.57	0.15
North Main	reach 1	230198	3976.00	52.60	65.77	56.87	65.87	0.000185	2.69	2825.74	3183.57	0.15
North Main	reach 1	230198	5665.00	52.60	67.61	57.95	67.63	0.000046	1.48	12737.27	6269.98	0.07
North Main	reach 1	230198	10632.00	52.60	70.15	60.54	70.15	0.000017	0.93	28671.48	6300.00	0.05
North Main	reach 1	230130	2496.00	52.60	63.14	55.77	63.23	0.000205	2.48	1005.85	116.48	0.15
North Main	reach 1	230130	3976.00	52.60	65.75	56.87	65.85	0.000188	2.71	2758.53	3124.07	0.15
North Main	reach 1	230130	5665.00	52.60	67.61	57.95	67.62	0.000047	1.48	12702.97	6269.93	0.07
North Main	reach 1	230130	10632.00	52.60	70.14	60.54	70.15	0.000017	0.93	28655.09	6300.00	0.05
North Main	reach 1	230000	2496.00	52.60	63.10	55.85	63.20	0.000223	2.58	968.66	113.19	0.16
North Main	reach 1	230000	3976.00	52.60	65.72	56.98	65.82	0.000236	2.67	2650.90	2626.90	0.16
North Main	reach 1	230000	5665.00	52.60	67.60	58.09	67.61	0.000054	1.42	12104.52	6138.93	0.08
North Main	reach 1	230000	10632.00	52.60	70.14	60.75	70.14	0.000019	0.94	27750.30	6184.29	0.05
North Main	reach 1	228819	2496.00	52.61	62.87	55.62	62.95	0.000193	2.39	1042.65	122.76	0.14
North Main	reach 1	228819	3976.00	52.61	65.42	56.68	65.55	0.000221	2.90	1412.87	480.33	0.16
North Main	reach 1	228819	5665.00	52.61	67.46	57.71	67.52	0.000121	2.33	6532.81	5492.05	0.12
North Main	reach 1	228819	10632.00	52.61	70.10	60.22	70.11	0.000037	1.26	21156.27	5624.21	0.07
North Main	reach 1	227802	2496.00	52.61	62.53	56.00	62.66	0.000307	2.91	858.02	106.20	0.18
North Main	reach 1	227802	3976.00	52.61	65.02	57.18	65.21	0.000349	3.50	1134.71	116.39	0.20
North Main	reach 1	227802	5665.00	52.61	67.14	58.34	67.27	0.000309	3.15	4083.41	4414.10	0.18
North Main	reach 1	227802	10632.00	52.61	70.05	61.05	70.06	0.000040	1.18	21770.26	6262.87	0.07
North Main	reach 1	226000	2496.00	52.41	62.02	55.72	62.15	0.000326	2.96	843.95	106.58	0.19
North Main	reach 1	226000	3976.00	52.41	64.43	56.88	64.63	0.000372	3.57	1112.77	116.00	0.20
North Main	reach 1	226000	5665.00	52.41	66.36	58.00	66.64	0.000440	4.21	1344.21	123.53	0.23

HFC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	228000	10632.00	52.41	69.68	60.71	69.88	0.000472	4.37	4918.19	2085.24	0.23
North Main	reach 1	224978	2496.00	52.41	61.73	55.44	61.84	0.000276	2.70	923.27	118.64	0.17
North Main	reach 1	224978	3976.00	52.41	64.11	56.50	64.27	0.000312	3.27	1217.68	128.62	0.19
North Main	reach 1	224978	5665.00	52.41	65.98	57.54	66.21	0.000370	3.86	1478.38	185.11	0.21
North Main	reach 1	224978	10632.00	52.41	68.95	60.05	69.34	0.000546	5.21	2999.30	1245.66	0.28
North Main	reach 1	224934	2496.00	52.41	61.71	55.44	61.83	0.000277	2.71	921.71	118.58	0.17
North Main	reach 1	224934	3976.00	52.41	64.09	56.50	64.28	0.000313	3.27	1215.73	128.56	0.19
North Main	reach 1	224934	5665.00	52.41	65.97	57.54	66.20	0.000372	3.87	1475.08	184.35	0.21
North Main	reach 1	224934	10632.00	52.41	68.92	60.05	69.32	0.000554	5.24	2961.38	1242.36	0.26
North Main	reach 1	223155	2496.00	52.35	61.10	55.54	61.24	0.000390	3.07	813.26	112.43	0.20
North Main	reach 1	223155	3976.00	52.35	63.35	56.64	63.56	0.000491	3.68	1063.76	212.37	0.23
North Main	reach 1	223155	5665.00	52.35	65.17	57.72	65.40	0.000543	3.95	1662.52	407.46	0.24
North Main	reach 1	223155	10632.00	52.35	67.88	60.26	68.17	0.000693	4.72	3065.75	631.38	0.28
North Main	reach 1	222000	2496.00	52.03	60.61	55.28	60.77	0.000434	3.20	779.50	109.24	0.21
North Main	reach 1	222000	3976.00	52.03	62.76	56.39	62.99	0.000495	3.88	1041.66	309.40	0.23
North Main	reach 1	222000	5665.00	52.03	64.52	57.48	64.74	0.000597	4.01	2035.74	850.55	0.25
North Main	reach 1	222000	10632.00	52.03	67.42	60.06	67.54	0.000386	3.47	5303.83	1342.99	0.21
North Main	reach 1	220735	2496.00	51.94	59.96	55.17	60.15	0.000555	3.47	719.12	107.70	0.24
North Main	reach 1	220735	3976.00	51.94	62.02	56.28	62.29	0.000625	4.18	950.21	116.98	0.26
North Main	reach 1	220735	5665.00	51.94	63.47	57.39	63.86	0.000781	5.04	1124.63	123.54	0.29
North Main	reach 1	220735	10632.00	51.94	65.83	59.99	66.62	0.001492	7.23	1822.78	985.52	0.41
North Main	reach 1	220633	2496.00	51.94	59.90	55.17	60.09	0.000570	3.50	712.53	107.42	0.24
North Main	reach 1	220633	3976.00	51.94	61.95	56.28	62.22	0.000640	4.22	942.06	116.67	0.26
North Main	reach 1	220633	5665.00	51.94	63.38	57.39	63.78	0.000803	5.09	1113.60	123.13	0.30
North Main	reach 1	220633	10632.00	51.94	65.80	60.00	66.47	0.001444	7.52	1608.73	782.83	0.41
North Main	reach 1	220295	2496.00	51.84	59.74	54.86	59.90	0.000475	3.24	770.30	113.87	0.22
North Main	reach 1	220295	3976.00	51.84	61.77	55.91	62.01	0.000541	3.94	1010.02	122.13	0.24
North Main	reach 1	220295	5665.00	51.84	63.18	56.93	63.51	0.000691	4.79	1183.00	127.70	0.28
North Main	reach 1	220295	10632.00	51.84	65.47	59.41	65.94	0.001031	5.94	3060.78	1690.40	0.34
North Main	reach 1	219330	2496.00	51.58	59.43	54.18	59.53	0.000288	2.56	975.85	142.45	0.17
North Main	reach 1	219330	3976.00	51.58	61.43	55.06	61.58	0.000330	3.13	1269.02	150.70	0.19
North Main	reach 1	219330	5665.00	51.58	62.72	55.94	62.95	0.000435	3.86	1466.83	156.02	0.22
North Main	reach 1	219330	10632.00	51.58	64.51	58.05	65.03	0.000845	5.86	2365.04	1280.41	0.32
North Main	reach 1	218000	2496.00	51.24	59.08	53.65	59.17	0.000256	2.45	1019.47	145.12	0.16
North Main	reach 1	218000	3976.00	51.24	61.02	54.51	61.16	0.000304	3.04	1308.17	152.54	0.18
North Main	reach 1	218000	5665.00	51.24	62.19	55.36	62.40	0.000399	3.72	1858.39	1142.68	0.21
North Main	reach 1	218000	10632.00	51.24	63.91	57.42	64.14	0.000479	4.43	4788.04	1977.75	0.24
North Main	reach 1	216808	2496.00	51.24	58.80	54.06	58.75	0.000489	3.15	792.88	126.38	0.22
North Main	reach 1	216808	3976.00	51.24	60.44	55.04	60.67	0.000562	3.83	1077.89	469.53	0.24
North Main	reach 1	216808	5665.00	51.24	61.68	56.01	61.87	0.000494	3.86	2888.80	2106.05	0.23
North Main	reach 1	216808	10632.00	51.24	63.57	58.32	63.66	0.000336	3.35	7618.85	2959.54	0.19
North Main	reach 1	216752	2496.00	51.24	58.57	54.06	58.72	0.000496	3.16	789.10	126.23	0.22
North Main	reach 1	216752	3976.00	51.24	60.41	55.04	60.64	0.000589	3.85	1064.58	439.80	0.25
North Main	reach 1	216752	5665.00	51.24	61.64	56.01	61.84	0.000514	3.93	2798.48	2092.45	0.24
North Main	reach 1	216752	10632.00	51.24	63.55	58.32	63.64	0.000342	3.38	7554.58	2952.00	0.20
North Main	reach 1	216000	2496.00	51.25	58.07	54.11	58.28	0.000704	3.86	677.42	110.75	0.26
North Main	reach 1	216000	3976.00	51.25	59.83	55.12	60.13	0.000794	4.47	1007.52	515.38	0.29
North Main	reach 1	216000	5665.00	51.25	61.27	56.12	61.45	0.000525	3.92	3103.70	1901.59	0.24
North Main	reach 1	216000	10632.00	51.25	63.31	58.57	63.37	0.000354	2.98	7419.13	2404.54	0.19
North Main	reach 1	214269	2496.00	51.25	57.10	53.42	57.23	0.000505	2.91	857.74	158.12	0.22
North Main	reach 1	214269	3976.00	51.25	58.78	54.19	58.97	0.000545	3.52	1128.03	164.48	0.24
North Main	reach 1	214269	5665.00	51.25	60.30	54.96	60.53	0.000537	3.91	1922.61	1099.61	0.24
North Main	reach 1	214269	10632.00	51.25	62.55	58.86	62.72	0.000435	4.01	4803.29	1401.14	0.22
North Main	reach 1	212822	2496.00	51.25	54.59	53.92	55.39	0.008313	7.18	347.65	110.22	0.71
North Main	reach 1	212822	3976.00	51.25	56.57	54.86	57.32	0.003331	6.93	573.40	117.72	0.55
North Main	reach 1	212822	5665.00	51.25	58.10	55.82	58.97	0.002866	7.48	757.74	123.52	0.53
North Main	reach 1	212822	10632.00	51.25	60.22	58.08	61.42	0.003196	9.24	1643.17	672.49	0.58
North Main	reach 1	212816										
North Main	reach 1	212769	2496.00	44.29	54.58	47.61	54.69	0.000233	2.61	956.92	113.54	0.16
North Main	reach 1	212769	3976.00	44.29	56.56	48.71	58.74	0.000313	3.34	1189.24	120.91	0.19
North Main	reach 1	212769	5665.00	44.29	58.09	49.79	58.29	0.000340	3.72	2080.80	550.50	0.20
North Main	reach 1	212769	10632.00	44.29	60.22	52.37	60.50	0.000494	4.85	3440.31	706.32	0.24



HEC-RAS Plan: P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	211780	2496.00	43.36	54.45	46.20	54.51	0.000119	1.96	1274.81	142.18	0.12
North Main	reach 1	211780	3976.00	43.36	56.46	47.20	56.52	0.000116	2.12	3257.13	1449.07	0.12
North Main	reach 1	211780	5665.00	43.36	58.02	48.17	58.05	0.000103	1.94	6008.04	2089.99	0.11
North Main	reach 1	211780	10632.00	43.36	60.19	50.51	60.22	0.000099	1.92	11541.80	3122.10	0.11
North Main	reach 1	210419	2496.00	43.36	54.21	46.65	54.30	0.000197	2.43	1028.80	120.70	0.15
North Main	reach 1	210419	3976.00	43.36	56.31	47.80	56.36	0.000132	2.19	4199.25	2511.21	0.12
North Main	reach 1	210419	5665.00	43.36	57.92	48.91	57.94	0.000084	1.34	8861.06	3443.51	0.09
North Main	reach 1	210419	10632.00	43.36	60.13	51.54	60.14	0.000050	1.18	18098.20	4581.51	0.07
North Main	reach 1	209041	2496.00	43.31	53.94	46.47	54.03	0.000193	2.41	1034.72	120.35	0.14
North Main	reach 1	209041	3976.00	43.31	55.96	47.58	56.11	0.000261	3.09	1287.23	129.04	0.17
North Main	reach 1	209041	5665.00	43.31	57.54	48.65	57.73	0.000304	3.55	2327.98	1290.87	0.19
North Main	reach 1	209041	10632.00	43.31	59.91	51.22	60.02	0.000239	3.43	7691.68	4465.29	0.17
North Main	reach 1	208000	2496.00	43.31	53.73	46.42	53.82	0.000203	2.47	1008.91	117.16	0.15
North Main	reach 1	208000	3976.00	43.31	55.67	47.52	55.83	0.000281	3.20	1243.92	124.74	0.18
North Main	reach 1	208000	5665.00	43.31	57.14	48.59	57.37	0.000392	3.90	1688.28	888.31	0.21
North Main	reach 1	208000	10632.00	43.31	59.71	51.17	59.79	0.000312	2.86	8848.89	5310.74	0.18
North Main	reach 1	207786	2496.00	43.31	53.70	46.46	53.79	0.000204	2.42	1029.70	124.78	0.15
North Main	reach 1	207786	3976.00	43.31	55.62	47.57	55.77	0.000280	3.11	1279.33	135.09	0.18
North Main	reach 1	207786	5665.00	43.31	57.09	48.63	57.28	0.000353	3.58	2331.79	1737.30	0.20
North Main	reach 1	207786	10632.00	43.31	59.69	51.18	59.73	0.000188	2.27	11652.28	5236.79	0.14
North Main	reach 1	207730	2496.00	43.31	53.68	46.46	53.77	0.000205	2.43	1028.22	124.72	0.15
North Main	reach 1	207730	3976.00	43.31	55.60	47.57	55.75	0.000282	3.11	1277.13	135.01	0.18
North Main	reach 1	207730	5665.00	43.31	57.08	48.63	57.27	0.000355	3.59	2309.23	1727.38	0.20
North Main	reach 1	207730	10632.00	43.31	59.68	51.18	59.72	0.000190	2.28	11593.18	5223.45	0.14
North Main	reach 1	206000	2496.00	43.32	53.30	46.34	53.40	0.000218	2.51	992.70	118.50	0.15
North Main	reach 1	206000	3976.00	43.32	55.47	47.42	55.49	0.000072	1.61	7061.65	3946.52	0.09
North Main	reach 1	206000	5665.00	43.32	57.08	48.45	57.09	0.000030	1.00	13478.59	3985.96	0.06
North Main	reach 1	206000	10632.00	43.32	59.82	50.95	59.63	0.000019	0.83	24035.16	4359.47	0.05
North Main	reach 1	204471	2496.00	43.17	52.92	46.31	53.04	0.000261	2.69	927.28	114.84	0.17
North Main	reach 1	204471	3976.00	43.17	55.10	47.42	55.27	0.000324	3.35	1186.38	123.44	0.19
North Main	reach 1	204471	5665.00	43.17	56.69	48.50	56.94	0.000498	4.04	1491.58	388.90	0.24
North Main	reach 1	204471	10632.00	43.17	59.22	51.07	59.51	0.000624	4.80	3662.74	1347.14	0.27
North Main	reach 1	203192	2496.00	43.15	52.70	45.78	52.77	0.000163	2.14	1168.31	145.87	0.13
North Main	reach 1	203192	3976.00	43.15	54.81	46.71	54.92	0.000206	2.67	1488.65	157.54	0.15
North Main	reach 1	203192	5665.00	43.15	56.29	47.64	56.45	0.000265	3.23	1833.33	212.82	0.18
North Main	reach 1	203192	10632.00	43.15	58.48	49.84	58.82	0.000502	4.83	2727.38	720.38	0.25
North Main	reach 1	202000	2496.00	42.72	52.47	45.52	52.56	0.000188	2.34	1065.38	126.94	0.14
North Main	reach 1	202000	3976.00	42.72	54.51	46.50	54.65	0.000247	2.99	1331.86	134.54	0.17
North Main	reach 1	202000	5665.00	42.72	55.90	47.47	56.10	0.000326	3.64	1847.40	712.17	0.19
North Main	reach 1	202000	10632.00	42.72	57.92	49.83	58.17	0.000530	4.47	3875.41	1287.52	0.25
North Main	reach 1	201961	2496.00	42.72	52.47	45.53	52.55	0.000184	2.29	1089.34	132.91	0.14
North Main	reach 1	201961	3976.00	42.72	54.50	46.51	54.63	0.000239	2.90	1369.06	143.57	0.16
North Main	reach 1	201961	5665.00	42.72	55.88	47.47	56.07	0.000314	3.54	1891.69	794.95	0.19
North Main	reach 1	201961	10632.00	42.72	57.90	49.80	58.14	0.000455	4.39	4234.58	1556.96	0.23
North Main	reach 1	201917	2496.00	42.72	52.46	45.53	52.54	0.000185	2.29	1088.23	132.87	0.14
North Main	reach 1	201917	3976.00	42.72	54.49	46.51	54.62	0.000240	2.91	1367.50	143.42	0.16
North Main	reach 1	201917	5665.00	42.72	55.87	47.48	56.06	0.000316	3.55	1880.12	781.41	0.19
North Main	reach 1	201917	10632.00	42.72	57.89	49.80	58.12	0.000463	4.43	4188.49	1541.85	0.23
North Main	reach 1	201322	2496.00	42.52	52.35	45.31	52.43	0.000180	2.31	1082.67	127.58	0.14
North Main	reach 1	201322	3976.00	42.52	54.34	46.29	54.48	0.000240	2.96	1344.10	731.97	0.16
North Main	reach 1	201322	5665.00	42.52	55.65	47.25	55.86	0.000338	3.72	1522.44	940.88	0.20
North Main	reach 1	201322	10632.00	42.52	57.16	49.61	57.74	0.000810	6.12	1736.15	1134.68	0.31
North Main	reach 1	200676	2496.00	42.52	52.20	45.68	52.30	0.000251	2.54	982.97	130.69	0.16
North Main	reach 1	200676	3976.00	42.52	54.16	46.77	54.31	0.000309	3.12	1511.69	811.94	0.19
North Main	reach 1	200676	5665.00	42.52	55.51	47.83	55.65	0.000305	3.29	2761.61	1020.07	0.19
North Main	reach 1	200676	10632.00	42.52	57.08	50.32	57.21	0.000672	3.50	4797.36	1619.27	0.26
North Main	reach 1	200030	2496.00	42.52	52.04	45.42	52.14	0.000228	2.52	989.10	121.75	0.16
North Main	reach 1	200030	3976.00	42.52	53.99	46.45	54.13	0.000264	3.02	1798.87	765.51	0.17
North Main	reach 1	200030	5665.00	42.52	55.48	47.46	55.51	0.000112	2.11	8658.05	6195.38	0.11
North Main	reach 1	200030	10632.00	42.52	57.07	49.89	57.08	0.000063	1.89	18701.31	6423.89	0.09
North Main	reach 1	199964	2496.00	42.52	52.03	45.42	52.13	0.000229	2.53	987.18	121.69	0.16
North Main	reach 1	199964	3976.00	42.52	53.97	46.45	54.11	0.000267	3.03	1784.29	763.09	0.17
North Main	reach 1	199964	5665.00	42.52	55.47	47.46	55.51	0.000114	2.12	8607.03	6194.01	0.11
North Main	reach 1	199964	10632.00	42.52	57.06	49.89	57.08	0.000063	1.89	18673.92	6423.17	0.09

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	198000	2496.00	42.52	51.58	45.27	51.67	0.000230	2.50	1097.98	435.16	0.16
North Main	reach 1	198000	3976.00	42.52	53.78	46.26	53.80	0.000085	1.72	8441.07	3980.49	0.10
North Main	reach 1	198000	5665.00	42.52	55.37	47.22	55.38	0.000037	1.22	14698.69	7520.33	0.07
North Main	reach 1	198000	10632.00	42.52	56.99	49.54	57.00	0.000026	1.01	27084.35	7796.21	0.08
North Main	reach 1	197381	2496.00	42.52	51.42	45.31	51.52	0.000253	2.55	979.09	129.40	0.18
North Main	reach 1	197381	3976.00	42.52	53.64	46.29	53.72	0.000192	2.52	3595.04	3411.51	0.15
North Main	reach 1	197381	5665.00	42.52	55.34	47.26	55.36	0.000064	1.57	10158.39	5196.18	0.09
North Main	reach 1	197381	10632.00	42.52	56.97	49.60	56.96	0.000050	1.48	21152.03	8828.98	0.08
North Main	reach 1	197333	2496.00	42.52	51.41	45.31	51.51	0.000254	2.55	977.44	129.34	0.18
North Main	reach 1	197333	3976.00	42.52	53.59	46.30	53.70	0.000248	2.86	2366.31	2116.55	0.17
North Main	reach 1	197333	5665.00	42.52	55.32	47.27	55.35	0.000091	1.88	8623.65	5156.93	0.10
North Main	reach 1	197333	10632.00	42.52	56.96	49.80	56.98	0.000062	1.66	19645.46	8813.21	0.09
North Main	reach 1	198000	2496.00	42.53	51.02	45.36	51.14	0.000311	2.76	905.71	124.40	0.18
North Main	reach 1	198000	3976.00	42.53	53.13	48.35	53.30	0.000356	3.34	1257.11	234.51	0.20
North Main	reach 1	198000	5665.00	42.53	55.06	47.33	55.16	0.000238	2.98	4622.04	3687.46	0.17
North Main	reach 1	198000	10632.00	42.53	56.83	49.71	56.86	0.000146	2.10	12424.50	5074.20	0.13
North Main	reach 1	194500	2496.00	42.53	50.40	45.52	50.56	0.000477	3.24	770.23	114.29	0.22
North Main	reach 1	194500	3976.00	42.53	52.40	46.57	52.64	0.000547	3.95	1007.73	122.68	0.24
North Main	reach 1	194500	5665.00	42.53	54.28	47.59	54.80	0.000595	4.54	1303.36	500.78	0.26
North Main	reach 1	194500	10632.00	42.53	56.37	50.08	56.50	0.000404	3.87	7574.96	4419.28	0.21
North Main	reach 1	194434	2496.00	42.53	50.38	45.52	50.53	0.000484	3.26	766.38	114.15	0.22
North Main	reach 1	194434	3976.00	42.53	52.36	46.57	52.61	0.000554	3.96	1002.95	122.52	0.24
North Main	reach 1	194434	5665.00	42.53	54.24	47.58	54.56	0.000604	4.58	1283.83	433.12	0.26
North Main	reach 1	194434	10632.00	42.53	56.33	50.07	56.48	0.000421	3.94	7419.69	4414.78	0.22
North Main	reach 1	194000	2496.00	42.44	50.16	45.40	50.32	0.000482	3.22	776.12	117.84	0.22
North Main	reach 1	194000	3976.00	42.44	52.13	46.42	52.37	0.000550	3.91	1016.38	126.21	0.24
North Main	reach 1	194000	5665.00	42.44	53.99	47.44	54.30	0.000592	4.48	1435.08	2482.27	0.26
North Main	reach 1	194000	10632.00	42.44	56.25	49.86	56.30	0.000261	2.67	9963.62	4464.07	0.17
North Main	reach 1	192000	2496.00	42.24	48.94	45.08	49.15	0.000718	3.86	681.72	114.93	0.26
North Main	reach 1	192000	3976.00	42.24	50.74	46.09	51.04	0.000804	4.45	894.26	121.95	0.29
North Main	reach 1	192000	5665.00	42.24	52.51	47.07	52.90	0.000839	5.04	1197.09	357.87	0.30
North Main	reach 1	192000	10632.00	42.24	55.68	49.45	55.75	0.000290	2.98	7410.87	2439.52	0.18
North Main	reach 1	190533	2496.00	42.24	45.91	45.14	46.76	0.006038	7.40	337.51	98.18	0.70
North Main	reach 1	190533	3976.00	42.24	48.23	46.19	48.97	0.002930	6.92	574.48	106.30	0.52
North Main	reach 1	190533	5665.00	42.24	50.12	47.19	50.93	0.002330	7.25	781.76	112.93	0.49
North Main	reach 1	190533	10632.00	42.24	53.42	49.67	54.69	0.002497	9.04	1176.69	4681.43	0.52
North Main	reach 1	190526										
North Main	reach 1	190513	2496.00	38.26	45.90	41.26	46.09	0.000555	3.48	717.37	106.14	0.24
North Main	reach 1	190513	3976.00	38.26	48.22	42.33	46.48	0.000568	4.09	972.39	113.87	0.25
North Main	reach 1	190513	5665.00	38.26	50.11	43.39	50.46	0.000630	4.75	1193.16	120.05	0.27
North Main	reach 1	190513	10632.00	38.26	53.41	45.92	54.09	0.000972	6.60	1611.03	4641.72	0.34
North Main	reach 1	190000	2496.00	38.26	45.64	41.12	45.81	0.000521	3.28	760.61	118.79	0.23
North Main	reach 1	190000	3976.00	38.26	47.97	42.13	48.19	0.000508	3.79	1048.93	126.71	0.23
North Main	reach 1	190000	5665.00	38.26	49.84	43.13	50.14	0.000553	4.37	1297.23	2316.08	0.25
North Main	reach 1	190000	10632.00	38.26	53.00	45.51	53.57	0.000907	6.07	1751.28	5306.33	0.33
North Main	reach 1	189032	2496.00	38.26	45.02	41.16	45.22	0.000708	3.56	700.16	122.51	0.26
North Main	reach 1	189032	3976.00	38.26	47.41	42.16	47.65	0.000614	3.94	1008.92	135.98	0.25
North Main	reach 1	189032	5665.00	38.26	49.26	43.14	49.56	0.000643	4.46	1268.93	398.44	0.27
North Main	reach 1	189032	10632.00	38.26	52.00	45.51	52.61	0.001104	6.25	1701.56	4820.45	0.36
North Main	reach 1	188975	2496.00	38.26	44.98	41.15	45.18	0.000725	3.59	694.59	122.26	0.27
North Main	reach 1	188975	3976.00	38.26	47.37	42.16	47.62	0.000623	3.96	1003.70	135.76	0.26
North Main	reach 1	188975	5665.00	38.26	49.21	43.14	49.53	0.000651	4.49	1263.04	383.40	0.27
North Main	reach 1	188975	10632.00	38.26	51.93	45.51	52.54	0.001131	6.30	1688.41	4819.29	0.36
North Main	reach 1	188000	1974.00	37.63	44.45	40.80	44.56	0.000498	2.67	739.65	151.69	0.21
North Main	reach 1	188000	3035.00	37.63	47.03	41.54	47.14	0.000312	2.62	1157.89	170.29	0.18
North Main	reach 1	188000	4140.00	37.63	48.94	42.16	49.06	0.000266	2.78	1487.74	176.61	0.17
North Main	reach 1	188000	9192.00	37.63	51.30	44.42	51.66	0.000603	4.80	1915.19	5414.86	0.28
North Main	reach 1	187869	1974.00	37.63	44.32	40.48	44.48	0.000598	3.21	614.07	109.60	0.24
North Main	reach 1	187869	3035.00	37.63	46.91	41.30	47.09	0.000432	3.32	912.79	120.75	0.21
North Main	reach 1	187869	4140.00	37.63	48.80	42.04	49.00	0.000410	3.61	1148.35	128.71	0.21
North Main	reach 1	187869	9192.00	37.63	50.88	44.78	51.53	0.001079	8.45	1425.03	137.46	0.35
North Main	reach 1	187694	1974.00	34.85	44.31	38.18	44.40	0.000235	2.43	811.04	107.36	0.16

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	187694	3035.00	34.85	46.90	39.03	47.02	0.000227	2.76	1101.26	116.82	0.16
North Main	reach 1	187694	4140.00	34.85	48.78	39.82	48.93	0.000246	3.12	1328.31	123.98	0.17
North Main	reach 1	187694	9192.00	34.85	50.82	42.88	51.34	0.000727	5.79	1588.03	131.58	0.29
North Main	reach 1	188000	1974.00	34.04	44.04	36.81	44.10	0.000132	1.93	1022.40	125.69	0.12
North Main	reach 1	188000	3035.00	34.04	46.64	37.62	46.72	0.000135	2.23	1363.18	136.77	0.12
North Main	reach 1	188000	4140.00	34.04	48.56	38.36	48.61	0.000128	1.95	4617.70	3994.16	0.12
North Main	reach 1	188000	9192.00	34.04	50.93	41.06	50.94	0.000057	1.44	14601.44	4155.83	0.08
North Main	reach 1	184000	1974.00	34.09	43.79	36.53	43.85	0.000126	1.91	1035.28	124.93	0.12
North Main	reach 1	184000	3035.00	34.09	46.38	37.32	46.46	0.000130	2.21	1370.98	133.86	0.12
North Main	reach 1	184000	4140.00	34.09	48.23	38.04	48.33	0.000154	2.55	1625.14	158.78	0.13
North Main	reach 1	184000	9192.00	34.09	50.72	40.68	50.77	0.000146	2.33	9767.71	4099.29	0.13
North Main	reach 1	182000	1974.00	33.49	43.54	35.97	43.60	0.000119	1.87	1054.40	124.12	0.11
North Main	reach 1	182000	3035.00	33.49	46.12	36.78	46.20	0.000125	2.19	1387.44	133.82	0.12
North Main	reach 1	182000	4140.00	33.49	47.89	37.51	47.99	0.000178	2.53	1635.98	165.56	0.14
North Main	reach 1	182000	9192.00	33.49	50.56	40.20	50.57	0.000065	1.57	13830.96	4124.47	0.09
North Main	reach 1	180000	1974.00	33.44	43.29	35.98	43.35	0.000132	1.95	1012.90	121.55	0.12
North Main	reach 1	180000	3035.00	33.44	45.86	36.80	45.94	0.000138	2.27	1337.52	131.27	0.13
North Main	reach 1	180000	4140.00	33.44	47.54	37.54	47.65	0.000163	2.65	1564.01	137.64	0.14
North Main	reach 1	180000	9192.00	33.44	50.34	40.23	50.38	0.000136	2.27	10108.37	4109.54	0.13
North Main	reach 1	178120	1974.00	33.43	42.92	36.52	43.01	0.000243	2.44	809.03	110.95	0.16
North Main	reach 1	178120	3035.00	33.43	45.48	37.48	45.60	0.000235	2.73	1110.88	124.70	0.16
North Main	reach 1	178120	4140.00	33.43	47.10	38.34	47.26	0.000270	3.14	1319.95	133.40	0.18
North Main	reach 1	178120	9192.00	33.43	49.99	41.37	50.07	0.000214	3.10	8115.89	4097.10	0.16
North Main	reach 1	178059	1974.00	33.43	42.91	36.52	43.01	0.000244	2.44	808.02	110.90	0.16
North Main	reach 1	178059	3035.00	33.43	45.48	37.48	45.59	0.000235	2.73	1109.83	124.66	0.16
North Main	reach 1	178059	4140.00	33.43	47.09	38.34	47.25	0.000270	3.14	1318.64	133.34	0.18
North Main	reach 1	178059	9192.00	33.43	49.97	41.37	50.06	0.000217	3.12	8057.24	4096.46	0.16
North Main	reach 1	178000	1974.00	33.28	42.92	36.03	42.99	0.000164	2.12	932.98	117.05	0.13
North Main	reach 1	178000	3035.00	33.28	45.48	36.87	45.57	0.000167	2.44	1246.02	127.21	0.14
North Main	reach 1	178000	4140.00	33.28	47.10	37.65	47.23	0.000198	2.84	1457.21	133.63	0.15
North Main	reach 1	178000	9192.00	33.28	50.00	40.43	50.03	0.000144	2.18	10351.96	4159.74	0.13
North Main	reach 1	178000	1974.00	33.44	42.56	36.08	42.64	0.000187	2.19	902.71	119.65	0.14
North Main	reach 1	178000	3035.00	33.44	45.13	36.92	45.22	0.000182	2.48	1224.54	131.14	0.14
North Main	reach 1	178000	4140.00	33.44	46.68	37.68	46.81	0.000215	2.89	1433.77	138.09	0.16
North Main	reach 1	178000	9192.00	33.44	49.70	40.46	49.74	0.000145	2.31	10300.54	5018.62	0.13
North Main	reach 1	174282	1974.00	32.56	42.31	35.26	42.36	0.000131	1.93	1022.94	123.98	0.12
North Main	reach 1	174282	3035.00	32.56	44.87	36.04	44.95	0.000134	2.25	1351.54	132.10	0.12
North Main	reach 1	174282	4140.00	32.56	46.37	36.77	46.48	0.000196	2.87	1553.25	136.97	0.14
North Main	reach 1	174282	9192.00	32.56	49.24	39.35	49.39	0.000329	3.52	6487.58	6504.80	0.19
North Main	reach 1	173031	1974.00	32.46	42.11	35.14	42.18	0.000161	2.10	940.34	118.08	0.13
North Main	reach 1	173031	3035.00	32.46	44.67	35.99	44.76	0.000165	2.41	1257.01	129.57	0.14
North Main	reach 1	173031	4140.00	32.46	46.13	36.78	46.25	0.000205	2.86	1449.79	136.18	0.15
North Main	reach 1	173031	9192.00	32.46	48.95	39.58	49.05	0.000202	3.13	9342.23	7832.45	0.16
North Main	reach 1	172979	1974.00	32.46	42.11	35.14	42.17	0.000162	2.10	939.32	118.05	0.13
North Main	reach 1	172979	3035.00	32.46	44.67	35.99	44.78	0.000166	2.42	1255.87	129.53	0.14
North Main	reach 1	172979	4140.00	32.46	46.11	36.77	46.24	0.000205	2.86	1448.30	136.13	0.15
North Main	reach 1	172979	9192.00	32.46	48.93	39.58	49.03	0.000208	3.18	9150.24	7831.77	0.16
North Main	reach 1	172000	1974.00	32.46	41.95	35.04	42.02	0.000155	2.06	957.79	120.05	0.13
North Main	reach 1	172000	3035.00	32.46	44.51	35.86	44.60	0.000157	2.38	1276.18	128.96	0.13
North Main	reach 1	172000	4140.00	32.46	45.92	36.61	46.04	0.000196	2.83	1461.47	133.86	0.15
North Main	reach 1	172000	9192.00	32.46	48.43	39.37	48.71	0.000535	4.45	3910.20	3452.95	0.25
North Main	reach 1	170000	1974.00	32.45	41.65	34.87	41.71	0.000147	2.01	982.79	122.56	0.12
North Main	reach 1	170000	3035.00	32.45	44.20	35.65	44.28	0.000150	2.32	1306.65	132.25	0.13
North Main	reach 1	170000	4140.00	32.45	45.51	36.36	45.63	0.000217	2.78	1487.46	151.19	0.16
North Main	reach 1	170000	9192.00	32.45	46.94	38.97	47.38	0.000818	5.34	1720.52	178.75	0.30
North Main	reach 1	168000	1974.00	32.50	41.32	34.99	41.39	0.000182	2.15	919.68	122.35	0.14
North Main	reach 1	168000	3035.00	32.50	43.86	35.79	43.96	0.000174	2.44	1242.93	130.65	0.14
North Main	reach 1	168000	4140.00	32.50	45.06	36.53	45.15	0.000254	2.61	3036.13	3987.18	0.16
North Main	reach 1	168000	9192.00	32.50	46.35	39.17	46.42	0.000262	2.83	8235.54	4202.26	0.17
North Main	reach 1	167722	1974.00	32.50	41.25	35.05	41.33	0.000204	2.26	871.91	116.28	0.15
North Main	reach 1	167722	3035.00	32.50	43.80	35.87	43.91	0.000197	2.57	1180.42	125.85	0.15
North Main	reach 1	167722	4140.00	32.50	44.96	36.62	45.08	0.000227	2.91	2432.50	3101.53	0.16
North Main	reach 1	167722	9192.00	32.50	46.27	39.37	46.35	0.000226	3.07	9976.69	7209.73	0.16

HEC-RAS Plan P.50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	187842	1974.00	32.50	41.24	35.05	41.32	0.000205	2.27	869.95	116.21	0.15
North Main	reach 1	187842	3035.00	32.50	43.79	35.88	43.89	0.000198	2.58	1178.37	125.79	0.15
North Main	reach 1	187842	4140.00	32.50	44.94	36.62	45.07	0.000230	2.93	2371.19	2982.25	0.16
North Main	reach 1	187842	9192.00	32.50	46.25	39.37	46.33	0.000234	3.13	9790.33	7167.82	0.17
North Main	reach 1	186000	1974.00	32.51	40.87	35.10	40.95	0.000236	2.33	848.74	123.00	0.16
North Main	reach 1	186000	3035.00	32.51	43.43	35.92	43.53	0.000247	2.56	1183.53	152.94	0.16
North Main	reach 1	186000	4140.00	32.51	44.45	36.67	44.59	0.000374	3.03	1454.61	1304.02	0.20
North Main	reach 1	186000	9192.00	32.51	45.94	39.38	45.98	0.000179	2.27	12481.40	7846.60	0.14
North Main	reach 1	184000	1974.00	31.68	40.48	34.10	40.55	0.000168	2.06	958.62	128.92	0.13
North Main	reach 1	184000	3035.00	31.68	42.98	34.89	43.06	0.000212	2.29	1327.52	181.82	0.15
North Main	reach 1	184000	4140.00	31.68	44.05	35.60	44.10	0.000156	2.06	5299.46	6485.77	0.13
North Main	reach 1	184000	9192.00	31.68	45.75	38.22	45.76	0.000067	1.45	17973.91	7843.09	0.09
North Main	reach 1	183682	1974.00	31.34	40.43	33.78	40.49	0.000154	2.02	977.12	126.16	0.13
North Main	reach 1	183682	3035.00	31.34	42.92	34.56	43.00	0.000162	2.33	1303.89	140.35	0.13
North Main	reach 1	183682	4140.00	31.34	43.98	35.27	44.04	0.000215	2.15	4231.98	4430.39	0.15
North Main	reach 1	183682	9192.00	31.34	45.73	37.89	45.74	0.000104	1.66	13895.87	6000.00	0.11
North Main	reach 1	183605	1974.00	31.34	40.42	33.78	40.49	0.000155	2.02	975.98	126.12	0.13
North Main	reach 1	183605	3035.00	31.34	42.91	34.56	42.99	0.000161	2.33	1302.40	139.78	0.13
North Main	reach 1	183605	4140.00	31.34	43.97	35.28	44.03	0.000218	2.17	4170.09	4401.36	0.15
North Main	reach 1	183605	9192.00	31.34	45.72	37.90	45.74	0.000105	1.66	13859.00	6000.00	0.11
North Main	reach 1	182000	1974.00	31.35	40.15	33.81	40.22	0.000176	2.09	943.78	128.25	0.14
North Main	reach 1	182000	3035.00	31.35	42.60	34.60	42.69	0.000226	2.36	1286.70	176.80	0.15
North Main	reach 1	182000	4140.00	31.35	43.87	35.32	43.87	0.000046	1.10	10898.96	5626.67	0.07
North Main	reach 1	182000	9192.00	31.35	45.64	37.95	45.65	0.000029	0.94	24226.59	7862.08	0.06
North Main	reach 1	180000	1974.00	31.35	39.83	33.56	39.89	0.000151	1.95	1013.42	135.93	0.13
North Main	reach 1	180000	3035.00	31.35	42.23	34.27	42.31	0.000151	2.25	1351.00	145.49	0.13
North Main	reach 1	180000	4140.00	31.35	43.68	34.93	43.72	0.000135	1.98	4900.37	4799.01	0.12
North Main	reach 1	180000	9192.00	31.35	45.55	37.37	45.56	0.000062	1.48	17835.44	7833.30	0.08
North Main	reach 1	158000	1974.00	31.36	39.46	33.74	39.54	0.000208	2.19	899.41	129.17	0.15
North Main	reach 1	158000	3035.00	31.36	41.86	34.50	41.96	0.000205	2.48	1222.41	143.77	0.15
North Main	reach 1	158000	4140.00	31.36	43.36	35.20	43.42	0.000181	2.20	4167.42	4237.10	0.14
North Main	reach 1	158000	9192.00	31.36	45.42	37.72	45.44	0.000065	1.44	17806.34	7860.04	0.09
North Main	reach 1	157191	1974.00	31.36	39.26	33.81	39.35	0.000259	2.42	816.54	119.01	0.16
North Main	reach 1	157191	3035.00	31.36	41.86	34.61	41.78	0.000243	2.72	1113.90	126.50	0.16
North Main	reach 1	157191	4140.00	31.36	43.06	35.33	43.23	0.000281	3.15	1584.34	1820.91	0.18
North Main	reach 1	157191	9192.00	31.36	45.34	37.99	45.37	0.000103	2.06	14907.75	8000.00	0.11
North Main	reach 1	157140	1974.00	31.36	39.25	33.81	39.34	0.000261	2.42	814.90	118.96	0.16
North Main	reach 1	157140	3035.00	31.36	41.65	34.60	41.76	0.000244	2.73	1112.24	128.45	0.16
North Main	reach 1	157140	4140.00	31.36	43.07	35.33	43.22	0.000283	3.16	1562.15	1759.26	0.18
North Main	reach 1	157140	9192.00	31.36	45.34	37.98	45.36	0.000104	2.07	14862.52	8000.00	0.11
North Main	reach 1	156000	1974.00	31.36	38.93	33.74	39.03	0.000282	2.48	796.23	118.51	0.17
North Main	reach 1	156000	3035.00	31.36	41.36	34.52	41.48	0.000256	2.77	1094.52	127.19	0.17
North Main	reach 1	156000	4140.00	31.36	42.67	35.23	42.83	0.000407	3.21	1288.21	170.96	0.21
North Main	reach 1	156000	9192.00	31.36	45.25	37.85	45.26	0.000073	1.56	17233.10	7826.93	0.09
North Main	reach 1	154644	1974.00	31.37	38.55	33.62	38.64	0.000289	2.47	800.05	122.17	0.17
North Main	reach 1	154644	3035.00	31.37	41.02	34.36	41.14	0.000250	2.73	1111.31	129.47	0.18
North Main	reach 1	154644	4140.00	31.37	42.17	35.03	42.34	0.000316	3.28	1262.62	132.67	0.19
North Main	reach 1	154644	9192.00	31.37	44.99	37.54	45.08	0.000290	3.09	8917.78	7742.92	0.18
North Main	reach 1	153231	1974.00	31.03	38.05	33.60	38.16	0.000395	2.73	722.44	120.99	0.20
North Main	reach 1	153231	3035.00	31.03	40.61	34.38	40.74	0.000308	2.90	1047.67	132.66	0.18
North Main	reach 1	153231	4140.00	31.03	41.65	35.10	41.84	0.000396	3.48	1188.09	137.43	0.21
North Main	reach 1	153231	9192.00	31.03	44.07	37.67	44.44	0.000896	5.23	3629.83	4998.18	0.31
North Main	reach 1	152561	1974.00	31.03	37.74	33.55	37.87	0.000476	2.93	674.35	117.57	0.22
North Main	reach 1	152561	3035.00	31.03	40.38	34.35	40.52	0.000350	3.03	1002.64	131.13	0.19
North Main	reach 1	152561	4140.00	31.03	41.35	35.08	41.55	0.000458	3.66	1131.80	136.11	0.22
North Main	reach 1	152561	9192.00	31.03	43.59	37.76	43.80	0.000853	4.34	5044.71	4619.92	0.30
North Main	reach 1	152553										
North Main	reach 1	152515	1974.00	28.25	37.73	30.75	37.80	0.000145	2.00	988.86	123.74	0.12
North Main	reach 1	152515	3035.00	28.25	40.37	31.57	40.45	0.000144	2.28	1329.35	134.53	0.13
North Main	reach 1	152515	4140.00	28.25	41.34	32.30	41.48	0.000204	2.83	1461.30	138.49	0.15
North Main	reach 1	152515	9192.00	28.25	43.58	34.98	43.74	0.000517	3.67	5659.88	5396.13	0.23
North Main	reach 1	152000	1974.00	28.25	37.66	30.80	37.72	0.000156	2.04	965.84	123.14	0.13
North Main	reach 1	152000	3035.00	28.25	40.30	31.62	40.38	0.000153	2.32	1305.78	134.65	0.13

HFC-DAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	121629	1148.00	23.01	35.29		35.30	0.000044	0.97	8883.58	8500.00	0.06
raymondville	reach 3 (south)	120128	201.00	22.81	28.28		28.30	0.000172	1.19	189.34	41.89	0.10
raymondville	reach 3 (south)	120128	343.00	22.81	30.02		30.05	0.000173	1.38	248.24	48.85	0.11
raymondville	reach 3 (south)	120128	528.00	22.81	31.56		31.60	0.000191	1.61	328.22	55.01	0.12
raymondville	reach 3 (south)	120128	1148.00	22.81	35.22		35.23	0.000049	1.03	6433.44	8500.00	0.06
raymondville	reach 3 (south)	120078	201.00	22.80	28.27		28.30	0.000172	1.19	189.39	41.89	0.10
raymondville	reach 3 (south)	120078	343.00	22.80	30.01		30.04	0.000173	1.38	248.30	48.85	0.11
raymondville	reach 3 (south)	120078	528.00	22.80	31.55		31.59	0.000191	1.61	328.24	55.01	0.12
raymondville	reach 3 (south)	120078	1148.00	22.80	35.22		35.23	0.000049	1.03	6418.96	8500.00	0.06
raymondville	reach 3 (south)	118101	201.00	22.55	27.92		27.94	0.000184	1.22	165.08	41.48	0.11
raymondville	reach 3 (south)	118101	343.00	22.55	29.68		29.69	0.000183	1.41	243.21	48.43	0.11
raymondville	reach 3 (south)	118101	528.00	22.55	31.18		31.20	0.000204	1.65	320.40	54.44	0.12
raymondville	reach 3 (south)	118101	1148.00	22.55	35.11		35.12	0.000059	1.13	5717.63	8500.00	0.07
raymondville	reach 3 (south)	118051	201.00	22.54	27.91		27.93	0.000184	1.22	165.09	41.48	0.11
raymondville	reach 3 (south)	118051	343.00	22.54	29.65		29.68	0.000183	1.41	243.25	48.44	0.11
raymondville	reach 3 (south)	118051	528.00	22.54	31.15		31.19	0.000204	1.65	320.38	54.43	0.12
raymondville	reach 3 (south)	118051	1148.00	22.54	35.10		35.12	0.000059	1.14	5697.91	8500.00	0.07
raymondville	reach 3 (south)	118902	201.00	22.39	27.69		27.72	0.000193	1.24	162.30	41.21	0.11
raymondville	reach 3 (south)	118902	343.00	22.39	29.43		29.47	0.000190	1.43	240.11	48.18	0.11
raymondville	reach 3 (south)	118902	528.00	22.39	30.91		30.95	0.000213	1.67	315.46	54.07	0.12
raymondville	reach 3 (south)	118902	1148.00	22.39	35.03		35.04	0.000067	1.21	5217.92	8500.00	0.07
raymondville	reach 3 (south)	114880	201.00	22.13	27.27		27.30	0.000218	1.29	155.61	40.56	0.12
raymondville	reach 3 (south)	114880	343.00	22.13	29.04		29.07	0.000205	1.47	233.47	47.82	0.12
raymondville	reach 3 (south)	114880	528.00	22.13	30.45		30.50	0.000234	1.73	304.78	53.28	0.13
raymondville	reach 3 (south)	114880	1148.00	22.13	34.85		34.87	0.000104	1.50	2682.69	2554.83	0.09
raymondville	reach 3 (south)	119007	201.00	21.88	26.84		26.86	0.000249	1.36	148.22	39.82	0.12
raymondville	reach 3 (south)	119007	343.00	21.88	28.64		28.67	0.000223	1.51	226.45	47.03	0.12
raymondville	reach 3 (south)	119007	528.00	21.88	29.99		30.04	0.000259	1.80	293.73	52.44	0.13
raymondville	reach 3 (south)	119007	1148.00	21.88	34.55		34.61	0.000197	2.00	574.41	70.68	0.12
raymondville	reach 3 (south)	112058	201.00	21.76	26.59		26.62	0.000275	1.40	143.08	39.30	0.13
raymondville	reach 3 (south)	112058	343.00	21.76	28.42		28.45	0.000236	1.55	221.80	46.63	0.12
raymondville	reach 3 (south)	112058	528.00	21.76	29.73		29.79	0.000277	1.84	286.63	51.89	0.14
raymondville	reach 3 (south)	112058	1148.00	21.76	34.36		34.42	0.000202	2.02	569.44	70.40	0.12
raymondville	reach 3 (south)	112008	201.00	21.75	26.57		26.60	0.000276	1.41	142.90	39.28	0.13
raymondville	reach 3 (south)	112008	343.00	21.75	28.41		28.44	0.000237	1.55	221.70	46.62	0.13
raymondville	reach 3 (south)	112008	528.00	21.75	29.72		29.77	0.000277	1.84	286.41	51.88	0.14
raymondville	reach 3 (south)	112008	1148.00	21.75	34.35		34.41	0.000202	2.02	569.43	70.39	0.12
raymondville	reach 3 (south)	110270	201.00	21.53	26.02		26.06	0.000360	1.55	130.08	37.96	0.15
raymondville	reach 3 (south)	110270	343.00	21.53	27.96		28.00	0.000270	1.62	211.43	45.73	0.13
raymondville	reach 3 (south)	110270	528.00	21.53	29.19		29.25	0.000323	1.95	270.71	50.65	0.15
raymondville	reach 3 (south)	110270	1148.00	21.53	33.99		34.05	0.000212	2.05	559.47	69.83	0.13
raymondville	reach 1	109185	861.00	17.51	25.84		25.87	0.000143	1.51	570.85	87.37	0.10
raymondville	reach 1	109185	1382.00	17.51	27.75		27.80	0.000171	1.86	744.68	94.99	0.12
raymondville	reach 1	109185	1940.00	17.51	28.91		28.98	0.000226	2.26	857.53	99.63	0.14
raymondville	reach 1	109185	5581.00	17.51	33.27		33.34	0.000542	4.19	1330.39	117.09	0.22
raymondville	reach 1	109050	861.00	17.49	25.82		25.86	0.000143	1.51	570.91	87.37	0.10
raymondville	reach 1	109050	1382.00	17.49	27.72		27.78	0.000171	1.86	744.38	94.98	0.12
raymondville	reach 1	109050	1940.00	17.49	28.87		28.95	0.000226	2.27	856.46	99.59	0.14
raymondville	reach 1	109050	5581.00	17.49	33.19		33.47	0.000650	4.22	1323.75	116.86	0.22
raymondville	reach 1	108145	861.00	17.35	25.76		25.80	0.000138	1.49	578.18	87.70	0.10
raymondville	reach 1	108145	1382.00	17.35	27.65		27.71	0.000167	1.84	751.08	95.26	0.12
raymondville	reach 1	108145	1940.00	17.35	28.78		28.86	0.000223	2.25	861.08	99.77	0.14
raymondville	reach 1	108145	5581.00	17.35	32.93		33.20	0.000782	4.24	1353.07	127.58	0.25
raymondville	reach 1	107740	861.00	17.35	25.71		25.74	0.000141	1.50	573.14	87.47	0.10
raymondville	reach 1	107740	1382.00	17.35	27.58		27.64	0.000171	1.86	744.46	94.98	0.12
raymondville	reach 1	107740	1940.00	17.35	28.69		28.77	0.000230	2.28	851.76	99.40	0.14
raymondville	reach 1	107740	5581.00	17.35	32.63		32.92	0.000611	4.38	1274.24	115.15	0.23
raymondville	reach 1	106578	861.00	17.16	25.54	19.40	25.58	0.000140	1.50	575.49	87.58	0.10
raymondville	reach 1	106578	1382.00	17.16	27.38	20.08	27.44	0.000172	1.86	743.55	94.94	0.12
raymondville	reach 1	106578	1940.00	17.16	28.42	20.71	28.50	0.000236	2.30	843.61	99.07	0.14
raymondville	reach 1	106578	5581.00	17.16	31.82	23.75	32.15	0.000716	4.64	1203.98	112.88	0.25
raymondville	reach 1	106370	861.00	17.13	25.51	19.36	25.55	0.000137	1.47	583.93	89.74	0.10
raymondville	reach 1	106370	1382.00	17.13	27.35	20.05	27.40	0.000168	1.83	755.87	97.61	0.12
raymondville	reach 1	106370	1940.00	17.13	28.37	20.67	28.45	0.000231	2.26	857.54	101.97	0.14
raymondville	reach 1	106370	5581.00	17.13	31.68	23.73	32.00	0.000712	4.58	1218.21	116.14	0.25
raymondville	reach 1	105922.*	861.00	17.06	25.45	19.29	25.49	0.000137	1.46	582.45	89.21	0.10



HEC-DAS Plan: P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	105922.*	1382.00	17.06	27.27	19.99	27.32	0.000170	1.84	751.68	96.87	0.12
raymondville	reach 1	105922.*	1940.00	17.06	28.28	20.61	28.34	0.000238	2.28	849.03	101.01	0.14
raymondville	reach 1	105922.*	5581.00	17.06	31.32	23.68	31.68	0.000787	4.73	1179.15	115.54	0.28
raymondville	reach 1	105474.*	861.00	16.99	25.39	19.22	25.43	0.000137	1.48	581.11	86.70	0.10
raymondville	reach 1	105474.*	1382.00	16.99	27.19	19.91	27.25	0.000171	1.85	747.69	96.15	0.12
raymondville	reach 1	105474.*	1940.00	16.99	28.14	20.54	28.22	0.000241	2.31	840.81	100.08	0.14
raymondville	reach 1	105474.*	5581.00	16.99	30.91	23.60	31.29	0.000875	4.92	1135.04	113.63	0.27
raymondville	reach 1	105026.*	861.00	16.91	25.33	19.14	25.36	0.000137	1.48	580.59	88.23	0.10
raymondville	reach 1	105026.*	1382.00	16.91	27.12	19.83	27.17	0.000172	1.86	744.63	95.49	0.12
raymondville	reach 1	105026.*	1940.00	16.91	28.03	20.48	28.11	0.000248	2.33	833.61	99.21	0.14
raymondville	reach 1	105026.*	5581.00	16.91	30.47	23.52	30.88	0.000959	5.13	1087.58	109.18	0.29
raymondville	reach 1	104578	861.00	16.84	25.27	19.07	25.30	0.000137	1.49	579.52	87.78	0.10
raymondville	reach 1	104578	1382.00	16.84	27.04	19.78	27.09	0.000174	1.86	741.05	94.84	0.12
raymondville	reach 1	104578	1940.00	16.84	27.92	20.39	28.00	0.000251	2.35	825.97	98.38	0.14
raymondville	reach 1	104578	5581.00	16.84	29.96	23.45	30.41	0.001094	5.39	1035.63	108.54	0.30
raymondville	reach 1	102128	861.00	16.43	24.94		24.97	0.000132	1.47	586.63	88.09	0.10
raymondville	reach 1	102128	1382.00	16.43	26.73		26.75	0.000109	1.32	1799.38	1091.37	0.09
raymondville	reach 1	102128	1940.00	16.43	27.63		27.64	0.000877	1.29	2908.66	1368.37	0.08
raymondville	reach 1	102128	5581.00	16.43	29.57		29.58	0.000128	1.82	7880.15	3391.29	0.11
raymondville	reach 1	100615	861.00	16.19	24.76	18.41	24.79	0.000112	1.32	653.66	103.97	0.09
raymondville	reach 1	100615	1382.00	16.19	26.58	19.08	26.60	0.000098	1.38	1715.60	999.60	0.08
raymondville	reach 1	100615	1940.00	16.19	27.50	19.70	27.52	0.000078	1.39	2962.54	1659.42	0.08
raymondville	reach 1	100615	5581.00	16.19	29.39	22.60	29.42	0.000104	1.82	8208.27	3502.10	0.10
raymondville	reach 1	100117	861.00	16.10	24.69	18.33	24.73	0.000127	1.45	594.10	89.42	0.10
raymondville	reach 1	100117	1382.00	16.10	26.52	19.02	26.55	0.000124	1.40	1553.75	890.63	0.10
raymondville	reach 1	100117	1940.00	16.10	27.45	19.65	27.47	0.000107	1.42	2505.56	1248.84	0.09
raymondville	reach 1	100117	5581.00	16.10	29.34	22.71	29.38	0.000142	1.91	8815.72	5833.34	0.11
raymondville	reach 1	98117	861.00	15.78	24.45		24.48	0.000123	1.43	601.08	88.74	0.10
raymondville	reach 1	98117	1382.00	15.78	26.40		26.41	0.000042	0.82	4340.50	3518.90	0.06
raymondville	reach 1	98117	1940.00	15.78	27.38		27.38	0.000018	0.60	8120.82	4387.05	0.04
raymondville	reach 1	98117	5581.00	15.78	29.28		29.28	0.000019	0.70	17627.24	5501.21	0.04
raymondville	reach 1	98117	861.00	15.45	24.21		24.24	0.000119	1.41	608.98	89.09	0.10
raymondville	reach 1	98117	1382.00	15.45	26.24		26.27	0.000146	1.35	1740.39	1973.84	0.10
raymondville	reach 1	98117	1940.00	15.45	27.32		27.33	0.000069	1.05	4426.89	3582.71	0.07
raymondville	reach 1	98117	5581.00	15.45	29.23		29.23	0.000047	1.03	12720.04	5527.92	0.06
raymondville	reach 1	95341	861.00	15.32	24.14		24.16	0.000093	1.19	721.16	115.89	0.08
raymondville	reach 1	95341	1382.00	15.32	26.14		26.17	0.000109	1.31	1423.98	1381.98	0.09
raymondville	reach 1	95341	1940.00	15.32	27.25		27.27	0.000076	1.22	3498.15	3257.55	0.08
raymondville	reach 1	95341	5581.00	15.32	29.18		29.19	0.000057	1.23	12071.49	5853.33	0.07
raymondville	reach 1	94117	861.00	15.12	24.00		24.03	0.000113	1.39	619.84	89.58	0.09
raymondville	reach 1	94117	1382.00	15.12	25.97		26.01	0.000154	1.56	1092.23	487.09	0.11
raymondville	reach 1	94117	1940.00	15.12	27.12		27.15	0.000124	1.58	2433.23	2026.57	0.10
raymondville	reach 1	94117	5581.00	15.12	29.06		29.08	0.000150	2.00	8142.26	5169.61	0.11
raymondville	reach 1	92117	861.00	14.79	23.79	17.02	23.82	0.000107	1.37	630.17	90.04	0.09
raymondville	reach 1	92117	1382.00	14.79	25.64	17.71	25.68	0.000178	1.85	908.78	323.43	0.12
raymondville	reach 1	92117	1940.00	14.79	26.82	18.34	26.87	0.000182	1.77	1524.18	672.79	0.11
raymondville	reach 1	92117	5581.00	14.79	28.54	21.40	28.63	0.000360	3.02	3950.53	2108.89	0.18
raymondville	reach 1	90057	861.00	14.45	23.57		23.60	0.000102	1.34	641.46	90.54	0.09
raymondville	reach 1	90057	1382.00	14.45	25.25		25.30	0.000196	1.70	880.99	443.65	0.12
raymondville	reach 1	90057	1940.00	14.45	26.52		26.55	0.000138	1.61	2307.31	2071.39	0.10
raymondville	reach 1	90057	5581.00	14.45	28.13		28.16	0.000149	1.91	8099.76	4846.01	0.11
raymondville	reach 1	90018	861.00	14.45	23.57		23.60	0.000102	1.34	641.10	90.52	0.09
raymondville	reach 1	90018	1382.00	14.45	25.25		25.29	0.000197	1.70	877.51	442.10	0.12
raymondville	reach 1	90018	1940.00	14.45	26.52		26.55	0.000139	1.62	2293.44	2069.40	0.11
raymondville	reach 1	90018	5581.00	14.45	28.12		28.15	0.000151	1.92	8067.64	4845.37	0.11
raymondville	reach 1	88117	861.00	14.14	23.38		23.41	0.000097	1.32	652.09	91.01	0.09
raymondville	reach 1	88117	1382.00	14.14	24.93		24.98	0.000141	1.73	797.93	97.21	0.11
raymondville	reach 1	88117	1940.00	14.14	26.23		26.27	0.000158	1.71	2457.84	4245.50	0.11
raymondville	reach 1	88117	5581.00	14.14	27.94		27.95	0.000080	1.40	10993.65	5810.39	0.08
raymondville	reach 1	86117	1373.00	13.81	23.01		23.08	0.000251	2.12	648.73	90.86	0.14
raymondville	reach 1	86117	2192.00	13.81	24.36		24.49	0.000384	2.83	775.01	96.28	0.18
raymondville	reach 1	86117	3161.00	13.81	25.72	18.53	25.78	0.000329	2.39	3135.89	3309.58	0.16
raymondville	reach 1	86117	7345.00	13.81	27.78		27.79	0.000078	1.39	13718.07	6000.00	0.08
raymondville	reach 1	84790	1373.00	13.59	22.67		22.74	0.000281	2.13	643.55	91.75	0.14
raymondville	reach 1	84790	2192.00	13.59	23.82		23.95	0.000428	2.92	751.46	96.52	0.18
raymondville	reach 1	84790	3161.00	13.59	24.98		25.19	0.000589	3.65	866.73	101.38	0.22
raymondville	reach 1	84790	7345.00	13.59	26.87	21.35	27.43	0.001843	7.00	1217.29	2130.45	0.40

HEC-RAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	84693.8*	1373.00	13.57	22.85		22.72	0.000265	2.13	645.33	93.85	0.14
raymondville	reach 1	84693.6*	2192.00	13.57	23.77		23.90	0.000435	2.91	754.18	99.38	0.19
raymondville	reach 1	84693.6*	3161.00	13.57	24.92		25.13	0.000602	3.63	871.89	105.04	0.22
raymondville	reach 1	84693.8*	7345.00	13.57	26.50	21.34	27.24	0.001891	6.94	1363.28	2831.90	0.40
raymondville	reach 1	84597.7*	1373.00	13.58	22.82		22.89	0.000272	2.13	643.71	95.21	0.14
raymondville	reach 1	84597.7*	2192.00	13.58	23.73		23.86	0.000451	2.91	752.78	101.83	0.19
raymondville	reach 1	84597.7*	3161.00	13.58	24.88		25.08	0.000627	3.63	871.64	108.57	0.23
raymondville	reach 1	84597.7*	7345.00	13.58	26.33	21.33	27.05	0.001953	6.88	1558.03	3512.76	0.41
raymondville	reach 1	84501.5*	1373.00	13.54	22.59		22.66	0.000277	2.14	640.31	95.19	0.15
raymondville	reach 1	84501.5*	2192.00	13.54	23.68		23.81	0.000489	2.93	748.27	103.41	0.19
raymondville	reach 1	84501.5*	3161.00	13.54	24.79		24.99	0.000661	3.64	867.51	111.78	0.23
raymondville	reach 1	84501.5*	7345.00	13.54	26.20	21.30	26.85	0.001927	6.67	1976.01	4307.10	0.40
raymondville	reach 1	84405.4*	1373.00	13.53	22.57		22.64	0.000274	2.16	635.90	92.52	0.15
raymondville	reach 1	84405.4*	2192.00	13.53	23.63		23.77	0.000487	2.96	740.49	103.44	0.19
raymondville	reach 1	84405.4*	3161.00	13.53	24.71		24.92	0.000708	3.68	858.00	114.46	0.24
raymondville	reach 1	84405.4*	7345.00	13.53	26.18		26.62	0.001540	5.85	2922.82	4335.12	0.36
raymondville	reach 1	84309.2*	1373.00	13.51	22.54		22.61	0.000289	2.16	634.30	90.48	0.14
raymondville	reach 1	84309.2*	2192.00	13.51	23.59		23.73	0.000481	2.99	732.26	99.40	0.19
raymondville	reach 1	84309.2*	3161.00	13.51	24.64		24.85	0.000758	3.74	845.07	115.99	0.24
raymondville	reach 1	84309.2*	7345.00	13.51	26.16		26.44	0.001159	4.97	3872.64	4352.82	0.31
raymondville	reach 1	84213.1*	1373.00	13.50	22.51		22.59	0.000271	2.17	632.30	90.28	0.14
raymondville	reach 1	84213.1*	2192.00	13.50	23.54		23.68	0.000462	3.01	727.23	94.41	0.19
raymondville	reach 1	84213.1*	3161.00	13.50	24.58		24.79	0.000772	3.81	828.60	111.53	0.25
raymondville	reach 1	84213.1*	7345.00	13.50	26.13		26.32	0.000959	4.40	4745.71	5434.52	0.28
raymondville	reach 1	84117	1373.00	13.48	22.49		22.56	0.000272	2.18	631.06	90.08	0.14
raymondville	reach 1	84117	2192.00	13.48	23.50		23.64	0.000467	3.03	723.93	94.11	0.19
raymondville	reach 1	84117	3161.00	13.48	24.49		24.72	0.000683	3.86	819.00	98.07	0.24
raymondville	reach 1	84117	7345.00	13.48	26.10		26.21	0.000727	3.73	5774.11	6000.00	0.24
raymondville	reach 1	83617.*	1373.00	13.40	22.34		22.42	0.000282	2.20	624.84	90.46	0.15
raymondville	reach 1	83617.*	2192.00	13.40	23.25		23.40	0.000503	3.09	708.38	94.58	0.20
raymondville	reach 1	83617.*	3161.00	13.40	24.06		24.29	0.001067	3.94	871.76	547.45	0.28
raymondville	reach 1	83617.*	7345.00	13.40	25.72		25.85	0.000726	3.82	5273.55	4437.20	0.24
raymondville	reach 1	83117.*	1373.00	13.31	22.19		22.27	0.000295	2.21	619.98	91.88	0.15
raymondville	reach 1	83117.*	2192.00	13.31	22.96		23.10	0.000716	3.08	789.67	428.41	0.23
raymondville	reach 1	83117.*	3161.00	13.31	23.58		23.79	0.000928	3.74	1173.98	892.11	0.26
raymondville	reach 1	83117.*	7345.00	13.31	25.35		25.49	0.000738	3.94	4920.85	4416.68	0.25
raymondville	reach 1	82617.*	1373.00	13.23	22.04		22.10	0.000355	2.07	793.36	509.16	0.16
raymondville	reach 1	82617.*	2192.00	13.23	22.70		22.79	0.000499	2.86	1174.06	650.49	0.19
raymondville	reach 1	82617.*	3161.00	13.23	23.26		23.39	0.000628	3.17	1691.47	1088.78	0.22
raymondville	reach 1	82617.*	7345.00	13.23	25.00		25.13	0.000683	3.87	4648.21	4411.05	0.24
raymondville	reach 1	82117	1373.00	13.15	21.93		21.96	0.000196	1.63	1272.37	645.86	0.12
raymondville	reach 1	82117	2192.00	13.15	22.54		22.59	0.000293	2.13	1808.42	1064.42	0.15
raymondville	reach 1	82117	3161.00	13.15	23.05		23.12	0.000384	2.57	2381.52	1339.66	0.17
raymondville	reach 1	82117	7345.00	13.15	24.79		24.86	0.000393	3.03	5446.36	2277.02	0.18
raymondville	reach 1	80117	1373.00	12.82	21.70		21.71	0.000084	0.98	3371.05	3096.58	0.08
raymondville	reach 1	80117	2192.00	12.82	22.31		22.32	0.000074	0.99	5532.56	4007.95	0.07
raymondville	reach 1	80117	3161.00	12.82	22.84		22.85	0.000069	0.97	7688.81	4113.06	0.07
raymondville	reach 1	80117	7345.00	12.82	24.65		24.65	0.000041	0.94	17186.96	5896.45	0.06
raymondville	reach 1	79415	1373.00	12.71	21.53		21.61	0.000294	2.23	614.44	89.34	0.15
raymondville	reach 1	79415	2192.00	12.71	22.01		22.19	0.000515	3.33	657.94	91.27	0.22
raymondville	reach 1	79415	3161.00	12.71	22.38		22.70	0.001108	4.57	691.54	92.73	0.29
raymondville	reach 1	79415	7345.00	12.71	22.85	20.48	24.40	0.005010	9.99	735.60	94.61	0.63
raymondville	reach 1	78117	1373.00	12.50	21.38		21.39	0.000095	1.11	3427.38	4035.47	0.08
raymondville	reach 1	78117	2192.00	12.50	21.92		21.92	0.000074	1.04	5606.71	4088.33	0.07
raymondville	reach 1	78117	3161.00	12.50	22.37		22.37	0.000072	1.08	7635.45	4624.57	0.07
raymondville	reach 1	78117	7345.00	12.50	23.63		23.63	0.000073	1.23	14218.91	5831.78	0.08
raymondville	reach 1	78117	1373.00	12.17	21.26		21.27	0.000048	0.80	4673.20	4195.73	0.06
raymondville	reach 1	78117	2192.00	12.17	21.82		21.82	0.000041	0.79	7020.72	4250.27	0.06
raymondville	reach 1	78117	3161.00	12.17	22.26		22.27	0.000044	0.85	9028.97	4687.69	0.06
raymondville	reach 1	78117	7345.00	12.17	23.50		23.51	0.000056	1.07	15541.57	6000.00	0.07
raymondville	reach 1	74240	1373.00	11.86	21.17		21.18	0.000048	0.80	4484.59	4231.92	0.06
raymondville	reach 1	74240	2192.00	11.86	21.74		21.74	0.000041	0.79	6908.83	4301.93	0.06
raymondville	reach 1	74240	3161.00	11.86	22.18		22.18	0.000045	0.86	8902.65	4853.80	0.06
raymondville	reach 1	74240	7345.00	11.86	23.40		23.41	0.000056	1.08	15327.71	6000.00	0.07
raymondville	reach 1	74117	1373.00	11.84	21.16		21.17	0.000048	0.80	4460.98	4231.17	0.06
raymondville	reach 1	74117	2192.00	11.84	21.73		21.74	0.000041	0.80	6888.47	4301.29	0.06

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	74117	3161.00	11.84	22.17		22.18	0.000045	0.87	8877.47	4853.11	0.06
raymondville	reach 1	74117	7345.00	11.84	23.39		23.40	0.000057	1.09	15287.51	8000.00	0.07
raymondville	reach 1	71592	1373.00	11.42	21.07		21.07	0.000049	0.83	4473.69	4151.08	0.06
raymondville	reach 1	71592	2192.00	11.42	21.65		21.66	0.000041	0.80	6926.66	4208.72	0.06
raymondville	reach 1	71592	3161.00	11.42	22.09		22.09	0.000046	0.89	8793.37	4845.21	0.06
raymondville	reach 1	71592	7345.00	11.42	23.28		23.29	0.000062	1.15	14748.49	8000.00	0.07
raymondville	reach 1	69075	1523.00	11.01	20.90		20.91	0.000084	1.09	3595.95	3352.20	0.08
raymondville	reach 1	69075	2334.00	11.01	21.53		21.53	0.000056	0.96	6503.87	4919.52	0.07
raymondville	reach 1	69075	3400.00	11.01	21.95		21.96	0.000059	1.02	8597.86	4972.29	0.07
raymondville	reach 1	69075	8259.00	11.01	23.10		23.11	0.000074	1.28	15473.67	8000.00	0.08
raymondville	reach 1	66802	1523.00	10.64	20.67		20.68	0.000103	1.20	3486.06	4275.29	0.09
raymondville	reach 1	66802	2334.00	10.64	21.39		21.39	0.000055	0.94	6915.05	5141.71	0.06
raymondville	reach 1	66802	3400.00	10.64	21.81		21.82	0.000055	0.99	9100.19	5182.89	0.07
raymondville	reach 1	66802	8259.00	10.64	22.92		22.93	0.000074	1.26	15607.11	8000.00	0.08
raymondville	reach 1	64902	1523.00	10.31	20.36		20.39	0.000206	1.67	2082.80	3684.10	0.12
raymondville	reach 1	64902	2334.00	10.31	21.25		21.26	0.000077	1.12	5957.07	5435.72	0.08
raymondville	reach 1	64902	3400.00	10.31	21.68		21.68	0.000072	1.13	8286.24	5477.19	0.08
raymondville	reach 1	64902	8259.00	10.31	22.75		22.76	0.000081	1.40	14541.25	6000.00	0.09
raymondville	reach 1	62902	1523.00	9.98	19.88		19.95	0.000236	2.14	713.05	93.65	0.14
raymondville	reach 1	62902	2334.00	9.98	21.10		21.11	0.000077	1.13	6248.46	6000.00	0.08
raymondville	reach 1	62902	3400.00	9.98	21.54		21.54	0.000067	1.09	8885.24	6000.00	0.07
raymondville	reach 1	62902	8259.00	9.98	22.58		22.58	0.000083	1.34	15118.68	6000.00	0.08
raymondville	reach 1	61180	1523.00	9.65	19.39		19.46	0.000251	2.18	697.68	92.98	0.14
raymondville	reach 1	61180	2334.00	9.65	20.73		20.82	0.000301	2.57	1622.71	2281.54	0.16
raymondville	reach 1	61180	3400.00	9.65	21.16		21.25	0.000478	2.75	2885.33	3500.33	0.19
raymondville	reach 1	61180	8259.00	9.65	22.21		22.26	0.000418	2.84	8107.61	6000.00	0.18
raymondville	reach 1	61130	1523.00	9.64	19.37		19.45	0.000251	2.18	697.44	92.97	0.14
raymondville	reach 1	61130	2334.00	9.64	20.72		20.82	0.000302	2.58	1605.85	2258.01	0.16
raymondville	reach 1	61130	3400.00	9.64	21.15		21.23	0.000494	2.79	2822.12	3445.04	0.19
raymondville	reach 1	61130	8259.00	9.64	22.18		22.23	0.000441	2.91	7922.05	8000.00	0.19
raymondville	reach 1	60777	1523.00	9.58	19.28		19.36	0.000254	2.19	694.70	92.86	0.14
raymondville	reach 1	60777	2334.00	9.58	20.71		20.73	0.000126	1.42	5045.78	6000.00	0.10
raymondville	reach 1	60777	3400.00	9.58	21.13		21.14	0.000104	1.34	7527.90	6000.00	0.09
raymondville	reach 1	60777	8259.00	9.58	22.14		22.15	0.000116	1.55	13574.23	6000.00	0.10
raymondville	reach 1	58786	1523.00	9.26	18.75		18.83	0.000276	2.28	675.18	92.02	0.15
raymondville	reach 1	58786	2334.00	9.26	20.22		20.30	0.000421	2.50	2085.83	6000.00	0.16
raymondville	reach 1	58786	3400.00	9.26	20.84		20.86	0.000188	1.78	5832.95	6000.00	0.12
raymondville	reach 1	58786	8259.00	9.26	21.65		21.67	0.000168	1.85	11920.62	6000.00	0.12
raymondville	reach 1	56696	1523.00	8.92	18.14		18.22	0.000307	2.34	650.24	90.93	0.15
raymondville	reach 1	56696	2334.00	8.92	19.21		19.36	0.000478	3.11	750.11	95.22	0.20
raymondville	reach 1	56696	3400.00	8.92	19.86	13.85	20.13	0.000608	4.18	812.53	97.81	0.26
raymondville	reach 1	56696	8259.00	8.92	21.26		21.32	0.000449	2.92	8322.45	6000.00	0.19
raymondville	reach 1	56944	1523.00	8.91	18.12		18.21	0.000308	2.34	649.68	90.90	0.15
raymondville	reach 1	56944	2334.00	8.91	19.19		19.34	0.000481	3.12	748.61	95.16	0.20
raymondville	reach 1	56944	3400.00	8.91	19.82		20.10	0.000815	4.20	810.05	97.71	0.26
raymondville	reach 1	56944	8259.00	8.91	21.24		21.29	0.000474	2.99	8149.25	6000.00	0.19
raymondville	reach 1	56166.2*	1523.00	8.83	17.97		18.06	0.000317	2.37	643.23	90.61	0.16
raymondville	reach 1	56166.2*	2334.00	8.83	18.99		19.11	0.000421	2.90	1228.49	1013.74	0.18
raymondville	reach 1	56166.2*	3400.00	8.83	19.62		19.75	0.000504	3.28	2000.06	1344.47	0.20
raymondville	reach 1	56166.2*	8259.00	8.83	21.04		21.06	0.000392	2.70	8591.92	6000.00	0.18
raymondville	reach 1	55688.5*	1523.00	8.75	17.89		17.93	0.000186	1.82	1531.29	997.35	0.12
raymondville	reach 1	55688.5*	2334.00	8.75	18.95		18.96	0.000150	1.73	2787.40	1313.86	0.11
raymondville	reach 1	55688.5*	3400.00	8.75	19.56		19.59	0.000176	1.94	3658.78	2858.91	0.12
raymondville	reach 1	55688.5*	8259.00	8.75	20.90		20.93	0.000251	2.15	9446.30	5568.84	0.14
raymondville	reach 1	55210.7*	1523.00	8.67	17.87		17.88	0.000058	1.02	3038.78	1273.37	0.07
raymondville	reach 1	55210.7*	2334.00	8.67	18.93		18.94	0.000050	1.00	4430.01	1346.39	0.06
raymondville	reach 1	55210.7*	3400.00	8.67	19.53		19.54	0.000066	1.19	5688.85	3313.50	0.07
raymondville	reach 1	55210.7*	8259.00	8.67	20.82		20.83	0.000148	1.65	11063.88	4720.66	0.11
raymondville	reach 1	54733	1595.00	8.59	17.71	11.78	17.80	0.000351	2.49	640.83	90.51	0.16
raymondville	reach 1	54733	2441.00	8.59	18.70	12.65	18.87	0.000580	3.33	732.66	94.48	0.21
raymondville	reach 1	54733	3554.00	8.59	19.09	13.65	19.42	0.001028	4.81	770.18	98.06	0.29
raymondville	reach 1	54733	8653.00	8.59	20.46	17.13	20.65	0.001322	4.83	4853.99	4363.83	0.32
raymondville	reach 1	54236.*	1595.00	8.51	17.52		17.62	0.000372	2.52	633.08	148.41	0.17
raymondville	reach 1	54236.*	2441.00	8.51	18.49		18.58	0.000519	2.67	1633.65	1748.87	0.20
raymondville	reach 1	54236.*	3554.00	8.51	18.84		18.95	0.000668	3.15	2320.09	2081.97	0.22
raymondville	reach 1	54236.*	8653.00	8.51	20.01		20.12	0.000809	3.89	5188.69	2909.36	0.25



HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl. (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	53743.*	1595.00	8.43	17.45		17.47	0.000193	1.57	2027.16	1689.74	0.12
raymondville	reach 1	53743.*	2441.00	8.43	18.44		18.45	0.000114	1.35	3963.37	2181.47	0.09
raymondville	reach 1	53743.*	3554.00	8.43	18.78		18.78	0.000162	1.66	4886.39	2307.36	0.11
raymondville	reach 1	53743.*	8653.00	8.43	19.82		19.88	0.000321	2.57	7391.62	2809.45	0.16
raymondville	reach 1	53248.*	1595.00	8.35	17.43		17.44	0.000040	0.77	4375.88	2114.45	0.05
raymondville	reach 1	53248.*	2441.00	8.35	18.43		18.43	0.000031	0.78	6615.57	2382.20	0.05
raymondville	reach 1	53248.*	3554.00	8.35	18.74		18.74	0.000049	0.98	7360.59	2462.37	0.06
raymondville	reach 1	53248.*	8653.00	8.35	19.74		19.76	0.000134	1.75	10105.43	2910.26	0.11
raymondville	reach 1	52753	1374.00	8.27	17.42		17.42	0.000008	0.38	7001.45	2285.26	0.03
raymondville	reach 1	52753	2022.00	8.27	18.42		18.42	0.000008	0.42	9437.44	2644.55	0.03
raymondville	reach 1	52753	3078.00	8.27	18.72		18.73	0.000015	0.58	10262.22	2734.27	0.04
raymondville	reach 1	52753	8064.00	8.27	19.71		19.72	0.000055	1.18	13098.82	3021.44	0.07
raymondville	reach 1	52344.3*	1374.00	8.20	17.41		17.41	0.000014	0.46	5838.59	2280.46	0.03
raymondville	reach 1	52344.3*	2022.00	8.20	18.41		18.41	0.000012	0.48	8359.45	2664.85	0.03
raymondville	reach 1	52344.3*	3078.00	8.20	18.71		18.72	0.000022	0.66	9189.18	2757.25	0.04
raymondville	reach 1	52344.3*	8064.00	8.20	19.68		19.69	0.000072	1.30	11989.17	3055.42	0.08
raymondville	reach 1	51935.7*	1374.00	8.13	17.39		17.40	0.000024	0.57	4838.44	2287.74	0.04
raymondville	reach 1	51935.7*	2022.00	8.13	18.40		18.40	0.000017	0.54	7312.97	2651.04	0.04
raymondville	reach 1	51935.7*	3078.00	8.13	18.69		18.70	0.000030	0.74	8115.23	2745.94	0.05
raymondville	reach 1	51935.7*	8064.00	8.13	19.64		19.65	0.000097	1.43	10851.69	3083.04	0.09
raymondville	reach 1	51527.1*	1374.00	8.07	17.38		17.38	0.000035	0.64	4129.82	1896.37	0.05
raymondville	reach 1	51527.1*	2022.00	8.07	18.39		18.39	0.000024	0.60	6332.95	2506.81	0.04
raymondville	reach 1	51527.1*	3078.00	8.07	18.68		18.68	0.000042	0.81	7078.40	2654.63	0.06
raymondville	reach 1	51527.1*	8064.00	8.07	19.58		19.59	0.000132	1.59	9681.03	3105.94	0.10
raymondville	reach 1	51118.5*	1374.00	8.00	17.37		17.37	0.000027	0.69	4095.15	1581.43	0.05
raymondville	reach 1	51118.5*	2022.00	8.00	18.38		18.38	0.000024	0.69	5834.30	1826.38	0.04
raymondville	reach 1	51118.5*	3078.00	8.00	18.66		18.66	0.000044	0.95	6354.22	1899.99	0.06
raymondville	reach 1	51118.5*	8064.00	8.00	19.51		19.53	0.000175	1.71	8498.58	3006.49	0.12
raymondville	reach 1	50710	1374.00	7.93	17.27	10.84	17.33	0.000239	2.08	680.88	91.39	0.14
raymondville	reach 1	50710	2022.00	7.93	18.22	11.57	18.33	0.000359	2.70	750.06	95.22	0.17
raymondville	reach 1	50710	3078.00	7.93	18.34	12.60	18.59	0.000798	4.04	761.02	95.68	0.25
raymondville	reach 1	50710	8064.00	7.93	19.44	16.12	19.46	0.000168	1.96	7973.44	2103.47	0.12
raymondville	reach 1	50308.0*	1374.00	7.86	17.16	10.77	17.23	0.000242	2.09	657.73	91.25	0.14
raymondville	reach 1	50308.0*	2022.00	7.86	18.07	11.50	18.18	0.000370	2.73	741.98	94.87	0.17
raymondville	reach 1	50308.0*	3078.00	7.86	18.46	12.53	18.47	0.000048	1.00	6207.24	1924.41	0.06
raymondville	reach 1	50308.0*	8064.00	7.86	19.37	16.05	19.39	0.000165	1.95	8062.63	2133.55	0.12
raymondville	reach 1	49908.0*	1374.00	7.80	17.06	10.71	17.13	0.000246	2.10	653.88	91.08	0.14
raymondville	reach 1	49908.0*	2022.00	7.80	17.90	11.44	18.02	0.000385	2.76	732.16	94.46	0.17
raymondville	reach 1	49908.0*	3078.00	7.80	18.44	12.47	18.45	0.000046	0.98	6363.93	1995.82	0.06
raymondville	reach 1	49908.0*	8064.00	7.80	19.30	15.99	19.32	0.000167	1.96	8172.48	2237.54	0.12
raymondville	reach 1	49504.0*	1374.00	7.73	16.98	10.64	17.03	0.000249	2.11	650.77	90.95	0.14
raymondville	reach 1	49504.0*	2022.00	7.73	17.74	11.37	17.86	0.000399	2.80	723.15	94.08	0.18
raymondville	reach 1	49504.0*	3078.00	7.73	18.42	12.40	18.43	0.000042	0.94	6344.53	2052.70	0.06
raymondville	reach 1	49504.0*	8064.00	7.73	19.23	15.92	19.26	0.000170	1.97	8331.04	2395.84	0.12
raymondville	reach 1	49102.0*	1374.00	7.67	16.85	10.58	16.92	0.000254	2.12	647.03	90.79	0.14
raymondville	reach 1	49102.0*	2022.00	7.67	17.56	11.31	17.89	0.000416	2.84	712.61	93.64	0.18
raymondville	reach 1	49102.0*	3078.00	7.67	18.32	12.34	18.39	0.000294	2.49	2227.20	2151.98	0.15
raymondville	reach 1	49102.0*	8064.00	7.67	19.17	15.86	19.18	0.000177	1.86	8512.70	2495.93	0.12
raymondville	reach 1	48700	1374.00	7.60	16.75	10.51	16.82	0.000257	2.13	643.86	90.65	0.14
raymondville	reach 1	48700	2022.00	7.60	17.39	11.24	17.52	0.000433	2.88	702.79	93.21	0.18
raymondville	reach 1	48700	3078.00	7.60	17.92	12.27	18.18	0.000822	4.09	753.17	95.35	0.26
raymondville	reach 1	48700	8064.00	7.60	19.10	15.79	19.11	0.000167	1.62	8700.23	2509.42	0.11
raymondville	reach 1	48516.6*	1374.00	7.57	16.70	10.48	16.77	0.000259	2.14	642.13	90.58	0.14
raymondville	reach 1	48516.6*	2022.00	7.57	17.30	11.21	17.43	0.000442	2.90	697.43	92.99	0.19
raymondville	reach 1	48516.6*	3078.00	7.57	17.75	12.24	18.02	0.000866	4.16	739.67	94.79	0.26
raymondville	reach 1	48516.6*	8064.00	7.57	19.07	15.76	19.08	0.000169	1.65	8718.66	2564.64	0.11
raymondville	reach 1	48333.3*	1374.00	7.54	16.65	10.45	16.72	0.000281	2.15	640.37	90.50	0.14
raymondville	reach 1	48333.3*	2022.00	7.54	17.22	11.18	17.35	0.000452	2.92	692.15	92.76	0.19
raymondville	reach 1	48333.3*	3078.00	7.54	17.57	12.21	17.85	0.000917	4.25	724.95	94.16	0.27
raymondville	reach 1	48333.3*	8064.00	7.54	19.04	15.73	19.05	0.000174	1.72	8833.89	2921.27	0.12
raymondville	reach 1	48150	1374.00	7.51	16.60	10.42	16.88	0.000283	2.15	638.89	90.43	0.14
raymondville	reach 1	48150	2022.00	7.51	17.13	11.15	17.27	0.000462	2.94	687.15	92.55	0.19
raymondville	reach 1	48150	3078.00	7.51	17.38	12.18	17.68	0.000972	4.33	710.62	93.55	0.28
raymondville	reach 1	48150	8064.00	7.51	19.01	15.70	19.02	0.000170	1.73	9117.12	3192.52	0.12
raymondville	reach 1	47886.*	1374.00	7.43	16.47	10.34	16.55	0.000271	2.16	634.77	91.10	0.14
raymondville	reach 1	47886.*	2022.00	7.43	16.86	11.07	17.00	0.000730	2.99	678.48	2252.92	0.23
raymondville	reach 1	47886.*	3078.00	7.43	17.42	12.10	17.43	0.000151	1.45	4576.61	2375.44	0.11

HEC-RAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
raymondville	reach 1	47888.*	8064.00	7.43	18.89	15.62	18.91	0.000197	1.92	8758.99	3504.06	0.13
raymondville	reach 1	47222.*	1374.00	7.38	16.33	10.27	16.40	0.000381	2.13	648.44	1928.56	0.16
raymondville	reach 1	47222.*	2022.00	7.38	16.79	11.00	16.81	0.000164	1.47	3037.29	2111.18	0.11
raymondville	reach 1	47222.*	3078.00	7.38	17.31	12.03	17.33	0.000177	1.62	4253.07	2549.21	0.12
raymondville	reach 1	47222.*	8064.00	7.38	18.77	18.21	18.79	0.000213	2.05	8671.09	3762.05	0.13
raymondville	reach 1	48758.*	1374.00	7.28	16.28	10.20	16.29	0.000104	1.16	2273.95	1374.91	0.09
raymondville	reach 1	48758.*	2022.00	7.28	16.72	10.92	16.74	0.000129	1.35	2994.88	1895.77	0.10
raymondville	reach 1	48758.*	3078.00	7.28	17.20	11.95	17.23	0.000188	1.72	4090.77	2492.30	0.12
raymondville	reach 1	48758.*	8064.00	7.28	18.85	16.02	18.88	0.000215	2.11	8769.38	3737.13	0.13
raymondville	reach 1	48294.*	1374.00	7.21	18.24	10.12	16.25	0.000087	0.97	2744.92	1541.02	0.07
raymondville	reach 1	48294.*	2022.00	7.21	18.67	10.85	16.69	0.000090	1.18	3448.80	1804.01	0.08
raymondville	reach 1	48294.*	3078.00	7.21	17.14	11.88	17.15	0.000123	1.44	4421.92	2287.05	0.10
raymondville	reach 1	48294.*	8064.00	7.21	18.54	15.51	18.57	0.000211	2.14	8989.55	3785.08	0.13
raymondville	reach 1	45830	1374.00	7.13	16.22	10.04	16.23	0.000040	0.78	3454.52	1847.38	0.05
raymondville	reach 1	45830	2022.00	7.13	16.84	10.77	16.65	0.000057	0.97	4258.89	1999.72	0.07
raymondville	reach 1	45830	3078.00	7.13	17.09	11.80	17.10	0.000085	1.24	5195.19	2379.82	0.08
raymondville	reach 1	45830	8064.00	7.13	18.45	15.00	18.47	0.000194	2.11	9259.45	3723.84	0.13
raymondville	reach 1	45414.*	1374.00	7.06	16.20	9.97	16.21	0.000041	0.80	3438.82	1905.25	0.06
raymondville	reach 1	45414.*	2022.00	7.06	16.61	10.70	16.62	0.000059	0.99	4264.67	2061.22	0.07
raymondville	reach 1	45414.*	3078.00	7.06	17.05	11.73	17.08	0.000085	1.25	5194.06	2278.33	0.08
raymondville	reach 1	45414.*	8064.00	7.06	18.38	15.00	18.40	0.000180	2.03	9546.92	3778.25	0.12
raymondville	reach 1	44998.*	1374.00	6.99	16.18	9.90	16.19	0.000045	0.83	3451.32	2021.94	0.06
raymondville	reach 1	44998.*	2022.00	6.99	16.58	10.63	16.59	0.000060	1.00	4287.30	2118.54	0.07
raymondville	reach 1	44998.*	3078.00	6.99	17.01	11.66	17.03	0.000095	1.32	5293.49	2711.20	0.09
raymondville	reach 1	44998.*	8064.00	6.99	18.31	15.00	18.33	0.000189	1.98	9892.26	4200.87	0.12
raymondville	reach 1	44582.*	1374.00	6.93	16.15	9.84	16.16	0.000048	0.85	3471.22	2095.31	0.06
raymondville	reach 1	44582.*	2022.00	6.93	16.55	10.57	16.56	0.000072	1.10	4402.20	2897.20	0.07
raymondville	reach 1	44582.*	3078.00	6.93	16.98	11.60	16.99	0.000094	1.31	5593.74	2890.41	0.09
raymondville	reach 1	44582.*	8064.00	6.93	18.25	15.00	18.27	0.000157	1.89	10678.60	4439.18	0.11
raymondville	reach 1	44186.*	1374.00	6.88	16.12	9.77	16.13	0.000054	0.92	3611.94	2715.06	0.08
raymondville	reach 1	44186.*	2022.00	6.88	16.52	10.50	16.53	0.000063	1.03	4718.69	2810.80	0.07
raymondville	reach 1	44186.*	3078.00	6.88	16.94	11.53	16.95	0.000081	1.22	6077.21	3762.04	0.08
raymondville	reach 1	44186.*	8064.00	6.88	18.21	15.00	18.22	0.000125	1.68	11533.82	4438.98	0.10
raymondville	reach 1	43750	1374.00	6.79	16.09	9.70	16.10	0.000045	0.84	4023.86	3410.61	0.06
raymondville	reach 1	43750	2022.00	6.79	16.49	10.43	16.50	0.000051	0.93	5422.08	3609.95	0.06
raymondville	reach 1	43750	3078.00	6.79	16.90	11.48	16.91	0.000071	1.14	6982.88	3997.83	0.08
raymondville	reach 1	43750	8064.00	6.79	18.16	15.00	18.17	0.000100	1.51	12391.28	4439.00	0.09
raymondville	reach 1	43313.8*	1374.00	6.72	16.06		16.07	0.000061	0.96	3515.08	3339.70	0.07
raymondville	reach 1	43313.8*	2022.00	6.72	16.46		16.47	0.000067	1.05	4917.35	3987.51	0.07
raymondville	reach 1	43313.8*	3078.00	6.72	16.87		16.88	0.000088	1.24	6493.11	3978.92	0.08
raymondville	reach 1	43313.8*	8064.00	6.72	18.11		18.12	0.000115	1.60	11864.86	4447.88	0.10
raymondville	reach 1	42877.2*	1374.00	6.65	16.02		16.03	0.000086	1.12	2988.81	3385.85	0.06
raymondville	reach 1	42877.2*	2022.00	6.65	16.42		16.43	0.000098	1.24	4426.09	3806.35	0.09
raymondville	reach 1	42877.2*	3078.00	6.65	16.82		16.83	0.000107	1.36	5985.40	3938.56	0.09
raymondville	reach 1	42877.2*	8064.00	6.65	18.05		18.07	0.000134	1.70	11303.40	4472.53	0.11
raymondville	reach 1	42440.8*	1374.00	6.57	15.98		15.98	0.000129	1.35	2443.97	3181.72	0.10
raymondville	reach 1	42440.8*	2022.00	6.57	16.38		16.38	0.000125	1.39	3906.08	3723.69	0.10
raymondville	reach 1	42440.8*	3078.00	6.57	16.78		16.77	0.000138	1.52	5392.25	3847.58	0.10
raymondville	reach 1	42440.8*	8064.00	6.57	17.99		18.00	0.000159	1.83	10704.22	4525.97	0.11
raymondville	reach 1	42004.4*	1374.00	6.50	15.88		15.91	0.000171	1.52	1911.60	2807.27	0.11
raymondville	reach 1	42004.4*	2022.00	6.50	16.30		16.32	0.000172	1.60	3340.83	3696.87	0.11
raymondville	reach 1	42004.4*	3078.00	6.50	16.68		16.70	0.000184	1.72	4784.16	3749.99	0.12
raymondville	reach 1	42004.4*	8064.00	6.50	17.90		17.93	0.000205	2.04	10209.39	5430.43	0.13
raymondville	reach 1	41588	1374.00	6.43	15.79		15.83	0.000219	1.68	1494.90	2097.64	0.13
raymondville	reach 1	41588	2022.00	6.43	16.19		16.23	0.000258	1.91	2648.11	3658.98	0.14
raymondville	reach 1	41588	3078.00	6.43	16.57		16.61	0.000283	2.02	4069.39	3721.29	0.14
raymondville	reach 1	41588	8064.00	6.43	17.82		17.84	0.000214	2.05	10591.85	6000.00	0.13
raymondville	reach 1	39543	1374.00	6.10	15.62		15.82	0.000055	0.70	4948.33	5100.58	0.06
raymondville	reach 1	39543	2022.00	6.10	16.02		16.02	0.000050	0.71	7030.19	6000.00	0.06
raymondville	reach 1	39543	3078.00	6.10	16.39		16.39	0.000054	0.77	9241.57	6000.00	0.06
raymondville	reach 1	39543	8064.00	6.10	17.62		17.63	0.000061	0.98	16639.27	6000.00	0.07
raymondville	reach 1	37135	1374.00	5.71	15.55	8.62	15.55	0.000017	0.47	6464.96	4749.40	0.03
raymondville	reach 1	37135	2022.00	5.71	15.95	9.34	15.95	0.000020	0.54	8452.46	5104.82	0.04
raymondville	reach 1	37135	3078.00	5.71	16.29	10.37	16.29	0.000030	0.69	10241.74	5378.79	0.05
raymondville	reach 1	37135	8064.00	5.71	17.49	13.90	17.49	0.000053	1.03	16882.54	5693.64	0.07
raymondville	reach 1	34845	1714.00	5.33	15.40		15.44	0.000220	1.73	2510.81	4583.81	0.13

HEC-DAS Plan: P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4499.93	4727.52	0.10
raymondville	reach 1	34845	2856.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.98	0.09
raymondville	reach 1	34845	7234.00	5.33	17.31		17.32	0.000120	1.54	12152.38	6000.00	0.10
raymondville	reach 1	34786	1714.00	5.32	15.36		15.42	0.000242	1.81	2317.11	4556.48	0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.53	4722.59	0.10
raymondville	reach 1	34786	2856.00	5.32	16.15		16.16	0.000114	1.36	5918.32	4853.13	0.09
raymondville	reach 1	34786	7234.00	5.32	17.30		17.31	0.000123	1.57	11999.30	6000.00	0.10
raymondville	reach 1	32585	1714.00	4.96	14.67		14.74	0.000408	2.28	1043.70	1133.11	0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000248	1.92	2999.29	3852.55	0.14
raymondville	reach 1	32585	2856.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89	0.11
raymondville	reach 1	32585	7234.00	4.96	16.99		17.01	0.000157	1.79	10782.18	5487.96	0.11
raymondville	reach 1	30564	1714.00	4.63	13.82		13.93	0.000393	2.65	651.73	114.58	0.17
raymondville	reach 1	30564	2255.00	4.63	14.81		14.75	0.000475	3.05	912.78	888.14	0.19
raymondville	reach 1	30564	2856.00	4.63	15.25		15.37	0.000441	3.04	2048.00	3095.80	0.19
raymondville	reach 1	30564	7234.00	4.63	18.54		18.57	0.000304	2.31	8888.27	6000.00	0.15
raymondville	reach 1	29170	1714.00	4.40	13.22		13.34	0.000459	2.79	613.82	89.31	0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	668.09	91.71	0.22
raymondville	reach 1	29170	2856.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.83	0.26
raymondville	reach 1	29170	7234.00	4.40	15.99		16.07	0.000612	3.24	6748.85	6000.00	0.22
raymondville	reach 1	28867.7*	1714.00	4.35	13.07		13.19	0.000482	2.83	605.96	89.47	0.19
raymondville	reach 1	28867.7*	2255.00	4.35	13.61		13.79	0.000669	3.45	654.05	91.93	0.23
raymondville	reach 1	28867.7*	2856.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14	0.27
raymondville	reach 1	28867.7*	7234.00	4.35	15.80		15.89	0.000890	3.51	6258.86	6000.00	0.23
raymondville	reach 1	28565.5*	1714.00	4.30	12.92		13.04	0.000497	2.83	665.41	316.05	0.19
raymondville	reach 1	28565.5*	2255.00	4.30	13.40		13.55	0.000688	3.24	889.85	549.79	0.25
raymondville	reach 1	28565.5*	2856.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05	0.27
raymondville	reach 1	28565.5*	7234.00	4.30	15.58		15.69	0.000741	3.70	5712.11	5784.11	0.24
raymondville	reach 1	28263.2*	1714.00	4.25	12.81		12.88	0.000468	2.31	1071.21	578.71	0.18
raymondville	reach 1	28263.2*	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.83	633.89	0.19
raymondville	reach 1	28263.2*	2856.00	4.25	13.62		13.72	0.000608	2.87	1589.04	750.20	0.21
raymondville	reach 1	28263.2*	7234.00	4.25	15.37		15.48	0.000717	3.70	5465.70	5192.44	0.24
raymondville	reach 1	27961	1714.00	4.20	12.74		12.77	0.000235	1.70	1570.27	639.60	0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.89	746.39	0.15
raymondville	reach 1	27961	2856.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.95	0.16
raymondville	reach 1	27961	7234.00	4.20	15.18		15.28	0.000848	3.57	5451.84	4766.41	0.23
raymondville	reach 1	27505.2*	1714.00	4.13	12.63		12.67	0.000249	1.74	1577.57	724.39	0.13
raymondville	reach 1	27505.2*	2255.00	4.13	13.03		13.07	0.000296	1.98	1886.88	821.50	0.16
raymondville	reach 1	27505.2*	2856.00	4.13	13.38		13.42	0.000337	2.19	2179.80	860.85	0.15
raymondville	reach 1	27505.2*	7234.00	4.13	14.89		14.98	0.000836	3.49	5859.91	5090.24	0.23
raymondville	reach 1	27049.4*	1714.00	4.05	12.52		12.55	0.000255	1.74	1619.24	824.81	0.14
raymondville	reach 1	27049.4*	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49	0.15
raymondville	reach 1	27049.4*	2856.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16	0.16
raymondville	reach 1	27049.4*	7234.00	4.05	14.67		14.73	0.000470	2.96	6868.74	5359.37	0.19
raymondville	reach 1	26593.6*	1714.00	3.98	12.42		12.45	0.000234	1.66	1768.88	1096.39	0.13
raymondville	reach 1	26593.6*	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.48	1364.94	0.14
raymondville	reach 1	26593.6*	2856.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10	0.15
raymondville	reach 1	26593.6*	7234.00	3.98	14.53		14.56	0.000266	2.23	8679.77	5107.22	0.15
raymondville	reach 1	26137.8*	1714.00	3.90	12.34		12.36	0.000185	1.48	2192.22	1558.26	0.12
raymondville	reach 1	26137.8*	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.78	3244.10	0.13
raymondville	reach 1	26137.8*	2856.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4080.54	0.13
raymondville	reach 1	26137.8*	7234.00	3.90	14.46		14.47	0.000140	1.62	10848.83	4908.55	0.11
raymondville	reach 1	25682	1714.00	3.83	12.28		12.30	0.000131	1.25	3534.82	4063.17	0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.15	4115.05	0.09
raymondville	reach 1	25682	2856.00	3.83	12.95		12.96	0.000091	1.13	6283.81	4163.46	0.08
raymondville	reach 1	25682	7234.00	3.83	14.42		14.43	0.000078	1.22	13204.53	4898.81	0.08
raymondville	reach 1	25281.*	1714.00	3.76	12.25		12.25	0.000100	1.11	4044.35	4054.57	0.09
raymondville	reach 1	25281.*	2255.00	3.76	12.80		12.61	0.000082	1.05	5490.50	4121.23	0.08
raymondville	reach 1	25281.*	2856.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4854.45	0.08
raymondville	reach 1	25281.*	7234.00	3.76	14.40		14.41	0.000074	1.20	14367.09	6000.00	0.08
raymondville	reach 1	24880.*	1714.00	3.70	12.22		12.22	0.000071	0.95	4652.35	3810.06	0.07
raymondville	reach 1	24880.*	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.32	4209.63	0.07
raymondville	reach 1	24880.*	2856.00	3.70	12.90		12.91	0.000063	0.97	7572.73	4663.09	0.07
raymondville	reach 1	24880.*	7234.00	3.70	14.38		14.38	0.000058	1.08	15634.88	6000.00	0.07
raymondville	reach 1	24479.*	1714.00	3.63	12.20		12.20	0.000051	0.82	5339.50	3891.35	0.06
raymondville	reach 1	24479.*	2255.00	3.63	12.56		12.56	0.000048	0.83	6808.75	4400.80	0.06
raymondville	reach 1	24479.*	2856.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4998.58	0.06
raymondville	reach 1	24479.*	7234.00	3.63	14.36		14.36	0.000046	0.97	16904.31	6000.00	0.06

HEC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	24078.*	1714.00	3.57	12.18		12.19	0.000037	0.70	6186.50	4144.97	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000038	0.73	7758.80	4885.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5456.29	0.05
raymondville	reach 1	24078.*	7234.00	3.57	14.34		14.34	0.000037	0.88	18187.29	6000.00	0.08
raymondville	reach 1	23677	1714.00	3.50	12.18		12.17	0.000027	0.80	7145.78	4882.75	0.04
raymondville	reach 1	23677	2255.00	3.50	12.52		12.53	0.000028	0.82	8905.38	5218.63	0.04
raymondville	reach 1	23677	2856.00	3.50	12.85		12.85	0.000027	0.88	10899.55	5674.64	0.05
raymondville	reach 1	23677	7234.00	3.50	14.31		14.32	0.000030	0.90	19430.78	6000.00	0.05
raymondville	reach 1	21880	1714.00	3.17	12.13		12.13	0.000013	0.42	10238.60	6000.00	0.03
raymondville	reach 1	21880	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.15	6000.00	0.03
raymondville	reach 1	21880	2856.00	3.17	12.82		12.82	0.000013	0.44	14360.32	6000.00	0.03
raymondville	reach 1	21880	7234.00	3.17	14.27		14.28	0.000018	0.80	23083.75	6000.00	0.04
raymondville	reach 1	19608	1714.00	2.83	12.11		12.11	0.000013	0.42	10017.37	5923.15	0.03
raymondville	reach 1	19608	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.49	6000.00	0.03
raymondville	reach 1	19608	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19608	7234.00	2.83	14.24		14.25	0.000018	0.61	22818.38	6000.00	0.04
raymondville	reach 1	19152.2*	1714.00	2.75	12.10		12.10	0.000014	0.45	9715.97	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.48		12.48	0.000013	0.45	11917.38	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7234.00	2.75	14.23		14.23	0.000019	0.83	22508.75	6000.00	0.04
raymondville	reach 1	18698.5*	1714.00	2.88	12.08		12.08	0.000018	0.47	9418.08	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.88	12.45		12.45	0.000015	0.47	11607.82	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.88	12.77		12.77	0.000015	0.49	13547.98	6000.00	0.03
raymondville	reach 1	18698.5*	7234.00	2.88	14.21		14.21	0.000020	0.64	22202.71	6000.00	0.04
raymondville	reach 1	18244.7*	1714.00	2.81	12.07		12.07	0.000017	0.49	9110.38	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.81	12.43		12.43	0.000018	0.49	11288.44	6000.00	0.03
raymondville	reach 1	18244.7*	2856.00	2.81	12.78		12.78	0.000018	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7234.00	2.81	14.20		14.20	0.000021	0.86	21886.83	6000.00	0.04
raymondville	reach 1	17791.*	1714.00	2.53	12.05		12.05	0.000019	0.52	8812.47	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.90	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.63	6000.00	0.04
raymondville	reach 1	17791.*	7234.00	2.53	14.18		14.18	0.000021	0.68	21580.79	6000.00	0.04
raymondville	reach 1	17337.2*	1714.00	2.45	12.04		12.04	0.000021	0.55	8518.46	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10671.23	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7234.00	2.45	14.17		14.17	0.000023	0.69	21276.81	6000.00	0.04
raymondville	reach 1	16883.5*	1714.00	2.38	12.03		12.03	0.000024	0.58	8209.99	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.11	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7234.00	2.38	14.15		14.15	0.000024	0.71	20981.98	6000.00	0.04
raymondville	reach 1	16429.7*	1714.00	2.31	12.00		12.01	0.000027	0.62	7883.26	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.55	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.16	6000.00	0.04
raymondville	reach 1	16429.7*	7234.00	2.31	14.14		14.14	0.000025	0.73	20653.83	6000.00	0.05
raymondville	reach 1	15878	1714.00	2.23	11.98		11.98	0.000029	0.64	7522.41	5782.30	0.05
raymondville	reach 1	15878	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.49	6000.00	0.04
raymondville	reach 1	15878	2856.00	2.23	12.69		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15878	7234.00	2.23	14.12		14.12	0.000028	0.75	20347.36	6000.00	0.05
raymondville	reach 1	15517.2*	1714.00	2.16	11.94		11.96	0.000132	1.39	3703.63	5538.15	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.30	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.87		12.67	0.000089	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7234.00	2.16	14.09		14.10	0.000050	1.05	16438.49	6000.00	0.06
raymondville	reach 1	15058.4*	1714.00	2.08	11.82		11.87	0.000258	1.92	1508.19	1757.45	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.77	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7234.00	2.08	14.05		14.07	0.000112	1.57	12446.49	6000.00	0.10
raymondville	reach 1	14599.6*	1714.00	2.01	11.68		11.73	0.000291	2.03	1232.99	763.56	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.96	1250.96	0.18
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.78	2029.88	0.17
raymondville	reach 1	14599.6*	7234.00	2.01	13.94		13.98	0.000303	2.57	8021.38	5857.80	0.18
raymondville	reach 1	14140.8*	1714.00	1.93	11.53		11.59	0.000322	2.12	1101.68	656.86	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.85	0.20
raymondville	reach 1	14140.8*	7234.00	1.93	13.64		13.77	0.000703	3.84	4590.05	3224.11	0.24
raymondville	reach 1	13682	1714.00	1.86	11.37		11.44	0.000350	2.18	1008.04	528.14	0.16
raymondville	reach 1	13682	2255.00	1.86	11.63		11.73	0.000486	2.85	1160.21	615.43	0.19

HEC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000933	3.11	1323.90	713.85	0.22
raymondville	reach 1	13682	7234.00	1.86	12.98		13.29	0.001571	5.44	2310.98	1440.42	0.35
raymondville	reach 1	11672	1714.00	1.53	10.91		10.94	0.000176	1.52	3110.63	4478.22	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000166	1.52	4277.26	4718.78	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7234.00	1.53	12.29		12.31	0.000203	1.89	9932.97	5302.08	0.13
raymondville	reach 1	9670	1714.00	1.20	10.34		10.40	0.000425	2.22	1627.98	3473.50	0.17
raymondville	reach 1	9670	2255.00	1.20	10.72		10.76	0.000279	1.89	3335.44	4974.57	0.14
raymondville	reach 1	9670	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9670	7234.00	1.20	11.82		11.85	0.000271	2.10	8840.94	5023.58	0.14
raymondville	reach 1	8234	1714.00	0.64	8.37		8.54	0.000749	3.30	518.92	84.96	0.24
raymondville	reach 1	8234	2255.00	0.64	8.91		9.15	0.001009	3.99	585.54	87.13	0.28
raymondville	reach 1	8234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.83	3570.69	0.30
raymondville	reach 1	8234	7234.00	0.64	10.83		10.88	0.000343	2.33	8754.97	6000.00	0.16
raymondville	reach 1	4339	1714.00	0.31	7.55	3.61	7.57	0.000310	1.18	1447.47	591.70	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	4.19	7.95	0.000363	1.34	1677.04	638.24	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.48	8.30	0.000413	1.50	1907.36	680.49	0.16
raymondville	reach 1	4339	7234.00	0.31	9.81	6.58	9.90	0.000712	2.39	3032.64	809.69	0.22
raymondville	reach 1	4300	1714.00	0.30	7.53	3.60	7.56	0.000318	1.19	1435.14	590.12	0.13
raymondville	reach 1	4300	2255.00	0.30	7.91	4.17	7.93	0.000372	1.36	1662.70	638.37	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	5.49	8.29	0.000424	1.51	1890.91	679.48	0.16
raymondville	reach 1	4300	7234.00	0.30	9.78	6.57	9.87	0.000730	2.41	3003.14	805.12	0.22
raymondville	reach 1	3878.00*	1714.00	0.23	7.38		7.40	0.000372	1.28	1335.31	554.62	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.76	0.000434	1.47	1538.62	586.82	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000488	1.65	1728.19	603.07	0.17
raymondville	reach 1	3878.00*	7234.00	0.23	9.45		9.55	0.000785	2.53	3641.70	2837.00	0.23
raymondville	reach 1	3456.00*	1714.00	0.16	7.21		7.24	0.000419	1.41	1216.97	480.85	0.16
raymondville	reach 1	3456.00*	2255.00	0.16	7.52		7.56	0.000509	1.65	1381.89	647.80	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.87	0.000612	1.86	1598.25	851.32	0.19
raymondville	reach 1	3456.00*	7234.00	0.16	9.17		9.24	0.000633	2.39	4598.62	2818.38	0.21
raymondville	reach 1	3034.00*	1714.00	0.09	7.00		7.04	0.000540	1.62	1146.24	922.20	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.28		7.33	0.000572	1.79	1672.42	1900.36	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.62	0.000547	1.86	2240.94	2009.77	0.18
raymondville	reach 1	3034.00*	7234.00	0.09	8.97		9.02	0.000424	2.10	5801.21	2858.94	0.17
raymondville	reach 1	2612.00*	1714.00	0.02	6.84		6.86	0.000306	1.40	2173.84	2204.77	0.14
raymondville	reach 1	2612.00*	2255.00	0.02	7.13		7.15	0.000288	1.44	2830.19	2237.88	0.14
raymondville	reach 1	2612.00*	2856.00	0.02	7.44		7.45	0.000264	1.48	3509.30	2277.21	0.13
raymondville	reach 1	2612.00*	7234.00	0.02	8.85		8.87	0.000253	1.77	7203.43	2866.24	0.14
raymondville	reach 1	2190	1714.00	-0.05	6.78		6.79	0.000097	0.99	3643.75	2179.68	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.07		7.08	0.000114	1.12	4293.78	2443.35	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000115	1.17	5037.54	2479.28	0.09
raymondville	reach 1	2190	7234.00	-0.05	8.77		8.79	0.000157	1.60	8729.76	2912.31	0.11
raymondville	reach 1	0	1714.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3264.59	2522.02	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	3.47	6.79	0.000180	1.21	3950.09	2543.12	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	5.55	7.09	0.000180	1.27	4757.25	3325.34	0.10
raymondville	reach 1	0	7234.00	-0.41	8.43	6.13	8.44	0.000180	1.51	9350.29	3429.34	0.11
North Main	reach 4	331370	410.00	96.81	103.97	99.87	104.06	0.000492	2.44	168.35	36.91	0.20
North Main	reach 4	331370	573.00	96.81	105.23	100.50	105.34	0.000479	2.63	217.96	41.60	0.20
North Main	reach 4	331370	770.00	96.81	106.53	101.12	106.66	0.000463	2.80	275.18	46.43	0.20
North Main	reach 4	331370	1392.00	96.81	109.54	102.59	109.70	0.000453	3.23	431.50	57.59	0.21
North Main	reach 4	330227	410.00	96.76	103.48	99.35	103.55	0.000399	2.23	183.83	39.69	0.18
North Main	reach 4	330227	573.00	96.76	104.78	99.90	104.85	0.000387	2.41	237.54	44.25	0.18
North Main	reach 4	330227	770.00	96.76	106.07	100.47	106.18	0.000374	2.58	298.96	48.95	0.18
North Main	reach 4	330227	1392.00	96.76	109.08	101.93	109.23	0.000374	3.01	462.46	59.45	0.19
North Main	reach 4	330128	410.00	96.76	103.44	99.26	103.52	0.000413	2.31	177.44	36.28	0.18
North Main	reach 4	330128	573.00	96.76	104.71	99.81	104.81	0.000421	2.53	226.49	40.84	0.19
North Main	reach 4	330128	770.00	96.76	106.02	100.40	106.13	0.000423	2.72	283.12	45.91	0.19
North Main	reach 4	330128	1392.00	96.76	109.02	101.86	109.18	0.000435	3.17	438.74	57.61	0.20
North Main	reach 4	330078	410.00	96.78	103.41	99.26	103.50	0.000419	2.32	176.65	36.22	0.19
North Main	reach 4	330078	573.00	96.78	104.69	99.80	104.79	0.000426	2.54	225.58	40.75	0.19
North Main	reach 4	330078	770.00	96.78	106.00	100.39	106.11	0.000427	2.73	282.09	45.83	0.19
North Main	reach 4	330078	1392.00	96.78	109.00	101.86	109.16	0.000438	3.18	437.41	57.52	0.20
North Main	reach 4	329975	410.00	97.01	103.29	100.02	103.43	0.000858	3.01	136.16	32.79	0.26
North Main	reach 4	329975	573.00	97.01	104.57	100.64	104.73	0.000776	3.16	181.05	37.34	0.25
North Main	reach 4	329975	770.00	97.01	105.88	101.29	106.05	0.000711	3.31	232.97	41.99	0.25
North Main	reach 4	329975	1392.00	97.01	108.88	102.88	109.10	0.000648	3.71	375.16	52.67	0.25

HEC-DAS Plan P-25X-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 4	328000	410.00	95.28	102.35	97.87	102.42	0.000330	2.09	196.40	40.45	0.17
North Main	reach 4	328000	573.00	95.28	103.69	98.42	103.76	0.000321	2.26	253.61	45.11	0.17
North Main	reach 4	328000	770.00	95.26	105.04	99.00	105.13	0.000313	2.42	317.95	49.83	0.17
North Main	reach 4	328000	1392.00	95.26	108.06	100.47	108.19	0.000329	2.88	484.17	60.35	0.18
North Main	reach 4	328000	410.00	94.56	101.63	97.39	101.70	0.000385	2.19	187.63	40.83	0.18
North Main	reach 4	328000	573.00	94.56	103.01	97.95	103.09	0.000354	2.31	247.67	46.27	0.18
North Main	reach 4	328000	770.00	94.56	104.39	98.54	104.49	0.000332	2.44	315.93	51.75	0.17
North Main	reach 4	328000	1392.00	94.56	107.40	100.02	107.52	0.000335	2.85	488.77	63.48	0.18
North Main	reach 4	324083	410.00	94.05	101.03	96.40	101.09	0.000287	1.90	216.21	44.36	0.15
North Main	reach 4	324083	573.00	94.05	102.46	96.92	102.52	0.000249	2.02	283.23	49.81	0.15
North Main	reach 4	324083	770.00	94.05	103.87	97.47	103.95	0.000238	2.15	357.59	55.24	0.15
North Main	reach 4	324083	1392.00	94.05	106.85	98.88	106.98	0.000257	2.58	539.10	66.67	0.16
North Main	reach 4	324005	410.00	94.05	101.01	96.40	101.07	0.000270	1.90	215.24	44.28	0.15
North Main	reach 4	324005	573.00	94.05	102.44	96.92	102.50	0.000251	2.03	282.22	48.73	0.15
North Main	reach 4	324005	770.00	94.05	103.85	97.47	103.93	0.000240	2.16	356.52	55.16	0.15
North Main	reach 4	324005	1392.00	94.05	106.83	98.88	106.94	0.000259	2.59	537.70	66.50	0.18
North Main	reach 4	322000	410.00	93.17	100.42	95.84	100.48	0.000317	2.04	200.55	41.49	0.18
North Main	reach 4	322000	573.00	93.17	101.89	96.40	101.96	0.000288	2.16	265.68	47.02	0.16
North Main	reach 4	322000	770.00	93.17	103.33	96.99	103.41	0.000273	2.28	337.43	52.45	0.16
North Main	reach 4	322000	1392.00	93.17	106.29	98.48	106.37	0.000302	2.42	435.48	58.10	0.17
North Main	reach 4	320965	410.00	93.05	100.00	95.85	100.09	0.000464	2.40	171.18	36.63	0.20
North Main	reach 4	320965	573.00	93.05	101.51	96.44	101.61	0.000404	2.48	230.80	41.82	0.19
North Main	reach 4	320965	770.00	93.05	102.98	97.06	103.08	0.000373	2.61	295.49	48.85	0.18
North Main	reach 4	320965	1392.00	93.05	105.84	98.63	106.00	0.000408	3.13	444.07	58.65	0.20
North Main	reach 4	320873	410.00	93.05	99.95	95.85	100.04	0.000476	2.42	189.52	36.47	0.20
North Main	reach 4	320873	573.00	93.05	101.47	96.44	101.57	0.000412	2.50	228.96	41.69	0.19
North Main	reach 4	320873	770.00	93.05	102.94	97.06	103.05	0.000379	2.62	293.80	48.72	0.18
North Main	reach 4	320873	1392.00	93.05	105.81	98.63	105.96	0.000414	3.15	441.82	58.52	0.20
North Main	reach 4	320000	410.00	92.95	99.57	95.52	99.65	0.000417	2.25	182.22	40.31	0.19
North Main	reach 4	320000	573.00	92.95	101.16	96.06	101.24	0.000341	2.28	250.98	48.39	0.17
North Main	reach 4	320000	770.00	92.95	102.66	96.67	102.74	0.000306	2.37	324.79	52.12	0.17
North Main	reach 4	320000	1392.00	92.95	105.50	98.13	105.63	0.000333	2.85	488.63	63.07	0.18
North Main	reach 4	318000	410.00	91.12	98.87	93.95	98.94	0.000308	2.05	200.37	39.67	0.18
North Main	reach 4	318000	573.00	91.12	100.58	94.56	100.65	0.000269	2.10	273.15	45.76	0.15
North Main	reach 4	318000	770.00	91.12	102.12	95.19	102.20	0.000244	2.21	348.07	51.27	0.15
North Main	reach 4	318000	1392.00	91.12	104.88	96.78	105.00	0.000297	2.77	503.02	61.12	0.17
North Main	reach 4	317530	410.00	91.23	98.72	94.19	98.79	0.000330	2.04	201.31	43.71	0.17
North Main	reach 4	317530	573.00	91.23	100.46	94.78	100.52	0.000256	2.02	283.94	51.52	0.15
North Main	reach 4	317530	770.00	91.23	102.02	95.39	102.08	0.000228	2.08	369.59	58.52	0.15
North Main	reach 4	317530	1392.00	91.23	104.78	98.67	104.86	0.000261	2.54	547.10	70.81	0.16
North Main	reach 4	317452	410.00	91.23	98.70	94.20	98.76	0.000335	2.05	200.14	43.59	0.17
North Main	reach 4	317452	573.00	91.23	100.44	94.78	100.50	0.000259	2.03	282.88	51.42	0.15
North Main	reach 4	317452	770.00	91.23	102.00	95.39	102.07	0.000230	2.09	368.52	58.44	0.15
North Main	reach 4	317452	1392.00	91.23	104.74	98.67	104.84	0.000263	2.55	545.81	70.72	0.16
North Main	reach 4	317000	410.00	90.93	98.54	93.87	98.81	0.000347	2.14	191.70	39.29	0.17
North Main	reach 4	317000	573.00	90.93	100.31	94.48	100.38	0.000277	2.15	267.13	45.81	0.16
North Main	reach 4	317000	770.00	90.93	101.88	95.12	101.96	0.000255	2.24	343.49	51.59	0.15
North Main	reach 4	317000	1392.00	90.93	104.59	96.66	104.71	0.000310	2.80	496.84	61.57	0.17
North Main	reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001841	1.80	22.17	21.96	0.32
North Main	reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002313	2.65	37.72	24.65	0.38
North Main	reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000289	1.58	120.44	35.70	0.15
North Main	reach 2	157900	515.00	90.87	97.21	93.55	97.32	0.000598	2.69	191.51	42.97	0.22
North Main	reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.87	0.81
North Main	reach 2	157788	100.00	90.87	92.31	91.74	92.45	0.003575	2.99	33.49	25.30	0.46
North Main	reach 2	157788	188.00	90.87	95.38	92.18	95.42	0.000255	1.51	124.58	34.57	0.14
North Main	reach 2	157788	515.00	90.87	97.15	93.35	97.26	0.000589	2.67	192.89	42.38	0.22
North Main	reach 2	157777	Inline Weir									
North Main	reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002111	2.10	19.01	16.28	0.34
North Main	reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	69.99	26.04	0.15
North Main	reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.32	38.01	0.09
North Main	reach 2	157707	515.00	88.33	97.15	91.83	97.22	0.000300	2.13	241.71	44.87	0.16
North Main	reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000559	1.34	29.85	16.32	0.19
North Main	reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000160	1.10	91.01	26.83	0.11
North Main	reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000067	0.94	199.76	41.37	0.08
North Main	reach 2	157442	515.00	87.38	97.09	91.01	97.15	0.000209	1.86	277.50	48.25	0.14
North Main	reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000663	1.42	28.10	17.93	0.20





HEC-DAS Diagram 2593 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	reach 3 (south)	284500	1044.00	74.78	83.42	77.78	83.51	0.000307	2.48	421.04	64.98	0.17
North Main	reach 3 (south)	284500	1567.00	74.78	85.28	78.62	85.41	0.000331	2.88	548.61	71.88	0.18
North Main	reach 3 (south)	284500	2228.00	74.78	87.17	79.55	87.33	0.000353	3.22	691.18	78.89	0.19
North Main	reach 3 (south)	284500	4412.00	74.78	90.50	81.95	90.57	0.000429	2.58	3622.57	2201.84	0.20
North Main	reach 3 (south)	284287	1044.00	74.78	83.33	77.89	83.44	0.000389	2.68	388.89	60.85	0.19
North Main	reach 3 (south)	284287	1567.00	74.78	85.18	78.79	85.33	0.000398	3.09	507.39	67.19	0.20
North Main	reach 3 (south)	284287	2228.00	74.78	87.06	79.75	87.25	0.000422	3.48	639.95	73.82	0.21
North Main	reach 3 (south)	284287	4412.00	74.78	90.39	82.22	90.48	0.000594	2.51	3314.31	2077.42	0.22
North Main	reach 3 (south)	284201	1044.00	74.78	83.29	77.89	83.40	0.000378	2.70	388.48	60.51	0.19
North Main	reach 3 (south)	284201	1567.00	74.78	85.14	78.79	85.29	0.000403	3.11	504.58	67.04	0.20
North Main	reach 3 (south)	284201	2228.00	74.78	87.02	79.75	87.21	0.000428	3.50	636.72	73.67	0.21
North Main	reach 3 (south)	284201	4412.00	74.78	89.99	82.22	90.33	0.002038	4.68	942.80	237.58	0.41
North Main	reach 3 (south)	284000	1044.00	73.32	83.20	77.22	83.33	0.000305	2.44	427.34	66.52	0.17
North Main	reach 3 (south)	284000	1567.00	73.32	85.09	78.40	85.21	0.000325	2.82	558.57	73.05	0.18
North Main	reach 3 (south)	284000	2228.00	73.32	86.96	79.45	87.12	0.000346	3.18	699.88	79.59	0.19
North Main	reach 3 (south)	284000	4412.00	73.32	89.79	81.75	90.13	0.000602	4.70	938.35	89.41	0.28
North Main	reach 3 (south)	282000	1044.00	73.33	82.71	76.95	82.79	0.000235	2.26	462.37	68.88	0.15
North Main	reach 3 (south)	282000	1567.00	73.33	84.50	77.22	84.61	0.000272	2.68	588.16	73.65	0.17
North Main	reach 3 (south)	282000	2228.00	73.33	86.33	78.15	86.48	0.000304	3.05	729.45	80.57	0.18
North Main	reach 3 (south)	282000	4412.00	73.33	88.53	80.56	88.88	0.000642	4.82	915.22	88.85	0.28
North Main	reach 3 (south)	280327	1044.00	73.32	82.24	76.48	82.34	0.000311	2.49	419.80	65.13	0.17
North Main	reach 3 (south)	280327	1567.00	73.32	83.96	77.37	84.09	0.000354	2.91	537.81	72.20	0.19
North Main	reach 3 (south)	280327	2228.00	73.32	85.73	78.34	85.90	0.000392	3.32	671.85	79.95	0.20
North Main	reach 3 (south)	280327	4412.00	73.32	87.82	80.79	87.97	0.000416	3.82	2753.43	1266.06	0.21
North Main	reach 3 (south)	280263	1044.00	73.32	82.22	76.48	82.32	0.000314	2.50	418.26	65.05	0.17
North Main	reach 3 (south)	280263	1567.00	73.32	83.94	77.37	84.07	0.000357	2.92	535.90	72.10	0.19
North Main	reach 3 (south)	280263	2228.00	73.32	85.70	78.34	85.88	0.000395	3.33	689.74	79.78	0.20
North Main	reach 3 (south)	280263	4412.00	73.32	87.79	80.78	87.94	0.000427	3.67	2712.52	1265.06	0.21
North Main	reach 3 (south)	280000	1044.00	73.32	82.14	76.38	82.24	0.000307	2.49	418.86	63.76	0.17
North Main	reach 3 (south)	280000	1567.00	73.32	83.84	77.25	83.97	0.000354	2.94	532.46	70.04	0.19
North Main	reach 3 (south)	280000	2228.00	73.32	85.59	78.21	85.77	0.000395	3.37	681.03	76.52	0.20
North Main	reach 3 (south)	280000	4412.00	73.32	87.68	80.64	87.83	0.000410	3.73	2699.48	1203.84	0.21
North Main	reach 3 (south)	278000	1044.00	73.32	81.32	76.63	81.48	0.000504	2.96	352.16	60.61	0.22
North Main	reach 3 (south)	278000	1567.00	73.32	82.90	77.54	83.09	0.000583	3.48	452.96	68.82	0.23
North Main	reach 3 (south)	278000	2228.00	73.32	84.58	78.50	84.80	0.000610	3.91	569.40	73.87	0.25
North Main	reach 3 (south)	278000	4412.00	73.32	87.10	80.94	87.18	0.000254	2.81	4149.13	1754.65	0.16
North Main	reach 3 (south)	276000	1044.00	74.04	80.08	76.67	80.25	0.000745	3.27	319.66	64.43	0.28
North Main	reach 3 (south)	276000	1567.00	74.04	81.58	77.41	81.78	0.000785	3.74	419.02	69.84	0.27
North Main	reach 3 (south)	276000	2228.00	74.04	83.16	78.25	83.43	0.000789	4.16	535.17	75.75	0.28
North Main	reach 3 (south)	276000	4412.00	74.04	85.50	80.41	86.06	0.001695	5.98	737.30	110.50	0.41
North Main	reach 3 (south)	275122	1044.00	74.04	78.74	76.94	79.13	0.002514	5.01	208.44	55.86	0.46
North Main	reach 3 (south)	275122	1567.00	74.04	80.36	77.75	80.77	0.001874	5.15	304.27	61.91	0.41
North Main	reach 3 (south)	275122	2228.00	74.04	82.03	78.65	82.48	0.001563	5.40	412.22	67.42	0.39
North Main	reach 3 (south)	275122	4412.00	74.04	84.01	80.86	84.48	0.001853	6.18	1681.32	1565.80	0.42
North Main	reach 3 (south)	275113	Inline Weir									
North Main	reach 3 (south)	275102	1044.00	70.28	78.73	73.20	78.83	0.000348	2.58	404.96	64.47	0.18
North Main	reach 3 (south)	275102	1567.00	70.28	80.35	74.08	80.49	0.000401	3.05	513.89	70.20	0.20
North Main	reach 3 (south)	275102	2228.00	70.28	82.02	75.00	82.21	0.000448	3.50	636.50	76.82	0.21
North Main	reach 3 (south)	275102	4412.00	70.28	84.00	77.51	84.31	0.000810	4.75	1896.24	1863.34	0.29
North Main	reach 3 (south)	274837	1044.00	70.28	78.74	72.17	78.77	0.000084	1.38	754.60	109.82	0.09
North Main	reach 3 (south)	274837	1567.00	70.28	80.37	72.74	80.41	0.000101	1.67	939.80	117.29	0.10
North Main	reach 3 (south)	274837	2228.00	70.28	82.08	73.96	82.12	0.000115	1.95	1143.78	124.41	0.11
North Main	reach 3 (south)	274837	4412.00	70.28	84.05	75.03	84.14	0.000170	2.59	3607.97	2501.89	0.14
North Main	reach 3 (south)	274000	1044.00	70.28	78.57	72.91	78.85	0.000250	2.24	465.38	72.09	0.16
North Main	reach 3 (south)	274000	1567.00	70.28	80.18	73.68	80.27	0.000297	2.68	585.01	78.59	0.17
North Main	reach 3 (south)	274000	2228.00	70.28	81.81	74.52	81.96	0.000337	3.09	719.91	85.34	0.19
North Main	reach 3 (south)	274000	4412.00	70.28	83.78	76.72	83.92	0.000380	3.59	3559.00	3590.31	0.20
North Main	reach 3 (south)	272412	1044.00	70.28	78.21	72.67	78.28	0.000220	2.08	503.02	80.48	0.15
North Main	reach 3 (south)	272412	1567.00	70.28	79.73	73.98	79.83	0.000281	2.48	630.65	87.17	0.16
North Main	reach 3 (south)	272412	2228.00	70.28	81.32	74.16	81.45	0.000296	2.88	774.71	94.15	0.18
North Main	reach 3 (south)	272412	4412.00	70.28	82.75	76.21	83.11	0.000731	4.83	913.53	100.35	0.28
North Main	reach 3 (south)	271000	1308.00	70.27	77.88	73.02	77.82	0.000480	2.95	442.56	71.55	0.21
North Main	reach 3 (south)	271000	1925.00	70.27	79.09	73.80	79.29	0.000541	3.52	546.75	78.08	0.23
North Main	reach 3 (south)	271000	2703.00	70.27	80.58	74.65	80.83	0.000614	4.08	683.08	80.96	0.25
North Main	reach 3 (south)	271000	5237.00	70.27	82.48	76.90	82.52	0.000201	2.55	5787.90	2953.79	0.15



HEC-RAS Plan: P.259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	116403	2355.00	70.00	81.80	79.04	82.11	0.000426	4.55	814.33	104.35	0.28
North Main	reach 2	116403	4175.00	70.00	84.22	77.98	84.74	0.000568	6.06	1078.32	277.92	0.31
North Main	reach 2	116403	10250.00	70.00	86.76	82.88	86.12	0.001339	10.59	2470.12	852.57	0.49
North Main	reach 2	116161	1120.00	70.00	79.95	73.29	79.45	0.000183	2.58	468.09	79.58	0.18
North Main	reach 2	116161	2355.00	70.00	81.78	75.18	82.01	0.000318	4.06	701.84	119.00	0.22
North Main	reach 2	116161	4175.00	70.00	84.17	77.13	84.59	0.000440	5.49	1211.70	311.02	0.27
North Main	reach 2	116161	10250.00	70.00	86.62	82.12	87.76	0.001089	9.71	2573.42	867.45	0.44
North Main	reach 2	115322	1120.00	70.00	79.16	74.01	79.28	0.000229	2.88	539.44	211.28	0.18
North Main	reach 2	115322	2355.00	70.00	81.62	75.78	81.75	0.000228	3.45	1868.84	755.07	0.19
North Main	reach 2	115322	4175.00	70.00	84.20	77.95	84.29	0.000158	3.32	4368.85	1257.05	0.18
North Main	reach 2	115322	10250.00	70.00	86.97	82.27	87.06	0.000230	4.59	11457.03	4548.97	0.20
North Main	reach 2	115218	1120.00	70.00	79.16	73.19	79.25	0.000159	2.53	802.83	174.11	0.15
North Main	reach 2	115218	2355.00	70.00	81.60	74.98	81.72	0.000190	3.27	1815.93	711.52	0.17
North Main	reach 2	115218	4175.00	70.00	84.18	77.05	84.27	0.000145	3.29	4287.04	1240.88	0.16
North Main	reach 2	115218	10250.00	70.00	86.93	82.15	87.06	0.000228	4.88	11201.25	4478.88	0.20
North Main	reach 2	115057	1120.00	70.00	79.14	73.09	79.22	0.000141	2.39	1026.17	805.06	0.14
North Main	reach 2	115057	2355.00	70.00	81.64	74.83	81.69	0.000084	2.18	4081.86	1868.65	0.12
North Main	reach 2	115057	4175.00	70.00	84.22	78.81	84.24	0.000047	1.89	10196.87	3185.21	0.09
North Main	reach 2	115057	10250.00	70.00	86.99	80.91	87.01	0.000049	2.18	22803.32	5737.53	0.09
North Main	reach 2	114848	1120.00	70.00	79.13	72.89	79.19	0.000119	2.09	1099.54	920.03	0.13
North Main	reach 2	114848	2355.00	70.00	81.64	74.80	81.65	0.000048	1.80	5878.08	3202.49	0.09
North Main	reach 2	114848	4175.00	70.00	84.21	76.48	84.22	0.000025	1.32	13174.70	5487.42	0.06
North Main	reach 2	114848	10250.00	70.00	86.99	80.65	87.00	0.000031	1.66	28098.16	10585.81	0.07
North Main	reach 2	114615	1120.00	70.00	79.08	72.77	79.15	0.000134	2.22	570.25	731.68	0.14
North Main	reach 2	114615	2355.00	70.00	81.62	74.43	81.64	0.000054	1.89	5687.43	3302.68	0.09
North Main	reach 2	114615	4175.00	70.00	84.21	76.24	84.21	0.000024	1.30	13469.46	5479.13	0.06
North Main	reach 2	114615	10250.00	70.00	86.99	80.98	87.00	0.000029	1.85	26667.81	10185.84	0.07
North Main	reach 2	114800	Bridge									
North Main	reach 2	114585	1120.00	70.00	79.05	72.77	79.13	0.000138	2.23	550.02	687.25	0.14
North Main	reach 2	114585	2355.00	70.00	81.60	74.43	81.62	0.000054	1.70	5658.86	3286.24	0.09
North Main	reach 2	114585	4175.00	70.00	84.19	76.24	84.20	0.000024	1.30	13472.95	5450.23	0.06
North Main	reach 2	114585	10250.00	70.00	86.98	80.98	86.98	0.000029	1.64	26891.11	10156.17	0.07
North Main	reach 2	114500	1120.00	70.00	79.04	72.77	79.12	0.000137	2.23	543.56	672.45	0.14
North Main	reach 2	114500	2355.00	70.00	81.59	74.43	81.62	0.000054	1.69	5738.94	3285.22	0.09
North Main	reach 2	114500	4175.00	70.00	84.18	76.24	84.19	0.000023	1.27	13779.56	5440.60	0.06
North Main	reach 2	114500	10250.00	70.00	86.97	80.95	86.98	0.000028	1.61	27336.42	10142.02	0.07
North Main	reach 2	113500	1120.00	70.00	78.86	72.96	78.96	0.000183	2.52	456.52	67.44	0.16
North Main	reach 2	113500	2355.00	70.00	81.49	74.73	81.54	0.000102	2.30	4510.46	3315.50	0.13
North Main	reach 2	113500	4175.00	70.00	84.16	76.61	84.17	0.000024	1.30	14072.60	5485.41	0.06
North Main	reach 2	113500	10250.00	70.00	86.95	81.62	86.95	0.000026	1.54	28057.25	10546.34	0.07
North Main	reach 3 (south)	315796	410.00	90.87	98.19	93.28	98.24	0.000261	1.92	213.14	41.35	0.15
North Main	reach 3 (south)	315796	573.00	90.87	100.03	93.83	100.09	0.000210	1.94	295.09	47.55	0.14
North Main	reach 3 (south)	315796	770.00	90.87	101.62	94.40	101.68	0.000198	2.05	374.81	52.89	0.14
North Main	reach 3 (south)	315796	1392.00	90.87	104.32	95.85	104.40	0.000201	2.33	833.94	299.87	0.14
North Main	reach 3 (south)	315434	410.00	90.87	98.11	93.06	98.15	0.000188	1.64	249.95	49.43	0.13
North Main	reach 3 (south)	315434	573.00	90.87	99.98	93.55	100.02	0.000148	1.64	349.58	57.14	0.12
North Main	reach 3 (south)	315434	770.00	90.87	101.57	94.08	101.62	0.000137	1.73	445.82	63.71	0.12
North Main	reach 3 (south)	315434	1392.00	90.87	104.36	95.42	104.36	0.000020	0.74	4440.17	1324.78	0.04
North Main	reach 3 (south)	315287	589.00	90.32	98.01	93.48	98.10	0.000414	2.44	233.66	45.45	0.19
North Main	reach 3 (south)	315287	889.00	90.32	99.86	94.34	99.97	0.000413	2.74	323.89	52.27	0.19
North Main	reach 3 (south)	315287	1298.00	90.32	101.41	95.26	101.57	0.000467	3.17	409.54	58.09	0.21
North Main	reach 3 (south)	315287	2652.00	90.32	103.98	97.50	104.32	0.000802	4.63	572.89	69.01	0.28
North Main	reach 3 (south)	314000	589.00	89.95	97.40	93.03	97.51	0.000507	2.67	213.51	41.89	0.21
North Main	reach 3 (south)	314000	889.00	89.95	99.25	93.94	99.39	0.000505	3.00	296.66	48.39	0.21
North Main	reach 3 (south)	314000	1298.00	89.95	100.70	94.90	100.89	0.000590	3.50	370.79	53.52	0.23
North Main	reach 3 (south)	314000	2652.00	89.95	102.55	97.28	103.03	0.001259	5.58	475.57	60.03	0.35
North Main	reach 3 (south)	313862	589.00	89.95	97.33	93.03	97.44	0.000528	2.71	210.31	41.62	0.21
North Main	reach 3 (south)	313862	889.00	89.95	99.17	93.94	99.31	0.000523	3.03	292.98	48.12	0.22
North Main	reach 3 (south)	313862	1298.00	89.95	100.61	94.89	100.81	0.000611	3.55	366.06	53.21	0.24
North Main	reach 3 (south)	313862	2652.00	89.95	102.34	97.28	102.85	0.001350	5.72	463.40	59.31	0.36
North Main	reach 3 (south)	312000	589.00	89.03	96.49	91.86	96.58	0.000400	2.43	234.30	44.40	0.19
North Main	reach 3 (south)	312000	889.00	89.03	98.33	92.72	98.45	0.000410	2.76	321.65	50.74	0.19
North Main	reach 3 (south)	312000	1298.00	89.03	100.17	93.63	100.21	0.000175	1.98	1974.41	1928.17	0.13
North Main	reach 3 (south)	312000	2652.00	89.03	102.52	95.91	102.52	0.000031	0.93	8452.60	3258.17	0.06
North Main	reach 3 (south)	311185	589.00	88.28	96.30	90.77	96.35	0.000194	1.79	318.83	57.19	0.13
North Main	reach 3 (south)	311185	889.00	88.28	98.13	91.55	98.20	0.000208	2.06	430.76	65.18	0.14

Reach	Flow Sta	O Total	Min Ch El	W.S. Elev	Ch W.S. Elev	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Crit
	(m)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
North Main	reach 3 (south)	311185	88.28	92.37	92.37	100.04	0.000220	2.33	557.05	73.12	0.15
North Main	reach 3 (south)	311185	88.28	102.49	94.45	102.50	0.00043	1.14	7392.17	3587.45	0.07
North Main	reach 3 (south)	311119	88.28	90.77	96.34	0.000195	1.79	317.87	57.14		0.13
North Main	reach 3 (south)	311119	88.28	98.12	91.55	0.000209	2.07	429.64	65.12		0.14
North Main	reach 3 (south)	311119	88.28	99.95	92.37	0.000221	2.33	555.95	73.06		0.15
North Main	reach 3 (south)	311119	88.28	102.49	94.45	0.00043	1.14	7391.88	3587.31		0.07
North Main	reach 3 (south)	310000	88.03	98.04	90.58	0.000235	1.99	285.74	48.91		0.15
North Main	reach 3 (south)	310000	88.03	97.84	91.38	0.000263	2.34	379.22	54.87		0.16
North Main	reach 3 (south)	310000	88.03	99.63	92.23	0.000289	2.69	482.87	60.69		0.17
North Main	reach 3 (south)	310000	88.03	102.43	94.45	0.00085	1.33	6497.51	3211.88		0.08
North Main	reach 3 (south)	308000	87.73	95.54	90.26	0.000280	2.07	275.22	46.06		0.15
North Main	reach 3 (south)	308000	87.73	97.27	91.07	0.000294	2.44	363.65	53.78		0.17
North Main	reach 3 (south)	308000	87.73	99.01	91.93	0.000328	2.81	461.85	58.66		0.18
North Main	reach 3 (south)	308000	87.73	102.28	94.15	0.00087	1.66	5631.20	3536.34		0.09
North Main	reach 3 (south)	307236	87.73	95.26	90.84	0.000419	2.45	231.79	44.80		0.19
North Main	reach 3 (south)	307236	87.73	96.98	91.54	0.000449	2.83	314.06	51.65		0.20
North Main	reach 3 (south)	307236	87.73	98.73	92.47	0.000470	3.18	407.87	57.79		0.21
North Main	reach 3 (south)	307236	87.73	102.10	94.76	0.000419	2.37	2671.78	2807.12		0.19
North Main	reach 3 (south)	307136	87.73	95.21	90.84	0.000429	2.48	229.78	44.73		0.19
North Main	reach 3 (south)	307136	87.73	96.92	91.54	0.000459	2.85	311.58	51.96		0.20
North Main	reach 3 (south)	307136	87.73	98.62	92.47	0.000480	3.21	404.74	57.82		0.21
North Main	reach 3 (south)	307136	87.73	102.05	94.76	0.000451	2.46	2547.95	2499.39		0.20
North Main	reach 3 (south)	306000	86.38	94.67	90.06	0.000502	2.65	214.49	42.05		0.21
North Main	reach 3 (south)	306000	86.38	96.39	91.07	0.000548	3.07	289.23	48.33		0.22
North Main	reach 3 (south)	306000	86.38	98.10	92.08	0.000581	3.46	375.28	54.75		0.23
North Main	reach 3 (south)	306000	86.38	101.03	94.52	0.000835	4.74	559.56	66.51		0.29
North Main	reach 3 (south)	304000	86.38	93.77	89.22	0.000420	2.47	230.69	44.48		0.19
North Main	reach 3 (south)	304000	86.38	95.31	90.10	0.000483	2.93	303.41	49.84		0.21
North Main	reach 3 (south)	304000	86.38	96.87	91.02	0.000531	3.36	386.81	55.36		0.22
North Main	reach 3 (south)	304000	86.38	98.48	93.30	0.000866	5.08	521.82	63.26		0.31
North Main	reach 3 (south)	302274	86.38	92.82	88.66	0.000357	2.22	256.67	52.64		0.18
North Main	reach 3 (south)	302274	86.38	94.29	89.38	0.000401	2.63	336.17	58.49		0.19
North Main	reach 3 (south)	302274	86.38	95.81	90.15	0.000459	2.84	336.94	58.47		0.19
North Main	reach 3 (south)	302274	86.38	98.98	92.13	0.000118	1.59	4746.56	2553.02		0.11
North Main	reach 3 (south)	301915	86.38	92.80	88.66	0.000361	2.23	255.68	52.77		0.18
North Main	reach 3 (south)	301915	86.38	94.26	89.36	0.000405	2.64	336.94	58.47		0.19
North Main	reach 3 (south)	301915	86.38	95.81	90.15	0.000459	2.84	336.94	58.47		0.19
North Main	reach 3 (south)	301915	86.38	98.98	92.13	0.000118	1.59	4746.56	2553.02		0.11
North Main	reach 3 (south)	301721	86.38	92.66	89.08	0.000637	2.80	203.41	45.33		0.23
North Main	reach 3 (south)	301721	86.38	94.12	89.90	0.000695	3.25	273.19	51.58		0.25
North Main	reach 3 (south)	301721	86.38	95.67	90.77	0.000711	3.63	358.04	58.28		0.26
North Main	reach 3 (south)	301721	86.38	98.88	92.95	0.000420	2.74	2256.75	1265.32		0.20
North Main	reach 3 (south)	301655	86.38	92.64	89.06	0.000655	2.63	201.35	45.13		0.24
North Main	reach 3 (south)	301655	86.38	94.07	89.90	0.000719	3.29	270.62	51.96		0.25
North Main	reach 3 (south)	301655	86.38	95.61	90.78	0.000728	3.66	355.06	58.08		0.26
North Main	reach 3 (south)	301655	86.38	98.87	92.95	0.000464	2.61	2237.75	1264.51		0.20
North Main	reach 3 (south)	300000	86.38	90.99	88.74	0.001441	3.73	152.58	40.80		0.34
North Main	reach 3 (south)	300000	86.38	92.35	89.50	0.001382	4.21	211.34	45.24		0.34
North Main	reach 3 (south)	300000	86.38	93.96	90.32	0.001226	4.50	298.24	50.43		0.33
North Main	reach 3 (south)	300000	86.38	97.20	92.41	0.001331	5.66	468.18	60.65		0.36
North Main	reach 3 (south)	298385	86.38	89.70	88.37	0.002731	4.37	130.23	44.81		0.45
North Main	reach 3 (south)	298385	86.38	91.47	89.04	0.001513	4.16	213.85	50.11		0.35
North Main	reach 3 (south)	298385	86.38	93.28	89.75	0.001067	4.20	308.85	54.66		0.31
North Main	reach 3 (south)	298385	86.38	96.46	91.65	0.001193	5.37	493.72	63.33		0.34

HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl.
North Main	reach 2	137249	482.00	78.00	87.08	80.54	87.13	0.000093	1.98	319.88	52.91	0.12
North Main	reach 2	137249	1051.00	78.00	90.08	82.09	90.19	0.000151	3.06	495.03	64.52	0.16
North Main	reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.73	67.93	0.24
North Main	reach 2	137249	4804.00	78.00	92.14	88.26	93.83	0.001879	11.40	821.90	3640.75	0.54
North Main	reach 2	137150	482.00	78.00	87.07	80.41	87.12	0.000081	1.85	333.54	53.74	0.11
North Main	reach 2	137150	1051.00	78.00	90.08	81.88	90.17	0.000133	2.88	510.38	64.88	0.15
North Main	reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.85	573.03	68.36	0.23
North Main	reach 2	137150	4804.00	78.00	92.02	87.85	93.63	0.001585	10.97	646.41	2221.13	0.52
North Main	reach 2	135957	482.00	78.00	87.00	80.18	87.04	0.000063	1.84	384.12	57.05	0.10
North Main	reach 2	135957	1051.00	78.00	89.93	81.52	90.02	0.000107	2.58	547.31	67.85	0.13
North Main	reach 2	135957	1858.00	78.00	90.78	83.04	90.98	0.000210	3.79	1405.30	1303.71	0.19
North Main	reach 2	135957	4804.00	78.00	91.90	87.09	92.28	0.000537	6.42	3681.48	2916.62	0.31
North Main	reach 2	135841	482.00	78.00	86.98	80.23	87.02	0.000068	1.70	353.30	55.71	0.10
North Main	reach 2	135841	1051.00	78.00	89.90	81.80	90.00	0.000115	2.67	531.56	68.34	0.14
North Main	reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000248	4.11	1167.16	1395.88	0.20
North Main	reach 2	135841	4804.00	78.00	91.79	87.27	92.20	0.000602	6.75	3731.79	5978.83	0.32
North Main	reach 2	135233	482.00	78.00	86.95	80.32	88.99	0.000068	1.57	343.38	55.01	0.10
North Main	reach 2	135233	1051.00	78.00	89.85	81.73	89.94	0.000108	2.48	518.86	66.03	0.13
North Main	reach 2	135233	1858.00	78.00	90.88	83.13	90.78	0.000151	3.08	2883.88	3640.52	0.16
North Main	reach 2	135233	4804.00	78.00	91.99	86.96	92.00	0.000054	1.95	17128.66	9186.81	0.09
North Main	reach 2	134690	482.00	78.00	86.93	80.04	88.96	0.000048	1.33	403.28	63.63	0.08
North Main	reach 2	134690	1051.00	78.00	89.82	81.31	89.88	0.000089	1.99	951.06	598.31	0.11
North Main	reach 2	134690	1858.00	78.00	90.86	82.83	90.71	0.000084	2.30	4704.58	8801.60	0.12
North Main	reach 2	134690	4804.00	78.00	91.98	86.09	91.99	0.000041	1.73	18937.89	9801.20	0.08
North Main	reach 2	134647	Bridge									
North Main	reach 2	134806	482.00	78.00	86.89	81.96	86.94	0.000134	2.01	312.74	70.38	0.14
North Main	reach 2	134806	1051.00	78.00	89.72	83.30	89.81	0.000141	2.80	1307.46	1884.92	0.15
North Main	reach 2	134806	1858.00	78.00	90.62	84.81	90.68	0.000108	2.42	5367.28	8768.48	0.13
North Main	reach 2	134806	4804.00	78.00	91.96	90.76	91.96	0.000042	1.64	19613.56	9788.50	0.08
North Main	reach 2	134537	482.00	78.00	85.90	80.04	86.92	0.000047	1.34	400.88	63.48	0.08
North Main	reach 2	134537	1051.00	78.00	89.73	81.31	89.79	0.000073	2.03	895.56	574.51	0.11
North Main	reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000094	2.43	4434.95	8739.14	0.12
North Main	reach 2	134537	4804.00	78.00	91.95	86.09	91.96	0.000043	1.75	18892.29	9782.15	0.09
North Main	reach 2	132334	962.00	78.00	86.51	81.36	86.64	0.000271	2.86	347.05	58.17	0.19
North Main	reach 2	132334	1985.00	78.00	89.09	83.16	89.38	0.000387	4.22	675.33	2154.88	0.24
North Main	reach 2	132334	3435.00	78.00	90.22	84.98	90.30	0.000207	3.33	8568.96	8427.84	0.18
North Main	reach 2	132334	8788.00	78.00	91.79	90.51	91.81	0.000098	2.50	21396.33	9651.57	0.13
North Main	reach 2	131688	962.00	78.00	86.34	81.34	86.46	0.000265	2.77	357.98	61.94	0.19
North Main	reach 2	131688	1985.00	78.00	89.00	83.09	89.13	0.000239	3.29	1325.05	1989.65	0.19
North Main	reach 2	131688	3435.00	78.00	90.09	84.81	90.17	0.000190	3.16	5798.20	7579.23	0.17
North Main	reach 2	131688	8788.00	78.00	91.71	89.89	91.74	0.000114	2.89	19249.46	8694.01	0.14
North Main	reach 2	130701	962.00	78.00	86.26	80.24	86.29	0.000095	1.88	1085.82	280.33	0.11
North Main	reach 2	130701	1985.00	78.00	88.92	81.50	88.96	0.000099	2.13	2227.26	1500.41	0.12
North Main	reach 2	130701	3435.00	78.00	89.95	82.88	90.00	0.000137	2.69	4784.00	3186.62	0.15
North Main	reach 2	130701	8788.00	78.00	91.59	86.50	91.62	0.000128	2.87	17414.03	8455.02	0.15
North Main	reach 2	130048	962.00	78.00	86.03	81.30	86.17	0.000326	3.01	327.47	57.23	0.21
North Main	reach 2	130048	1985.00	78.00	88.65	83.09	88.84	0.000327	3.77	1648.99	3289.49	0.22
North Main	reach 2	130048	3435.00	78.00	89.85	84.88	89.91	0.000185	2.91	6819.25	8079.57	0.18
North Main	reach 2	130048	8788.00	78.00	91.54	89.69	91.55	0.000069	2.08	23821.83	9344.04	0.11
North Main	reach 2	128081	962.00	78.00	85.37	81.03	85.52	0.000370	3.04	320.37	196.37	0.22
North Main	reach 2	128081	1985.00	78.00	88.05	82.73	88.22	0.000311	3.56	1711.83	3151.93	0.21
North Main	reach 2	128081	3435.00	78.00	89.55	84.47	89.61	0.000149	2.74	6773.35	6703.22	0.15
North Main	reach 2	128081	8788.00	78.00	91.44	89.09	91.44	0.000046	1.71	27441.69	9638.16	0.09
North Main	reach 2	128032	962.00	78.00	85.35	81.04	85.50	0.000376	3.05	318.66	188.78	0.22
North Main	reach 2	128032	1985.00	78.00	88.03	82.72	88.20	0.000318	3.60	1674.52	3117.76	0.22
North Main	reach 2	128032	3435.00	78.00	89.55	84.47	89.60	0.000150	2.75	6758.84	6729.91	0.15
North Main	reach 2	128032	8788.00	78.00	91.43	89.09	91.43	0.000046	1.71	27475.54	9654.49	0.09
North Main	reach 2	126984	962.00	78.00	85.04	79.67	85.16	0.000287	2.71	357.38	1365.73	0.19
North Main	reach 2	126984	1985.00	78.00	87.90	81.51	87.96	0.000138	2.48	3139.94	4073.35	0.14
North Main	reach 2	126984	3435.00	78.00	89.45	83.42	89.48	0.000077	2.05	8359.63	6535.84	0.11
North Main	reach 2	126984	8788.00	78.00	91.40	88.13	91.40	0.000028	1.38	31465.98	9055.57	0.07
North Main	reach 2	126599	962.00	78.00	84.94	79.65	85.05	0.000275	2.71	357.00	60.18	0.19
North Main	reach 2	126599	1985.00	78.00	87.64	81.48	87.86	0.000338	3.81	782.60	977.89	0.22
North Main	reach 2	126599	3435.00	78.00	89.34	83.39	89.43	0.000180	3.12	5506.91	6420.99	0.17
North Main	reach 2	126599	8788.00	78.00	91.37	89.23	91.38	0.000056	1.95	24674.39	8888.89	0.10

HFC-DAS Plan: P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froutde # Ctl
North Main	reach 2	125566	962.00	76.00	84.61	79.98	84.74	0.000332	2.89	334.00	57.37	0.21
North Main	reach 2	125566	1985.00	76.00	87.27	81.48	87.49	0.000380	3.93	688.78	94.99	0.23
North Main	reach 2	125566	3435.00	76.00	89.13	83.38	89.22	0.000209	3.32	4521.78	408.20	0.18
North Main	reach 2	125566	8788.00	76.00	91.28	88.92	91.31	0.000100	2.90	19891.95	9254.74	0.13
North Main	reach 2	124578	962.00	76.00	84.33	79.24	84.45	0.000284	2.79	354.51	60.15	0.19
North Main	reach 2	124578	1985.00	76.00	86.85	81.00	87.11	0.000383	4.15	519.66	70.63	0.24
North Main	reach 2	124578	3435.00	76.00	88.71	82.77	88.94	0.000357	4.52	2458.61	2036.24	0.24
North Main	reach 2	124578	8788.00	76.00	90.95	89.11	91.12	0.000365	5.17	9007.22	5479.00	0.25
North Main	reach 2	124360	962.00	76.00	84.23	79.51	84.37	0.000343	3.10	318.91	58.05	0.21
North Main	reach 2	124360	1985.00	76.00	86.77	81.36	87.03	0.000417	4.25	805.80	440.91	0.25
North Main	reach 2	124360	3435.00	76.00	88.59	83.15	88.85	0.000426	4.86	1977.55	2413.04	0.26
North Main	reach 2	124360	8788.00	76.00	90.97	88.79	91.03	0.000208	3.87	13000.02	5749.37	0.18
North Main	reach 2	124036	962.00	76.00	84.11	79.38	84.26	0.000342	3.09	318.71	55.34	0.21
North Main	reach 2	124036	1985.00	76.00	86.61	81.22	86.58	0.000438	4.33	744.61	406.54	0.25
North Main	reach 2	124036	3435.00	76.00	88.41	83.03	88.71	0.000463	5.03	1830.26	2284.34	0.27
North Main	reach 2	124036	8788.00	76.00	90.88	88.75	90.96	0.000228	4.04	12447.38	5637.35	0.19
North Main	reach 2	122198	962.00	76.00	83.46	79.14	83.61	0.000386	3.10	313.79	57.54	0.22
North Main	reach 2	122198	1985.00	76.00	85.02	80.87	85.18	0.000320	3.58	1401.38	878.14	0.22
North Main	reach 2	122198	3435.00	76.00	88.06	82.63	88.14	0.000183	3.13	4408.59	2048.78	0.17
North Main	reach 2	122198	8788.00	76.00	90.52	87.29	90.58	0.000189	3.85	11022.83	5366.97	0.16
North Main	reach 2	120752	962.00	76.00	82.55	79.42	82.81	0.000841	4.02	239.96	50.91	0.32
North Main	reach 2	120752	1985.00	76.00	84.93	81.24	85.41	0.000953	5.56	373.13	61.29	0.36
North Main	reach 2	120752	3435.00	76.00	87.50	83.02	87.73	0.000462	4.73	2682.90	1825.62	0.27
North Main	reach 2	120752	8788.00	76.00	90.16	87.94	90.25	0.000278	4.30	6360.91	2900.23	0.21
North Main	reach 2	120467	962.00	76.00	82.32	79.23	82.56	0.000832	3.93	245.16	52.51	0.32
North Main	reach 2	120467	1985.00	76.00	84.68	80.99	85.13	0.000824	5.40	380.90	62.75	0.36
North Main	reach 2	120467	3435.00	76.00	87.08	82.74	87.54	0.000758	5.93	1568.19	1650.36	0.34
North Main	reach 2	120467	8788.00	76.00	90.10	88.05	90.18	0.000250	4.10	10106.63	4296.46	0.20
North Main	reach 2	119740	962.00	76.00	80.76	79.23	81.28	0.002445	5.68	169.27	45.79	0.52
North Main	reach 2	119740	1985.00	76.00	83.03	80.98	83.80	0.002242	7.06	283.14	55.56	0.53
North Main	reach 2	119740	3435.00	76.00	85.21	82.74	86.35	0.002131	8.61	498.34	1389.24	0.55
North Main	reach 2	119740	8788.00	76.00	90.03	87.55	90.05	0.000067	2.12	19364.39	7395.43	0.11
North Main	reach 2	119730	962.00	72.00	80.99	75.11	81.06	0.000139	2.13	473.41	79.15	0.14
North Main	reach 2	119730	1985.00	72.00	83.32	78.74	83.49	0.000225	3.27	690.41	118.57	0.19
North Main	reach 2	119730	3435.00	72.00	85.83	78.35	85.91	0.000302	4.39	1047.18	1570.56	0.22
North Main	reach 2	119730	8788.00	72.00	89.61	82.35	89.95	0.000354	5.76	4040.69	6174.67	0.26
North Main	reach 2	118784	962.00	72.00	80.88	75.11	80.96	0.000146	2.17	465.01	78.59	0.14
North Main	reach 2	118784	1985.00	72.00	83.18	78.74	83.32	0.000211	3.14	1075.90	589.18	0.18
North Main	reach 2	118784	3435.00	72.00	85.57	78.35	85.67	0.000153	3.11	3071.56	3291.00	0.16
North Main	reach 2	118784	8788.00	72.00	89.64	84.22	89.69	0.000096	3.00	10454.44	5052.28	0.13
North Main	reach 2	118761	962.00	70.00	80.88	73.45	80.94	0.000115	2.05	487.99	72.80	0.13
North Main	reach 2	118761	1985.00	70.00	83.17	75.48	83.31	0.000187	3.09	1079.88	564.50	0.17
North Main	reach 2	118761	3435.00	70.00	85.56	77.48	85.67	0.000153	3.20	2912.73	893.63	0.16
North Main	reach 2	118761	8788.00	70.00	89.62	83.99	89.68	0.000108	3.23	11060.36	2547.63	0.14
North Main	reach 2	118736	Culvert									
North Main	reach 2	118709	962.00	70.00	79.87		79.95	0.000181	2.35	417.09	67.48	0.16
North Main	reach 2	118709	1985.00	70.00	82.64		82.81	0.000241	3.38	812.96	446.55	0.19
North Main	reach 2	118709	3435.00	70.00	85.55		85.96	0.000154	3.21	2904.14	882.99	0.16
North Main	reach 2	118709	8788.00	70.00	89.61		89.67	0.000106	3.24	11032.25	2545.21	0.14
North Main	reach 2	118635	962.00	72.00	79.64		79.94	0.000222	2.47	396.41	70.11	0.17
North Main	reach 2	118635	1985.00	72.00	82.62		82.79	0.000283	3.43	826.05	475.27	0.20
North Main	reach 2	118635	3435.00	72.00	85.54		85.64	0.000155	3.16	2979.12	948.80	0.16
North Main	reach 2	118635	8788.00	72.00	89.60		89.66	0.000102	3.11	11259.97	2559.45	0.14
North Main	reach 2	118513	962.00	72.00	79.82		79.91	0.000211	2.44	399.85	67.63	0.17
North Main	reach 2	118513	1985.00	72.00	82.59		82.76	0.000250	3.37	857.94	448.70	0.19
North Main	reach 2	118513	3435.00	72.00	85.52		85.62	0.000154	3.17	2942.48	922.90	0.16
North Main	reach 2	118513	8788.00	72.00	89.59		89.65	0.000105	3.18	11122.31	2540.76	0.14
North Main	reach 2	117690	1120.00	70.00	79.63	73.75	79.76	0.000243	2.99	395.95	60.50	0.18
North Main	reach 2	117690	2355.00	70.00	82.21	75.82	82.54	0.000413	4.69	568.37	73.71	0.25
North Main	reach 2	117690	4175.00	70.00	84.78	77.91	85.36	0.000607	6.55	783.99	93.60	0.32
North Main	reach 2	117690	10250.00	70.00	89.32	83.24	89.52	0.000283	5.45	8421.16	6050.56	0.23
North Main	reach 2	117193	1120.00	70.00	79.53	73.66	79.66	0.000242	2.98	389.69	58.25	0.18
North Main	reach 2	117193	2355.00	70.00	82.04	75.71	82.37	0.000422	4.70	561.22	79.96	0.25
North Main	reach 2	117193	4175.00	70.00	84.48	77.76	85.14	0.000633	6.82	829.37	211.18	0.32
North Main	reach 2	117193	10250.00	70.00	87.26	83.27	89.13	0.001576	11.88	1886.64	848.40	0.53
North Main	reach 2	116403	1120.00	70.00	79.38	74.20	79.51	0.000260	2.94	408.67	70.45	0.19

HEC-RAS Plan: P 25K 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	157290	100.00	87.38	92.23	88.88	92.25	0.000164	1.11	90.09	28.70	0.11
North Main	reach 2	157290	188.00	87.38	95.35	89.49	95.36	0.000088	0.94	199.20	41.31	0.08
North Main	reach 2	157290	515.00	87.38	97.05	91.01	97.11	0.000213	1.87	275.51	48.09	0.14
North Main	reach 2	156900	40.00	87.39	89.39	88.06	89.41	0.000376	1.10	36.31	22.48	0.15
North Main	reach 2	156900	100.00	87.38	92.16	88.52	92.19	0.000091	0.88	113.32	32.70	0.08
North Main	reach 2	156900	188.00	87.38	95.33	89.03	95.34	0.000043	0.80	234.26	44.25	0.06
North Main	reach 2	156900	515.00	87.38	96.99	90.35	97.04	0.000148	1.64	313.20	50.38	0.12
North Main	reach 2	155952	40.00	87.33	88.96	87.94	88.96	0.000542	1.17	34.30	26.17	0.18
North Main	reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000058	0.70	141.98	42.08	0.07
North Main	reach 2	155952	188.00	87.33	95.30	88.80	95.31	0.000026	0.62	301.64	58.14	0.05
North Main	reach 2	155952	515.00	87.33	96.90	89.97	96.92	0.000089	1.29	400.73	66.18	0.09
North Main	reach 2	155846	40.00	87.31	88.90	87.84	88.92	0.000568	1.24	32.34	23.04	0.18
North Main	reach 2	155846	100.00	87.31	92.11	88.28	92.12	0.000071	0.81	123.87	33.81	0.07
North Main	reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000036	0.78	246.41	43.18	0.06
North Main	reach 2	155846	515.00	87.31	96.88	90.02	96.92	0.000134	1.62	318.28	47.83	0.11
North Main	reach 2	155779	40.00	87.31	88.88	87.70	88.89	0.000235	0.82	48.68	33.28	0.12
North Main	reach 2	155779	100.00	87.31	92.11	88.02	92.11	0.000033	0.58	171.23	42.64	0.05
North Main	reach 2	155779	188.00	87.31	95.30	88.39	95.30	0.000019	0.59	321.18	51.45	0.04
North Main	reach 2	155779	515.00	87.31	96.87	89.38	96.90	0.000073	1.27	405.85	55.81	0.08
North Main	reach 2	155698	40.00	87.31	88.84	87.78	88.86	0.000443	1.09	36.63	26.02	0.16
North Main	reach 2	155698	100.00	87.31	92.09	88.16	92.10	0.000056	0.74	135.97	35.24	0.07
North Main	reach 2	155698	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	283.15	44.43	0.05
North Main	reach 2	155698	515.00	87.31	96.85	89.76	96.89	0.000119	1.53	336.47	48.95	0.10
North Main	reach 2	154900	40.00	86.57	88.63	87.06	88.64	0.000178	0.82	48.95	26.96	0.11
North Main	reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000036	0.63	158.78	37.28	0.05
North Main	reach 2	154900	188.00	86.57	95.26	87.90	95.26	0.000023	0.64	293.72	46.84	0.05
North Main	reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000092	1.40	368.52	51.52	0.09
North Main	reach 2	153295	40.00	85.60	88.42	86.21	88.43	0.000105	0.72	55.63	24.51	0.08
North Main	reach 2	153295	100.00	85.60	92.00	86.68	92.00	0.000031	0.61	164.14	36.16	0.05
North Main	reach 2	153295	188.00	85.60	95.23	87.20	95.23	0.000022	0.63	298.59	47.20	0.04
North Main	reach 2	153295	515.00	85.60	96.63	88.55	96.66	0.000093	1.40	368.00	52.05	0.09
North Main	reach 2	153200	40.00	85.60	88.41	86.21	88.41	0.000106	0.72	55.30	24.46	0.08
North Main	reach 2	153200	100.00	85.60	91.99	86.68	91.99	0.000031	0.61	163.74	38.12	0.05
North Main	reach 2	153200	188.00	85.60	95.22	87.20	95.23	0.000022	0.63	298.19	47.17	0.04
North Main	reach 2	153200	515.00	85.60	96.61	88.54	96.64	0.000094	1.40	367.02	51.98	0.09
North Main	reach 2	152900	40.00	85.22	88.38	85.96	88.39	0.000058	0.56	70.88	28.93	0.06
North Main	reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.31	40.41	0.04
North Main	reach 2	152900	188.00	85.22	95.21	88.82	95.22	0.000015	0.55	342.96	50.86	0.04
North Main	reach 2	152900	515.00	85.22	96.59	88.03	96.61	0.000067	1.24	415.11	55.31	0.08
North Main	reach 2	150900	40.00	84.97	88.30	85.46	88.31	0.000031	0.45	89.85	32.92	0.05
North Main	reach 2	150900	100.00	84.97	91.95	85.85	91.96	0.000013	0.43	233.19	45.64	0.03
North Main	reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.41	58.95	0.03
North Main	reach 2	150900	515.00	84.97	96.48	87.43	96.50	0.000048	1.08	475.62	61.49	0.07
North Main	reach 2	150637	40.00	84.27	88.29	85.01	88.30	0.000016	0.34	116.61	37.81	0.03
North Main	reach 2	150637	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.44	52.07	0.03
North Main	reach 2	150637	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.40	65.38	0.03
North Main	reach 2	150637	515.00	84.27	96.48	86.81	96.49	0.000046	0.92	560.15	91.93	0.07
North Main	reach 2	150569	40.00	84.27	88.28	85.01	88.29	0.000016	0.34	116.25	37.77	0.03
North Main	reach 2	150569	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.24	52.05	0.03
North Main	reach 2	150569	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.17	65.37	0.03
North Main	reach 2	150569	515.00	84.27	96.47	86.81	96.49	0.000046	0.92	559.87	91.83	0.07
North Main	reach 2	148900	40.00	84.27	88.25	84.79	88.26	0.000020	0.39	101.41	32.34	0.04
North Main	reach 2	148900	100.00	84.27	91.93	85.20	91.94	0.000011	0.41	244.16	45.30	0.03
North Main	reach 2	148900	188.00	84.27	95.18	85.87	95.18	0.000010	0.46	409.64	56.76	0.03
North Main	reach 2	148900	515.00	84.27	96.39	86.90	96.41	0.000046	1.07	481.08	61.05	0.07
North Main	reach 2	147966	40.00	83.76	88.23	84.95	88.23	0.000073	0.68	58.91	20.33	0.07
North Main	reach 2	147966	100.00	83.76	91.92	85.61	91.93	0.000034	0.65	154.09	31.15	0.05
North Main	reach 2	147966	188.00	83.76	95.17	86.29	95.17	0.000027	0.69	271.05	41.27	0.05
North Main	reach 2	147966	515.00	83.76	96.30	87.99	96.34	0.000130	1.61	319.99	45.39	0.11
North Main	reach 2	147814	40.00	83.76	88.22	84.77	88.22	0.000044	0.55	72.98	24.56	0.06
North Main	reach 2	147814	100.00	83.76	91.91	85.35	91.92	0.000021	0.53	187.08	37.16	0.04
North Main	reach 2	147814	188.00	83.76	95.18	85.97	95.16	0.000017	0.58	325.44	48.14	0.04
North Main	reach 2	147814	515.00	83.76	96.29	87.51	96.32	0.000083	1.35	362.23	51.99	0.09
North Main	reach 2	146900	40.00	83.26	88.20	84.07	88.20	0.000018	0.39	102.62	29.95	0.04
North Main	reach 2	146900	100.00	83.26	91.90	84.58	91.90	0.000011	0.42	237.51	42.94	0.03
North Main	reach 2	146900	188.00	83.26	95.14	85.14	95.15	0.000010	0.48	395.35	54.33	0.03
North Main	reach 2	146900	515.00	83.26	96.23	86.55	96.25	0.000052	1.13	456.39	58.14	0.07



HEC-RAS Plan D 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	145333	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	119.07	32.21	0.03
North Main	reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.13	45.25	0.03
North Main	reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.46	57.85	0.03
North Main	reach 2	145333	515.00	83.11	98.16	86.08	96.17	0.000044	1.05	490.56	81.67	0.07
North Main	reach 2	145285	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	118.97	32.21	0.03
North Main	reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.03	45.24	0.03
North Main	reach 2	145285	188.00	83.11	95.13	84.73	95.13	0.000008	0.44	429.34	57.84	0.03
North Main	reach 2	145285	515.00	83.11	98.16	86.08	96.17	0.000030	0.87	1054.46	2238.74	0.05
North Main	reach 2	144900	40.00	83.06	88.18	83.58	88.18	0.000007	0.27	149.03	37.57	0.02
North Main	reach 2	144900	100.00	83.06	91.88	83.95	91.89	0.000006	0.32	310.78	49.66	0.02
North Main	reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	567.95	503.38	0.02
North Main	reach 2	144900	515.00	83.06	98.15	85.58	96.16	0.000019	0.73	1732.67	2335.24	0.04
North Main	reach 2	144259	482.00	78.00	88.11	80.37	88.14	0.000062	1.34	359.67	48.86	0.09
North Main	reach 2	144259	1051.00	78.00	91.79	81.85	91.64	0.000079	1.88	563.64	81.85	0.10
North Main	reach 2	144259	1858.00	78.00	94.98	83.44	95.08	0.000097	2.51	779.97	73.71	0.12
North Main	reach 2	144259	4804.00	78.00	95.35	87.38	95.92	0.000562	6.15	1418.59	7575.15	0.29
North Main	reach 2	144227	Culvert									
North Main	reach 2	144196	482.00	78.00	88.00	80.37	88.03	0.000065	1.36	354.22	49.55	0.09
North Main	reach 2	144196	1051.00	78.00	91.21	81.85	91.27	0.000098	2.00	528.24	59.88	0.11
North Main	reach 2	144196	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.54	67.09	0.15
North Main	reach 2	144196	4804.00	78.00	95.37	87.38	95.90	0.000537	6.02	1658.29	7700.76	0.29
North Main	reach 2	143786	482.00	80.00	87.92	83.00	87.98	0.000190	1.95	246.95	47.42	0.15
North Main	reach 2	143786	1051.00	80.00	91.10	84.48	91.20	0.000198	2.53	418.87	59.29	0.16
North Main	reach 2	143786	1858.00	80.00	93.03	85.98	93.22	0.000287	3.55	536.10	68.46	0.20
North Main	reach 2	143786	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8005.10	8954.42	0.20
North Main	reach 2	142844	482.00	80.00	87.76	82.81	87.81	0.000165	1.84	291.57	49.49	0.14
North Main	reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000178	2.41	437.06	61.03	0.15
North Main	reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.31	67.80	0.20
North Main	reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11889.65	9189.02	0.14
North Main	reach 2	142821	Bridge									
North Main	reach 2	142771	482.00	80.00	87.73	82.51	87.79	0.000163	1.85	280.70	48.47	0.14
North Main	reach 2	142771	1051.00	80.00	90.90	83.97	91.00	0.000181	2.43	433.25	60.03	0.18
North Main	reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.63	66.21	0.20
North Main	reach 2	142771	4804.00	80.00	95.18	89.25	95.30	0.000237	3.76	8206.88	8923.34	0.19
North Main	reach 2	141205	482.00	80.00	87.50	82.36	87.55	0.000147	1.78	271.28	49.45	0.13
North Main	reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.38	443.07	59.96	0.15
North Main	reach 2	141205	1858.00	80.00	92.33	85.15	92.52	0.000273	3.43	549.55	65.68	0.20
North Main	reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000125	2.73	11454.08	8884.70	0.14
North Main	reach 2	140152	482.00	80.00	87.31	82.62	87.37	0.000201	1.95	248.84	50.18	0.16
North Main	reach 2	140152	1051.00	80.00	90.44	84.06	90.53	0.000209	2.47	425.06	63.79	0.17
North Main	reach 2	140152	1858.00	80.00	92.02	85.54	92.21	0.000327	3.55	531.00	70.58	0.22
North Main	reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11245.37	9008.33	0.14
North Main	reach 2	140137	Bridge									
North Main	reach 2	140107	482.00	78.00	87.32	80.62	87.35	0.000087	1.48	330.20	54.18	0.10
North Main	reach 2	140107	1051.00	78.00	90.44	82.15	90.50	0.000117	2.03	519.22	66.79	0.13
North Main	reach 2	140107	1858.00	78.00	91.89	83.72	92.04	0.000209	3.03	620.87	72.71	0.17
North Main	reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.36	11292.51	6547.77	0.12
North Main	reach 2	138870	482.00	78.00	87.22	80.28	87.26	0.000068	1.70	359.15	56.07	0.10
North Main	reach 2	138870	1051.00	78.00	90.28	81.68	90.37	0.000109	2.65	548.08	67.43	0.13
North Main	reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.63	72.06	0.20
North Main	reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.82	13694.86	8905.17	0.12
North Main	reach 2	137387	482.00	78.00	87.12	80.28	87.18	0.000069	1.72	353.80	55.82	0.10
North Main	reach 2	137387	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.49	67.02	0.14
North Main	reach 2	137387	1858.00	78.00	91.14	83.28	91.39	0.000264	4.32	608.10	70.84	0.21
North Main	reach 2	137387	4804.00	78.00	94.26	87.47	94.51	0.000311	5.43	4571.56	8307.18	0.24
North Main	reach 2	137364	482.00	78.00	87.11	80.28	87.16	0.000069	1.72	353.27	55.80	0.10
North Main	reach 2	137364	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.36	67.01	0.14
North Main	reach 2	137364	1858.00	78.00	91.13	83.28	91.39	0.000285	4.33	607.78	70.83	0.21
North Main	reach 2	137364	4804.00	78.00	94.26	87.48	94.50	0.000313	5.44	4560.37	8302.15	0.24
North Main	reach 2	137349	Bridge									
North Main	reach 2	137334	482.00	78.00	87.09	80.28	87.14	0.000070	1.73	352.29	55.73	0.10
North Main	reach 2	137334	1051.00	78.00	90.10	81.69	90.21	0.000115	2.70	536.96	66.99	0.14
North Main	reach 2	137334	1858.00	78.00	91.12	83.28	91.39	0.000286	4.33	606.81	70.77	0.21
North Main	reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000552	7.06	2870.15	7107.29	0.32

HEC-DAS Plan P-25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnt (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	269920	1306.00	70.27	76.73	73.60	77.03	0.001290	4.37	299.05	58.43	0.34
North Main	reach 3 (south)	269920	1925.00	70.27	77.94	74.51	78.36	0.001499	5.17	372.65	62.98	0.37
North Main	reach 3 (south)	269920	2703.00	70.27	79.25	75.50	79.79	0.001652	5.90	457.92	67.82	0.40
North Main	reach 3 (south)	269920	5237.00	70.27	82.04	78.02	82.14	0.000740	3.57	3567.10	2732.52	0.26
North Main	reach 3 (south)	269788	1306.00	70.27	76.52	73.60	76.84	0.001453	4.55	298.91	57.84	0.36
North Main	reach 3 (south)	269788	1925.00	70.27	77.69	74.51	78.14	0.001694	5.39	356.90	62.04	0.40
North Main	reach 3 (south)	269788	2703.00	70.27	78.96	75.50	79.55	0.001864	6.16	436.68	66.76	0.42
North Main	reach 3 (south)	269788	5237.00	70.27	81.92	78.02	82.03	0.000893	3.69	3288.33	2251.74	0.29
North Main	reach 3 (south)	269131	1306.00	70.27	73.86	73.37	74.78	0.009699	8.42	155.11	52.64	0.86
North Main	reach 3 (south)	269131	1925.00	70.27	74.96	74.22	76.10	0.006790	8.48	226.98	57.88	0.75
North Main	reach 3 (south)	269131	2703.00	70.27	76.61	75.13	77.67	0.004818	8.27	328.78	64.25	0.85
North Main	reach 3 (south)	269131	5237.00	70.27	78.80	77.51	80.68	0.005858	10.99	478.75	72.58	0.76
North Main	reach 3 (south)	269121	Inline Weir									
North Main	reach 3 (south)	269108	1306.00	65.34	73.37	68.57	73.55	0.000600	3.39	385.42	60.47	0.24
North Main	reach 3 (south)	269108	1925.00	65.34	74.97	68.48	75.21	0.000681	3.96	486.64	66.18	0.26
North Main	reach 3 (south)	269108	2703.00	65.34	76.80	70.48	76.92	0.000758	4.51	599.87	72.47	0.28
North Main	reach 3 (south)	269108	5237.00	65.34	78.80	73.11	79.52	0.001468	6.61	769.02	82.03	0.39
North Main	reach 3 (south)	268000	1306.00	65.34	72.71	68.42	72.88	0.000607	3.24	403.06	70.66	0.24
North Main	reach 3 (south)	268000	1925.00	65.34	74.25	69.26	74.47	0.000653	3.72	516.79	77.30	0.25
North Main	reach 3 (south)	268000	2703.00	65.34	75.83	70.19	76.10	0.000698	4.20	644.01	84.25	0.27
North Main	reach 3 (south)	268000	5237.00	65.34	78.91	72.53	77.89	0.001858	7.10	738.11	90.27	0.44
North Main	reach 3 (south)	266898	1306.00	65.32	71.70	68.31	71.91	0.000927	3.70	352.65	70.04	0.29
North Main	reach 3 (south)	266898	1925.00	65.32	73.19	69.13	73.46	0.000930	4.17	462.15	76.83	0.30
North Main	reach 3 (south)	266898	2703.00	65.32	74.72	70.01	75.05	0.000943	4.62	585.05	83.80	0.31
North Main	reach 3 (south)	266898	5237.00	65.32	75.88	72.28	76.05	0.000744	4.37	3965.07	3381.17	0.28
North Main	reach 3 (south)	266868	Inline Weir									
North Main	reach 3 (south)	266879	1306.00	61.46	71.69	64.54	71.76	0.000171	2.07	629.71	82.41	0.13
North Main	reach 3 (south)	266879	1925.00	61.46	73.18	65.38	73.28	0.000221	2.54	757.00	88.24	0.15
North Main	reach 3 (south)	266879	2703.00	61.46	74.71	66.24	74.85	0.000273	3.02	896.25	94.37	0.17
North Main	reach 3 (south)	266879	5237.00	61.46	75.87	68.53	76.01	0.000360	3.61	4351.03	3392.85	0.20
North Main	reach 3 (south)	266000	1306.00	59.80	71.62	62.86	71.66	0.000103	1.73	752.84	87.29	0.10
North Main	reach 3 (south)	266000	1925.00	59.80	73.08	63.72	73.15	0.000142	2.18	884.70	92.95	0.12
North Main	reach 3 (south)	266000	2703.00	59.80	74.59	64.63	74.69	0.000181	2.60	1262.96	1318.08	0.14
North Main	reach 3 (south)	266000	5237.00	59.80	75.67	66.95	75.79	0.000275	3.33	4525.36	3331.36	0.18
North Main	reach 3 (south)	265585	1306.00	59.80	71.54	63.58	71.80	0.000168	2.06	634.81	82.94	0.13
North Main	reach 3 (south)	265585	1925.00	59.80	72.97	64.54	73.07	0.000225	2.54	758.97	90.18	0.15
North Main	reach 3 (south)	265585	2703.00	59.80	74.52	65.56	74.60	0.000199	2.54	2360.50	2377.27	0.15
North Main	reach 3 (south)	265585	5237.00	59.80	75.60	68.12	75.67	0.000213	2.73	6338.50	3900.86	0.15
North Main	reach 3 (south)	265509	1306.00	59.80	71.53	63.58	71.59	0.000188	2.06	634.01	82.89	0.13
North Main	reach 3 (south)	265509	1925.00	59.80	72.96	64.54	73.06	0.000226	2.54	757.79	90.12	0.15
North Main	reach 3 (south)	265509	2703.00	59.80	74.51	65.57	74.59	0.000202	2.55	2331.01	2296.11	0.15
North Main	reach 3 (south)	265509	5237.00	59.80	75.60	68.13	75.66	0.000215	2.74	6306.54	3900.59	0.15
North Main	reach 3 (south)	264000	1306.00	59.75	71.31	63.05	71.36	0.000136	1.95	668.62	79.67	0.12
North Main	reach 3 (south)	264000	1925.00	59.75	72.65	63.91	72.74	0.000194	2.47	778.93	84.66	0.14
North Main	reach 3 (south)	264000	2703.00	59.75	74.34	64.86	74.37	0.000097	1.84	4641.94	3320.50	0.10
North Main	reach 3 (south)	264000	5237.00	59.75	75.37	67.30	75.40	0.000133	1.83	8449.08	3870.91	0.12
North Main	reach 3 (south)	262000	1306.00	59.40	71.02	62.70	71.08	0.000146	2.01	648.65	77.48	0.12
North Main	reach 3 (south)	262000	1925.00	59.40	72.23	63.63	72.33	0.000217	2.58	745.10	82.03	0.15
North Main	reach 3 (south)	262000	2703.00	59.40	73.82	64.61	73.94	0.000815	2.75	981.63	279.16	0.26
North Main	reach 3 (south)	262000	5237.00	59.40	75.09	67.14	75.10	0.000152	1.34	7455.10	3741.01	0.12
North Main	reach 3 (south)	260000	1565.00	59.40	70.68	63.04	70.74	0.000212	1.94	805.40	140.41	0.14
North Main	reach 3 (south)	260000	2291.00	59.40	71.75	63.96	71.84	0.000272	2.33	1144.03	864.39	0.16
North Main	reach 3 (south)	260000	3206.00	59.40	73.06	64.96	73.13	0.000254	2.32	2044.48	718.94	0.16
North Main	reach 3 (south)	260000	6165.00	59.40	74.78	67.44	74.82	0.000214	2.00	6314.47	2312.22	0.15
North Main	reach 3 (south)	258000	1565.00	58.66	70.33	62.05	70.40	0.000137	2.01	777.24	89.81	0.12
North Main	reach 3 (south)	258000	2291.00	58.66	71.24	62.90	71.35	0.000222	2.67	859.66	93.19	0.15
North Main	reach 3 (south)	258000	3206.00	58.66	72.42	63.83	72.58	0.000298	3.24	1268.59	1002.79	0.18
North Main	reach 3 (south)	258000	6165.00	58.66	74.26	66.26	74.38	0.000254	3.21	5939.65	3345.60	0.17
North Main	reach 3 (south)	256881	1565.00	58.71	70.13	62.22	70.20	0.000163	2.12	739.87	91.14	0.13
North Main	reach 3 (south)	256881	2291.00	58.71	70.90	63.12	71.02	0.000271	2.82	811.17	94.63	0.17
North Main	reach 3 (south)	256881	3206.00	58.71	72.23	64.09	72.28	0.000146	2.19	3862.57	2424.74	0.13
North Main	reach 3 (south)	256881	6165.00	58.71	74.10	66.57	74.11	0.000120	1.39	10148.54	3993.89	0.11
North Main	reach 3 (south)	256121	1565.00	58.27	70.12	60.74	70.14	0.000043	1.21	1297.21	138.87	0.07
North Main	reach 3 (south)	256121	2291.00	58.27	70.88	61.35	70.93	0.000073	1.63	1404.58	142.30	0.09
North Main	reach 3 (south)	256121	3206.00	58.27	72.13	62.02	72.19	0.000186	1.96	1638.10	2498.00	0.14
North Main	reach 3 (south)	256121	6165.00	58.27	74.07	63.78	74.06	0.000041	1.03	12733.36	3702.03	0.07

HEC-DAS Plan B 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	255591	1585.00	58.07	70.08	61.89	70.11	0.000139	1.75	1127.61	2907.24	0.12
North Main	reach 3 (south)	255591	2291.00	58.07	70.80	62.56	70.87	0.000187	2.15	1496.15	3087.44	0.14
North Main	reach 3 (south)	255591	3206.00	58.07	72.02	63.50	72.07	0.000215	2.14	2421.14	3427.10	0.15
North Main	reach 3 (south)	255591	6165.00	58.07	74.08	65.91	74.06	0.000020	0.89	17499.46	3508.43	0.05
North Main	reach 3 (south)	254845	1585.00	58.07	70.01	61.47	70.03	0.000086	1.39	2741.59	3930.14	0.08
North Main	reach 3 (south)	254845	2291.00	58.07	70.74	62.33	70.75	0.000103	1.18	4195.98	4065.78	0.10
North Main	reach 3 (south)	254845	3206.00	58.07	71.99	63.25	71.99	0.000055	0.89	6874.98	4248.41	0.07
North Main	reach 3 (south)	254845	6165.00	58.07	74.05	65.65	74.05	0.000010	0.49	23448.63	4330.39	0.03
North Main	reach 3 (south)	254785	1585.00	58.07	70.01	61.47	70.03	0.000086	1.39	2740.58	3930.09	0.08
North Main	reach 3 (south)	254785	2291.00	58.07	70.72	62.33	70.73	0.000105	1.17	4163.62	4064.25	0.10
North Main	reach 3 (south)	254785	3206.00	58.07	71.98	63.25	71.99	0.000056	0.89	6854.06	4247.61	0.07
North Main	reach 3 (south)	254785	6165.00	58.07	74.04	65.65	74.04	0.000010	0.49	23401.74	4330.28	0.03
North Main	reach 3 (south)	254000	1565.00	58.07	70.01	61.55	70.01	0.000016	0.70	7019.77	4062.78	0.04
North Main	reach 3 (south)	254000	2291.00	58.07	70.69	62.46	70.69	0.000019	0.64	9137.96	4126.27	0.04
North Main	reach 3 (south)	254000	3206.00	58.07	71.96	63.44	71.96	0.000013	0.55	13188.50	4247.87	0.04
North Main	reach 3 (south)	254000	6165.00	58.07	74.03	65.99	74.03	0.000008	0.51	25296.38	4274.37	0.03
North Main	reach 3 (south)	252000	1585.00	58.08	69.79	61.85	69.85	0.000278	2.19	715.22	126.91	0.16
North Main	reach 3 (south)	252000	2291.00	58.08	70.66	62.80	70.66	0.000021	0.64	8678.69	5956.97	0.05
North Main	reach 3 (south)	252000	3206.00	58.08	71.94	63.81	71.94	0.000013	0.57	12479.89	5984.69	0.04
North Main	reach 3 (south)	252000	6165.00	58.08	74.01	66.38	74.01	0.000009	0.55	23821.92	5975.84	0.03
North Main	reach 3 (south)	250880	1565.00	57.32	69.53	60.90	69.58	0.000199	1.67	937.80	194.03	0.13
North Main	reach 3 (south)	250880	2291.00	57.32	70.63	61.84	70.63	0.000041	0.61	5170.82	4955.99	0.06
North Main	reach 3 (south)	250880	3206.00	57.32	71.92	62.84	71.93	0.000030	0.80	7125.78	4981.09	0.05
North Main	reach 3 (south)	250880	6165.00	57.32	73.99	65.39	73.99	0.000036	1.00	10259.75	4982.23	0.06
North Main	reach 3 (south)	250000	1630.00	57.29	69.42	60.32	69.46	0.000093	1.80	1015.72	126.14	0.10
North Main	reach 3 (south)	250000	2428.00	57.29	70.59	61.17	70.60	0.000053	0.91	6353.80	5016.13	0.07
North Main	reach 3 (south)	250000	3444.00	57.29	71.90	62.10	71.91	0.000033	0.81	8065.83	5058.93	0.06
North Main	reach 3 (south)	250000	6802.00	57.29	73.98	64.50	73.98	0.000007	0.42	30398.52	5098.31	0.03
North Main	reach 3 (south)	248746	1630.00	57.29	69.22	60.88	69.29	0.000228	2.08	789.79	131.98	0.15
North Main	reach 3 (south)	248746	2428.00	57.29	70.47	61.88	70.50	0.000219	1.78	2197.09	3903.90	0.14
North Main	reach 3 (south)	248746	3444.00	57.29	71.82	62.94	71.85	0.000136	1.83	3473.02	3915.58	0.12
North Main	reach 3 (south)	248746	6802.00	57.29	73.97	65.66	73.97	0.000013	0.61	22145.65	3933.06	0.04
North Main	reach 3 (south)	248519	1630.00	57.29	69.17	60.88	69.24	0.000225	2.08	783.85	127.92	0.15
North Main	reach 3 (south)	248519	2428.00	57.29	70.42	61.88	70.48	0.000234	1.79	2154.66	3903.51	0.15
North Main	reach 3 (south)	248519	3444.00	57.29	71.80	62.94	71.83	0.000139	1.82	3448.70	3915.35	0.12
North Main	reach 3 (south)	248519	6802.00	57.29	73.96	65.66	73.96	0.000013	0.61	22115.22	3933.00	0.04
North Main	reach 3 (south)	248000	1630.00	57.30	69.05	61.28	69.13	0.000182	2.23	731.48	90.72	0.14
North Main	reach 3 (south)	248000	2428.00	57.30	70.39	62.30	70.40	0.000058	1.22	5049.88	3688.88	0.08
North Main	reach 3 (south)	248000	3444.00	57.30	71.78	63.33	71.79	0.000037	1.00	7785.02	3970.08	0.08
North Main	reach 3 (south)	248000	6802.00	57.30	73.95	66.06	73.96	0.000014	0.87	22306.18	4017.27	0.04
North Main	reach 3 (south)	247476	1630.00	57.30	68.66	66.70	68.90	0.001678	3.74	436.40	118.79	0.34
North Main	reach 3 (south)	247476	2428.00	57.30	70.37	67.29	70.38	0.000060	0.78	5108.22	3919.16	0.07
North Main	reach 3 (south)	247476	3444.00	57.30	71.77	67.94	71.77	0.000038	0.75	7740.97	4071.42	0.08
North Main	reach 3 (south)	247476	6802.00	57.30	73.95	70.00	73.95	0.000019	0.65	20886.92	4202.95	0.04
North Main	reach 3 (south)	247400	1630.00	57.30	68.58	66.61	68.77	0.001549	3.54	460.34	129.47	0.33
North Main	reach 3 (south)	247400	2428.00	57.30	70.37	67.15	70.37	0.000061	0.79	5093.66	3910.65	0.07
North Main	reach 3 (south)	247400	3444.00	57.30	71.77	67.79	71.77	0.000039	0.76	7718.11	4063.35	0.08
North Main	reach 3 (south)	247400	6802.00	57.30	73.94	69.49	73.94	0.000019	0.66	20620.37	4195.01	0.04
North Main	reach 3 (south)	246000	1630.00	57.05	68.06	60.62	68.14	0.000196	2.25	724.18	94.02	0.14
North Main	reach 3 (south)	246000	2428.00	57.05	70.24	61.61	70.27	0.000091	1.56	3033.13	3505.72	0.10
North Main	reach 3 (south)	246000	3444.00	57.05	71.68	62.65	71.70	0.000074	1.50	4336.44	3552.79	0.09
North Main	reach 3 (south)	246000	6802.00	57.05	73.92	65.30	73.92	0.000016	0.80	19864.69	3568.28	0.04
North Main	reach 3 (south)	244000	1630.00	57.05	67.42	61.42	67.57	0.000431	3.07	530.55	77.52	0.21
North Main	reach 3 (south)	244000	2428.00	57.05	69.74	62.54	69.92	0.000408	3.36	722.40	88.13	0.21
North Main	reach 3 (south)	244000	3444.00	57.05	71.46	63.72	71.50	0.000133	2.06	3593.71	5917.21	0.12
North Main	reach 3 (south)	244000	6802.00	57.05	73.89	66.68	73.90	0.000007	0.44	32315.43	6014.05	0.03
North Main	reach 3 (south)	242500	1630.00	56.61	66.77	61.05	66.92	0.000432	3.11	523.94	75.15	0.21
North Main	reach 3 (south)	242500	2428.00	56.61	69.12	62.07	69.30	0.000409	3.41	711.81	84.81	0.21
North Main	reach 3 (south)	242500	3444.00	56.61	70.92	63.17	71.15	0.000457	3.89	1116.94	3853.15	0.22
North Main	reach 3 (south)	242500	6802.00	56.61	73.87	66.03	73.87	0.000045	1.32	14526.71	3759.63	0.07
North Main	reach 3 (south)	241505	1630.00	56.61	66.37	60.37	66.51	0.000399	3.03	537.34	74.90	0.20
North Main	reach 3 (south)	241505	2428.00	56.61	68.73	61.41	68.91	0.000384	3.34	728.01	84.49	0.20
North Main	reach 3 (south)	241505	3444.00	56.61	70.45	62.51	70.69	0.000480	3.93	877.18	91.45	0.22
North Main	reach 3 (south)	241505	6802.00	56.61	73.15	65.41	73.70	0.000880	5.98	1138.19	845.13	0.32
North Main	reach 3 (south)	240950	1630.00	56.61	66.13	60.53	66.28	0.000440	3.07	531.06	79.20	0.21
North Main	reach 3 (south)	240950	2428.00	56.61	68.52	61.55	68.69	0.000400	3.31	733.76	90.60	0.20



HFC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	240950	3444.00	56.61	70.20	62.64	70.43	0.000468	3.88	892.58	98.30	0.23
North Main	reach 3 (south)	240950	6802.00	56.61	72.85	65.42	73.20	0.000918	5.93	1147.43	327.48	0.32
North Main	reach 3 (south)	240919	1630.00	56.61	68.12	60.53	66.28	0.000442	3.08	529.92	79.13	0.21
North Main	reach 3 (south)	240919	2428.00	56.61	68.51	61.55	68.88	0.000401	3.31	732.58	90.53	0.21
North Main	reach 3 (south)	240919	3444.00	56.61	70.18	62.64	70.42	0.000471	3.87	891.05	98.23	0.23
North Main	reach 3 (south)	240919	6802.00	56.61	72.62	65.42	73.17	0.000928	5.95	1143.70	320.40	0.32
North Main	reach 3 (south)	240000	1630.00	55.47	65.88	59.11	65.96	0.000225	2.39	681.19	89.07	0.15
North Main	reach 3 (south)	240000	2428.00	55.47	68.28	60.01	68.39	0.000223	2.68	906.89	98.80	0.16
North Main	reach 3 (south)	240000	3444.00	55.47	69.91	60.97	70.07	0.000280	3.21	1073.20	105.40	0.18
North Main	reach 3 (south)	240000	6802.00	55.47	72.01	63.53	72.43	0.000636	5.22	1303.54	113.91	0.27
North Main	reach 3 (south)	239560	1630.00	55.23	65.77	58.93	65.86	0.000231	2.42	673.89	88.84	0.15
North Main	reach 3 (south)	239560	2428.00	55.23	68.17	59.85	68.29	0.000229	2.70	900.14	99.37	0.18
North Main	reach 3 (south)	239560	3444.00	55.23	69.78	60.88	69.94	0.000289	3.23	1064.92	106.39	0.18
North Main	reach 3 (south)	239560	6802.00	55.23	71.89	63.48	72.13	0.000684	5.33	1278.51	114.82	0.28
North Main	reach 3 (south)	239488	1630.00	55.23	65.75	58.93	65.84	0.000233	2.43	672.14	88.75	0.16
North Main	reach 3 (south)	239488	2428.00	55.23	68.16	59.86	68.27	0.000230	2.70	898.21	99.29	0.16
North Main	reach 3 (south)	239488	3444.00	55.23	69.75	60.88	69.91	0.000291	3.24	1062.27	106.28	0.18
North Main	reach 3 (south)	239488	6802.00	55.23	71.83	63.48	72.07	0.000694	5.36	1289.41	114.35	0.28
North Main	reach 3 (south)	238000	1630.00	54.74	65.42	58.50	65.51	0.000220	2.40	679.90	86.66	0.15
North Main	reach 3 (south)	238000	2428.00	54.74	67.82	59.41	67.94	0.000221	2.70	899.11	95.73	0.16
North Main	reach 3 (south)	238000	3444.00	54.74	69.32	60.40	69.49	0.000291	3.29	1046.44	101.40	0.18
North Main	reach 3 (south)	238000	6802.00	54.74	71.35	62.99	71.42	0.000232	2.84	6336.39	2475.59	0.18
North Main	reach 3 (south)	237285	1630.00	54.61	65.27	58.13	65.36	0.000215	2.39	681.87	85.75	0.15
North Main	reach 3 (south)	237285	2428.00	54.61	67.67	59.07	67.78	0.000219	2.70	898.69	94.95	0.15
North Main	reach 3 (south)	237285	3444.00	54.61	69.10	60.09	69.27	0.000295	3.32	1038.65	101.36	0.18
North Main	reach 3 (south)	237285	6802.00	54.61	71.29	62.75	71.30	0.000682	1.50	10072.75	2925.97	0.09
North Main	reach 3 (south)	236820	1630.00	54.53	65.13	58.02	65.21	0.000198	2.28	715.85	91.83	0.14
North Main	reach 3 (south)	236820	2428.00	54.53	67.54	58.91	67.64	0.000199	2.56	948.58	101.96	0.15
North Main	reach 3 (south)	236820	3444.00	54.53	68.93	59.89	69.09	0.000268	3.15	1095.05	107.83	0.17
North Main	reach 3 (south)	236820	6802.00	54.53	71.26	62.45	71.27	0.000049	1.44	10945.96	2204.78	0.08
North Main	reach 3 (south)	236000	1630.00	54.54	64.98	58.03	65.07	0.000234	2.45	695.53	86.41	0.16
North Main	reach 3 (south)	236000	2428.00	54.54	67.38	58.97	67.50	0.000235	2.74	884.95	96.57	0.16
North Main	reach 3 (south)	236000	3444.00	54.54	68.72	60.02	68.89	0.000321	3.38	1017.71	102.23	0.19
North Main	reach 3 (south)	236000	6802.00	54.54	71.22	62.70	71.24	0.000118	1.85	7823.69	2098.66	0.11
North Main	reach 3 (south)	235490	1630.00	54.49	64.82	58.23	64.93	0.000313	2.76	591.64	79.64	0.18
North Main	reach 3 (south)	235490	2428.00	54.49	67.21	59.26	67.36	0.000308	3.05	795.00	90.15	0.18
North Main	reach 3 (south)	235490	3444.00	54.49	68.48	60.37	68.70	0.000425	3.77	912.83	95.71	0.22
North Main	reach 3 (south)	235490	6802.00	54.49	71.07	63.23	71.13	0.000475	2.48	4240.73	1351.96	0.21
North Main	reach 3 (south)	235442	1630.00	54.49	64.80	58.23	64.92	0.000315	2.76	590.39	79.57	0.18
North Main	reach 3 (south)	235442	2428.00	54.49	67.20	59.26	67.34	0.000310	3.06	793.61	90.08	0.18
North Main	reach 3 (south)	235442	3444.00	54.49	68.46	60.37	68.68	0.000427	3.78	910.82	95.62	0.22
North Main	reach 3 (south)	235442	6802.00	54.49	71.04	63.23	71.11	0.000470	2.62	4199.40	1346.49	0.21
North Main	reach 3 (south)	234280	1630.00	53.37	64.66	56.31	64.71	0.000098	1.73	940.13	107.55	0.10
North Main	reach 3 (south)	234280	2428.00	53.37	67.06	57.10	67.12	0.000107	2.01	1209.36	117.28	0.11
North Main	reach 3 (south)	234280	3444.00	53.37	68.26	57.96	68.36	0.000158	2.54	1353.56	122.18	0.13
North Main	reach 3 (south)	234280	6802.00	53.37	70.50	60.26	70.59	0.000415	2.75	4336.86	2123.72	0.20
North Main	below diversion	112500	785.00	70.00	78.78	72.20	78.82	0.000077	1.65	488.01	71.22	0.10
North Main	below diversion	112500	1580.00	70.00	81.43	73.44	81.46	0.000061	1.79	3126.88	2323.44	0.10
North Main	below diversion	112500	2700.00	70.00	84.14	74.82	84.15	0.000013	0.97	13580.22	5486.78	0.05
North Main	below diversion	112500	5600.00	70.00	86.93	77.42	86.94	0.000007	0.82	30575.53	10530.30	0.04
North Main	below diversion	111500	785.00	70.00	78.70	72.28	78.74	0.000087	1.72	487.38	69.71	0.11
North Main	below diversion	111500	1580.00	70.00	81.38	73.56	81.40	0.000051	1.62	3689.72	2554.06	0.09
North Main	below diversion	111500	2700.00	70.00	84.13	74.96	84.14	0.000012	0.90	15055.07	5481.35	0.04
North Main	below diversion	111500	5600.00	70.00	86.92	77.59	86.92	0.000006	0.77	33911.29	9345.24	0.03
North Main	below diversion	108769	785.00	70.00	78.45	72.35	78.50	0.000088	1.67	483.79	79.41	0.11
North Main	below diversion	108769	1580.00	70.00	81.11	73.81	81.19	0.000113	2.34	990.57	563.39	0.13
North Main	below diversion	108769	2700.00	70.00	84.02	74.99	84.06	0.000058	2.01	4553.22	2158.19	0.10
North Main	below diversion	108769	5600.00	70.00	86.90	77.47	86.91	0.000017	1.25	26222.95	11413.89	0.06
North Main	below diversion	108564	785.00	70.00	78.43	72.23	78.47	0.000087	1.69	476.27	74.18	0.11
North Main	below diversion	108564	1580.00	70.00	81.06	73.47	81.15	0.000124	2.47	685.47	85.08	0.14
North Main	below diversion	108564	2700.00	70.00	83.90	74.83	84.01	0.000123	2.91	2533.33	2852.27	0.14
North Main	below diversion	108564	5600.00	70.00	86.90	77.38	86.90	0.000017	1.26	26235.57	11412.19	0.06
North Main	below diversion	108524	Bridge									
North Main	below diversion	108484	785.00	70.00	78.40	72.23	78.45	0.000089	1.69	474.17	74.06	0.11
North Main	below diversion	108484	1580.00	70.00	81.00	73.47	81.09	0.000126	2.48	680.47	84.84	0.14
North Main	below diversion	108484	2700.00	70.00	83.77	74.83	83.90	0.000133	3.01	2200.89	2526.77	0.15

HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	108484	5600.00	70.00	86.88	77.38	86.88	0.000018	1.26	28155.99	11365.89	0.08
North Main	below diversion	108424	785.00	70.00	78.39	72.23	78.44	0.000089	1.70	473.47	74.03	0.11
North Main	below diversion	108424	1580.00	70.00	80.98	73.47	81.08	0.000127	2.48	879.27	84.78	0.14
North Main	below diversion	108424	2700.00	70.00	83.78	74.84	83.89	0.000135	3.02	2166.93	2491.35	0.15
North Main	below diversion	108424	5600.00	70.00	86.87	77.38	86.88	0.000018	1.27	28145.19	11373.29	0.08
North Main	below diversion	108200	785.00	70.00	78.37	72.20	78.42	0.000090	1.71	469.23	72.27	0.11
North Main	below diversion	108200	1580.00	70.00	80.95	73.43	81.05	0.000129	2.51	868.90	82.37	0.14
North Main	below diversion	108200	2700.00	70.00	83.74	74.81	83.86	0.000129	2.96	2536.98	2845.49	0.15
North Main	below diversion	108200	5600.00	70.00	86.86	77.38	86.87	0.000019	1.32	24095.59	11139.88	0.08
North Main	below diversion	107200	785.00	70.00	78.29	72.07	78.33	0.000081	1.82	491.98	74.79	0.11
North Main	below diversion	107200	1580.00	70.00	80.83	73.25	80.92	0.000119	2.40	894.55	84.38	0.14
North Main	below diversion	107200	2700.00	70.00	83.85	74.57	83.73	0.000100	2.80	3513.33	3474.59	0.13
North Main	below diversion	107200	5600.00	70.00	88.84	77.07	88.85	0.000018	1.23	25539.85	10740.48	0.05
North Main	below diversion	105420	880.00	70.00	78.12	72.28	78.17	0.000091	1.68	531.50	84.02	0.11
North Main	below diversion	105420	1517.00	70.00	80.85	73.14	80.71	0.000094	2.11	757.22	94.88	0.12
North Main	below diversion	105420	2548.00	70.00	83.52	74.28	83.57	0.000064	2.07	4688.42	4222.28	0.10
North Main	below diversion	105420	4853.00	70.00	86.82	76.22	86.83	0.000011	1.00	23991.58	10635.20	0.04
North Main	below diversion	105350	880.00	70.00	78.10	72.48	78.16	0.000125	2.07	452.83	72.68	0.13
North Main	below diversion	105350	1517.00	70.00	80.59	73.42	80.70	0.000137	2.83	846.82	82.64	0.15
North Main	below diversion	105350	2548.00	70.00	83.49	74.65	83.57	0.000095	2.59	3895.74	3359.47	0.13
North Main	below diversion	105350	4853.00	70.00	86.81	76.81	86.82	0.000013	1.12	24220.39	10704.35	0.05
North Main	below diversion	105335	Bridge									
North Main	below diversion	105320	880.00	70.00	78.08	72.48	78.15	0.000128	2.07	451.96	72.63	0.13
North Main	below diversion	105320	1517.00	70.00	80.55	73.42	80.65	0.000139	2.64	843.05	82.46	0.15
North Main	below diversion	105320	2548.00	70.00	83.45	74.65	83.53	0.000098	2.83	3781.97	3245.83	0.13
North Main	below diversion	105320	4853.00	70.00	86.79	76.81	86.80	0.000013	1.13	23985.75	10874.56	0.05
North Main	below diversion	105235	880.00	70.00	78.07	72.46	78.14	0.000126	2.08	451.28	72.60	0.13
North Main	below diversion	105235	1517.00	70.00	80.54	73.42	80.64	0.000140	2.84	842.17	82.42	0.15
North Main	below diversion	105235	2548.00	70.00	83.43	74.65	83.52	0.000104	2.71	3471.17	3074.72	0.13
North Main	below diversion	105235	4853.00	70.00	86.79	76.81	86.79	0.000014	1.17	23132.88	10570.35	0.05
North Main	below diversion	104800	880.00	70.00	78.01	72.39	78.08	0.000128	2.09	450.00	73.25	0.14
North Main	below diversion	104800	1517.00	70.00	80.47	73.37	80.58	0.000142	2.66	842.93	83.77	0.15
North Main	below diversion	104800	2548.00	70.00	83.29	74.61	83.48	0.000160	3.34	1338.70	1727.80	0.17
North Main	below diversion	104800	4853.00	70.00	86.77	76.78	86.78	0.000022	1.46	20709.06	8356.28	0.08
North Main	below diversion	104148	880.00	70.00	77.94		78.00	0.000115	1.97	475.79	77.32	0.13
North Main	below diversion	104148	1517.00	70.00	80.39		80.48	0.000127	2.51	879.81	89.09	0.14
North Main	below diversion	104148	2548.00	70.00	83.20		83.35	0.000148	3.20	1151.48	1093.93	0.16
North Main	below diversion	104148	4853.00	70.00	86.75		86.76	0.000032	1.74	17147.72	8253.45	0.08
North Main	below diversion	104116	880.00	70.00	77.93		77.99	0.000115	1.97	475.52	77.30	0.13
North Main	below diversion	104116	1517.00	70.00	80.39		80.48	0.000128	2.51	879.46	89.07	0.14
North Main	below diversion	104116	2548.00	70.00	83.20		83.35	0.000148	3.20	1146.64	1087.27	0.16
North Main	below diversion	104116	4853.00	70.00	86.74		86.75	0.000032	1.75	17080.81	8235.94	0.08
North Main	below diversion	103006	880.00	70.00	77.81		77.87	0.000122	2.01	466.03	76.75	0.13
North Main	below diversion	103006	1517.00	70.00	80.25		80.35	0.000134	2.55	867.33	88.44	0.14
North Main	below diversion	103006	2548.00	70.00	83.03		83.19	0.000157	3.27	989.23	873.34	0.16
North Main	below diversion	103006	4853.00	70.00	86.71		86.73	0.000033	1.77	16885.86	8184.95	0.08
North Main	below diversion	102913	880.00	70.00	77.80		77.87	0.000126	2.04	456.68	74.71	0.13
North Main	below diversion	102913	1517.00	70.00	80.24		80.34	0.000138	2.59	850.80	84.78	0.15
North Main	below diversion	102913	2548.00	70.00	83.02		83.18	0.000160	3.30	942.78	831.44	0.16
North Main	below diversion	102913	4853.00	70.00	86.69		86.73	0.000053	2.25	12270.14	6717.87	0.10
North Main	below diversion	102850	880.00	70.00	77.80	72.23	77.86	0.000123	2.01	464.93	76.69	0.13
North Main	below diversion	102850	1517.00	70.00	80.23	73.16	80.33	0.000135	2.56	865.57	88.35	0.14
North Main	below diversion	102850	2548.00	70.00	83.01	74.37	83.17	0.000158	3.27	970.70	852.23	0.18
North Main	below diversion	102850	4853.00	70.00	86.69	76.47	86.71	0.000033	1.78	16712.74	8139.35	0.08
North Main	below diversion	102835	Bridge									
North Main	below diversion	102820	880.00	70.00	77.79		77.85	0.000123	2.02	464.08	76.64	0.13
North Main	below diversion	102820	1517.00	70.00	80.21		80.31	0.000136	2.56	864.35	88.29	0.14
North Main	below diversion	102820	2548.00	70.00	82.98		83.14	0.000159	3.28	956.87	145.04	0.16
North Main	below diversion	102820	4853.00	70.00	86.67		86.69	0.000034	1.80	18506.21	8084.61	0.08
North Main	below diversion	102800	880.00	70.00	77.74		77.82	0.000147	2.18	424.10	68.96	0.14
North Main	below diversion	102800	1517.00	70.00	80.18		80.28	0.000181	2.78	601.09	77.48	0.18
North Main	below diversion	102800	2548.00	70.00	82.90		83.09	0.000189	3.56	847.50	114.41	0.18
North Main	below diversion	102800	4853.00	70.00	86.61		86.66	0.000078	2.69	10468.77	6078.66	0.12
North Main	below diversion	101500	880.00	70.00	77.58		77.65	0.000149	2.17	427.51	71.81	0.14
North Main	below diversion	101500	1517.00	70.00	79.99		80.10	0.000161	2.75	611.79	81.54	0.18



HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Val Chnl (ft/e)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	below diversion	92120	896.00	68.00	73.02	70.60	76.10	0.000185	2.16	414.70	68.81	0.15
North Main	below diversion	92120	1573.00	68.00	73.32	71.69	78.44	0.000194	2.74	586.04	85.21	0.17
North Main	below diversion	92120	2645.00	68.00	80.80	73.06	80.99	0.000224	3.51	827.90	113.49	0.19
North Main	below diversion	92120	4959.00	68.00	83.52	75.34	83.90	0.000352	5.10	1186.03	543.28	0.24
North Main	below diversion	91139	896.00	68.00	75.63	70.60	75.91	0.000203	2.23	401.44	67.98	0.16
North Main	below diversion	91139	1573.00	68.00	78.12	71.69	78.24	0.000210	2.81	568.95	83.27	0.17
North Main	below diversion	91139	2645.00	68.00	80.56	73.06	80.78	0.000243	3.59	801.34	109.86	0.19
North Main	below diversion	91139	4959.00	68.00	83.12	75.34	83.54	0.000392	5.28	1129.06	233.19	0.26
North Main	below diversion	91050	896.00	68.00	75.81	70.59	75.69	0.000205	2.24	399.87	67.70	0.16
North Main	below diversion	91050	1573.00	68.00	78.10	71.68	78.22	0.000213	2.82	568.39	82.32	0.17
North Main	below diversion	91050	2645.00	68.00	80.53	73.07	80.73	0.000246	3.61	792.06	107.27	0.20
North Main	below diversion	91050	4959.00	68.00	83.23	75.35	83.45	0.000258	4.29	3588.64	2451.06	0.21
North Main	below diversion	88641	896.00	68.00	75.28	70.47	75.37	0.000238	2.33	384.40	68.09	0.17
North Main	below diversion	88641	1573.00	68.00	77.56	71.53	77.69	0.000240	2.88	550.39	77.81	0.18
North Main	below diversion	88641	2645.00	68.00	79.81	72.86	80.12	0.000278	3.89	744.85	87.90	0.21
North Main	below diversion	88641	4959.00	68.00	82.44	75.08	82.75	0.000344	4.79	2451.90	10198.91	0.24
North Main	below diversion	88488	896.00	68.00	75.24	70.49	75.33	0.000248	2.38	376.53	67.16	0.18
North Main	below diversion	88488	1573.00	68.00	77.51	71.55	77.65	0.000252	2.94	540.35	76.83	0.19
North Main	below diversion	88488	2645.00	68.00	79.85	72.90	80.07	0.000288	3.74	756.72	108.48	0.21
North Main	below diversion	88488	4959.00	68.00	82.49	75.13	82.66	0.000230	3.93	4443.85	12793.28	0.20
North Main	below diversion	88300	896.00	68.00	75.19	70.47	75.28	0.000245	2.37	377.52	67.19	0.18
North Main	below diversion	88300	1573.00	68.00	77.47	71.52	77.60	0.000251	2.93	540.89	78.44	0.19
North Main	below diversion	88300	2645.00	68.00	79.80	72.85	80.01	0.000288	3.74	753.31	106.46	0.21
North Main	below diversion	88300	4959.00	68.00	82.25	75.07	82.60	0.000383	5.01	1825.71	797.37	0.25
North Main	below diversion	87300	896.00	68.00	74.92	70.46	75.02	0.000280	2.49	359.23	65.59	0.19
North Main	below diversion	87300	1573.00	68.00	77.19	71.51	77.33	0.000283	3.05	518.01	74.43	0.20
North Main	below diversion	87300	2645.00	68.00	79.50	72.85	79.72	0.000304	3.79	851.65	192.35	0.21
North Main	below diversion	87300	4959.00	68.00	82.02	75.06	82.23	0.000281	4.25	3034.23	1643.79	0.21
North Main	below diversion	85942	896.00	68.00	74.40	70.64	74.54	0.000451	2.96	302.46	61.23	0.23
North Main	below diversion	85942	1573.00	68.00	76.67	71.75	76.88	0.000423	3.49	452.17	70.80	0.24
North Main	below diversion	85942	2645.00	68.00	78.92	73.14	79.21	0.000449	4.36	834.23	98.19	0.26
North Main	below diversion	85942	4959.00	68.00	81.30	75.44	81.70	0.000522	5.50	2163.91	1305.21	0.29
North Main	below diversion	85850	896.00	68.00	74.37	70.67	74.51	0.000465	2.99	300.05	61.46	0.24
North Main	below diversion	85850	1573.00	68.00	76.64	71.80	76.83	0.000432	3.49	451.53	71.70	0.24
North Main	below diversion	85850	2645.00	68.00	78.88	73.16	79.17	0.000454	4.35	836.32	105.84	0.26
North Main	below diversion	85850	4959.00	68.00	81.17	75.46	81.65	0.000598	5.83	1705.96	1305.60	0.31
North Main	below diversion	85836	Bridge									
North Main	below diversion	85820	896.00	68.00	74.31	70.67	74.46	0.000480	3.02	296.68	61.21	0.24
North Main	below diversion	85820	1573.00	68.00	76.58	71.80	76.78	0.000446	3.52	447.10	71.42	0.24
North Main	below diversion	85820	2645.00	68.00	78.81	73.19	79.11	0.000467	4.39	838.92	129.11	0.26
North Main	below diversion	85820	4959.00	68.00	81.02	75.46	81.51	0.000633	5.94	1684.34	1374.15	0.32
North Main	below diversion	85783	896.00	68.00	74.29	70.67	74.43	0.000487	3.04	295.07	61.10	0.24
North Main	below diversion	85783	1573.00	68.00	76.56	71.80	76.75	0.000452	3.54	445.40	71.31	0.25
North Main	below diversion	85783	2645.00	68.00	78.78	73.19	79.08	0.000472	4.40	828.09	103.38	0.26
North Main	below diversion	85783	4959.00	68.00	80.92	75.46	81.47	0.000694	6.16	1447.79	1299.44	0.33
North Main	below diversion	83100	896.00	68.00	73.42	68.67	73.51	0.000267	2.46	363.94	65.33	0.18
North Main	below diversion	83100	1573.00	68.00	75.72	69.80	75.87	0.000264	3.02	526.46	75.49	0.19
North Main	below diversion	83100	2645.00	68.00	77.82	71.19	78.08	0.000329	3.97	694.03	84.61	0.22
North Main	below diversion	83100	4959.00	68.00	80.71	73.49	80.76	0.000104	2.85	9702.96	16520.38	0.13
North Main	below diversion	82100	896.00	68.00	73.04	68.97	73.19	0.000369	3.15	302.52	59.04	0.22
North Main	below diversion	82100	1573.00	68.00	75.30	70.15	75.54	0.000390	3.97	447.64	69.45	0.24
North Main	below diversion	82100	2645.00	68.00	77.20	71.58	77.83	0.000542	5.36	587.97	455.62	0.29
North Main	below diversion	82100	4959.00	68.00	80.81	74.08	80.65	0.000098	2.76	9138.47	16682.51	0.13
North Main	below diversion	82000	896.00	68.00	73.00	68.97	73.16	0.000378	3.17	300.15	58.86	0.22
North Main	below diversion	82000	1573.00	68.00	75.26	70.15	75.50	0.000397	4.00	444.66	69.25	0.24
North Main	below diversion	82000	2645.00	68.00	77.14	71.58	77.57	0.000554	5.39	583.05	440.54	0.30
North Main	below diversion	82000	4959.00	68.00	79.64	74.08	80.54	0.000896	7.93	791.72	2432.57	0.39
North Main	below diversion	81100	896.00	68.00	72.61	68.75	72.79	0.000420	3.44	296.59	69.92	0.24
North Main	below diversion	81100	1573.00	68.00	74.84	69.91	75.11	0.000453	4.37	438.09	410.85	0.26
North Main	below diversion	81100	2645.00	68.00	76.50	71.43	77.01	0.000673	5.99	602.59	749.77	0.33
North Main	below diversion	81100	4959.00	68.00	78.73	74.03	79.67	0.001038	8.48	1108.01	1815.63	0.42
North Main	below diversion	80100	896.00	68.00	72.23	68.60	72.37	0.000405	3.06	325.91	79.48	0.23
North Main	below diversion	80100	1573.00	68.00	74.48	69.69	74.68	0.000375	3.69	529.14	104.56	0.23
North Main	below diversion	80100	2645.00	68.00	76.00	71.06	76.36	0.000555	5.06	708.95	132.61	0.29
North Main	below diversion	80100	4959.00	68.00	78.37	73.33	78.76	0.000558	5.90	2385.94	980.98	0.30



HEC-RAS Plan: P 259\_3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cfl
North Main	below diversion	79100	896.00	66.00	71.82	68.76	71.83	0.000722	3.74	245.18	58.72	0.30
North Main	below diversion	79100	1573.00	66.00	73.91	69.91	74.20	0.000597	4.39	387.27	274.11	0.29
North Main	below diversion	79100	2645.00	66.00	74.98	71.24	75.59	0.001041	6.37	462.11	353.20	0.39
North Main	below diversion	79100	4959.00	66.00	77.43	73.63	78.04	0.000929	7.16	2141.06	3496.10	0.39
North Main	below diversion	77548	896.00	66.00	70.31	68.19	70.52	0.001009	3.70	242.64	67.96	0.34
North Main	below diversion	77548	1573.00	66.00	73.18	69.13	73.38	0.000447	3.61	457.04	81.94	0.25
North Main	below diversion	77548	2645.00	66.00	73.32	70.30	73.66	0.001174	5.94	468.87	82.67	0.40
North Main	below diversion	77548	4959.00	66.00	74.12	72.25	75.62	0.002805	9.90	537.04	2212.48	0.64
North Main	below diversion	77536	896.00	62.00	70.36	64.76	70.44	0.000160	2.22	414.97	68.44	0.15
North Main	below diversion	77536	1573.00	62.00	73.21	65.91	73.33	0.000152	2.72	626.29	81.20	0.15
North Main	below diversion	77536	2645.00	62.00	73.42	67.34	73.73	0.000401	4.48	645.17	82.12	0.25
North Main	below diversion	77536	4959.00	62.00	74.39	69.52	75.26	0.001023	7.60	726.65	2987.22	0.40
North Main	below diversion	77419	896.00	62.00	70.35	64.76	70.43	0.000181	2.22	414.07	68.38	0.15
North Main	below diversion	77419	1573.00	62.00	73.20	65.91	73.32	0.000153	2.73	627.40	81.15	0.15
North Main	below diversion	77419	2645.00	62.00	73.37	67.33	73.68	0.000408	4.50	640.94	81.89	0.25
North Main	below diversion	77419	4959.00	62.00	74.21	69.52	75.13	0.001093	7.78	758.72	2666.80	0.42
North Main	below diversion	77357	896.00	62.00	70.35	64.50	70.41	0.000140	1.96	457.49	72.53	0.14
North Main	below diversion	77357	1573.00	62.00	73.21	65.55	73.30	0.000125	2.37	662.50	921.49	0.14
North Main	below diversion	77357	2645.00	62.00	73.40	66.91	73.64	0.000330	3.91	699.21	1707.07	0.22
North Main	below diversion	77357	4959.00	62.00	74.72	69.13	74.91	0.000332	4.27	4241.96	5206.14	0.23
North Main	below diversion	77343	Bridge									
North Main	below diversion	77329	896.00	62.00	70.39	64.50	70.39	0.000141	1.96	456.29	72.45	0.14
North Main	below diversion	77329	1573.00	62.00	73.19	65.55	73.28	0.000126	2.36	661.16	685.52	0.14
North Main	below diversion	77329	2645.00	62.00	73.38	66.91	73.61	0.000334	3.92	696.82	1258.24	0.22
North Main	below diversion	77329	4959.00	62.00	74.51	69.12	74.77	0.000432	4.81	3637.06	4393.01	0.28
North Main	below diversion	77179	896.00	60.10	70.33	62.68	70.37	0.000086	1.68	534.17	72.44	0.11
North Main	below diversion	77179	1573.00	60.10	73.19	63.79	73.26	0.000090	2.13	759.07	2320.94	0.12
North Main	below diversion	77179	2645.00	60.10	73.38	65.26	73.55	0.000215	3.32	1634.95	2322.47	0.18
North Main	below diversion	77179	4959.00	60.10	74.52	67.74	74.68	0.000260	3.91	4715.04	4701.56	0.20
North Main	below diversion	77143	Culvert									
North Main	below diversion	77107	896.00	60.10	69.48	62.67	69.52	0.000124	1.90	472.75	68.76	0.13
North Main	below diversion	77107	1573.00	60.10	71.51	63.79	71.61	0.000164	2.55	622.51	77.56	0.15
North Main	below diversion	77107	2645.00	60.10	72.76	65.26	73.00	0.000292	3.72	725.09	83.11	0.21
North Main	below diversion	77107	4959.00	60.10	74.48	67.74	74.64	0.000270	3.96	4605.91	4660.06	0.21
North Main	below diversion	76585	896.00	60.00	69.41	62.59	69.46	0.000093	1.75	514.74	74.85	0.11
North Main	below diversion	76585	1573.00	60.00	71.44	63.66	71.53	0.000126	2.41	675.51	83.58	0.14
North Main	below diversion	76585	2645.00	60.00	72.67	65.07	72.86	0.000236	3.57	781.53	88.84	0.19
North Main	below diversion	76585	4959.00	60.00	74.22	67.33	74.47	0.000318	4.54	3726.81	7143.44	0.23
North Main	below diversion	76000	896.00	60.00	69.35	62.59	69.40	0.000099	1.81	497.87	71.48	0.12
North Main	below diversion	76000	1573.00	60.00	71.35	63.68	71.45	0.000136	2.49	675.46	106.69	0.14
North Main	below diversion	76000	2645.00	60.00	72.51	65.07	72.71	0.000257	3.69	816.86	1587.66	0.20
North Main	below diversion	76000	4959.00	60.00	73.65	67.39	74.19	0.000600	6.04	1240.89	4028.96	0.31
North Main	below diversion	75929	896.00	60.00	69.34	62.70	69.40	0.000099	1.92	488.80	72.69	0.12
North Main	below diversion	75929	1573.00	60.00	71.34	63.82	71.45	0.000141	2.65	676.15	115.50	0.15
North Main	below diversion	75929	2645.00	60.00	72.48	65.23	72.69	0.000273	3.96	901.39	2248.15	0.21
North Main	below diversion	75929	4959.00	60.00	73.89	67.44	74.05	0.000251	4.11	5210.74	4564.41	0.20
North Main	below diversion	75868	896.00	60.00	69.33	62.64	69.39	0.000098	1.91	488.16	70.86	0.12
North Main	below diversion	75868	1573.00	60.00	71.33	63.76	71.43	0.000141	2.66	655.51	99.89	0.15
North Main	below diversion	75868	2645.00	60.00	72.45	65.16	72.68	0.000264	3.91	1169.74	2819.02	0.21
North Main	below diversion	75868	4959.00	60.00	73.90	67.40	74.02	0.000208	3.75	5687.18	4593.12	0.19
North Main	below diversion	75852	Bridge									
North Main	below diversion	75838	896.00	60.00	69.31	62.64	69.37	0.000099	1.92	486.58	70.77	0.12
North Main	below diversion	75838	1573.00	60.00	71.29	63.76	71.39	0.000143	2.67	651.69	100.33	0.15
North Main	below diversion	75838	2645.00	60.00	72.34	65.16	72.58	0.000281	4.00	1063.01	2572.01	0.21
North Main	below diversion	75838	4959.00	60.00	73.77	67.37	73.92	0.000236	3.97	5507.22	4529.66	0.20
North Main	below diversion	75752	896.00	60.00	69.30	62.64	69.36	0.000099	1.92	486.05	70.74	0.12
North Main	below diversion	75752	1573.00	60.00	71.27	63.76	71.38	0.000144	2.67	650.59	100.15	0.15
North Main	below diversion	75752	2645.00	60.00	72.32	65.15	72.56	0.000284	4.02	1038.28	2472.96	0.21
North Main	below diversion	75752	4959.00	60.00	73.74	67.37	73.89	0.000245	4.04	5392.87	4276.69	0.20
North Main	below diversion	75000	896.00	60.00	69.23	62.56	69.28	0.000098	1.91	485.42	69.32	0.12
North Main	below diversion	75000	1573.00	60.00	71.19	63.65	71.29	0.000125	2.50	1162.16	771.22	0.14
North Main	below diversion	75000	2645.00	60.00	72.20	65.05	72.34	0.000198	3.34	2428.96	4016.37	0.18
North Main	below diversion	75000	4959.00	60.00	73.69	67.25	73.74	0.000114	2.75	10034.06	8844.27	0.14
North Main	below diversion	74000	896.00	60.00	69.11	62.97	69.17	0.000138	2.03	442.90	68.87	0.14
North Main	below diversion	74000	1573.00	60.00	71.06	64.14	71.14	0.000151	2.51	1414.95	1714.09	0.15



HFC DAS Plan P 259.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	66428	1085.00	60.00	67.68		67.79	0.000255	2.87	411.88	69.90	0.18
North Main	below diversion	66428	1812.00	60.00	69.32		69.48	0.000297	3.35	1108.35	1932.80	0.21
North Main	below diversion	66428	2685.00	60.00	70.53		70.61	0.000175	2.82	3788.74	2678.37	0.16
North Main	below diversion	66428	4893.00	60.00	72.06		72.10	0.000118	2.57	8882.38	3890.84	0.14
North Main	below diversion	66342	1085.00	60.00	67.65		67.77	0.000258	2.68	410.43	69.61	0.19
North Main	below diversion	66342	1812.00	60.00	69.27		69.45	0.000321	3.47	820.85	1193.55	0.22
North Main	below diversion	66342	2685.00	60.00	70.44		70.57	0.000263	3.44	2515.26	1898.98	0.20
North Main	below diversion	66342	4893.00	60.00	72.00		72.08	0.000196	3.29	6558.56	3187.19	0.18
North Main	below diversion	65921	1085.00	60.00	67.53		67.65	0.000275	2.73	401.95	69.30	0.19
North Main	below diversion	65921	1812.00	60.00	69.12		69.31	0.000348	3.57	708.13	978.15	0.22
North Main	below diversion	65921	2685.00	60.00	70.31		70.48	0.000288	3.56	2332.45	1764.04	0.21
North Main	below diversion	65921	4893.00	60.00	71.90		71.99	0.000219	3.46	6112.67	3160.93	0.19
North Main	below diversion	65500	1085.00	60.00	67.40		67.52	0.000295	2.79	392.70	68.71	0.20
North Main	below diversion	65500	1812.00	60.00	69.97		69.16	0.000364	3.60	702.64	481.69	0.23
North Main	below diversion	65500	2685.00	60.00	70.22		70.39	0.000248	3.29	2642.21	2084.76	0.19
North Main	below diversion	65500	4893.00	60.00	71.84		71.90	0.000166	3.00	6841.34	2832.08	0.16
North Main	below diversion	65133.3*	1085.00	60.00	67.24		67.39	0.000385	3.04	359.14	68.63	0.22
North Main	below diversion	65133.3*	1812.00	60.00	68.78		69.01	0.000488	4.01	467.13	78.86	0.26
North Main	below diversion	65133.3*	2685.00	60.00	69.89		70.19	0.000545	4.66	1224.38	1185.70	0.28
North Main	below diversion	65133.3*	4893.00	60.00	71.85		71.81	0.000351	4.25	4472.79	2342.75	0.23
North Main	below diversion	64766.6*	1085.00	60.00	67.09		67.25	0.000435	3.17	344.28	64.99	0.24
North Main	below diversion	64766.6*	1812.00	60.00	68.56		68.83	0.000555	4.18	444.41	71.67	0.28
North Main	below diversion	64766.6*	2685.00	60.00	69.49		69.94	0.000791	5.42	606.25	735.02	0.34
North Main	below diversion	64766.6*	4893.00	60.00	71.38		71.65	0.000543	5.17	3169.39	1695.08	0.29
North Main	below diversion	64400	1085.00	60.00	66.95	62.85	67.10	0.000411	3.12	348.49	63.29	0.23
North Main	below diversion	64400	1812.00	60.00	68.37	63.92	68.64	0.000548	4.18	442.09	66.51	0.27
North Main	below diversion	64400	2685.00	60.00	69.19	65.00	69.66	0.000835	5.54	499.70	71.64	0.35
North Main	below diversion	64400	4893.00	60.00	70.92	67.09	71.39	0.000832	6.30	2315.67	1509.81	0.36
North Main	below diversion	62879	1085.00	58.00	66.60	61.20	66.67	0.000195	2.29	991.67	1957.40	0.18
North Main	below diversion	62879	1812.00	58.00	68.24	62.35	68.27	0.000101	1.93	2786.01	3878.12	0.12
North Main	below diversion	62879	2685.00	58.00	69.19	63.49	69.22	0.000097	2.03	4133.14	4915.35	0.12
North Main	below diversion	62879	4893.00	58.00	70.92	67.06	70.95	0.000091	2.22	7205.69	9177.72	0.12
North Main	below diversion	62817	1085.00	58.00	66.63	61.09	66.65	0.000058	1.37	2473.19	3705.78	0.09
North Main	below diversion	62817	1812.00	58.00	68.25	62.23	68.26	0.000037	1.25	4667.26	5348.40	0.07
North Main	below diversion	62817	2685.00	58.00	69.19	63.30	69.20	0.000041	1.40	6087.83	6230.33	0.08
North Main	below diversion	62817	4893.00	58.00	70.92	65.75	70.94	0.000049	1.72	8892.09	9669.86	0.09
North Main	below diversion	62803										
North Main	below diversion	62789	1085.00	58.00	66.62	61.09	66.63	0.000055	1.33	2589.42	3688.51	0.09
North Main	below diversion	62789	1812.00	58.00	68.23	62.23	68.24	0.000034	1.20	4857.20	5329.98	0.07
North Main	below diversion	62789	2685.00	58.00	69.17	63.30	69.18	0.000038	1.35	6323.78	6212.10	0.08
North Main	below diversion	62789	4893.00	58.00	70.91	65.69	70.92	0.000046	1.66	9220.23	9628.24	0.09
North Main	below diversion	62703	1085.00	58.00	66.61	61.10	66.63	0.000050	1.27	2774.64	3688.15	0.08
North Main	below diversion	62703	1812.00	58.00	68.23	62.23	68.24	0.000031	1.14	5152.81	5328.37	0.07
North Main	below diversion	62703	2685.00	58.00	69.17	63.31	69.18	0.000034	1.26	6687.65	6210.09	0.07
North Main	below diversion	62703	4893.00	58.00	70.91	65.62	70.92	0.000041	1.58	9707.83	9626.02	0.08
North Main	below diversion	62600	1085.00	58.00	66.61	61.08	66.61	0.000021	0.82	4806.31	2984.23	0.05
North Main	below diversion	62600	1812.00	58.00	68.23	62.22	68.23	0.000013	0.74	8323.32	4068.51	0.04
North Main	below diversion	62600	2685.00	58.00	69.17	63.25	69.17	0.000014	0.84	10482.64	4674.53	0.05
North Main	below diversion	62600	4893.00	58.00	70.91	65.26	70.91	0.000019	1.04	14688.43	8021.52	0.05
North Main	below diversion	61620	1085.00	58.00	66.60	61.14	66.60	0.000014	0.70	5501.90	9333.55	0.04
North Main	below diversion	61620	1812.00	58.00	68.21	62.22	68.21	0.000011	0.71	9132.56	10348.56	0.04
North Main	below diversion	61620	2685.00	58.00	69.16	63.90	69.16	0.000012	0.81	12377.68	11698.47	0.04
North Main	below diversion	61620	4893.00	58.00	70.90	64.52	70.90	0.000013	0.91	18878.28	13097.95	0.05
North Main	below diversion	61584	1085.00	58.00	66.50	60.95	66.58	0.000157	2.25	1027.01	8647.34	0.15
North Main	below diversion	61584	1812.00	58.00	68.18	62.05	68.20	0.000070	1.72	4692.93	11256.70	0.10
North Main	below diversion	61584	2685.00	58.00	69.15	63.10	69.16	0.000043	1.46	8293.85	12128.48	0.08
North Main	below diversion	61584	4893.00	58.00	70.89	65.18	70.90	0.000029	1.32	14806.75	13096.20	0.07
North Main	below diversion	61570										
North Main	below diversion	61556	1085.00	58.00	66.50	60.95	66.57	0.000159	2.26	1016.06	8639.51	0.15
North Main	below diversion	61556	1812.00	58.00	68.15	62.05	68.17	0.000073	1.76	4572.47	11227.54	0.10
North Main	below diversion	61556	2685.00	58.00	69.13	63.10	69.14	0.000044	1.47	8223.84	12111.58	0.08
North Main	below diversion	61556	4893.00	58.00	70.87	65.18	70.87	0.000029	1.33	14717.79	13090.95	0.07
North Main	below diversion	61443	1085.00	58.00	66.52	60.97	66.53	0.000025	0.95	4755.05	8272.32	0.06
North Main	below diversion	61443	1812.00	58.00	68.15	62.05	68.15	0.000013	0.79	8913.97	8720.27	0.05
North Main	below diversion	61443	2685.00	58.00	69.12	63.03	69.13	0.000017	0.94	12326.40	10768.79	0.05

HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	51443	4893.00	58.00	70.86	65.58	70.86	0.000013	0.94	20752.04	13089.20	0.05
North Main	below diversion	50700	1085.00	58.10	66.51	61.05	66.51	0.000016	0.77	7068.04	8956.69	0.05
North Main	below diversion	50700	1812.00	58.10	68.15	62.12	68.15	0.000006	0.54	15387.65	10824.37	0.03
North Main	below diversion	50700	2685.00	58.10	69.11	63.82	69.11	0.000006	0.55	21569.73	11904.02	0.03
North Main	below diversion	50700	4893.00	58.10	70.85	65.57	70.85	0.000005	0.57	33867.39	13087.46	0.03
North Main	below diversion	58982	1085.00	58.00	66.35	60.95	66.44	0.000185	2.41	795.83	5302.91	0.18
North Main	below diversion	58982	1812.00	58.00	68.10	62.04	68.12	0.000059	1.56	6133.55	9674.16	0.09
North Main	below diversion	58982	2685.00	58.00	69.08	63.10	69.09	0.000030	1.21	11801.16	10612.52	0.07
North Main	below diversion	58982	4893.00	58.00	70.84	65.16	70.85	0.000015	0.96	23722.38	11688.82	0.05
North Main	below diversion	58909	1085.00	58.00	66.32	61.00	66.43	0.000229	2.66	418.23	3380.31	0.18
North Main	below diversion	58909	1812.00	58.00	68.00	62.14	68.09	0.000188	2.78	2295.53	6370.06	0.17
North Main	below diversion	58909	2685.00	58.00	69.03	63.27	69.07	0.000114	2.34	5752.36	8180.85	0.13
North Main	below diversion	58909	4893.00	58.00	70.84	65.36	70.85	0.000044	1.62	15123.68	10217.06	0.08
North Main	below diversion	58887	Bridge									
North Main	below diversion	58865	1085.00	58.00	66.22	61.00	66.34	0.000240	2.70	411.91	3294.51	0.18
North Main	below diversion	58865	1812.00	58.00	67.89	62.14	68.00	0.000213	2.94	1897.86	6177.90	0.18
North Main	below diversion	58865	2685.00	58.00	68.97	63.27	69.02	0.000123	2.41	5519.66	8063.46	0.14
North Main	below diversion	58865	4893.00	58.00	70.82	65.36	70.83	0.000045	1.83	15013.34	10214.36	0.08
North Main	below diversion	58787	1085.00	58.00	66.21	61.00	66.32	0.000240	2.69	449.04	3281.15	0.18
North Main	below diversion	58787	1812.00	58.00	67.90	62.14	67.96	0.000150	2.47	2949.80	6183.20	0.15
North Main	below diversion	58787	2685.00	58.00	68.97	63.27	68.99	0.000080	1.95	7292.23	8394.45	0.11
North Main	below diversion	58787	4893.00	58.00	70.81	65.36	70.82	0.000029	1.31	18248.06	10143.17	0.07
North Main	below diversion	57900	1085.00	58.00	66.15	60.85	66.18	0.000083	1.59	2397.25	3385.50	0.11
North Main	below diversion	57900	1812.00	58.00	67.88	61.93	67.89	0.000031	1.13	6072.91	4647.20	0.07
North Main	below diversion	57900	2685.00	58.00	68.95	63.00	68.95	0.000025	1.09	10195.33	6852.98	0.06
North Main	below diversion	57900	4893.00	58.00	70.80	66.02	70.80	0.000019	1.08	20905.54	9640.26	0.06
North Main	below diversion	55821	1085.00	58.00	65.98	60.98	66.00	0.000088	1.80	2548.07	3383.33	0.12
North Main	below diversion	55821	1812.00	58.00	67.84	62.06	67.84	0.000019	0.92	10392.26	8651.37	0.05
North Main	below diversion	55821	2685.00	58.00	68.93	63.08	68.93	0.000011	0.75	17784.71	9634.55	0.04
North Main	below diversion	55821	4893.00	58.00	70.78	66.06	70.78	0.000007	0.67	30514.72	10116.75	0.03
North Main	below diversion	55758	1085.00	58.00	65.96	60.90	65.99	0.000093	1.78	2706.39	3705.07	0.11
North Main	below diversion	55758	1812.00	58.00	67.83	61.99	67.83	0.000015	0.81	11659.02	8811.04	0.05
North Main	below diversion	55758	2685.00	58.00	68.92	63.01	68.92	0.000008	0.66	19072.97	9501.06	0.04
North Main	below diversion	55758	4893.00	58.00	70.77	66.00	70.77	0.000006	0.62	31666.71	10047.28	0.03
North Main	below diversion	55744	Bridge									
North Main	below diversion	55730	1085.00	58.00	65.90	60.90	65.96	0.000140	2.14	1558.64	2842.25	0.14
North Main	below diversion	55730	1812.00	58.00	67.80	61.99	67.81	0.000038	1.30	6685.29	7636.58	0.08
North Main	below diversion	55730	2685.00	58.00	68.91	63.01	68.91	0.000022	1.06	12721.07	9239.48	0.06
North Main	below diversion	55730	4893.00	58.00	70.74	66.20	70.74	0.000013	0.92	24733.77	10642.77	0.05
North Main	below diversion	55644	1085.00	58.00	65.90	60.90	65.94	0.000117	1.96	2001.32	2394.37	0.13
North Main	below diversion	55644	1812.00	58.00	67.80	61.99	67.80	0.000027	1.09	8059.17	7078.85	0.06
North Main	below diversion	55644	2685.00	58.00	68.91	63.01	68.91	0.000016	0.91	14651.00	8651.71	0.05
North Main	below diversion	55644	4893.00	58.00	70.73	66.04	70.74	0.000010	0.82	27539.64	10002.54	0.04
North Main	below diversion	54900	1085.00	58.00	65.83	60.86	65.86	0.000088	1.71	2742.43	3145.82	0.11
North Main	below diversion	54900	1812.00	58.00	67.78	61.70	67.78	0.000013	0.76	11540.88	5564.52	0.04
North Main	below diversion	54900	2685.00	58.00	68.90	62.70	68.90	0.000009	0.67	18000.01	6735.72	0.04
North Main	below diversion	54900	4893.00	58.00	70.72	65.93	70.73	0.000007	0.67	29082.51	7974.21	0.03
North Main	below diversion	53165	1085.00	58.00	65.69	60.76	65.71	0.000084	1.53	2335.29	1569.28	0.11
North Main	below diversion	53165	1812.00	58.00	67.75	61.81	67.76	0.000026	1.02	7010.23	2890.41	0.06
North Main	below diversion	53165	2685.00	58.00	68.87	62.77	68.88	0.000022	1.02	10664.58	3644.80	0.06
North Main	below diversion	53165	4893.00	58.00	70.71	65.20	70.71	0.000019	1.06	18394.32	6305.73	0.06
North Main	below diversion	53128	1085.00	58.00	65.61	60.67	65.69	0.000178	2.37	925.31	955.93	0.18
North Main	below diversion	53128	1812.00	58.00	67.73	61.67	67.75	0.000056	1.58	4712.61	2840.74	0.09
North Main	below diversion	53128	2685.00	58.00	68.87	62.64	68.88	0.000039	1.43	8494.68	3763.36	0.08
North Main	below diversion	53128	4893.00	58.00	70.71	64.60	70.71	0.000027	1.32	16509.35	6452.82	0.07
North Main	below diversion	53114	Bridge									
North Main	below diversion	53100	1085.00	58.00	65.57	60.67	65.65	0.000184	2.40	891.88	943.93	0.16
North Main	below diversion	53100	1812.00	58.00	67.71	61.67	67.73	0.000053	1.54	5225.33	3452.82	0.09
North Main	below diversion	53100	2685.00	58.00	68.84	62.64	68.85	0.000033	1.32	9784.80	4441.53	0.07
North Main	below diversion	53100	4893.00	58.00	70.69	64.60	70.69	0.000021	1.18	19049.18	6861.35	0.06
North Main	below diversion	52987	1085.00	58.00	65.55	60.67	65.63	0.000189	2.41	871.25	936.45	0.16
North Main	below diversion	52987	1812.00	58.00	67.70	61.67	67.72	0.000054	1.55	5190.99	3439.12	0.09
North Main	below diversion	52987	2685.00	58.00	68.83	62.64	68.84	0.000034	1.33	9729.93	4433.25	0.07
North Main	below diversion	52987	4893.00	58.00	70.68	64.60	70.68	0.000021	1.18	19002.05	6841.06	0.06



HEC-DAS Plan P 259 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	52500	1085.00	58.00	65.45	60.63	65.54	0.000208	2.52	817.77	1109.93	0.17
North Main	below diversion	52500	1812.00	58.00	67.68	61.63	67.70	0.000041	1.35	6337.96	3857.96	0.08
North Main	below diversion	52500	2685.00	58.00	68.82	62.61	68.83	0.000026	1.16	11020.49	4497.20	0.06
North Main	below diversion	52500	4893.00	58.00	70.67	64.58	70.67	0.000017	1.06	20375.14	6836.16	0.05
North Main	below diversion	50599	1085.00	56.00	65.10	59.11	65.19	0.000171	2.46	458.52	69.92	0.18
North Main	below diversion	50599	1812.00	56.00	67.39	60.26	67.54	0.000196	3.13	632.48	124.55	0.17
North Main	below diversion	50599	2685.00	56.00	68.46	61.39	68.89	0.000277	3.98	1332.17	1867.39	0.21
North Main	below diversion	50599	4893.00	56.00	70.56	63.51	70.61	0.000097	2.64	10137.23	7632.90	0.13
North Main	below diversion	50550	1085.00	56.00	65.10	58.92	65.18	0.000162	2.26	482.17	71.23	0.15
North Main	below diversion	50550	1812.00	56.00	67.41	60.02	67.53	0.000174	2.82	792.07	743.49	0.16
North Main	below diversion	50550	2685.00	56.00	68.54	61.14	68.66	0.000174	3.04	3090.82	3501.71	0.16
North Main	below diversion	50550	4893.00	56.00	70.57	63.32	70.59	0.000058	1.93	12161.63	8547.10	0.10
North Main	below diversion	50536	Bridge									
North Main	below diversion	50522	1085.00	56.00	65.07	58.92	65.15	0.000164	2.27	480.50	71.14	0.15
North Main	below diversion	50522	1812.00	56.00	67.33	60.02	67.45	0.000180	2.86	739.01	615.87	0.16
North Main	below diversion	50522	2685.00	56.00	68.43	61.13	68.57	0.000197	3.21	2705.02	3385.64	0.17
North Main	below diversion	50522	4893.00	56.00	70.55	63.32	70.57	0.000057	1.95	12037.78	8538.95	0.10
North Main	below diversion	50423	1085.00	56.00	65.06	58.93	65.14	0.000165	2.27	479.54	71.09	0.15
North Main	below diversion	50423	1812.00	56.00	67.31	60.03	67.44	0.000161	2.86	730.13	591.82	0.16
North Main	below diversion	50423	2685.00	56.00	68.41	61.13	68.55	0.000201	3.24	2635.19	3364.21	0.18
North Main	below diversion	50423	4893.00	56.00	70.54	63.32	70.56	0.000058	1.96	11984.26	8535.43	0.10
North Main	below diversion	49400	1085.00	56.00	64.87	58.95	64.95	0.000176	2.29	475.29	73.32	0.15
North Main	below diversion	49400	1812.00	56.00	67.12	60.05	67.24	0.000188	2.86	772.06	2009.26	0.17
North Main	below diversion	49400	2685.00	56.00	68.33	61.13	68.38	0.000099	2.26	5583.32	4640.61	0.12
North Main	below diversion	49400	4893.00	56.00	70.51	63.29	70.52	0.000028	1.31	17576.28	8229.56	0.07
North Main	below diversion	48450	1085.00	56.00	64.67	59.09	64.77	0.000196	2.53	443.87	71.46	0.17
North Main	below diversion	48450	1812.00	56.00	67.10	60.23	67.12	0.000053	1.59	6055.86	5068.04	0.09
North Main	below diversion	48450	2685.00	56.00	68.32	61.33	68.32	0.000022	1.12	12396.73	5685.80	0.06
North Main	below diversion	48450	4893.00	56.00	70.50	63.41	70.50	0.000010	0.83	26125.35	9109.14	0.04
North Main	reach 1	233824	2722.00	53.37	64.47	57.28	64.62	0.000308	3.03	897.50	104.17	0.18
North Main	reach 1	233824	4319.00	53.37	66.84	58.59	67.02	0.000332	3.50	1871.84	1293.07	0.19
North Main	reach 1	233824	6086.00	53.37	68.14	59.82	68.26	0.000270	3.32	4147.84	2121.65	0.18
North Main	reach 1	233824	10949.00	53.37	70.43	62.59	70.48	0.000182	2.48	9481.63	2565.12	0.14
North Main	reach 1	232833	2722.00	53.37	64.22	56.93	64.33	0.000251	2.75	988.06	114.24	0.17
North Main	reach 1	232833	4319.00	53.37	66.60	58.16	66.72	0.000240	3.02	2537.31	1796.85	0.17
North Main	reach 1	232833	6086.00	53.37	67.98	59.30	68.05	0.000153	2.55	5774.01	2556.00	0.13
North Main	reach 1	232833	10949.00	53.37	70.33	61.86	70.36	0.000067	2.12	12305.85	2962.02	0.10
North Main	reach 1	232775	2722.00	53.37	64.20	56.93	64.32	0.000252	2.76	986.33	114.18	0.17
North Main	reach 1	232775	4319.00	53.37	66.57	58.16	66.70	0.000244	3.04	2494.75	1770.51	0.17
North Main	reach 1	232775	6086.00	53.37	67.97	59.30	68.03	0.000154	2.56	5739.29	2554.57	0.13
North Main	reach 1	232775	10949.00	53.37	70.32	61.86	70.35	0.000087	2.12	12272.85	2986.00	0.10
North Main	reach 1	232000	2722.00	53.37	64.00	56.81	64.12	0.000257	2.80	971.13	110.77	0.17
North Main	reach 1	232000	4319.00	53.37	66.53	58.01	66.56	0.000095	1.66	8652.18	3472.36	0.10
North Main	reach 1	232000	6086.00	53.37	67.95	59.13	67.96	0.000046	1.25	12095.75	4049.05	0.07
North Main	reach 1	232000	10949.00	53.37	70.29	61.69	70.30	0.000027	1.08	21926.29	4336.41	0.06
North Main	reach 1	230198	2722.00	52.60	63.60	55.95	63.70	0.000209	2.57	1059.76	118.33	0.15
North Main	reach 1	230198	4319.00	52.60	66.28	57.10	66.35	0.000136	2.37	4942.36	4795.66	0.13
North Main	reach 1	230198	6086.00	52.60	67.87	58.19	67.88	0.000040	1.38	14353.06	6272.26	0.07
North Main	reach 1	230198	10949.00	52.60	70.26	60.69	70.26	0.000017	0.93	29371.54	6300.00	0.05
North Main	reach 1	230130	2722.00	52.60	63.57	55.95	63.68	0.000211	2.57	1057.17	118.24	0.15
North Main	reach 1	230130	4319.00	52.60	66.27	57.10	66.34	0.000138	2.39	4864.12	4762.03	0.13
North Main	reach 1	230130	6086.00	52.60	67.86	58.19	67.88	0.000040	1.39	14323.08	6272.21	0.07
North Main	reach 1	230130	10949.00	52.60	70.25	60.69	70.26	0.000017	0.93	29355.40	6300.00	0.05
North Main	reach 1	230000	2722.00	52.60	63.54	56.04	63.65	0.000229	2.67	1018.37	114.90	0.16
North Main	reach 1	230000	4319.00	52.60	66.25	57.22	66.31	0.000171	2.34	4521.21	4275.50	0.14
North Main	reach 1	230000	6086.00	52.60	67.86	58.36	67.87	0.000046	1.32	13695.11	6142.04	0.07
North Main	reach 1	230000	10949.00	52.60	70.25	60.90	70.26	0.000018	0.93	28438.00	6184.82	0.05
North Main	reach 1	228819	2722.00	52.61	63.30	55.79	63.39	0.000199	2.48	1095.78	124.53	0.15
North Main	reach 1	228819	4319.00	52.61	65.95	56.90	66.08	0.000214	2.92	1921.96	1447.77	0.16
North Main	reach 1	228819	6086.00	52.61	67.74	57.96	67.79	0.000102	2.16	8098.57	5498.52	0.11
North Main	reach 1	228819	10949.00	52.61	70.21	60.36	70.22	0.000036	1.25	21767.70	5625.35	0.07
North Main	reach 1	227802	2722.00	52.61	62.95	56.20	63.09	0.000315	3.02	902.80	107.81	0.18
North Main	reach 1	227802	4319.00	52.61	65.54	57.42	65.74	0.000355	3.61	1207.77	248.50	0.20
North Main	reach 1	227802	6086.00	52.61	67.51	58.60	67.59	0.000234	2.75	5956.64	5806.23	0.16
North Main	reach 1	227802	10949.00	52.61	70.16	61.20	70.17	0.000039	1.17	22483.65	6265.34	0.07
North Main	reach 1	226000	2722.00	52.41	62.42	55.91	62.57	0.000335	3.07	887.36	108.15	0.19

HEC-DAS Plan P-25K-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El: (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	226000	4319.00	52.41	64.95	57.12	65.18	0.000377	3.68	1173.08	118.01	0.21
North Main	reach 1	226000	6086.00	52.41	66.73	58.26	67.03	0.000482	4.38	1389.54	124.95	0.23
North Main	reach 1	226000	10949.00	52.41	69.79	60.66	70.00	0.000457	4.31	5194.27	2103.42	0.23
North Main	reach 1	224978	2722.00	52.41	62.12	55.62	62.25	0.000283	2.80	970.73	120.30	0.17
North Main	reach 1	224978	4319.00	52.41	64.62	58.73	64.80	0.000316	3.36	1284.13	130.77	0.19
North Main	reach 1	224978	6086.00	52.41	66.33	57.78	66.58	0.000389	4.01	1545.01	200.59	0.21
North Main	reach 1	224978	10949.00	52.41	69.08	60.20	69.47	0.000548	5.24	3160.23	1261.34	0.26
North Main	reach 1	224934	2722.00	52.41	62.11	55.62	62.23	0.000284	2.81	969.11	120.24	0.17
North Main	reach 1	224934	4319.00	52.41	64.60	58.73	64.78	0.000317	3.37	1282.11	130.70	0.19
North Main	reach 1	224934	6086.00	52.41	66.31	57.78	66.56	0.000391	4.02	1541.26	199.40	0.21
North Main	reach 1	224934	10949.00	52.41	69.05	60.19	69.44	0.000555	5.27	3121.54	1258.23	0.26
North Main	reach 1	223155	2722.00	52.35	61.48	55.72	61.63	0.000399	3.18	856.34	114.10	0.20
North Main	reach 1	223155	4319.00	52.35	63.82	56.87	64.03	0.000574	3.74	1203.20	293.35	0.24
North Main	reach 1	223155	6086.00	52.35	65.50	57.96	65.74	0.000542	4.02	1822.51	433.14	0.24
North Main	reach 1	223155	10949.00	52.35	68.00	60.43	68.29	0.000695	4.78	3143.72	639.39	0.28
North Main	reach 1	222000	2722.00	52.03	60.97	55.47	61.15	0.000445	3.32	819.95	110.75	0.22
North Main	reach 1	222000	4319.00	52.03	63.17	56.62	63.41	0.000502	3.99	1185.48	382.41	0.23
North Main	reach 1	222000	6086.00	52.03	64.87	57.73	65.07	0.000597	3.91	2350.91	937.68	0.25
North Main	reach 1	222000	10949.00	52.03	67.55	60.22	67.67	0.000379	3.47	5480.85	1381.13	0.20
North Main	reach 1	220735	2722.00	51.94	60.31	55.35	60.51	0.000587	3.59	757.25	109.28	0.24
North Main	reach 1	220735	4319.00	51.94	62.40	56.53	62.69	0.000645	4.34	995.90	118.71	0.26
North Main	reach 1	220735	6086.00	51.94	63.74	57.64	64.17	0.000827	5.25	1158.93	124.78	0.30
North Main	reach 1	220735	10949.00	51.94	65.96	60.14	66.76	0.001534	7.27	1957.96	1090.77	0.42
North Main	reach 1	220633	2722.00	51.94	60.25	55.35	60.45	0.000582	3.63	750.41	108.00	0.24
North Main	reach 1	220633	4319.00	51.94	62.33	56.53	62.62	0.000661	4.38	986.73	118.39	0.27
North Main	reach 1	220633	6086.00	51.94	63.65	57.84	64.08	0.000851	5.31	1147.04	124.35	0.31
North Main	reach 1	220633	10949.00	51.94	65.70	60.14	66.59	0.001578	7.63	1692.43	906.24	0.42
North Main	reach 1	220295	2722.00	51.84	60.09	55.03	60.28	0.000487	3.36	810.07	115.28	0.22
North Main	reach 1	220295	4319.00	51.84	62.15	56.13	62.41	0.000590	4.09	1056.07	123.86	0.25
North Main	reach 1	220295	6086.00	51.84	63.41	57.16	63.80	0.000735	5.00	1240.81	322.74	0.29
North Main	reach 1	220295	10949.00	51.84	65.57	59.55	66.03	0.001023	5.95	3226.06	1718.41	0.34
North Main	reach 1	219330	2722.00	51.58	59.77	54.33	59.88	0.000295	2.66	1024.74	143.66	0.18
North Main	reach 1	219330	4319.00	51.58	61.80	55.24	61.96	0.000343	3.26	1324.19	152.20	0.19
North Main	reach 1	219330	6086.00	51.58	62.95	56.12	63.20	0.000468	4.05	1502.28	156.95	0.23
North Main	reach 1	219330	10949.00	51.58	64.59	58.17	65.12	0.000864	5.95	2468.99	1317.63	0.32
North Main	reach 1	218000	2722.00	51.24	59.41	53.79	59.51	0.000264	2.55	1067.75	146.38	0.17
North Main	reach 1	218000	4319.00	51.24	61.38	54.69	61.52	0.000319	3.17	1361.19	153.87	0.19
North Main	reach 1	218000	6086.00	51.24	62.38	55.55	62.81	0.000422	3.86	2101.36	1345.29	0.22
North Main	reach 1	218000	10949.00	51.24	63.99	57.54	64.22	0.000480	4.45	4953.44	2033.98	0.24
North Main	reach 1	216808	2722.00	51.24	58.91	54.22	59.08	0.000502	3.27	832.85	127.94	0.23
North Main	reach 1	216808	4319.00	51.24	60.78	55.25	61.02	0.000582	3.92	1348.13	1087.62	0.25
North Main	reach 1	216808	6086.00	51.24	61.90	56.23	62.07	0.000487	3.80	3345.75	2173.56	0.23
North Main	reach 1	216808	10949.00	51.24	63.66	58.45	63.74	0.000328	3.34	7881.37	2990.15	0.19
North Main	reach 1	216752	2722.00	51.24	58.88	54.22	59.05	0.000510	3.28	826.91	127.79	0.23
North Main	reach 1	216752	4319.00	51.24	60.75	55.25	60.99	0.000572	3.94	1313.95	1040.07	0.25
North Main	reach 1	216752	6086.00	51.24	61.86	56.23	62.04	0.000484	3.86	3261.84	2181.32	0.23
North Main	reach 1	216752	10949.00	51.24	63.64	58.45	63.72	0.000335	3.37	7818.12	2982.80	0.19
North Main	reach 1	216000	2722.00	51.25	58.36	54.28	58.59	0.000725	3.63	710.28	111.74	0.27
North Main	reach 1	216000	4319.00	51.25	60.18	55.34	60.49	0.000774	4.52	1265.80	1143.25	0.29
North Main	reach 1	216000	6086.00	51.25	61.53	56.37	61.88	0.000477	3.75	3602.92	1965.45	0.23
North Main	reach 1	216000	10949.00	51.25	63.40	58.70	63.46	0.000352	2.94	7841.85	2427.02	0.19
North Main	reach 1	214269	2722.00	51.25	57.38	53.54	57.52	0.000513	3.02	901.75	159.17	0.22
North Main	reach 1	214269	4319.00	51.25	59.12	54.38	59.33	0.000552	3.65	1184.62	165.77	0.24
North Main	reach 1	214269	6086.00	51.25	60.60	55.15	60.82	0.000516	3.91	2272.59	1234.53	0.24
North Main	reach 1	214269	10949.00	51.25	62.64	56.97	62.81	0.000437	4.03	4929.81	1416.59	0.22
North Main	reach 1	212822	2722.00	51.25	55.02	54.07	55.75	0.005010	6.89	395.07	111.84	0.65
North Main	reach 1	212822	4319.00	51.25	56.90	55.08	57.87	0.003202	7.05	612.64	118.98	0.55
North Main	reach 1	212822	6086.00	51.25	58.40	56.03	59.31	0.002858	7.66	794.83	124.65	0.53
North Main	reach 1	212822	10949.00	51.25	60.32	58.20	61.51	0.003162	9.28	1710.37	679.75	0.58
North Main	reach 1	212818										
North Main	reach 1	212769	2722.00	44.29	55.01	47.79	55.12	0.000239	2.71	1005.78	115.13	0.16
North Main	reach 1	212769	4319.00	44.29	56.90	48.94	57.09	0.000336	3.51	1229.56	122.15	0.20
North Main	reach 1	212769	6086.00	44.29	58.39	50.03	58.59	0.000350	3.81	2247.80	590.42	0.20
North Main	reach 1	212769	10949.00	44.29	60.32	52.52	60.61	0.000502	4.91	3511.68	729.03	0.25
North Main	reach 1	211780	2722.00	43.38	54.88	46.37	54.94	0.000124	2.04	1335.54	144.29	0.12
North Main	reach 1	211780	4319.00	43.38	56.81	47.41	56.86	0.000112	2.11	3782.78	1599.14	0.11

HEC-RAS Plan 2.5% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Crit
North Main	reach 1	211780	8086.00	43.36	58.32	48.40	58.36	0.000998	1.90	6671.20	2208.99	0.11
North Main	reach 1	211780	10949.00	43.36	60.29	50.84	60.32	0.000998	1.92	11867.22	3161.78	0.11
North Main	reach 1	210419	2722.00	43.36	54.62	46.84	54.72	0.000204	2.52	1079.09	122.64	0.15
North Main	reach 1	210419	4319.00	43.36	56.68	48.04	56.72	0.000115	2.03	5148.87	2658.00	0.11
North Main	reach 1	210419	8086.00	43.36	58.24	49.17	58.25	0.000073	1.29	10052.60	3921.55	0.09
North Main	reach 1	210419	10949.00	43.36	60.23	51.89	60.24	0.000049	1.16	18578.87	4582.51	0.07
North Main	reach 1	209041	2722.00	43.31	54.34	46.66	54.44	0.000201	2.51	1083.54	122.08	0.15
North Main	reach 1	209041	4319.00	43.31	56.32	47.81	56.48	0.000278	3.24	1334.39	186.01	0.18
North Main	reach 1	209041	8086.00	43.31	57.90	48.90	58.08	0.000293	3.54	2824.05	1522.99	0.19
North Main	reach 1	209041	10949.00	43.31	60.03	51.36	60.13	0.000231	3.36	8222.01	4681.43	0.17
North Main	reach 1	208000	2722.00	43.31	54.12	46.61	54.22	0.000212	2.58	1055.31	118.69	0.15
North Main	reach 1	208000	4319.00	43.31	56.00	47.75	56.18	0.000302	3.36	1285.56	129.54	0.19
North Main	reach 1	208000	8086.00	43.31	57.46	48.83	57.70	0.000477	3.98	1980.15	1205.95	0.23
North Main	reach 1	208000	10949.00	43.31	59.84	51.32	59.91	0.000289	2.76	9552.77	5699.27	0.18
North Main	reach 1	207786	2722.00	43.31	54.09	46.64	54.19	0.000213	2.52	1079.07	126.89	0.15
North Main	reach 1	207786	4319.00	43.31	55.94	47.80	56.11	0.000302	3.26	1326.29	191.74	0.19
North Main	reach 1	207786	8086.00	43.31	57.43	48.88	57.60	0.000337	3.50	2942.49	1881.89	0.20
North Main	reach 1	207786	10949.00	43.31	59.62	51.32	59.85	0.000185	2.13	12335.71	5400.50	0.14
North Main	reach 1	207730	2722.00	43.31	54.08	46.64	54.17	0.000213	2.53	1077.50	126.82	0.15
North Main	reach 1	207730	4319.00	43.31	55.93	47.79	56.09	0.000303	3.27	1323.01	181.93	0.19
North Main	reach 1	207730	8086.00	43.31	57.42	48.88	57.59	0.000339	3.51	2921.25	1867.52	0.20
North Main	reach 1	207730	10949.00	43.31	59.81	51.32	59.84	0.000187	2.14	12277.28	5368.80	0.14
North Main	reach 1	206000	2722.00	43.32	53.72	46.52	53.81	0.000200	2.46	1703.45	1761.64	0.15
North Main	reach 1	206000	4319.00	43.32	55.84	47.64	55.86	0.000058	1.42	8555.79	3952.08	0.08
North Main	reach 1	206000	8086.00	43.32	57.43	48.69	57.43	0.000026	0.94	14851.51	3988.45	0.05
North Main	reach 1	206000	10949.00	43.32	59.75	51.10	59.75	0.000019	0.83	24594.53	4372.45	0.05
North Main	reach 1	204471	2722.00	43.17	53.34	46.49	53.46	0.000268	2.79	975.16	116.47	0.17
North Main	reach 1	204471	4319.00	43.17	55.48	47.64	55.67	0.000341	3.50	1233.41	124.93	0.20
North Main	reach 1	204471	8086.00	43.17	57.03	48.73	57.29	0.000621	4.15	1641.37	485.73	0.24
North Main	reach 1	204471	10949.00	43.17	59.36	51.22	59.64	0.000623	4.78	3851.30	1400.42	0.27
North Main	reach 1	203192	2722.00	43.15	53.10	45.93	53.18	0.000168	2.22	1227.81	147.95	0.14
North Main	reach 1	203192	4319.00	43.15	55.18	46.91	55.30	0.000214	2.77	1606.64	194.84	0.16
North Main	reach 1	203192	8086.00	43.15	56.62	47.83	56.79	0.000278	3.35	1904.11	217.94	0.18
North Main	reach 1	203192	10949.00	43.15	58.59	49.97	58.95	0.000513	4.90	2810.81	747.09	0.25
North Main	reach 1	202000	2722.00	42.72	52.87	45.68	52.96	0.000195	2.44	1116.02	128.37	0.15
North Main	reach 1	202000	4319.00	42.72	54.86	46.71	55.01	0.000264	3.13	1378.62	135.85	0.17
North Main	reach 1	202000	8086.00	42.72	56.20	47.70	56.41	0.000368	3.72	2076.30	785.33	0.21
North Main	reach 1	202000	10949.00	42.72	58.04	49.96	58.29	0.000526	4.47	4029.69	1338.02	0.25
North Main	reach 1	201961	2722.00	42.72	52.85	45.69	52.95	0.000191	2.38	1142.35	134.61	0.14
North Main	reach 1	201961	4319.00	42.72	54.85	46.72	54.99	0.000255	3.05	1419.44	148.33	0.17
North Main	reach 1	201961	8086.00	42.72	56.19	47.69	56.38	0.000321	3.82	2152.12	905.78	0.19
North Main	reach 1	201961	10949.00	42.72	58.02	49.93	58.26	0.000451	4.41	4419.95	1626.89	0.23
North Main	reach 1	201917	2722.00	42.72	52.85	45.69	52.94	0.000191	2.39	1141.19	134.57	0.14
North Main	reach 1	201917	4319.00	42.72	54.84	46.72	54.98	0.000256	3.05	1417.72	148.17	0.17
North Main	reach 1	201917	8086.00	42.72	56.17	47.70	56.37	0.000323	3.83	2138.74	899.25	0.19
North Main	reach 1	201917	10949.00	42.72	57.99	49.93	58.23	0.000460	4.44	4367.91	1605.19	0.23
North Main	reach 1	201322	2722.00	42.52	52.74	45.48	52.83	0.000187	2.40	1132.91	128.93	0.14
North Main	reach 1	201322	4319.00	42.52	54.67	46.49	54.82	0.000257	3.11	1368.55	815.66	0.17
North Main	reach 1	201322	8086.00	42.52	55.93	47.49	56.17	0.000362	3.90	1561.64	976.96	0.21
North Main	reach 1	201322	10949.00	42.52	57.24	49.74	57.85	0.000843	8.27	1747.31	1144.60	0.32
North Main	reach 1	200676	2722.00	42.52	52.59	45.87	52.69	0.000258	2.63	1033.84	133.02	0.17
North Main	reach 1	200676	4319.00	42.52	54.50	46.99	54.65	0.000308	3.17	1802.59	888.20	0.19
North Main	reach 1	200676	8086.00	42.52	55.80	48.07	55.93	0.000327	3.26	3066.28	1072.76	0.19
North Main	reach 1	200676	10949.00	42.52	57.17	50.46	57.30	0.000664	3.50	4949.62	1660.19	0.26
North Main	reach 1	200030	2722.00	42.52	52.42	45.58	52.53	0.000237	2.63	1035.63	123.17	0.16
North Main	reach 1	200030	4319.00	42.52	54.34	46.67	54.47	0.000261	3.05	2070.51	809.39	0.17
North Main	reach 1	200030	8086.00	42.52	55.78	47.69	55.81	0.000086	1.87	10549.70	6242.85	0.10
North Main	reach 1	200030	10949.00	42.52	57.16	50.03	57.17	0.000061	1.67	19308.93	6435.21	0.09
North Main	reach 1	199964	2722.00	42.52	52.41	45.58	52.51	0.000238	2.63	1033.61	123.10	0.16
North Main	reach 1	199964	4319.00	42.52	54.32	46.67	54.45	0.000263	3.06	2055.28	807.00	0.17
North Main	reach 1	199964	8086.00	42.52	55.77	47.69	55.80	0.000087	1.88	10511.77	6241.81	0.10
North Main	reach 1	199964	10949.00	42.52	57.16	50.03	57.17	0.000062	1.68	19282.37	6434.71	0.09
North Main	reach 1	198000	2722.00	42.52	51.95	45.43	52.05	0.000229	2.55	1292.44	601.74	0.16
North Main	reach 1	198000	4319.00	42.52	54.17	46.47	54.19	0.000066	1.55	8094.80	4358.20	0.09
North Main	reach 1	198000	8086.00	42.52	55.70	47.44	55.70	0.000029	1.10	17051.23	7605.51	0.06
North Main	reach 1	198000	10949.00	42.52	57.09	49.68	57.09	0.000026	1.00	27834.86	7797.04	0.05

HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch B (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	197381	2722.00	42.52	51.79	45.47	51.90	0.000261	2.85	1033.60	191.74	0.17
North Main	reach 1	197381	4319.00	42.52	54.08	48.50	54.13	0.000137	2.17	5108.35	3538.40	0.12
North Main	reach 1	197381	6086.00	42.52	55.67	47.49	55.88	0.000053	1.48	11910.40	5410.14	0.08
North Main	reach 1	197381	10949.00	42.52	57.07	49.73	57.08	0.000048	1.48	22015.97	8907.88	0.08
North Main	reach 1	197333	2722.00	42.52	51.78	45.48	51.89	0.000262	2.85	1031.13	188.88	0.17
North Main	reach 1	197333	4319.00	42.52	54.02	48.51	54.11	0.000209	2.68	3553.23	3327.98	0.15
North Main	reach 1	197333	6086.00	42.52	55.68	47.49	55.88	0.000073	1.71	10398.16	5407.23	0.09
North Main	reach 1	197333	10949.00	42.52	57.06	49.73	57.07	0.000080	1.83	20512.49	8907.39	0.08
North Main	reach 1	198000	2722.00	42.53	51.37	45.52	51.50	0.000321	2.87	950.03	126.67	0.18
North Main	reach 1	198000	4319.00	42.53	53.58	46.56	53.74	0.000381	3.44	1369.60	328.10	0.20
North Main	reach 1	198000	6086.00	42.53	55.48	47.56	55.53	0.000192	2.55	6217.71	3947.58	0.15
North Main	reach 1	198000	10949.00	42.53	56.93	49.84	56.96	0.000140	2.06	12951.50	5118.19	0.12
North Main	reach 1	194500	2722.00	42.53	50.73	45.69	50.91	0.000491	3.37	808.50	115.88	0.22
North Main	reach 1	194500	4319.00	42.53	52.81	48.79	53.07	0.000559	4.08	1058.29	124.40	0.25
North Main	reach 1	194500	6086.00	42.53	54.72	47.83	55.03	0.000580	4.57	1682.91	1123.84	0.26
North Main	reach 1	194500	10949.00	42.53	56.51	50.22	56.63	0.000366	3.69	8212.23	4446.49	0.20
North Main	reach 1	194434	2722.00	42.53	50.70	45.69	50.87	0.000488	3.38	804.49	115.54	0.23
North Main	reach 1	194434	4319.00	42.53	52.77	48.79	53.03	0.000567	4.10	1053.32	124.23	0.25
North Main	reach 1	194434	6086.00	42.53	54.67	47.83	54.99	0.000594	4.61	1608.90	1075.37	0.26
North Main	reach 1	194434	10949.00	42.53	56.48	50.21	56.60	0.000378	3.75	8077.55	4441.06	0.21
North Main	reach 1	194000	2722.00	42.44	50.48	45.57	50.88	0.000486	3.34	814.89	119.04	0.23
North Main	reach 1	194000	4319.00	42.44	52.53	46.84	52.79	0.000582	4.05	1067.98	127.96	0.25
North Main	reach 1	194000	6086.00	42.44	54.50	47.67	54.73	0.000493	4.07	2833.00	2847.88	0.24
North Main	reach 1	194000	10949.00	42.44	56.41	50.00	56.45	0.000234	2.52	10660.36	4470.43	0.16
North Main	reach 1	192000	2722.00	42.24	49.23	45.25	49.48	0.000740	3.81	714.91	116.06	0.27
North Main	reach 1	192000	4319.00	42.24	51.11	48.30	51.44	0.000817	4.59	940.18	123.37	0.29
North Main	reach 1	192000	6086.00	42.24	53.01	47.30	53.39	0.000927	5.03	1454.27	939.05	0.31
North Main	reach 1	192000	10949.00	42.24	55.87	49.59	55.94	0.000277	2.94	7887.57	2495.12	0.17
North Main	reach 1	190533	2722.00	42.24	48.27	45.31	47.10	0.005222	7.29	373.52	99.45	0.66
North Main	reach 1	190533	4319.00	42.24	48.61	48.40	49.38	0.002791	7.01	618.10	107.87	0.52
North Main	reach 1	190533	6086.00	42.24	50.42	47.42	51.28	0.002365	7.46	815.91	114.03	0.49
North Main	reach 1	190533	10949.00	42.24	53.62	49.78	54.91	0.002547	9.11	1202.25	5023.94	0.53
North Main	reach 1	190528										
North Main	reach 1		Inline Weir									
North Main	reach 1	190513	2722.00	38.26	46.27	41.44	46.47	0.000563	3.60	756.27	107.36	0.24
North Main	reach 1	190513	4319.00	38.26	48.61	42.58	48.89	0.000587	4.25	1018.98	115.17	0.25
North Main	reach 1	190513	6086.00	38.26	50.41	43.82	50.79	0.000665	4.95	1229.43	120.89	0.27
North Main	reach 1	190513	10949.00	38.26	53.61	46.07	54.30	0.001033	6.88	1838.46	5013.77	0.35
North Main	reach 1	190000	2722.00	38.26	46.00	41.28	46.19	0.000525	3.39	804.04	120.34	0.23
North Main	reach 1	190000	4319.00	38.26	48.35	42.35	48.59	0.000523	3.93	1098.53	130.33	0.24
North Main	reach 1	190000	6086.00	38.26	50.13	43.34	50.45	0.000584	4.55	1336.80	3825.55	0.26
North Main	reach 1	190000	10949.00	38.26	53.17	45.84	53.78	0.000967	6.15	1779.52	5328.12	0.34
North Main	reach 1	189032	2722.00	38.26	45.39	41.32	45.60	0.000699	3.65	745.31	124.57	0.26
North Main	reach 1	189032	4319.00	38.26	47.78	42.37	48.04	0.000829	4.08	1059.42	138.06	0.26
North Main	reach 1	189032	6086.00	38.26	49.51	43.37	49.84	0.000683	4.66	1305.83	512.59	0.28
North Main	reach 1	189032	10949.00	38.26	52.11	45.84	52.74	0.001128	6.36	1721.76	4874.13	0.36
North Main	reach 1	188975	2722.00	38.26	45.35	41.32	45.58	0.000715	3.68	739.74	124.32	0.27
North Main	reach 1	188975	4319.00	38.26	47.74	42.37	48.00	0.000638	4.10	1053.99	137.84	0.26
North Main	reach 1	188975	6086.00	38.26	49.48	43.37	49.80	0.000693	4.68	1299.46	485.88	0.28
North Main	reach 1	188975	10949.00	38.26	52.04	45.84	52.67	0.001157	6.41	1708.05	4821.02	0.36
North Main	reach 1	188000	2131.00	37.63	44.85	40.94	44.98	0.000458	2.68	800.97	154.89	0.21
North Main	reach 1	188000	3219.00	37.63	47.42	41.85	47.53	0.000296	2.63	1223.65	171.57	0.17
North Main	reach 1	188000	4396.00	37.63	49.18	42.28	49.30	0.000275	2.87	1530.51	177.41	0.17
North Main	reach 1	188000	9519.00	37.63	51.39	44.54	51.78	0.000631	4.93	1930.80	5419.03	0.27
North Main	reach 1	187889	2131.00	37.63	44.72	40.61	44.89	0.000584	3.24	658.54	111.50	0.23
North Main	reach 1	187889	3219.00	37.63	47.30	41.43	47.47	0.000419	3.35	959.50	122.37	0.21
North Main	reach 1	187889	4396.00	37.63	49.04	42.21	49.25	0.000428	3.73	1178.44	129.69	0.22
North Main	reach 1	187889	9519.00	37.63	50.94	44.93	51.62	0.001139	6.64	1433.02	137.71	0.36
North Main	reach 1	187894	2131.00	34.85	44.71	38.32	44.81	0.000235	2.49	854.45	108.83	0.16
North Main	reach 1	187894	3219.00	34.85	47.28	39.19	47.40	0.000227	2.81	1148.39	118.31	0.16
North Main	reach 1	187894	4396.00	34.85	49.02	39.99	49.18	0.000261	3.24	1357.12	124.85	0.17
North Main	reach 1	187894	9519.00	34.85	50.87	42.84	51.42	0.000770	5.97	1595.10	131.78	0.30
North Main	reach 1	186000	2131.00	34.04	44.44	36.94	44.50	0.000134	1.99	1073.01	127.40	0.12
North Main	reach 1	186000	3219.00	34.04	47.01	37.76	47.09	0.000148	2.28	1414.45	147.14	0.13
North Main	reach 1	186000	4396.00	34.04	48.83	38.52	48.87	0.000107	1.80	5697.19	4008.12	0.11
North Main	reach 1	186000	9519.00	34.04	51.00	41.21	51.01	0.000058	1.46	14895.18	4156.82	0.08
North Main	reach 1	184000	2131.00	34.09	44.19	36.66	44.25	0.000128	1.96	1085.10	126.37	0.12

HEC-DAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	184000	3219.00	34.09	48.73	37.45	48.81	0.000132	2.27	1418.28	135.15	0.12
North Main	reach 1	184000	4396.00	34.09	48.49	38.21	48.80	0.000167	2.64	1683.18	392.79	0.14
North Main	reach 1	184000	9519.00	34.09	50.79	40.83	50.84	0.000147	2.34	10052.61	4100.62	0.13
North Main	reach 1	182000	2131.00	33.49	43.93	36.10	43.99	0.000121	1.93	1103.36	125.62	0.11
North Main	reach 1	182000	3219.00	33.49	48.47	36.90	46.55	0.000128	2.24	1434.00	135.12	0.12
North Main	reach 1	182000	4396.00	33.49	46.21	37.68	48.27	0.000144	2.22	4097.81	3872.93	0.13
North Main	reach 1	182000	9519.00	33.49	50.62	40.35	50.84	0.000068	1.59	14106.77	4125.33	0.09
North Main	reach 1	180000	2131.00	33.44	43.67	36.12	43.74	0.000134	2.01	1080.23	123.01	0.12
North Main	reach 1	180000	3219.00	33.44	46.20	36.93	46.28	0.000141	2.33	1382.39	132.55	0.13
North Main	reach 1	180000	4396.00	33.44	47.84	37.70	47.95	0.000170	2.74	1605.14	138.77	0.14
North Main	reach 1	180000	9519.00	33.44	50.40	40.38	50.44	0.000138	2.29	10372.90	4111.40	0.13
North Main	reach 1	178120	2131.00	33.43	43.30	36.68	43.40	0.000245	2.50	851.75	113.00	0.16
North Main	reach 1	178120	3219.00	33.43	45.62	37.63	45.94	0.000238	2.79	1152.69	126.49	0.16
North Main	reach 1	178120	4396.00	33.43	47.38	38.52	47.54	0.000281	3.24	1357.16	134.88	0.18
North Main	reach 1	178120	9519.00	33.43	50.05	41.54	50.14	0.000216	3.12	8373.56	4099.88	0.16
North Main	reach 1	178059	2131.00	33.43	43.29	36.68	43.39	0.000246	2.50	850.73	112.95	0.16
North Main	reach 1	178059	3219.00	33.43	45.81	37.63	45.93	0.000239	2.80	1151.61	128.44	0.16
North Main	reach 1	178059	4396.00	33.43	47.37	38.52	47.53	0.000282	3.24	1355.78	134.83	0.18
North Main	reach 1	178059	9519.00	33.43	50.03	41.54	50.12	0.000219	3.14	8314.43	4099.23	0.16
North Main	reach 1	178000	2131.00	33.28	43.30	36.18	43.37	0.000167	2.16	977.95	118.58	0.13
North Main	reach 1	178000	3219.00	33.28	45.81	37.00	45.91	0.000171	2.50	1288.58	128.53	0.14
North Main	reach 1	178000	4396.00	33.28	47.38	37.80	47.51	0.000208	2.94	1494.39	134.73	0.16
North Main	reach 1	178000	9519.00	33.28	50.06	40.59	50.10	0.000148	2.20	10810.93	4162.59	0.13
North Main	reach 1	176000	2131.00	33.44	42.94	36.22	43.02	0.000189	2.25	948.21	121.34	0.14
North Main	reach 1	176000	3219.00	33.44	45.45	37.05	45.55	0.000166	2.54	1267.53	132.59	0.14
North Main	reach 1	176000	4396.00	33.44	46.93	37.88	47.07	0.000235	2.99	1468.32	142.88	0.16
North Main	reach 1	176000	9519.00	33.44	49.76	40.61	49.80	0.000146	2.32	10597.59	5020.29	0.13
North Main	reach 1	174282	2131.00	32.56	42.68	35.39	42.74	0.000133	1.99	1069.54	125.16	0.12
North Main	reach 1	174282	3219.00	32.56	45.19	36.18	45.28	0.000138	2.31	1393.99	133.11	0.13
North Main	reach 1	174282	4396.00	32.56	46.60	36.92	46.71	0.000181	2.78	1583.90	140.60	0.15
North Main	reach 1	174282	9519.00	32.56	49.30	39.50	49.45	0.000329	3.53	6902.95	6614.79	0.19
North Main	reach 1	173031	2131.00	32.46	42.48	35.27	42.56	0.000164	2.16	984.31	119.64	0.13
North Main	reach 1	173031	3219.00	32.46	44.99	36.12	45.08	0.000169	2.48	1298.01	131.00	0.14
North Main	reach 1	173031	4396.00	32.46	46.33	36.94	46.47	0.000219	2.97	1477.70	137.11	0.16
North Main	reach 1	173031	9519.00	32.46	49.02	39.74	49.12	0.000198	3.11	9888.07	7835.90	0.16
North Main	reach 1	172979	2131.00	32.46	42.48	35.27	42.55	0.000165	2.17	983.26	119.60	0.13
North Main	reach 1	172979	3219.00	32.46	44.98	36.12	45.08	0.000170	2.48	1296.83	130.98	0.14
North Main	reach 1	172979	4396.00	32.46	46.32	36.94	46.46	0.000219	2.98	1476.08	137.06	0.16
North Main	reach 1	172979	9519.00	32.46	49.00	39.74	49.10	0.000204	3.16	9703.76	7833.75	0.16
North Main	reach 1	172000	2131.00	32.46	42.32	35.18	42.39	0.000158	2.13	1002.07	121.33	0.13
North Main	reach 1	172000	3219.00	32.46	44.82	36.00	44.91	0.000161	2.45	1318.36	130.04	0.14
North Main	reach 1	172000	4396.00	32.46	46.11	36.78	46.24	0.000210	2.96	1486.92	134.52	0.16
North Main	reach 1	172000	9519.00	32.46	48.50	39.52	48.77	0.000552	4.48	4140.48	3487.04	0.25
North Main	reach 1	170000	2131.00	32.45	42.01	34.99	42.08	0.000150	2.07	1027.27	123.76	0.13
North Main	reach 1	170000	3219.00	32.45	44.50	35.77	44.59	0.000155	2.39	1346.77	133.47	0.13
North Main	reach 1	170000	4396.00	32.45	45.66	36.51	45.79	0.000243	2.91	1510.67	156.57	0.17
North Main	reach 1	170000	9519.00	32.45	47.00	39.12	47.47	0.000863	5.50	1731.12	179.38	0.31
North Main	reach 1	168000	2131.00	32.50	41.67	35.12	41.75	0.000184	2.21	963.37	123.77	0.14
North Main	reach 1	168000	3219.00	32.50	44.16	35.92	44.26	0.000177	2.50	1370.25	628.44	0.14
North Main	reach 1	168000	4396.00	32.50	45.21	36.67	45.30	0.000239	2.55	3653.53	3892.53	0.16
North Main	reach 1	168000	9519.00	32.50	46.41	39.32	46.47	0.000262	2.84	8487.48	4232.98	0.17
North Main	reach 1	167722	2131.00	32.50	41.61	35.19	41.69	0.000207	2.33	913.27	117.61	0.15
North Main	reach 1	167722	3219.00	32.50	44.09	36.00	44.20	0.000202	2.64	1219.96	137.34	0.15
North Main	reach 1	167722	4396.00	32.50	45.11	36.78	45.23	0.000226	2.93	2982.57	4049.09	0.16
North Main	reach 1	167722	9519.00	32.50	46.33	39.52	46.41	0.000223	3.05	10436.21	7241.52	0.16
North Main	reach 1	167642	2131.00	32.50	41.59	35.19	41.68	0.000208	2.34	911.25	117.54	0.15
North Main	reach 1	167642	3219.00	32.50	44.08	36.01	44.19	0.000203	2.65	1217.77	136.95	0.15
North Main	reach 1	167642	4396.00	32.50	45.09	36.79	45.21	0.000231	2.96	2865.66	3888.28	0.16
North Main	reach 1	167642	9519.00	32.50	46.31	39.52	46.38	0.000231	3.11	10222.63	7226.56	0.16
North Main	reach 1	166000	2131.00	32.51	41.22	35.23	41.30	0.000238	2.39	892.01	124.77	0.16
North Main	reach 1	166000	3219.00	32.51	43.69	36.05	43.80	0.000275	2.82	1226.41	166.20	0.17
North Main	reach 1	166000	4396.00	32.51	44.56	36.83	44.72	0.000398	3.14	1640.61	1884.60	0.20
North Main	reach 1	166000	9519.00	32.51	46.01	39.53	46.04	0.000174	2.24	13005.90	7847.36	0.14
North Main	reach 1	164000	2131.00	31.68	40.83	34.23	40.90	0.000171	2.12	1003.28	130.48	0.13
North Main	reach 1	164000	3219.00	31.68	43.24	35.01	43.32	0.000206	2.28	1665.13	941.61	0.15
North Main	reach 1	164000	4396.00	31.68	44.20	35.75	44.24	0.000140	1.96	6273.46	6695.93	0.12
North Main	reach 1	164000	9519.00	31.68	45.82	38.37	45.83	0.000068	1.45	18522.39	7844.15	0.09

HEC-DAS Plan P 25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Frout # Chl
North Main	reach 1	163662	2131.00	31.34	40.77	33.90	40.84	0.000158	2.09	1020.64	127.57	0.13
North Main	reach 1	163662	3219.00	31.34	43.17	34.68	43.25	0.000191	2.38	1585.36	950.32	0.14
North Main	reach 1	163662	4398.00	31.34	44.14	35.43	44.18	0.000202	2.07	4927.37	4677.43	0.14
North Main	reach 1	163662	9519.00	31.34	45.80	38.04	45.81	0.000103	1.88	14317.01	6000.00	0.11
North Main	reach 1	163805	2131.00	31.34	40.76	33.90	40.83	0.000159	2.09	1019.48	127.53	0.13
North Main	reach 1	163805	3219.00	31.34	43.16	34.69	43.24	0.000190	2.37	1574.78	927.70	0.14
North Main	reach 1	163805	4398.00	31.34	44.12	35.43	44.17	0.000205	2.09	4868.77	4657.32	0.14
North Main	reach 1	163805	9519.00	31.34	45.79	38.04	45.81	0.000104	1.88	14280.64	6000.00	0.11
North Main	reach 1	162000	2131.00	31.35	40.49	33.93	40.56	0.000180	2.16	987.24	129.92	0.14
North Main	reach 1	162000	3219.00	31.35	43.01	34.72	43.03	0.000084	1.45	5925.04	4970.45	0.09
North Main	reach 1	162000	4398.00	31.35	44.02	35.48	44.03	0.000043	1.08	11970.29	6909.78	0.07
North Main	reach 1	162000	9519.00	31.35	45.71	38.10	45.71	0.000029	0.95	24754.88	7883.17	0.08
North Main	reach 1	160000	2131.00	31.35	40.16	33.87	40.23	0.000154	2.01	1058.48	137.24	0.13
North Main	reach 1	160000	3219.00	31.35	42.71	34.39	42.79	0.000182	2.28	1425.89	178.28	0.14
North Main	reach 1	160000	4398.00	31.35	43.85	35.08	43.89	0.000126	1.92	5785.96	5420.42	0.12
North Main	reach 1	160000	9519.00	31.35	45.61	37.51	45.62	0.000083	1.48	18280.64	7833.89	0.08
North Main	reach 1	158000	2131.00	31.38	39.79	33.88	39.87	0.000212	2.26	941.23	130.58	0.15
North Main	reach 1	158000	3219.00	31.38	42.29	34.62	42.38	0.000221	2.50	1288.52	158.22	0.15
North Main	reach 1	158000	4398.00	31.38	43.56	35.34	43.61	0.000164	2.11	5041.88	4793.53	0.13
North Main	reach 1	158000	9519.00	31.38	45.48	37.88	45.49	0.000068	1.44	18248.28	7860.84	0.09
North Main	reach 1	157191	2131.00	31.38	39.58	33.94	39.67	0.000264	2.49	854.58	120.27	0.16
North Main	reach 1	157191	3219.00	31.38	42.08	34.73	42.20	0.000238	2.78	1187.88	130.14	0.16
North Main	reach 1	157191	4398.00	31.38	43.27	35.49	43.42	0.000285	3.20	1999.55	2493.88	0.18
North Main	reach 1	157191	9519.00	31.38	45.40	38.13	45.42	0.000103	2.06	15361.61	8000.00	0.11
North Main	reach 1	157140	2131.00	31.38	39.56	33.94	39.66	0.000265	2.50	852.87	120.21	0.17
North Main	reach 1	157140	3219.00	31.38	42.07	34.73	42.18	0.000239	2.78	1168.04	130.09	0.16
North Main	reach 1	157140	4398.00	31.38	43.26	35.48	43.41	0.000288	3.21	1962.40	2428.57	0.18
North Main	reach 1	157140	9519.00	31.38	45.39	38.13	45.42	0.000104	2.07	15318.75	8000.00	0.11
North Main	reach 1	156000	2131.00	31.38	39.24	33.87	39.35	0.000286	2.58	833.42	119.83	0.17
North Main	reach 1	156000	3219.00	31.38	41.78	34.64	41.90	0.000254	2.80	1148.38	130.38	0.17
North Main	reach 1	156000	4398.00	31.38	42.88	35.39	43.03	0.000392	3.19	1808.10	1190.03	0.20
North Main	reach 1	156000	9519.00	31.38	45.30	38.00	45.32	0.000074	1.57	17878.38	7827.58	0.09
North Main	reach 1	154844	2131.00	31.37	38.85	33.74	38.95	0.000292	2.54	837.74	123.09	0.17
North Main	reach 1	154844	3219.00	31.37	41.45	34.48	41.57	0.000242	2.78	1166.95	130.73	0.18
North Main	reach 1	154844	4398.00	31.37	42.35	35.18	42.54	0.000337	3.42	1288.80	133.40	0.19
North Main	reach 1	154844	9519.00	31.37	45.08	37.88	45.14	0.000284	3.07	9394.75	7770.71	0.18
North Main	reach 1	153231	2131.00	31.03	38.35	33.72	38.47	0.000398	2.81	759.36	122.37	0.20
North Main	reach 1	153231	3219.00	31.03	41.06	34.50	41.19	0.000295	2.91	1108.93	134.69	0.18
North Main	reach 1	153231	4398.00	31.03	41.79	35.25	42.00	0.000428	3.64	1207.88	138.08	0.22
North Main	reach 1	153231	9519.00	31.03	44.17	37.81	44.50	0.000985	5.09	4160.42	5574.67	0.32
North Main	reach 1	152581	2131.00	31.03	38.04	33.87	38.18	0.000476	3.00	710.17	118.10	0.22
North Main	reach 1	152581	3219.00	31.03	40.83	34.48	40.98	0.000332	3.03	1062.77	133.47	0.19
North Main	reach 1	152581	4398.00	31.03	41.46	35.24	41.89	0.000496	3.83	1147.70	136.71	0.23
North Main	reach 1	152581	9519.00	31.03	43.62	37.90	43.82	0.000939	4.35	5171.28	4657.41	0.31
North Main	reach 1	152553	Inline Weir									
North Main	reach 1	152515	2131.00	28.25	38.04	30.86	38.10	0.000151	2.08	1026.54	124.98	0.13
North Main	reach 1	152515	3219.00	28.25	40.82	31.69	40.91	0.000142	2.31	1390.92	138.39	0.13
North Main	reach 1	152515	4398.00	28.25	41.45	32.46	41.59	0.000222	2.98	1477.48	138.97	0.16
North Main	reach 1	152515	9519.00	28.25	43.61	35.13	43.77	0.000537	3.74	5809.36	5562.02	0.24
North Main	reach 1	152000	2131.00	28.25	37.98	30.93	38.03	0.000182	2.12	1002.94	124.45	0.13
North Main	reach 1	152000	3219.00	28.25	40.75	31.75	40.84	0.000150	2.35	1367.57	136.65	0.13
North Main	reach 1	152000	4398.00	28.25	41.33	32.54	41.47	0.000238	3.04	1446.89	139.14	0.17
North Main	reach 1	152000	9519.00	28.25	43.50	35.25	43.58	0.000227	2.88	9830.12	7807.12	0.16
North Main	reach 1	151800	2131.00	28.25	37.90	30.77	37.97	0.000148	2.06	1032.98	122.88	0.13
North Main	reach 1	151800	3219.00	28.25	40.70	31.55	40.78	0.000138	2.32	1389.38	132.06	0.13
North Main	reach 1	151800	4398.00	28.25	41.24	32.30	41.38	0.000223	3.01	1461.29	133.84	0.16
North Main	reach 1	151800	9519.00	28.25	43.45	34.91	43.50	0.000140	2.50	12456.96	7996.92	0.13
North Main	reach 1	151516	2131.00	28.25	37.89	30.77	37.95	0.000147	2.07	1031.43	122.82	0.13
North Main	reach 1	151516	3219.00	28.25	40.69	31.55	40.77	0.000139	2.32	1387.81	132.02	0.13
North Main	reach 1	151516	4398.00	28.25	41.22	32.30	41.38	0.000224	3.01	1458.89	133.77	0.16
North Main	reach 1	151516	9519.00	28.25	42.94	34.91	43.43	0.000706	5.62	1694.88	4092.00	0.29
North Main	reach 1	150000	2121.00	27.92	37.65	30.66	37.72	0.000185	2.13	994.91	124.73	0.13
North Main	reach 1	150000	3193.00	27.92	40.48	31.47	40.54	0.000182	2.34	1381.59	130.97	0.14
North Main	reach 1	150000	4299.00	27.92	40.83	32.23	40.96	0.000309	2.99	1578.51	1719.10	0.18
North Main	reach 1	150000	9227.00	27.92	41.82	34.86	42.21	0.000886	5.22	3144.16	3267.90	0.31



HEC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	148000.	2121.00	27.14	37.35	29.94	37.41	0.000142	2.02	1047.77	126.33	0.12
North Main	reach 1	148000.	3193.00	27.14	40.14	30.74	40.21	0.000188	2.18	1695.75	1190.53	0.13
North Main	reach 1	148000.	4299.00	27.14	40.57	31.48	40.80	0.000101	1.74	8671.87	5748.94	0.11
North Main	reach 1	148000.	9227.00	27.14	41.54	34.13	41.57	0.000125	2.03	13844.97	7839.07	0.12
North Main	reach 1	147159	2121.00	27.14	37.24	29.81	37.30	0.000129	1.95	1088.65	129.66	0.12
North Main	reach 1	147159	3193.00	27.14	39.99	30.59	40.04	0.000243	1.91	2702.34	3993.30	0.15
North Main	reach 1	147159	4299.00	27.14	40.51	31.30	40.52	0.000090	1.14	9847.18	7985.39	0.09
North Main	reach 1	147159	9227.00	27.14	41.47	33.84	41.48	0.000085	1.22	17370.06	8000.00	0.09
North Main	reach 1	147111	2121.00	27.14	37.23	29.81	37.29	0.000130	1.95	1087.83	129.64	0.12
North Main	reach 1	147111	3193.00	27.14	39.97	30.59	40.03	0.000247	1.92	2650.17	3885.17	0.15
North Main	reach 1	147111	4299.00	27.14	40.50	31.30	40.51	0.000091	1.14	9811.12	7985.00	0.09
North Main	reach 1	147111	9227.00	27.14	41.47	33.84	41.48	0.000085	1.22	17398.80	8000.00	0.09
North Main	reach 1	146000.	2121.00	27.13	37.07	29.66	37.13	0.000148	2.06	1030.92	125.27	0.13
North Main	reach 1	146000.	3193.00	27.13	39.74	30.65	39.80	0.000162	2.13	2261.73	2427.94	0.13
North Main	reach 1	146000.	4299.00	27.13	40.42	31.39	40.44	0.000053	1.25	10766.31	7813.36	0.08
North Main	reach 1	146000.	9227.00	27.13	41.38	33.97	41.39	0.000085	1.45	18261.81	7829.19	0.09
North Main	reach 1	144000.	2121.00	27.12	36.74	29.68	36.82	0.000171	2.17	975.79	121.31	0.14
North Main	reach 1	144000.	3193.00	27.12	39.33	30.69	39.42	0.000227	2.43	1314.20	171.48	0.15
North Main	reach 1	144000.	4299.00	27.12	40.27	31.42	40.29	0.000099	1.69	7414.50	7768.89	0.10
North Main	reach 1	144000.	9227.00	27.12	41.20	34.04	41.22	0.000112	1.88	14727.72	7815.32	0.11
North Main	reach 1	143293	2121.00	27.12	36.61	29.68	36.68	0.000177	2.18	972.47	123.80	0.14
North Main	reach 1	143293	3193.00	27.12	39.16	30.68	39.25	0.000211	2.44	1309.27	161.06	0.15
North Main	reach 1	143293	4299.00	27.12	40.21	31.41	40.22	0.000072	1.13	9857.59	7742.43	0.08
North Main	reach 1	143293	9227.00	27.12	41.14	34.03	41.14	0.000089	1.18	17174.79	8000.00	0.09
North Main	reach 1	143179	2121.00	27.12	36.60	29.68	36.67	0.000177	2.18	971.28	123.78	0.14
North Main	reach 1	143179	3193.00	27.12	39.15	30.68	39.24	0.000211	2.44	1307.36	160.22	0.15
North Main	reach 1	143179	4299.00	27.12	40.21	31.42	40.22	0.000072	1.13	9826.68	7741.12	0.08
North Main	reach 1	143179	9227.00	27.12	41.13	34.03	41.14	0.000089	1.22	17132.55	8000.00	0.09
North Main	reach 1	142000.	2121.00	27.13	36.35	30.02	36.44	0.000221	2.36	899.80	120.75	0.15
North Main	reach 1	142000.	3193.00	27.13	36.86	30.66	38.97	0.000253	2.61	1221.69	155.69	0.16
North Main	reach 1	142000.	4299.00	27.13	39.97	31.63	40.03	0.000195	2.34	4305.02	3914.41	0.15
North Main	reach 1	142000.	9227.00	27.13	41.06	34.33	41.06	0.000050	1.22	20172.93	7843.19	0.07
North Main	reach 1	141221	2121.00	26.68	36.19	29.55	36.27	0.000202	2.32	914.91	117.24	0.15
North Main	reach 1	141221	3193.00	26.68	38.62	30.40	38.71	0.000431	2.35	1357.69	2172.61	0.20
North Main	reach 1	141221	4299.00	26.68	39.89	31.17	39.91	0.000113	1.36	6723.09	3992.87	0.10
North Main	reach 1	141221	9227.00	26.68	41.04	33.89	41.04	0.000027	0.74	25388.10	8000.00	0.05
North Main	reach 1	141154	2121.00	26.68	36.18	29.55	36.28	0.000203	2.32	913.28	117.18	0.15
North Main	reach 1	141154	3193.00	26.68	38.59	30.39	38.68	0.000450	2.38	1351.29	310.99	0.20
North Main	reach 1	141154	4299.00	26.68	39.88	31.17	39.90	0.000114	1.35	6711.24	3992.36	0.10
North Main	reach 1	141154	9227.00	26.68	41.04	33.89	41.04	0.000027	0.73	25371.79	8000.00	0.05
North Main	reach 1	140000.	2121.00	26.64	35.94	29.39	36.02	0.000206	2.35	903.83	115.34	0.15
North Main	reach 1	140000.	3193.00	26.64	38.19	30.22	38.30	0.000242	2.62	1587.63	1315.70	0.16
North Main	reach 1	140000.	4299.00	26.64	39.71	30.99	39.75	0.000145	1.93	5337.27	3613.29	0.12
North Main	reach 1	140000.	9227.00	26.64	41.00	33.68	41.00	0.000036	1.03	22714.07	7882.90	0.06
North Main	reach 1	138000.	2121.00	25.62	35.59	28.39	35.66	0.000158	2.12	1002.24	122.24	0.13
North Main	reach 1	138000.	3193.00	25.62	37.76	29.22	37.86	0.000195	2.49	1280.13	142.72	0.15
North Main	reach 1	138000.	4299.00	25.62	39.24	29.97	39.36	0.000260	2.72	2086.29	2076.45	0.17
North Main	reach 1	138000.	9227.00	25.62	40.90	32.83	40.91	0.000064	1.45	17983.23	7842.95	0.08
North Main	reach 1	138000.	2160.00	25.62	35.28	28.22	35.35	0.000154	2.10	1028.09	123.81	0.13
North Main	reach 1	138000.	3229.00	25.62	37.40	28.99	37.49	0.000173	2.49	1299.06	131.80	0.14
North Main	reach 1	136000.	4321.00	25.62	38.75	29.68	38.89	0.000211	2.92	1481.12	136.91	0.16
North Main	reach 1	136000.	9267.00	25.62	40.71	32.23	40.73	0.000123	1.95	12661.75	7763.30	0.12
North Main	reach 1	135932	2160.00	25.63	35.27	28.27	35.34	0.000156	2.10	1027.31	125.09	0.13
North Main	reach 1	135932	3229.00	25.63	37.39	29.04	37.49	0.000173	2.48	1300.88	132.86	0.14
North Main	reach 1	135932	4321.00	25.63	38.74	29.75	38.88	0.000211	2.91	1483.88	137.81	0.16
North Main	reach 1	135932	9267.00	25.63	40.70	32.30	40.73	0.000105	2.08	12845.52	6611.10	0.11
North Main	reach 1	135888	2160.00	25.63	35.26	28.27	35.33	0.000156	2.10	1026.42	125.07	0.13
North Main	reach 1	135888	3229.00	25.63	37.38	29.04	37.48	0.000173	2.48	1299.62	132.84	0.14
North Main	reach 1	135888	4321.00	25.63	38.74	29.75	38.87	0.000211	2.91	1482.80	137.78	0.16
North Main	reach 1	135888	9267.00	25.63	40.69	32.30	40.72	0.000106	2.09	12804.85	6596.99	0.11
North Main	reach 1	134000.	2160.00	25.63	34.92	28.62	35.00	0.000196	2.27	950.46	123.02	0.14
North Main	reach 1	134000.	3229.00	25.63	37.01	29.41	37.12	0.000209	2.65	1280.81	371.41	0.15
North Main	reach 1	134000.	4321.00	25.63	38.32	30.09	38.42	0.000258	2.89	2559.32	1595.77	0.17
North Main	reach 1	134000.	9267.00	25.63	40.36	32.61	40.43	0.000237	2.81	8319.82	6021.02	0.16
North Main	reach 1	132000.	2160.00	25.57	34.53	28.21	34.61	0.000200	2.25	959.22	126.46	0.15
North Main	reach 1	132000.	3225.00	25.57	36.59	28.98	36.70	0.000213	2.61	1234.37	138.30	0.15
North Main	reach 1	132000.	4273.00	25.57	37.76	29.67	37.90	0.000261	3.05	1399.29	562.85	0.17

HFC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	132000	9224.00	25.57	39.16	32.22	39.63	0.000882	5.47	2054.01	2065.01	0.32
North Main	reach 1	130750	2160.00	25.57	34.24	28.23	34.33	0.000234	2.41	895.39	121.28	0.16
North Main	reach 1	130750	3225.00	25.57	36.29	29.02	36.41	0.000249	2.80	1151.40	129.56	0.17
North Main	reach 1	130750	4273.00	25.57	37.41	29.70	37.55	0.000318	3.08	1878.57	1075.62	0.19
North Main	reach 1	130750	9224.00	25.57	38.03	32.31	38.48	0.001026	5.76	2489.87	1708.19	0.34
North Main	reach 1	130696	2160.00	25.57	34.23	28.23	34.32	0.000238	2.42	893.80	121.21	0.16
North Main	reach 1	130696	3225.00	25.57	36.27	29.02	36.39	0.000250	2.81	1149.59	129.50	0.17
North Main	reach 1	130696	4273.00	25.57	37.39	29.70	37.53	0.000320	3.07	1861.47	1058.28	0.19
North Main	reach 1	130696	9224.00	25.57	37.96	32.31	38.43	0.001073	5.86	2409.34	1641.93	0.35
North Main	reach 1	129441	2160.00	24.36	33.98	27.26	34.06	0.000185	2.26	956.74	118.77	0.14
North Main	reach 1	129441	3225.00	24.36	36.00	28.06	36.11	0.000209	2.88	1204.53	125.92	0.15
North Main	reach 1	129441	4273.00	24.36	37.00	28.78	37.16	0.000273	3.21	1331.79	129.45	0.18
North Main	reach 1	129441	9224.00	24.36	38.05	31.39	38.06	0.000064	1.51	16384.07	5634.29	0.09
North Main	reach 1	128185	2160.00	24.36	33.78	28.95	33.84	0.000168	2.16	1001.86	122.65	0.13
North Main	reach 1	128185	3225.00	24.36	35.78	27.71	35.86	0.000189	2.57	1253.37	129.31	0.15
North Main	reach 1	128185	4273.00	24.36	36.86	28.37	36.81	0.000335	3.11	1379.89	184.15	0.19
North Main	reach 1	128185	9224.00	24.36	37.87	30.82	37.90	0.000184	2.22	8434.29	3959.25	0.14
North Main	reach 1	128137	2160.00	24.36	33.75	28.95	33.82	0.000167	2.16	1000.15	122.60	0.13
North Main	reach 1	128137	3225.00	24.36	35.74	27.71	35.85	0.000190	2.58	1251.30	129.28	0.15
North Main	reach 1	128137	4273.00	24.36	36.84	28.37	36.79	0.000328	3.12	1375.24	179.63	0.19
North Main	reach 1	128137	9224.00	24.36	37.85	30.92	37.89	0.000186	2.23	8395.95	3957.47	0.14
North Main	reach 1	128000	2160.00	24.36	33.72	27.04	33.80	0.000179	2.20	982.55	124.51	0.14
North Main	reach 1	128000	3225.00	24.36	35.71	27.82	35.82	0.000232	2.80	1241.73	148.78	0.16
North Main	reach 1	128000	4273.00	24.36	36.59	28.51	36.74	0.000344	3.09	1394.58	312.48	0.19
North Main	reach 1	128000	9224.00	24.36	37.82	31.13	37.86	0.000188	2.27	8557.73	3922.62	0.14
North Main	reach 1	128275	2160.00	24.02	33.43	26.85	33.50	0.000187	2.11	1024.23	132.07	0.13
North Main	reach 1	128275	3225.00	24.02	35.37	27.63	35.46	0.000178	2.48	1590.91	1019.10	0.14
North Main	reach 1	128275	4273.00	24.02	36.17	28.30	36.26	0.000213	2.69	2887.17	2783.58	0.15
North Main	reach 1	128275	9224.00	24.02	37.35	30.79	37.46	0.000325	3.49	7347.44	4601.57	0.19
North Main	reach 1	128253	2160.00	24.02	33.42	26.84	33.49	0.000188	2.11	1022.80	132.04	0.13
North Main	reach 1	128253	3225.00	24.02	35.37	27.63	35.46	0.000178	2.48	1589.95	1017.99	0.14
North Main	reach 1	128253	4273.00	24.02	36.18	28.30	36.26	0.000214	2.70	2873.33	2765.19	0.16
North Main	reach 1	128253	9224.00	24.02	37.34	30.79	37.46	0.000328	3.51	7310.09	4591.08	0.19
North Main	reach 1	128194	2160.00	24.02	33.39	27.00	33.48	0.000214	2.36	916.91	120.26	0.15
North Main	reach 1	128194	3225.00	24.02	35.38	27.81	35.44	0.000181	2.24	3019.84	2355.48	0.13
North Main	reach 1	128194	4273.00	24.02	36.20	28.52	36.23	0.000124	1.83	6479.58	4664.65	0.12
North Main	reach 1	128194	9224.00	24.02	37.39	31.20	37.42	0.000135	2.07	12779.40	5885.94	0.12
North Main	reach 1	128142	2160.00	24.02	33.37	27.00	33.46	0.000215	2.36	914.89	120.18	0.15
North Main	reach 1	128142	3225.00	24.02	35.37	27.81	35.44	0.000182	2.24	3007.54	2350.07	0.13
North Main	reach 1	128142	4273.00	24.02	36.20	28.52	36.23	0.000124	1.83	6474.45	4663.17	0.12
North Main	reach 1	128142	9224.00	24.02	37.38	31.20	37.41	0.000136	2.08	12726.59	5878.94	0.12
North Main	reach 1	128000	2160.00	24.02	33.36	26.73	33.43	0.000178	2.17	993.24	126.44	0.14
North Main	reach 1	128000	3225.00	24.02	35.37	27.49	35.41	0.000136	1.88	3504.57	2117.90	0.12
North Main	reach 1	128000	4273.00	24.02	36.20	28.17	36.21	0.000080	1.30	8796.50	5292.03	0.08
North Main	reach 1	128000	9224.00	24.02	37.37	30.72	37.39	0.000086	1.67	15211.23	6906.66	0.10
North Main	reach 1	124278	2160.00	23.63	32.99	26.63	33.08	0.000230	2.46	878.30	113.11	0.16
North Main	reach 1	124278	3225.00	23.63	34.95	27.45	35.08	0.000280	2.91	1107.45	1024.50	0.17
North Main	reach 1	124278	4273.00	23.63	35.83	28.17	35.99	0.000318	3.35	1897.05	4338.45	0.19
North Main	reach 1	124278	9224.00	23.63	36.39	30.90	36.97	0.001107	6.44	2288.74	5479.79	0.35
North Main	reach 1	124185	2160.00	23.63	32.97	26.58	33.06	0.000225	2.44	884.81	112.62	0.15
North Main	reach 1	124185	3225.00	23.63	34.92	27.40	35.05	0.000255	2.90	1110.76	893.47	0.17
North Main	reach 1	124185	4273.00	23.63	35.86	28.11	35.95	0.000203	2.64	4051.20	5027.21	0.15
North Main	reach 1	124185	9224.00	23.63	36.88	30.85	36.78	0.000380	3.41	7867.72	6464.90	0.20
North Main	reach 1	124085	2160.00	23.63	32.95	26.61	33.05	0.000230	2.47	874.52	111.40	0.16
North Main	reach 1	124085	3225.00	23.63	34.89	27.43	35.02	0.000263	2.94	1096.59	1353.72	0.17
North Main	reach 1	124085	4273.00	23.63	35.86	28.15	35.93	0.000216	2.52	4370.43	5129.73	0.15
North Main	reach 1	124085	9224.00	23.63	36.85	30.86	36.75	0.000353	3.42	8148.59	6179.51	0.20
North Main	reach 1	124000	2160.00	23.63	32.94	26.61	33.03	0.000227	2.42	890.81	116.47	0.15
North Main	reach 1	124000	3225.00	23.63	34.90	27.43	34.99	0.000223	2.59	2107.24	1952.98	0.16
North Main	reach 1	124000	4273.00	23.63	35.86	28.16	35.91	0.000186	2.20	4694.59	4335.50	0.14
North Main	reach 1	124000	9224.00	23.63	36.83	30.87	36.71	0.000368	3.14	7950.00	6086.50	0.20
North Main	reach 1	122908	2160.00	23.63	32.89	26.51	32.78	0.000223	2.36	914.22	123.12	0.15
North Main	reach 1	122908	3225.00	23.63	34.81	27.31	34.73	0.000248	2.78	1158.53	1881.79	0.17
North Main	reach 1	122908	4273.00	23.63	35.45	28.00	35.63	0.000333	3.36	1270.44	2800.25	0.19
North Main	reach 1	122908	9224.00	23.63	36.44	30.61	36.47	0.000136	2.25	13338.49	6903.44	0.13
North Main	reach 1	122857	2160.00	23.63	32.98	26.52	32.77	0.000224	2.37	912.78	123.06	0.15



HEC-DAS Plan D 2593 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	122857	3225.00	23.63	34.60	27.31	34.72	0.000249	2.79	1156.80	1865.42	0.17
North Main	reach 1	122857	4273.00	23.63	35.43	28.00	35.61	0.000335	3.37	1268.03	2782.16	0.19
North Main	reach 1	122857	9224.00	23.63	36.42	30.61	36.45	0.000138	2.27	13262.13	6892.38	0.13
North Main	reach 1	122000	2160.00	23.45	32.50	26.32	32.58	0.000213	2.33	925.59	122.03	0.15
North Main	reach 1	122000	3225.00	23.45	34.39	27.10	34.51	0.000238	2.78	1244.51	584.92	0.18
North Main	reach 1	122000	4273.00	23.45	35.37	27.77	35.41	0.000114	2.01	6073.21	4800.98	0.11
North Main	reach 1	122000	9224.00	23.45	36.27	30.34	36.31	0.000198	2.48	10937.85	6398.09	0.15
North Main	reach 1	120000	2160.00	23.41	32.05	26.02	32.14	0.000229	2.38	906.55	122.83	0.15
North Main	reach 1	120000	3225.00	23.41	33.89	26.80	34.01	0.000261	2.83	1139.15	130.71	0.17
North Main	reach 1	120000	4273.00	23.41	34.85	27.47	35.03	0.000345	3.37	1287.33	137.94	0.20
North Main	reach 1	120000	9224.00	23.41	35.92	30.05	35.95	0.000168	2.17	10700.21	5479.48	0.13
North Main	reach 1	118000	2160.00	23.26	31.56	25.88	31.66	0.000257	2.48	872.31	121.53	0.16
North Main	reach 1	118000	3225.00	23.26	33.32	26.64	33.46	0.000293	2.95	1092.71	128.39	0.18
North Main	reach 1	118000	4273.00	23.26	34.08	27.32	34.28	0.000411	3.59	1190.63	134.52	0.21
North Main	reach 1	118000	9224.00	23.26	35.29	29.87	35.41	0.000485	3.66	6286.86	4125.37	0.23
North Main	reach 1	116000	2160.00	23.27	31.01	25.79	31.11	0.000290	2.54	856.81	126.06	0.17
North Main	reach 1	116000	3241.00	23.27	32.70	26.51	32.84	0.000323	3.01	1075.78	132.34	0.19
North Main	reach 1	116000	4459.00	23.27	33.42	27.25	33.51	0.000334	2.87	3773.85	4127.86	0.19
North Main	reach 1	116000	9225.00	23.27	34.67	29.58	34.71	0.000243	2.55	9933.90	5800.43	0.16
North Main	reach 1	114000	2160.00	21.89	30.54	24.55	30.82	0.000206	2.28	956.29	127.40	0.15
North Main	reach 1	114000	3241.00	21.89	32.25	25.28	32.32	0.000204	2.28	3186.98	3989.06	0.15
North Main	reach 1	114000	4459.00	21.89	33.10	25.99	33.13	0.000117	1.82	7330.25	5638.25	0.11
North Main	reach 1	114000	9225.00	21.89	34.41	28.31	34.43	0.000069	1.72	15279.67	6455.02	0.10
North Main	reach 1	113338	2180.00	21.88	30.39	24.81	30.47	0.000232	2.36	924.72	128.95	0.16
North Main	reach 1	113338	3241.00	21.88	32.02	25.34	32.15	0.000272	2.84	1141.41	1933.92	0.17
North Main	reach 1	113338	4459.00	21.88	32.78	26.06	32.98	0.000398	3.58	1244.57	5080.87	0.21
North Main	reach 1	113338	9225.00	21.88	34.37	28.45	34.38	0.000060	1.31	18011.08	7121.93	0.08
North Main	reach 1	113284	2180.00	21.88	30.38	24.55	30.48	0.000219	2.30	947.76	131.28	0.15
North Main	reach 1	113284	3241.00	21.88	32.01	25.27	32.13	0.000259	2.77	1168.09	1910.25	0.17
North Main	reach 1	113284	4459.00	21.88	32.76	26.01	32.95	0.000379	3.50	1272.50	5258.20	0.21
North Main	reach 1	113284	9225.00	21.88	33.62	28.33	34.30	0.001241	6.82	1393.97	6471.77	0.38
North Main	reach 1	112624	2180.00	22.02	30.17	24.84	30.28	0.000317	2.65	821.13	121.54	0.18
North Main	reach 1	112624	3241.00	22.02	31.77	25.83	31.93	0.000368	3.17	1030.88	280.47	0.20
North Main	reach 1	112624	4459.00	22.02	32.57	26.42	32.68	0.000377	3.03	3700.79	4577.75	0.20
North Main	reach 1	112624	9225.00	22.02	33.72	28.91	33.76	0.000292	2.50	10381.81	6504.00	0.17
North Main	reach 1	112620	Inline Weir									
North Main	reach 1	112604	2180.00	20.05	30.16	22.82	30.23	0.000155	2.12	1029.71	123.84	0.13
North Main	reach 1	112604	3241.00	20.05	31.76	23.62	31.87	0.000203	2.63	1246.68	349.59	0.15
North Main	reach 1	112604	4459.00	20.05	32.56	24.44	32.65	0.000247	2.69	3929.24	4556.64	0.16
North Main	reach 1	112604	9225.00	20.05	33.71	27.00	33.75	0.000243	2.49	10574.19	6476.19	0.16
North Main	reach 1	112000	2180.00	20.06	30.07	22.79	30.14	0.000156	2.12	1026.26	123.76	0.13
North Main	reach 1	112000	3241.00	20.06	31.64	23.60	31.74	0.000223	2.82	1378.73	960.36	0.16
North Main	reach 1	112000	4459.00	20.06	32.45	24.40	32.50	0.000198	2.26	5140.93	4730.20	0.14
North Main	reach 1	112000	9225.00	20.06	33.59	26.96	33.62	0.000183	2.23	11683.81	6337.92	0.14
North Main	reach 1	110000	2536.00	19.82	29.86	22.84	29.76	0.000225	2.53	1001.33	121.37	0.16
North Main	reach 1	110000	3783.00	19.82	31.15	23.73	31.24	0.000282	2.66	2321.17	1108.53	0.17
North Main	reach 1	110000	5288.00	19.82	31.89	24.87	31.99	0.000304	2.95	3215.34	1252.87	0.18
North Main	reach 1	110000	9904.00	19.82	33.27	27.03	33.29	0.000149	2.08	14170.52	7653.07	0.13
North Main	reach 1	108000	2536.00	19.53	29.21	22.48	29.31	0.000223	2.52	1007.74	122.87	0.15
North Main	reach 1	108000	3783.00	19.53	30.83	23.35	30.88	0.000138	2.16	5067.97	4879.18	0.12
North Main	reach 1	108000	5288.00	19.53	31.70	24.27	31.72	0.000083	1.71	9417.54	5147.36	0.10
North Main	reach 1	108000	9904.00	19.53	33.12	26.60	33.13	0.000067	1.44	17522.64	6238.21	0.09
North Main	reach 1	107667	2536.00	19.53	29.14		29.24	0.000239	2.54	999.32	126.88	0.16
North Main	reach 1	107667	3783.00	19.53	30.65		30.81	0.000316	3.18	1198.46	137.58	0.19
North Main	reach 1	107667	5288.00	19.53	31.39		31.64	0.000495	4.07	1309.85	171.48	0.24
North Main	reach 1	107667	9904.00	19.53	32.33	26.60	33.00	0.001384	6.67	2201.47	4316.84	0.39
North Main	reach 1	107600	2536.00	19.53	29.12		29.22	0.000240	2.54	997.20	126.78	0.16
North Main	reach 1	107600	3783.00	19.53	30.63		30.78	0.000321	3.16	1195.33	136.86	0.19
North Main	reach 1	107600	5288.00	19.53	31.35		31.61	0.000500	4.08	1303.78	169.15	0.24
North Main	reach 1	107600	9904.00	19.53	32.16	26.60	32.90	0.001489	6.95	1634.99	2203.75	0.41
North Main	reach 1	106000	2536.00	19.52	28.71	22.42	28.82	0.000259	2.64	962.14	122.25	0.17
North Main	reach 1	106000	3783.00	19.52	30.01	23.28	30.18	0.000445	3.34	1132.02	151.62	0.22
North Main	reach 1	106000	5288.00	19.52	30.70	24.20	30.80	0.000452	2.95	4262.40	5248.28	0.21
North Main	reach 1	106000	9904.00	19.52	31.61	26.50	31.66	0.000357	2.82	10871.54	8949.86	0.19
North Main	reach 1	104000	2536.00	18.87	28.19	21.96	28.30	0.000261	2.84	960.26	122.50	0.17
North Main	reach 1	104000	3783.00	18.87	29.72	22.83	29.75	0.000109	1.67	5423.92	2728.63	0.11

HEC-RAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	104000	5288.00	18.87	30.37	23.74	30.39	0.000109	1.55	7853.98	3971.04	0.11
North Main	reach 1	104000	9904.00	18.87	31.16	26.00	31.19	0.000164	2.02	10948.55	4164.87	0.13
North Main	reach 1	102396	2536.00	18.36	27.78	21.42	27.87	0.000272	2.70	940.54	120.12	0.17
North Main	reach 1	102396	3783.00	18.36	29.27	22.32	29.45	0.000358	3.36	1127.11	1663.33	0.20
North Main	reach 1	102396	5288.00	18.36	30.06	23.28	30.14	0.000227	2.76	6722.52	10540.27	0.18
North Main	reach 1	102396	9904.00	18.36	30.90	25.85	30.92	0.000187	2.30	16122.87	11400.00	0.14
North Main	reach 1	102314	2536.00	18.36	27.74	21.42	27.85	0.000274	2.70	937.78	120.02	0.17
North Main	reach 1	102314	3783.00	18.36	29.24	22.32	29.42	0.000380	3.37	1123.24	1648.89	0.20
North Main	reach 1	102314	5288.00	18.36	30.04	23.26	30.12	0.000237	2.82	8498.04	10189.24	0.18
North Main	reach 1	102314	9904.00	18.36	30.87	25.85	30.90	0.000174	2.34	15884.85	11400.00	0.14
North Main	reach 1	102000	2536.00	18.36	27.87	21.21	27.77	0.000219	2.47	1025.90	128.77	0.16
North Main	reach 1	102000	3783.00	18.36	29.25	22.04	29.31	0.000171	2.19	4293.65	3858.49	0.14
North Main	reach 1	102000	5288.00	18.36	30.02	22.91	30.05	0.000139	1.90	10003.10	10766.13	0.12
North Main	reach 1	102000	9904.00	18.36	30.84	25.10	30.88	0.000103	1.72	18837.14	10778.20	0.11
North Main	reach 1	100000	2536.00	18.35	27.14	21.29	27.25	0.000304	2.78	917.37	123.02	0.18
North Main	reach 1	100000	3783.00	18.35	28.62	22.15	28.80	0.000390	3.43	1104.45	129.18	0.21
North Main	reach 1	100000	5288.00	18.35	29.18	23.06	29.48	0.000753	4.47	1253.28	728.38	0.28
North Main	reach 1	100000	9904.00	18.35	30.33	25.35	30.45	0.000528	3.73	8992.18	10724.58	0.24
North Main	reach 1	98000	2536.00	17.13	28.84	20.19	28.73	0.000219	2.45	1114.88	692.02	0.15
North Main	reach 1	98000	3783.00	17.13	28.14	21.02	28.20	0.000214	2.22	3336.73	1949.67	0.15
North Main	reach 1	98000	5288.00	17.13	28.84	21.89	28.89	0.000208	2.28	5308.85	3193.00	0.15
North Main	reach 1	98000	9904.00	17.13	29.72	24.09	29.76	0.000228	2.53	10240.74	5182.89	0.16
North Main	reach 1	97100	2536.00	18.79	28.44	20.08	28.53	0.000230	2.43	1043.96	161.90	0.18
North Main	reach 1	97100	3783.00	18.79	27.88	20.93	27.98	0.000261	2.73	2411.51	2274.99	0.17
North Main	reach 1	97100	5288.00	18.79	28.41	21.81	28.48	0.000259	2.81	5080.37	4282.63	0.17
North Main	reach 1	97100	9904.00	18.79	29.50	24.02	29.54	0.000252	2.46	11300.51	7074.04	0.18
North Main	reach 1	97052	2536.00	18.79	28.43	20.08	28.52	0.000231	2.43	1042.39	161.88	0.18
North Main	reach 1	97052	3783.00	18.79	27.88	20.93	27.97	0.000262	2.74	2377.87	2250.42	0.17
North Main	reach 1	97052	5288.00	18.79	28.40	21.81	28.47	0.000267	2.61	5024.26	4228.88	0.17
North Main	reach 1	97052	9904.00	18.79	29.49	24.02	29.53	0.000259	2.42	11221.31	7045.55	0.18
North Main	reach 1	96000	2536.00	18.79	28.17	19.81	28.27	0.000238	2.54	998.13	128.63	0.16
North Main	reach 1	96000	3783.00	18.79	27.59	20.65	27.87	0.000296	2.52	3111.77	3102.32	0.17
North Main	reach 1	96000	5288.00	18.79	28.32	21.54	28.33	0.000064	1.21	12115.32	7351.11	0.08
North Main	reach 1	96000	9904.00	18.79	29.40	23.79	29.41	0.000059	1.24	21273.71	9578.00	0.06
North Main	reach 1	94000	2536.00	18.80	25.85	19.73	25.89	0.000134	1.88	1787.88	313.73	0.12
North Main	reach 1	94000	3783.00	18.80	27.17	20.57	27.23	0.000159	2.22	2895.58	1778.22	0.13
North Main	reach 1	94000	5288.00	18.80	28.08	21.48	28.12	0.000171	2.28	5228.49	3800.88	0.14
North Main	reach 1	94000	9904.00	18.80	29.23	23.71	29.25	0.000113	1.74	16392.89	9122.12	0.11
North Main	reach 1	92434	2536.00	18.79	25.50	19.51	25.81	0.000280	2.60	978.45	127.54	0.17
North Main	reach 1	92434	3783.00	18.79	26.88	20.32	26.85	0.000373	3.35	1132.90	191.91	0.20
North Main	reach 1	92434	5288.00	18.79	27.45	21.18	27.70	0.000504	4.08	2011.54	2081.73	0.24
North Main	reach 1	92434	9904.00	18.79	28.70	23.37	28.90	0.000548	4.51	6439.68	5027.74	0.25
North Main	reach 1	92378	2536.00	18.79	25.48	19.51	25.59	0.000282	2.60	974.48	127.48	0.17
North Main	reach 1	92378	3783.00	18.79	26.86	20.33	26.83	0.000376	3.36	1128.87	181.39	0.20
North Main	reach 1	92378	5288.00	18.79	27.42	21.19	27.87	0.000516	4.10	1937.83	1998.18	0.24
North Main	reach 1	92378	9904.00	18.79	28.64	23.37	28.86	0.000587	4.88	6137.17	4883.15	0.28
North Main	reach 1	92000	2536.00	18.79	25.37	19.53	25.49	0.000284	2.70	939.75	123.39	0.17
North Main	reach 1	92000	3783.00	18.79	26.49	20.35	26.88	0.000415	3.50	1088.48	230.80	0.21
North Main	reach 1	92000	5288.00	18.79	27.17	21.24	27.45	0.000585	4.36	1721.87	1870.99	0.26
North Main	reach 1	92000	9904.00	18.79	28.28	23.45	28.57	0.000820	5.31	4780.04	3922.24	0.32
North Main	reach 1	91033	2536.00	18.48	25.08	19.61	25.19	0.000339	2.83	895.85	128.17	0.19
North Main	reach 1	91033	3783.00	18.48	26.04	20.45	26.24	0.000498	3.66	1255.88	1536.32	0.23
North Main	reach 1	91033	5288.00	18.48	26.63	21.34	26.86	0.000596	4.15	2582.24	2791.58	0.25
North Main	reach 1	91033	9904.00	18.48	27.47	23.57	27.72	0.000807	5.06	5555.45	4293.82	0.30
North Main	reach 1	91030	Inline Weir									
North Main	reach 1	91000	2536.00	14.79	25.08	17.88	25.15	0.000198	2.41	1051.48	125.51	0.15
North Main	reach 1	91000	3783.00	14.79	26.03	18.76	26.18	0.000308	3.15	1802.02	2143.70	0.18
North Main	reach 1	91000	5288.00	14.79	26.63	19.70	26.79	0.000383	3.53	3512.81	4217.55	0.20
North Main	reach 1	91000	9904.00	14.79	27.46	22.09	27.61	0.000451	4.08	8222.37	7000.24	0.23
North Main	reach 1	90000	2536.00	14.79	24.90	17.82	24.97	0.000147	2.13	1783.43	922.88	0.13
North Main	reach 1	90000	3783.00	14.79	25.89	18.48	25.95	0.000151	2.27	4337.28	3780.10	0.13
North Main	reach 1	90000	5288.00	14.79	26.48	19.35	26.53	0.000150	2.33	6929.85	4954.12	0.13
North Main	reach 1	90000	9904.00	14.79	27.20	21.82	27.25	0.000281	2.69	11017.18	6438.98	0.17
North Main	reach 1	88000	2536.00	14.78	24.58	17.87	24.65	0.000189	2.22	1881.28	1502.81	0.14
North Main	reach 1	88000	3783.00	14.78	25.68	18.53	25.71	0.000089	1.89	6898.80	5189.42	0.10
North Main	reach 1	88000	5288.00	14.78	26.28	19.43	26.30	0.000088	1.59	10420.85	6552.87	0.10

HEC-RAS Plan P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	88000	9904.00	14.78	26.80	21.73	26.82	0.000189	2.04	14125.86	7780.89	0.13
North Main	reach 1	87169	2536.00	14.78	24.38	17.78	24.48	0.000232	2.54	998.26	1571.32	0.16
North Main	reach 1	87169	3783.00	14.78	25.38	18.64	25.58	0.000384	3.36	1124.35	5594.26	0.20
North Main	reach 1	87169	5288.00	14.78	25.81	19.58	26.12	0.000617	4.49	1178.89	6357.74	0.26
North Main	reach 1	87169	9904.00	14.78	26.66	21.88	26.69	0.000151	2.34	14300.84	7873.65	0.13
North Main	reach 1	87084	2536.00	14.78	24.38	17.77	24.46	0.000234	2.55	995.72	1562.17	0.16
North Main	reach 1	87084	3783.00	14.78	25.35	18.64	25.53	0.000368	3.38	1120.18	5535.67	0.20
North Main	reach 1	87084	5288.00	14.78	25.75	19.58	26.07	0.000629	4.51	1171.28	6254.34	0.26
North Main	reach 1	87084	9904.00	14.78	26.84	21.87	26.67	0.000155	2.37	14125.34	7833.97	0.13
North Main	reach 1	86000	2536.00	14.31	24.18	17.28	24.24	0.000168	2.18	2027.88	2006.07	0.13
North Main	reach 1	86000	3783.00	14.31	25.23	18.14	25.27	0.000129	1.86	5326.19	3859.34	0.12
North Main	reach 1	86000	5288.00	14.31	25.66	19.06	25.69	0.000148	2.03	7153.82	4818.58	0.13
North Main	reach 1	86000	9904.00	14.31	26.44	21.33	26.48	0.000195	2.41	11716.62	6811.58	0.15
North Main	reach 1	84000	2578.00	13.58	23.82	16.44	23.91	0.000171	2.30	1119.50	127.10	0.14
North Main	reach 1	84000	3822.00	13.58	25.00	17.28	25.03	0.000102	1.90	5058.26	3050.88	0.11
North Main	reach 1	84000	5333.00	13.58	25.40	18.17	25.43	0.000115	1.96	8762.25	9323.48	0.11
North Main	reach 1	84000	10123.00	13.58	26.11	20.51	26.13	0.000144	2.06	15478.55	9605.45	0.12
North Main	reach 1	82000	2578.00	12.94	23.47	15.96	23.56	0.000177	2.36	1093.35	123.29	0.14
North Main	reach 1	82000	3822.00	12.94	24.75	16.84	24.80	0.000135	2.07	5018.31	4317.16	0.12
North Main	reach 1	82000	5333.00	12.94	25.05	17.78	25.11	0.000226	2.51	8699.33	10717.01	0.18
North Main	reach 1	82000	10123.00	12.94	25.75	20.19	25.78	0.000228	2.28	14178.09	10798.23	0.15
North Main	reach 1	81854	2578.00	12.94	23.47	15.85	23.54	0.000155	2.18	1182.81	136.87	0.13
North Main	reach 1	81854	3822.00	12.94	24.64	16.70	24.78	0.000234	2.84	1348.70	5203.00	0.16
North Main	reach 1	81854	5333.00	12.94	25.01	17.58	25.08	0.000188	2.59	6976.01	11286.96	0.15
North Main	reach 1	81854	10123.00	12.94	25.71	19.89	25.76	0.000179	2.80	14918.39	11348.36	0.14
North Main	reach 1	81817	2578.00	12.94	23.46	15.85	23.53	0.000155	2.18	1182.00	136.84	0.13
North Main	reach 1	81817	3822.00	12.94	24.63	16.70	24.78	0.000234	2.84	1345.40	5048.37	0.16
North Main	reach 1	81817	5333.00	12.94	25.00	17.60	25.08	0.000191	2.61	6885.96	11286.80	0.15
North Main	reach 1	81817	10123.00	12.94	25.70	19.89	25.74	0.000183	2.63	14747.41	11345.57	0.15
North Main	reach 1	80000	2578.00	12.93	23.12	15.92	23.21	0.000198	2.44	1055.15	122.67	0.15
North Main	reach 1	80000	3822.00	12.93	24.19	16.80	24.31	0.000255	2.87	2874.02	4788.28	0.17
North Main	reach 1	80000	5333.00	12.93	24.42	17.72	24.57	0.000420	3.47	4175.32	6493.58	0.21
North Main	reach 1	80000	10123.00	12.93	25.16	20.13	25.26	0.000409	3.55	10868.85	10718.85	0.21
North Main	reach 1	78000	2578.00	12.95	22.66	16.00	22.76	0.000260	2.60	1074.36	586.67	0.17
North Main	reach 1	78000	3822.00	12.95	23.59	16.89	23.70	0.000381	2.86	2753.20	3331.09	0.20
North Main	reach 1	78000	5333.00	12.95	23.90	17.84	23.94	0.000223	2.19	7440.94	7121.55	0.15
North Main	reach 1	78000	10123.00	12.95	24.58	20.29	24.59	0.000260	2.50	12853.10	9307.81	0.16
North Main	reach 1	76000	2578.00	12.94	22.14	15.84	22.25	0.000255	2.63	979.33	135.38	0.16
North Main	reach 1	76000	3822.00	12.94	23.01	16.69	23.08	0.000245	2.49	4409.54	5864.77	0.18
North Main	reach 1	76000	5333.00	12.94	23.27	17.60	23.34	0.000310	2.78	5993.83	6512.10	0.18
North Main	reach 1	76000	10123.00	12.94	23.90	19.96	23.96	0.000389	3.05	10602.97	8072.84	0.20
North Main	reach 1	74000	2578.00	11.86	21.65	15.00	21.75	0.000245	2.60	994.14	128.50	0.18
North Main	reach 1	74000	3822.00	11.86	22.53	15.90	22.60	0.000238	2.44	4744.61	6866.55	0.16
North Main	reach 1	74000	5333.00	11.86	22.83	16.85	22.86	0.000184	2.20	8994.39	9596.74	0.14
North Main	reach 1	74000	10123.00	11.86	23.29	19.27	23.33	0.000254	2.65	13446.80	9607.12	0.17
North Main	reach 1	72000	2578.00	10.58	21.23	13.75	21.31	0.000198	2.29	1127.22	146.38	0.15
North Main	reach 1	72000	3822.00	10.58	22.03	14.65	22.11	0.000239	2.46	4295.28	8009.64	0.16
North Main	reach 1	72000	5333.00	10.58	22.41	15.58	22.46	0.000217	2.38	7315.85	8014.13	0.15
North Main	reach 1	72000	10123.00	10.58	23.05	17.94	23.06	0.000090	1.51	20406.07	10762.50	0.09
North Main	reach 1	70000	2578.00	10.48	20.83	13.51	20.92	0.000192	2.41	1081.67	394.04	0.14
North Main	reach 1	70000	3822.00	10.48	21.47	14.40	21.58	0.000288	2.81	3201.54	4939.75	0.18
North Main	reach 1	70000	5333.00	10.48	21.79	15.34	21.90	0.000389	3.08	4973.53	6109.18	0.20
North Main	reach 1	70000	10123.00	10.48	22.74	17.78	22.79	0.000268	2.71	11430.07	6862.81	0.17
North Main	reach 1	69780	2578.00	10.48	20.80	13.41	20.88	0.000166	2.21	1166.80	3278.80	0.13
North Main	reach 1	69780	3822.00	10.48	21.35	14.25	21.50	0.000303	3.07	1244.22	7103.84	0.18
North Main	reach 1	69780	5333.00	10.48	21.80	15.13	21.82	0.000093	1.74	10826.59	8415.91	0.10
North Main	reach 1	69780	10123.00	10.48	22.74	17.46	22.75	0.000083	1.72	19107.21	8941.59	0.10
North Main	reach 1	69693	2578.00	10.48	20.79	13.41	20.87	0.000166	2.21	1165.01	3257.49	0.13
North Main	reach 1	69693	3822.00	10.48	21.34	14.25	21.49	0.000304	3.08	1242.80	7069.03	0.18
North Main	reach 1	69693	5333.00	10.48	21.79	15.13	21.82	0.000094	1.75	10771.21	8402.97	0.10
North Main	reach 1	69693	10123.00	10.48	22.73	17.46	22.75	0.000083	1.72	19056.54	8940.28	0.10
North Main	reach 1	68373	2850.00	10.48	20.73	13.65	20.74	0.000043	1.00	8956.29	7245.83	0.07
North Main	reach 1	68373	4215.00	10.48	21.35	14.52	21.36	0.000028	0.85	16010.77	10764.10	0.05
North Main	reach 1	68373	5778.00	10.48	21.73	15.38	21.74	0.000029	0.88	20106.46	10779.93	0.06
North Main	reach 1	68373	11383.00	10.48	22.66	17.85	22.67	0.000034	1.02	30156.39	10815.47	0.06
North Main	reach 1	67000	2850.00	10.28	20.61	13.52	20.64	0.000101	1.75	5334.78	6337.62	0.10

HEC-DAS Plan P.25X.3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	87000	4215.00	10.28	21.27	14.45	21.28	0.000087	1.35	10812.77	9384.35	0.08
North Main	reach 1	87000	5778.00	10.28	21.66	15.39	21.67	0.000066	1.26	14434.16	9431.55	0.08
North Main	reach 1	87000	11383.00	10.28	22.59	18.12	22.60	0.000067	1.31	23260.29	9459.70	0.08
North Main	reach 1	86000	2850.00	10.28	20.43	13.68	20.50	0.000185	2.29	3250.77	5129.26	0.14
North Main	reach 1	86000	4215.00	10.28	21.19	14.64	21.21	0.000099	1.55	9117.84	8048.66	0.10
North Main	reach 1	86000	5778.00	10.28	21.58	15.60	21.59	0.000095	1.42	12281.79	8087.50	0.10
North Main	reach 1	86000	11383.00	10.28	22.52	18.39	22.53	0.000093	1.45	19855.80	8109.24	0.10
North Main	reach 1	85430	2850.00	10.28	20.23	13.64	20.36	0.000299	2.89	986.55	4701.56	0.18
North Main	reach 1	85430	4215.00	10.28	21.13	14.60	21.15	0.000094	1.69	9587.19	9380.59	0.10
North Main	reach 1	85430	5778.00	10.28	21.53	15.56	21.54	0.000090	1.51	13511.23	10486.81	0.10
North Main	reach 1	85430	11383.00	10.28	22.47	18.36	22.48	0.000074	1.48	24351.04	11800.00	0.09
North Main	reach 1	85374	2850.00	10.28	20.21	13.64	20.34	0.000301	2.90	984.39	4678.64	0.18
North Main	reach 1	85374	4215.00	10.28	21.13	14.60	21.15	0.000095	1.71	9531.93	9343.42	0.10
North Main	reach 1	85374	5778.00	10.28	21.52	15.56	21.54	0.000090	1.55	13448.81	10469.67	0.10
North Main	reach 1	85374	11383.00	10.28	22.47	18.36	22.48	0.000074	1.49	24297.30	11800.00	0.09
North Main	reach 1	84000	2850.00	10.18	19.79	13.29	19.91	0.000319	2.73	1044.97	148.42	0.18
North Main	reach 1	84000	4215.00	10.18	20.96	14.18	20.99	0.000144	1.85	6391.61	4997.31	0.12
North Main	reach 1	84000	5778.00	10.18	21.43	15.06	21.44	0.000052	1.15	16511.52	10391.82	0.07
North Main	reach 1	84000	11383.00	10.18	22.39	17.67	22.39	0.000053	1.23	27215.07	11836.88	0.08
North Main	reach 1	82000	2850.00	10.03	19.02	13.20	19.15	0.000451	2.99	951.67	153.11	0.21
North Main	reach 1	82000	4215.00	10.03	20.72	14.12	20.74	0.000106	1.59	6920.97	4918.06	0.10
North Main	reach 1	82000	5778.00	10.03	21.28	15.03	21.30	0.000098	1.59	10147.36	6539.75	0.10
North Main	reach 1	82000	11383.00	10.03	22.22	17.65	22.23	0.000128	1.93	16966.25	7678.75	0.12
North Main	reach 1	80000	2850.00	9.59	18.13	12.76	18.29	0.000414	3.20	889.53	119.96	0.21
North Main	reach 1	80000	4215.00	9.59	20.24	13.65	20.37	0.000402	3.08	2863.60	4504.72	0.20
North Main	reach 1	80000	5778.00	9.59	20.94	14.55	21.00	0.000253	2.49	7537.57	8621.92	0.16
North Main	reach 1	80000	11383.00	9.59	21.90	17.17	21.93	0.000187	2.28	16551.31	10162.23	0.14
North Main	reach 1	58000	2850.00	9.33	17.00	12.78	17.22	0.000700	3.82	748.18	115.66	0.26
North Main	reach 1	58000	4215.00	9.33	19.07	13.69	19.35	0.000848	4.24	993.40	123.36	0.26
North Main	reach 1	58000	5778.00	9.33	20.66	14.58	20.68	0.000106	1.79	12478.28	10820.70	0.11
North Main	reach 1	58000	11383.00	9.33	21.69	17.26	21.69	0.000076	1.43	23666.50	11221.57	0.09
North Main	reach 1	57448	2850.00	9.38	16.58	12.75	16.81	0.000826	3.96	719.14	120.17	0.29
North Main	reach 1	57448	4215.00	9.38	18.69	13.65	18.97	0.000707	4.28	985.49	130.06	0.27
North Main	reach 1	57448	5778.00	9.38	20.41	14.54	20.56	0.000399	3.55	4285.61	5116.78	0.21
North Main	reach 1	57448	11383.00	9.38	21.55	17.14	21.62	0.000286	3.18	12316.79	9004.55	0.18
North Main	reach 1	57404	2850.00	9.38	16.52	12.74	16.77	0.000844	3.99	714.16	119.98	0.29
North Main	reach 1	57404	4215.00	9.38	18.66	13.65	18.94	0.000717	4.30	981.01	129.92	0.28
North Main	reach 1	57404	5778.00	9.38	20.39	14.54	20.54	0.000414	3.81	4153.63	5015.86	0.21
North Main	reach 1	57404	11383.00	9.38	21.53	17.14	21.60	0.000294	3.22	12151.08	8941.29	0.18
North Main	reach 1	56867	2850.00	9.80	16.13	12.52	16.33	0.000744	3.63	785.64	139.19	0.27
North Main	reach 1	56867	4215.00	9.80	18.36	13.30	18.58	0.000574	3.81	1107.44	149.59	0.25
North Main	reach 1	56867	5778.00	9.80	19.96	14.08	20.28	0.000596	4.28	1356.97	158.80	0.26
North Main	reach 1	56867	11383.00	9.80	21.20	16.40	21.38	0.000567	4.26	6119.36	2968.23	0.25
North Main	reach 1	56868	Inline Weir									
North Main	reach 1	56857	2850.00	7.31	16.12	10.12	16.23	0.000266	2.64	1080.77	141.52	0.17
North Main	reach 1	56857	4215.00	7.31	18.35	10.94	18.49	0.000265	2.99	1407.54	151.42	0.17
North Main	reach 1	56857	5778.00	7.31	19.97	11.75	20.16	0.000307	3.48	1659.43	158.65	0.19
North Main	reach 1	56857	11383.00	7.31	21.19	14.15	21.36	0.000377	4.06	6395.32	2937.28	0.21
North Main	reach 1	56000	2850.00	6.74	15.92	9.56	16.01	0.000222	2.49	1143.18	141.65	0.15
North Main	reach 1	56000	4215.00	6.74	18.15	10.34	18.27	0.000228	2.87	1485.83	231.26	0.16
North Main	reach 1	56000	5778.00	6.74	19.75	11.16	19.91	0.000254	3.27	2036.02	394.65	0.17
North Main	reach 1	56000	11383.00	6.74	21.01	13.51	21.09	0.000227	3.05	8290.17	2773.46	0.16
North Main	reach 1	54000	2850.00	6.00	15.53	8.77	15.61	0.000182	2.31	1232.74	147.02	0.14
North Main	reach 1	54000	4215.00	6.00	17.71	9.54	17.83	0.000216	2.69	1565.86	167.92	0.16
North Main	reach 1	54000	5778.00	6.00	19.23	10.31	19.36	0.000285	3.15	1834.16	190.71	0.18
North Main	reach 1	54000	11383.00	6.00	20.69	12.63	20.73	0.000137	2.36	12389.47	4557.34	0.13
North Main	reach 1	52275	2850.00	5.83	15.21	8.51	15.29	0.000188	2.31	1235.29	151.41	0.14
North Main	reach 1	52275	4210.00	5.83	17.34	9.28	17.45	0.000220	2.67	1577.64	175.42	0.16
North Main	reach 1	52275	5767.00	5.83	18.71	10.07	18.86	0.000315	3.14	1837.81	210.07	0.19
North Main	reach 1	52275	10840.00	5.83	20.41	12.19	20.46	0.000185	2.53	13839.80	10331.61	0.15
North Main	reach 1	51585	2850.00	5.69	15.03	8.64	15.14	0.000257	2.66	1074.91	134.91	0.17
North Main	reach 1	51585	4210.00	5.69	17.13	9.48	17.28	0.000273	3.08	1368.10	143.42	0.18
North Main	reach 1	51585	5767.00	5.69	18.40	10.35	18.62	0.000393	3.69	1561.59	162.67	0.21
North Main	reach 1	51585	10840.00	5.69	20.28	12.67	20.35	0.000202	2.96	12785.31	9108.39	0.15
North Main	reach 1	51519	2850.00	5.69	15.01	8.64	15.12	0.000258	2.66	1072.53	134.83	0.17
North Main	reach 1	51519	4210.00	5.69	17.11	9.48	17.26	0.000274	3.08	1365.43	143.37	0.18

HFC-DAS Plan P-259-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch. El. (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Val Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	61519	5787.00	5.69	18.38	10.35	18.59	0.000397	3.70	1557.12	162.67	0.21
North Main	reach 1	51519	10840.00	5.69	20.26	12.67	20.34	0.000206	2.98	12647.11	9052.06	0.16
North Main	reach 1	50000	2856.00	5.58	14.65	8.38	14.74	0.000232	2.49	1147.87	148.56	0.16
North Main	reach 1	50000	4210.00	5.58	16.68	9.17	16.81	0.000313	2.84	1484.82	197.83	0.16
North Main	reach 1	50000	5787.00	5.58	18.15	9.97	18.20	0.000152	2.18	4678.79	1427.95	0.13
North Main	reach 1	50000	10840.00	5.58	20.16	12.16	20.18	0.000058	1.48	18759.63	5872.55	0.08
North Main	reach 1	48000	2856.00	4.89	14.22	7.67	14.30	0.000209	2.32	1229.88	162.74	0.15
North Main	reach 1	48000	4210.00	4.89	16.12	8.43	16.23	0.000264	2.67	1579.35	202.53	0.17
North Main	reach 1	48000	5787.00	4.89	17.84	9.21	17.90	0.000145	2.19	4013.72	921.21	0.13
North Main	reach 1	48000	10840.00	4.89	20.02	11.90	20.05	0.000077	1.80	18749.13	8867.87	0.10
North Main	reach 1	47232	2856.00	4.94	13.99	7.97	14.11	0.000290	2.73	1046.93	139.14	0.18
North Main	reach 1	47232	4210.00	4.94	15.84	8.83	16.00	0.000327	3.21	1313.13	149.76	0.19
North Main	reach 1	47232	5787.00	4.94	17.49	9.67	17.70	0.000402	3.86	1574.81	171.27	0.21
North Main	reach 1	47232	10840.00	4.94	19.93	11.96	19.97	0.000141	2.27	13461.90	5173.60	0.13
North Main	reach 1	48000	2856.00	4.90	13.66	7.76	13.77	0.000281	2.58	1182.24	175.62	0.17
North Main	reach 1	48000	4210.00	4.90	15.49	8.56	15.82	0.000273	2.94	1754.79	601.93	0.17
North Main	reach 1	48000	5787.00	4.90	17.19	9.39	17.30	0.000226	2.91	3010.88	811.70	0.16
North Main	reach 1	48000	10840.00	4.90	19.83	11.64	19.85	0.000068	1.66	18693.98	7787.86	0.09
North Main	reach 1	44000	2856.00	4.68	13.14	7.31	13.24	0.000260	2.58	1107.34	147.26	0.17
North Main	reach 1	44000	4210.00	4.68	14.90	8.08	15.05	0.000285	3.07	1372.30	154.07	0.18
North Main	reach 1	44000	5787.00	4.68	16.52	8.85	16.71	0.000381	3.53	1635.65	180.39	0.21
North Main	reach 1	44000	10840.00	4.68	19.46	10.97	19.59	0.000290	3.38	5551.00	2003.75	0.18
North Main	reach 1	43141	2856.00	4.68	12.92	7.27	13.02	0.000287	2.57	1110.48	151.77	0.17
North Main	reach 1	43141	4210.00	4.68	14.64	8.01	14.79	0.000301	3.05	1379.05	158.81	0.18
North Main	reach 1	43141	5787.00	4.68	16.21	8.77	16.40	0.000340	3.53	1663.06	325.71	0.20
North Main	reach 1	43141	10840.00	4.68	19.40	10.83	19.44	0.000140	2.26	12691.30	6259.89	0.13
North Main	reach 1	42941	2856.00	4.24	12.88	7.07	12.97	0.000236	2.40	1190.73	166.05	0.16
North Main	reach 1	42941	4210.00	4.24	14.60	7.80	14.72	0.000265	2.84	1483.38	174.31	0.17
North Main	reach 1	42941	5787.00	4.24	16.16	8.54	16.33	0.000295	3.27	1785.67	319.84	0.18
North Main	reach 1	42941	10840.00	4.24	19.35	10.57	19.41	0.000281	2.47	9813.11	6199.40	0.17
North Main	reach 1	42938	Inline Weir									
North Main	reach 1	42932	2856.00	3.60	12.88	8.09	12.94	0.000146	2.04	1397.61	172.39	0.13
North Main	reach 1	42932	4210.00	3.60	14.59	8.79	14.69	0.000175	2.48	1699.24	179.03	0.14
North Main	reach 1	42932	5787.00	3.60	16.15	7.51	16.28	0.000206	2.91	2008.33	308.83	0.16
North Main	reach 1	42932	10840.00	3.60	19.34	9.46	19.40	0.000228	2.51	9726.34	6147.82	0.16
North Main	reach 1	42366	2856.00	3.60	12.84	5.57	12.88	0.000081	1.56	1833.45	217.52	0.09
North Main	reach 1	42366	4210.00	3.60	14.55	6.14	14.60	0.000098	1.91	2209.10	223.52	0.11
North Main	reach 1	42366	5787.00	3.60	16.10	6.73	16.18	0.000116	2.25	2560.23	227.36	0.12
North Main	reach 1	42366	10840.00	3.60	19.27	8.36	19.34	0.000109	2.47	10088.80	5540.16	0.12
North Main	reach 1	42319	2856.00	3.60	12.83	5.57	12.87	0.000081	1.56	1831.34	217.48	0.09
North Main	reach 1	42313	4210.00	3.60	14.54	6.14	14.59	0.000098	1.91	2206.46	223.47	0.11
North Main	reach 1	42313	5787.00	3.60	16.09	6.73	16.17	0.000116	2.26	2557.07	227.33	0.12
North Main	reach 1	42313	10840.00	3.60	19.26	8.35	19.34	0.000109	2.48	10035.17	5522.97	0.12
North Main	reach 1	42000	2856.00	3.60	12.81	5.49	12.85	0.000073	1.49	1910.48	223.31	0.09
North Main	reach 1	42000	4210.00	3.60	14.51	6.04	14.56	0.000090	1.83	2294.32	229.28	0.10
North Main	reach 1	42000	5787.00	3.60	16.06	6.80	16.13	0.000107	2.17	2654.13	234.75	0.11
North Main	reach 1	42000	10840.00	3.60	19.20	8.15	19.30	0.000125	2.68	8887.14	6421.69	0.13
North Main	reach 1	40000	2856.00	3.15	12.67	5.14	12.70	0.000070	1.47	1943.61	225.86	0.09
North Main	reach 1	40000	4210.00	3.15	14.32	5.70	14.38	0.000086	1.81	2323.21	231.32	0.10
North Main	reach 1	40000	5787.00	3.15	15.85	6.28	15.92	0.000104	2.15	2678.72	235.94	0.11
North Main	reach 1	40000	10840.00	3.15	18.85	7.86	18.99	0.000170	3.13	4391.19	2692.45	0.15
North Main	reach 1	38000	2856.00	3.14	12.52	5.06	12.55	0.000071	1.48	1934.94	225.46	0.09
North Main	reach 1	38000	4210.00	3.14	14.14	5.61	14.19	0.000089	1.83	2306.06	232.02	0.10
North Main	reach 1	38000	5787.00	3.14	15.63	6.19	15.71	0.000108	2.17	2656.48	237.23	0.11
North Main	reach 1	38000	10840.00	3.14	18.47	7.76	18.64	0.000188	3.24	3343.06	246.27	0.16
North Main	reach 1	36000	2856.00	3.15	12.35	5.10	12.39	0.000080	1.55	1837.77	217.08	0.09
North Main	reach 1	36000	4210.00	3.15	13.94	5.67	14.00	0.000101	1.93	2185.84	222.65	0.11
North Main	reach 1	36000	5787.00	3.15	15.39	6.25	15.47	0.000124	2.30	2511.85	227.82	0.12
North Main	reach 1	36000	10840.00	3.15	18.04	7.85	18.23	0.000223	3.46	3129.20	237.31	0.17
North Main	reach 1	34000	2856.00	3.16	12.19	5.20	12.23	0.000091	1.61	1771.11	220.20	0.10
North Main	reach 1	34000	4210.00	3.16	13.72	5.78	13.78	0.000115	1.99	2112.58	227.11	0.12
North Main	reach 1	34000	5787.00	3.16	15.12	6.38	15.20	0.000139	2.37	2433.88	231.83	0.13
North Main	reach 1	34000	10840.00	3.16	17.54	8.01	17.75	0.000256	3.81	3006.62	240.13	0.18
North Main	reach 1	32548	2856.00	3.16	12.05	5.27	12.09	0.000097	1.65	1728.14	215.56	0.10
North Main	reach 1	32548	4210.00	3.16	13.54	5.87	13.61	0.000123	2.05	2052.29	221.48	0.12
North Main	reach 1	32548	5787.00	3.16	14.90	6.46	14.99	0.000150	2.45	2356.64	225.98	0.13

HFC-DAS Plan P-25X-3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	32548	10840.00	3.18	17.13	8.09	17.35	0.000289	3.78	2988.09	233.38	0.19
North Main	reach 1	32504	2858.00	3.18	12.05	5.27	12.09	0.000097	1.88	1725.20	216.55	0.10
North Main	reach 1	32504	4210.00	3.18	13.54	5.87	13.80	0.000123	2.05	2051.07	221.48	0.12
North Main	reach 1	32504	5767.00	3.18	14.89	6.46	14.99	0.000150	2.45	2355.12	225.98	0.13
North Main	reach 1	32504	10840.00	3.18	17.11	8.09	17.34	0.000290	3.78	2884.89	233.32	0.19
North Main	reach 1	32000	2858.00	3.18	12.00	5.18	12.04	0.000089	1.59	1792.44	221.24	0.10
North Main	reach 1	32000	4210.00	3.18	13.48	5.72	13.54	0.000113	1.98	2122.93	228.56	0.11
North Main	reach 1	32000	5767.00	3.16	14.83	6.29	14.91	0.000140	2.37	2431.27	231.41	0.13
North Main	reach 1	32000	10840.00	3.16	16.97	7.85	17.18	0.000304	3.87	2953.08	250.94	0.18
North Main	reach 1	30000	2858.00	2.92	11.83	4.85	11.87	0.000081	1.55	1845.03	222.78	0.09
North Main	reach 1	30000	4210.00	2.92	13.26	5.41	13.32	0.000107	1.94	2185.81	227.21	0.11
North Main	reach 1	30000	5767.00	2.92	14.55	5.97	14.64	0.000134	2.34	2482.07	231.23	0.13
North Main	reach 1	30000	10840.00	2.92	16.43	7.53	16.61	0.000259	3.58	4400.49	2825.21	0.18
North Main	reach 1	29585	3102.00	2.90	11.78	5.02	11.83	0.000108	1.78	1759.30	216.39	0.11
North Main	reach 1	29585	4262.00	2.90	13.20	5.51	13.27	0.000123	2.08	2070.85	221.85	0.12
North Main	reach 1	29585	5805.00	2.90	14.48	6.09	14.58	0.000153	2.48	2357.05	228.38	0.13
North Main	reach 1	29585	10731.00	2.90	16.28	7.63	16.49	0.000320	3.88	2764.14	4672.47	0.20
North Main	reach 1	29523	3102.00	2.90	11.78	5.02	11.82	0.000108	1.78	1757.82	216.37	0.11
North Main	reach 1	29523	4262.00	2.90	13.20	5.51	13.28	0.000123	2.08	2068.83	221.82	0.12
North Main	reach 1	29523	5805.00	2.90	14.47	6.09	14.57	0.000153	2.47	2354.86	226.35	0.13
North Main	reach 1	29523	10731.00	2.90	16.24	7.64	16.47	0.000321	3.89	2759.28	4667.86	0.20
North Main	reach 1	28000	3102.00	2.90	11.61	5.03	11.66	0.000109	1.75	1773.74	223.04	0.11
North Main	reach 1	28000	4262.00	2.90	13.01	5.52	13.08	0.000123	2.04	2088.87	227.50	0.12
North Main	reach 1	28000	5805.00	2.90	14.24	6.09	14.33	0.000154	2.45	2371.23	231.42	0.13
North Main	reach 1	28000	10731.00	2.90	15.98	7.62	16.07	0.000178	2.88	8058.15	3648.90	0.15
North Main	reach 1	28000	3102.00	2.90	11.37	5.04	11.42	0.000125	1.83	1891.15	219.82	0.12
North Main	reach 1	28000	4262.00	2.90	12.74	5.53	12.81	0.000141	2.14	1995.44	225.09	0.13
North Main	reach 1	28000	5805.00	2.90	13.93	6.11	14.02	0.000189	2.47	2758.88	685.89	0.14
North Main	reach 1	28000	10731.00	2.90	15.48	7.67	15.61	0.000309	3.34	6031.40	4592.12	0.19
North Main	reach 1	24000	3102.00	2.90	11.11	4.93	11.18	0.000126	1.83	1698.92	222.85	0.12
North Main	reach 1	24000	4262.00	2.90	12.45	5.40	12.51	0.000141	2.08	2432.95	1099.24	0.13
North Main	reach 1	24000	5805.00	2.90	13.83	5.95	13.70	0.000147	2.18	4242.82	1808.70	0.13
North Main	reach 1	24000	10731.00	2.90	15.40	7.45	15.41	0.000334	1.12	23300.99	8092.03	0.08
North Main	reach 1	22000	3102.00	2.90	10.84	4.92	10.89	0.000137	1.87	1858.08	222.89	0.12
North Main	reach 1	22000	4262.00	2.90	12.14	5.38	12.21	0.000154	2.19	1958.72	238.85	0.13
North Main	reach 1	22000	5805.00	2.90	13.25	5.92	13.35	0.000194	2.63	2237.11	316.52	0.15
North Main	reach 1	22000	10731.00	2.90	15.02	7.41	15.23	0.000345	3.86	3874.17	1384.99	0.20
North Main	reach 1	20000	3102.00	2.23	10.58	4.53	10.61	0.000144	1.93	1809.98	215.15	0.12
North Main	reach 1	20000	4262.00	2.23	11.81	5.01	11.89	0.000166	2.26	1883.24	219.94	0.14
North Main	reach 1	20000	5805.00	2.23	12.82	5.58	12.94	0.000218	2.75	2107.98	223.81	0.16
North Main	reach 1	20000	10731.00	2.23	14.09	7.12	14.40	0.000502	4.48	2393.31	228.82	0.24
North Main	reach 1	19889	3102.00	2.23	10.54	4.62	10.60	0.000157	1.99	1581.04	212.53	0.13
North Main	reach 1	19889	4262.00	2.23	11.79	5.13	11.88	0.000180	2.33	1830.67	217.78	0.14
North Main	reach 1	19889	5805.00	2.23	12.80	5.71	12.92	0.000234	2.83	2051.80	221.51	0.16
North Main	reach 1	19889	10731.00	2.23	14.01	7.29	14.34	0.000545	4.62	2351.57	425.41	0.25
North Main	reach 1	19835	3102.00	2.23	10.53	4.62	10.59	0.000157	1.99	1559.19	212.49	0.13
North Main	reach 1	19835	4262.00	2.23	11.78	5.13	11.87	0.000181	2.33	1828.47	217.74	0.14
North Main	reach 1	19835	5805.00	2.23	12.79	5.71	12.91	0.000235	2.83	2048.85	221.48	0.16
North Main	reach 1	19835	10731.00	2.23	13.98	7.29	14.31	0.000550	4.63	2338.14	413.53	0.25
North Main	reach 1	18000	3102.00	2.22	10.23	4.53	10.29	0.000168	2.03	1527.43	211.95	0.13
North Main	reach 1	18000	4262.00	2.22	11.43	5.02	11.52	0.000195	2.39	1785.44	216.59	0.15
North Main	reach 1	18000	5805.00	2.22	12.33	5.59	12.46	0.000258	2.91	2250.39	1871.48	0.17
North Main	reach 1	18000	10731.00	2.22	12.95	7.14	13.24	0.000594	4.58	4409.70	5083.15	0.26
North Main	reach 1	18000	3102.00	2.22	9.87	4.30	9.93	0.000182	2.09	1482.86	208.46	0.14
North Main	reach 1	18000	4262.00	2.22	11.01	4.79	11.11	0.000214	2.47	1724.28	212.85	0.15
North Main	reach 1	18000	5805.00	2.22	12.18	5.37	12.20	0.000261	1.42	11822.73	6913.68	0.08
North Main	reach 1	18000	10731.00	2.22	12.70	6.93	12.72	0.000115	1.92	15403.85	6931.46	0.11
North Main	reach 1	14000	3102.00	2.03	9.50	4.07	9.57	0.000181	2.07	1498.16	212.55	0.14
North Main	reach 1	14000	4262.00	2.03	10.58	4.54	10.68	0.000217	2.47	1727.11	215.74	0.15
North Main	reach 1	14000	5805.00	2.03	11.83	5.11	11.96	0.000261	2.90	2000.14	224.44	0.17
North Main	reach 1	14000	10731.00	2.03	12.46	6.63	12.48	0.000125	1.99	14819.79	6924.52	0.12
North Main	reach 1	12000	3102.00	1.79	9.10	3.96	9.18	0.000218	2.20	1408.58	208.81	0.15
North Main	reach 1	12000	4262.00	1.79	10.09	4.45	10.20	0.000283	2.64	1818.67	212.02	0.17
North Main	reach 1	12000	5805.00	1.79	11.24	5.02	11.39	0.000314	3.12	1862.10	215.97	0.19
North Main	reach 1	12000	10731.00	1.79	12.37	6.57	12.38	0.000228	0.90	33767.20	13721.03	0.06
North Main	reach 1	10000	3241.00	1.80	8.58	3.99	8.67	0.000295	2.48	1316.96	208.92	0.17



HEC-RAS Plan: P.25% 3 (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
North Main	reach 1	10000	4357.00	1.80	9.48	4.45	9.59	0.000352	2.90	1503.88	213.74	0.19
North Main	reach 1	10000	5818.00	1.80	10.45	4.99	10.83	0.000487	3.37	1724.58	240.80	0.22
North Main	reach 1	10000	10743.00	1.80	11.75	6.53	12.17	0.000995	5.23	2055.32	282.01	0.33
North Main	reach 1	8000	3291.00	1.73	7.80	3.99	7.93	0.000470	2.89	1138.93	202.98	0.21
North Main	reach 1	8000	4457.00	1.73	8.50	4.48	8.89	0.000593	3.48	1281.11	204.75	0.25
North Main	reach 1	8000	5888.00	1.73	9.20	5.01	9.48	0.000734	4.12	1425.21	207.20	0.28
North Main	reach 1	8000	10712.00	1.73	11.00	11.00	11.07	0.000298	2.99	10500.98	8877.30	0.18
North Main	reach 1	9000	3291.00	1.77	6.88	3.68	6.97	0.000486	2.68	1307.17	296.77	0.21
North Main	reach 1	9000	4457.00	1.77	7.23	4.11	7.40	0.000899	3.34	1416.89	301.04	0.26
North Main	reach 1	9000	5888.00	1.77	7.43	4.58	7.89	0.001072	4.23	1475.75	303.30	0.32
North Main	reach 1	9000	10712.00	1.77	7.66	5.88	8.47	0.003095	7.37	1547.89	306.07	0.55
North Main	reach 1	4068	3291.00	1.84	5.80	3.41	5.90	0.000621	2.52	1303.51	352.71	0.23
North Main	reach 1	4068	4457.00	1.84	6.15	3.74	6.22	0.000511	2.42	4852.86	16473.98	0.21
North Main	reach 1	4068	5888.00	1.84	6.37	4.10	6.41	0.000408	2.24	8558.91	16880.40	0.19
North Main	reach 1	4068	10712.00	1.84	6.85	5.15	6.87	0.000301	2.08	16955.58	17800.98	0.17
North Main	reach 1	4024	3291.00	1.84	5.79	3.41	5.89	0.000629	2.53	1298.54	352.84	0.23
North Main	reach 1	4024	4457.00	1.84	6.13	3.74	6.21	0.000531	2.47	4858.88	16453.51	0.22
North Main	reach 1	4024	5888.00	1.84	6.38	4.10	6.41	0.000421	2.27	8399.91	16844.12	0.19
North Main	reach 1	4024	10712.00	1.84	6.85	5.14	6.87	0.000301	2.06	16955.58	17800.98	0.17
North Main	reach 1	2000	3575.00	1.72	4.18	2.81	4.25	0.001056	2.41	1484.15	642.56	0.28
North Main	reach 1	2000	4920.00	1.72	4.43	3.05	4.58	0.001398	2.97	1654.04	644.18	0.33
North Main	reach 1	2000	6522.00	1.72	4.68	3.32	4.88	0.001803	3.59	1816.57	645.72	0.38
North Main	reach 1	2000	10850.00	1.72	5.13	3.91	5.54	0.003049	5.14	2109.80	648.49	0.50
North Main	reach 1	0	3575.00	1.41	3.59	1.98	3.60	0.000155	0.77	8745.72	7371.77	0.10
North Main	reach 1	0	4920.00	1.41	3.85	2.12	3.85	0.000155	0.84	8654.40	7646.04	0.10
North Main	reach 1	0	6522.00	1.41	4.10	2.28	4.11	0.000155	0.90	10901.75	10307.77	0.11
North Main	reach 1	0	10850.00	1.41	4.62	2.83	4.63	0.000155	1.03	16375.00	10712.36	0.11

**HEC-RAS MODEL**  
**PROPOSED CONDITIONS**  
**50% DIVERSION**



HEC-RAS Plan: P 50% D

River	Reach	River Sta	Q Total (cfs)	Min.Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
La Sal Vieja	Reach 1	15080	923.00	24.30	31.85	26.73	31.92	0.000356	2.22	415.85	70.19	0.16
La Sal Vieja	Reach 1	15080	1531.00	24.30	34.44	27.65	34.54	0.000329	2.50	611.54	80.57	0.16
La Sal Vieja	Reach 1	15080	2121.00	24.30	36.53	28.41	36.64	0.000311	2.69	788.49	88.93	0.16
La Sal Vieja	Reach 1	15060	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.47	99.86	0.06
La Sal Vieja	Reach 1	15050	923.00	24.30	31.84	26.73	31.92	0.000357	2.22	415.48	70.17	0.16
La Sal Vieja	Reach 1	15050	1531.00	24.30	34.44	27.65	34.54	0.000329	2.51	611.18	80.58	0.16
La Sal Vieja	Reach 1	15050	2121.00	24.30	36.53	28.41	36.64	0.000311	2.69	788.14	88.91	0.16
La Sal Vieja	Reach 1	15050	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.43	99.86	0.06
La Sal Vieja	Reach 1	15010	923.00	24.30	31.84	27.73	31.91	0.000358	2.22	415.11	70.15	0.16
La Sal Vieja	Reach 1	15010	1531.00	24.30	34.43	27.65	34.53	0.000330	2.51	610.82	80.54	0.16
La Sal Vieja	Reach 1	15010	2121.00	24.30	36.52	28.41	36.64	0.000311	2.69	787.78	88.89	0.16
La Sal Vieja	Reach 1	15010	1107.00	24.30	39.26	27.03	39.28	0.000039	1.06	1046.39	99.86	0.06
La Sal Vieja	Reach 1	15000	923.00	24.30	31.83		31.91	0.000358	2.23	414.75	70.13	0.16
La Sal Vieja	Reach 1	15000	1531.00	24.30	34.43		34.53	0.000331	2.51	610.46	80.52	0.16
La Sal Vieja	Reach 1	15000	2121.00	24.30	36.52		36.63	0.000312	2.69	787.42	88.88	0.16
La Sal Vieja	Reach 1	15000	1107.00	24.30	39.26		39.28	0.000039	1.06	1046.35	99.85	0.06
La Sal Vieja	Reach 1	12500	923.00	23.30	30.96		31.03	0.000338	2.18	423.57	70.83	0.16
La Sal Vieja	Reach 1	12500	1531.00	23.30	33.63		33.72	0.000307	2.44	626.72	81.32	0.16
La Sal Vieja	Reach 1	12500	2121.00	23.30	35.77		35.87	0.000289	2.62	809.56	89.87	0.15
La Sal Vieja	Reach 1	12500	1107.00	23.30	39.18		39.20	0.000031	0.97	1140.05	103.54	0.05
La Sal Vieja	Reach 1	9650	923.00	22.16	30.05		30.12	0.000302	2.10	440.24	71.57	0.15
La Sal Vieja	Reach 1	9650	1531.00	22.16	32.81		32.90	0.000274	2.34	652.95	82.61	0.15
La Sal Vieja	Reach 1	9650	2121.00	22.16	35.00		35.09	0.000258	2.52	842.97	91.35	0.15
La Sal Vieja	Reach 1	9650	1107.00	22.16	39.12		39.13	0.000024	0.88	1253.60	107.84	0.05
La Sal Vieja	Reach 1	7500	923.00	21.30	29.44		29.50	0.000270	2.01	458.24	72.57	0.14
La Sal Vieja	Reach 1	7500	1531.00	21.30	32.26		32.34	0.000246	2.26	678.46	83.83	0.14
La Sal Vieja	Reach 1	7500	2121.00	21.30	34.47		34.56	0.000234	2.43	873.94	92.69	0.14
La Sal Vieja	Reach 1	7500	1107.00	21.30	39.07		39.08	0.000020	0.82	1342.54	111.09	0.04
La Sal Vieja	Reach 1	4100	923.00	19.94	28.64		28.69	0.000212	1.85	499.35	74.80	0.13
La Sal Vieja	Reach 1	4100	1531.00	19.94	31.51		31.58	0.000200	2.09	730.84	86.29	0.13
La Sal Vieja	Reach 1	4100	2121.00	19.94	33.76		33.84	0.000194	2.27	934.61	95.27	0.13
La Sal Vieja	Reach 1	4100	1107.00	19.94	39.03		39.03	0.000015	0.74	1491.88	116.34	0.04
La Sal Vieja	Reach 1	1000	923.00	18.70	28.08	21.13	28.12	0.000160	1.67	551.10	77.52	0.11
La Sal Vieja	Reach 1	1000	1531.00	18.70	30.97	22.05	31.03	0.000160	1.93	791.73	89.07	0.11
La Sal Vieja	Reach 1	1000	2121.00	18.70	33.22	22.81	33.29	0.000160	2.12	1002.52	98.08	0.12
La Sal Vieja	Reach 1	1000	1107.00	18.70	39.00	21.43	39.00	0.000006	0.55	4567.38	1082.00	0.02
raymondville	Reach 8	296300	629.00	70.00	77.60		77.67	0.000461	2.19	287.09	60.58	0.18
raymondville	Reach 8	296300	1287.00	70.00	80.30		80.35	0.000278	2.03	1625.49	3000.00	0.16
raymondville	Reach 8	296300	2370.00	70.00	82.66		82.66	0.000017	0.61	8705.56	3000.00	0.04
raymondville	Reach 8	296300	6583.00	70.00	86.09		86.09	0.000011	0.60	19003.37	3000.00	0.03
raymondville	Reach 8	295300	629.00	69.54	77.14		77.21	0.000461	2.19	287.05	60.58	0.18
raymondville	Reach 8	295300	1287.00	69.54	79.96		80.04	0.000351	2.30	1051.72	1878.68	0.18
raymondville	Reach 8	295300	2370.00	69.54	82.64		82.65	0.000015	0.58	9055.57	3000.00	0.04
raymondville	Reach 8	295300	6583.00	69.54	86.08		86.08	0.000010	0.60	19369.54	3000.00	0.03
raymondville	Reach 8	293500	629.00	68.71	76.32	71.77	76.39	0.000458	2.19	287.73	60.65	0.18
raymondville	Reach 8	293500	1287.00	68.71	79.20	73.22	79.31	0.000464	2.64	487.54	77.95	0.19
raymondville	Reach 8	293500	2370.00	68.71	82.41	74.90	82.56	0.000465	3.08	768.35	97.19	0.19
raymondville	Reach 8	293500	6583.00	68.71	86.03	78.94	86.04	0.000088	1.61	9256.79	3000.00	0.09
raymondville	Reach 8	291800	629.00	87.93	75.54	70.99	75.61	0.000458	2.19	287.73	60.64	0.18
raymondville	Reach 8	291800	1287.00	87.93	78.41	72.44	78.52	0.000465	2.64	486.93	77.90	0.19
raymondville	Reach 8	291800	2370.00	87.93	81.62	74.12	81.77	0.000466	3.09	767.52	97.14	0.19
raymondville	Reach 8	291800	6583.00	87.93	85.89	78.16	85.91	0.000067	1.41	9200.27	3000.00	0.08
raymondville	Reach 8	289400	629.00	66.82	74.44	69.88	74.51	0.000455	2.18	288.53	60.72	0.18
raymondville	Reach 8	289400	1287.00	66.82	77.30	71.33	77.41	0.000465	2.64	486.93	77.90	0.19
raymondville	Reach 8	289400	2370.00	66.82	80.51	73.01	80.66	0.000466	3.09	767.52	97.14	0.19
raymondville	Reach 8	289400	6583.00	66.82	85.75	77.05	85.76	0.000054	1.32	9693.57	3000.00	0.07
raymondville	Reach 8	287000	629.00	65.72	73.35		73.43	0.000451	2.17	289.34	60.80	0.18
raymondville	Reach 8	287000	1287.00	65.72	76.18		76.29	0.000470	2.55	485.14	77.76	0.19
raymondville	Reach 8	287000	2370.00	65.72	79.39		79.53	0.000470	3.10	765.25	96.99	0.19
raymondville	Reach 8	287000	6583.00	65.72	85.08		85.41	0.000701	4.65	1415.00	140.57	0.25
raymondville	Reach 8	285100	629.00	64.84	72.50	67.90	72.58	0.000444	2.16	291.21	60.99	0.17
raymondville	Reach 8	285100	1287.00	64.84	75.28	69.35	75.39	0.000473	2.66	483.84	77.66	0.19
raymondville	Reach 8	285100	2370.00	64.84	78.49	71.03	78.64	0.000472	3.10	763.78	96.90	0.19
raymondville	Reach 8	285100	6583.00	64.84	83.60	75.07	83.98	0.000814	4.92	1337.39	127.57	0.27

HEC-RAS Plan: P 50% D (Continued)

River	Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	283500	629.00	64.11	71.79	67.17	71.86	0.000439	2.15	292.33	61.10	0.17
raymondville	Reach 8	283500	1287.00	64.11	74.52	68.82	74.83	0.000481	2.67	481.17	77.45	0.19
raymondville	Reach 8	283500	2370.00	64.11	77.73	70.30	77.88	0.000477	3.12	760.81	96.72	0.20
raymondville	Reach 8	283500	6583.00	64.11	82.21	74.35	82.61	0.000910	5.10	1514.02	1562.61	0.29
raymondville	Reach 8	281800	629.00	63.33	71.06		71.13	0.000428	2.13	295.07	61.37	0.17
raymondville	Reach 8	281800	1287.00	63.33	73.69		73.80	0.000490	2.70	477.52	77.17	0.19
raymondville	Reach 8	281800	2370.00	63.33	76.91		77.06	0.000483	3.13	757.16	96.49	0.20
raymondville	Reach 8	281800	6583.00	63.33	81.99		82.02	0.000133	2.06	7781.97	3000.00	0.12
raymondville	Reach 8	279700	656.00	62.36	70.12		70.19	0.000458	2.21	296.80	61.54	0.18
raymondville	Reach 8	279700	1240.00	62.36	72.70		72.81	0.000459	2.60	476.21	77.07	0.18
raymondville	Reach 8	279700	2315.00	62.36	75.93		76.07	0.000484	3.06	755.69	96.40	0.19
raymondville	Reach 8	279700	6197.00	62.36	81.67		81.72	0.000164	2.31	5405.04	1733.32	0.13
raymondville	Reach 8	275500	656.00	60.43	68.18		68.26	0.000460	2.21	296.42	61.50	0.18
raymondville	Reach 8	275500	1240.00	60.43	70.78		70.88	0.000458	2.60	476.36	77.08	0.18
raymondville	Reach 8	275500	2315.00	60.43	73.97		74.12	0.000467	3.07	753.39	96.26	0.19
raymondville	Reach 8	275500	6197.00	60.43	80.27		80.55	0.000551	4.19	1481.86	155.90	0.22
raymondville	Reach 8	273500	656.00	59.51	67.26		67.34	0.000460	2.21	296.49	61.51	0.18
raymondville	Reach 8	273500	1240.00	59.51	69.86		69.97	0.000457	2.60	476.76	77.11	0.18
raymondville	Reach 8	273500	2315.00	59.51	73.04		73.18	0.000470	3.08	751.69	96.15	0.19
raymondville	Reach 8	273500	6197.00	59.51	79.13		79.41	0.000583	4.28	1448.89	132.71	0.23
raymondville	Reach 8	272300	656.00	58.96	66.71		68.79	0.000460	2.21	296.40	61.50	0.18
raymondville	Reach 8	272300	1240.00	58.96	69.31		69.42	0.000457	2.60	476.89	77.12	0.18
raymondville	Reach 8	272300	2315.00	58.96	72.47		72.62	0.000473	3.09	750.12	96.05	0.19
raymondville	Reach 8	272300	6197.00	58.96	78.40		78.70	0.000608	4.35	1425.84	131.66	0.23
raymondville	Reach 8	270300	656.00	58.04	65.79	61.17	65.87	0.000460	2.21	296.40	61.50	0.18
raymondville	Reach 8	270300	1240.00	58.04	68.39	62.46	68.50	0.000457	2.60	476.89	77.12	0.18
raymondville	Reach 8	270300	2315.00	58.04	71.53	64.17	71.67	0.000477	3.10	747.89	95.91	0.20
raymondville	Reach 8	270300	6197.00	58.04	77.57	67.98	77.73	0.000365	3.48	2781.81	2078.27	0.19
raymondville	Reach 8	268100	656.00	57.02	64.78	60.15	64.86	0.000457	2.21	297.14	61.57	0.18
raymondville	Reach 8	268100	1240.00	57.02	67.39	61.44	67.50	0.000453	2.59	478.40	77.24	0.18
raymondville	Reach 8	268100	2315.00	57.02	70.47	63.15	70.62	0.000482	3.11	744.46	95.70	0.20
raymondville	Reach 8	268100	6197.00	57.02	76.39	66.96	76.69	0.000820	4.38	1415.92	131.21	0.23
raymondville	Reach 8	266400	656.00	56.24	64.00	59.37	64.08	0.000457	2.21	297.14	61.57	0.18
raymondville	Reach 8	266400	1240.00	56.24	66.62	60.66	66.73	0.000451	2.59	479.10	77.29	0.18
raymondville	Reach 8	266400	2315.00	56.24	69.64	62.37	69.79	0.000491	3.13	739.75	95.40	0.20
raymondville	Reach 8	266400	6197.00	56.24	75.90	66.18	76.00	0.000246	2.90	3718.53	2889.75	0.18
raymondville	Reach 8	264100	656.00	55.18	62.96	58.31	63.03	0.000453	2.20	298.01	61.65	0.18
raymondville	Reach 8	264100	1240.00	55.18	65.59	59.60	65.69	0.000446	2.58	481.39	77.47	0.18
raymondville	Reach 8	264100	2315.00	55.18	68.49	61.31	68.65	0.000508	3.17	731.26	94.87	0.20
raymondville	Reach 8	264100	6197.00	55.18	75.04	65.12	75.24	0.000431	3.77	2591.51	3000.00	0.21
raymondville	Reach 8	262450	656.00	54.42	62.21	57.55	62.29	0.000449	2.19	299.00	61.75	0.18
raymondville	Reach 8	262450	1240.00	54.42	64.86	58.84	64.96	0.000440	2.56	483.78	77.68	0.18
raymondville	Reach 8	262450	2315.00	54.42	67.84	60.55	67.80	0.000523	3.20	722.48	94.31	0.20
raymondville	Reach 8	262450	6197.00	54.42	74.14	64.36	74.42	0.000568	4.24	1462.67	133.33	0.23
raymondville	Reach 8	260550	770.00	53.56	61.34		61.43	0.000456	2.28	337.48	66.71	0.18
raymondville	Reach 8	260550	1434.00	53.56	64.00		64.12	0.000452	2.67	536.18	82.67	0.19
raymondville	Reach 8	260550	2395.00	53.56	66.72		66.87	0.000455	3.06	783.21	98.99	0.19
raymondville	Reach 8	260550	6408.00	53.56	73.10		73.37	0.000535	4.17	1536.44	137.25	0.22
raymondville	Reach 8	259250	770.00	52.96	60.76		60.84	0.000453	2.27	338.49	66.80	0.18
raymondville	Reach 8	259250	1434.00	52.96	63.43		63.54	0.000448	2.67	537.99	82.80	0.18
raymondville	Reach 8	259250	2395.00	52.96	66.14		66.29	0.000452	3.05	784.93	99.09	0.19
raymondville	Reach 8	259250	6408.00	52.96	72.40		72.67	0.000548	4.21	1522.23	136.62	0.22
raymondville	Reach 8	258000	770.00	52.39	60.20		60.28	0.000451	2.27	338.87	66.83	0.18
raymondville	Reach 8	258000	1434.00	52.39	62.87		62.98	0.000446	2.66	539.00	82.87	0.18
raymondville	Reach 8	258000	2395.00	52.39	65.58		65.72	0.000451	3.05	785.53	99.13	0.19
raymondville	Reach 8	258000	6408.00	52.39	71.69		71.98	0.000566	4.26	1504.10	135.83	0.23
raymondville	Reach 8	255800	770.00	51.37	59.21		59.28	0.000444	2.26	340.88	67.01	0.18
raymondville	Reach 8	255800	1434.00	51.37	61.90		62.01	0.000437	2.64	543.21	83.18	0.18
raymondville	Reach 8	255800	2395.00	51.37	64.58		64.73	0.000447	3.04	786.03	99.28	0.19
raymondville	Reach 8	255800	6408.00	51.37	70.39		70.69	0.000607	4.37	1465.64	134.12	0.23
raymondville	Reach 8	252200	770.00	49.72	57.65		57.73	0.000421	2.22	347.52	67.60	0.17
raymondville	Reach 8	252200	1434.00	49.72	60.37		60.48	0.000415	2.59	553.36	83.91	0.18
raymondville	Reach 8	252200	2395.00	49.72	62.99		63.13	0.000439	3.02	793.83	99.63	0.19

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	252200	6408.00	49.72	87.93		68.27	0.000743	4.72	1358.53	129.24	0.28
raymondville	Reach 8	250350	770.00	48.87	56.89		56.97	0.000402	2.18	353.68	68.15	0.17
raymondville	Reach 8	250350	1434.00	48.87	59.62		59.72	0.000389	2.55	561.74	84.50	0.17
raymondville	Reach 8	250350	2395.00	48.87	62.19		62.33	0.000432	3.00	798.44	99.91	0.19
raymondville	Reach 8	250350	6408.00	48.87	66.37		66.76	0.000893	5.05	1288.30	124.98	0.28
raymondville	Reach 8	248900	770.00	48.20	56.33		56.40	0.000380	2.13	360.92	68.79	0.16
raymondville	Reach 8	248900	1434.00	48.20	59.06		59.16	0.000382	2.51	570.83	85.15	0.17
raymondville	Reach 8	248900	2395.00	48.20	61.57		61.71	0.000424	2.98	803.58	100.22	0.19
raymondville	Reach 8	248900	6408.00	48.20	64.83		65.31	0.001127	5.51	1162.86	119.82	0.31
raymondville	Reach 8	245400	770.00	46.59	55.15	49.63	55.21	0.000307	1.97	390.69	71.33	0.15
raymondville	Reach 8	245400	1434.00	46.59	57.83	50.93	57.91	0.000329	2.38	603.47	87.41	0.16
raymondville	Reach 8	245400	2395.00	46.59	60.14	52.32	60.27	0.000395	2.90	911.63	758.35	0.18
raymondville	Reach 8	245400	6408.00	46.59	64.17	56.09	64.19	0.000123	1.93	6405.04	1616.34	0.11
raymondville	Reach 8	242800	770.00	45.39	54.45	48.43	54.50	0.000241	1.80	427.34	74.35	0.13
raymondville	Reach 8	242800	1434.00	45.39	57.05	49.73	57.12	0.000280	2.24	640.70	89.93	0.15
raymondville	Reach 8	242800	2395.00	45.39	59.15	51.12	59.27	0.000373	2.84	842.91	102.54	0.17
raymondville	Reach 8	242800	6408.00	45.39	63.82	54.90	63.85	0.000138	2.06	6027.32	1567.96	0.11
raymondville	Reach 8	240200	831.00	44.20	53.86		53.91	0.000212	1.75	473.53	77.99	0.13
raymondville	Reach 8	240200	1497.00	44.20	56.36		56.43	0.000253	2.18	686.66	92.95	0.14
raymondville	Reach 8	240200	2298.00	44.20	58.28		58.38	0.000310	2.62	875.98	104.46	0.16
raymondville	Reach 8	240200	5757.00	44.20	62.98		63.23	0.000519	4.02	1433.72	132.68	0.22
raymondville	Reach 8	235900	831.00	42.22	53.20		53.23	0.000122	1.43	581.01	85.86	0.10
raymondville	Reach 8	235900	1497.00	42.22	55.48		55.54	0.000172	1.89	793.13	99.59	0.12
raymondville	Reach 8	235900	2298.00	42.22	57.13		57.21	0.000239	2.38	964.63	109.43	0.14
raymondville	Reach 8	235900	5757.00	42.22	60.88		61.09	0.000475	3.83	2032.83	933.67	0.21
raymondville	Reach 8	233900	831.00	41.30	53.12		53.12	0.000027	0.77	1918.23	673.88	0.05
raymondville	Reach 8	233900	1497.00	41.30	55.43		55.44	0.000019	0.76	3817.40	1021.34	0.04
raymondville	Reach 8	233900	2298.00	41.30	57.09		57.10	0.000019	0.83	5897.06	1485.85	0.04
raymondville	Reach 8	233900	5757.00	41.30	60.93		60.93	0.000017	0.96	13632.63	2516.23	0.04
raymondville	Reach 8	231612	831.00	40.87	52.92		52.98	0.000248	2.02	410.78	58.20	0.13
raymondville	Reach 8	231612	1497.00	40.87	55.31		55.34	0.000140	1.81	1532.76	658.87	0.11
raymondville	Reach 8	231612	2298.00	40.87	56.99		57.01	0.000092	1.64	2776.09	816.19	0.09
raymondville	Reach 8	231612	5757.00	40.87	60.84		60.86	0.000065	1.69	7624.78	2095.21	0.08
raymondville	Reach 8	227684	831.00	40.09	51.92		51.99	0.000258	2.05	405.05	57.90	0.14
raymondville	Reach 8	227684	1497.00	40.09	54.41		54.52	0.000341	2.64	624.80	260.35	0.16
raymondville	Reach 8	227684	2298.00	40.09	56.35		56.43	0.000288	2.61	1376.72	499.89	0.15
raymondville	Reach 8	227684	5757.00	40.09	60.39		60.45	0.000184	2.72	4560.16	2057.54	0.13
raymondville	Reach 8	225004	831.00	39.55	51.18		51.26	0.000291	2.15	387.01	56.53	0.14
raymondville	Reach 8	225004	1497.00	39.55	53.37		53.49	0.000429	2.88	519.93	65.26	0.18
raymondville	Reach 8	225004	2298.00	39.55	55.22		55.42	0.000561	3.55	648.00	72.69	0.21
raymondville	Reach 8	225004	5757.00	39.55	59.68		59.80	0.000330	3.47	3578.83	1339.66	0.17
raymondville	Reach 8	222418	831.00	39.03	51.03		51.03	0.000034	0.85	2176.38	925.74	0.05
raymondville	Reach 8	222418	1497.00	39.03	53.34		53.34	0.000016	0.69	4572.37	1152.72	0.04
raymondville	Reach 8	222418	2298.00	39.03	55.25		55.25	0.000015	0.73	6999.62	1815.09	0.04
raymondville	Reach 8	222418	5757.00	39.03	59.68		59.69	0.000011	0.76	16649.82	2625.92	0.03
raymondville	Reach 8	220780	831.00	38.71	50.85		50.91	0.000240	2.00	416.06	58.55	0.13
raymondville	Reach 8	220780	1497.00	38.71	53.15		53.26	0.000350	2.67	561.20	67.74	0.16
raymondville	Reach 8	220780	2298.00	38.71	54.99		55.16	0.000469	3.32	692.90	75.11	0.19
raymondville	Reach 8	220780	5757.00	38.71	59.12		59.58	0.000978	5.48	1195.68	583.57	0.29
raymondville	Reach 8	217688	831.00	38.09	50.09		50.15	0.000252	2.03	408.60	58.05	0.14
raymondville	Reach 8	217688	1497.00	38.09	51.95		52.07	0.000421	2.86	523.40	65.49	0.18
raymondville	Reach 8	217688	2298.00	38.09	53.24		53.46	0.000656	3.76	611.29	70.65	0.23
raymondville	Reach 8	217688	5757.00	38.09	57.24		57.41	0.000491	4.03	2833.51	1076.17	0.21
raymondville	Reach 8	215481	831.00	37.65	49.51		49.58	0.000266	2.08	400.23	57.47	0.14
raymondville	Reach 8	215481	1497.00	37.65	51.20		51.28	0.000299	2.48	1013.24	604.76	0.15
raymondville	Reach 8	215481	2298.00	37.65	52.60		52.65	0.000212	2.31	1967.73	765.85	0.13
raymondville	Reach 8	215481	5757.00	37.65	56.99		57.01	0.000077	1.79	7438.04	2229.71	0.08
raymondville	Reach 8	213503	831.00	37.25	48.99		49.06	0.000263	2.07	401.87	57.72	0.14
raymondville	Reach 8	213503	1497.00	37.25	50.69		50.74	0.000242	2.17	1209.65	578.46	0.14
raymondville	Reach 8	213503	2298.00	37.25	52.26		52.29	0.000152	1.94	2252.21	755.59	0.11
raymondville	Reach 8	213503	5757.00	37.25	56.86		56.87	0.000063	1.62	8906.80	2739.35	0.08
raymondville	Reach 8	211888	831.00	36.93	48.59		48.65	0.000232	1.93	656.03	643.65	0.13
raymondville	Reach 8	211888	1497.00	36.93	50.53		50.54	0.000068	1.19	2929.33	1552.12	0.07

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	211888	2298.00	36.93	52.18		52.19	0.000031	0.90	5951.17	2058.93	0.05
raymondville	Reach 8	211888	5757.00	36.93	56.83		56.83	0.000011	0.68	20601.59	4951.01	0.03
raymondville	Reach 8	210380	831.00	36.63	48.18		48.25	0.000296	2.16	384.34	56.38	0.15
raymondville	Reach 8	210380	1497.00	36.63	50.18		50.32	0.000463	2.96	505.35	64.39	0.19
raymondville	Reach 8	210380	2298.00	36.63	51.82		52.04	0.000641	3.73	616.64	70.97	0.22
raymondville	Reach 8	210380	5757.00	36.63	56.37		56.74	0.000916	5.20	2066.04	2204.40	0.28
raymondville	Reach 8	210328	831.00	36.62	48.16		48.23	0.000297	2.16	384.03	56.36	0.15
raymondville	Reach 8	210328	1497.00	36.62	50.16		50.30	0.000464	2.97	504.76	64.36	0.19
raymondville	Reach 8	210328	2298.00	36.62	51.80		52.02	0.000644	3.73	615.54	70.91	0.22
raymondville	Reach 8	210328	5757.00	36.62	56.29		56.69	0.000969	5.34	1901.08	2083.91	0.28
raymondville	Reach 8	208056	831.00	36.16	47.48		47.53	0.000320	2.23	373.45	55.68	0.15
raymondville	Reach 8	208056	1497.00	36.16	48.94		49.11	0.000592	3.25	460.78	61.81	0.21
raymondville	Reach 8	208056	2298.00	36.16	49.91		50.21	0.000999	4.40	522.16	65.48	0.27
raymondville	Reach 8	208056	5757.00	36.16	51.26		52.62	0.004072	9.38	613.79	70.85	0.58
raymondville	Reach 8	205823	831.00	35.72	46.80		46.86	0.000280	2.06	598.00	406.02	0.14
raymondville	Reach 8	205823	1497.00	35.72	48.39		48.42	0.000172	1.85	1930.33	1518.01	0.11
raymondville	Reach 8	205823	2298.00	35.72	49.63		49.65	0.000091	1.48	4214.62	2509.09	0.09
raymondville	Reach 8	205823	5757.00	35.72	51.83		51.84	0.000051	1.27	11847.62	3801.30	0.07
raymondville	Reach 8	203593	831.00	35.27	46.00		46.10	0.000419	2.46	337.71	52.93	0.17
raymondville	Reach 8	203593	1497.00	35.27	47.51		47.70	0.000750	3.55	421.84	58.95	0.23
raymondville	Reach 8	203593	2298.00	35.27	48.80		49.12	0.001114	4.58	501.21	64.11	0.29
raymondville	Reach 8	203593	5757.00	35.27	51.61		51.64	0.000192	2.32	7524.88	4090.83	0.13
raymondville	Reach 8	202962	831.00	35.14	45.73		45.82	0.000446	2.52	329.94	52.34	0.18
raymondville	Reach 8	202962	1497.00	35.14	46.97		47.19	0.000875	3.76	398.21	57.32	0.25
raymondville	Reach 8	202962	2298.00	35.14	47.92		48.32	0.001447	5.06	454.50	61.12	0.33
raymondville	Reach 8	202962	5757.00	35.14	51.47		51.51	0.000228	2.52	6969.73	3978.62	0.14
raymondville	Reach 8	200600	831.00	34.67	44.95		45.00	0.000273	2.04	763.32	609.63	0.14
raymondville	Reach 8	200600	1497.00	34.67	46.61		46.62	0.000095	1.40	2582.39	1292.30	0.09
raymondville	Reach 8	200600	2298.00	34.67	47.76		47.77	0.000067	1.28	4184.00	1491.97	0.07
raymondville	Reach 8	200600	5757.00	34.67	51.25		51.26	0.000057	1.45	13563.64	6000.00	0.07
raymondville	Reach 8	200550	831.00	34.66	44.94		44.99	0.000276	2.04	757.71	607.80	0.14
raymondville	Reach 8	200550	1497.00	34.66	46.80		46.61	0.000096	1.40	2575.88	1291.60	0.09
raymondville	Reach 8	200550	2298.00	34.66	47.76		47.77	0.000067	1.28	4179.35	1491.26	0.07
raymondville	Reach 8	200550	5757.00	34.66	51.25		51.26	0.000057	1.45	13566.72	6000.00	0.07
raymondville	Reach 8	198245	831.00	34.20	43.91		44.04	0.000655	2.91	285.77	48.84	0.21
raymondville	Reach 8	198245	1497.00	34.20	46.23		46.28	0.000242	2.19	1615.65	1104.66	0.14
raymondville	Reach 8	198245	2298.00	34.20	47.55		47.57	0.000123	1.72	3340.08	1518.92	0.10
raymondville	Reach 8	198245	5757.00	34.20	51.15		51.15	0.000033	1.11	14497.42	4867.34	0.05
raymondville	Reach 8	196303	831.00	31.67	43.10		43.17	0.000315	2.21	375.47	55.71	0.15
raymondville	Reach 8	196303	1497.00	31.67	45.57		45.68	0.000395	2.77	663.13	455.79	0.17
raymondville	Reach 8	196303	2298.00	31.67	47.12		47.20	0.000324	2.67	1589.43	810.89	0.16
raymondville	Reach 8	196303	5757.00	31.67	51.04		51.05	0.000101	1.80	7571.85	3343.04	0.09
raymondville	Reach 8	194638	831.00	31.17	42.57		42.65	0.000319	2.22	373.83	55.59	0.15
raymondville	Reach 8	194638	1497.00	31.17	44.95		45.05	0.000366	2.65	817.16	547.40	0.17
raymondville	Reach 8	194638	2298.00	31.17	46.72		46.77	0.000203	2.13	2147.96	920.16	0.13
raymondville	Reach 8	194638	5757.00	31.17	50.94		50.95	0.000044	1.23	12467.66	4365.30	0.06
raymondville	Reach 8	193324	831.00	30.77	42.15	35.21	42.22	0.000322	2.23	372.69	55.51	0.15
raymondville	Reach 8	193324	1497.00	30.77	44.37	36.81	44.50	0.000462	2.96	505.77	64.39	0.19
raymondville	Reach 8	193324	2298.00	30.77	46.11	38.25	46.32	0.000621	3.68	623.83	71.35	0.22
raymondville	Reach 8	193324	5757.00	30.77	50.79	42.39	50.84	0.000199	2.50	5478.02	2922.12	0.13
raymondville	Reach 8	192642	831.00	30.57	41.93	35.01	42.00	0.000324	2.24	371.53	55.43	0.15
raymondville	Reach 8	192642	1497.00	30.57	44.04	36.61	44.16	0.000482	3.01	497.85	63.88	0.19
raymondville	Reach 8	192642	2298.00	30.57	45.65	38.05	45.88	0.000672	3.79	605.82	70.33	0.23
raymondville	Reach 8	192642	5757.00	30.57	49.92	42.20	50.50	0.001295	6.11	942.63	87.41	0.33
raymondville	Reach 8	191137	831.00	30.12	41.43		41.51	0.000330	2.25	369.11	55.25	0.15
raymondville	Reach 8	191137	1497.00	30.12	43.26		43.41	0.000541	3.14	476.70	62.56	0.20
raymondville	Reach 8	191137	2298.00	30.12	44.48		44.74	0.000845	4.13	555.94	67.44	0.25
raymondville	Reach 8	191137	5757.00	30.12	46.77		47.76	0.002648	7.98	721.06	76.61	0.46
raymondville	Reach 8	188680	831.00	29.38	40.76		40.83	0.000233	1.90	685.59	447.56	0.13
raymondville	Reach 8	188680	1497.00	29.38	42.80		42.82	0.000122	1.56	1944.61	843.88	0.10
raymondville	Reach 8	188680	2298.00	29.38	44.18		44.19	0.000084	1.44	3274.47	1071.41	0.08
raymondville	Reach 8	188680	5757.00	29.38	46.82		46.84	0.000090	1.75	6662.34	1482.12	0.09
raymondville	Reach 8	187150	831.00	28.82	40.33		40.41	0.000317	2.22	374.76	55.67	0.15

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Chl El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	187150	1497.00	28.92	42.33		42.47	0.000492	3.03	493.91	63.66	0.19
raymondville	Reach 8	187150	2298.00	28.92	43.64		43.88	0.000753	3.96	580.41	68.88	0.24
raymondville	Reach 8	187150	5757.00	28.92	46.09		46.47	0.001144	5.63	1804.72	742.81	0.31
raymondville	Reach 8	187100	831.00	28.91	40.32		40.39	0.000318	2.22	374.38	55.64	0.15
raymondville	Reach 8	187100	1497.00	28.91	42.31		42.45	0.000494	3.04	492.93	63.60	0.19
raymondville	Reach 8	187100	2298.00	28.91	43.60		43.85	0.000758	3.97	578.97	68.80	0.24
raymondville	Reach 8	187100	5757.00	28.91	46.02		46.41	0.001207	5.76	1747.47	729.26	0.31
raymondville	Reach 8	184550	831.00	28.14	39.51		39.59	0.000316	2.21	417.62	271.86	0.15
raymondville	Reach 8	184550	1497.00	28.14	42.07		42.08	0.000059	1.16	3439.76	1927.66	0.07
raymondville	Reach 8	184550	2298.00	28.14	43.59		43.59	0.000026	0.86	6661.29	2342.67	0.05
raymondville	Reach 8	184550	5757.00	28.14	46.07		46.07	0.000029	1.04	13860.39	3648.47	0.05
raymondville	Reach 8	184500	831.00	28.13	39.50		39.57	0.000317	2.21	413.97	260.76	0.15
raymondville	Reach 8	184500	1497.00	28.13	42.06		42.07	0.000059	1.16	3434.16	1926.88	0.07
raymondville	Reach 8	184500	2298.00	28.13	43.59		43.59	0.000026	0.86	6658.77	2341.96	0.05
raymondville	Reach 8	184500	5757.00	28.13	46.07		46.07	0.000029	1.04	13855.65	3647.85	0.05
raymondville	Reach 8	183033	831.00	27.66	38.99	32.10	39.07	0.000328	2.25	369.86	55.31	0.15
raymondville	Reach 8	183033	1497.00	27.66	41.81	33.70	41.90	0.000273	2.46	870.11	390.26	0.15
raymondville	Reach 8	183033	2298.00	27.66	43.43	35.14	43.50	0.000220	2.48	1662.21	589.07	0.13
raymondville	Reach 8	183033	5757.00	27.66	45.85	39.29	45.95	0.000337	3.52	3609.69	1136.75	0.17
raymondville	Reach 8	181219	831.00	27.11	38.38		38.46	0.000335	2.26	366.96	55.10	0.15
raymondville	Reach 8	181219	1497.00	27.11	41.27		41.37	0.000320	2.59	752.69	327.91	0.16
raymondville	Reach 8	181219	2298.00	27.11	43.00		43.08	0.000245	2.55	1753.26	879.75	0.14
raymondville	Reach 8	181219	5757.00	27.11	45.36		45.42	0.000243	2.92	4650.96	1531.27	0.15
raymondville	Reach 8	179129	831.00	26.49	37.67		37.75	0.000349	2.30	361.61	54.71	0.16
raymondville	Reach 8	179129	1497.00	26.49	40.76		40.81	0.000214	2.14	1475.93	1351.31	0.13
raymondville	Reach 8	179129	2298.00	26.49	42.87		42.88	0.000042	1.10	5675.07	2510.56	0.06
raymondville	Reach 8	179129	5757.00	26.49	45.25		45.25	0.000034	1.13	12157.70	3317.94	0.06
raymondville	Reach 8	178000	831.00	26.15	37.27	30.59	37.35	0.000357	2.32	358.36	54.47	0.16
raymondville	Reach 8	178000	1497.00	26.15	40.38	32.19	40.50	0.000365	2.73	557.67	124.20	0.17
raymondville	Reach 8	178000	2298.00	26.15	42.67	33.63	42.77	0.000269	2.76	1342.23	1666.24	0.15
raymondville	Reach 8	178000	5757.00	26.15	45.17	37.77	45.19	0.000094	1.87	8928.33	3610.65	0.09
raymondville	Reach 8	177727	831.00	26.07	37.17	30.51	37.25	0.000360	2.33	357.38	54.40	0.16
raymondville	Reach 8	177727	1497.00	26.07	40.28	32.11	40.40	0.000371	2.74	551.94	100.27	0.17
raymondville	Reach 8	177727	2298.00	26.07	42.59	33.55	42.70	0.000277	2.79	1302.86	1622.75	0.15
raymondville	Reach 8	177727	5757.00	26.07	45.15	37.69	45.17	0.000098	1.80	8836.10	3604.03	0.09
raymondville	Reach 8	175705	831.00	25.46	36.42	29.90	36.50	0.000382	2.38	349.66	53.83	0.16
raymondville	Reach 8	175705	1497.00	25.46	39.50	31.50	39.62	0.000398	2.80	534.47	66.15	0.17
raymondville	Reach 8	175705	2298.00	25.46	41.99	32.94	42.10	0.000313	2.84	1213.69	551.88	0.16
raymondville	Reach 8	175705	5757.00	25.46	44.72	37.08	44.83	0.000328	3.42	3480.51	1068.56	0.17
raymondville	Reach 8	175125	831.00	25.28	36.19	29.71	36.28	0.000389	2.39	347.25	53.65	0.17
raymondville	Reach 8	175125	1497.00	25.28	39.26	31.32	39.39	0.000406	2.82	530.83	65.93	0.18
raymondville	Reach 8	175125	2298.00	25.28	41.79	32.76	41.91	0.000337	2.93	1121.47	503.47	0.16
raymondville	Reach 8	175125	5757.00	25.28	44.50	36.91	44.63	0.000369	3.60	3261.63	1024.69	0.18
raymondville	Reach 8	173785	831.00	24.88	35.64		35.74	0.000414	2.45	339.31	53.06	0.17
raymondville	Reach 8	173785	1497.00	24.88	38.69		38.82	0.000430	2.88	519.52	65.24	0.18
raymondville	Reach 8	173785	2298.00	24.88	41.27		41.42	0.000391	3.16	880.94	318.55	0.18
raymondville	Reach 8	173785	5757.00	24.88	43.73		43.97	0.000618	4.61	2442.72	938.67	0.23
raymondville	Reach 8	171741	831.00	24.27	34.75		34.85	0.000467	2.56	324.32	51.91	0.18
raymondville	Reach 8	171741	1497.00	24.27	37.76		37.90	0.000478	3.00	499.08	63.97	0.19
raymondville	Reach 8	171741	2298.00	24.27	40.36		40.54	0.000484	3.37	722.46	240.52	0.20
raymondville	Reach 8	171741	5757.00	24.27	42.93		43.02	0.000335	3.30	4140.50	1657.83	0.17
raymondville	Reach 8	171691	831.00	24.25	34.73		34.83	0.000467	2.56	324.25	51.90	0.18
raymondville	Reach 8	171691	1497.00	24.25	37.74		37.88	0.000478	3.00	498.97	63.96	0.19
raymondville	Reach 8	171691	2298.00	24.25	40.34		40.52	0.000485	3.37	719.14	223.07	0.20
raymondville	Reach 8	171691	5757.00	24.25	42.90		42.99	0.000343	3.33	4097.04	1655.17	0.17
raymondville	Reach 8	169710	831.00	23.66	33.69		33.81	0.000567	2.75	301.69	50.14	0.20
raymondville	Reach 8	169710	1497.00	23.66	36.70		36.86	0.000560	3.18	470.54	62.16	0.20
raymondville	Reach 8	169710	2298.00	23.66	39.28		39.48	0.000570	3.57	644.01	72.47	0.21
raymondville	Reach 8	169710	5757.00	23.66	42.17		42.27	0.000389	3.48	3963.60	1756.63	0.18
raymondville	Reach 8	168304	1523.00	23.63	33.08		33.19	0.000392	2.65	575.29	79.79	0.17
raymondville	Reach 8	168304	2763.00	23.63	35.98		36.15	0.000472	3.35	823.57	91.40	0.20
raymondville	Reach 8	168304	4255.00	23.63	38.43		38.68	0.000557	4.02	1059.71	101.21	0.22
raymondville	Reach 8	168304	9289.00	23.63	41.73		41.82	0.000282	3.28	9136.51	5933.98	0.16



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	Reach 8	167456	1523.00	23.54	32.72		32.83	0.000438	2.75	553.90	78.71	0.18
raymondville	Reach 8	167456	2763.00	23.54	35.54		35.73	0.000527	3.49	791.98	90.00	0.21
raymondville	Reach 8	167456	4255.00	23.54	37.90		38.18	0.000626	4.19	1018.09	99.47	0.23
raymondville	Reach 8	167456	9289.00	23.54	41.52		41.59	0.000248	3.08	9631.57	5821.31	0.15
raymondville	Reach 8	166128	1523.00	23.41	32.05		32.19	0.000544	2.97	512.27	76.56	0.20
raymondville	Reach 8	166128	2763.00	23.41	34.73		34.95	0.000658	3.78	731.31	87.26	0.23
raymondville	Reach 8	166128	4255.00	23.41	36.92		37.24	0.000795	4.56	932.10	96.03	0.26
raymondville	Reach 8	166128	9289.00	23.41	41.13		41.22	0.000312	3.40	8867.73	6000.00	0.17
raymondville	Reach 8	166078	1523.00	23.40	32.02		32.16	0.000549	2.98	510.87	76.49	0.20
raymondville	Reach 8	166078	2763.00	23.40	34.69		34.91	0.000663	3.79	729.16	87.16	0.23
raymondville	Reach 8	166078	4255.00	23.40	36.87		37.20	0.000802	4.58	928.97	95.89	0.26
raymondville	Reach 8	166078	9289.00	23.40	41.10		41.20	0.000325	3.47	8689.01	6000.00	0.17
raymondville	reach 2	164919	671.00	22.94	31.79		31.81	0.000097	1.27	528.14	77.39	0.09
raymondville	reach 2	164919	1363.00	22.94	34.39		34.45	0.000153	1.83	743.38	87.81	0.11
raymondville	reach 2	164919	2177.00	22.94	36.52		36.60	0.000204	2.32	939.22	96.32	0.13
raymondville	reach 2	164919	8918.00	22.94	40.88		40.77	0.000424	3.50	5282.25	3407.14	0.19
raymondville	reach 2	164431.*	671.00	22.89	31.74		31.77	0.000097	1.27	528.29	77.39	0.09
raymondville	reach 2	164431.*	1363.00	22.89	34.32		34.37	0.000156	1.84	741.17	88.70	0.11
raymondville	reach 2	164431.*	2177.00	22.89	36.41		36.50	0.000215	2.31	940.47	101.27	0.13
raymondville	reach 2	164431.*	8918.00	22.89	40.46		40.57	0.000411	3.46	5767.42	3779.35	0.19
raymondville	reach 2	163943.*	671.00	22.85	31.69		31.72	0.000097	1.27	527.87	77.39	0.09
raymondville	reach 2	163943.*	1363.00	22.85	34.24		34.29	0.000156	1.85	737.94	87.58	0.11
raymondville	reach 2	163943.*	2177.00	22.85	36.31		36.39	0.000216	2.34	929.68	98.42	0.13
raymondville	reach 2	163943.*	8918.00	22.85	40.30		40.38	0.000325	3.02	6826.63	4310.54	0.17
raymondville	reach 2	163456	671.00	22.80	31.65	24.72	31.67	0.000097	1.27	528.02	77.39	0.09
raymondville	reach 2	163456	1363.00	22.80	34.16	25.83	34.22	0.000158	1.85	735.47	87.46	0.11
raymondville	reach 2	163456	2177.00	22.80	36.20	26.87	36.29	0.000214	2.36	922.14	86.16	0.13
raymondville	reach 2	163456	8918.00	22.80	40.20	32.33	40.24	0.000223	2.40	9258.84	5398.27	0.14
raymondville	reach 2	161457	671.00	22.59	31.45		31.48	0.000096	1.27	529.25	77.45	0.09
raymondville	reach 2	161457	1363.00	22.59	33.83		33.89	0.000184	1.88	725.02	86.97	0.11
raymondville	reach 2	161457	2177.00	22.59	35.86		35.91	0.000159	2.03	1575.87	1020.42	0.12
raymondville	reach 2	161457	8918.00	22.59	40.10		40.11	0.000028	1.04	14962.00	6000.00	0.05
raymondville	reach 2	159438	671.00	22.38	31.26		31.28	0.000096	1.26	530.50	77.51	0.09
raymondville	reach 2	159438	1363.00	22.38	33.49		33.54	0.000172	1.91	713.23	86.43	0.12
raymondville	reach 2	159438	2177.00	22.38	35.42		35.52	0.000238	2.45	888.20	94.18	0.14
raymondville	reach 2	159438	8918.00	22.38	39.96		39.99	0.000160	2.42	9714.32	5982.77	0.12
raymondville	reach 2	157410	671.00	22.18	31.06		31.09	0.000095	1.26	530.99	77.54	0.09
raymondville	reach 2	157410	1363.00	22.18	33.13		33.19	0.000181	1.95	699.48	85.79	0.12
raymondville	reach 2	157410	2177.00	22.18	34.91		35.01	0.000261	2.53	859.10	92.93	0.15
raymondville	reach 2	157410	8918.00	22.18	36.55		39.21	0.001420	6.76	2042.48	2416.53	0.35
raymondville	reach 2	157293.*	671.00	22.17	31.05		31.08	0.000096	1.26	530.90	77.53	0.09
raymondville	reach 2	157293.*	1363.00	22.17	33.11		33.16	0.000182	1.95	698.43	85.74	0.12
raymondville	reach 2	157293.*	2177.00	22.17	34.88		34.98	0.000263	2.54	856.85	92.84	0.15
raymondville	reach 2	157293.*	8918.00	22.17	38.44		39.01	0.001460	6.48	2369.00	2732.65	0.35
raymondville	reach 2	157176.*	671.00	22.16	31.04		31.07	0.000096	1.26	530.83	77.53	0.09
raymondville	reach 2	157176.*	1363.00	22.16	33.08		33.14	0.000183	1.95	697.41	85.70	0.12
raymondville	reach 2	157176.*	2177.00	22.16	34.85		34.95	0.000265	2.55	854.65	92.75	0.15
raymondville	reach 2	157176.*	8918.00	22.16	38.38		38.81	0.001265	5.83	3057.09	3793.86	0.33
raymondville	reach 2	157059.*	671.00	22.14	31.03		31.06	0.000095	1.26	531.47	77.56	0.08
raymondville	reach 2	157059.*	1363.00	22.14	33.06		33.12	0.000183	1.96	697.15	85.68	0.12
raymondville	reach 2	157059.*	2177.00	22.14	34.81		34.91	0.000276	2.55	855.37	96.41	0.15
raymondville	reach 2	157059.*	8918.00	22.14	38.43		38.64	0.000730	4.59	4968.48	6000.00	0.25
raymondville	reach 2	156942.*	671.00	22.13	31.02		31.04	0.000095	1.26	531.40	77.58	0.09
raymondville	reach 2	156942.*	1363.00	22.13	33.04		33.10	0.000187	1.95	697.48	87.44	0.12
raymondville	reach 2	156942.*	2177.00	22.13	34.78		34.88	0.000274	2.54	857.36	96.51	0.15
raymondville	reach 2	156942.*	8918.00	22.13	38.47		38.55	0.000304	3.12	7592.00	6000.00	0.16
raymondville	reach 2	156825	671.00	22.12	31.01		31.03	0.000095	1.26	531.31	77.55	0.09
raymondville	reach 2	156825	1363.00	22.12	33.02		33.08	0.000184	1.96	695.09	85.58	0.12
raymondville	reach 2	156825	2177.00	22.12	34.74		34.84	0.000270	2.56	848.79	92.49	0.15
raymondville	reach 2	156825	8918.00	22.12	38.47		38.50	0.000156	2.33	9896.59	6000.00	0.12
raymondville	reach 2	155106	671.00	21.94	30.84		30.86	0.000095	1.26	531.93	77.58	0.08
raymondville	reach 2	155106	1363.00	21.94	32.69		32.75	0.000194	2.00	682.49	84.99	0.12
raymondville	reach 2	155106	2177.00	21.94	34.25		34.36	0.000297	2.66	819.94	91.23	0.16
raymondville	reach 2	155106	8918.00	21.94	37.92		38.06	0.000491	4.02	5731.63	4558.87	0.21

HEC-RAS Plan- P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	153062	671.00	21.73	30.64		30.67	0.000094	1.26	533.21	77.65	0.08
raymondville	reach 2	153062	1363.00	21.73	32.27		32.34	0.000209	2.05	665.15	84.17	0.13
raymondville	reach 2	153062	2177.00	21.73	33.58		33.71	0.000342	2.79	778.94	89.42	0.17
raymondville	reach 2	153062	8918.00	21.73	37.36		37.41	0.000207	2.67	6461.61	2350.51	0.14
raymondville	reach 2	151635	671.00	21.59	30.50		30.53	0.000094	1.26	533.21	77.65	0.08
raymondville	reach 2	151635	1363.00	21.59	31.96		32.03	0.000222	2.10	650.47	83.47	0.13
raymondville	reach 2	151635	2177.00	21.59	33.04		33.17	0.000390	2.93	743.24	87.81	0.18
raymondville	reach 2	151635	8918.00	21.59	36.83		36.97	0.000489	4.00	4256.13	1820.58	0.21
raymondville	reach 2	150792	942.00	21.50	30.35		30.40	0.000191	1.78	526.30	77.40	0.12
raymondville	reach 2	150792	1823.00	21.50	31.63		31.76	0.000433	2.89	630.80	82.53	0.18
raymondville	reach 2	150792	2704.00	21.50	32.50		32.73	0.000701	3.84	703.88	85.99	0.24
raymondville	reach 2	150792	9738.00	21.50	36.44	31.53	36.55	0.000485	3.91	5644.83	3282.83	0.21
raymondville	reach 2	149670	787.00	21.30	30.17		30.21	0.000132	1.48	530.09	77.49	0.10
raymondville	reach 2	149670	1264.00	21.30	31.30		31.37	0.000218	2.04	620.36	82.02	0.13
raymondville	reach 2	149670	1810.00	21.30	31.98		32.09	0.000351	2.68	676.39	84.71	0.17
raymondville	reach 2	149670	6269.00	21.30	34.98	29.06	35.66	0.001633	6.59	1016.56	1023.39	0.37
raymondville	reach 2	149620	787.00	21.29	30.17		30.20	0.000132	1.48	530.35	77.50	0.10
raymondville	reach 2	149620	1264.00	21.29	31.29		31.36	0.000218	2.04	620.28	82.01	0.13
raymondville	reach 2	149620	1810.00	21.29	31.96		32.07	0.000352	2.68	675.73	84.67	0.17
raymondville	reach 2	149620	6269.00	21.29	34.89	29.05	35.58	0.001679	6.66	943.72	337.32	0.38
raymondville	reach 2	147820	787.00	21.09	29.89		29.92	0.000136	1.50	524.44	77.20	0.10
raymondville	reach 2	147820	1264.00	21.09	31.16		31.16	0.000051	0.99	3594.70	2960.94	0.06
raymondville	reach 2	147820	1810.00	21.09	31.88		31.89	0.000033	0.82	5771.46	3035.70	0.05
raymondville	reach 2	147820	6269.00	21.09	35.29		35.29	0.000012	0.64	21798.52	6000.00	0.03
raymondville	reach 2	145820	787.00	20.88	29.61		29.65	0.000140	1.52	519.21	76.92	0.10
raymondville	reach 2	145820	1264.00	20.88	31.04		31.05	0.000060	1.08	3295.58	2967.47	0.07
raymondville	reach 2	145820	1810.00	20.88	31.81		31.82	0.000035	0.86	5613.27	3042.87	0.05
raymondville	reach 2	145820	6269.00	20.88	35.26		35.26	0.000012	0.64	22079.63	6000.00	0.03
raymondville	reach 2	142669	787.00	20.57	29.19		29.23	0.000147	1.54	510.55	76.48	0.11
raymondville	reach 2	142669	1264.00	20.57	30.71		30.78	0.000207	2.00	631.80	82.57	0.13
raymondville	reach 2	142669	1810.00	20.57	31.50		31.61	0.000321	2.59	698.25	85.73	0.16
raymondville	reach 2	142669	6269.00	20.57	34.66		35.12	0.001144	5.71	1870.85	1748.73	0.31
raymondville	reach 2	142619	787.00	20.57	29.18		29.22	0.000147	1.54	509.98	76.44	0.11
raymondville	reach 2	142619	1264.00	20.57	30.70		30.77	0.000208	2.00	630.92	82.53	0.13
raymondville	reach 2	142619	1810.00	20.57	31.49		31.59	0.000323	2.60	696.82	85.67	0.16
raymondville	reach 2	142619	6269.00	20.57	34.55		35.05	0.001245	5.91	1689.91	1599.25	0.33
raymondville	reach 2	140677	787.00	20.38	28.88		28.92	0.000154	1.57	501.48	76.00	0.11
raymondville	reach 2	140677	1264.00	20.38	30.34		30.39	0.000183	1.86	1204.57	1827.71	0.12
raymondville	reach 2	140677	1810.00	20.38	31.24		31.26	0.000109	1.50	2886.29	1912.18	0.09
raymondville	reach 2	140677	6269.00	20.38	34.72		34.72	0.000040	1.07	13492.55	4418.35	0.06
raymondville	reach 2	138658	787.00	20.17	28.56		28.60	0.000162	1.60	493.10	75.56	0.11
raymondville	reach 2	138658	1264.00	20.17	29.89		29.96	0.000243	2.12	597.44	80.89	0.14
raymondville	reach 2	138658	1810.00	20.17	30.99		31.02	0.000135	1.67	2643.08	2100.07	0.10
raymondville	reach 2	138658	6269.00	20.17	34.66		34.67	0.000020	0.82	18833.83	5933.19	0.04
raymondville	reach 2	138000	787.00	20.10	28.45		28.49	0.000165	1.61	490.25	75.41	0.11
raymondville	reach 2	138000	1264.00	20.10	29.73		29.80	0.000252	2.14	589.82	80.51	0.14
raymondville	reach 2	138000	1810.00	20.10	30.77		30.88	0.000352	2.68	675.56	84.67	0.17
raymondville	reach 2	138000	6269.00	20.10	34.51		34.58	0.000304	3.00	6973.89	6000.00	0.16
raymondville	reach 2	137950	787.00	20.10	28.44		28.48	0.000165	1.61	489.61	75.37	0.11
raymondville	reach 2	137950	1264.00	20.10	29.72		29.79	0.000253	2.15	588.78	80.46	0.14
raymondville	reach 2	137950	1810.00	20.10	30.75		30.86	0.000355	2.69	674.00	84.59	0.17
raymondville	reach 2	137950	6269.00	20.10	34.50		34.57	0.000308	3.02	6922.23	6000.00	0.16
raymondville	reach 2	136663	787.00	20.09	28.22		28.26	0.000182	1.66	473.42	74.51	0.12
raymondville	reach 2	136663	1264.00	20.09	29.36		29.44	0.000290	2.25	561.19	79.08	0.15
raymondville	reach 2	136663	1810.00	20.09	30.40		30.46	0.000251	2.25	2046.72	3581.38	0.14
raymondville	reach 2	136663	6269.00	20.09	34.49		34.49	0.000014	0.70	21724.92	6000.00	0.04
raymondville	reach 2	134669	787.00	19.96	27.89		27.92	0.000153	1.51	877.69	1036.26	0.11
raymondville	reach 2	134669	1264.00	19.96	29.27		29.27	0.000032	0.79	4658.17	3873.69	0.05
raymondville	reach 2	134669	1810.00	19.96	30.39		30.39	0.000012	0.53	10593.80	5961.92	0.03
raymondville	reach 2	134669	6269.00	19.96	34.48		34.48	0.000003	0.36	35156.31	8000.00	0.02
raymondville	reach 2	132609	787.00	19.75	27.81		27.81	0.000023	0.64	2918.45	1533.25	0.04
raymondville	reach 2	132609	1264.00	19.75	29.22		29.23	0.000012	0.52	7624.43	4786.89	0.03
raymondville	reach 2	132609	1810.00	19.75	30.38		30.38	0.000006	0.39	13540.18	5921.56	0.02

HEC-RAS Plan- P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 2	132808	6269.00	19.75	34.47		34.47	0.000003	0.33	38122.96	6000.00	0.02
raymondville	reach 2	129500	787.00	19.43	27.73		27.73	0.000041	0.86	2059.78	1193.99	0.06
raymondville	reach 2	129500	1264.00	19.43	29.18		29.18	0.000021	0.70	4915.23	3859.59	0.04
raymondville	reach 2	129500	1810.00	19.43	30.36		30.36	0.000010	0.51	9919.85	4556.68	0.03
raymondville	reach 2	129500	6269.00	19.43	34.47		34.47	0.000004	0.44	31169.48	5611.03	0.02
raymondville	reach 2	129450	787.00	19.43	27.73		27.73	0.000041	0.86	2057.32	1193.29	0.06
raymondville	reach 2	129450	1264.00	19.43	29.18		29.18	0.000021	0.70	4911.13	3858.08	0.04
raymondville	reach 2	129450	1810.00	19.43	30.36		30.36	0.000010	0.51	9917.47	4556.44	0.03
raymondville	reach 2	129450	6269.00	19.43	34.46		34.46	0.000004	0.44	31121.15	5610.61	0.02
raymondville	reach 2	127700	787.00	19.25	27.64		27.65	0.000063	1.08	1380.91	718.09	0.07
raymondville	reach 2	127700	1264.00	19.25	29.13		29.14	0.000041	0.98	2828.14	1145.99	0.06
raymondville	reach 2	127700	1810.00	19.25	30.33		30.33	0.000035	1.00	4594.18	2336.10	0.06
raymondville	reach 2	127700	6269.00	19.25	34.45		34.45	0.000010	0.66	22598.80	4740.51	0.03
raymondville	reach 2	128465	787.00	19.12	27.53		27.55	0.000100	1.09	959.83	409.99	0.08
raymondville	reach 2	128465	1264.00	19.12	29.06		29.08	0.000075	1.12	1847.73	975.94	0.06
raymondville	reach 2	128465	1810.00	19.12	30.27		30.28	0.000054	1.08	4685.94	4387.37	0.07
raymondville	reach 2	128465	6269.00	19.12	34.45		34.45	0.000006	0.48	28352.33	6000.00	0.02
raymondville	reach 2	124374	787.00	18.91	27.41		27.42	0.000040	0.87	2218.04	1638.86	0.06
raymondville	reach 2	124374	1264.00	18.91	29.01		29.02	0.000014	0.59	5860.52	2794.06	0.03
raymondville	reach 2	124374	1810.00	18.91	30.25		30.25	0.000008	0.47	10824.64	4200.33	0.03
raymondville	reach 2	124374	6269.00	18.91	34.45		34.45	0.000005	0.46	30788.52	6000.00	0.02
raymondville	reach 2	124318	787.00	18.90	27.41		27.42	0.000043	0.75	2214.57	1638.54	0.06
raymondville	reach 2	124318	1264.00	18.90	29.01		29.01	0.000014	0.51	5838.29	2779.36	0.03
raymondville	reach 2	124318	1810.00	18.90	30.24		30.25	0.000008	0.42	10610.97	4199.82	0.03
raymondville	reach 2	124318	6269.00	18.90	34.44		34.45	0.000005	0.42	30781.88	6000.00	0.02
raymondville	reach 2	122094	787.00	18.67	27.36		27.36	0.000023	0.62	2850.12	1518.27	0.04
raymondville	reach 2	122094	1264.00	18.67	28.98		28.98	0.000011	0.48	5505.84	1782.21	0.03
raymondville	reach 2	122094	1810.00	18.67	30.23		30.24	0.000009	0.48	8445.86	3654.54	0.03
raymondville	reach 2	122094	6269.00	18.67	34.44		34.44	0.000006	0.49	27925.87	5233.10	0.02
raymondville	reach 2	121688.*	787.00	18.63	27.32		27.35	0.000127	1.43	734.52	792.20	0.10
raymondville	reach 2	121688.*	1264.00	18.63	28.95		28.96	0.000055	1.06	2680.49	1517.40	0.07
raymondville	reach 2	121688.*	1810.00	18.63	30.22		30.23	0.000026	0.80	6095.84	3258.54	0.05
raymondville	reach 2	121688.*	6269.00	18.63	34.44		34.44	0.000009	0.62	24545.21	5619.88	0.03
raymondville	reach 2	121283.*	787.00	18.59	27.28		27.31	0.000121	1.41	701.20	273.34	0.10
raymondville	reach 2	121283.*	1264.00	18.59	28.90		28.93	0.000120	1.56	1654.73	1505.94	0.10
raymondville	reach 2	121283.*	1810.00	18.59	30.21		30.22	0.000044	1.02	4663.45	3013.18	0.06
raymondville	reach 2	121283.*	6269.00	18.59	34.44		34.44	0.000012	0.69	22379.71	5560.63	0.03
raymondville	reach 2	120677.*	787.00	18.55	27.24		27.27	0.000114	1.37	784.82	362.31	0.09
raymondville	reach 2	120677.*	1264.00	18.55	28.89		28.90	0.000066	1.16	2615.84	1836.20	0.07
raymondville	reach 2	120677.*	1810.00	18.55	30.21		30.22	0.000028	0.81	5247.69	2101.34	0.05
raymondville	reach 2	120677.*	6269.00	18.55	34.44		34.44	0.000012	0.67	20864.48	5340.95	0.03
raymondville	reach 2	120472.*	787.00	18.51	27.21		27.23	0.000089	1.21	1195.00	938.08	0.08
raymondville	reach 2	120472.*	1264.00	18.51	28.89		28.89	0.000034	0.83	3737.94	2030.14	0.05
raymondville	reach 2	120472.*	1810.00	18.51	30.21		30.21	0.000017	0.64	6558.18	2378.51	0.04
raymondville	reach 2	120472.*	6269.00	18.51	34.44		34.44	0.000010	0.59	20013.16	4549.03	0.03
raymondville	reach 2	120067	787.00	18.47	27.20	20.60	27.21	0.000052	0.92	1940.45	1482.05	0.06
raymondville	reach 2	120067	1264.00	18.47	28.88	21.36	28.89	0.000017	0.59	4949.31	2082.55	0.04
raymondville	reach 2	120067	1810.00	18.47	30.21	22.09	30.21	0.000010	0.50	6572.85	3044.47	0.03
raymondville	reach 2	120067	6269.00	18.47	34.44	26.87	34.44	0.000007	0.49	21469.04	3052.93	0.02
raymondville	reach 2	119652.*	787.00	18.43	27.19	20.56	27.20	0.000052	0.93	1844.15	1285.33	0.06
raymondville	reach 2	119652.*	1264.00	18.43	28.88	21.32	28.88	0.000018	0.62	4811.31	2078.38	0.04
raymondville	reach 2	119652.*	1810.00	18.43	30.21	22.05	30.21	0.000011	0.52	8337.05	3044.55	0.03
raymondville	reach 2	119652.*	6269.00	18.43	34.44	25.82	34.44	0.000007	0.51	21638.34	3857.47	0.03
raymondville	reach 2	119237.*	787.00	18.38	27.17	20.51	27.18	0.000053	0.95	1796.85	1251.97	0.06
raymondville	reach 2	119237.*	1264.00	18.38	28.88	21.27	28.88	0.000020	0.65	4670.26	2072.19	0.04
raymondville	reach 2	119237.*	1810.00	18.38	30.20	22.00	30.20	0.000012	0.55	8100.17	3044.64	0.03
raymondville	reach 2	119237.*	6269.00	18.38	34.44	26.92	34.44	0.000007	0.52	23885.00	5450.79	0.03
raymondville	reach 2	118822.*	787.00	18.34	27.16	20.47	27.17	0.000054	0.97	1753.89	1237.40	0.06
raymondville	reach 2	118822.*	1264.00	18.34	28.87	21.23	28.88	0.000020	0.68	4582.60	2168.61	0.04
raymondville	reach 2	118822.*	1810.00	18.34	30.20	21.96	30.20	0.000012	0.58	8174.30	3328.79	0.03
raymondville	reach 2	118822.*	6269.00	18.34	34.43	26.99	34.43	0.000006	0.51	26901.30	5725.40	0.02
raymondville	reach 2	118407	787.00	18.30	27.15	20.43	27.16	0.000048	0.96	1893.06	1419.20	0.06
raymondville	reach 2	118407	1264.00	18.30	28.87	21.19	28.87	0.000017	0.65	5088.99	2323.60	0.04



HEC-RAS Plan B 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
raymondville	reach 2	118407	1810.00	18.30	30.20	21.92	30.20	0.000011	0.57	9127.18	3910.14	0.03
raymondville	reach 2	118407	6269.00	18.30	34.43	26.58	34.43	0.000005	0.47	30521.75	6000.00	0.02
raymondville	reach 2	118184.*	787.00	18.28	27.13		27.14	0.000049	0.95	1870.60	1432.74	0.06
raymondville	reach 2	118184.*	1264.00	18.28	28.87		28.87	0.000017	0.64	5090.56	2343.28	0.04
raymondville	reach 2	118184.*	1810.00	18.28	30.20		30.20	0.000010	0.55	9026.94	3677.38	0.03
raymondville	reach 2	118184.*	6269.00	18.28	34.43		34.43	0.000005	0.50	28674.48	6000.00	0.02
raymondville	reach 2	117962.*	787.00	18.25	27.12		27.13	0.000051	0.95	1844.45	1449.63	0.06
raymondville	reach 2	117962.*	1264.00	18.25	28.86		28.86	0.000017	0.63	5096.18	2443.60	0.04
raymondville	reach 2	117962.*	1810.00	18.25	30.20		30.20	0.000009	0.51	9012.02	3285.14	0.03
raymondville	reach 2	117962.*	6269.00	18.25	34.43		34.43	0.000005	0.50	27451.63	5249.63	0.02
raymondville	reach 2	117739.*	787.00	18.23	27.11		27.12	0.000054	0.94	1815.30	1470.51	0.06
raymondville	reach 2	117739.*	1264.00	18.23	28.86		28.86	0.000017	0.62	5104.73	2467.34	0.04
raymondville	reach 2	117739.*	1810.00	18.23	30.19		30.19	0.000009	0.50	9012.45	3275.17	0.03
raymondville	reach 2	117739.*	6269.00	18.23	34.43		34.43	0.000005	0.49	26895.62	4768.23	0.02
raymondville	reach 2	117517.*	787.00	18.20	27.09		27.10	0.000057	0.94	1788.59	1499.68	0.07
raymondville	reach 2	117517.*	1264.00	18.20	28.85		28.86	0.000017	0.61	5117.10	2459.94	0.04
raymondville	reach 2	117517.*	1810.00	18.20	30.19		30.19	0.000009	0.49	9017.24	3247.21	0.03
raymondville	reach 2	117517.*	6269.00	18.20	34.43		34.43	0.000005	0.48	26536.45	4484.41	0.02
raymondville	reach 2	117295	787.00	18.18	27.08		27.09	0.000061	0.95	1760.68	1519.68	0.07
raymondville	reach 2	117295	1264.00	18.18	28.85		28.85	0.000017	0.59	5142.55	2436.79	0.04
raymondville	reach 2	117295	1810.00	18.18	30.19		30.19	0.000009	0.48	9025.28	3226.10	0.03
raymondville	reach 2	117295	6269.00	18.18	34.43		34.43	0.000005	0.48	26318.72	4393.32	0.02
raymondville	reach 2	114850	787.00	17.93	26.84		26.88	0.000130	1.48	533.13	77.65	0.10
raymondville	reach 2	114850	1264.00	17.93	28.70		28.75	0.000166	1.85	684.33	85.08	0.11
raymondville	reach 2	114850	1810.00	17.93	30.04		30.12	0.000218	2.26	803.21	141.20	0.13
raymondville	reach 2	114850	6269.00	17.93	34.39		34.40	0.000050	1.34	12583.89	5264.93	0.07
raymondville	reach 2	114401.*	787.00	17.88	26.78		26.82	0.000130	1.44	545.07	82.90	0.10
raymondville	reach 2	114401.*	1264.00	17.88	28.63		28.68	0.000164	1.79	706.93	92.33	0.11
raymondville	reach 2	114401.*	1810.00	17.88	29.96		30.03	0.000213	2.17	833.81	99.02	0.13
raymondville	reach 2	114401.*	6269.00	17.88	34.38		34.39	0.000026	0.98	16296.71	5184.22	0.05
raymondville	reach 2	113953.*	787.00	17.84	26.73		26.76	0.000135	1.42	554.55	89.29	0.10
raymondville	reach 2	113953.*	1264.00	17.84	28.56		28.61	0.000168	1.73	730.15	101.83	0.11
raymondville	reach 2	113953.*	1810.00	17.84	29.87		29.94	0.000198	2.04	1129.48	1247.91	0.13
raymondville	reach 2	113953.*	6269.00	17.84	34.38		34.38	0.000015	0.76	19707.32	5042.97	0.04
raymondville	reach 2	113504.*	787.00	17.79	26.67		26.70	0.000145	1.40	563.98	98.56	0.10
raymondville	reach 2	113504.*	1264.00	17.79	28.49		28.53	0.000159	1.63	940.55	992.65	0.11
raymondville	reach 2	113504.*	1810.00	17.79	29.85		29.87	0.000085	1.35	3260.48	2854.36	0.08
raymondville	reach 2	113504.*	6269.00	17.79	34.37		34.38	0.000010	0.61	22803.68	4883.94	0.03
raymondville	reach 2	113056.*	787.00	17.75	26.61		26.64	0.000163	1.36	601.70	307.54	0.11
raymondville	reach 2	113056.*	1264.00	17.75	28.48		28.49	0.000064	1.04	2511.34	1707.79	0.07
raymondville	reach 2	113056.*	1810.00	17.75	29.84		29.85	0.000027	0.77	5920.53	3158.13	0.05
raymondville	reach 2	113056.*	6269.00	17.75	34.37		34.37	0.000006	0.50	25574.71	4717.33	0.02
raymondville	reach 2	112808	787.00	17.70	26.58		26.59	0.000083	0.97	1452.85	1161.18	0.08
raymondville	reach 2	112808	1264.00	17.70	28.47		28.47	0.000022	0.62	4679.64	2444.49	0.04
raymondville	reach 2	112808	1810.00	17.70	29.83		29.83	0.000010	0.48	8581.92	3199.33	0.03
raymondville	reach 2	112808	6269.00	17.70	34.37		34.37	0.000005	0.43	28039.99	4547.80	0.02
raymondville	reach 2	112513.*	787.00	17.69	26.55		26.58	0.000151	1.33	644.53	360.56	0.10
raymondville	reach 2	112513.*	1264.00	17.69	28.45		28.46	0.000049	0.94	2926.38	1842.74	0.06
raymondville	reach 2	112513.*	1810.00	17.69	29.82		29.82	0.000021	0.68	6717.32	3300.87	0.04
raymondville	reach 2	112513.*	6269.00	17.69	34.36		34.36	0.000006	0.48	27560.39	5179.79	0.02
raymondville	reach 2	112419.*	787.00	17.69	26.54		26.57	0.000140	1.39	566.06	97.17	0.10
raymondville	reach 2	112419.*	1264.00	17.69	28.43		28.46	0.000121	1.48	1380.81	1296.41	0.10
raymondville	reach 2	112419.*	1810.00	17.69	29.81		29.82	0.000048	1.05	4675.87	3375.28	0.06
raymondville	reach 2	112419.*	6269.00	17.69	34.36		34.36	0.000006	0.51	27311.62	5453.20	0.02
raymondville	reach 2	112324.*	787.00	17.68	26.52		26.55	0.000133	1.43	548.91	85.97	0.10
raymondville	reach 2	112324.*	1264.00	17.68	28.41		28.46	0.000162	1.75	721.41	96.63	0.11
raymondville	reach 2	112324.*	1810.00	17.68	29.76		29.80	0.000134	1.76	2338.52	3352.67	0.11
raymondville	reach 2	112324.*	6269.00	17.68	34.35		34.35	0.000007	0.53	27093.96	5726.60	0.03
raymondville	reach 2	112230	787.00	17.67	26.50		26.54	0.000134	1.49	527.18	77.34	0.10
raymondville	reach 2	112230	1264.00	17.67	28.39		28.44	0.000169	1.86	679.85	84.87	0.12
raymondville	reach 2	112230	1810.00	17.67	29.70		29.78	0.000224	2.28	794.81	90.13	0.14
raymondville	reach 2	112230	6269.00	17.67	34.35		34.35	0.000008	0.55	26916.99	6000.00	0.03
raymondville	reach 2	110808	787.00	17.50	26.29		26.32	0.000137	1.50	523.67	77.16	0.10

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
raymondville	reach 2	110608	1264.00	17.50	28.11		28.17	0.000175	1.88	671.06	84.45	0.12
raymondville	reach 2	110608	1810.00	17.50	29.32		29.41	0.000239	2.33	776.02	89.29	0.14
raymondville	reach 2	110608	6269.00	17.50	34.34		34.34	0.000008	0.56	26858.69	6000.00	0.03
raymondville	reach 3 (south)	144530	201.00	21.30	32.28		32.28	0.000004	0.29	701.91	85.90	0.02
raymondville	reach 3 (south)	144530	343.00	21.30	34.50		34.50	0.000006	0.38	902.40	94.78	0.02
raymondville	reach 3 (south)	144530	528.00	21.30	36.56		36.56	0.000002	0.23	6508.89	3516.52	0.01
raymondville	reach 3 (south)	144530	1148.00	21.30	39.18		39.18	0.000001	0.17	15719.43	3516.52	0.01
raymondville	reach 3 (south)	144230	201.00	21.30	32.27		32.28	0.000004	0.29	701.81	85.90	0.02
raymondville	reach 3 (south)	144230	343.00	21.30	34.49		34.50	0.000006	0.38	902.30	94.78	0.02
raymondville	reach 3 (south)	144230	528.00	21.30	36.56		36.56	0.000002	0.23	6507.19	3516.52	0.01
raymondville	reach 3 (south)	144230	1148.00	21.30	39.18		39.18	0.000001	0.17	15718.71	3516.52	0.01
raymondville	reach 3 (south)	144030	201.00	26.10	32.23	27.56	32.27	0.000175	1.64	122.49	44.51	0.12
raymondville	reach 3 (south)	144030	343.00	26.10	34.42	28.19	34.48	0.000184	2.06	166.35	53.28	0.13
raymondville	reach 3 (south)	144030	528.00	26.10	36.44	28.88	36.55	0.000210	2.55	208.83	61.38	0.14
raymondville	reach 3 (south)	144030	1148.00	26.10	39.11	30.77	39.17	0.000171	1.89	884.59	2554.83	0.12
raymondville	reach 3 (south)	144020	201.00	26.10	32.23	27.56	32.27	0.000175	1.64	122.48	44.51	0.12
raymondville	reach 3 (south)	144020	343.00	26.10	34.42	28.19	34.48	0.000184	2.06	166.31	53.27	0.13
raymondville	reach 3 (south)	144020	528.00	26.10	36.44	28.88	36.54	0.000211	2.55	206.78	61.37	0.14
raymondville	reach 3 (south)	144020	1148.00	26.10	39.11	30.78	39.17	0.000171	1.90	880.73	2554.83	0.12
raymondville	reach 3 (south)	144005	Culvert									
raymondville	reach 3 (south)	143990	201.00	26.10	31.94	27.56	31.98	0.000206	1.72	116.67	43.35	0.13
raymondville	reach 3 (south)	143990	343.00	26.10	33.75	28.19	33.83	0.000243	2.24	152.94	50.60	0.14
raymondville	reach 3 (south)	143990	528.00	26.10	34.80	28.88	34.95	0.000374	3.03	173.99	54.81	0.18
raymondville	reach 3 (south)	143990	1148.00	26.10	35.97	30.78	36.49	0.001184	5.82	197.31	59.48	0.33
raymondville	reach 3 (south)	143980	201.00	26.10	31.95		31.97	0.000133	1.08	185.39	43.39	0.09
raymondville	reach 3 (south)	143980	343.00	26.10	33.77		33.80	0.000136	1.26	271.30	50.70	0.10
raymondville	reach 3 (south)	143980	528.00	26.10	34.85		34.89	0.000191	1.61	328.21	55.01	0.12
raymondville	reach 3 (south)	143980	1148.00	26.10	36.16		36.29	0.000513	2.84	403.69	60.25	0.19
raymondville	reach 3 (south)	141900	201.00	25.82	31.67		31.69	0.000133	1.08	185.51	43.41	0.09
raymondville	reach 3 (south)	141900	343.00	25.82	33.49		33.52	0.000136	1.26	271.18	50.69	0.10
raymondville	reach 3 (south)	141900	528.00	25.82	34.63		34.64	0.000080	1.08	2348.18	4003.38	0.08
raymondville	reach 3 (south)	141900	1148.00	25.82	36.14		36.14	0.000019	0.61	10068.07	5795.82	0.04
raymondville	reach 3 (south)	140581	201.00	25.65	31.50		31.52	0.000133	1.08	185.60	43.41	0.09
raymondville	reach 3 (south)	140581	343.00	25.65	33.32		33.35	0.000131	1.24	379.03	714.63	0.09
raymondville	reach 3 (south)	140581	528.00	25.65	34.56		34.56	0.000051	0.87	2777.10	3163.12	0.06
raymondville	reach 3 (south)	140581	1148.00	25.65	36.11		36.11	0.000018	0.59	9638.91	5412.82	0.04
raymondville	reach 3 (south)	139474	201.00	25.51	31.36		31.37	0.000134	1.08	185.27	43.38	0.09
raymondville	reach 3 (south)	139474	343.00	25.51	33.18		33.20	0.000135	1.26	302.09	406.32	0.10
raymondville	reach 3 (south)	139474	528.00	25.51	34.49		34.49	0.000057	0.91	2549.30	3011.65	0.08
raymondville	reach 3 (south)	139474	1148.00	25.51	36.09		36.09	0.000019	0.60	9488.58	5381.92	0.04
raymondville	reach 3 (south)	138076	201.00	25.32	31.16		31.18	0.000134	1.09	184.99	43.36	0.09
raymondville	reach 3 (south)	138076	343.00	25.32	32.97		33.00	0.000137	1.27	270.13	50.61	0.10
raymondville	reach 3 (south)	138076	528.00	25.32	34.39		34.40	0.000064	0.97	2277.27	2815.14	0.07
raymondville	reach 3 (south)	138076	1148.00	25.32	36.05		36.05	0.000019	0.62	9287.17	5336.41	0.04
raymondville	reach 3 (south)	138026	201.00	25.14	30.96		30.98	0.000136	1.09	184.27	43.29	0.09
raymondville	reach 3 (south)	138026	343.00	25.14	32.77		32.79	0.000139	1.28	268.92	50.51	0.10
raymondville	reach 3 (south)	138026	528.00	25.14	34.29		34.30	0.000073	1.03	2002.33	2600.91	0.07
raymondville	reach 3 (south)	138026	1148.00	25.14	36.01		36.01	0.000020	0.63	9099.30	5290.90	0.04
raymondville	reach 3 (south)	136620	201.00	24.96	30.77		30.79	0.000137	1.10	183.52	43.21	0.09
raymondville	reach 3 (south)	136620	343.00	24.96	32.56		32.59	0.000141	1.28	267.65	50.40	0.10
raymondville	reach 3 (south)	136620	528.00	24.96	34.16		34.18	0.000098	1.18	1433.57	1914.82	0.08
raymondville	reach 3 (south)	136620	1148.00	24.96	35.97		35.98	0.000026	0.71	7937.00	5068.16	0.04
raymondville	reach 3 (south)	135048	201.00	24.75	30.56		30.58	0.000139	1.09	183.65	43.24	0.09
raymondville	reach 3 (south)	135048	343.00	24.75	32.34		32.37	0.000142	1.28	267.17	50.38	0.10
raymondville	reach 3 (south)	135048	528.00	24.75	33.99		34.02	0.000116	1.29	1037.30	1430.42	0.09
raymondville	reach 3 (south)	135048	1148.00	24.75	35.93		35.93	0.000036	0.83	6296.46	3959.02	0.05
raymondville	reach 3 (south)	133745	201.00	24.58	30.37		30.39	0.000139	1.10	182.79	43.16	0.09
raymondville	reach 3 (south)	133745	343.00	24.58	32.16		32.18	0.000143	1.29	266.36	50.31	0.10
raymondville	reach 3 (south)	133745	528.00	24.58	33.83		33.86	0.000128	1.36	831.27	1202.42	0.10
raymondville	reach 3 (south)	133745	1148.00	24.58	35.88		35.88	0.000038	0.85	6107.17	3896.12	0.05
raymondville	reach 3 (south)	132244	201.00	24.39	30.15		30.17	0.000141	1.11	181.71	43.05	0.09
raymondville	reach 3 (south)	132244	343.00	24.39	31.94		31.96	0.000145	1.30	264.77	50.18	0.10
raymondville	reach 3 (south)	132244	528.00	24.39	33.62		33.65	0.000141	1.43	622.26	914.06	0.10

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 3 (south)	132244	1148.00	24.39	35.83		35.83	0.000034	0.82	6965.90	5067.66	0.05
raymondville	reach 3 (south)	130592	201.00	24.17	29.93		29.95	0.000142	1.11	181.39	43.02	0.10
raymondville	reach 3 (south)	130592	343.00	24.17	31.70		31.73	0.000146	1.30	264.05	50.12	0.10
raymondville	reach 3 (south)	130592	528.00	24.17	33.38		33.41	0.000156	1.49	353.73	56.83	0.11
raymondville	reach 3 (south)	130592	1148.00	24.17	35.79		35.79	0.000020	0.65	10069.91	6500.00	0.04
raymondville	reach 3 (south)	129120	201.00	23.98	29.72		29.74	0.000144	1.11	180.53	42.94	0.10
raymondville	reach 3 (south)	129120	343.00	23.98	31.48		31.51	0.000148	1.31	282.71	50.02	0.10
raymondville	reach 3 (south)	129120	528.00	23.98	33.14		33.18	0.000159	1.50	351.28	56.66	0.11
raymondville	reach 3 (south)	129120	1148.00	23.98	35.77		35.77	0.000020	0.66	9934.56	6500.00	0.04
raymondville	reach 3 (south)	127694	201.00	23.79	29.51		29.53	0.000146	1.12	179.68	42.86	0.10
raymondville	reach 3 (south)	127694	343.00	23.79	31.27		31.29	0.000150	1.31	261.36	49.91	0.10
raymondville	reach 3 (south)	127694	528.00	23.79	32.91		32.95	0.000162	1.51	348.83	56.49	0.11
raymondville	reach 3 (south)	127694	1148.00	23.79	35.75		35.75	0.000021	0.67	9799.36	6500.00	0.04
raymondville	reach 3 (south)	126200	201.00	23.60	29.29		29.31	0.000148	1.13	178.42	42.75	0.10
raymondville	reach 3 (south)	126200	343.00	23.60	31.04		31.07	0.000153	1.32	259.53	49.76	0.10
raymondville	reach 3 (south)	126200	528.00	23.60	32.67		32.70	0.000166	1.53	345.76	56.27	0.11
raymondville	reach 3 (south)	126200	1148.00	23.60	35.73		35.73	0.000021	0.68	9664.30	6500.00	0.04
raymondville	reach 3 (south)	126152	201.00	23.59	29.28		29.30	0.000148	1.13	178.53	42.76	0.10
raymondville	reach 3 (south)	126152	343.00	23.59	31.03		31.06	0.000153	1.32	259.65	49.77	0.10
raymondville	reach 3 (south)	126152	528.00	23.59	32.66		32.69	0.000165	1.53	345.86	56.27	0.11
raymondville	reach 3 (south)	126152	1148.00	23.59	35.72		35.73	0.000021	0.68	9658.00	6500.00	0.04
raymondville	reach 3 (south)	124435	201.00	23.37	29.02		29.04	0.000152	1.14	176.90	42.61	0.10
raymondville	reach 3 (south)	124435	343.00	23.37	30.77		30.79	0.000157	1.33	257.33	49.58	0.10
raymondville	reach 3 (south)	124435	528.00	23.37	32.37		32.41	0.000171	1.54	341.96	56.00	0.11
raymondville	reach 3 (south)	124435	1148.00	23.37	35.69		35.69	0.000022	0.70	9430.25	6500.00	0.04
raymondville	reach 3 (south)	123138	201.00	23.20	28.82		28.84	0.000155	1.14	175.65	42.49	0.10
raymondville	reach 3 (south)	123138	343.00	23.20	30.56		30.59	0.000160	1.34	255.56	49.44	0.10
raymondville	reach 3 (south)	123138	528.00	23.20	32.14		32.18	0.000175	1.56	338.90	55.78	0.11
raymondville	reach 3 (south)	123138	1148.00	23.20	35.65		35.65	0.000023	0.72	9199.52	6500.00	0.04
raymondville	reach 3 (south)	121629	201.00	23.01	28.59		28.60	0.000161	1.16	173.29	42.27	0.10
raymondville	reach 3 (south)	121629	343.00	23.01	30.31		30.34	0.000165	1.36	252.51	49.19	0.11
raymondville	reach 3 (south)	121629	528.00	23.01	31.87		31.90	0.000182	1.58	333.97	55.42	0.11
raymondville	reach 3 (south)	121629	1148.00	23.01	35.61		35.62	0.000024	0.74	8970.19	6500.00	0.04
raymondville	reach 3 (south)	120128	201.00	22.81	28.33		28.35	0.000166	1.17	171.37	42.08	0.10
raymondville	reach 3 (south)	120128	343.00	22.81	30.06		30.09	0.000170	1.37	249.96	48.99	0.11
raymondville	reach 3 (south)	120128	528.00	22.81	31.59		31.63	0.000189	1.60	329.61	55.11	0.12
raymondville	reach 3 (south)	120128	1148.00	22.81	35.58		35.58	0.000025	0.76	8741.66	6500.00	0.04
raymondville	reach 3 (south)	120078	201.00	22.80	28.32		28.34	0.000166	1.17	171.44	42.09	0.10
raymondville	reach 3 (south)	120078	343.00	22.80	30.05		30.08	0.000170	1.37	250.03	48.99	0.11
raymondville	reach 3 (south)	120078	528.00	22.80	31.58		31.62	0.000189	1.60	329.64	55.11	0.12
raymondville	reach 3 (south)	120078	1148.00	22.80	35.57		35.58	0.000025	0.76	8734.05	6500.00	0.04
raymondville	reach 3 (south)	118101	201.00	22.55	27.98		28.00	0.000177	1.20	167.65	41.73	0.11
raymondville	reach 3 (south)	118101	343.00	22.55	29.70		29.73	0.000179	1.40	245.30	48.60	0.11
raymondville	reach 3 (south)	118101	528.00	22.55	31.19		31.23	0.000201	1.64	322.06	54.56	0.12
raymondville	reach 3 (south)	118101	1148.00	22.55	35.52		35.53	0.000027	0.79	8413.48	6500.00	0.05
raymondville	reach 3 (south)	118051	201.00	22.54	27.97		28.00	0.000176	1.20	167.70	41.73	0.11
raymondville	reach 3 (south)	118051	343.00	22.54	29.69		29.72	0.000179	1.40	245.35	48.61	0.11
raymondville	reach 3 (south)	118051	528.00	22.54	31.18		31.22	0.000201	1.64	322.06	54.56	0.12
raymondville	reach 3 (south)	118051	1148.00	22.54	35.51		35.52	0.000027	0.79	8344.09	6500.00	0.05
raymondville	reach 3 (south)	116902	201.00	22.39	27.77		27.79	0.000184	1.22	165.31	41.50	0.11
raymondville	reach 3 (south)	116902	343.00	22.39	29.48		29.51	0.000185	1.41	242.45	48.37	0.11
raymondville	reach 3 (south)	116902	528.00	22.39	30.94		30.99	0.000209	1.66	317.32	54.21	0.12
raymondville	reach 3 (south)	116902	1148.00	22.39	35.48		35.48	0.000028	0.81	8145.38	6500.00	0.05
raymondville	reach 3 (south)	114860	201.00	22.13	27.37		27.39	0.000202	1.26	159.64	40.95	0.11
raymondville	reach 3 (south)	114860	343.00	22.13	29.10		29.13	0.000198	1.45	236.58	47.88	0.11
raymondville	reach 3 (south)	114860	528.00	22.13	30.49		30.54	0.000229	1.72	307.23	53.46	0.13
raymondville	reach 3 (south)	114860	1148.00	22.13	35.40		35.41	0.000053	1.11	4083.30	2554.83	0.06
raymondville	reach 3 (south)	113007	201.00	21.88	26.97		27.00	0.000225	1.31	153.64	40.36	0.12
raymondville	reach 3 (south)	113007	343.00	21.88	28.72		28.75	0.000213	1.49	230.29	47.35	0.12
raymondville	reach 3 (south)	113007	528.00	21.88	30.05		30.10	0.000251	1.78	296.74	52.67	0.13
raymondville	reach 3 (south)	113007	1148.00	21.88	35.20		35.25	0.000155	1.83	805.82	1017.57	0.11
raymondville	reach 3 (south)	112058	201.00	21.76	26.75		26.78	0.000243	1.34	149.48	39.95	0.12
raymondville	reach 3 (south)	112058	343.00	21.76	28.51		28.55	0.000224	1.52	226.12	47.00	0.12

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq-ft)	Top Width (ft)	Froude # Chi
raymondville	reach 3 (south)	112058	528.00	21.76	29.80		29.85	0.000268	1.82	290.01	52.15	0.14
raymondville	reach 3 (south)	112058	1148.00	21.76	35.04		35.10	0.000161	1.85	663.56	1085.61	0.11
raymondville	reach 3 (south)	112008	201.00	21.75	26.73		26.76	0.000244	1.35	149.38	39.94	0.12
raymondville	reach 3 (south)	112008	343.00	21.75	28.50		28.53	0.000224	1.52	226.05	46.99	0.12
raymondville	reach 3 (south)	112008	528.00	21.75	29.78		29.84	0.000268	1.82	289.81	52.14	0.14
raymondville	reach 3 (south)	112008	1148.00	21.75	35.04		35.09	0.000161	1.85	656.03	1085.61	0.11
raymondville	reach 3 (south)	110270	201.00	21.53	26.27		26.30	0.000295	1.44	139.54	38.94	0.13
raymondville	reach 3 (south)	110270	343.00	21.53	28.08		28.12	0.000251	1.58	216.94	46.21	0.13
raymondville	reach 3 (south)	110270	528.00	21.53	29.28		29.34	0.000310	1.92	275.05	50.99	0.15
raymondville	reach 3 (south)	110270	1148.00	21.53	34.75		34.81	0.000165	1.87	614.08	72.89	0.11
raymondville	reach 1	109185	907.00	17.51	26.09		26.12	0.000143	1.53	592.51	88.35	0.10
raymondville	reach 1	109185	1437.00	17.51	27.86		27.91	0.000178	1.90	755.26	95.44	0.12
raymondville	reach 1	109185	1991.00	17.51	28.98		29.06	0.000232	2.30	865.22	99.94	0.14
raymondville	reach 1	109185	6391.00	17.51	33.95		34.27	0.000603	4.53	1411.30	119.82	0.23
raymondville	reach 1	109050	907.00	17.49	26.07		26.10	0.000142	1.53	592.56	88.36	0.10
raymondville	reach 1	109050	1437.00	17.49	27.83		27.89	0.000178	1.90	754.87	95.42	0.12
raymondville	reach 1	109050	1991.00	17.49	28.95		29.03	0.000232	2.30	864.06	99.89	0.14
raymondville	reach 1	109050	6391.00	17.49	33.87		34.19	0.000612	4.55	1403.41	119.55	0.23
raymondville	reach 1	108145	907.00	17.35	26.01		26.04	0.000137	1.51	599.92	88.69	0.10
raymondville	reach 1	108145	1437.00	17.35	27.78		27.82	0.000174	1.89	761.33	95.69	0.12
raymondville	reach 1	108145	1991.00	17.35	28.85		28.94	0.000229	2.29	868.43	100.07	0.14
raymondville	reach 1	108145	6391.00	17.35	33.73		33.91	0.000521	3.68	3452.55	2918.87	0.21
raymondville	reach 1	107740	907.00	17.35	25.95		25.99	0.000141	1.52	594.87	88.46	0.10
raymondville	reach 1	107740	1437.00	17.35	27.69		27.74	0.000178	1.90	754.41	95.40	0.12
raymondville	reach 1	107740	1991.00	17.35	28.76		28.84	0.000237	2.32	858.81	99.66	0.14
raymondville	reach 1	107740	6391.00	17.35	33.38		33.64	0.000742	4.28	2445.13	2768.45	0.25
raymondville	reach 1	106578	907.00	17.16	25.79	19.46	25.83	0.000139	1.52	597.30	88.57	0.10
raymondville	reach 1	106578	1437.00	17.16	27.46	20.15	27.54	0.000180	1.91	752.68	95.33	0.12
raymondville	reach 1	106578	1991.00	17.16	28.48	20.77	28.56	0.000244	2.34	849.80	99.32	0.14
raymondville	reach 1	106578	6391.00	17.16	32.68	24.30	32.85	0.000586	3.69	3683.49	3335.41	0.22
raymondville	reach 1	106370	907.00	17.13	25.76	19.43	25.80	0.000138	1.50	608.30	90.80	0.10
raymondville	reach 1	106370	1437.00	17.13	27.44	20.11	27.50	0.000175	1.88	765.11	98.01	0.12
raymondville	reach 1	106370	1991.00	17.13	28.43	20.73	28.51	0.000239	2.31	863.76	102.23	0.14
raymondville	reach 1	106370	6391.00	17.13	32.52	24.27	32.71	0.000685	3.92	3188.22	3001.19	0.23
raymondville	reach 1	105922.*	907.00	17.06	25.70	19.36	25.74	0.000137	1.50	604.70	90.25	0.10
raymondville	reach 1	105922.*	1437.00	17.06	27.36	20.04	27.42	0.000177	1.89	760.47	97.25	0.12
raymondville	reach 1	105922.*	1991.00	17.06	28.31	20.66	28.40	0.000244	2.33	854.76	101.25	0.14
raymondville	reach 1	105922.*	6391.00	17.06	31.89	24.21	32.30	0.001214	5.10	1253.09	153.41	0.31
raymondville	reach 1	105474.*	907.00	16.99	25.64	19.29	25.67	0.000137	1.50	603.25	89.72	0.10
raymondville	reach 1	105474.*	1437.00	16.99	27.28	19.97	27.34	0.000179	1.90	756.03	96.51	0.12
raymondville	reach 1	105474.*	1991.00	16.99	28.19	20.59	28.26	0.000250	2.35	846.05	100.30	0.14
raymondville	reach 1	105474.*	6391.00	16.99	31.35	24.14	31.80	0.001036	5.39	1184.84	117.34	0.30
raymondville	reach 1	105026.*	907.00	16.91	25.58	19.21	25.61	0.000136	1.51	602.63	89.24	0.10
raymondville	reach 1	105026.*	1437.00	16.91	27.20	19.89	27.25	0.000181	1.91	752.53	95.83	0.12
raymondville	reach 1	105026.*	1991.00	16.91	28.08	20.51	28.16	0.000255	2.37	838.38	99.40	0.14
raymondville	reach 1	105026.*	6391.00	16.91	30.80	24.07	31.30	0.001178	5.69	1124.11	112.81	0.32
raymondville	reach 1	104578	907.00	16.84	25.52	19.14	25.55	0.000136	1.51	601.46	88.76	0.10
raymondville	reach 1	104578	1437.00	16.84	27.12	19.83	27.17	0.000182	1.92	748.52	95.15	0.12
raymondville	reach 1	104578	1991.00	16.84	27.96	20.44	28.05	0.000260	2.40	830.27	98.53	0.15
raymondville	reach 1	104578	6391.00	16.84	30.16	24.00	30.73	0.001356	6.05	1056.56	107.32	0.34
raymondville	reach 1	102128	907.00	16.43	25.11		25.15	0.000204	1.49	637.77	416.07	0.12
raymondville	reach 1	102128	1437.00	16.43	26.80		26.82	0.000110	1.33	1880.09	1113.10	0.09
raymondville	reach 1	102128	1991.00	16.43	27.66		27.88	0.000088	1.30	2959.08	1377.65	0.08
raymondville	reach 1	102128	6391.00	16.43	29.79		29.81	0.000132	1.88	8441.27	3448.42	0.11
raymondville	reach 1	100615	907.00	16.19	24.89	18.48	24.92	0.000118	1.36	567.00	104.73	0.09
raymondville	reach 1	100615	1437.00	16.19	26.65	19.15	26.67	0.000087	1.37	1787.88	1013.71	0.09
raymondville	reach 1	100615	1991.00	16.19	27.53	19.75	27.56	0.000079	1.40	3023.18	1663.03	0.08
raymondville	reach 1	100615	6391.00	16.19	29.61	23.11	29.83	0.000111	1.90	8967.18	3592.91	0.10
raymondville	reach 1	100117	907.00	16.10	24.82	18.40	24.85	0.000134	1.50	605.12	88.92	0.10
raymondville	reach 1	100117	1437.00	16.10	26.60	19.08	26.62	0.000125	1.42	1617.46	904.60	0.10
raymondville	reach 1	100117	1991.00	16.10	27.48	19.70	27.50	0.000109	1.44	2550.83	1274.74	0.08
raymondville	reach 1	100117	6391.00	16.10	29.54	23.26	29.56	0.000139	1.92	10012.96	6000.00	0.11
raymondville	reach 1	99117	907.00	15.78	24.58		24.60	0.000131	1.49	610.77	89.18	0.10

River	Reach	Q Total	Min Ch El	W.S. Elev	Ch W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
raymondville	reach 1	1437.00	15.78	29.47	29.47	29.47	0.000018	0.60	4390.58	5519.96	0.04
raymondville	reach 1	1891.00	15.78	29.47	29.47	29.47	0.000018	0.60	4390.58	5519.96	0.04
raymondville	reach 1	907.00	15.45	24.30	24.30	24.34	0.000127	1.47	617.34	89.47	0.10
raymondville	reach 1	1437.00	15.45	26.33	26.33	26.35	0.000139	1.33	1908.02	1990.57	0.10
raymondville	reach 1	1991.00	15.45	27.35	27.35	27.36	0.000068	1.05	4579.95	3566.25	0.07
raymondville	reach 1	6391.00	15.45	29.41	29.41	29.42	0.000051	1.08	13730.04	5545.91	0.07
raymondville	reach 1	907.00	15.32	24.22	24.22	24.25	0.000099	1.24	731.46	116.54	0.09
raymondville	reach 1	1437.00	15.32	26.23	26.23	26.25	0.000108	1.32	1543.45	1398.81	0.09
raymondville	reach 1	1991.00	15.32	27.29	27.29	27.31	0.000076	1.23	3618.51	3264.73	0.08
raymondville	reach 1	6391.00	15.32	29.36	29.36	29.37	0.000060	1.26	13091.03	5671.08	0.07
raymondville	reach 1	907.00	15.12	24.08	24.11	24.11	0.000121	1.45	626.93	89.90	0.10
raymondville	reach 1	1437.00	15.12	26.05	26.09	26.09	0.000164	1.62	1166.26	994.65	0.11
raymondville	reach 1	1991.00	15.12	27.16	27.19	27.19	0.000124	1.57	2507.17	2033.72	0.10
raymondville	reach 1	6391.00	15.12	29.23	29.26	29.26	0.000152	2.04	9061.34	5186.85	0.12
raymondville	reach 1	907.00	14.79	23.85	17.09	23.88	0.000116	1.43	635.60	90.28	0.09
raymondville	reach 1	1437.00	14.79	25.70	17.78	25.74	0.000185	1.70	928.09	335.00	0.12
raymondville	reach 1	1991.00	14.79	26.85	18.39	26.89	0.000168	1.80	1542.43	678.18	0.12
raymondville	reach 1	6391.00	14.79	28.68	21.95	28.79	0.000408	3.25	4266.77	2135.48	0.19
raymondville	reach 1	907.00	14.45	23.61	23.64	23.64	0.000111	1.41	645.22	90.71	0.09
raymondville	reach 1	1437.00	14.45	25.29	25.34	25.34	0.000206	1.75	898.78	451.46	0.12
raymondville	reach 1	1991.00	14.45	26.64	26.57	26.57	0.000142	1.64	2343.84	2076.62	0.11
raymondville	reach 1	6391.00	14.45	28.21	28.24	28.24	0.000175	2.09	8468.16	4853.37	0.12
raymondville	reach 1	907.00	14.45	23.61	23.64	23.64	0.000112	1.41	644.82	90.69	0.09
raymondville	reach 1	1437.00	14.45	25.29	25.33	25.33	0.000207	1.75	899.03	449.82	0.12
raymondville	reach 1	1991.00	14.45	26.53	26.57	26.57	0.000143	1.65	2329.39	2074.55	0.11
raymondville	reach 1	6391.00	14.45	28.20	28.23	28.23	0.000176	2.10	8429.00	4852.68	0.12
raymondville	reach 1	907.00	14.14	23.40	23.43	23.43	0.000107	1.39	654.18	91.10	0.08
raymondville	reach 1	1437.00	14.14	24.95	25.00	25.00	0.000151	1.80	799.67	97.28	0.11
raymondville	reach 1	1991.00	14.14	26.23	26.27	26.27	0.000165	1.75	2485.91	4246.14	0.11
raymondville	reach 1	6391.00	14.14	27.96	27.97	27.97	0.000103	1.59	11093.13	5612.17	0.09
raymondville	reach 1	907.00	13.81	23.02	23.09	23.09	0.000252	2.12	649.04	90.88	0.14
raymondville	reach 1	1792.00	13.81	24.36	24.49	24.49	0.000384	2.83	775.02	96.26	0.18
raymondville	reach 1	3163.00	13.81	25.72	25.78	25.78	0.000329	2.39	3141.80	3310.11	0.16
raymondville	reach 1	7349.00	13.56	26.33	27.33	27.33	0.001954	6.88	1560.16	3517.90	0.41
raymondville	reach 1	1375.00	13.54	22.60	22.67	22.67	0.000278	2.15	640.57	95.21	0.15
raymondville	reach 1	2192.00	13.54	23.68	23.81	23.81	0.000469	2.93	748.28	103.41	0.19
raymondville	reach 1	3163.00	13.54	24.79	25.00	25.00	0.000662	3.65	867.71	111.80	0.23
raymondville	reach 1	7349.00	13.54	26.20	26.85	26.85	0.001927	6.67	1980.03	4307.31	0.40
raymondville	reach 1	1375.00	13.53	22.57	22.64	22.64	0.000275	2.16	636.15	92.55	0.15
raymondville	reach 1	2192.00	13.53	23.63	23.77	23.77	0.000487	2.96	740.50	103.44	0.19
raymondville	reach 1	3163.00	13.53	24.71	24.93	24.93	0.000708	3.69	858.19	114.48	0.24
raymondville	reach 1	7349.00	13.53	26.18	26.62	26.62	0.001539	5.85	2926.47	4335.26	0.36
raymondville	reach 1	1375.00	13.51	22.54	22.62	22.62	0.000269	2.17	634.54	90.49	0.14
raymondville	reach 1	2192.00	13.51	23.59	23.73	23.73	0.000481	2.99	732.29	99.40	0.19
raymondville	reach 1	3163.00	13.51	24.64	24.86	24.86	0.000757	3.74	845.25	115.71	0.24
raymondville	reach 1	7349.00	13.51	26.16	26.44	26.44	0.001159	4.97	3875.90	4352.92	0.31
raymondville	reach 1	1375.00	13.50	22.52	22.59	22.59	0.000271	2.17	632.53	90.29	0.14
raymondville	reach 1	2192.00	13.50	23.54	23.68	23.68	0.000492	3.01	727.24	94.41	0.19
raymondville	reach 1	3163.00	13.50	24.56	24.79	24.79	0.000773	3.82	828.76	111.58	0.25
raymondville	reach 1	7349.00	13.50	26.13	26.32	26.32	0.000960	4.41	4748.71	5457.10	0.28

HFC-RAS Plan - P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	84117	1375.00	13.48	22.49		22.58	0.000273	2.18	631.29	90.09	0.14
raymondville	reach 1	84117	2192.00	13.48	23.50		23.64	0.000467	3.03	723.94	94.11	0.19
raymondville	reach 1	84117	3163.00	13.48	24.49		24.72	0.000683	3.86	819.13	98.08	0.24
raymondville	reach 1	84117	7349.00	13.48	26.10		26.21	0.000727	3.73	5777.30	6000.00	0.24
raymondville	reach 1	83617.*	1375.00	13.40	22.35		22.42	0.000283	2.20	625.05	90.47	0.15
raymondville	reach 1	83617.*	2192.00	13.40	23.25		23.40	0.000503	3.09	708.39	94.58	0.20
raymondville	reach 1	83617.*	3163.00	13.40	24.06		24.30	0.001067	3.94	872.43	547.90	0.28
raymondville	reach 1	83617.*	7349.00	13.40	25.73		25.85	0.000726	3.82	5277.34	4437.51	0.24
raymondville	reach 1	83117.*	1375.00	13.31	22.19		22.27	0.000295	2.22	620.18	91.89	0.15
raymondville	reach 1	83117.*	2192.00	13.31	22.96		23.10	0.000715	3.06	789.72	428.49	0.23
raymondville	reach 1	83117.*	3163.00	13.31	23.59		23.79	0.000928	3.74	1174.92	892.46	0.26
raymondville	reach 1	83117.*	7349.00	13.31	25.35		25.49	0.000737	3.94	4925.86	4416.91	0.25
raymondville	reach 1	82617.*	1375.00	13.23	22.04		22.10	0.000355	2.07	794.32	509.52	0.16
raymondville	reach 1	82617.*	2192.00	13.23	22.70		22.79	0.000499	2.66	1174.17	650.53	0.19
raymondville	reach 1	82617.*	3163.00	13.23	23.26		23.39	0.000828	3.17	1692.56	1088.98	0.22
raymondville	reach 1	82617.*	7349.00	13.23	25.00		25.13	0.000682	3.87	4655.06	4411.25	0.24
raymondville	reach 1	82117	1375.00	13.15	21.93		21.97	0.000197	1.63	1273.52	647.18	0.12
raymondville	reach 1	82117	2192.00	13.15	22.54		22.59	0.000293	2.13	1808.64	1064.45	0.15
raymondville	reach 1	82117	3163.00	13.15	23.05		23.12	0.000384	2.57	2382.97	1339.99	0.17
raymondville	reach 1	82117	7349.00	13.15	24.79		24.86	0.000393	3.03	5450.19	2277.35	0.18
raymondville	reach 1	80117	1375.00	12.82	21.70		21.71	0.000083	0.98	3376.75	3096.95	0.08
raymondville	reach 1	80117	2192.00	12.82	22.31		22.32	0.000074	0.99	5533.88	4008.02	0.07
raymondville	reach 1	80117	3163.00	12.82	22.84		22.85	0.000063	0.97	7693.59	4113.29	0.07
raymondville	reach 1	80117	7349.00	12.82	24.65		24.65	0.000041	0.94	17197.49	5896.62	0.06
raymondville	reach 1	79415	1375.00	12.71	21.53		21.61	0.000295	2.24	614.59	89.35	0.15
raymondville	reach 1	79415	2192.00	12.71	22.01		22.19	0.000615	3.33	657.97	91.27	0.22
raymondville	reach 1	79415	3163.00	12.71	22.38		22.70	0.001109	4.57	691.62	92.73	0.30
raymondville	reach 1	79415	7349.00	12.71	22.85	20.48	24.40	0.005015	9.99	735.60	94.61	0.63
raymondville	reach 1	78117	1375.00	12.50	21.38		21.39	0.000095	1.11	3435.36	4035.66	0.08
raymondville	reach 1	78117	2192.00	12.50	21.92		21.92	0.000074	1.04	5608.79	4088.38	0.07
raymondville	reach 1	78117	3163.00	12.50	22.37		22.37	0.000072	1.08	7640.73	4624.68	0.07
raymondville	reach 1	78117	7349.00	12.50	23.63		23.63	0.000073	1.23	14226.35	5831.91	0.08
raymondville	reach 1	76117	1375.00	12.17	21.26		21.27	0.000048	0.80	4682.51	4195.95	0.06
raymondville	reach 1	76117	2192.00	12.17	21.82		21.82	0.000041	0.79	7023.33	4250.33	0.06
raymondville	reach 1	76117	3163.00	12.17	22.26		22.27	0.000044	0.85	9034.62	4688.01	0.06
raymondville	reach 1	76117	7349.00	12.17	23.51		23.51	0.000056	1.07	15549.53	6000.00	0.07
raymondville	reach 1	74240	1375.00	11.86	21.17		21.18	0.000047	0.80	4494.79	4232.22	0.06
raymondville	reach 1	74240	2192.00	11.86	21.74		21.74	0.000041	0.79	6911.84	4302.02	0.06
raymondville	reach 1	74240	3163.00	11.86	22.18		22.18	0.000045	0.86	8908.75	4853.96	0.06
raymondville	reach 1	74240	7349.00	11.86	23.40		23.41	0.000056	1.08	15335.94	6000.00	0.07
raymondville	reach 1	74117	1375.00	11.84	21.17		21.17	0.000048	0.80	4471.24	4231.47	0.06
raymondville	reach 1	74117	2192.00	11.84	21.73		21.74	0.000041	0.80	6891.50	4301.38	0.06
raymondville	reach 1	74117	3163.00	11.84	22.17		22.18	0.000045	0.87	8883.59	4853.27	0.06
raymondville	reach 1	74117	7349.00	11.84	23.39		23.40	0.000057	1.09	15295.76	6000.00	0.07
raymondville	reach 1	71592	1375.00	11.42	21.07		21.07	0.000049	0.83	4485.14	4151.35	0.06
raymondville	reach 1	71592	2192.00	11.42	21.65		21.66	0.000041	0.80	6930.08	4208.80	0.06
raymondville	reach 1	71592	3163.00	11.42	22.09		22.09	0.000046	0.89	8799.48	4645.34	0.06
raymondville	reach 1	71592	7349.00	11.42	23.28		23.29	0.000062	1.15	14757.04	6000.00	0.07
raymondville	reach 1	69075	1526.00	11.01	20.90		20.91	0.000084	1.08	3606.57	3352.59	0.08
raymondville	reach 1	69075	2336.00	11.01	21.53		21.53	0.000058	0.96	6508.13	4919.63	0.07
raymondville	reach 1	69075	3404.00	11.01	21.95		21.96	0.000059	1.02	8604.58	4972.46	0.07
raymondville	reach 1	69075	8267.00	11.01	23.11		23.11	0.000074	1.26	15482.19	6000.00	0.08
raymondville	reach 1	66802	1526.00	10.64	20.67		20.68	0.000102	1.20	3503.77	4275.70	0.09
raymondville	reach 1	66802	2336.00	10.64	21.39		21.40	0.000055	0.94	6919.63	5141.80	0.06
raymondville	reach 1	66802	3404.00	10.64	21.81		21.82	0.000055	0.99	9107.36	5183.02	0.07
raymondville	reach 1	66802	8267.00	10.64	22.92		22.93	0.000074	1.26	15615.29	6000.00	0.08
raymondville	reach 1	64802	1526.00	10.31	20.37		20.40	0.000203	1.66	2109.90	3884.78	0.12
raymondville	reach 1	64802	2336.00	10.31	21.25		21.26	0.000077	1.12	5962.05	5435.81	0.08
raymondville	reach 1	64802	3404.00	10.31	21.68		21.68	0.000072	1.13	8274.01	5477.33	0.08
raymondville	reach 1	64802	8267.00	10.31	22.75		22.76	0.000091	1.40	14549.02	6000.00	0.09
raymondville	reach 1	62802	1526.00	9.98	19.89		19.96	0.000236	2.14	713.86	93.69	0.14
raymondville	reach 1	62802	2336.00	9.98	21.10		21.11	0.000077	1.13	6254.29	6000.00	0.08
raymondville	reach 1	62802	3404.00	9.98	21.54		21.55	0.000087	1.09	8893.98	6000.00	0.07
raymondville	reach 1	62802	8267.00	9.98	22.58		22.59	0.000083	1.34	15126.04	6000.00	0.08



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	61180	1526.00	9.85	19.39		19.47	0.000251	2.18	698.46	93.02	0.14
raymondville	reach 1	61180	2336.00	9.65	20.73		20.82	0.000301	2.57	1624.80	2284.27	0.16
raymondville	reach 1	61180	3404.00	9.65	21.17		21.25	0.000478	2.75	2891.50	3505.81	0.19
raymondville	reach 1	61180	8267.00	9.65	22.21		22.26	0.000418	2.84	8114.82	6000.00	0.18
raymondville	reach 1	61130	1526.00	9.64	19.38		19.46	0.000251	2.19	698.22	93.01	0.14
raymondville	reach 1	61130	2336.00	9.64	20.72		20.82	0.000302	2.58	1608.15	2261.06	0.16
raymondville	reach 1	61130	3404.00	9.64	21.15		21.24	0.000493	2.79	2828.26	3450.36	0.19
raymondville	reach 1	61130	8267.00	9.64	22.18		22.23	0.000441	2.91	7929.01	6000.00	0.19
raymondville	reach 1	60777	1526.00	9.58	19.29		19.37	0.000254	2.19	695.47	92.90	0.14
raymondville	reach 1	60777	2336.00	9.58	20.72		20.73	0.000126	1.42	5052.51	6000.00	0.10
raymondville	reach 1	60777	3404.00	9.58	21.13		21.14	0.000104	1.34	7538.68	6000.00	0.09
raymondville	reach 1	60777	8267.00	9.58	22.14		22.15	0.000116	1.55	13580.94	8000.00	0.10
raymondville	reach 1	58786	1526.00	9.26	18.76		18.84	0.000276	2.26	675.91	92.05	0.15
raymondville	reach 1	58786	2336.00	9.26	20.22		20.30	0.000419	2.50	2102.57	6000.00	0.18
raymondville	reach 1	58786	3404.00	9.26	20.84		20.87	0.000187	1.78	5648.08	6000.00	0.12
raymondville	reach 1	58786	8267.00	9.26	21.86		21.87	0.000169	1.85	11926.61	6000.00	0.12
raymondville	reach 1	56696	1526.00	8.92	18.15		18.23	0.000307	2.34	650.90	90.96	0.15
raymondville	reach 1	56696	2336.00	8.92	19.22		19.37	0.000478	3.11	750.54	95.24	0.20
raymondville	reach 1	56696	3404.00	8.92	19.86	13.85	20.13	0.000809	4.19	812.73	97.82	0.26
raymondville	reach 1	56696	8267.00	8.92	21.27		21.32	0.000450	2.92	8326.42	6000.00	0.19
raymondville	reach 1	56644	1526.00	8.91	18.13		18.22	0.000308	2.35	650.34	90.93	0.15
raymondville	reach 1	56644	2336.00	8.91	19.19		19.34	0.000481	3.12	749.05	95.18	0.20
raymondville	reach 1	56644	3404.00	8.91	19.83		20.10	0.000816	4.20	810.28	97.72	0.26
raymondville	reach 1	56644	8267.00	8.91	21.24		21.29	0.000475	2.99	8153.10	6000.00	0.19
raymondville	reach 1	56166.2*	1526.00	8.83	17.98		18.07	0.000317	2.37	643.87	90.64	0.16
raymondville	reach 1	56166.2*	2336.00	8.83	19.00		19.12	0.000420	2.90	1231.68	1015.18	0.18
raymondville	reach 1	56166.2*	3404.00	8.83	19.63		19.76	0.000504	3.28	2003.62	1344.99	0.20
raymondville	reach 1	56166.2*	8267.00	8.83	21.04		21.08	0.000393	2.70	8594.56	6000.00	0.18
raymondville	reach 1	55688.5*	1526.00	8.75	17.90		17.94	0.000186	1.81	1538.83	998.44	0.12
raymondville	reach 1	55688.5*	2336.00	8.75	18.96		18.99	0.000149	1.73	2794.32	1314.39	0.11
raymondville	reach 1	55688.5*	3404.00	8.75	19.56		19.59	0.000176	1.94	3676.24	2866.30	0.12
raymondville	reach 1	55688.5*	8267.00	8.75	20.90		20.93	0.000251	2.15	9447.60	5567.23	0.14
raymondville	reach 1	55210.7*	1526.00	8.67	17.88		17.88	0.000058	1.01	3048.50	1273.89	0.07
raymondville	reach 1	55210.7*	2336.00	8.67	18.94		18.94	0.000050	1.00	4437.16	1346.76	0.06
raymondville	reach 1	55210.7*	3404.00	8.67	19.53		19.54	0.000066	1.19	5677.42	3319.73	0.07
raymondville	reach 1	55210.7*	8267.00	8.67	20.82		20.83	0.000148	1.66	11064.27	4720.67	0.11
raymondville	reach 1	54733	1597.00	8.59	17.71	11.76	17.81	0.000351	2.49	641.53	90.54	0.16
raymondville	reach 1	54733	2442.00	8.59	18.70	12.65	18.88	0.000559	3.33	733.24	94.51	0.21
raymondville	reach 1	54733	3556.00	8.59	19.09	13.65	19.43	0.001029	4.62	770.41	96.07	0.29
raymondville	reach 1	54733	8659.00	8.59	20.45	17.14	20.65	0.001327	4.84	4849.32	4363.73	0.32
raymondville	reach 1	54238.*	1597.00	8.51	17.53		17.63	0.000371	2.52	634.35	171.60	0.17
raymondville	reach 1	54238.*	2442.00	8.51	18.50		18.59	0.000514	2.66	1648.30	1764.18	0.19
raymondville	reach 1	54238.*	3556.00	8.51	18.85		18.95	0.000665	3.14	2328.21	2084.62	0.22
raymondville	reach 1	54238.*	8659.00	8.51	20.01		20.12	0.000812	3.90	5180.70	2903.50	0.25
raymondville	reach 1	53743.*	1597.00	8.43	17.46		17.48	0.000191	1.56	2042.39	1694.57	0.12
raymondville	reach 1	53743.*	2442.00	8.43	18.45		18.46	0.000113	1.34	3982.60	2184.92	0.09
raymondville	reach 1	53743.*	3556.00	8.43	18.76		18.78	0.000162	1.66	4695.92	2308.97	0.11
raymondville	reach 1	53743.*	8659.00	8.43	19.82		19.86	0.000322	2.56	7381.26	2808.31	0.16
raymondville	reach 1	53248.*	1597.00	8.35	17.44		17.45	0.000039	0.77	4394.87	2117.40	0.05
raymondville	reach 1	53248.*	2442.00	8.35	18.44		18.44	0.000031	0.75	6636.62	2384.50	0.05
raymondville	reach 1	53248.*	3556.00	8.35	18.74		18.75	0.000049	0.98	7370.90	2463.46	0.06
raymondville	reach 1	53248.*	8659.00	8.35	19.74		19.75	0.000134	1.75	10093.62	2908.68	0.11
raymondville	reach 1	52753	1379.00	8.27	17.43		17.43	0.000008	0.38	7021.92	2287.02	0.03
raymondville	reach 1	52753	2028.00	8.27	18.43		18.43	0.000008	0.42	9460.87	2647.14	0.03
raymondville	reach 1	52753	3083.00	8.27	18.73		18.73	0.000015	0.58	10273.66	2735.49	0.04
raymondville	reach 1	52753	8075.00	8.27	19.71		19.71	0.000055	1.18	13086.03	3020.21	0.07
raymondville	reach 1	52344.3*	1379.00	8.20	17.42		17.42	0.000014	0.47	5859.04	2296.99	0.03
raymondville	reach 1	52344.3*	2028.00	8.20	18.42		18.42	0.000012	0.48	8383.16	2672.38	0.03
raymondville	reach 1	52344.3*	3083.00	8.20	18.72		18.72	0.000022	0.66	9200.71	2758.48	0.04
raymondville	reach 1	52344.3*	8075.00	8.20	19.67		19.68	0.000073	1.30	11975.70	3053.95	0.08
raymondville	reach 1	51935.7*	1379.00	8.13	17.40		17.41	0.000024	0.57	4856.84	2290.74	0.04
raymondville	reach 1	51935.7*	2028.00	8.13	18.41		18.41	0.000017	0.54	7336.56	2653.72	0.04
raymondville	reach 1	51935.7*	3083.00	8.13	18.70		18.70	0.000030	0.74	8126.71	2747.27	0.05

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chf
raymondville	reach 1	51935.7*	8075.00	8.13	19.63		19.64	0.000098	1.44	10837.42	3081.28	0.09
raymondville	reach 1	51527.1*	1379.00	8.07	17.39		17.39	0.000034	0.64	4146.68	1897.47	0.05
raymondville	reach 1	51527.1*	2028.00	8.07	18.40		18.40	0.000024	0.60	6355.32	2511.18	0.04
raymondville	reach 1	51527.1*	3083.00	8.07	18.68		18.68	0.000042	0.81	7089.48	2656.74	0.06
raymondville	reach 1	51527.1*	8075.00	8.07	19.58		19.59	0.000133	1.59	9665.95	3103.90	0.10
raymondville	reach 1	51118.5*	1379.00	8.00	17.38		17.38	0.000027	0.69	4109.22	1591.54	0.05
raymondville	reach 1	51118.5*	2028.00	8.00	18.38		18.39	0.000023	0.69	5850.64	1828.17	0.04
raymondville	reach 1	51118.5*	3083.00	8.00	18.66		18.67	0.000044	0.95	6362.11	1893.45	0.06
raymondville	reach 1	51118.5*	8075.00	8.00	19.51		19.52	0.000176	1.72	8483.96	3003.24	0.12
raymondville	reach 1	50710	1379.00	7.93	17.27	10.84	17.34	0.000239	2.08	661.63	91.43	0.14
raymondville	reach 1	50710	2028.00	7.93	18.23	11.57	18.34	0.000360	2.70	750.87	95.25	0.17
raymondville	reach 1	50710	3083.00	7.93	18.34	12.60	18.59	0.000800	4.05	761.35	95.69	0.25
raymondville	reach 1	50710	8075.00	7.93	19.44	16.13	19.46	0.000169	1.97	7963.22	2102.97	0.12
raymondville	reach 1	50308.0*	1379.00	7.86	17.17	10.77	17.24	0.000243	2.09	658.44	91.28	0.14
raymondville	reach 1	50308.0*	2028.00	7.86	18.08	11.50	18.19	0.000371	2.73	742.73	94.90	0.17
raymondville	reach 1	50308.0*	3083.00	7.86	18.46	12.53	18.47	0.000448	1.00	6214.72	1925.47	0.06
raymondville	reach 1	50308.0*	8075.00	7.86	19.37	16.06	19.39	0.000168	1.95	8052.26	2132.95	0.12
raymondville	reach 1	49908.0*	1379.00	7.80	17.07	10.71	17.14	0.000247	2.11	654.55	91.11	0.14
raymondville	reach 1	49908.0*	2028.00	7.80	17.91	11.44	18.03	0.000386	2.77	732.86	94.49	0.18
raymondville	reach 1	49908.0*	3083.00	7.80	18.45	12.47	18.45	0.000046	0.98	6371.67	1996.75	0.06
raymondville	reach 1	49908.0*	8075.00	7.80	19.31	16.00	19.33	0.000167	1.96	8179.27	2238.62	0.12
raymondville	reach 1	49504.0*	1379.00	7.73	16.96	10.65	17.03	0.000250	2.12	651.39	90.98	0.14
raymondville	reach 1	49504.0*	2028.00	7.73	17.75	11.37	17.87	0.000400	2.80	723.78	94.11	0.18
raymondville	reach 1	49504.0*	3083.00	7.73	18.43	12.40	18.43	0.000042	0.94	6351.61	2053.50	0.06
raymondville	reach 1	49504.0*	8075.00	7.73	19.24	15.93	19.26	0.000171	1.98	8334.16	2396.40	0.12
raymondville	reach 1	49102.0*	1379.00	7.67	16.88	10.58	16.93	0.000255	2.13	647.60	90.82	0.14
raymondville	reach 1	49102.0*	2028.00	7.67	17.57	11.31	17.70	0.000417	2.84	713.18	93.66	0.18
raymondville	reach 1	49102.0*	3083.00	7.67	18.33	12.34	18.39	0.000294	2.49	2230.53	2153.48	0.15
raymondville	reach 1	49102.0*	8075.00	7.67	19.17	15.87	19.19	0.000178	1.66	8515.62	2496.08	0.12
raymondville	reach 1	48700	1379.00	7.60	16.76	10.51	16.83	0.000258	2.14	644.38	90.67	0.14
raymondville	reach 1	48700	2028.00	7.60	17.39	11.24	17.52	0.000435	2.88	703.20	93.23	0.19
raymondville	reach 1	48700	3083.00	7.60	17.93	12.27	18.19	0.000824	4.09	753.45	95.36	0.26
raymondville	reach 1	48700	8075.00	7.60	19.10	15.80	19.11	0.000167	1.62	8703.17	2509.54	0.11
raymondville	reach 1	48516.6*	1379.00	7.57	16.71	10.49	16.78	0.000260	2.15	642.63	90.60	0.14
raymondville	reach 1	48516.6*	2028.00	7.57	17.31	11.21	17.44	0.000444	2.91	697.90	93.01	0.19
raymondville	reach 1	48516.6*	3083.00	7.57	17.76	12.24	18.03	0.000868	4.17	739.91	94.80	0.26
raymondville	reach 1	48516.6*	8075.00	7.57	19.07	15.77	19.08	0.000169	1.66	8721.67	2564.78	0.11
raymondville	reach 1	48333.3*	1379.00	7.54	16.66	10.46	16.73	0.000262	2.15	640.85	90.52	0.14
raymondville	reach 1	48333.3*	2028.00	7.54	17.22	11.18	17.36	0.000454	2.93	692.58	92.78	0.19
raymondville	reach 1	48333.3*	3083.00	7.54	17.57	12.21	17.85	0.000919	4.25	725.14	94.17	0.27
raymondville	reach 1	48333.3*	8075.00	7.54	19.04	15.74	19.06	0.000175	1.72	8837.31	2922.33	0.12
raymondville	reach 1	48150	1379.00	7.51	16.61	10.42	16.68	0.000264	2.18	639.34	90.45	0.14
raymondville	reach 1	48150	2028.00	7.51	17.14	11.15	17.27	0.000464	2.95	687.55	92.56	0.19
raymondville	reach 1	48150	3083.00	7.51	17.39	12.18	17.68	0.000974	4.34	710.76	93.56	0.28
raymondville	reach 1	48150	8075.00	7.51	19.01	15.71	19.03	0.000170	1.73	9125.38	3194.08	0.12
raymondville	reach 1	47896.*	1379.00	7.43	16.48	10.35	16.55	0.000272	2.17	635.16	91.12	0.14
raymondville	reach 1	47896.*	2028.00	7.43	16.86	11.08	17.00	0.000733	3.00	676.86	2253.86	0.23
raymondville	reach 1	47896.*	3083.00	7.43	17.42	12.10	17.43	0.000152	1.45	4581.07	2375.81	0.11
raymondville	reach 1	47896.*	8075.00	7.43	18.89	15.63	18.91	0.000197	1.92	8768.13	3505.30	0.13
raymondville	reach 1	47222.*	1379.00	7.36	16.33	10.28	16.40	0.000383	2.13	646.88	1927.97	0.17
raymondville	reach 1	47222.*	2028.00	7.36	16.80	11.01	16.81	0.000164	1.47	3043.55	2112.38	0.11
raymondville	reach 1	47222.*	3083.00	7.36	17.31	12.04	17.33	0.000177	1.62	4257.58	2550.09	0.12
raymondville	reach 1	47222.*	8075.00	7.36	18.77	16.21	18.80	0.000213	2.05	8681.00	3764.70	0.13
raymondville	reach 1	46758.*	1379.00	7.28	16.28	10.20	16.30	0.000105	1.16	2278.75	1378.76	0.09
raymondville	reach 1	46758.*	2028.00	7.28	16.73	10.93	16.74	0.000129	1.36	2999.98	1898.88	0.10
raymondville	reach 1	46758.*	3083.00	7.28	17.21	11.96	17.23	0.000187	1.72	4094.91	2493.54	0.12
raymondville	reach 1	46758.*	8075.00	7.28	18.65	16.02	18.68	0.000215	2.11	8779.32	3736.42	0.13
raymondville	reach 1	46294.*	1379.00	7.21	16.25	10.13	16.26	0.000068	0.97	2750.11	1542.42	0.07
raymondville	reach 1	46294.*	2028.00	7.21	16.68	10.86	16.69	0.000090	1.18	3451.58	1808.94	0.08
raymondville	reach 1	46294.*	3083.00	7.21	17.14	11.88	17.15	0.000123	1.44	4425.50	2288.09	0.10
raymondville	reach 1	46294.*	8075.00	7.21	18.54	15.51	18.57	0.000211	2.14	8979.73	3765.56	0.13
raymondville	reach 1	45830	1379.00	7.13	16.23	10.04	16.23	0.000040	0.78	3460.61	1847.87	0.06
raymondville	reach 1	45830	2028.00	7.13	16.65	10.77	16.65	0.000057	0.97	4263.99	2000.42	0.07



HFC-RAC Plan P 50% D (Continued)

River	Reach	River Sta	Q.Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	45830	3083.00	7.13	17.09	11.80	17.10	0.000085	1.24	5198.75	2380.27	0.08
raymondville	reach 1	45830	8075.00	7.13	18.45	15.00	18.48	0.000194	2.11	9289.65	3724.06	0.13
raymondville	reach 1	45414.*	1379.00	7.06	16.20	9.97	16.21	0.000042	0.80	3444.77	1910.18	0.06
raymondville	reach 1	45414.*	2028.00	7.06	16.62	10.70	16.62	0.000059	0.99	4269.74	2061.68	0.07
raymondville	reach 1	45414.*	3083.00	7.06	17.05	11.73	17.06	0.000086	1.25	5197.37	2281.05	0.08
raymondville	reach 1	45414.*	8075.00	7.06	18.38	15.00	18.41	0.000180	2.03	9557.38	3776.82	0.12
raymondville	reach 1	44998.*	1379.00	6.99	16.18	9.91	16.19	0.000045	0.84	3457.71	2023.19	0.06
raymondville	reach 1	44998.*	2028.00	6.99	16.59	10.63	16.59	0.000060	1.00	4292.31	2119.09	0.07
raymondville	reach 1	44998.*	3083.00	6.99	17.02	11.66	17.03	0.000095	1.32	5297.31	2726.36	0.09
raymondville	reach 1	44998.*	8075.00	6.99	18.32	15.00	18.34	0.000169	1.96	9904.06	4211.33	0.12
raymondville	reach 1	44582.*	1379.00	6.93	16.15	9.84	16.16	0.000047	0.85	3477.69	2096.29	0.06
raymondville	reach 1	44582.*	2028.00	6.93	16.56	10.57	16.56	0.000072	1.10	4408.33	2703.11	0.07
raymondville	reach 1	44582.*	3083.00	6.93	16.98	11.60	16.99	0.000094	1.31	5597.69	2890.94	0.09
raymondville	reach 1	44582.*	8075.00	6.93	18.26	15.00	18.27	0.000157	1.89	10691.21	4439.31	0.11
raymondville	reach 1	44186.*	1379.00	6.86	16.13	9.77	16.13	0.000054	0.92	3620.12	2715.79	0.06
raymondville	reach 1	44186.*	2028.00	6.86	16.52	10.50	16.53	0.000063	1.03	4724.81	2811.32	0.07
raymondville	reach 1	44186.*	3083.00	6.86	16.94	11.53	16.95	0.000081	1.22	6082.18	3763.13	0.08
raymondville	reach 1	44186.*	8075.00	6.86	18.21	15.00	18.22	0.000125	1.68	11546.37	4439.09	0.10
raymondville	reach 1	43750	1379.00	6.79	16.10	9.70	16.10	0.000045	0.84	4033.88	3411.95	0.06
raymondville	reach 1	43750	2028.00	6.79	16.49	10.43	16.50	0.000051	0.93	5429.60	3611.31	0.06
raymondville	reach 1	43750	3083.00	6.79	16.90	11.46	16.91	0.000071	1.14	6987.98	3998.02	0.08
raymondville	reach 1	43750	8075.00	6.79	18.16	15.00	18.17	0.000100	1.51	12404.17	4439.10	0.09
raymondville	reach 1	43313.6*	1379.00	6.72	16.07		16.07	0.000061	0.96	3524.66	3343.68	0.07
raymondville	reach 1	43313.6*	2028.00	6.72	16.46		16.47	0.000067	1.05	4924.73	3722.27	0.07
raymondville	reach 1	43313.6*	3083.00	6.72	16.87		16.88	0.000086	1.24	6498.01	3977.38	0.08
raymondville	reach 1	43313.6*	8075.00	6.72	18.11		18.13	0.000115	1.59	11877.71	4448.02	0.10
raymondville	reach 1	42877.2*	1379.00	6.65	16.03		16.04	0.000086	1.12	2998.04	3368.64	0.08
raymondville	reach 1	42877.2*	2028.00	6.65	16.42		16.43	0.000096	1.24	4433.32	3806.70	0.09
raymondville	reach 1	42877.2*	3083.00	6.65	16.82		16.83	0.000108	1.36	5970.02	3937.15	0.09
raymondville	reach 1	42877.2*	8075.00	6.65	18.06		18.07	0.000134	1.70	11316.76	4472.91	0.11
raymondville	reach 1	42440.8*	1379.00	6.57	15.96		15.99	0.000130	1.35	2451.87	3203.25	0.10
raymondville	reach 1	42440.8*	2028.00	6.57	16.37		16.38	0.000125	1.39	3912.72	3724.01	0.10
raymondville	reach 1	42440.8*	3083.00	6.57	16.76		16.77	0.000138	1.52	5396.47	3847.86	0.10
raymondville	reach 1	42440.8*	8075.00	6.57	17.99		18.01	0.000159	1.83	10718.18	4526.56	0.11
raymondville	reach 1	42004.4*	1379.00	6.50	15.89		15.91	0.000172	1.53	1917.07	2622.09	0.11
raymondville	reach 1	42004.4*	2028.00	6.50	16.30		16.32	0.000172	1.60	3346.87	3697.12	0.11
raymondville	reach 1	42004.4*	3083.00	6.50	16.68		16.70	0.000184	1.72	4767.86	3750.12	0.12
raymondville	reach 1	42004.4*	8075.00	6.50	17.91		17.93	0.000204	2.04	10227.22	5443.37	0.13
raymondville	reach 1	41568	1379.00	6.43	15.79		15.83	0.000220	1.69	1498.21	2010.91	0.13
raymondville	reach 1	41568	2028.00	6.43	16.19		16.23	0.000259	1.92	2653.07	3659.27	0.14
raymondville	reach 1	41568	3083.00	6.43	16.58		16.61	0.000264	2.02	4072.52	3721.38	0.14
raymondville	reach 1	41568	8075.00	6.43	17.83		17.85	0.000213	2.05	10612.49	6000.00	0.13
raymondville	reach 1	39543	1379.00	6.10	15.62		15.62	0.000055	0.70	4950.07	5100.64	0.06
raymondville	reach 1	39543	2028.00	6.10	16.02		16.02	0.000050	0.71	7033.92	6000.00	0.06
raymondville	reach 1	39543	3083.00	6.10	16.39		16.39	0.000054	0.78	9244.04	6000.00	0.06
raymondville	reach 1	39543	8075.00	6.10	17.63		17.63	0.000061	0.96	16662.43	6000.00	0.07
raymondville	reach 1	37135	1379.00	5.71	15.55	8.63	15.55	0.000017	0.47	6466.45	4749.90	0.04
raymondville	reach 1	37135	2028.00	5.71	15.95	9.35	15.95	0.000020	0.54	8453.75	5104.93	0.04
raymondville	reach 1	37135	3083.00	5.71	16.29	10.38	16.29	0.000031	0.70	10242.68	5378.81	0.05
raymondville	reach 1	37135	8075.00	5.71	17.49	13.91	17.49	0.000053	1.03	16885.75	5694.04	0.07
raymondville	reach 1	34845	1714.00	5.33	15.40		15.44	0.000220	1.73	2510.61	4563.81	0.13
raymondville	reach 1	34845	2255.00	5.33	15.83		15.85	0.000135	1.42	4499.93	4727.52	0.10
raymondville	reach 1	34845	2856.00	5.33	16.16		16.17	0.000108	1.32	6063.59	4856.38	0.09
raymondville	reach 1	34845	7259.00	5.33	17.31		17.33	0.000120	1.55	12176.96	6000.00	0.10
raymondville	reach 1	34786	1714.00	5.32	15.38		15.42	0.000242	1.81	2317.11	4556.48	0.13
raymondville	reach 1	34786	2255.00	5.32	15.82		15.84	0.000145	1.48	4335.59	4722.59	0.10
raymondville	reach 1	34786	2856.00	5.32	16.15		16.16	0.000114	1.36	5918.32	4853.13	0.09
raymondville	reach 1	34786	7259.00	5.32	17.31		17.32	0.000123	1.57	12023.85	6000.00	0.10
raymondville	reach 1	32585	1714.00	4.96	14.67		14.74	0.000408	2.28	1043.70	1133.11	0.17
raymondville	reach 1	32585	2255.00	4.96	15.39		15.43	0.000246	1.92	2999.29	3852.55	0.14
raymondville	reach 1	32585	2856.00	4.96	15.85		15.87	0.000155	1.60	4837.07	4106.89	0.11
raymondville	reach 1	32585	7259.00	4.96	17.00		17.01	0.000157	1.79	10802.48	5488.50	0.11
raymondville	reach 1	30584	1714.00	4.63	13.82		13.93	0.000393	2.65	651.73	114.58	0.17

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	30564	2255.00	4.63	14.61		14.75	0.000475	3.05	912.78	898.14	0.19
raymondville	reach 1	30564	2856.00	4.63	15.25		15.37	0.000441	3.04	2048.00	3095.80	0.19
raymondville	reach 1	30564	7259.00	4.63	18.54		16.57	0.000304	2.32	8905.81	6000.00	0.15
raymondville	reach 1	29170	1714.00	4.40	13.22		13.34	0.000459	2.79	613.82	89.31	0.19
raymondville	reach 1	29170	2255.00	4.40	13.81		13.99	0.000623	3.38	668.09	91.71	0.22
raymondville	reach 1	29170	2856.00	4.40	14.30		14.55	0.000830	4.01	712.64	93.63	0.26
raymondville	reach 1	29170	7259.00	4.40	16.00		16.07	0.000612	3.24	6769.10	6000.00	0.22
raymondville	reach 1	28867.7*	1714.00	4.35	13.07		13.19	0.000482	2.83	605.36	89.47	0.19
raymondville	reach 1	28867.7*	2255.00	4.35	13.61		13.79	0.000689	3.45	654.05	91.93	0.23
raymondville	reach 1	28867.7*	2856.00	4.35	14.02		14.28	0.000903	4.10	744.36	444.14	0.27
raymondville	reach 1	28867.7*	7259.00	4.35	15.80		15.89	0.000689	3.51	6282.37	6000.00	0.23
raymondville	reach 1	28565.5*	1714.00	4.30	12.92		13.04	0.000497	2.83	665.41	316.05	0.19
raymondville	reach 1	28565.5*	2255.00	4.30	13.40		13.55	0.000888	3.24	889.85	549.79	0.25
raymondville	reach 1	28565.5*	2856.00	4.30	13.80		13.97	0.000980	3.56	1127.59	630.05	0.27
raymondville	reach 1	28565.5*	7259.00	4.30	15.59		15.69	0.000739	3.70	5738.40	5786.85	0.24
raymondville	reach 1	28263.2*	1714.00	4.25	12.81		12.88	0.000468	2.31	1071.21	578.72	0.18
raymondville	reach 1	28263.2*	2255.00	4.25	13.24		13.32	0.000525	2.57	1331.64	633.89	0.19
raymondville	reach 1	28263.2*	2856.00	4.25	13.62		13.72	0.000606	2.87	1589.04	750.20	0.21
raymondville	reach 1	28263.2*	7259.00	4.25	15.38		15.49	0.000715	3.70	5492.24	5204.39	0.24
raymondville	reach 1	27961	1714.00	4.20	12.74		12.77	0.000235	1.70	1570.27	639.60	0.13
raymondville	reach 1	27961	2255.00	4.20	13.16		13.20	0.000290	1.98	1851.90	746.39	0.15
raymondville	reach 1	27961	2856.00	4.20	13.52		13.57	0.000338	2.21	2139.81	816.85	0.16
raymondville	reach 1	27961	7259.00	4.20	15.19		15.28	0.000846	3.57	5478.46	4782.91	0.23
raymondville	reach 1	27505.2*	1714.00	4.13	12.63		12.67	0.000249	1.74	1577.57	724.39	0.13
raymondville	reach 1	27505.2*	2255.00	4.13	13.03		13.07	0.000298	1.98	1886.89	821.50	0.15
raymondville	reach 1	27505.2*	2856.00	4.13	13.38		13.42	0.000337	2.19	2179.60	860.85	0.16
raymondville	reach 1	27505.2*	7259.00	4.13	14.90		14.99	0.000635	3.49	5891.28	5108.96	0.23
raymondville	reach 1	27049.4*	1714.00	4.05	12.52		12.55	0.000265	1.74	1619.24	824.81	0.14
raymondville	reach 1	27049.4*	2255.00	4.05	12.90		12.94	0.000289	1.94	1946.59	884.49	0.15
raymondville	reach 1	27049.4*	2856.00	4.05	13.23		13.28	0.000330	2.15	2300.04	1260.16	0.16
raymondville	reach 1	27049.4*	7259.00	4.05	14.67		14.73	0.000470	2.98	6901.93	5380.90	0.19
raymondville	reach 1	26593.6*	1714.00	3.98	12.42		12.45	0.000234	1.66	1768.68	1096.39	0.13
raymondville	reach 1	26593.6*	2255.00	3.98	12.79		12.82	0.000256	1.82	2228.49	1364.94	0.14
raymondville	reach 1	26593.6*	2856.00	3.98	13.10		13.14	0.000304	2.06	2733.16	2183.10	0.15
raymondville	reach 1	26593.6*	7259.00	3.98	14.54		14.57	0.000267	2.24	8709.15	5131.83	0.15
raymondville	reach 1	26137.8*	1714.00	3.90	12.34		12.36	0.000185	1.48	2192.22	1558.28	0.12
raymondville	reach 1	26137.8*	2255.00	3.90	12.68		12.71	0.000244	1.77	2932.80	3244.14	0.13
raymondville	reach 1	26137.8*	2856.00	3.90	13.00		13.02	0.000218	1.74	4116.03	4080.54	0.13
raymondville	reach 1	26137.8*	7259.00	3.90	14.46		14.47	0.000140	1.62	10876.60	4909.53	0.11
raymondville	reach 1	25682	1714.00	3.83	12.28		12.30	0.000131	1.25	3534.63	4063.17	0.10
raymondville	reach 1	25682	2255.00	3.83	12.63		12.64	0.000105	1.17	4956.18	4115.05	0.09
raymondville	reach 1	25682	2856.00	3.83	12.95		12.96	0.000091	1.13	6283.81	4163.46	0.08
raymondville	reach 1	25682	7259.00	3.83	14.43		14.43	0.000078	1.22	13232.35	4899.50	0.08
raymondville	reach 1	25281.*	1714.00	3.76	12.25		12.25	0.000100	1.11	4044.36	4054.57	0.09
raymondville	reach 1	25281.*	2255.00	3.76	12.80		12.81	0.000082	1.05	5490.53	4121.23	0.08
raymondville	reach 1	25281.*	2856.00	3.76	12.92		12.93	0.000081	1.08	6893.04	4654.45	0.08
raymondville	reach 1	25281.*	7259.00	3.76	14.40		14.41	0.000074	1.20	14400.93	6000.00	0.08
raymondville	reach 1	24880.*	1714.00	3.70	12.22		12.22	0.000071	0.95	4652.36	3810.09	0.07
raymondville	reach 1	24880.*	2255.00	3.70	12.57		12.58	0.000065	0.95	6081.35	4209.63	0.07
raymondville	reach 1	24880.*	2856.00	3.70	12.90		12.91	0.000063	0.97	7572.73	4663.09	0.07
raymondville	reach 1	24880.*	7259.00	3.70	14.38		14.39	0.000058	1.08	15688.30	6000.00	0.07
raymondville	reach 1	24479.*	1714.00	3.63	12.20		12.20	0.000051	0.82	5339.50	3891.36	0.06
raymondville	reach 1	24479.*	2255.00	3.63	12.56		12.56	0.000048	0.83	6808.78	4400.81	0.06
raymondville	reach 1	24479.*	2856.00	3.63	12.89		12.89	0.000049	0.87	8396.18	4996.58	0.06
raymondville	reach 1	24479.*	7259.00	3.63	14.36		14.37	0.000046	0.97	16937.71	6000.00	0.06
raymondville	reach 1	24078.*	1714.00	3.57	12.18		12.19	0.000037	0.70	6186.50	4144.97	0.05
raymondville	reach 1	24078.*	2255.00	3.57	12.54		12.54	0.000036	0.73	7758.83	4865.35	0.05
raymondville	reach 1	24078.*	2856.00	3.57	12.87		12.87	0.000037	0.77	9425.27	5466.29	0.05
raymondville	reach 1	24078.*	7259.00	3.57	14.34		14.34	0.000037	0.88	18200.47	6000.00	0.06
raymondville	reach 1	23677	1714.00	3.50	12.16		12.17	0.000027	0.60	7145.76	4682.75	0.04
raymondville	reach 1	23677	2255.00	3.50	12.52		12.53	0.000026	0.62	8905.42	5218.65	0.04
raymondville	reach 1	23677	2856.00	3.50	12.85		12.85	0.000027	0.66	10699.55	5674.64	0.05
raymondville	reach 1	23677	7259.00	3.50	14.32		14.32	0.000030	0.80	19463.71	6000.00	0.05

HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	21680	1714.00	3.17	12.13		12.13	0.000013	0.42	10238.61	6000.00	0.03
raymondville	reach 1	21680	2255.00	3.17	12.49		12.50	0.000012	0.42	12410.19	6000.00	0.03
raymondville	reach 1	21680	2856.00	3.17	12.82		12.82	0.000013	0.44	14380.32	6000.00	0.03
raymondville	reach 1	21680	7259.00	3.17	14.28		14.28	0.000018	0.60	23116.21	6000.00	0.04
raymondville	reach 1	19606	1714.00	2.83	12.11		12.11	0.000013	0.42	10017.37	5923.16	0.03
raymondville	reach 1	19606	2255.00	2.83	12.48		12.48	0.000012	0.43	12228.52	6000.00	0.03
raymondville	reach 1	19606	2856.00	2.83	12.80		12.80	0.000013	0.45	14140.04	6000.00	0.03
raymondville	reach 1	19606	7259.00	2.83	14.25		14.25	0.000018	0.61	22848.45	6000.00	0.04
raymondville	reach 1	19152.2*	1714.00	2.75	12.10		12.10	0.000014	0.45	9715.97	6000.00	0.03
raymondville	reach 1	19152.2*	2255.00	2.75	12.46		12.46	0.000013	0.45	11917.39	6000.00	0.03
raymondville	reach 1	19152.2*	2856.00	2.75	12.78		12.78	0.000014	0.47	13843.21	6000.00	0.03
raymondville	reach 1	19152.2*	7259.00	2.75	14.23		14.23	0.000019	0.63	22540.89	6000.00	0.04
raymondville	reach 1	18698.5*	1714.00	2.68	12.08		12.08	0.000016	0.47	9418.09	6000.00	0.03
raymondville	reach 1	18698.5*	2255.00	2.68	12.45		12.45	0.000015	0.47	11607.85	6000.00	0.03
raymondville	reach 1	18698.5*	2856.00	2.68	12.77		12.77	0.000015	0.49	13547.96	6000.00	0.03
raymondville	reach 1	18698.5*	7259.00	2.68	14.22		14.22	0.000020	0.64	22234.52	6000.00	0.04
raymondville	reach 1	18244.7*	1714.00	2.61	12.07		12.07	0.000017	0.49	9110.37	6000.00	0.04
raymondville	reach 1	18244.7*	2255.00	2.61	12.43		12.43	0.000016	0.49	11288.46	6000.00	0.03
raymondville	reach 1	18244.7*	2856.00	2.61	12.76		12.76	0.000016	0.51	13242.88	6000.00	0.03
raymondville	reach 1	18244.7*	7259.00	2.61	14.20		14.20	0.000021	0.66	21918.51	6000.00	0.04
raymondville	reach 1	17791.*	1714.00	2.53	12.05		12.05	0.000019	0.52	8812.48	6000.00	0.04
raymondville	reach 1	17791.*	2255.00	2.53	12.41		12.42	0.000017	0.52	10978.92	6000.00	0.04
raymondville	reach 1	17791.*	2856.00	2.53	12.74		12.74	0.000017	0.53	12947.63	6000.00	0.04
raymondville	reach 1	17791.*	7259.00	2.53	14.19		14.19	0.000022	0.68	21612.34	6000.00	0.04
raymondville	reach 1	17337.2*	1714.00	2.45	12.04		12.04	0.000021	0.55	8516.46	6000.00	0.04
raymondville	reach 1	17337.2*	2255.00	2.45	12.40		12.40	0.000019	0.54	10671.24	6000.00	0.04
raymondville	reach 1	17337.2*	2856.00	2.45	12.73		12.73	0.000018	0.55	12654.25	6000.00	0.04
raymondville	reach 1	17337.2*	7259.00	2.45	14.17		14.17	0.000023	0.70	21308.04	6000.00	0.04
raymondville	reach 1	16883.5*	1714.00	2.38	12.03		12.03	0.000024	0.58	8210.00	6000.00	0.04
raymondville	reach 1	16883.5*	2255.00	2.38	12.38		12.38	0.000021	0.57	10353.11	6000.00	0.04
raymondville	reach 1	16883.5*	2856.00	2.38	12.72		12.72	0.000020	0.57	12350.42	6000.00	0.04
raymondville	reach 1	16883.5*	7259.00	2.38	14.16		14.16	0.000024	0.71	20993.29	6000.00	0.04
raymondville	reach 1	16429.7*	1714.00	2.31	12.00		12.01	0.000027	0.62	7863.27	6000.00	0.04
raymondville	reach 1	16429.7*	2255.00	2.31	12.37		12.37	0.000023	0.60	10041.55	6000.00	0.04
raymondville	reach 1	16429.7*	2856.00	2.31	12.70		12.70	0.000021	0.59	12053.16	6000.00	0.04
raymondville	reach 1	16429.7*	7259.00	2.31	14.14		14.14	0.000025	0.73	20685.10	6000.00	0.05
raymondville	reach 1	15976	1714.00	2.23	11.98		11.98	0.000029	0.64	7522.41	5762.30	0.05
raymondville	reach 1	15976	2255.00	2.23	12.35		12.35	0.000025	0.62	9731.48	6000.00	0.04
raymondville	reach 1	15976	2856.00	2.23	12.68		12.69	0.000023	0.62	11757.39	6000.00	0.04
raymondville	reach 1	15976	7259.00	2.23	14.12		14.13	0.000026	0.75	20378.41	6000.00	0.05
raymondville	reach 1	15517.2*	1714.00	2.16	11.94		11.96	0.000132	1.39	3703.64	5538.15	0.10
raymondville	reach 1	15517.2*	2255.00	2.16	12.32		12.33	0.000087	1.17	5882.29	5711.75	0.08
raymondville	reach 1	15517.2*	2856.00	2.16	12.67		12.67	0.000069	1.08	7865.54	6000.00	0.07
raymondville	reach 1	15517.2*	7259.00	2.16	14.10		14.10	0.000050	1.05	16469.44	6000.00	0.06
raymondville	reach 1	15058.4*	1714.00	2.08	11.82		11.87	0.000256	1.92	1508.19	1757.45	0.14
raymondville	reach 1	15058.4*	2255.00	2.08	12.22		12.26	0.000266	2.04	2480.78	3334.25	0.14
raymondville	reach 1	15058.4*	2856.00	2.08	12.58		12.62	0.000238	2.00	3938.84	4873.07	0.14
raymondville	reach 1	15058.4*	7259.00	2.08	14.06		14.07	0.000112	1.57	12477.44	6000.00	0.10
raymondville	reach 1	14599.6*	1714.00	2.01	11.68		11.73	0.000291	2.03	1232.99	763.58	0.15
raymondville	reach 1	14599.6*	2255.00	2.01	12.05		12.12	0.000350	2.32	1559.95	1250.95	0.16
raymondville	reach 1	14599.6*	2856.00	2.01	12.40		12.47	0.000393	2.55	2131.76	2029.68	0.17
raymondville	reach 1	14599.6*	7259.00	2.01	13.95		13.99	0.000303	2.57	8052.72	5870.67	0.16
raymondville	reach 1	14140.8*	1714.00	1.93	11.53		11.59	0.000322	2.12	1101.86	656.86	0.15
raymondville	reach 1	14140.8*	2255.00	1.93	11.85		11.94	0.000414	2.49	1333.88	748.42	0.18
raymondville	reach 1	14140.8*	2856.00	1.93	12.17		12.27	0.000498	2.82	1576.59	795.65	0.20
raymondville	reach 1	14140.8*	7259.00	1.93	13.65		13.77	0.000703	3.84	4608.66	3226.77	0.24
raymondville	reach 1	13682	1714.00	1.86	11.37		11.44	0.000350	2.18	1008.04	528.14	0.16
raymondville	reach 1	13682	2255.00	1.86	11.63		11.73	0.000486	2.65	1160.21	615.43	0.19
raymondville	reach 1	13682	2856.00	1.86	11.88		12.01	0.000633	3.11	1323.90	713.65	0.22
raymondville	reach 1	13682	7259.00	1.86	12.96		13.29	0.001575	5.45	2317.48	1442.29	0.35
raymondville	reach 1	11672	1714.00	1.53	10.91		10.94	0.000176	1.52	3110.62	4478.22	0.11
raymondville	reach 1	11672	2255.00	1.53	11.16		11.18	0.000186	1.52	4277.29	4718.76	0.11
raymondville	reach 1	11672	2856.00	1.53	11.40		11.42	0.000156	1.52	5401.95	4832.00	0.11
raymondville	reach 1	11672	7259.00	1.53	12.30		12.31	0.000203	1.89	9955.04	5302.67	0.13

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/n)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
raymondville	reach 1	9670	1714.00	1.20	10.34		10.40	0.000425	2.22	1627.95	3473.45	0.17
raymondville	reach 1	9670	2255.00	1.20	10.72		10.76	0.000279	1.89	3335.57	4974.57	0.14
raymondville	reach 1	9670	2856.00	1.20	11.05		11.07	0.000197	1.65	4948.82	4988.98	0.12
raymondville	reach 1	9670	7259.00	1.20	11.83		11.85	0.000271	2.10	8860.58	5023.75	0.14
raymondville	reach 1	6234	1714.00	0.64	8.37		8.54	0.000749	3.30	518.92	84.98	0.24
raymondville	reach 1	6234	2255.00	0.64	8.91		9.15	0.001009	3.99	565.55	87.13	0.28
raymondville	reach 1	6234	2856.00	0.64	9.51	5.09	9.71	0.001300	3.90	1512.63	3570.69	0.30
raymondville	reach 1	6234	7259.00	0.64	10.84		10.86	0.000341	2.33	8788.02	6000.00	0.16
raymondville	reach 1	4339	1714.00	0.31	7.55	3.81	7.57	0.000310	1.18	1447.37	591.68	0.13
raymondville	reach 1	4339	2255.00	0.31	7.92	4.20	7.95	0.000363	1.34	1677.41	638.31	0.15
raymondville	reach 1	4339	2856.00	0.31	8.27	5.46	8.30	0.000413	1.50	1907.36	680.49	0.16
raymondville	reach 1	4339	7259.00	0.31	9.81	6.59	9.90	0.000714	2.39	3037.40	810.57	0.22
raymondville	reach 1	4300	1714.00	0.30	7.53	3.60	7.56	0.000318	1.19	1435.04	590.10	0.13
raymondville	reach 1	4300	2255.00	0.30	7.91	4.19	7.93	0.000372	1.36	1663.07	636.45	0.15
raymondville	reach 1	4300	2856.00	0.30	8.25	5.49	8.29	0.000424	1.51	1890.92	679.46	0.16
raymondville	reach 1	4300	7259.00	0.30	9.78	6.57	9.87	0.000732	2.41	3007.78	805.98	0.22
raymondville	reach 1	3878.00*	1714.00	0.23	7.38		7.40	0.000372	1.28	1335.20	554.59	0.15
raymondville	reach 1	3878.00*	2255.00	0.23	7.73		7.76	0.000434	1.47	1537.04	586.85	0.16
raymondville	reach 1	3878.00*	2856.00	0.23	8.05		8.09	0.000488	1.65	1728.20	603.07	0.17
raymondville	reach 1	3878.00*	7259.00	0.23	9.46		9.55	0.000785	2.53	3657.83	2840.00	0.23
raymondville	reach 1	3456.00*	1714.00	0.16	7.21		7.24	0.000419	1.41	1216.84	480.84	0.16
raymondville	reach 1	3456.00*	2255.00	0.16	7.52		7.56	0.000508	1.65	1382.54	648.38	0.17
raymondville	reach 1	3456.00*	2856.00	0.16	7.81		7.87	0.000612	1.86	1598.26	851.34	0.19
raymondville	reach 1	3456.00*	7259.00	0.16	9.18		9.25	0.000633	2.39	4615.22	2820.02	0.21
raymondville	reach 1	3034.00*	1714.00	0.09	6.99		7.03	0.000540	1.82	1145.94	921.56	0.18
raymondville	reach 1	3034.00*	2255.00	0.09	7.28		7.33	0.000571	1.79	1675.32	1901.01	0.19
raymondville	reach 1	3034.00*	2856.00	0.09	7.57		7.62	0.000547	1.86	2240.99	2009.77	0.18
raymondville	reach 1	3034.00*	7259.00	0.09	8.98		9.02	0.000423	2.10	5818.63	2860.38	0.17
raymondville	reach 1	2612.00*	1714.00	0.02	6.84		6.86	0.000307	1.41	2172.83	2204.72	0.14
raymondville	reach 1	2612.00*	2255.00	0.02	7.14		7.16	0.000265	1.44	2834.88	2238.12	0.14
raymondville	reach 1	2612.00*	2856.00	0.02	7.44		7.45	0.000264	1.46	3509.37	2277.21	0.13
raymondville	reach 1	2612.00*	7259.00	0.02	8.86		8.88	0.000253	1.77	7220.98	2870.48	0.14
raymondville	reach 1	2190	1714.00	-0.05	6.78		6.79	0.000097	0.99	3642.65	2179.82	0.08
raymondville	reach 1	2190	2255.00	-0.05	7.07		7.08	0.000113	1.12	4299.49	2443.63	0.09
raymondville	reach 1	2190	2856.00	-0.05	7.37		7.38	0.000115	1.17	5037.81	2479.29	0.09
raymondville	reach 1	2190	7259.00	-0.05	8.78		8.79	0.000157	1.61	8747.43	2913.11	0.11
raymondville	reach 1	0	1714.00	-0.41	6.51	2.89	6.52	0.000160	1.16	3264.59	2522.02	0.10
raymondville	reach 1	0	2255.00	-0.41	6.78	3.48	6.79	0.000160	1.21	3950.11	2543.12	0.10
raymondville	reach 1	0	2856.00	-0.41	7.08	5.55	7.09	0.000160	1.27	4757.25	3325.34	0.10
raymondville	reach 1	0	7259.00	-0.41	8.43	5.14	8.44	0.000160	1.51	9370.64	3429.49	0.11
North Main	reach 4	331370	410.00	96.81	103.97	99.87	104.06	0.000492	2.44	168.35	36.91	0.20
North Main	reach 4	331370	573.00	96.81	105.23	100.50	105.34	0.000479	2.63	217.96	41.60	0.20
North Main	reach 4	331370	770.00	96.81	106.53	101.12	106.66	0.000463	2.80	275.18	46.43	0.20
North Main	reach 4	331370	1392.00	96.81	109.54	102.69	109.70	0.000453	3.23	431.50	57.59	0.21
North Main	reach 4	330227	410.00	96.76	103.48	99.35	103.55	0.000399	2.23	183.83	39.69	0.18
North Main	reach 4	330227	573.00	96.76	104.76	99.90	104.85	0.000387	2.41	237.54	44.25	0.18
North Main	reach 4	330227	770.00	96.76	106.07	100.47	106.18	0.000374	2.58	298.96	48.95	0.18
North Main	reach 4	330227	1392.00	96.76	109.08	101.93	109.23	0.000374	3.01	462.46	59.45	0.19
North Main	reach 4	330128	410.00	96.76	103.44	99.26	103.52	0.000413	2.31	177.44	36.28	0.18
North Main	reach 4	330128	573.00	96.76	104.71	99.81	104.81	0.000421	2.53	226.49	40.84	0.19
North Main	reach 4	330128	770.00	96.76	106.02	100.40	106.13	0.000423	2.72	283.12	45.91	0.19
North Main	reach 4	330128	1392.00	96.76	109.02	101.86	109.18	0.000435	3.17	438.74	57.61	0.20
North Main	reach 4	330078	410.00	96.76	103.41	99.26	103.50	0.000419	2.32	176.65	36.22	0.19
North Main	reach 4	330078	573.00	96.76	104.69	99.80	104.79	0.000426	2.54	225.58	40.75	0.19
North Main	reach 4	330078	770.00	96.76	106.00	100.39	106.11	0.000427	2.73	282.09	45.83	0.19
North Main	reach 4	330078	1392.00	96.76	109.00	101.86	109.16	0.000438	3.18	437.41	57.52	0.20
North Main	reach 4	329975	410.00	97.01	103.29	100.02	103.43	0.000858	3.01	136.16	32.79	0.26
North Main	reach 4	329975	573.00	97.01	104.57	100.64	104.73	0.000776	3.16	181.05	37.34	0.25
North Main	reach 4	329975	770.00	97.01	105.88	101.29	106.05	0.000711	3.31	232.97	41.99	0.25
North Main	reach 4	329975	1392.00	97.01	108.88	102.88	109.10	0.000648	3.71	375.18	52.67	0.25
North Main	reach 4	328000	410.00	95.26	102.35	97.87	102.42	0.000330	2.09	196.40	40.45	0.17
North Main	reach 4	328000	573.00	95.26	103.69	98.42	103.76	0.000321	2.26	253.61	45.11	0.17
North Main	reach 4	328000	770.00	95.26	105.04	99.00	105.13	0.000313	2.42	317.95	49.83	0.17

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # CH
North Main	reach 4	328000	1392.00	95.26	108.06	100.47	108.19	0.000329	2.88	484.17	60.35	0.18
North Main	reach 4	328000	410.00	94.56	101.63	97.39	101.70	0.000385	2.19	187.83	40.83	0.18
North Main	reach 4	328000	573.00	94.56	103.01	97.95	103.09	0.000354	2.31	247.67	46.27	0.18
North Main	reach 4	328000	770.00	94.56	104.39	98.54	104.49	0.000332	2.44	315.63	51.75	0.17
North Main	reach 4	328000	1392.00	94.56	107.40	100.02	107.52	0.000335	2.85	488.77	63.48	0.18
North Main	reach 4	324083	410.00	94.05	101.03	96.40	101.09	0.000267	1.90	216.21	44.36	0.15
North Main	reach 4	324083	573.00	94.05	102.46	96.92	102.52	0.000249	2.02	283.23	49.81	0.15
North Main	reach 4	324083	770.00	94.05	103.87	97.47	103.95	0.000238	2.15	357.59	55.24	0.15
North Main	reach 4	324083	1392.00	94.05	106.85	98.88	106.96	0.000257	2.58	539.10	66.67	0.16
North Main	reach 4	324005	410.00	94.05	101.01	96.40	101.07	0.000270	1.90	215.24	44.28	0.15
North Main	reach 4	324005	573.00	94.05	102.44	96.92	102.50	0.000251	2.03	282.22	49.73	0.15
North Main	reach 4	324005	770.00	94.05	103.85	97.47	103.93	0.000240	2.16	356.52	55.16	0.15
North Main	reach 4	324005	1392.00	94.05	106.83	98.88	106.94	0.000259	2.59	537.70	66.59	0.16
North Main	reach 4	322000	410.00	93.17	100.42	95.84	100.48	0.000317	2.04	200.55	41.49	0.16
North Main	reach 4	322000	573.00	93.17	101.89	96.40	101.96	0.000288	2.16	265.68	47.02	0.16
North Main	reach 4	322000	770.00	93.17	103.33	96.99	103.41	0.000273	2.28	337.43	52.45	0.16
North Main	reach 4	322000	1392.00	93.17	106.29	98.48	106.37	0.000302	2.42	435.48	56.10	0.17
North Main	reach 4	320965	410.00	93.05	100.00	95.85	100.09	0.000484	2.40	171.18	36.63	0.20
North Main	reach 4	320965	573.00	93.05	101.51	96.44	101.61	0.000404	2.48	230.60	41.82	0.19
North Main	reach 4	320965	770.00	93.05	102.98	97.06	103.08	0.000373	2.61	295.49	46.85	0.18
North Main	reach 4	320965	1392.00	93.05	105.84	98.63	106.00	0.000408	3.13	444.07	56.65	0.20
North Main	reach 4	320873	410.00	93.05	99.95	95.85	100.04	0.000476	2.42	169.52	36.47	0.20
North Main	reach 4	320873	573.00	93.05	101.47	96.44	101.57	0.000412	2.50	228.96	41.69	0.19
North Main	reach 4	320873	770.00	93.05	102.94	97.06	103.05	0.000379	2.62	293.80	46.72	0.18
North Main	reach 4	320873	1392.00	93.05	105.81	98.63	105.96	0.000414	3.15	441.82	56.52	0.20
North Main	reach 4	320000	410.00	92.95	99.57	95.52	99.65	0.000417	2.25	182.22	40.31	0.19
North Main	reach 4	320000	573.00	92.95	101.16	96.08	101.24	0.000341	2.28	250.98	46.39	0.17
North Main	reach 4	320000	770.00	92.95	102.66	96.67	102.74	0.000306	2.37	324.79	52.12	0.17
North Main	reach 4	320000	1392.00	92.95	105.50	98.13	105.63	0.000333	2.85	488.83	63.07	0.18
North Main	reach 4	318000	410.00	91.12	98.87	93.95	98.94	0.000306	2.05	200.37	39.67	0.16
North Main	reach 4	318000	573.00	91.12	100.58	94.56	100.65	0.000259	2.10	273.15	45.76	0.15
North Main	reach 4	318000	770.00	91.12	102.12	95.19	102.20	0.000244	2.21	348.07	51.27	0.15
North Main	reach 4	318000	1392.00	91.12	104.88	96.76	105.00	0.000297	2.77	503.02	61.12	0.17
North Main	reach 4	317530	410.00	91.23	98.72	94.19	98.79	0.000330	2.04	201.31	43.71	0.17
North Main	reach 4	317530	573.00	91.23	100.46	94.78	100.52	0.000256	2.02	283.94	51.52	0.15
North Main	reach 4	317530	770.00	91.23	102.02	95.39	102.08	0.000228	2.08	369.59	58.52	0.15
North Main	reach 4	317530	1392.00	91.23	104.76	96.87	104.86	0.000261	2.54	547.10	70.81	0.16
North Main	reach 4	317452	410.00	91.23	98.70	94.20	98.76	0.000335	2.05	200.14	43.59	0.17
North Main	reach 4	317452	573.00	91.23	100.44	94.78	100.50	0.000259	2.03	282.88	51.43	0.15
North Main	reach 4	317452	770.00	91.23	102.00	95.39	102.07	0.000230	2.09	368.52	58.44	0.15
North Main	reach 4	317452	1392.00	91.23	104.74	96.87	104.84	0.000263	2.55	545.61	70.72	0.16
North Main	reach 4	317000	410.00	90.93	98.54	93.87	98.61	0.000347	2.14	191.70	39.29	0.17
North Main	reach 4	317000	573.00	90.93	100.31	94.48	100.38	0.000277	2.15	267.13	45.81	0.16
North Main	reach 4	317000	770.00	90.93	101.88	95.12	101.96	0.000255	2.24	343.49	51.59	0.15
North Main	reach 4	317000	1392.00	90.93	104.59	96.68	104.71	0.000310	2.80	496.84	61.57	0.17
North Main	reach 2	157900	40.00	90.87	92.00	91.41	92.05	0.001841	1.80	22.17	21.96	0.32
North Main	reach 2	157900	100.00	90.87	92.66	91.84	92.77	0.002312	2.65	37.72	24.65	0.38
North Main	reach 2	157900	188.00	90.87	95.40	92.32	95.44	0.000288	1.56	120.45	35.70	0.15
North Main	reach 2	157900	515.00	90.87	97.21	93.55	97.32	0.000598	2.69	191.49	42.97	0.22
North Main	reach 2	157788	40.00	90.87	91.42	91.34	91.59	0.014955	3.35	11.94	22.67	0.81
North Main	reach 2	157788	100.00	90.87	92.31	91.74	92.45	0.003574	2.99	33.50	25.30	0.46
North Main	reach 2	157788	188.00	90.87	95.38	92.18	95.42	0.000255	1.51	124.60	34.57	0.14
North Main	reach 2	157788	515.00	90.87	97.15	93.35	97.26	0.000589	2.67	192.67	42.38	0.22
North Main	reach 2	157777	Inline Weir									
North Main	reach 2	157707	40.00	88.33	89.90	89.21	89.97	0.002112	2.10	19.01	16.28	0.34
North Main	reach 2	157707	100.00	88.33	92.31	89.77	92.34	0.000331	1.43	69.99	26.04	0.15
North Main	reach 2	157707	188.00	88.33	95.37	90.36	95.39	0.000106	1.12	168.34	38.01	0.09
North Main	reach 2	157707	515.00	88.33	97.14	91.83	97.22	0.000300	2.13	241.69	44.87	0.16
North Main	reach 2	157442	40.00	87.38	89.67	88.30	89.70	0.000559	1.34	29.84	18.32	0.19
North Main	reach 2	157442	100.00	87.38	92.26	88.88	92.28	0.000160	1.10	91.02	28.83	0.11
North Main	reach 2	157442	188.00	87.38	95.36	89.49	95.37	0.000067	0.94	199.78	41.37	0.06
North Main	reach 2	157442	515.00	87.38	97.09	91.01	97.15	0.000209	1.86	277.48	48.25	0.14



HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	157290	40.00	87.38	89.57	88.30	89.60	0.000663	1.42	28.10	17.93	0.20
North Main	reach 2	157290	100.00	87.38	92.23	88.88	92.25	0.000164	1.11	90.10	29.70	0.11
North Main	reach 2	157290	188.00	87.38	95.35	89.49	95.36	0.000068	0.94	199.22	41.32	0.08
North Main	reach 2	157290	515.00	87.38	97.05	91.01	97.11	0.000213	1.87	275.49	48.09	0.14
North Main	reach 2	158900	40.00	87.38	89.39	88.06	89.41	0.000376	1.10	36.30	22.48	0.15
North Main	reach 2	158900	100.00	87.38	92.18	88.52	92.19	0.000091	0.88	113.32	32.70	0.08
North Main	reach 2	158900	188.00	87.38	95.33	89.03	95.34	0.000043	0.80	234.28	44.25	0.06
North Main	reach 2	158900	515.00	87.38	96.99	90.35	97.04	0.000148	1.64	313.18	50.38	0.12
North Main	reach 2	155952	40.00	87.33	88.96	87.94	88.96	0.000543	1.17	34.27	26.17	0.18
North Main	reach 2	155952	100.00	87.33	92.12	88.35	92.13	0.000058	0.70	141.99	42.08	0.07
North Main	reach 2	155952	188.00	87.33	95.30	88.80	95.31	0.000026	0.62	301.67	58.14	0.05
North Main	reach 2	155952	515.00	87.33	96.90	89.97	96.92	0.000089	1.29	400.70	66.18	0.09
North Main	reach 2	155846	40.00	87.31	88.90	87.84	88.92	0.000569	1.24	32.31	23.03	0.18
North Main	reach 2	155846	100.00	87.31	92.11	88.28	92.12	0.000071	0.81	123.88	33.81	0.07
North Main	reach 2	155846	188.00	87.31	95.30	88.76	95.31	0.000036	0.76	246.43	43.18	0.06
North Main	reach 2	155846	515.00	87.31	96.88	90.02	96.92	0.000135	1.62	318.26	47.82	0.11
North Main	reach 2	155779	40.00	87.31	88.88	87.70	88.89	0.000235	0.82	48.64	33.28	0.12
North Main	reach 2	155779	100.00	87.31	92.11	88.02	92.11	0.000033	0.58	171.23	42.65	0.05
North Main	reach 2	155779	188.00	87.31	95.30	88.39	95.30	0.000018	0.59	321.20	51.45	0.04
North Main	reach 2	155779	515.00	87.31	96.87	89.38	96.90	0.000073	1.27	405.83	55.80	0.08
North Main	reach 2	155696	40.00	87.31	88.84	87.78	88.88	0.000445	1.09	36.60	26.02	0.16
North Main	reach 2	155696	100.00	87.31	92.09	88.16	92.10	0.000056	0.74	135.98	35.24	0.07
North Main	reach 2	155696	188.00	87.31	95.28	88.60	95.29	0.000031	0.71	263.17	44.43	0.05
North Main	reach 2	155696	515.00	87.31	96.85	89.76	96.89	0.000119	1.53	336.45	48.95	0.10
North Main	reach 2	154900	40.00	86.57	88.63	87.06	88.64	0.000178	0.82	48.90	26.95	0.11
North Main	reach 2	154900	100.00	86.57	92.05	87.45	92.06	0.000036	0.63	158.79	37.28	0.05
North Main	reach 2	154900	188.00	86.57	95.26	87.90	95.26	0.000023	0.64	293.74	46.94	0.05
North Main	reach 2	154900	515.00	86.57	96.78	89.08	96.81	0.000082	1.40	368.50	51.52	0.09
North Main	reach 2	153295	40.00	85.60	88.42	86.21	88.42	0.000105	0.72	55.56	24.50	0.08
North Main	reach 2	153295	100.00	85.60	92.00	86.68	92.00	0.000031	0.61	164.15	36.16	0.05
North Main	reach 2	153295	188.00	85.60	95.23	87.20	95.24	0.000022	0.63	298.61	47.20	0.04
North Main	reach 2	153295	515.00	85.60	96.63	88.55	96.68	0.000083	1.40	367.98	52.05	0.09
North Main	reach 2	153200	40.00	85.60	88.40	86.21	88.41	0.000107	0.72	55.23	24.45	0.08
North Main	reach 2	153200	100.00	85.60	91.99	86.68	91.99	0.000031	0.61	163.74	36.13	0.05
North Main	reach 2	153200	188.00	85.60	95.22	87.20	95.23	0.000022	0.63	298.22	47.17	0.04
North Main	reach 2	153200	515.00	85.60	96.61	88.54	96.64	0.000094	1.40	367.00	51.98	0.09
North Main	reach 2	152900	40.00	85.22	88.38	85.96	88.39	0.000058	0.57	70.79	28.92	0.06
North Main	reach 2	152900	100.00	85.22	91.98	86.37	91.98	0.000020	0.51	195.31	40.41	0.04
North Main	reach 2	152900	188.00	85.22	95.21	86.82	95.22	0.000015	0.55	342.99	50.86	0.04
North Main	reach 2	152900	515.00	85.22	96.59	88.03	96.61	0.000067	1.24	416.08	55.31	0.08
North Main	reach 2	150900	40.00	84.97	88.30	85.46	88.30	0.000031	0.45	89.75	32.91	0.05
North Main	reach 2	150900	100.00	84.97	91.95	85.85	91.96	0.000013	0.43	233.20	45.64	0.03
North Main	reach 2	150900	188.00	84.97	95.19	86.28	95.20	0.000010	0.47	399.44	56.95	0.03
North Main	reach 2	150900	515.00	84.97	96.48	87.43	96.50	0.000048	1.08	475.59	61.49	0.07
North Main	reach 2	150637	40.00	84.27	88.29	85.01	88.29	0.000016	0.34	116.49	37.80	0.03
North Main	reach 2	150637	100.00	84.27	91.95	85.36	91.95	0.000008	0.38	279.45	52.07	0.03
North Main	reach 2	150637	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.43	65.39	0.03
North Main	reach 2	150637	515.00	84.27	96.48	86.81	96.49	0.000046	0.92	580.11	91.92	0.07
North Main	reach 2	150569	40.00	84.27	88.28	85.01	88.28	0.000016	0.34	116.12	37.76	0.03
North Main	reach 2	150569	100.00	84.27	91.95	85.36	91.95	0.000008	0.36	279.25	52.06	0.03
North Main	reach 2	150569	188.00	84.27	95.19	85.75	95.19	0.000007	0.40	470.20	65.37	0.03
North Main	reach 2	150569	515.00	84.27	96.47	86.81	96.49	0.000046	0.92	559.82	91.81	0.07
North Main	reach 2	148900	40.00	84.27	88.25	84.79	88.25	0.000021	0.39	101.30	32.33	0.04
North Main	reach 2	148900	100.00	84.27	91.93	85.20	91.94	0.000011	0.41	244.19	45.30	0.03
North Main	reach 2	148900	188.00	84.27	95.18	85.67	95.18	0.000010	0.46	409.68	56.76	0.03
North Main	reach 2	148900	515.00	84.27	96.39	86.90	96.41	0.000046	1.07	481.05	61.05	0.07
North Main	reach 2	147966	40.00	83.76	88.22	84.95	88.23	0.000073	0.68	58.84	20.32	0.07
North Main	reach 2	147966	100.00	83.76	91.92	85.61	91.93	0.000034	0.65	154.09	31.16	0.05
North Main	reach 2	147966	188.00	83.76	95.17	86.29	95.17	0.000027	0.69	271.07	41.28	0.05
North Main	reach 2	147966	515.00	83.76	96.30	87.99	96.34	0.000130	1.61	319.97	45.39	0.11
North Main	reach 2	147814	40.00	83.76	88.21	84.77	88.22	0.000044	0.55	72.89	24.54	0.06
North Main	reach 2	147814	100.00	83.76	91.91	85.35	91.92	0.000021	0.53	187.09	37.16	0.04
North Main	reach 2	147814	188.00	83.76	95.16	85.97	95.16	0.000017	0.58	325.48	48.15	0.04
North Main	reach 2	147814	515.00	83.76	96.29	87.51	96.32	0.000083	1.35	382.20	51.98	0.09

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 2	148900	40.00	83.26	88.19	84.07	88.20	0.000018	0.39	102.51	29.93	0.04
North Main	reach 2	148900	100.00	83.26	91.90	84.58	91.90	0.000011	0.42	237.52	42.94	0.03
North Main	reach 2	148900	188.00	83.26	95.15	85.14	95.15	0.000010	0.48	395.38	54.33	0.03
North Main	reach 2	148900	515.00	83.26	98.23	86.55	96.25	0.000052	1.13	456.35	58.14	0.07
North Main	reach 2	145333	40.00	83.11	88.18	83.73	88.18	0.000012	0.34	118.95	32.21	0.03
North Main	reach 2	145333	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.13	45.25	0.03
North Main	reach 2	145333	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.49	57.85	0.03
North Main	reach 2	145333	515.00	83.11	96.16	86.08	96.17	0.000044	1.05	490.52	61.67	0.07
North Main	reach 2	145285	40.00	83.11	88.17	83.73	88.18	0.000012	0.34	118.85	32.20	0.03
North Main	reach 2	145285	100.00	83.11	91.89	84.20	91.89	0.000009	0.38	262.03	45.24	0.03
North Main	reach 2	145285	188.00	83.11	95.13	84.73	95.14	0.000008	0.44	429.37	57.84	0.03
North Main	reach 2	145285	515.00	83.11	96.16	86.08	96.17	0.000030	0.87	1054.06	2238.25	0.05
North Main	reach 2	144900	40.00	83.06	88.17	83.56	88.17	0.000007	0.27	148.89	37.56	0.02
North Main	reach 2	144900	100.00	83.06	91.88	83.95	91.89	0.000006	0.32	310.77	49.66	0.02
North Main	reach 2	144900	188.00	83.06	95.13	84.39	95.13	0.000006	0.38	568.20	503.93	0.02
North Main	reach 2	144900	515.00	83.06	96.15	85.56	96.16	0.000019	0.73	1731.94	2334.51	0.04
North Main	reach 2	144259	482.00	78.00	88.11	80.37	88.13	0.000062	1.34	359.48	49.85	0.09
North Main	reach 2	144259	1051.00	78.00	91.79	81.85	91.84	0.000079	1.88	563.65	61.85	0.10
North Main	reach 2	144259	1858.00	78.00	94.98	83.44	95.08	0.000097	2.51	780.00	73.71	0.12
North Main	reach 2	144259	4804.00	78.00	95.35	87.38	95.92	0.000563	6.15	1413.60	7568.91	0.29
North Main	reach 2	144227	Culvert									
North Main	reach 2	144198	482.00	78.00	88.00	80.37	88.02	0.000065	1.36	354.03	49.54	0.09
North Main	reach 2	144198	1051.00	78.00	91.21	81.85	91.27	0.000096	2.00	528.25	59.68	0.11
North Main	reach 2	144198	1858.00	78.00	93.20	83.44	93.33	0.000159	2.91	654.53	67.09	0.15
North Main	reach 2	144198	4804.00	78.00	95.37	87.38	95.90	0.000537	6.02	1658.58	7701.31	0.29
North Main	reach 2	143768	482.00	80.00	87.91	83.00	87.97	0.000190	1.95	246.76	47.41	0.15
North Main	reach 2	143768	1051.00	80.00	91.10	84.46	91.20	0.000198	2.53	416.88	59.30	0.16
North Main	reach 2	143768	1858.00	80.00	93.03	85.98	93.22	0.000287	3.55	538.08	66.48	0.20
North Main	reach 2	143768	4804.00	80.00	95.43	89.71	95.55	0.000255	3.89	8006.19	8954.66	0.20
North Main	reach 2	142844	482.00	80.00	87.76	82.81	87.81	0.000165	1.84	261.35	49.47	0.14
North Main	reach 2	142844	1051.00	80.00	90.94	84.19	91.03	0.000178	2.41	437.07	61.03	0.15
North Main	reach 2	142844	1858.00	80.00	92.79	85.64	92.97	0.000266	3.42	556.29	67.80	0.20
North Main	reach 2	142844	4804.00	80.00	95.33	89.27	95.38	0.000122	2.72	11670.98	9169.22	0.14
North Main	reach 2	142821	Bridge									
North Main	reach 2	142771	482.00	80.00	87.73	82.51	87.78	0.000163	1.85	260.49	48.45	0.14
North Main	reach 2	142771	1051.00	80.00	90.91	83.97	91.00	0.000181	2.43	433.27	60.03	0.16
North Main	reach 2	142771	1858.00	80.00	92.75	85.52	92.93	0.000272	3.45	549.61	66.21	0.20
North Main	reach 2	142771	4804.00	80.00	95.18	89.25	95.30	0.000237	3.76	8202.92	8923.67	0.19
North Main	reach 2	141205	482.00	80.00	87.49	82.36	87.54	0.000147	1.78	271.03	49.44	0.13
North Main	reach 2	141205	1051.00	80.00	90.64	83.70	90.73	0.000171	2.38	443.08	59.96	0.15
North Main	reach 2	141205	1858.00	80.00	92.33	85.15	92.52	0.000273	3.43	549.53	65.68	0.20
North Main	reach 2	141205	4804.00	80.00	94.96	88.76	95.01	0.000124	2.73	11457.00	8885.67	0.14
North Main	reach 2	140152	482.00	80.00	87.31	82.62	87.37	0.000201	1.95	246.67	50.16	0.16
North Main	reach 2	140152	1051.00	80.00	90.44	84.06	90.53	0.000209	2.47	425.08	63.79	0.17
North Main	reach 2	140152	1858.00	80.00	92.02	85.54	92.21	0.000327	3.55	530.98	70.58	0.22
North Main	reach 2	140152	4804.00	80.00	94.83	89.15	94.88	0.000131	2.72	11249.08	9008.84	0.14
North Main	reach 2	140137	Bridge									
North Main	reach 2	140107	482.00	78.00	87.31	80.62	87.34	0.000087	1.46	329.90	54.16	0.10
North Main	reach 2	140107	1051.00	78.00	90.44	82.15	90.50	0.000117	2.03	519.23	66.79	0.13
North Main	reach 2	140107	1858.00	78.00	91.89	83.72	92.04	0.000209	3.03	620.84	72.70	0.17
North Main	reach 2	140107	4804.00	78.00	94.80	87.47	94.83	0.000089	2.36	11295.36	6548.52	0.12
North Main	reach 2	138870	482.00	78.00	87.21	80.28	87.25	0.000066	1.70	358.83	56.05	0.10
North Main	reach 2	138870	1051.00	78.00	90.28	81.68	90.37	0.000109	2.65	548.10	67.43	0.13
North Main	reach 2	138870	1858.00	78.00	91.52	83.25	91.75	0.000237	4.17	634.50	72.06	0.20
North Main	reach 2	138870	4804.00	78.00	94.70	87.46	94.73	0.000081	2.82	13699.41	8905.65	0.12
North Main	reach 2	137387	482.00	78.00	87.11	80.28	87.16	0.000069	1.72	353.27	55.80	0.10
North Main	reach 2	137387	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.50	67.02	0.14
North Main	reach 2	137387	1858.00	78.00	91.14	83.26	91.39	0.000265	4.32	608.07	70.84	0.21
North Main	reach 2	137387	4804.00	78.00	94.26	87.47	94.51	0.000311	5.42	4574.17	8308.34	0.24
North Main	reach 2	137384	482.00	78.00	87.11	80.28	87.15	0.000069	1.73	352.94	55.78	0.10
North Main	reach 2	137384	1051.00	78.00	90.11	81.69	90.21	0.000115	2.70	537.38	67.01	0.14

HEC-RAS Plan - P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	137384	1858.00	78.00	91.13	83.26	91.39	0.000265	4.33	607.75	70.82	0.21
North Main	reach 2	137384	4804.00	78.00	94.26	87.48	94.51	0.000312	5.43	4563.01	8303.33	0.24
North Main	reach 2	137349	Bridge									
North Main	reach 2	137334	482.00	78.00	87.09	80.28	87.13	0.000070	1.73	351.96	55.71	0.10
North Main	reach 2	137334	1051.00	78.00	90.10	81.69	90.21	0.000115	2.70	537.00	66.99	0.14
North Main	reach 2	137334	1858.00	78.00	91.12	83.26	91.37	0.000266	4.33	606.77	70.77	0.21
North Main	reach 2	137334	4804.00	78.00	93.72	87.47	94.24	0.000551	7.05	2875.40	7114.87	0.32
North Main	reach 2	137249	482.00	78.00	87.07	80.54	87.13	0.000093	1.98	319.56	52.88	0.12
North Main	reach 2	137249	1051.00	78.00	90.06	82.09	90.19	0.000151	3.06	495.04	64.52	0.16
North Main	reach 2	137249	1858.00	78.00	91.01	83.79	91.33	0.000352	4.93	557.69	67.93	0.24
North Main	reach 2	137249	4804.00	78.00	92.13	88.26	93.82	0.001684	11.41	812.51	3625.71	0.54
North Main	reach 2	137150	482.00	78.00	87.07	80.41	87.12	0.000081	1.85	333.21	53.71	0.11
North Main	reach 2	137150	1051.00	78.00	90.06	81.88	90.17	0.000133	2.88	510.40	64.88	0.15
North Main	reach 2	137150	1858.00	78.00	91.00	83.52	91.29	0.000312	4.65	573.00	68.36	0.23
North Main	reach 2	137150	4804.00	78.00	92.02	87.85	93.63	0.001565	10.97	646.32	2219.61	0.52
North Main	reach 2	135957	482.00	78.00	86.99	80.18	87.03	0.000064	1.64	363.76	57.03	0.10
North Main	reach 2	135957	1051.00	78.00	89.93	81.52	90.02	0.000107	2.58	547.33	67.85	0.13
North Main	reach 2	135957	1858.00	78.00	90.78	83.04	90.96	0.000210	3.79	1404.49	1303.38	0.19
North Main	reach 2	135957	4804.00	78.00	91.89	87.09	92.28	0.000538	6.43	3675.88	2911.60	0.31
North Main	reach 2	135841	482.00	78.00	86.97	80.23	87.02	0.000068	1.70	352.95	55.69	0.10
North Main	reach 2	135841	1051.00	78.00	89.90	81.60	90.00	0.000115	2.67	531.58	66.34	0.14
North Main	reach 2	135841	1858.00	78.00	90.71	83.15	90.93	0.000249	4.11	1166.26	1394.78	0.20
North Main	reach 2	135841	4804.00	78.00	91.79	87.27	92.20	0.000604	6.76	3722.67	5968.56	0.32
North Main	reach 2	135233	482.00	78.00	86.94	80.32	86.98	0.000086	1.57	343.02	54.99	0.10
North Main	reach 2	135233	1051.00	78.00	89.85	81.73	89.94	0.000108	2.46	518.88	66.03	0.13
North Main	reach 2	135233	1858.00	78.00	90.68	83.13	90.78	0.000151	3.06	2880.99	3640.15	0.18
North Main	reach 2	135233	4804.00	78.00	91.99	86.98	92.00	0.000054	1.95	17110.72	9184.99	0.09
North Main	reach 2	134690	482.00	78.00	86.93	80.04	86.95	0.000046	1.33	402.87	63.81	0.08
North Main	reach 2	134690	1051.00	78.00	89.82	81.31	89.88	0.000069	1.99	951.25	598.39	0.11
North Main	reach 2	134690	1858.00	78.00	90.66	82.63	90.71	0.000084	2.30	4700.11	8801.00	0.12
North Main	reach 2	134690	4804.00	78.00	91.97	86.09	91.98	0.000041	1.73	18918.18	9799.69	0.08
North Main	reach 2	134647	Bridge									
North Main	reach 2	134606	482.00	78.00	86.88	81.96	86.94	0.000134	2.02	312.27	70.30	0.14
North Main	reach 2	134606	1051.00	78.00	89.72	83.30	89.81	0.000141	2.60	1308.43	1865.97	0.15
North Main	reach 2	134606	1858.00	78.00	90.62	84.81	90.66	0.000108	2.42	5361.39	8767.69	0.13
North Main	reach 2	134606	4804.00	78.00	91.96	90.76	91.96	0.000042	1.64	19593.63	9786.96	0.08
North Main	reach 2	134537	482.00	78.00	86.89	80.04	86.92	0.000047	1.34	400.46	63.45	0.08
North Main	reach 2	134537	1051.00	78.00	89.73	81.31	89.79	0.000073	2.03	895.85	574.64	0.11
North Main	reach 2	134537	1858.00	78.00	90.58	82.63	90.64	0.000095	2.43	4427.87	8738.24	0.12
North Main	reach 2	134537	4804.00	78.00	91.95	86.09	91.96	0.000043	1.76	18672.14	9780.59	0.09
North Main	reach 2	132334	962.00	78.00	86.50	81.36	86.63	0.000272	2.87	346.60	58.13	0.19
North Main	reach 2	132334	1985.00	78.00	89.09	83.16	89.36	0.000387	4.22	676.93	2169.80	0.24
North Main	reach 2	132334	3435.00	78.00	90.21	84.98	90.30	0.000206	3.34	6543.08	8425.09	0.18
North Main	reach 2	132334	8788.00	78.00	91.79	90.51	91.80	0.000098	2.51	21371.59	9649.58	0.13
North Main	reach 2	131888	962.00	78.00	86.33	81.34	86.45	0.000266	2.78	356.85	61.90	0.19
North Main	reach 2	131888	1985.00	78.00	89.00	83.09	89.14	0.000239	3.29	1927.03	2840.78	0.19
North Main	reach 2	131888	3435.00	78.00	90.09	84.81	90.16	0.000191	3.17	5777.46	7576.36	0.17
North Main	reach 2	131888	8788.00	78.00	91.71	89.89	91.73	0.000114	2.70	19225.05	8692.08	0.14
North Main	reach 2	130701	962.00	78.00	86.25	80.24	86.28	0.000095	1.68	1063.06	280.21	0.11
North Main	reach 2	130701	1985.00	78.00	88.92	81.50	88.96	0.000099	2.13	2228.54	1502.05	0.12
North Main	reach 2	130701	3435.00	78.00	89.95	82.88	90.00	0.000137	2.69	4748.99	3180.18	0.15
North Main	reach 2	130701	8788.00	78.00	91.59	88.50	91.62	0.000129	2.87	17386.30	8452.56	0.15
North Main	reach 2	130046	962.00	78.00	86.02	81.30	86.18	0.000328	3.01	326.89	57.19	0.21
North Main	reach 2	130046	1985.00	78.00	88.65	83.09	88.84	0.000327	3.77	1652.70	3275.01	0.22
North Main	reach 2	130046	3435.00	78.00	89.84	84.88	89.90	0.000167	2.92	6590.23	8060.06	0.16
North Main	reach 2	130046	8788.00	78.00	91.54	89.69	91.55	0.000069	2.08	23789.34	9342.46	0.11
North Main	reach 2	128081	962.00	78.00	85.36	81.03	85.50	0.000373	3.04	319.51	190.90	0.22
North Main	reach 2	128081	1985.00	78.00	88.06	82.73	88.22	0.000310	3.56	1717.88	3157.66	0.21
North Main	reach 2	128081	3435.00	78.00	89.55	84.47	89.60	0.000150	2.75	6730.66	6681.92	0.15
North Main	reach 2	128081	8788.00	78.00	91.43	89.09	91.44	0.000047	1.72	27404.56	9636.93	0.08
North Main	reach 2	128032	962.00	78.00	85.34	81.04	85.48	0.000379	3.06	317.80	183.25	0.22
North Main	reach 2	128032	1985.00	78.00	88.04	82.72	88.20	0.000317	3.59	1680.66	3123.65	0.22



HFC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	128032	3435.00	78.00	89.54	84.47	89.59	0.000152	2.76	6715.33	6707.83	0.15
North Main	reach 2	128032	8788.00	78.00	91.42	88.09	91.43	0.000046	1.71	27437.98	9653.25	0.09
North Main	reach 2	126984	962.00	76.00	85.03	79.67	85.14	0.000270	2.72	356.32	1363.01	0.19
North Main	reach 2	126984	1985.00	76.00	87.90	81.51	87.96	0.000137	2.47	3148.42	4076.70	0.14
North Main	reach 2	126984	3435.00	76.00	89.44	83.42	89.47	0.000077	2.06	8314.76	6523.50	0.11
North Main	reach 2	126984	8788.00	76.00	91.39	88.13	91.40	0.000028	1.38	31429.64	9053.18	0.07
North Main	reach 2	126599	962.00	76.00	84.92	79.66	85.04	0.000278	2.72	355.67	60.10	0.19
North Main	reach 2	126599	1985.00	76.00	87.65	81.48	87.67	0.000338	3.80	766.54	984.58	0.22
North Main	reach 2	126599	3435.00	76.00	89.33	83.39	89.42	0.000183	3.14	5455.91	6402.58	0.17
North Main	reach 2	126599	8788.00	76.00	91.37	89.23	91.38	0.000056	1.95	24637.84	8887.88	0.10
North Main	reach 2	125566	962.00	76.00	84.59	79.66	84.72	0.000336	2.90	332.71	57.27	0.21
North Main	reach 2	125566	1985.00	76.00	87.26	81.48	87.49	0.000382	3.94	880.71	956.27	0.23
North Main	reach 2	125566	3435.00	76.00	89.11	83.38	89.21	0.000213	3.34	4472.37	4067.18	0.18
North Main	reach 2	125566	8788.00	76.00	91.28	88.92	91.30	0.000101	2.60	19849.31	9254.14	0.13
North Main	reach 2	124578	962.00	76.00	84.30	79.24	84.42	0.000267	2.80	352.93	60.05	0.19
North Main	reach 2	124578	1985.00	76.00	86.84	81.00	87.11	0.000384	4.15	519.00	70.60	0.24
North Main	reach 2	124578	3435.00	76.00	88.68	82.77	88.92	0.000364	4.56	2420.12	2013.12	0.24
North Main	reach 2	124578	8788.00	76.00	90.95	89.11	91.12	0.000368	5.18	8974.19	6475.50	0.25
North Main	reach 2	124360	962.00	76.00	84.20	79.51	84.35	0.000348	3.12	317.37	55.93	0.21
North Main	reach 2	124360	1985.00	76.00	86.76	81.36	87.02	0.000419	4.26	801.33	438.72	0.25
North Main	reach 2	124360	3435.00	76.00	88.56	83.15	88.83	0.000433	4.88	1956.19	2395.60	0.26
North Main	reach 2	124360	8788.00	76.00	90.96	88.79	91.03	0.000210	3.89	12958.70	5747.30	0.19
North Main	reach 2	124036	962.00	76.00	84.09	79.38	84.23	0.000347	3.11	317.08	55.23	0.21
North Main	reach 2	124036	1985.00	76.00	86.60	81.22	86.87	0.000439	4.34	740.10	404.14	0.25
North Main	reach 2	124036	3435.00	76.00	88.38	83.03	88.68	0.000470	5.06	1807.45	2264.67	0.27
North Main	reach 2	124036	8788.00	76.00	90.88	88.75	90.95	0.000230	4.06	12401.76	5635.23	0.20
North Main	reach 2	122198	962.00	76.00	83.41	79.14	83.56	0.000395	3.13	311.31	57.36	0.23
North Main	reach 2	122198	1985.00	76.00	86.00	80.87	86.16	0.000324	3.60	1385.67	867.71	0.22
North Main	reach 2	122198	3435.00	76.00	88.02	82.63	88.10	0.000191	3.18	4322.91	2034.01	0.17
North Main	reach 2	122198	8788.00	76.00	90.51	87.29	90.57	0.000190	3.66	10975.24	5352.72	0.18
North Main	reach 2	120752	962.00	76.00	82.48	79.42	82.73	0.000888	4.09	235.95	50.57	0.33
North Main	reach 2	120752	1985.00	76.00	84.90	81.24	85.38	0.000967	5.58	371.26	61.15	0.36
North Main	reach 2	120752	3435.00	76.00	87.39	83.02	87.66	0.000519	4.98	2491.66	1818.38	0.28
North Main	reach 2	120752	8788.00	76.00	90.14	87.94	90.24	0.000281	4.32	8316.27	2866.94	0.22
North Main	reach 2	120467	962.00	76.00	82.23	79.23	82.48	0.000889	4.01	240.21	52.10	0.33
North Main	reach 2	120467	1985.00	76.00	84.64	80.99	85.10	0.000940	5.43	378.71	62.60	0.36
North Main	reach 2	120467	3435.00	76.00	86.86	82.74	87.43	0.000922	6.44	1246.58	1559.12	0.37
North Main	reach 2	120467	8788.00	76.00	90.07	88.05	90.16	0.000255	4.13	10009.17	4259.59	0.21
North Main	reach 2	119740	962.00	76.00	80.02	79.23	80.80	0.004596	7.09	135.72	42.48	0.70
North Main	reach 2	119740	1985.00	76.00	82.91	80.98	83.72	0.002416	7.22	276.46	55.04	0.55
North Main	reach 2	119740	3435.00	76.00	84.42	82.74	85.88	0.003139	9.71	364.66	1231.95	0.65
North Main	reach 2	119740	8788.00	76.00	89.84	87.55	89.92	0.000249	4.03	8303.52	6802.47	0.20
North Main	reach 2	119730	962.00	72.00	80.35	75.11	80.44	0.000190	2.35	424.08	75.84	0.16
North Main	reach 2	119730	1985.00	72.00	83.22	76.74	83.39	0.000234	3.31	677.99	115.84	0.19
North Main	reach 2	119730	3435.00	72.00	84.97	78.35	85.30	0.000378	4.72	925.74	1435.09	0.25
North Main	reach 2	119730	8788.00	72.00	89.47	82.35	89.83	0.000376	5.90	3924.12	5735.23	0.26
North Main	reach 2	118784	962.00	72.00	80.20	75.11	80.29	0.000206	2.40	412.82	75.06	0.17
North Main	reach 2	118784	1985.00	72.00	83.06	76.74	83.21	0.000225	3.21	1011.21	544.01	0.19
North Main	reach 2	118784	3435.00	72.00	84.84	78.35	85.00	0.000238	3.71	2374.28	3234.19	0.20
North Main	reach 2	118784	8788.00	72.00	89.50	84.23	89.55	0.000103	3.09	10186.03	5023.58	0.14
North Main	reach 2	118761	962.00	70.00	80.21	73.45	80.28	0.000155	2.24	440.32	69.28	0.15
North Main	reach 2	118761	1985.00	70.00	83.05	75.48	83.19	0.000199	3.16	1014.93	538.19	0.17
North Main	reach 2	118761	3435.00	70.00	84.82	77.48	84.99	0.000230	3.77	2275.67	828.67	0.19
North Main	reach 2	118761	8788.00	70.00	89.48	83.99	89.55	0.000116	3.34	10701.06	2516.54	0.14
North Main	reach 2	118735	Culvert									
North Main	reach 2	118709	962.00	70.00	79.21		79.31	0.000251	2.60	373.85	63.96	0.18
North Main	reach 2	118709	1985.00	70.00	82.16		82.37	0.000295	3.62	626.08	340.45	0.21
North Main	reach 2	118709	3435.00	70.00	84.79		84.96	0.000233	3.80	2253.60	826.32	0.19
North Main	reach 2	118709	8788.00	70.00	89.47		89.53	0.000117	3.35	10662.86	2513.21	0.14
North Main	reach 2	118635	962.00	72.00	79.17		79.28	0.000323	2.77	350.66	66.76	0.20
North Main	reach 2	118635	1985.00	72.00	82.14		82.35	0.000333	3.72	614.17	407.63	0.22
North Main	reach 2	118635	3435.00	72.00	84.77		84.94	0.000243	3.79	2274.60	885.90	0.20
North Main	reach 2	118635	8788.00	72.00	89.46		89.52	0.000110	3.22	10886.87	2526.01	0.14

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 2	118513	962.00	72.00	79.14		79.25	0.000304	2.73	354.88	64.78	0.20
North Main	reach 2	118513	1985.00	72.00	82.11		82.31	0.000315	3.65	658.36	374.33	0.22
North Main	reach 2	118513	3435.00	72.00	84.73		84.90	0.000241	3.79	2242.88	856.53	0.20
North Main	reach 2	118513	8788.00	72.00	89.44		89.50	0.000113	3.27	10748.40	2508.69	0.14
North Main	reach 2	117690	1120.00	70.00	78.88	73.75	79.05	0.000338	3.31	352.06	57.01	0.21
North Main	reach 2	117690	2355.00	70.00	81.67	75.82	82.05	0.000494	4.95	529.86	70.24	0.27
North Main	reach 2	117690	4175.00	70.00	83.82	77.91	84.57	0.000793	7.13	698.29	88.23	0.36
North Main	reach 2	117690	10250.00	70.00	89.13	83.24	89.37	0.000324	5.79	7937.50	6047.81	0.24
North Main	reach 2	117193	1120.00	70.00	78.74	73.66	78.91	0.000342	3.31	345.52	53.83	0.22
North Main	reach 2	117193	2355.00	70.00	81.48	75.71	81.84	0.000513	5.00	516.49	74.56	0.28
North Main	reach 2	117193	4175.00	70.00	83.45	77.78	84.24	0.000847	7.24	679.56	87.41	0.37
North Main	reach 2	117193	10250.00	70.00	86.93	83.27	88.93	0.001722	12.24	1673.92	499.71	0.55
North Main	reach 2	116403	1120.00	70.00	78.52	74.20	78.69	0.000388	3.35	350.00	65.36	0.23
North Main	reach 2	116403	2355.00	70.00	81.16	76.04	81.52	0.000544	4.91	550.42	93.52	0.29
North Main	reach 2	116403	4175.00	70.00	82.98	77.98	83.71	0.000885	7.06	748.10	124.08	0.38
North Main	reach 2	116403	10250.00	70.00	85.99	82.86	87.83	0.001832	11.94	1827.11	587.87	0.56
North Main	reach 2	116161	1120.00	70.00	78.47	73.29	78.60	0.000274	2.92	401.39	71.47	0.19
North Main	reach 2	116161	2355.00	70.00	81.10	75.18	81.39	0.000403	4.38	627.01	106.99	0.25
North Main	reach 2	116161	4175.00	70.00	82.89	77.13	83.48	0.000681	6.37	850.23	144.87	0.33
North Main	reach 2	116161	10250.00	70.00	85.79	82.12	87.36	0.001506	11.00	1913.22	595.77	0.51
North Main	reach 2	115322	1120.00	70.00	78.15	74.01	78.32	0.000389	3.42	414.19	105.99	0.23
North Main	reach 2	115322	2355.00	70.00	80.81	75.78	81.03	0.000388	4.26	1302.89	647.58	0.24
North Main	reach 2	115322	4175.00	70.00	82.78	77.95	82.97	0.000348	4.58	2844.12	941.58	0.24
North Main	reach 2	115322	10250.00	70.00	86.12	82.27	86.35	0.000420	5.97	8200.57	3254.97	0.27
North Main	reach 2	115218	1120.00	70.00	78.15	73.19	78.28	0.000257	2.95	482.12	108.60	0.19
North Main	reach 2	115218	2355.00	70.00	80.80	74.98	80.99	0.000301	3.91	1290.27	592.82	0.22
North Main	reach 2	115218	4175.00	70.00	82.73	77.05	82.93	0.000315	4.50	2740.58	925.18	0.23
North Main	reach 2	115218	10250.00	70.00	86.05	82.15	86.30	0.000406	6.01	7987.02	3140.25	0.27
North Main	reach 2	115057	1120.00	70.00	78.10	73.09	78.24	0.000277	3.06	418.77	356.19	0.20
North Main	reach 2	115057	2355.00	70.00	80.85	74.83	80.92	0.000145	2.73	2924.14	1306.25	0.15
North Main	reach 2	115057	4175.00	70.00	82.81	76.81	82.86	0.000117	2.76	6420.04	2312.42	0.14
North Main	reach 2	115057	10250.00	70.00	86.18	80.91	86.21	0.000084	2.76	18449.36	5055.13	0.12
North Main	reach 2	114848	1120.00	70.00	78.06	72.89	78.18	0.000243	2.72	441.19	445.15	0.18
North Main	reach 2	114848	2355.00	70.00	80.85	74.60	80.89	0.000095	2.13	4173.08	2589.37	0.12
North Main	reach 2	114848	4175.00	70.00	82.81	76.48	82.83	0.000062	1.94	8889.21	4193.40	0.10
North Main	reach 2	114848	10250.00	70.00	86.18	80.55	86.19	0.000049	2.04	21768.11	8958.52	0.09
North Main	reach 2	114615	1120.00	70.00	78.03	72.77	78.13	0.000217	2.57	442.95	70.92	0.17
North Main	reach 2	114615	2355.00	70.00	80.80	74.43	80.86	0.000122	2.41	3678.31	2681.93	0.14
North Main	reach 2	114615	4175.00	70.00	82.79	76.24	82.81	0.000061	1.94	8928.37	4195.17	0.10
North Main	reach 2	114615	10250.00	70.00	86.17	80.98	86.19	0.000046	1.98	22372.04	8714.05	0.09
North Main	reach 2	114800	Bridge									
North Main	reach 2	114585	1120.00	70.00	78.01	72.77	78.11	0.000219	2.58	441.25	70.60	0.17
North Main	reach 2	114585	2355.00	70.00	80.76	74.43	80.82	0.000126	2.45	3610.78	2655.59	0.14
North Main	reach 2	114585	4175.00	70.00	82.77	76.24	82.79	0.000062	1.94	8915.66	4180.20	0.10
North Main	reach 2	114585	10250.00	70.00	86.15	80.98	86.17	0.000046	1.98	22364.01	8675.10	0.09
North Main	reach 2	114500	1120.00	70.00	77.99	72.77	78.10	0.000221	2.58	440.10	70.47	0.17
North Main	reach 2	114500	2355.00	70.00	80.75	74.43	80.81	0.000128	2.46	3620.33	2646.67	0.14
North Main	reach 2	114500	4175.00	70.00	82.77	76.24	82.79	0.000061	1.93	9099.36	4223.50	0.10
North Main	reach 2	114500	10250.00	70.00	86.14	80.95	86.15	0.000044	1.94	22744.03	8653.40	0.09
North Main	reach 2	113500	1120.00	70.00	77.89	72.96	77.83	0.000318	2.98	380.21	63.22	0.21
North Main	reach 2	113500	2355.00	70.00	80.33	74.73	80.58	0.000400	4.19	1226.25	2274.23	0.24
North Main	reach 2	113500	4175.00	70.00	82.89	76.81	82.72	0.000084	2.23	8513.45	4128.55	0.12
North Main	reach 2	113500	10250.00	70.00	86.11	81.82	86.12	0.000042	1.88	23322.41	9405.80	0.09
North Main	reach 3 (south)	315796	410.00	90.87	98.19	93.28	98.24	0.000281	1.92	213.14	41.35	0.15
North Main	reach 3 (south)	315796	573.00	90.87	100.03	93.83	100.09	0.000210	1.94	295.09	47.55	0.14
North Main	reach 3 (south)	315796	770.00	90.87	101.82	94.40	101.88	0.000198	2.05	374.81	52.89	0.14
North Main	reach 3 (south)	315796	1392.00	90.87	104.32	95.86	104.40	0.000201	2.33	833.94	299.87	0.14
North Main	reach 3 (south)	315434	410.00	90.87	98.11	93.05	98.15	0.000188	1.64	249.95	49.43	0.13
North Main	reach 3 (south)	315434	573.00	90.87	99.98	93.55	100.02	0.000146	1.64	349.58	57.14	0.12
North Main	reach 3 (south)	315434	770.00	90.87	101.57	94.08	101.62	0.000137	1.73	445.82	63.71	0.12
North Main	reach 3 (south)	315434	1392.00	90.87	104.36	95.42	104.36	0.000020	0.74	4440.17	1324.78	0.04
North Main	reach 3 (south)	315287	569.00	90.32	98.01	93.48	98.10	0.000414	2.44	233.86	45.45	0.19

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	315287	889.00	90.32	99.86	94.34	99.97	0.000413	2.74	323.89	52.27	0.19
North Main	reach 3 (south)	315287	1298.00	90.32	101.41	95.26	101.57	0.000467	3.17	409.54	58.09	0.21
North Main	reach 3 (south)	315287	2652.00	90.32	103.98	97.50	104.32	0.000802	4.63	572.89	68.01	0.28
North Main	reach 3 (south)	314000	569.00	89.95	97.40	93.03	97.51	0.000507	2.67	213.51	41.89	0.21
North Main	reach 3 (south)	314000	889.00	89.95	99.25	93.94	98.39	0.000506	3.00	296.66	48.39	0.21
North Main	reach 3 (south)	314000	1298.00	89.95	100.70	94.90	100.89	0.000590	3.50	370.79	53.52	0.23
North Main	reach 3 (south)	314000	2652.00	89.95	102.55	97.28	103.03	0.001259	5.58	475.57	60.03	0.35
North Main	reach 3 (south)	313862	569.00	89.95	97.33	93.03	97.44	0.000528	2.71	210.31	41.62	0.21
North Main	reach 3 (south)	313862	889.00	89.95	99.17	93.94	99.31	0.000523	3.03	292.98	48.12	0.22
North Main	reach 3 (south)	313862	1298.00	89.95	100.61	94.89	100.81	0.000611	3.55	366.06	53.21	0.24
North Main	reach 3 (south)	313862	2652.00	89.95	102.34	97.28	102.85	0.001350	5.72	463.40	59.31	0.36
North Main	reach 3 (south)	312000	569.00	89.03	96.49	91.86	96.58	0.000400	2.43	234.30	44.40	0.19
North Main	reach 3 (south)	312000	889.00	89.03	98.33	92.72	98.45	0.000410	2.76	321.85	50.74	0.19
North Main	reach 3 (south)	312000	1298.00	89.03	100.17	93.63	100.21	0.000175	1.98	1974.41	1928.17	0.13
North Main	reach 3 (south)	312000	2652.00	89.03	102.52	95.91	102.52	0.000031	0.93	8452.60	3258.17	0.06
North Main	reach 3 (south)	311185	569.00	88.28	96.30	90.77	96.35	0.000194	1.79	318.63	57.19	0.13
North Main	reach 3 (south)	311185	889.00	88.28	98.13	91.55	98.20	0.000208	2.06	430.78	65.18	0.14
North Main	reach 3 (south)	311185	1298.00	88.28	99.96	92.37	100.04	0.000220	2.33	557.05	73.12	0.15
North Main	reach 3 (south)	311185	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7392.17	3587.45	0.07
North Main	reach 3 (south)	311119	569.00	88.28	96.29	90.77	96.34	0.000195	1.79	317.87	57.14	0.13
North Main	reach 3 (south)	311119	889.00	88.28	98.12	91.55	98.19	0.000209	2.07	429.84	65.12	0.14
North Main	reach 3 (south)	311119	1298.00	88.28	99.95	92.37	100.03	0.000221	2.33	555.95	73.06	0.15
North Main	reach 3 (south)	311119	2652.00	88.28	102.49	94.45	102.50	0.000043	1.14	7381.88	3587.31	0.07
North Main	reach 3 (south)	310000	569.00	88.03	96.04	90.56	96.10	0.000235	1.99	285.74	48.91	0.15
North Main	reach 3 (south)	310000	889.00	88.03	97.84	91.36	97.92	0.000263	2.34	379.22	54.87	0.16
North Main	reach 3 (south)	310000	1298.00	88.03	99.63	92.23	99.75	0.000289	2.69	482.97	60.69	0.17
North Main	reach 3 (south)	310000	2652.00	88.03	102.43	94.45	102.44	0.000065	1.33	6497.51	3211.86	0.08
North Main	reach 3 (south)	308000	569.00	87.73	95.54	90.26	95.60	0.000260	2.07	275.22	48.06	0.15
North Main	reach 3 (south)	308000	889.00	87.73	97.27	91.07	97.37	0.000294	2.44	383.85	53.76	0.17
North Main	reach 3 (south)	308000	1298.00	87.73	99.01	91.93	99.13	0.000326	2.81	461.85	59.46	0.18
North Main	reach 3 (south)	308000	2652.00	87.73	102.26	94.15	102.28	0.000097	1.66	5631.20	3536.34	0.09
North Main	reach 3 (south)	307236	569.00	87.73	95.26	90.64	95.35	0.000419	2.45	231.79	44.90	0.19
North Main	reach 3 (south)	307236	889.00	87.73	96.96	91.54	97.09	0.000449	2.83	314.06	51.55	0.20
North Main	reach 3 (south)	307236	1298.00	87.73	98.67	92.47	98.83	0.000470	3.18	407.67	57.79	0.21
North Main	reach 3 (south)	307236	2652.00	87.73	102.10	94.76	102.15	0.000419	2.37	2671.78	2607.12	0.19
North Main	reach 3 (south)	307136	569.00	87.73	95.21	90.64	95.31	0.000429	2.48	229.78	44.73	0.19
North Main	reach 3 (south)	307136	889.00	87.73	96.92	91.54	97.04	0.000459	2.85	311.58	51.36	0.20
North Main	reach 3 (south)	307136	1298.00	87.73	98.62	92.47	98.78	0.000480	3.21	404.74	57.62	0.21
North Main	reach 3 (south)	307136	2652.00	87.73	102.05	94.76	102.11	0.000451	2.46	2547.95	2499.39	0.20
North Main	reach 3 (south)	306000	569.00	86.38	94.67	90.06	94.78	0.000502	2.65	214.49	42.05	0.21
North Main	reach 3 (south)	306000	889.00	86.38	96.33	91.07	96.47	0.000548	3.07	289.23	48.33	0.22
North Main	reach 3 (south)	306000	1298.00	86.38	98.00	92.08	98.18	0.000581	3.46	375.28	54.75	0.23
North Main	reach 3 (south)	306000	2652.00	86.38	101.03	94.52	101.38	0.000835	4.74	559.56	66.51	0.29
North Main	reach 3 (south)	304000	569.00	86.39	93.77	89.22	93.86	0.000420	2.47	230.69	44.48	0.19
North Main	reach 3 (south)	304000	889.00	86.39	95.31	90.10	95.44	0.000483	2.93	303.41	49.84	0.21
North Main	reach 3 (south)	304000	1298.00	86.39	96.89	91.02	97.07	0.000531	3.36	386.81	55.36	0.22
North Main	reach 3 (south)	304000	2652.00	86.39	99.17	93.30	99.57	0.000986	5.08	521.62	63.26	0.31
North Main	reach 3 (south)	302338	569.00	86.39	93.04	89.14	93.12	0.000466	2.38	239.21	54.82	0.20
North Main	reach 3 (south)	302338	889.00	86.39	94.51	89.94	94.63	0.000491	2.72	326.29	63.36	0.21
North Main	reach 3 (south)	302338	1298.00	86.39	96.08	90.78	96.22	0.000484	3.00	432.22	71.56	0.22
North Main	reach 3 (south)	302338	2652.00	86.39	99.07	92.81	99.08	0.000888	1.03	5321.13	2125.54	0.09
North Main	reach 3 (south)	302274	569.00	86.39	92.97	89.45	93.09	0.000699	2.71	209.71	53.34	0.24
North Main	reach 3 (south)	302274	889.00	86.39	94.45	90.31	94.59	0.000664	3.02	293.94	60.94	0.24
North Main	reach 3 (south)	302274	1298.00	86.39	96.01	91.23	96.18	0.000629	3.28	395.83	69.63	0.24
North Main	reach 3 (south)	302274	2652.00	86.39	99.05	93.33	99.07	0.001144	1.84	4050.19	2018.01	0.12
North Main	reach 3 (south)	301922	569.00	86.39	92.82	88.68	92.90	0.000368	2.24	253.92	52.64	0.18
North Main	reach 3 (south)	301922	889.00	86.39	94.29	89.41	94.40	0.000413	2.85	335.38	58.64	0.20
North Main	reach 3 (south)	301922	1298.00	86.39	95.85	90.19	95.99	0.000437	3.01	431.69	64.76	0.21
North Main	reach 3 (south)	301922	2652.00	86.39	98.97	92.18	99.01	0.000178	2.13	3472.22	2124.79	0.13
North Main	reach 3 (south)	301915	569.00	86.39	92.82	88.66	92.89	0.000357	2.22	256.67	52.84	0.18
North Main	reach 3 (south)	301915	889.00	86.39	94.28	89.38	94.39	0.000401	2.63	338.17	58.49	0.19
North Main	reach 3 (south)	301915	1298.00	86.39	95.84	90.15	95.98	0.000429	2.99	434.17	64.82	0.20
North Main	reach 3 (south)	301915	2652.00	86.39	98.98	92.13	99.00	0.000118	1.59	4746.56	2553.02	0.11

Reach	River Sta	Q Total	Min Ch El	WS Elev	Chl W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/m)	(ft/s)	(sq ft)	(ft)	(ft)
North Main	reach 3 (south)	301865	86.39	92.80	88.66	92.87	0.000381	2.23	255.68	58.41	0.18
North Main	reach 3 (south)	301865	86.39	94.28	89.38	94.37	0.004051	2.64	336.84	58.41	0.19
North Main	reach 3 (south)	301865	86.39	95.81	90.15	95.85	0.000433	3.00	432.70	64.72	0.20
North Main	reach 3 (south)	301885	86.39	98.98	92.13	98.98	0.000118	1.59	4730.86	2552.40	0.11
North Main	reach 3 (south)	301721	86.39	92.68	89.08	92.80	0.000637	2.80	203.41	45.33	0.23
North Main	reach 3 (south)	301721	86.39	95.62	89.80	94.28	0.000695	3.25	273.19	51.58	0.25
North Main	reach 3 (south)	301721	86.39	98.89	90.77	95.87	0.000711	3.63	358.04	58.28	0.26
North Main	reach 3 (south)	301655	86.39	94.07	89.90	94.24	0.000713	3.29	270.82	51.38	0.24
North Main	reach 3 (south)	301655	86.39	96.38	89.88	92.78	0.000655	2.83	201.35	45.13	0.24
North Main	reach 3 (south)	301655	86.39	98.87	90.78	96.82	0.000728	3.66	355.06	58.06	0.26
North Main	reach 3 (south)	300000	86.39	90.99	88.74	91.20	0.001441	3.73	152.58	40.80	0.34
North Main	reach 3 (south)	300000	86.39	92.35	89.50	92.63	0.001382	4.21	211.34	45.24	0.34
North Main	reach 3 (south)	300000	86.39	93.98	90.32	94.28	0.001226	4.50	288.24	50.42	0.33
North Main	reach 3 (south)	300000	86.39	97.20	92.41	97.69	0.001331	5.66	468.18	60.85	0.36
North Main	reach 3 (south)	299385	86.39	89.70	88.37	90.00	0.002731	4.37	130.23	44.81	0.45
North Main	reach 3 (south)	299385	86.39	91.47	89.04	91.74	0.001513	4.16	213.85	50.11	0.35
North Main	reach 3 (south)	299385	86.39	93.28	89.75	93.65	0.001087	4.20	308.85	54.66	0.31
North Main	reach 3 (south)	299385	86.39	96.46	91.65	96.90	0.001193	5.37	493.72	63.33	0.34
North Main	reach 3 (south)	299378	Inline Weir								
North Main	reach 3 (south)	299365	83.41	89.69	85.93	89.81	0.000576	2.74	207.64	43.06	0.22
North Main	reach 3 (south)	299365	83.41	91.46	86.72	91.61	0.000559	3.08	288.53	48.85	0.22
North Main	reach 3 (south)	299365	83.41	93.27	87.58	93.45	0.000448	3.40	381.83	54.28	0.23
North Main	reach 3 (south)	299365	83.41	96.44	89.77	96.78	0.000774	4.87	568.43	64.49	0.28
North Main	reach 3 (south)	299000	81.06	89.31	84.78	89.36	0.000196	1.81	314.52	55.58	0.13
North Main	reach 3 (south)	299000	81.06	91.06	86.59	91.13	0.000219	2.13	417.90	62.70	0.15
North Main	reach 3 (south)	299000	81.06	92.87	85.37	92.98	0.000235	2.41	537.80	70.05	0.15
North Main	reach 3 (south)	298000	81.06	95.82	87.47	96.01	0.000381	3.48	762.64	82.10	0.20
North Main	reach 3 (south)	297659	81.21	89.28	83.77	89.30	0.000165	1.64	345.97	62.94	0.12
North Main	reach 3 (south)	297659	81.21	91.00	85.28	91.06	0.000178	1.92	462.05	70.12	0.13
North Main	reach 3 (south)	297659	81.21	92.81	85.28	92.88	0.000189	2.18	595.10	77.62	0.14
North Main	reach 3 (south)	297659	81.21	95.73	87.23	95.88	0.000307	3.15	840.66	90.28	0.18
North Main	reach 3 (south)	297557	81.21	89.24	83.77	89.28	0.000166	1.65	344.89	62.87	0.12
North Main	reach 3 (south)	297557	81.21	90.98	84.51	91.04	0.000180	1.93	460.74	70.04	0.13
North Main	reach 3 (south)	297557	81.21	92.79	85.28	92.86	0.000190	2.19	593.96	77.53	0.14
North Main	reach 3 (south)	297557	81.21	95.70	87.23	95.85	0.000310	3.17	837.70	90.14	0.18
North Main	reach 3 (south)	296000	80.22	89.01	82.79	89.05	0.000133	1.58	380.63	58.13	0.11
North Main	reach 3 (south)	296000	80.22	90.72	83.57	90.78	0.000160	1.91	465.01	64.08	0.13
North Main	reach 3 (south)	296000	80.22	92.49	84.40	92.57	0.000181	2.22	583.95	70.23	0.14
North Main	reach 3 (south)	296000	80.22	95.34	86.38	95.43	0.000218	2.73	2012.02	1180.86	0.15
North Main	reach 3 (south)	294000	80.54	88.68	83.32	88.73	0.000186	1.75	324.64	58.20	0.13
North Main	reach 3 (south)	294000	80.54	90.34	84.88	90.41	0.000210	2.05	451.46	70.05	0.14
North Main	reach 3 (south)	294000	80.54	92.07	84.88	92.16	0.000229	2.40	541.46	78.05	0.16
North Main	reach 3 (south)	294000	80.54	94.63	86.85	94.84	0.000416	3.62	733.03	79.39	0.21
North Main	reach 3 (south)	292000	80.24	88.35	82.68	88.39	0.000160	1.64	347.83	62.15	0.12
North Main	reach 3 (south)	292000	80.24	89.95	83.43	90.01	0.000185	1.97	452.09	67.65	0.13
North Main	reach 3 (south)	292000	80.24	91.84	84.23	91.72	0.000203	2.27	517.30	73.44	0.14
North Main	reach 3 (south)	292000	80.24	93.80	86.21	94.00	0.000416	3.59	737.90	80.87	0.21
North Main	reach 3 (south)	290823	80.24	88.14	82.70	88.18	0.000189	1.78	324.13	58.83	0.13
North Main	reach 3 (south)	290823	80.24	89.70	83.46	89.77	0.000224	2.11	422.02	65.92	0.15
North Main	reach 3 (south)	290823	80.24	91.37	84.26	91.46	0.000247	2.41	537.89	73.44	0.16
North Main	reach 3 (south)	290823	80.24	93.41	86.27	93.53	0.000350	3.15	1414.73	529.95	0.18
North Main	reach 3 (south)	290745	80.24	88.12	82.70	88.17	0.000190	1.76	323.24	58.77	0.13
North Main	reach 3 (south)	290745	80.24	89.69	83.46	89.76	0.000226	2.11	420.84	65.84	0.15
North Main	reach 3 (south)	290745	80.24	91.35	84.27	91.44	0.000248	2.42	536.53	73.35	0.16
North Main	reach 3 (south)	290745	80.24	93.38	86.27	93.50	0.000385	3.14	1399.83	528.53	0.20
North Main	reach 3 (south)	290000	80.24	88.00	82.40	88.04	0.000156	1.65	344.71	59.01	0.12
North Main	reach 3 (south)	290000	80.24	89.54	83.10	89.60	0.000192	2.02	439.75	64.45	0.14
North Main	reach 3 (south)	290000	80.24	91.18	83.85	91.27	0.000219	2.36	550.41	70.27	0.15
North Main	reach 3 (south)	290000	80.24	93.12	85.78	93.24	0.000322	3.12	1783.28	1147.92	0.18
North Main	reach 3 (south)	288232	80.38	87.68	82.52	87.74	0.000183	1.71	332.27	61.39	0.13
North Main	reach 3 (south)	288232	80.38	89.17	83.21	89.24	0.000222	2.08	427.44	67.79	0.15

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	288232	1298.00	80.38	90.77	83.94	90.86	0.000248	2.40	541.32	74.73	0.16
North Main	reach 3 (south)	288232	2652.00	80.38	92.71	85.85	92.76	0.000203	2.39	3217.41	2435.99	0.15
North Main	reach 3 (south)	288185	569.00	80.38	87.68	82.52	87.73	0.000184	1.72	331.50	81.33	0.13
North Main	reach 3 (south)	288185	889.00	80.38	89.15	83.21	89.22	0.000223	2.08	426.40	67.72	0.15
North Main	reach 3 (south)	288185	1298.00	80.38	90.75	83.94	90.84	0.000248	2.40	540.05	74.66	0.16
North Main	reach 3 (south)	288185	2652.00	80.38	92.70	85.85	92.75	0.000205	2.40	3195.91	2421.62	0.15
North Main	reach 3 (south)	288000	569.00	80.38	87.63	82.62	87.69	0.000237	1.95	291.92	52.81	0.15
North Main	reach 3 (south)	288000	889.00	80.38	89.09	83.34	89.18	0.000293	2.39	372.39	57.85	0.17
North Main	reach 3 (south)	288000	1298.00	80.38	90.67	84.14	90.79	0.000331	2.77	468.24	63.34	0.18
North Main	reach 3 (south)	288000	2652.00	80.38	92.70	86.17	92.71	0.000149	1.30	5083.19	3049.28	0.11
North Main	reach 3 (south)	286897	1044.00	80.37	87.19	82.89	87.30	0.000456	2.68	389.81	73.49	0.20
North Main	reach 3 (south)	286897	1567.00	80.37	88.56	83.85	88.71	0.000522	3.17	495.03	80.16	0.22
North Main	reach 3 (south)	286897	2228.00	80.37	90.00	84.48	90.29	0.000549	3.58	623.09	86.90	0.24
North Main	reach 3 (south)	286897	4412.00	80.37	92.30	86.61	92.42	0.000458	3.43	3237.59	2071.95	0.22
North Main	reach 3 (south)	286000	1044.00	80.36	86.65	82.98	86.81	0.000659	3.13	333.79	65.67	0.24
North Main	reach 3 (south)	286000	1567.00	80.36	87.93	83.74	88.14	0.000763	3.72	420.77	70.79	0.27
North Main	reach 3 (south)	286000	2228.00	80.36	89.42	84.58	89.69	0.000797	4.20	530.32	76.49	0.28
North Main	reach 3 (south)	286000	4412.00	80.36	91.58	86.76	91.86	0.000818	4.79	2375.36	2202.79	0.29
North Main	reach 3 (south)	284529	1044.00	80.36	83.43	83.06	84.33	0.009023	7.61	137.11	51.53	0.82
North Main	reach 3 (south)	284529	1567.00	80.36	85.29	83.84	85.95	0.003854	6.51	240.78	59.95	0.57
North Main	reach 3 (south)	284529	2228.00	80.36	87.18	84.71	87.77	0.002406	6.14	362.73	68.72	0.47
North Main	reach 3 (south)	284529	4412.00	80.36	90.51	86.91	90.58	0.000837	2.97	3269.05	2199.42	0.27
North Main	reach 3 (south)	284517	Inline Weir									
North Main	reach 3 (south)	284500	1044.00	74.78	83.42	77.76	83.51	0.000307	2.48	421.04	64.96	0.17
North Main	reach 3 (south)	284500	1567.00	74.78	85.28	78.62	85.41	0.000331	2.86	548.62	71.88	0.18
North Main	reach 3 (south)	284500	2228.00	74.78	87.17	79.55	87.33	0.000353	3.22	691.18	78.89	0.19
North Main	reach 3 (south)	284500	4412.00	74.78	90.50	81.95	90.57	0.000429	2.58	3622.57	2201.84	0.20
North Main	reach 3 (south)	284287	1044.00	74.78	83.33	77.89	83.44	0.000369	2.68	388.89	60.65	0.19
North Main	reach 3 (south)	284287	1567.00	74.78	85.18	78.79	85.33	0.000396	3.09	507.39	67.19	0.20
North Main	reach 3 (south)	284287	2228.00	74.78	87.06	79.75	87.25	0.000422	3.49	639.95	73.82	0.21
North Main	reach 3 (south)	284287	4412.00	74.78	90.39	82.22	90.46	0.000594	2.51	3314.31	2077.42	0.22
North Main	reach 3 (south)	284201	1044.00	74.78	83.29	77.89	83.40	0.000376	2.70	386.48	60.51	0.19
North Main	reach 3 (south)	284201	1567.00	74.78	85.14	78.79	85.29	0.000403	3.11	504.58	67.04	0.20
North Main	reach 3 (south)	284201	2228.00	74.78	87.02	79.75	87.21	0.000428	3.50	636.72	73.67	0.21
North Main	reach 3 (south)	284201	4412.00	74.78	89.99	82.22	90.33	0.002038	4.68	942.80	237.58	0.41
North Main	reach 3 (south)	284000	1044.00	73.32	83.23	77.22	83.33	0.000305	2.44	427.34	66.52	0.17
North Main	reach 3 (south)	284000	1567.00	73.32	85.09	78.40	85.21	0.000325	2.82	556.58	73.05	0.18
North Main	reach 3 (south)	284000	2228.00	73.32	86.96	79.45	87.12	0.000346	3.18	699.89	79.59	0.19
North Main	reach 3 (south)	284000	4412.00	73.32	89.79	81.75	90.13	0.000602	4.70	938.35	89.41	0.26
North Main	reach 3 (south)	282000	1044.00	73.33	82.71	76.35	82.79	0.000235	2.26	462.37	66.88	0.15
North Main	reach 3 (south)	282000	1567.00	73.33	84.50	77.22	84.61	0.000272	2.66	588.16	73.65	0.17
North Main	reach 3 (south)	282000	2228.00	73.33	86.33	78.15	86.48	0.000304	3.05	729.46	80.57	0.18
North Main	reach 3 (south)	282000	4412.00	73.33	88.53	80.56	88.88	0.000642	4.82	915.22	88.85	0.26
North Main	reach 3 (south)	280327	1044.00	73.32	82.24	76.48	82.34	0.000311	2.49	419.60	65.13	0.17
North Main	reach 3 (south)	280327	1567.00	73.32	83.96	77.37	84.09	0.000354	2.91	537.61	72.20	0.19
North Main	reach 3 (south)	280327	2228.00	73.32	85.73	78.34	85.90	0.000392	3.32	671.86	79.95	0.20
North Main	reach 3 (south)	280327	4412.00	73.32	87.82	80.79	87.97	0.000416	3.62	2753.43	1266.06	0.21
North Main	reach 3 (south)	280263	1044.00	73.32	82.22	76.48	82.32	0.000314	2.50	418.26	65.05	0.17
North Main	reach 3 (south)	280263	1567.00	73.32	83.94	77.37	84.07	0.000357	2.92	535.90	72.10	0.19
North Main	reach 3 (south)	280263	2228.00	73.32	85.70	78.34	85.88	0.000395	3.33	669.75	79.78	0.20
North Main	reach 3 (south)	280263	4412.00	73.32	87.79	80.78	87.94	0.000427	3.67	2712.52	1265.06	0.21
North Main	reach 3 (south)	280000	1044.00	73.32	82.14	76.38	82.24	0.000307	2.49	418.66	63.76	0.17
North Main	reach 3 (south)	280000	1567.00	73.32	83.84	77.25	83.97	0.000354	2.94	532.47	70.04	0.19
North Main	reach 3 (south)	280000	2228.00	73.32	85.59	78.21	85.77	0.000395	3.37	661.03	76.52	0.20
North Main	reach 3 (south)	280000	4412.00	73.32	87.68	80.64	87.83	0.000410	3.73	2699.48	1203.64	0.21
North Main	reach 3 (south)	278000	1044.00	73.32	81.32	76.63	81.46	0.000504	2.96	352.18	60.61	0.22
North Main	reach 3 (south)	278000	1567.00	73.32	82.90	77.54	83.09	0.000563	3.46	452.96	66.82	0.23
North Main	reach 3 (south)	278000	2228.00	73.32	84.56	78.50	84.80	0.000610	3.91	569.41	73.87	0.25
North Main	reach 3 (south)	278000	4412.00	73.32	87.10	80.94	87.16	0.000254	2.81	4149.13	1754.65	0.16
North Main	reach 3 (south)	276000	1044.00	74.04	80.08	76.67	80.25	0.000745	3.27	319.66	64.43	0.26
North Main	reach 3 (south)	276000	1567.00	74.04	81.56	77.41	81.78	0.000765	3.74	419.03	69.84	0.27
North Main	reach 3 (south)	276000	2228.00	74.04	83.16	78.25	83.43	0.000768	4.16	535.19	75.75	0.28
North Main	reach 3 (south)	276000	4412.00	74.04	85.50	80.41	86.06	0.001695	5.98	737.30	110.50	0.41

HEC-RAS Plan, P 50% D (Continued)

River	Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chf
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
North Main	reach 3 (south)	275122	1044.00	74.04	78.74	78.94	79.13	0.002514	5.01	208.44	55.88	0.48
North Main	reach 3 (south)	275122	1567.00	74.04	80.36	77.75	80.77	0.001874	5.15	304.29	61.91	0.41
North Main	reach 3 (south)	275122	2228.00	74.04	82.03	78.65	82.48	0.001563	5.40	412.25	67.42	0.39
North Main	reach 3 (south)	275122	4412.00	74.04	84.01	80.88	84.48	0.001853	6.18	1661.38	1565.81	0.42
North Main	reach 3 (south)	275113	Inline Weir									
North Main	reach 3 (south)	275102	1044.00	70.28	78.73	73.20	78.83	0.000348	2.58	404.98	64.47	0.18
North Main	reach 3 (south)	275102	1567.00	70.28	80.35	74.06	80.49	0.000401	3.05	513.91	70.20	0.20
North Main	reach 3 (south)	275102	2228.00	70.28	82.02	75.00	82.21	0.000448	3.50	636.53	76.62	0.21
North Main	reach 3 (south)	275102	4412.00	70.28	84.00	77.51	84.31	0.000810	4.75	1896.28	1663.35	0.29
North Main	reach 3 (south)	274837	1044.00	70.28	78.74	72.17	78.77	0.000984	1.38	754.80	109.82	0.09
North Main	reach 3 (south)	274837	1567.00	70.28	80.37	72.74	80.42	0.000101	1.67	939.84	117.29	0.10
North Main	reach 3 (south)	274837	2228.00	70.28	82.06	73.36	82.12	0.000115	1.95	1143.81	124.41	0.11
North Main	reach 3 (south)	274837	4412.00	70.28	84.05	75.03	84.14	0.000170	2.59	3608.02	2501.91	0.14
North Main	reach 3 (south)	274000	1044.00	70.28	78.57	72.91	78.85	0.000250	2.24	465.38	72.09	0.18
North Main	reach 3 (south)	274000	1567.00	70.28	80.18	73.68	80.27	0.000296	2.68	585.04	78.59	0.17
North Main	reach 3 (south)	274000	2228.00	70.28	81.81	74.52	81.98	0.000337	3.09	719.95	85.34	0.19
North Main	reach 3 (south)	274000	4412.00	70.28	83.78	76.72	83.92	0.000380	3.59	3569.14	3590.33	0.20
North Main	reach 3 (south)	272412	1044.00	70.28	78.21	72.67	78.28	0.000220	2.08	503.02	80.48	0.15
North Main	reach 3 (south)	272412	1567.00	70.28	79.73	73.39	79.83	0.000261	2.48	630.89	87.17	0.16
North Main	reach 3 (south)	272412	2228.00	70.28	81.32	74.16	81.45	0.000295	2.88	774.77	94.15	0.18
North Main	reach 3 (south)	272412	4412.00	70.28	82.75	76.21	83.11	0.000731	4.83	913.54	100.35	0.28
North Main	reach 3 (south)	271000	1308.00	70.27	77.68	73.02	77.82	0.000460	2.95	442.56	71.55	0.21
North Main	reach 3 (south)	271000	1925.00	70.27	79.09	73.80	79.29	0.000540	3.52	546.79	78.06	0.23
North Main	reach 3 (south)	271000	2703.00	70.27	80.58	74.65	80.84	0.000614	4.08	683.14	80.98	0.25
North Main	reach 3 (south)	271000	5237.00	70.27	82.48	76.90	82.52	0.000201	2.55	5788.17	2953.93	0.15
North Main	reach 3 (south)	269920	1308.00	70.27	76.73	73.80	77.03	0.001290	4.37	299.05	58.43	0.34
North Main	reach 3 (south)	269920	1925.00	70.27	77.94	74.51	78.36	0.001498	5.16	372.71	62.99	0.37
North Main	reach 3 (south)	269920	2703.00	70.27	79.25	75.50	79.79	0.001852	5.90	458.00	67.82	0.40
North Main	reach 3 (south)	269920	5237.00	70.27	82.04	78.02	82.14	0.000740	3.57	3567.52	2733.89	0.28
North Main	reach 3 (south)	269788	1308.00	70.27	76.52	73.60	78.84	0.001453	4.55	286.91	57.64	0.38
North Main	reach 3 (south)	269788	1925.00	70.27	77.69	74.51	78.14	0.001893	5.39	356.96	62.04	0.40
North Main	reach 3 (south)	269788	2703.00	70.27	78.98	75.50	79.55	0.001863	6.16	438.78	66.77	0.42
North Main	reach 3 (south)	269788	5237.00	70.27	81.92	78.02	82.03	0.000892	3.89	3288.72	2252.07	0.29
North Main	reach 3 (south)	269131	1308.00	70.27	73.88	73.37	74.78	0.009895	8.42	155.13	52.85	0.88
North Main	reach 3 (south)	269131	1925.00	70.27	74.97	74.22	76.09	0.008856	8.51	226.23	57.83	0.78
North Main	reach 3 (south)	269131	2703.00	70.27	76.63	75.13	77.88	0.004581	8.25	327.64	64.30	0.84
North Main	reach 3 (south)	269131	5237.00	70.27	78.81	77.51	80.68	0.005855	10.98	478.85	72.58	0.78
North Main	reach 3 (south)	269121	Inline Weir									
North Main	reach 3 (south)	269108	1308.00	65.34	73.39	68.57	73.57	0.000596	3.38	386.45	60.53	0.24
North Main	reach 3 (south)	269108	1925.00	65.34	74.98	69.48	75.20	0.000684	3.98	485.78	68.13	0.26
North Main	reach 3 (south)	269108	2703.00	65.34	76.62	70.48	76.93	0.000755	4.50	600.85	72.53	0.28
North Main	reach 3 (south)	269108	5237.00	65.34	78.80	73.11	79.52	0.001468	6.81	769.13	82.03	0.39
North Main	reach 3 (south)	268000	1308.00	65.34	72.74	68.42	72.90	0.000600	3.23	404.71	70.78	0.24
North Main	reach 3 (south)	268000	1925.00	65.34	74.23	69.26	74.45	0.000658	3.73	515.42	77.23	0.25
North Main	reach 3 (south)	268000	2703.00	65.34	75.85	70.19	76.12	0.000694	4.19	645.50	84.35	0.27
North Main	reach 3 (south)	268000	5237.00	65.34	76.91	72.53	77.89	0.001856	7.09	738.38	90.28	0.44
North Main	reach 3 (south)	268698	1308.00	65.32	71.74	68.31	71.95	0.000905	3.67	355.61	70.23	0.29
North Main	reach 3 (south)	268698	1925.00	65.32	73.16	69.13	73.43	0.000944	4.19	459.84	76.70	0.30
North Main	reach 3 (south)	268698	2703.00	65.32	74.75	70.01	75.08	0.000933	4.60	587.43	83.93	0.31
North Main	reach 3 (south)	268698	5237.00	65.32	75.87	72.28	78.05	0.000750	4.39	3969.08	3379.30	0.28
North Main	reach 3 (south)	268688	Inline Weir									
North Main	reach 3 (south)	268679	1308.00	61.46	71.73	64.54	71.80	0.000168	2.06	633.19	82.58	0.13
North Main	reach 3 (south)	268679	1925.00	61.46	73.15	65.38	73.26	0.000224	2.55	754.34	88.12	0.15
North Main	reach 3 (south)	268679	2703.00	61.46	74.74	66.24	74.88	0.000271	3.01	898.93	94.49	0.17
North Main	reach 3 (south)	268679	5237.00	61.46	75.86	68.53	76.01	0.000362	3.62	4334.96	3390.99	0.20
North Main	reach 3 (south)	268000	1308.00	59.80	71.86	62.86	71.70	0.000101	1.73	756.64	87.45	0.10
North Main	reach 3 (south)	268000	1925.00	59.80	73.05	63.72	73.12	0.000144	2.18	881.81	92.83	0.12
North Main	reach 3 (south)	268000	2703.00	59.80	74.62	64.63	74.72	0.000178	2.59	1321.83	2117.71	0.14
North Main	reach 3 (south)	268000	5237.00	59.80	75.66	66.95	75.79	0.000277	3.34	4505.49	3329.08	0.18
North Main	reach 3 (south)	265565	1308.00	59.80	71.58	63.58	71.85	0.000165	2.05	638.51	83.16	0.13
North Main	reach 3 (south)	265565	1925.00	59.80	72.94	64.54	73.04	0.000227	2.55	756.07	90.02	0.15



HEC-RAS Plan-D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	285585	2703.00	59.80	74.55	65.56	74.63	0.000194	2.50	2442.72	2577.99	0.15
North Main	reach 3 (south)	285585	5237.00	59.80	75.60	68.12	75.66	0.000215	2.74	6313.26	3900.65	0.15
North Main	reach 3 (south)	285509	1306.00	59.80	71.57	63.58	71.64	0.000165	2.05	637.72	83.12	0.13
North Main	reach 3 (south)	285509	1925.00	59.80	72.93	64.54	73.03	0.000228	2.55	754.88	89.95	0.16
North Main	reach 3 (south)	285509	2703.00	59.80	74.54	65.57	74.62	0.000196	2.52	2411.61	2501.19	0.15
North Main	reach 3 (south)	285509	5237.00	59.80	75.59	68.13	75.66	0.000217	2.75	6285.53	3900.41	0.15
North Main	reach 3 (south)	284000	1306.00	59.75	71.35	63.05	71.41	0.000134	1.94	672.47	79.85	0.12
North Main	reach 3 (south)	284000	1925.00	59.75	72.61	63.91	72.71	0.000198	2.48	775.92	84.53	0.14
North Main	reach 3 (south)	284000	2703.00	59.75	74.38	64.86	74.41	0.000093	1.80	4775.49	3350.77	0.10
North Main	reach 3 (south)	284000	5237.00	59.75	75.37	67.30	75.39	0.000135	1.83	8421.46	3870.84	0.12
North Main	reach 3 (south)	282000	1306.00	59.40	71.07	62.70	71.13	0.000144	2.00	652.77	77.68	0.12
North Main	reach 3 (south)	282000	1925.00	59.40	72.19	63.83	72.29	0.000220	2.60	741.76	81.88	0.15
North Main	reach 3 (south)	282000	2703.00	59.40	73.88	64.61	73.99	0.000775	2.71	998.81	280.60	0.25
North Main	reach 3 (south)	282000	5237.00	59.40	75.08	67.14	75.09	0.000154	1.35	7418.25	3688.42	0.12
North Main	reach 3 (south)	280000	1565.00	59.40	70.74	63.04	70.79	0.000206	1.92	813.96	141.38	0.14
North Main	reach 3 (south)	280000	2291.00	59.40	71.70	63.96	71.79	0.000280	2.36	1109.80	636.34	0.17
North Main	reach 3 (south)	280000	3206.00	59.40	73.16	64.96	73.23	0.000241	2.26	2116.98	724.22	0.16
North Main	reach 3 (south)	280000	6165.00	59.40	74.77	67.44	74.81	0.000216	2.01	6283.72	2307.97	0.15
North Main	reach 3 (south)	258000	1565.00	58.66	70.40	62.05	70.47	0.000134	2.00	783.40	90.06	0.12
North Main	reach 3 (south)	258000	2291.00	58.66	71.17	62.90	71.28	0.000226	2.68	853.62	92.95	0.16
North Main	reach 3 (south)	258000	3206.00	58.66	72.55	63.83	72.70	0.000279	3.16	1407.27	1143.01	0.18
North Main	reach 3 (south)	258000	6165.00	58.66	74.24	66.26	74.34	0.000260	3.24	5860.31	3333.94	0.17
North Main	reach 3 (south)	256881	1565.00	58.71	70.20	62.22	70.27	0.000159	2.10	746.58	91.48	0.13
North Main	reach 3 (south)	256881	2291.00	58.71	70.83	63.12	70.95	0.000277	2.85	804.33	94.30	0.17
North Main	reach 3 (south)	256881	3206.00	58.71	72.15	64.09	72.31	0.000320	3.24	1437.21	944.54	0.19
North Main	reach 3 (south)	256881	6165.00	58.71	74.07	66.57	74.08	0.000124	1.40	10036.97	3979.91	0.11
North Main	reach 3 (south)	256121	1565.00	58.27	70.20	60.74	70.22	0.000042	1.20	1307.47	139.20	0.07
North Main	reach 3 (south)	256121	2291.00	58.27	70.81	61.35	70.85	0.000075	1.64	1394.21	141.97	0.09
North Main	reach 3 (south)	256121	3206.00	58.27	72.08	62.02	72.14	0.000184	1.97	1626.03	2491.28	0.14
North Main	reach 3 (south)	256121	6165.00	58.27	74.04	63.78	74.04	0.000042	1.04	12616.26	3691.26	0.07
North Main	reach 3 (south)	255591	1565.00	58.07	70.14	61.69	70.18	0.000133	1.72	1165.27	2925.53	0.12
North Main	reach 3 (south)	255591	2291.00	58.07	70.73	62.56	70.79	0.000206	2.19	1455.49	2991.82	0.14
North Main	reach 3 (south)	255591	3206.00	58.07	71.97	63.50	72.03	0.000219	2.18	2375.91	3408.82	0.15
North Main	reach 3 (south)	255591	6165.00	58.07	74.02	65.91	74.02	0.000020	0.69	17352.46	3508.22	0.05
North Main	reach 3 (south)	254845	1565.00	58.07	70.09	61.47	70.11	0.000060	1.34	2899.84	3937.21	0.08
North Main	reach 3 (south)	254845	2291.00	58.07	70.65	62.33	70.66	0.000113	1.22	4021.30	4057.50	0.10
North Main	reach 3 (south)	254845	3206.00	58.07	71.94	63.25	71.94	0.000058	0.91	6761.47	4243.89	0.07
North Main	reach 3 (south)	254845	6165.00	58.07	74.01	65.65	74.01	0.000011	0.49	23296.69	4330.02	0.03
North Main	reach 3 (south)	254785	1565.00	58.07	70.09	61.47	70.11	0.000061	1.34	2890.55	3936.80	0.08
North Main	reach 3 (south)	254785	2291.00	58.07	70.64	62.33	70.65	0.000115	1.23	3990.98	4056.68	0.10
North Main	reach 3 (south)	254785	3206.00	58.07	71.93	63.25	71.93	0.000059	0.91	6740.58	4243.06	0.07
North Main	reach 3 (south)	254785	6165.00	58.07	74.01	65.65	74.01	0.000011	0.49	23276.31	4329.97	0.03
North Main	reach 3 (south)	254000	1565.00	58.07	69.97	61.54	70.04	0.000149	2.11	743.02	84.92	0.13
North Main	reach 3 (south)	254000	2291.00	58.07	70.61	62.48	70.61	0.000020	0.68	8891.81	4119.64	0.04
North Main	reach 3 (south)	254000	3206.00	58.07	71.91	63.44	71.91	0.000013	0.56	13020.31	4246.23	0.04
North Main	reach 3 (south)	254000	6165.00	58.07	73.99	65.99	74.00	0.000013	0.63	19831.49	4274.21	0.04
North Main	reach 3 (south)	252000	1565.00	58.08	69.62	61.85	69.70	0.000187	2.24	698.35	87.41	0.14
North Main	reach 3 (south)	252000	2291.00	58.08	70.58	62.80	70.58	0.000023	0.67	8436.64	5956.10	0.05
North Main	reach 3 (south)	252000	3206.00	58.08	71.89	63.81	71.89	0.000014	0.58	12323.81	5964.73	0.04
North Main	reach 3 (south)	252000	6165.00	58.08	73.97	66.38	73.97	0.000014	0.68	18505.63	5975.45	0.04
North Main	reach 3 (south)	250880	1565.00	57.32	69.42	60.90	69.46	0.000214	1.71	915.27	193.03	0.14
North Main	reach 3 (south)	250880	2291.00	57.32	70.54	61.84	70.55	0.000044	0.83	5042.94	4955.65	0.06
North Main	reach 3 (south)	250880	3206.00	57.32	71.87	62.84	71.87	0.000031	0.81	7044.94	4960.88	0.06
North Main	reach 3 (south)	250880	6165.00	57.32	73.95	65.39	73.95	0.000036	1.01	10199.77	4981.62	0.06
North Main	reach 3 (south)	250000	1630.00	57.29	69.31	60.32	69.35	0.000092	1.63	1001.26	119.72	0.10
North Main	reach 3 (south)	250000	2428.00	57.29	70.51	61.17	70.51	0.000058	0.95	5173.87	5006.17	0.07
North Main	reach 3 (south)	250000	3444.00	57.29	71.85	62.10	71.85	0.000035	0.83	7952.69	5055.88	0.06
North Main	reach 3 (south)	250000	6802.00	57.29	73.94	64.50	73.94	0.000007	0.43	30197.91	5097.51	0.03
North Main	reach 3 (south)	248746	1630.00	57.29	69.13	60.88	69.19	0.000165	2.09	778.53	98.91	0.13
North Main	reach 3 (south)	248746	2428.00	57.29	70.37	61.88	70.41	0.000243	1.85	2101.96	3903.02	0.15
North Main	reach 3 (south)	248746	3444.00	57.29	71.77	62.94	71.80	0.000142	1.66	3418.63	3915.08	0.12
North Main	reach 3 (south)	248746	6802.00	57.29	73.93	65.66	73.93	0.000014	0.62	21990.10	3932.74	0.04
North Main	reach 3 (south)	248519	1630.00	57.29	69.09	60.88	69.16	0.000158	2.10	774.85	94.14	0.13

HFC-PAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 3 (south)	248519	2428.00	57.29	70.31	61.88	70.36	0.000261	1.86	2054.60	3902.59	0.15
North Main	reach 3 (south)	248519	3444.00	57.29	71.74	62.94	71.77	0.000145	1.65	3393.20	3914.85	0.12
North Main	reach 3 (south)	248519	6802.00	57.29	73.92	65.66	73.92	0.000014	0.61	21958.90	3932.88	0.04
North Main	reach 3 (south)	248000	1630.00	57.30	68.99	61.28	69.07	0.000185	2.24	726.14	90.46	0.14
North Main	reach 3 (south)	248000	2428.00	57.30	70.28	62.30	70.29	0.000063	1.29	4837.47	3882.15	0.08
North Main	reach 3 (south)	248000	3444.00	57.30	71.72	63.33	71.73	0.000039	1.02	7665.78	3964.60	0.06
North Main	reach 3 (south)	248000	6802.00	57.30	73.91	66.06	73.92	0.000014	0.68	22145.70	4016.60	0.04
North Main	reach 3 (south)	247478	1630.00	57.30	68.61	66.70	68.83	0.001791	3.81	427.55	118.64	0.35
North Main	reach 3 (south)	247478	2428.00	57.30	70.26	67.29	70.26	0.000067	0.81	4906.70	3902.61	0.07
North Main	reach 3 (south)	247478	3444.00	57.30	71.71	67.94	71.71	0.000040	0.78	7524.32	4066.27	0.06
North Main	reach 3 (south)	247478	6802.00	57.30	73.91	70.00	73.91	0.000019	0.66	20518.20	4202.29	0.04
North Main	reach 3 (south)	247400	1630.00	57.30	68.49	66.61	68.70	0.001670	3.63	449.61	129.34	0.34
North Main	reach 3 (south)	247400	2428.00	57.30	70.25	67.15	70.26	0.000067	0.82	4892.11	3894.02	0.07
North Main	reach 3 (south)	247400	3444.00	57.30	71.71	67.79	71.71	0.000040	0.77	7601.89	4058.18	0.06
North Main	reach 3 (south)	247400	6802.00	57.30	73.90	69.49	73.90	0.000020	0.66	20451.14	4194.33	0.04
North Main	reach 3 (south)	246000	1630.00	57.05	67.98	60.62	68.04	0.000203	2.28	714.12	93.48	0.15
North Main	reach 3 (south)	246000	2428.00	57.05	70.12	61.61	70.15	0.000097	1.63	2921.51	3499.10	0.10
North Main	reach 3 (south)	246000	3444.00	57.05	71.61	62.65	71.63	0.000077	1.52	4278.19	3551.03	0.09
North Main	reach 3 (south)	246000	6802.00	57.05	73.88	65.30	73.88	0.000017	0.81	19718.70	3566.16	0.04
North Main	reach 3 (south)	244000	1630.00	57.05	67.28	61.42	67.44	0.000457	3.14	519.56	76.86	0.21
North Main	reach 3 (south)	244000	2428.00	57.05	69.59	62.54	69.77	0.000429	3.42	709.21	87.44	0.21
North Main	reach 3 (south)	244000	3444.00	57.05	71.39	63.72	71.43	0.000139	2.11	3521.11	5914.84	0.12
North Main	reach 3 (south)	244000	6802.00	57.05	73.85	66.66	73.85	0.000007	0.44	32065.66	6013.20	0.03
North Main	reach 3 (south)	242500	1630.00	56.61	66.58	61.05	66.74	0.000467	3.20	509.73	74.37	0.22
North Main	reach 3 (south)	242500	2428.00	56.61	68.94	62.07	69.12	0.000436	3.49	695.95	84.04	0.21
North Main	reach 3 (south)	242500	3444.00	56.61	70.82	63.17	71.06	0.000478	3.96	1029.39	3627.18	0.23
North Main	reach 3 (south)	242500	6802.00	56.61	73.82	66.03	73.83	0.000046	1.34	14367.30	3758.79	0.07
North Main	reach 3 (south)	241505	1630.00	56.61	66.14	60.37	66.29	0.000436	3.13	520.48	73.99	0.21
North Main	reach 3 (south)	241505	2428.00	56.61	68.52	61.41	68.70	0.000412	3.43	707.91	83.62	0.21
North Main	reach 3 (south)	241505	3444.00	56.61	70.34	62.51	70.58	0.000475	3.97	866.88	91.00	0.23
North Main	reach 3 (south)	241505	6802.00	56.61	73.09	65.41	73.65	0.000891	6.00	1132.96	839.50	0.32
North Main	reach 3 (south)	240950	1630.00	56.61	65.88	60.53	66.04	0.000489	3.19	511.21	78.00	0.22
North Main	reach 3 (south)	240950	2428.00	56.61	68.29	61.55	68.47	0.000433	3.41	712.78	89.48	0.21
North Main	reach 3 (south)	240950	3444.00	56.61	70.08	62.64	70.32	0.000486	3.91	880.59	97.74	0.23
North Main	reach 3 (south)	240950	6802.00	56.61	72.59	65.42	73.15	0.000932	5.96	1140.99	314.20	0.33
North Main	reach 3 (south)	240919	1630.00	56.61	65.86	60.53	66.02	0.000492	3.20	509.94	77.92	0.22
North Main	reach 3 (south)	240919	2428.00	56.61	68.27	61.55	68.45	0.000435	3.41	711.50	89.42	0.21
North Main	reach 3 (south)	240919	3444.00	56.61	70.06	62.64	70.30	0.000489	3.92	879.00	97.67	0.23
North Main	reach 3 (south)	240919	6802.00	56.61	72.56	65.42	73.11	0.000941	5.98	1137.19	305.55	0.33
North Main	reach 3 (south)	240000	1630.00	55.47	65.59	59.11	65.69	0.000250	2.48	656.18	87.92	0.16
North Main	reach 3 (south)	240000	2428.00	55.47	68.02	60.01	68.14	0.000241	2.75	881.97	97.77	0.16
North Main	reach 3 (south)	240000	3444.00	55.47	69.77	60.97	69.94	0.000290	3.25	1059.12	104.86	0.18
North Main	reach 3 (south)	240000	6802.00	55.47	71.94	63.53	72.37	0.000647	5.25	1295.53	113.63	0.27
North Main	reach 3 (south)	239550	1630.00	55.23	65.48	58.93	65.57	0.000259	2.52	647.87	87.55	0.16
North Main	reach 3 (south)	239550	2428.00	55.23	67.91	59.85	68.03	0.000248	2.78	874.21	98.22	0.16
North Main	reach 3 (south)	239550	3444.00	55.23	69.64	60.88	69.80	0.000300	3.28	1050.15	105.78	0.18
North Main	reach 3 (south)	239550	6802.00	55.23	71.61	63.48	72.06	0.000697	5.37	1267.72	114.29	0.28
North Main	reach 3 (south)	239468	1630.00	55.23	65.45	58.93	65.55	0.000281	2.52	645.94	87.45	0.16
North Main	reach 3 (south)	239468	2428.00	55.23	67.89	59.86	68.01	0.000250	2.78	872.13	98.13	0.16
North Main	reach 3 (south)	239468	3444.00	55.23	69.61	60.88	69.78	0.000303	3.29	1047.41	105.66	0.18
North Main	reach 3 (south)	239468	6802.00	55.23	71.55	63.48	72.00	0.000708	5.40	1260.48	114.02	0.29
North Main	reach 3 (south)	238000	1630.00	54.74	65.08	58.50	65.18	0.000249	2.51	650.67	85.39	0.16
North Main	reach 3 (south)	238000	2428.00	54.74	67.53	59.41	67.65	0.000242	2.79	871.12	94.61	0.16
North Main	reach 3 (south)	238000	3444.00	54.74	69.18	60.40	69.33	0.000304	3.34	1030.38	100.79	0.18
North Main	reach 3 (south)	238000	6802.00	54.74	71.28	62.99	71.36	0.000219	3.06	6166.98	2449.52	0.16
North Main	reach 3 (south)	237265	1630.00	54.61	64.91	58.13	65.00	0.000245	2.50	651.13	84.36	0.16
North Main	reach 3 (south)	237265	2428.00	54.61	67.36	59.07	67.48	0.000240	2.79	869.70	93.76	0.16
North Main	reach 3 (south)	237265	3444.00	54.61	68.93	60.09	69.11	0.000309	3.37	1021.71	99.78	0.19
North Main	reach 3 (south)	237265	6802.00	54.61	71.24	62.75	71.25	0.000085	1.52	9922.03	2920.57	0.09
North Main	reach 3 (south)	236620	1630.00	54.53	64.75	58.02	64.84	0.000228	2.39	681.06	90.19	0.15
North Main	reach 3 (south)	236620	2428.00	54.53	67.21	58.91	67.32	0.000220	2.65	915.79	100.60	0.15
North Main	reach 3 (south)	236620	3444.00	54.53	68.75	59.89	68.91	0.000282	3.20	1075.95	107.08	0.18
North Main	reach 3 (south)	236620	6802.00	54.53	71.21	62.45	71.22	0.000050	1.47	10830.56	2196.06	0.08



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vej Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
North Main	reach 3 (south)	236000	1630.00	54.54	64.57	58.03	64.68	0.000272	2.58	630.72	84.69	0.17
North Main	reach 3 (south)	236000	2428.00	54.54	67.04	58.97	67.16	0.000260	2.85	852.28	95.13	0.17
North Main	reach 3 (south)	236000	3444.00	54.54	68.53	60.02	68.71	0.000338	3.45	998.40	101.43	0.19
North Main	reach 3 (south)	236000	6802.00	54.54	71.16	62.70	71.19	0.000123	1.88	7711.69	2079.66	0.11
North Main	reach 3 (south)	235490	1630.00	54.49	64.38	58.23	64.51	0.000370	2.92	557.41	77.73	0.19
North Main	reach 3 (south)	235490	2428.00	54.49	66.85	59.26	67.01	0.000345	3.18	762.82	88.57	0.19
North Main	reach 3 (south)	235490	3444.00	54.49	68.28	60.37	68.51	0.000450	3.85	893.46	94.82	0.22
North Main	reach 3 (south)	235490	6802.00	54.49	71.01	63.23	71.07	0.000502	2.53	4159.88	1341.23	0.21
North Main	reach 3 (south)	235442	1630.00	54.49	64.36	58.23	64.50	0.000372	2.93	555.96	77.65	0.19
North Main	reach 3 (south)	235442	2428.00	54.49	66.83	59.26	66.99	0.000347	3.19	761.28	88.49	0.19
North Main	reach 3 (south)	235442	3444.00	54.49	68.25	60.37	68.49	0.000453	3.86	891.28	94.72	0.22
North Main	reach 3 (south)	235442	6802.00	54.49	70.97	63.23	71.05	0.000496	2.67	4116.19	1335.40	0.21
North Main	reach 3 (south)	234280	1630.00	53.37	64.19	56.31	64.25	0.000115	1.83	890.21	105.67	0.11
North Main	reach 3 (south)	234280	2428.00	53.37	66.68	57.11	66.75	0.000118	2.08	1165.18	115.74	0.12
North Main	reach 3 (south)	234280	3444.00	53.37	68.04	57.96	68.15	0.000165	2.60	1327.04	121.29	0.14
North Main	reach 3 (south)	234280	6802.00	53.37	70.39	60.24	70.49	0.000457	2.66	4105.99	2074.92	0.21
North Main	below diversion	112500	550.00	70.00	77.61	71.75	77.64	0.000066	1.36	407.26	67.01	0.09
North Main	below diversion	112500	1180.00	70.00	80.24	72.86	80.31	0.000094	1.04	871.14	1331.96	0.12
North Main	below diversion	112500	1975.00	70.00	82.63	73.96	82.84	0.000030	1.34	6519.85	3697.25	0.07
North Main	below diversion	112500	4000.00	70.00	85.89	76.11	85.89	0.000007	0.78	23808.14	9077.23	0.04
North Main	below diversion	111500	550.00	70.00	77.54	71.81	77.57	0.000074	1.43	389.25	65.50	0.10
North Main	below diversion	111500	1180.00	70.00	80.17	72.96	80.21	0.000083	1.90	1480.01	1351.85	0.11
North Main	below diversion	111500	1975.00	70.00	82.60	74.09	82.61	0.000024	1.20	7795.52	4028.21	0.06
North Main	below diversion	111500	4000.00	70.00	85.88	76.26	85.88	0.000007	0.74	26226.59	7762.72	0.03
North Main	below diversion	108769	550.00	70.00	77.33	71.88	77.36	0.000078	1.40	397.77	73.58	0.10
North Main	below diversion	108769	1180.00	70.00	79.88	73.02	79.95	0.000106	2.07	602.60	86.71	0.13
North Main	below diversion	108769	1975.00	70.00	82.43	74.14	82.49	0.000088	2.25	2123.06	1173.00	0.12
North Main	below diversion	108769	4000.00	70.00	85.83	76.22	85.85	0.000027	1.48	16578.35	9892.31	0.07
North Main	below diversion	108564	550.00	70.00	77.31	71.77	77.34	0.000075	1.40	395.76	69.50	0.10
North Main	below diversion	108564	1180.00	70.00	79.84	72.89	79.91	0.000108	2.11	585.42	80.06	0.13
North Main	below diversion	108564	1975.00	70.00	82.34	73.99	82.45	0.000127	2.71	824.42	217.89	0.14
North Main	below diversion	108564	4000.00	70.00	85.83	76.11	85.84	0.000028	1.54	16292.73	9865.38	0.07
North Main	below diversion	108524	Bridge									
North Main	below diversion	108484	550.00	70.00	77.28	71.77	77.32	0.000076	1.41	394.09	69.40	0.10
North Main	below diversion	108484	1180.00	70.00	79.83	72.89	79.90	0.000108	2.11	584.28	80.00	0.13
North Main	below diversion	108484	1975.00	70.00	82.23	73.99	82.34	0.000131	2.74	801.84	184.32	0.15
North Main	below diversion	108484	4000.00	70.00	85.80	76.11	85.82	0.000029	1.56	16118.23	9818.49	0.07
North Main	below diversion	108424	550.00	70.00	77.28	71.78	77.31	0.000077	1.41	393.53	69.36	0.10
North Main	below diversion	108424	1180.00	70.00	79.82	72.89	79.89	0.000109	2.12	583.33	79.95	0.13
North Main	below diversion	108424	1975.00	70.00	82.21	73.99	82.33	0.000132	2.74	799.08	179.79	0.15
North Main	below diversion	108424	4000.00	70.00	85.80	76.11	85.81	0.000030	1.56	16109.48	9809.45	0.07
North Main	below diversion	108200	550.00	70.00	77.26	71.75	77.29	0.000077	1.42	391.31	67.95	0.10
North Main	below diversion	108200	1180.00	70.00	79.79	72.85	79.86	0.000111	2.14	575.96	77.88	0.13
North Main	below diversion	108200	1975.00	70.00	82.18	73.96	82.30	0.000135	2.77	786.67	214.59	0.15
North Main	below diversion	108200	4000.00	70.00	85.78	76.08	85.80	0.000029	1.56	15196.20	9414.98	0.07
North Main	below diversion	107200	550.00	70.00	77.19	71.65	77.21	0.000069	1.34	411.99	70.69	0.10
North Main	below diversion	107200	1180.00	70.00	79.69	72.70	79.75	0.000101	2.04	600.58	80.12	0.12
North Main	below diversion	107200	1975.00	70.00	82.05	73.76	82.16	0.000124	2.66	805.27	224.09	0.14
North Main	below diversion	107200	4000.00	70.00	85.76	75.82	85.77	0.000025	1.44	16171.15	9168.93	0.07
North Main	below diversion	105420	649.00	70.00	77.03	71.91	77.07	0.000088	1.47	442.50	79.59	0.11
North Main	below diversion	105420	1200.00	70.00	79.51	72.74	79.57	0.000091	1.90	652.64	89.94	0.12
North Main	below diversion	105420	1878.00	70.00	81.87	73.56	81.95	0.000095	2.30	876.45	100.31	0.12
North Main	below diversion	105420	3703.00	70.00	85.74	75.33	85.74	0.000015	1.12	16819.74	9057.84	0.05
North Main	below diversion	105350	649.00	70.00	77.01	72.04	77.06	0.000116	1.80	376.41	68.40	0.13
North Main	below diversion	105350	1200.00	70.00	79.47	72.97	79.56	0.000130	2.36	556.54	78.18	0.14
North Main	below diversion	105350	1878.00	70.00	81.80	73.90	81.92	0.000141	2.88	749.09	87.39	0.15
North Main	below diversion	105350	3703.00	70.00	85.73	75.80	85.74	0.000020	1.33	16406.51	9181.95	0.06
North Main	below diversion	105335	Bridge									
North Main	below diversion	105320	649.00	70.00	76.99	72.04	77.04	0.000118	1.81	374.56	68.29	0.13
North Main	below diversion	105320	1200.00	70.00	79.46	72.97	79.54	0.000131	2.37	555.54	78.13	0.14
North Main	below diversion	105320	1878.00	70.00	81.69	73.90	81.82	0.000146	2.91	739.86	86.98	0.15
North Main	below diversion	105320	3703.00	70.00	85.71	75.80	85.72	0.000021	1.34	16222.78	9151.06	0.06



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	99520	649.00	70.00	76.16	71.89	76.21	0.000185	1.91	338.16	68.04	0.15
North Main	below diversion	99520	1200.00	70.00	78.58	72.79	78.68	0.000189	2.33	515.64	77.89	0.16
North Main	below diversion	99520	1878.00	70.00	80.73	73.70	80.84	0.000202	2.71	892.68	86.78	0.17
North Main	below diversion	99520	3703.00	70.00	84.85	75.63	84.83	0.000224	3.44	1167.67	228.85	0.19
North Main	below diversion	99507	649.00	70.00	76.15		76.21	0.000185	1.91	338.99	68.03	0.15
North Main	below diversion	99507	1200.00	70.00	78.57		78.66	0.000190	2.33	515.44	77.88	0.16
North Main	below diversion	99507	1878.00	70.00	80.72		80.84	0.000202	2.71	892.44	86.77	0.17
North Main	below diversion	99507	3703.00	70.00	84.65		84.82	0.000222	3.42	1224.48	228.66	0.19
North Main	below diversion	98900	665.00	70.00	76.03		76.09	0.000223	2.02	329.47	70.79	0.16
North Main	below diversion	98900	1249.00	70.00	78.45		78.54	0.000194	2.49	510.58	78.66	0.16
North Main	below diversion	98900	1979.00	70.00	80.58		80.72	0.000201	3.01	691.32	95.89	0.17
North Main	below diversion	98900	3903.00	70.00	84.42		84.68	0.000234	4.11	1125.32	206.56	0.20
North Main	below diversion	97900	665.00	70.00	75.80		75.86	0.000236	2.05	324.07	70.86	0.17
North Main	below diversion	97900	1249.00	70.00	78.25		78.35	0.000198	2.49	510.74	80.94	0.17
North Main	below diversion	97900	1979.00	70.00	80.38		80.52	0.000202	3.00	694.34	97.85	0.18
North Main	below diversion	97900	3903.00	70.00	84.20		84.44	0.000231	4.06	1145.58	233.21	0.20
North Main	below diversion	95000	665.00	68.00	75.36		75.40	0.000107	1.68	399.22	69.34	0.12
North Main	below diversion	95000	1249.00	68.00	77.81		77.89	0.000123	2.25	581.45	79.41	0.13
North Main	below diversion	95000	1979.00	68.00	79.88		80.00	0.000148	2.84	754.63	87.94	0.15
North Main	below diversion	95000	3903.00	68.00	83.57		83.81	0.000197	4.00	1287.01	187.90	0.19
North Main	below diversion	94730	665.00	68.00	75.33		75.38	0.000116	1.74	384.45	67.13	0.12
North Main	below diversion	94730	1249.00	68.00	77.78		77.86	0.000133	2.33	560.50	76.91	0.14
North Main	below diversion	94730	1979.00	68.00	79.83		79.96	0.000161	2.95	728.28	84.92	0.16
North Main	below diversion	94730	3903.00	68.00	83.48		83.75	0.000225	4.25	1061.58	98.68	0.20
North Main	below diversion	94655	665.00	68.00	75.32	69.93	75.37	0.000102	1.65	406.37	69.56	0.12
North Main	below diversion	94655	1249.00	68.00	77.77	70.89	77.84	0.000118	2.21	587.88	79.00	0.13
North Main	below diversion	94655	1979.00	68.00	79.81	71.67	79.94	0.000144	2.81	766.76	94.21	0.15
North Main	below diversion	94655	3903.00	68.00	83.49	73.89	83.73	0.000196	3.98	1256.63	224.22	0.18
North Main	below diversion	94635	Bridge									
North Main	below diversion	94620	665.00	68.00	75.30		75.34	0.000103	1.66	404.69	69.47	0.12
North Main	below diversion	94620	1249.00	68.00	77.74		77.81	0.000120	2.22	585.66	78.89	0.13
North Main	below diversion	94620	1979.00	68.00	79.78		79.91	0.000145	2.82	763.92	94.01	0.15
North Main	below diversion	94620	3903.00	68.00	83.44		83.67	0.000198	4.00	1245.23	218.49	0.19
North Main	below diversion	94530	665.00	68.00	75.29		75.33	0.000104	1.66	404.13	69.44	0.12
North Main	below diversion	94530	1249.00	68.00	77.73		77.81	0.000120	2.22	584.92	78.86	0.13
North Main	below diversion	94530	1979.00	68.00	79.77		79.89	0.000146	2.82	762.83	93.94	0.15
North Main	below diversion	94530	3903.00	68.00	83.42		83.66	0.000199	4.01	1241.72	216.69	0.19
North Main	below diversion	92150	665.00	68.00	74.98	70.15	75.04	0.000171	1.93	345.34	64.38	0.15
North Main	below diversion	92150	1249.00	68.00	77.38	71.20	77.48	0.000183	2.46	512.18	74.58	0.16
North Main	below diversion	92150	1979.00	68.00	79.37	72.25	79.51	0.000205	3.05	680.07	95.22	0.18
North Main	below diversion	92150	3903.00	68.00	82.88	74.39	83.15	0.000260	4.25	1095.16	139.78	0.21
North Main	below diversion	92135	Bridge									
North Main	below diversion	92120	665.00	68.00	74.97	70.15	75.03	0.000172	1.93	344.74	64.34	0.15
North Main	below diversion	92120	1249.00	68.00	77.37	71.20	77.46	0.000184	2.46	510.79	74.50	0.16
North Main	below diversion	92120	1979.00	68.00	79.34	72.25	79.49	0.000207	3.06	677.91	95.00	0.18
North Main	below diversion	92120	3903.00	68.00	82.84	74.39	83.12	0.000263	4.26	1090.08	139.46	0.21
North Main	below diversion	91139	665.00	68.00	74.79	70.15	74.86	0.000190	2.00	333.24	63.57	0.15
North Main	below diversion	91139	1249.00	68.00	77.17	71.20	77.27	0.000201	2.53	496.52	73.69	0.17
North Main	below diversion	91139	1979.00	68.00	79.13	72.25	79.28	0.000224	3.14	657.45	92.91	0.18
North Main	below diversion	91139	3903.00	68.00	82.56	74.39	82.85	0.000285	4.37	1050.78	136.91	0.22
North Main	below diversion	91050	665.00	68.00	74.78	70.14	74.84	0.000191	2.00	332.06	63.30	0.15
North Main	below diversion	91050	1249.00	68.00	77.15	71.19	77.25	0.000203	2.54	494.55	73.35	0.17
North Main	below diversion	91050	1979.00	68.00	79.10	72.25	79.26	0.000227	3.15	653.03	90.44	0.18
North Main	below diversion	91050	3903.00	68.00	82.53	74.39	82.82	0.000290	4.40	1040.49	138.68	0.22
North Main	below diversion	88641	665.00	68.00	74.28	70.04	74.35	0.000222	2.09	318.29	63.89	0.16
North Main	below diversion	88641	1249.00	68.00	76.83	71.05	76.74	0.000233	2.61	480.09	73.82	0.18
North Main	below diversion	88641	1979.00	68.00	78.53	72.07	78.69	0.000255	3.22	627.66	81.97	0.19
North Main	below diversion	88641	3903.00	68.00	81.88	74.15	82.13	0.000279	4.18	1607.15	624.18	0.21
North Main	below diversion	88488	665.00	68.00	74.24	70.06	74.31	0.000234	2.13	311.54	62.92	0.17
North Main	below diversion	88488	1249.00	68.00	76.59	71.08	76.70	0.000245	2.66	471.03	72.90	0.18
North Main	below diversion	88488	1979.00	68.00	78.48	72.10	78.64	0.000267	3.27	619.95	90.46	0.20
North Main	below diversion	88488	3903.00	68.00	81.85	74.19	82.09	0.000271	4.11	1642.28	1050.47	0.21

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	88300	665.00	68.00	74.20	70.04	74.27	0.000232	2.13	312.59	63.10	0.17
North Main	below diversion	88300	1249.00	68.00	76.54	71.05	76.65	0.000244	2.65	471.94	72.70	0.18
North Main	below diversion	88300	1979.00	68.00	78.43	72.06	78.59	0.000266	3.27	619.25	89.20	0.20
North Main	below diversion	88300	3903.00	68.00	81.76	74.13	82.03	0.000289	4.24	1540.19	709.87	0.22
North Main	below diversion	87300	665.00	68.00	73.94	70.04	74.02	0.000268	2.24	296.70	61.76	0.18
North Main	below diversion	87300	1249.00	68.00	76.27	71.04	76.39	0.000278	2.77	451.40	70.86	0.19
North Main	below diversion	87300	1979.00	68.00	78.13	72.05	78.31	0.000299	3.40	602.12	171.50	0.21
North Main	below diversion	87300	3903.00	68.00	81.58	74.14	81.75	0.000226	3.72	2564.63	1521.81	0.19
North Main	below diversion	85942	665.00	68.00	73.43	70.19	73.55	0.000453	2.71	245.24	57.03	0.23
North Main	below diversion	85942	1249.00	68.00	75.76	71.25	75.92	0.000426	3.21	389.62	66.74	0.23
North Main	below diversion	85942	1979.00	68.00	77.59	72.31	77.82	0.000435	3.85	518.53	74.53	0.25
North Main	below diversion	85942	3903.00	68.00	81.05	74.46	81.34	0.000382	4.64	1840.31	1288.72	0.25
North Main	below diversion	85850	665.00	68.00	73.40	70.21	73.52	0.000469	2.74	242.87	57.11	0.23
North Main	below diversion	85850	1249.00	68.00	75.74	71.28	75.90	0.000437	3.22	388.22	67.81	0.24
North Main	below diversion	85850	1979.00	68.00	77.55	72.36	77.79	0.000442	3.85	518.69	75.80	0.25
North Main	below diversion	85850	3903.00	68.00	80.99	74.51	81.32	0.000411	4.78	1524.13	1300.66	0.26
North Main	below diversion	85835	Bridge									
North Main	below diversion	85820	665.00	68.00	73.35	70.21	73.47	0.000486	2.77	239.70	56.87	0.24
North Main	below diversion	85820	1249.00	68.00	75.67	71.28	75.84	0.000450	3.25	384.15	67.34	0.24
North Main	below diversion	85820	1979.00	68.00	77.49	72.36	77.72	0.000456	3.89	513.67	75.50	0.25
North Main	below diversion	85820	3903.00	68.00	80.90	74.51	81.23	0.000421	4.81	1556.92	1372.44	0.26
North Main	below diversion	85783	665.00	68.00	73.32	70.21	73.44	0.000494	2.79	238.22	56.75	0.24
North Main	below diversion	85783	1249.00	68.00	75.65	71.28	75.82	0.000456	3.27	382.53	67.23	0.24
North Main	below diversion	85783	1979.00	68.00	77.46	72.36	77.70	0.000461	3.90	511.60	75.39	0.25
North Main	below diversion	85783	3903.00	68.00	80.85	74.52	81.20	0.000446	4.93	1381.61	1297.37	0.27
North Main	below diversion	83100	665.00	66.00	72.50	68.21	72.57	0.000240	2.17	305.93	61.30	0.17
North Main	below diversion	83100	1249.00	66.00	74.84	69.28	74.95	0.000251	2.72	461.13	71.58	0.18
North Main	below diversion	83100	1979.00	66.00	76.57	70.36	76.75	0.000293	3.42	591.78	79.18	0.21
North Main	below diversion	83100	3903.00	66.00	79.85	72.52	80.17	0.000356	4.68	1168.57	627.61	0.24
North Main	below diversion	82100	665.00	66.00	72.17	68.47	72.29	0.000340	2.73	252.88	55.06	0.21
North Main	below diversion	82100	1249.00	66.00	74.46	69.63	74.65	0.000354	3.53	390.75	65.53	0.23
North Main	below diversion	82100	1979.00	66.00	76.07	70.73	76.38	0.000457	4.55	502.09	234.83	0.26
North Main	below diversion	82100	3903.00	66.00	79.04	73.01	79.67	0.000659	6.59	739.41	2197.46	0.33
North Main	below diversion	82000	665.00	66.00	72.14	68.47	72.25	0.000348	2.75	250.87	54.91	0.21
North Main	below diversion	82000	1249.00	66.00	74.42	69.63	74.61	0.000360	3.55	388.23	65.35	0.23
North Main	below diversion	82000	1979.00	66.00	76.01	70.73	76.33	0.000466	4.58	498.35	225.35	0.27
North Main	below diversion	82000	3903.00	66.00	78.96	73.01	79.60	0.000675	6.64	732.49	2145.08	0.34
North Main	below diversion	81100	665.00	66.00	71.79	68.29	71.92	0.000374	2.96	248.90	63.24	0.22
North Main	below diversion	81100	1249.00	66.00	74.05	69.39	74.27	0.000401	3.85	388.13	237.34	0.24
North Main	below diversion	81100	1979.00	66.00	75.50	70.52	75.87	0.000551	5.06	489.31	580.18	0.29
North Main	below diversion	81100	3903.00	66.00	78.23	72.95	78.94	0.000784	7.21	929.50	1432.79	0.37
North Main	below diversion	80100	665.00	66.00	71.42	68.15	71.53	0.000383	2.68	265.04	72.13	0.22
North Main	below diversion	80100	1249.00	66.00	73.72	69.20	73.88	0.000339	3.28	454.86	93.15	0.22
North Main	below diversion	80100	1979.00	66.00	75.07	70.26	75.34	0.000457	4.28	594.16	115.49	0.26
North Main	below diversion	80100	3903.00	66.00	77.71	72.36	78.18	0.000612	5.94	1073.68	812.95	0.32
North Main	below diversion	79100	665.00	66.00	70.85	68.30	71.02	0.000707	3.30	203.18	53.17	0.29
North Main	below diversion	79100	1249.00	66.00	73.22	69.39	73.45	0.000532	3.88	342.26	243.01	0.27
North Main	below diversion	79100	1979.00	66.00	74.32	70.45	74.74	0.000778	5.21	415.65	303.02	0.33
North Main	below diversion	79100	3903.00	66.00	76.44	72.59	77.30	0.001214	7.67	895.11	1762.74	0.43
North Main	below diversion	77548	665.00	66.00	69.02	67.81	69.29	0.001965	4.14	160.57	60.83	0.45
North Main	below diversion	77548	1249.00	66.00	72.57	68.71	72.73	0.000391	3.17	408.53	78.90	0.23
North Main	below diversion	77548	1979.00	66.00	73.28	69.62	73.59	0.000671	4.47	465.43	82.46	0.31
North Main	below diversion	77548	3903.00	66.00	74.13	71.42	75.06	0.001730	7.78	537.88	2212.97	0.50
North Main	below diversion	77538	665.00	62.00	69.11	64.29	69.18	0.000171	2.01	332.87	62.81	0.15
North Main	below diversion	77538	1249.00	62.00	72.60	65.39	72.69	0.000120	2.31	579.64	78.49	0.13
North Main	below diversion	77538	1979.00	62.00	73.34	66.49	73.51	0.000231	3.38	638.18	81.74	0.19
North Main	below diversion	77538	3903.00	62.00	74.29	68.62	74.84	0.000654	6.04	718.19	2666.98	0.32
North Main	below diversion	77419	665.00	62.00	69.10	64.29	69.16	0.000173	2.02	331.82	62.73	0.15
North Main	below diversion	77419	1249.00	62.00	72.60	65.39	72.68	0.000120	2.32	578.94	78.45	0.13
North Main	below diversion	77419	1979.00	62.00	73.31	66.49	73.48	0.000234	3.39	635.83	81.61	0.19
North Main	below diversion	77419	3903.00	62.00	74.19	68.62	74.76	0.000684	6.14	748.98	2868.74	0.33
North Main	below diversion	77357	665.00	62.00	69.09	64.07	69.14	0.000145	1.80	369.26	67.21	0.14
North Main	below diversion	77357	1249.00	62.00	72.60	65.08	72.66	0.000099	2.02	631.55	82.31	0.12

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	77357	1979.00	62.00	73.33	66.10	73.46	0.000190	2.95	692.51	1392.93	0.17
North Main	below diversion	77357	3903.00	62.00	74.26	68.20	74.69	0.000537	5.28	789.41	4150.21	0.29
North Main	below diversion	77343	Bridge									
North Main	below diversion	77329	665.00	62.00	69.07	64.07	69.12	0.000146	1.81	368.23	67.15	0.14
North Main	below diversion	77329	1249.00	62.00	72.59	65.08	72.65	0.000100	2.02	630.53	82.25	0.12
North Main	below diversion	77329	1979.00	62.00	73.30	66.10	73.44	0.000192	2.95	690.44	1025.77	0.17
North Main	below diversion	77329	3903.00	62.00	74.13	68.19	74.40	0.000401	4.52	2465.68	2330.09	0.25
North Main	below diversion	77179	665.00	60.10	69.07	62.21	69.10	0.000080	1.49	446.16	67.13	0.10
North Main	below diversion	77179	1249.00	60.10	72.58	63.28	72.63	0.000070	1.80	708.49	82.24	0.10
North Main	below diversion	77179	1979.00	60.10	73.30	64.39	73.41	0.000138	2.65	768.20	2321.76	0.14
North Main	below diversion	77179	3903.00	60.10	74.14	66.72	74.31	0.000241	3.69	3404.06	2341.55	0.19
North Main	below diversion	77143	Culvert									
North Main	below diversion	77107	665.00	60.10	68.60	62.22	68.64	0.000098	1.60	415.13	65.19	0.11
North Main	below diversion	77107	1249.00	60.10	70.86	63.29	70.93	0.000134	2.19	573.02	74.73	0.14
North Main	below diversion	77107	1979.00	60.10	72.06	64.39	72.20	0.000211	3.01	665.77	79.95	0.17
North Main	below diversion	77107	3903.00	60.10	74.13	66.72	74.29	0.000236	3.64	3654.19	4295.52	0.19
North Main	below diversion	76585	665.00	60.00	68.56	62.15	68.59	0.000077	1.47	452.62	71.20	0.10
North Main	below diversion	76585	1249.00	60.00	70.80	63.19	70.87	0.000101	2.05	623.22	80.85	0.12
North Main	below diversion	76585	1979.00	60.00	71.96	64.25	72.09	0.000166	2.86	720.17	85.85	0.16
North Main	below diversion	76585	3903.00	60.00	73.74	66.39	74.09	0.000370	4.76	879.18	2307.27	0.24
North Main	below diversion	76000	665.00	60.00	68.51	62.14	68.54	0.000081	1.52	439.03	68.25	0.10
North Main	below diversion	76000	1249.00	60.00	70.73	63.19	70.80	0.000108	2.12	612.40	97.22	0.13
North Main	below diversion	76000	1979.00	60.00	71.85	64.25	71.99	0.000180	2.96	730.67	114.33	0.17
North Main	below diversion	76000	3903.00	60.00	73.51	66.40	73.86	0.000394	4.86	1160.05	3883.54	0.25
North Main	below diversion	75929	665.00	60.00	68.50	62.24	68.54	0.000079	1.59	429.45	69.01	0.10
North Main	below diversion	75929	1249.00	60.00	70.73	63.32	70.80	0.000111	2.26	608.69	104.36	0.13
North Main	below diversion	75929	1979.00	60.00	71.83	64.40	71.98	0.000188	3.16	734.67	124.35	0.17
North Main	below diversion	75929	3903.00	60.00	73.64	66.54	73.77	0.000202	3.64	4432.24	4374.48	0.18
North Main	below diversion	75866	665.00	60.00	68.50	62.19	68.53	0.000078	1.59	430.29	67.56	0.10
North Main	below diversion	75866	1249.00	60.00	70.72	63.26	70.79	0.000110	2.26	597.25	90.94	0.13
North Main	below diversion	75866	1979.00	60.00	71.81	64.33	71.97	0.000189	3.17	705.81	106.17	0.17
North Main	below diversion	75866	3903.00	60.00	73.65	66.47	73.75	0.000167	3.32	5105.97	4448.52	0.17
North Main	below diversion	75852	Bridge									
North Main	below diversion	75838	665.00	60.00	68.48	62.19	68.52	0.000079	1.59	429.09	67.49	0.10
North Main	below diversion	75838	1249.00	60.00	70.69	63.26	70.77	0.000112	2.26	594.94	90.51	0.13
North Main	below diversion	75838	1979.00	60.00	71.73	64.33	71.89	0.000194	3.20	698.29	107.59	0.17
North Main	below diversion	75838	3903.00	60.00	73.55	66.46	73.67	0.000186	3.49	4800.15	4398.39	0.18
North Main	below diversion	75752	665.00	60.00	68.47	62.19	68.51	0.000079	1.59	428.70	67.46	0.10
North Main	below diversion	75752	1249.00	60.00	70.68	63.26	70.76	0.000112	2.27	584.17	90.37	0.13
North Main	below diversion	75752	1979.00	60.00	71.72	64.32	71.87	0.000195	3.21	696.67	107.34	0.17
North Main	below diversion	75752	3903.00	60.00	73.32	66.46	73.60	0.000340	4.66	2034.08	4087.30	0.24
North Main	below diversion	75000	665.00	60.00	68.41	62.11	68.45	0.000077	1.58	430.15	66.39	0.10
North Main	below diversion	75000	1249.00	60.00	70.60	63.16	70.68	0.000107	2.22	782.67	527.82	0.13
North Main	below diversion	75000	1979.00	60.00	71.62	64.21	71.73	0.000154	2.85	1535.64	951.82	0.15
North Main	below diversion	75000	3903.00	60.00	73.29	66.35	73.38	0.000151	3.11	5298.96	4480.74	0.16
North Main	below diversion	74000	665.00	60.00	68.32	62.49	68.36	0.000115	1.71	389.72	65.48	0.12
North Main	below diversion	74000	1249.00	60.00	70.48	63.61	70.56	0.000141	2.32	729.50	662.93	0.14
North Main	below diversion	74000	1979.00	60.00	71.48	64.71	71.57	0.000163	2.69	2287.25	2382.56	0.16
North Main	below diversion	74000	3903.00	60.00	73.22	66.93	73.25	0.000087	2.20	7841.30	4315.59	0.12
North Main	below diversion	73000	856.00	60.00	68.17	62.46	68.24	0.000140	2.08	418.51	66.02	0.14
North Main	below diversion	73000	1516.00	60.00	70.28	63.54	70.40	0.000181	2.82	565.83	73.70	0.16
North Main	below diversion	73000	2106.00	60.00	71.17	64.34	71.37	0.000254	3.55	633.24	76.92	0.20
North Main	below diversion	73000	3932.00	60.00	72.80	66.33	73.08	0.000365	4.70	2890.45	3336.73	0.24
North Main	below diversion	72857	856.00	60.00	68.15	62.42	68.22	0.000134	2.04	428.43	67.98	0.14
North Main	below diversion	72857	1516.00	60.00	70.25	63.48	70.37	0.000173	2.75	579.67	75.95	0.16
North Main	below diversion	72857	2106.00	60.00	71.15	64.28	71.33	0.000243	3.47	648.91	79.30	0.19
North Main	below diversion	72857	3932.00	60.00	72.73	66.23	73.03	0.000373	4.75	2635.46	2922.88	0.25
North Main	below diversion	72794	856.00	60.00	68.14	62.56	68.21	0.000157	2.18	399.57	64.00	0.15
North Main	below diversion	72794	1516.00	60.00	70.23	63.66	70.36	0.000202	2.95	570.59	205.89	0.17
North Main	below diversion	72794	2106.00	60.00	71.12	64.49	71.32	0.000268	3.62	783.43	273.04	0.20
North Main	below diversion	72794	3932.00	60.00	72.78	66.51	72.99	0.000312	4.33	3928.62	3999.19	0.22



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	72780	Bridge									
North Main	below diversion	72786	856.00	60.00	68.12	62.56	68.19	0.000158	2.19	398.55	63.94	0.15
North Main	below diversion	72786	1516.00	60.00	70.21	63.66	70.35	0.000203	2.96	566.58	204.41	0.17
North Main	below diversion	72786	2106.00	60.00	71.09	64.49	71.29	0.000271	3.63	775.71	270.89	0.20
North Main	below diversion	72786	3932.00	60.00	72.44	66.51	72.79	0.000465	5.18	2626.23	3740.03	0.27
North Main	below diversion	72680	856.00	60.00	68.11	62.55	68.18	0.000159	2.19	397.78	63.89	0.15
North Main	below diversion	72680	1516.00	60.00	70.19	63.66	70.33	0.000205	2.96	563.34	203.21	0.17
North Main	below diversion	72680	2106.00	60.00	71.07	64.49	71.27	0.000274	3.65	769.74	269.22	0.20
North Main	below diversion	72680	3932.00	60.00	72.34	66.51	72.74	0.000518	5.43	2266.45	3665.21	0.29
North Main	below diversion	71500	856.00	60.00	67.90	62.56	67.99	0.000164	2.32	394.27	66.00	0.15
North Main	below diversion	71500	1516.00	60.00	69.93	63.66	70.08	0.000221	3.17	535.82	73.91	0.18
North Main	below diversion	71500	2106.00	60.00	70.95	64.45	71.02	0.000127	2.58	3900.98	3772.18	0.14
North Main	below diversion	71500	3932.00	60.00	72.44	66.44	72.46	0.000066	2.03	9717.25	4037.91	0.10
North Main	below diversion	70221	856.00	60.00	67.70	62.43	67.78	0.000161	2.26	402.76	68.66	0.15
North Main	below diversion	70221	1516.00	60.00	69.82	63.49	69.86	0.000100	2.12	2480.08	1841.19	0.12
North Main	below diversion	70221	2106.00	60.00	70.87	64.26	70.89	0.000061	1.79	4780.52	3608.61	0.10
North Main	below diversion	70221	3932.00	60.00	72.38	66.21	72.38	0.000057	1.89	8234.33	3718.42	0.10
North Main	below diversion	70158	856.00	60.00	67.70	62.25	67.76	0.000131	1.94	447.53	74.43	0.13
North Main	below diversion	70158	1516.00	60.00	69.77	63.23	69.85	0.000137	2.38	1152.03	681.35	0.14
North Main	below diversion	70158	2106.00	60.00	70.82	63.97	70.88	0.000107	2.26	3285.29	3792.84	0.13
North Main	below diversion	70158	3932.00	60.00	72.34	65.85	72.37	0.000084	2.21	7061.08	4017.59	0.12
North Main	below diversion	70144	Bridge									
North Main	below diversion	70130	856.00	60.00	67.69	62.25	67.75	0.000132	1.94	446.74	74.38	0.13
North Main	below diversion	70130	1516.00	60.00	69.74	63.23	69.82	0.000140	2.39	1131.02	670.96	0.14
North Main	below diversion	70130	2106.00	60.00	70.77	63.97	70.83	0.000113	2.32	3162.71	3787.39	0.13
North Main	below diversion	70130	3932.00	60.00	72.30	65.84	72.33	0.000067	2.24	6960.59	4009.19	0.12
North Main	below diversion	70044	856.00	60.00	67.69	62.25	67.75	0.000132	1.94	446.60	74.37	0.13
North Main	below diversion	70044	1516.00	60.00	69.73	63.23	69.81	0.000141	2.40	1123.68	667.29	0.14
North Main	below diversion	70044	2106.00	60.00	70.76	63.97	70.82	0.000115	2.34	3120.82	3785.51	0.13
North Main	below diversion	70044	3932.00	60.00	72.28	65.84	72.32	0.000088	2.26	6920.90	4005.87	0.12
North Main	below diversion	70000	856.00	60.00	67.69	62.17	67.74	0.000119	1.85	466.74	76.36	0.13
North Main	below diversion	70000	1516.00	60.00	69.72	63.13	69.80	0.000140	2.41	947.73	625.53	0.14
North Main	below diversion	70000	2106.00	60.00	70.74	63.84	70.81	0.000124	2.44	2644.47	3505.75	0.14
North Main	below diversion	70000	3932.00	60.00	72.27	65.66	72.31	0.000101	2.43	6269.65	4000.47	0.13
North Main	below diversion	69000	856.00	60.00	67.58	62.03	67.63	0.000109	1.78	486.42	78.91	0.12
North Main	below diversion	69000	1516.00	60.00	69.58	62.94	69.67	0.000138	2.38	804.07	611.29	0.14
North Main	below diversion	69000	2106.00	60.00	70.60	63.82	70.68	0.000130	2.49	2292.46	4385.26	0.14
North Main	below diversion	69000	3932.00	60.00	72.15	65.40	72.21	0.000111	2.55	5745.20	4780.62	0.13
North Main	below diversion	68000	856.00	60.00	67.39		67.48	0.000212	2.34	368.98	65.45	0.17
North Main	below diversion	68000	1516.00	60.00	69.33		69.48	0.000263	3.14	503.05	73.17	0.19
North Main	below diversion	68000	2106.00	60.00	70.26		70.48	0.000332	3.79	907.16	1374.21	0.22
North Main	below diversion	68000	3932.00	60.00	71.69		72.03	0.000280	3.88	3835.88	2365.54	0.21
North Main	below diversion	66518	856.00	60.00	67.09		67.17	0.000218	2.32	371.46	67.37	0.17
North Main	below diversion	66518	1516.00	60.00	68.94	63.45	69.09	0.000272	3.11	504.01	75.22	0.20
North Main	below diversion	66518	2106.00	60.00	70.00		70.09	0.000191	2.83	2494.32	2160.45	0.17
North Main	below diversion	66518	3932.00	60.00	71.73		71.77	0.000105	2.37	7634.64	3648.48	0.13
North Main	below diversion	66456	856.00	60.00	67.08	62.41	67.16	0.000220	2.32	370.69	67.32	0.17
North Main	below diversion	66456	1516.00	60.00	68.93	63.45	69.08	0.000274	3.11	502.89	75.16	0.20
North Main	below diversion	66456	2106.00	60.00	70.00	64.23	70.09	0.000191	2.83	2492.54	2160.18	0.17
North Main	below diversion	66456	3932.00	60.00	71.73	66.14	71.77	0.000105	2.37	7629.30	3647.40	0.13
North Main	below diversion	66442	Bridge									
North Main	below diversion	66428	856.00	60.00	67.05		67.14	0.000222	2.33	369.25	67.23	0.17
North Main	below diversion	66428	1516.00	60.00	68.82		68.97	0.000287	3.16	494.64	74.70	0.20
North Main	below diversion	66428	2106.00	60.00	69.91		70.02	0.000210	2.95	2313.51	2132.17	0.18
North Main	below diversion	66428	3932.00	60.00	71.68		71.72	0.000111	2.42	7448.11	3610.73	0.13
North Main	below diversion	66342	856.00	60.00	67.04		67.12	0.000225	2.34	368.06	67.15	0.17
North Main	below diversion	66342	1516.00	60.00	68.80		68.95	0.000290	3.17	492.91	74.61	0.20
North Main	below diversion	66342	2106.00	60.00	69.84		69.98	0.000272	3.34	1546.33	1384.94	0.20
North Main	below diversion	66342	3932.00	60.00	71.61		71.69	0.000183	3.11	5369.38	2892.28	0.17
North Main	below diversion	65921.*	856.00	60.00	66.93		67.02	0.000239	2.38	361.01	66.71	0.18
North Main	below diversion	65921.*	1516.00	60.00	68.66		68.82	0.000308	3.23	493.90	203.34	0.21
North Main	below diversion	65921.*	2106.00	60.00	69.70		69.87	0.000303	3.49	1396.53	1360.34	0.21

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch.El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	85821*	3932.00	60.00	71.52		71.61	0.000202	3.24	4962.61	2827.78	0.18
North Main	below diversion	85500	856.00	60.00	66.82		66.91	0.000256	2.43	353.33	66.20	0.18
North Main	below diversion	85500	1516.00	60.00	68.51		68.68	0.000327	3.28	526.75	288.08	0.21
North Main	below diversion	85500	2106.00	60.00	69.59		69.74	0.000293	3.40	1640.84	1739.34	0.21
North Main	below diversion	85500	3932.00	60.00	71.47		71.52	0.000151	2.79	5808.82	2659.19	0.15
North Main	below diversion	85133.3*	856.00	60.00	66.68		66.79	0.000338	2.66	322.20	64.53	0.21
North Main	below diversion	85133.3*	1516.00	60.00	68.34		68.54	0.000418	3.56	435.47	73.30	0.24
North Main	below diversion	85133.3*	2106.00	60.00	69.31		69.60	0.000511	4.30	598.09	947.20	0.27
North Main	below diversion	85133.3*	3932.00	60.00	71.29		71.44	0.000320	3.96	3649.92	2149.44	0.22
North Main	below diversion	84766.6*	856.00	60.00	66.55		66.67	0.000380	2.77	309.88	62.89	0.22
North Main	below diversion	84766.6*	1516.00	60.00	68.17		68.39	0.000489	3.70	417.11	69.67	0.25
North Main	below diversion	84766.6*	2106.00	60.00	69.09		69.41	0.000586	4.51	483.21	74.40	0.29
North Main	below diversion	84766.6*	3932.00	60.00	71.06		71.29	0.000467	4.69	2653.52	1531.93	0.27
North Main	below diversion	84400	856.00	60.00	66.42	62.47	66.54	0.000351	2.71	316.04	61.39	0.21
North Main	below diversion	84400	1516.00	60.00	68.02	63.51	68.23	0.000453	3.68	418.46	67.20	0.25
North Main	below diversion	84400	2106.00	60.00	68.88	64.31	69.20	0.000586	4.52	478.05	70.48	0.29
North Main	below diversion	84400	3932.00	60.00	70.71	66.25	71.09	0.000648	5.48	2003.57	1470.07	0.31
North Main	below diversion	82879	856.00	58.00	66.07	60.77	66.15	0.000198	2.18	461.53	710.95	0.16
North Main	below diversion	82879	1516.00	58.00	67.87	61.91	67.90	0.000099	1.85	2346.51	3229.40	0.12
North Main	below diversion	82879	2106.00	58.00	68.84	62.75	68.88	0.000080	1.79	3823.06	4532.18	0.11
North Main	below diversion	82879	3932.00	58.00	70.73	64.80	70.75	0.000067	1.88	6795.70	9041.74	0.10
North Main	below diversion	82817	856.00	58.00	66.11	60.68	66.13	0.000066	1.38	1829.45	3184.64	0.09
North Main	below diversion	82817	1516.00	58.00	67.88	61.79	67.89	0.000035	1.17	4134.84	4945.01	0.07
North Main	below diversion	82817	2106.00	58.00	68.85	62.61	68.85	0.000032	1.21	5557.23	5905.18	0.07
North Main	below diversion	82817	3932.00	58.00	70.73	65.32	70.74	0.000035	1.44	8583.85	9112.48	0.08
North Main	below diversion	82803	Bridge									
North Main	below diversion	82789	856.00	58.00	66.09	60.68	66.11	0.000083	1.35	1922.34	3064.43	0.09
North Main	below diversion	82789	1516.00	58.00	67.87	61.79	67.87	0.000032	1.13	4309.13	4926.44	0.07
North Main	below diversion	82789	2106.00	58.00	68.83	62.61	68.84	0.000030	1.17	5781.04	5889.78	0.07
North Main	below diversion	82789	3932.00	58.00	70.71	65.28	70.72	0.000033	1.39	8872.19	9053.87	0.07
North Main	below diversion	82703	856.00	58.00	66.09	60.68	66.10	0.000057	1.29	2071.57	3061.89	0.09
North Main	below diversion	82703	1516.00	58.00	67.86	61.79	67.87	0.000029	1.08	4579.04	4922.50	0.07
North Main	below diversion	82703	2106.00	58.00	68.83	62.61	68.83	0.000027	1.11	6119.63	5886.99	0.06
North Main	below diversion	82703	3932.00	58.00	70.70	65.23	70.71	0.000030	1.32	9334.89	9034.33	0.07
North Main	below diversion	82600	856.00	58.00	66.09	60.66	66.09	0.000025	0.85	3724.91	2454.21	0.06
North Main	below diversion	82600	1516.00	58.00	67.86	61.78	67.86	0.000012	0.70	7496.22	3823.80	0.04
North Main	below diversion	82600	2106.00	58.00	68.82	62.60	68.83	0.000011	0.72	9685.08	4452.84	0.04
North Main	below diversion	82600	3932.00	58.00	70.70	65.05	70.70	0.000013	0.87	14135.69	7368.73	0.05
North Main	below diversion	81620	856.00	58.00	66.07	60.72	66.07	0.000014	0.68	4455.45	8964.22	0.04
North Main	below diversion	81620	1516.00	58.00	67.84	61.83	67.84	0.000010	0.55	8164.37	9822.36	0.04
North Main	below diversion	81620	2106.00	58.00	68.81	62.60	68.81	0.000010	0.71	11088.44	11204.85	0.04
North Main	below diversion	81620	3932.00	58.00	70.69	64.31	70.69	0.000009	0.77	18089.52	13051.43	0.04
North Main	below diversion	81584	856.00	58.00	65.99	60.55	66.05	0.000148	2.08	448.34	7353.50	0.14
North Main	below diversion	81584	1516.00	58.00	67.81	61.64	67.83	0.000072	1.71	3533.07	9916.56	0.10
North Main	below diversion	81584	2106.00	58.00	68.80	62.42	68.81	0.000041	1.38	6994.93	11814.04	0.08
North Main	below diversion	81584	3932.00	58.00	70.68	64.38	70.69	0.000022	1.14	14022.20	13049.93	0.06
North Main	below diversion	81570	Bridge									
North Main	below diversion	81556	856.00	58.00	65.97	60.55	66.04	0.000149	2.09	446.63	7351.08	0.14
North Main	below diversion	81556	1516.00	58.00	67.78	61.64	67.80	0.000075	1.73	3453.75	9885.23	0.11
North Main	below diversion	81556	2106.00	58.00	68.78	62.42	68.79	0.000041	1.39	6926.97	11797.59	0.08
North Main	below diversion	81556	3932.00	58.00	70.66	64.36	70.67	0.000022	1.14	13945.88	13045.42	0.06
North Main	below diversion	81443	856.00	58.00	66.00	60.56	66.00	0.000031	1.01	3496.54	8113.59	0.07
North Main	below diversion	81443	1516.00	58.00	67.78	61.63	67.78	0.000013	0.76	7927.71	8617.10	0.04
North Main	below diversion	81443	2106.00	58.00	68.78	62.42	68.78	0.000013	0.81	10867.10	9924.81	0.05
North Main	below diversion	81443	3932.00	58.00	70.65	64.73	70.66	0.000010	0.80	19751.77	13043.92	0.04
North Main	below diversion	80700	856.00	58.10	65.98	60.64	65.98	0.000023	0.86	4938.58	8436.84	0.06
North Main	below diversion	80700	1516.00	58.10	67.77	61.71	67.78	0.000007	0.54	13256.39	10387.94	0.03
North Main	below diversion	80700	2106.00	58.10	68.76	62.50	68.77	0.000005	0.49	19242.47	11516.25	0.03
North Main	below diversion	80700	3932.00	58.10	70.65	65.37	70.65	0.000004	0.46	32523.86	13042.42	0.02
North Main	below diversion	58982	856.00	58.00	65.83	60.55	65.90	0.000163	2.15	404.82	3570.03	0.15
North Main	below diversion	58982	1516.00	58.00	67.73	61.62	67.75	0.000065	1.61	4429.63	8089.70	0.10
North Main	below diversion	58982	2106.00	58.00	68.73	62.42	68.74	0.000030	1.17	9703.88	10279.38	0.07

HFC-PAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Cht
North Main	below diversion	58982	3932.00	58.00	70.64	64.38	70.64	0.000012	0.83	22298.63	11628.11	0.04
North Main	below diversion	58909	856.00	58.00	65.81	60.58	65.89	0.000184	2.27	384.12	2911.35	0.16
North Main	below diversion	58909	1516.00	58.00	67.61	61.71	67.72	0.000202	2.79	1383.49	5669.59	0.17
North Main	below diversion	58909	2106.00	58.00	68.68	62.55	68.73	0.000110	2.23	4379.21	7552.92	0.13
North Main	below diversion	58909	3932.00	58.00	70.63	64.54	70.64	0.000035	1.44	13965.76	10188.72	0.08
North Main	below diversion	58887	Bridge									
North Main	below diversion	58865	856.00	58.00	65.79	60.58	65.87	0.000185	2.27	383.14	2897.53	0.16
North Main	below diversion	58865	1516.00	58.00	67.49	61.71	67.61	0.000228	2.93	1165.95	5457.01	0.18
North Main	below diversion	58865	2106.00	58.00	68.62	62.54	68.67	0.000118	2.31	4165.09	7449.57	0.13
North Main	below diversion	58865	3932.00	58.00	70.62	64.54	70.62	0.000038	1.45	13863.82	10186.23	0.08
North Main	below diversion	58787	856.00	58.00	65.78	60.58	65.88	0.000187	2.28	382.34	2898.36	0.16
North Main	below diversion	58787	1516.00	58.00	67.49	61.71	67.57	0.000171	2.55	1883.48	5464.02	0.16
North Main	below diversion	58787	2106.00	58.00	68.62	62.54	68.65	0.000078	1.88	5635.84	7703.40	0.11
North Main	below diversion	58787	3932.00	58.00	70.61	64.54	70.61	0.000023	1.16	16988.46	10113.69	0.06
North Main	below diversion	57900	856.00	58.00	65.70	60.46	65.73	0.000100	1.67	1573.29	3278.51	0.12
North Main	below diversion	57900	1516.00	58.00	67.49	61.52	67.50	0.000033	1.12	5031.22	4171.30	0.07
North Main	below diversion	57900	2106.00	58.00	68.60	62.31	68.60	0.000021	0.98	8642.02	6019.19	0.08
North Main	below diversion	57900	3932.00	58.00	70.60	64.25	70.61	0.000015	0.93	19666.96	9598.92	0.05
North Main	below diversion	55821	856.00	58.00	65.42	60.56	65.48	0.000148	2.10	1235.80	2924.45	0.14
North Main	below diversion	55821	1516.00	58.00	67.44	61.64	67.44	0.000022	0.97	8004.15	7494.69	0.06
North Main	below diversion	55821	2106.00	58.00	68.58	62.43	68.58	0.000010	0.71	15415.11	9395.01	0.04
North Main	below diversion	55821	3932.00	58.00	70.60	64.37	70.60	0.000005	0.57	29264.82	10089.58	0.03
North Main	below diversion	55758	856.00	58.00	65.42	60.50	65.48	0.000142	2.06	1266.01	3063.48	0.14
North Main	below diversion	55758	1516.00	58.00	67.43	61.58	67.44	0.000018	0.88	9159.16	8081.28	0.05
North Main	below diversion	55758	2106.00	58.00	68.58	62.36	68.58	0.000008	0.61	16721.69	9367.59	0.03
North Main	below diversion	55758	3932.00	58.00	70.59	64.29	70.59	0.000004	0.53	30447.80	10017.21	0.03
North Main	below diversion	55744	Bridge									
North Main	below diversion	55730	856.00	58.00	65.38	60.50	65.45	0.000165	2.21	850.65	2683.99	0.15
North Main	below diversion	55730	1516.00	58.00	67.41	61.58	67.42	0.000044	1.36	4973.12	6603.06	0.08
North Main	below diversion	55730	2106.00	58.00	68.55	62.36	68.56	0.000020	1.00	10681.47	8821.93	0.06
North Main	below diversion	55730	3932.00	58.00	70.57	64.29	70.57	0.000010	0.79	23569.96	10614.05	0.04
North Main	below diversion	55644	856.00	58.00	65.38	60.50	65.44	0.000156	2.16	1027.17	2261.87	0.15
North Main	below diversion	55644	1516.00	58.00	67.41	61.58	67.41	0.000031	1.14	6153.21	6062.71	0.07
North Main	below diversion	55644	2106.00	58.00	68.54	62.36	68.55	0.000014	0.85	12378.35	8226.04	0.05
North Main	below diversion	55644	3932.00	58.00	70.57	64.29	70.57	0.000008	0.70	26310.33	9969.41	0.04
North Main	below diversion	54900	856.00	58.00	65.27	60.30	65.33	0.000145	2.07	1080.68	2732.27	0.14
North Main	below diversion	54900	1516.00	58.00	67.39	61.31	67.39	0.000015	0.79	9425.06	5152.36	0.05
North Main	below diversion	54900	2106.00	58.00	68.53	62.06	68.54	0.000007	0.61	15880.56	6376.07	0.03
North Main	below diversion	54900	3932.00	58.00	70.56	63.93	70.56	0.000005	0.57	28065.75	7943.42	0.03
North Main	below diversion	53165	856.00	58.00	65.07	60.37	65.10	0.000107	1.82	1480.22	1207.34	0.12
North Main	below diversion	53165	1516.00	58.00	67.35	61.41	67.36	0.000026	1.00	5907.89	2653.95	0.06
North Main	below diversion	53165	2106.00	58.00	68.52	62.15	68.52	0.000018	0.90	9408.11	3396.91	0.05
North Main	below diversion	53165	3932.00	58.00	70.55	64.84	70.56	0.000013	0.89	17688.26	6222.78	0.05
North Main	below diversion	53128	856.00	58.00	65.00	60.30	65.08	0.000180	2.24	410.05	749.97	0.16
North Main	below diversion	53128	1516.00	58.00	67.33	61.29	67.35	0.000060	1.59	3855.95	2430.85	0.10
North Main	below diversion	53128	2106.00	58.00	68.51	62.03	68.52	0.000034	1.30	7202.27	3507.45	0.07
North Main	below diversion	53128	3932.00	58.00	70.55	63.81	70.55	0.000019	1.12	15764.97	6373.63	0.06
North Main	below diversion	53114	Bridge									
North Main	below diversion	53100	856.00	58.00	64.98	60.30	65.06	0.000182	2.24	405.69	87.12	0.16
North Main	below diversion	53100	1516.00	58.00	67.31	61.29	67.33	0.000058	1.58	3946.83	2899.57	0.09
North Main	below diversion	53100	2106.00	58.00	68.49	62.03	68.50	0.000030	1.22	8245.34	4202.27	0.07
North Main	below diversion	53100	3932.00	58.00	70.53	63.81	70.53	0.000016	1.00	18182.89	6486.50	0.05
North Main	below diversion	52987	856.00	58.00	64.96	60.30	65.04	0.000184	2.25	403.97	86.76	0.16
North Main	below diversion	52987	1516.00	58.00	67.30	61.29	67.32	0.000060	1.59	3914.42	2884.17	0.10
North Main	below diversion	52987	2106.00	58.00	68.48	62.03	68.49	0.000030	1.23	8200.20	4195.05	0.07
North Main	below diversion	52987	3932.00	58.00	70.52	63.81	70.53	0.000016	1.00	18149.02	6471.76	0.05
North Main	below diversion	52500	856.00	58.00	64.87	60.26	64.95	0.000194	2.30	385.72	70.37	0.16
North Main	below diversion	52500	1516.00	58.00	67.28	61.25	67.29	0.000046	1.40	4933.91	3263.14	0.08
North Main	below diversion	52500	2106.00	58.00	68.47	61.99	68.47	0.000023	1.07	9472.01	4275.77	0.06
North Main	below diversion	52500	3932.00	58.00	70.52	63.80	70.52	0.000013	0.90	19532.41	6479.62	0.05
North Main	below diversion	50599	856.00	56.00	64.58	58.69	64.85	0.000135	2.08	423.15	67.66	0.14



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vei Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	below diversion	50599	1516.00	56.00	67.03	59.82	67.14	0.000156	2.72	601.59	78.26	0.15
North Main	below diversion	50599	2106.00	56.00	68.20	60.66	68.36	0.000195	3.29	950.12	1055.76	0.18
North Main	below diversion	50599	3932.00	56.00	70.43	62.68	70.47	0.000072	2.27	9471.42	7517.71	0.11
North Main	below diversion	50550	856.00	56.00	64.58	58.52	64.64	0.000129	1.92	445.97	69.20	0.13
North Main	below diversion	50550	1516.00	56.00	67.04	59.60	67.13	0.000142	2.48	628.80	137.73	0.14
North Main	below diversion	50550	2106.00	56.00	68.25	60.43	68.34	0.000142	2.70	2094.50	2967.03	0.15
North Main	below diversion	50550	3932.00	56.00	70.44	62.43	70.46	0.000041	1.65	11529.51	8505.52	0.08
North Main	below diversion	50536	Bridge									
North Main	below diversion	50522	856.00	56.00	64.55	58.51	64.61	0.000132	1.93	443.75	69.07	0.13
North Main	below diversion	50522	1516.00	56.00	66.95	59.60	67.04	0.000146	2.50	620.73	78.59	0.15
North Main	below diversion	50522	2106.00	56.00	68.19	60.43	68.30	0.000148	2.74	1944.35	2695.73	0.15
North Main	below diversion	50522	3932.00	56.00	70.43	62.43	70.44	0.000042	1.66	11437.58	8499.47	0.08
North Main	below diversion	50423	856.00	56.00	64.54	58.52	64.60	0.000132	1.93	443.01	69.03	0.13
North Main	below diversion	50423	1516.00	56.00	66.94	59.61	67.03	0.000147	2.51	619.80	78.54	0.15
North Main	below diversion	50423	2106.00	56.00	68.18	60.43	68.28	0.000149	2.75	1909.11	2628.01	0.15
North Main	below diversion	50423	3932.00	56.00	70.42	62.43	70.43	0.000042	1.67	11399.78	8496.98	0.08
North Main	below diversion	49400	856.00	56.00	64.38	58.54	64.44	0.000141	1.95	439.94	71.12	0.14
North Main	below diversion	49400	1516.00	56.00	66.78	59.63	66.87	0.000150	2.49	623.06	81.82	0.15
North Main	below diversion	49400	2106.00	56.00	68.10	60.43	68.15	0.000083	2.04	4558.72	4524.50	0.11
North Main	below diversion	49400	3932.00	56.00	70.40	62.43	70.41	0.000019	1.11	16913.22	8193.62	0.06
North Main	below diversion	48450	856.00	56.00	64.23	58.67	64.30	0.000151	2.13	412.41	69.36	0.14
North Main	below diversion	48450	1516.00	56.00	66.73	59.80	66.76	0.000066	1.73	4244.10	4480.35	0.10
North Main	below diversion	48450	2106.00	56.00	68.10	60.62	68.10	0.000017	0.97	11189.09	5439.02	0.05
North Main	below diversion	48450	3932.00	56.00	70.39	62.60	70.39	0.000007	0.69	25397.38	8648.12	0.03
North Main	reach 1	233824	2496.00	53.37	64.02	57.06	64.15	0.000302	2.94	850.36	102.25	0.18
North Main	reach 1	233824	3976.00	53.37	66.45	58.33	66.64	0.000343	3.50	1423.00	1034.53	0.20
North Main	reach 1	233824	5665.00	53.37	67.91	59.54	68.04	0.000282	3.36	3664.60	2055.68	0.18
North Main	reach 1	233824	10632.00	53.37	70.32	62.43	70.37	0.000165	2.49	9203.24	2545.57	0.14
North Main	reach 1	232833	2496.00	53.37	63.76	56.74	63.87	0.000246	2.66	936.75	112.49	0.16
North Main	reach 1	232833	3976.00	53.37	66.19	57.92	66.33	0.000259	3.08	1897.01	1347.86	0.17
North Main	reach 1	232833	5665.00	53.37	67.74	59.04	67.82	0.000163	2.61	5168.63	2530.20	0.14
North Main	reach 1	232833	10632.00	53.37	70.22	61.71	70.25	0.000088	2.12	11977.04	2972.63	0.10
North Main	reach 1	232775	2496.00	53.37	63.75	56.74	63.86	0.000247	2.67	935.09	112.43	0.16
North Main	reach 1	232775	3976.00	53.37	66.17	57.91	66.31	0.000261	3.09	1874.89	1329.67	0.17
North Main	reach 1	232775	5665.00	53.37	67.72	59.04	67.80	0.000186	2.63	5115.03	2524.06	0.14
North Main	reach 1	232775	10632.00	53.37	70.21	61.71	70.24	0.000088	2.12	11943.89	2971.63	0.10
North Main	reach 1	232000	2496.00	53.37	63.55	56.62	63.67	0.000252	2.71	921.87	109.16	0.16
North Main	reach 1	232000	3976.00	53.37	66.11	57.75	66.15	0.000125	1.86	5260.32	3110.72	0.12
North Main	reach 1	232000	5665.00	53.37	67.70	58.88	67.71	0.000050	1.29	11107.35	3995.50	0.07
North Main	reach 1	232000	10632.00	53.37	70.18	61.54	70.19	0.000027	1.08	21447.19	4324.71	0.06
North Main	reach 1	230198	2496.00	52.60	63.16	55.77	63.25	0.000203	2.48	1008.31	116.57	0.15
North Main	reach 1	230198	3976.00	52.60	65.77	56.87	65.87	0.000185	2.69	2825.74	3183.57	0.15
North Main	reach 1	230198	5665.00	52.60	67.61	57.95	67.63	0.000046	1.48	12737.27	6269.98	0.07
North Main	reach 1	230198	10632.00	52.60	70.15	60.54	70.15	0.000017	0.93	28671.48	6300.00	0.05
North Main	reach 1	230130	2496.00	52.60	63.14	55.77	63.23	0.000205	2.48	1005.85	116.48	0.15
North Main	reach 1	230130	3976.00	52.60	65.75	56.87	65.85	0.000188	2.71	2758.53	3124.07	0.15
North Main	reach 1	230130	5665.00	52.60	67.61	57.95	67.62	0.000047	1.48	12702.97	6269.93	0.07
North Main	reach 1	230130	10632.00	52.60	70.14	60.54	70.15	0.000017	0.93	28655.09	6300.00	0.05
North Main	reach 1	230000	2496.00	52.60	63.10	55.85	63.20	0.000223	2.58	968.66	113.19	0.16
North Main	reach 1	230000	3976.00	52.60	65.72	56.98	65.82	0.000236	2.67	2650.90	2626.90	0.16
North Main	reach 1	230000	5665.00	52.60	67.60	58.09	67.61	0.000054	1.42	12104.52	6138.93	0.08
North Main	reach 1	230000	10632.00	52.60	70.14	60.75	70.14	0.000019	0.94	27750.30	6184.29	0.05
North Main	reach 1	228819	2496.00	52.61	62.87	55.62	62.95	0.000193	2.39	1042.65	122.76	0.14
North Main	reach 1	228819	3976.00	52.61	65.42	56.68	65.55	0.000221	2.90	1412.87	480.33	0.16
North Main	reach 1	228819	5665.00	52.61	67.46	57.71	67.52	0.000121	2.33	6532.81	5492.05	0.12
North Main	reach 1	228819	10632.00	52.61	70.10	60.22	70.11	0.000037	1.26	21156.27	5624.21	0.07
North Main	reach 1	227602	2496.00	52.61	62.53	56.00	62.66	0.000307	2.91	858.02	106.20	0.18
North Main	reach 1	227602	3976.00	52.61	65.02	57.18	65.21	0.000349	3.50	1134.71	116.39	0.20
North Main	reach 1	227602	5665.00	52.61	67.14	58.34	67.27	0.000309	3.15	4083.41	4414.10	0.18
North Main	reach 1	227602	10632.00	52.61	70.05	61.05	70.06	0.000040	1.18	21770.26	6262.87	0.07
North Main	reach 1	226000	2496.00	52.41	62.02	55.72	62.15	0.000326	2.96	843.95	106.58	0.19
North Main	reach 1	226000	3976.00	52.41	64.43	56.88	64.63	0.000372	3.57	1112.77	116.00	0.20
North Main	reach 1	226000	5665.00	52.41	66.36	58.00	66.64	0.000440	4.21	1344.21	123.53	0.23

HFC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	228000	10632.00	52.41	69.68	60.71	69.88	0.000472	4.37	4918.19	2085.24	0.23
North Main	reach 1	224978	2496.00	52.41	61.73	55.44	61.84	0.000276	2.70	923.27	118.64	0.17
North Main	reach 1	224978	3976.00	52.41	64.11	56.50	64.27	0.000312	3.27	1217.68	128.62	0.19
North Main	reach 1	224978	5665.00	52.41	65.98	57.54	66.21	0.000370	3.86	1478.38	185.11	0.21
North Main	reach 1	224978	10632.00	52.41	68.95	60.05	69.34	0.000546	5.21	2999.30	1245.66	0.28
North Main	reach 1	224934	2496.00	52.41	61.71	55.44	61.83	0.000277	2.71	921.71	118.58	0.17
North Main	reach 1	224934	3976.00	52.41	64.09	56.50	64.28	0.000313	3.27	1215.73	128.56	0.19
North Main	reach 1	224934	5665.00	52.41	65.97	57.54	66.20	0.000372	3.87	1475.08	184.35	0.21
North Main	reach 1	224934	10632.00	52.41	68.92	60.05	69.32	0.000554	5.24	2961.38	1242.36	0.28
North Main	reach 1	223155	2496.00	52.35	61.10	55.54	61.24	0.000390	3.07	813.26	112.43	0.20
North Main	reach 1	223155	3976.00	52.35	63.35	56.64	63.56	0.000491	3.68	1063.76	212.37	0.23
North Main	reach 1	223155	5665.00	52.35	65.17	57.72	65.40	0.000543	3.95	1662.52	407.46	0.24
North Main	reach 1	223155	10632.00	52.35	67.88	60.26	68.17	0.000693	4.72	3065.75	631.38	0.28
North Main	reach 1	222000	2496.00	52.03	60.61	55.28	60.77	0.000434	3.20	779.50	109.24	0.21
North Main	reach 1	222000	3976.00	52.03	62.76	56.39	62.99	0.000495	3.88	1041.66	309.40	0.23
North Main	reach 1	222000	5665.00	52.03	64.52	57.48	64.74	0.000597	4.01	2035.74	850.55	0.25
North Main	reach 1	222000	10632.00	52.03	67.42	60.06	67.54	0.000386	3.47	5303.83	1342.99	0.21
North Main	reach 1	220735	2496.00	51.94	59.96	55.17	60.15	0.000555	3.47	719.12	107.70	0.24
North Main	reach 1	220735	3976.00	51.94	62.02	56.28	62.29	0.000625	4.18	950.21	116.98	0.26
North Main	reach 1	220735	5665.00	51.94	63.47	57.39	63.86	0.000781	5.04	1124.63	123.54	0.29
North Main	reach 1	220735	10632.00	51.94	65.83	59.99	66.62	0.001492	7.23	1822.78	985.52	0.41
North Main	reach 1	220633	2496.00	51.94	59.90	55.17	60.09	0.000570	3.50	712.53	107.42	0.24
North Main	reach 1	220633	3976.00	51.94	61.95	56.28	62.22	0.000640	4.22	942.06	116.67	0.26
North Main	reach 1	220633	5665.00	51.94	63.38	57.39	63.78	0.000803	5.09	1113.60	123.13	0.30
North Main	reach 1	220633	10632.00	51.94	65.80	60.00	66.47	0.001444	7.52	1608.73	782.83	0.41
North Main	reach 1	220295	2496.00	51.84	59.74	54.86	59.90	0.000475	3.24	770.30	113.87	0.22
North Main	reach 1	220295	3976.00	51.84	61.77	55.91	62.01	0.000541	3.94	1010.02	122.13	0.24
North Main	reach 1	220295	5665.00	51.84	63.18	56.93	63.51	0.000691	4.79	1183.00	127.70	0.28
North Main	reach 1	220295	10632.00	51.84	65.47	59.41	65.94	0.001031	5.94	3060.78	1690.40	0.34
North Main	reach 1	219330	2496.00	51.58	59.43	54.18	59.53	0.000288	2.56	975.85	142.45	0.17
North Main	reach 1	219330	3976.00	51.58	61.43	55.06	61.58	0.000330	3.13	1269.02	150.70	0.19
North Main	reach 1	219330	5665.00	51.58	62.72	55.94	62.95	0.000435	3.86	1466.83	156.02	0.22
North Main	reach 1	219330	10632.00	51.58	64.51	58.05	65.03	0.000845	5.86	2365.04	1280.41	0.32
North Main	reach 1	218000	2496.00	51.24	59.08	53.65	59.17	0.000256	2.45	1019.47	145.12	0.16
North Main	reach 1	218000	3976.00	51.24	61.02	54.51	61.16	0.000304	3.04	1308.17	152.54	0.18
North Main	reach 1	218000	5665.00	51.24	62.19	55.36	62.40	0.000399	3.72	1858.39	1142.68	0.21
North Main	reach 1	218000	10632.00	51.24	63.91	57.42	64.14	0.000479	4.43	4788.04	1977.75	0.24
North Main	reach 1	216808	2496.00	51.24	58.80	54.06	58.75	0.000489	3.15	792.88	126.38	0.22
North Main	reach 1	216808	3976.00	51.24	60.44	55.04	60.67	0.000562	3.83	1077.89	469.53	0.24
North Main	reach 1	216808	5665.00	51.24	61.68	56.01	61.87	0.000494	3.86	2888.80	2106.05	0.23
North Main	reach 1	216808	10632.00	51.24	63.57	58.32	63.66	0.000336	3.35	7618.85	2959.54	0.19
North Main	reach 1	216752	2496.00	51.24	58.57	54.06	58.72	0.000496	3.16	789.10	126.23	0.22
North Main	reach 1	216752	3976.00	51.24	60.41	55.04	60.64	0.000569	3.85	1064.58	439.80	0.25
North Main	reach 1	216752	5665.00	51.24	61.64	56.01	61.84	0.000514	3.93	2798.48	2092.45	0.24
North Main	reach 1	216752	10632.00	51.24	63.55	58.32	63.64	0.000342	3.38	7554.58	2952.00	0.20
North Main	reach 1	216000	2496.00	51.25	58.07	54.11	58.28	0.000704	3.86	677.42	110.75	0.26
North Main	reach 1	216000	3976.00	51.25	59.83	55.12	60.13	0.000794	4.47	1007.52	515.38	0.29
North Main	reach 1	216000	5665.00	51.25	61.27	56.12	61.45	0.000525	3.92	3103.70	1901.59	0.24
North Main	reach 1	216000	10632.00	51.25	63.31	58.57	63.37	0.000354	2.98	7419.13	2404.54	0.19
North Main	reach 1	214269	2496.00	51.25	57.10	53.42	57.23	0.000505	2.91	857.74	158.12	0.22
North Main	reach 1	214269	3976.00	51.25	58.78	54.19	58.97	0.000545	3.52	1128.03	164.48	0.24
North Main	reach 1	214269	5665.00	51.25	60.30	54.96	60.53	0.000537	3.91	1922.61	1099.61	0.24
North Main	reach 1	214269	10632.00	51.25	62.55	56.86	62.72	0.000435	4.01	4803.29	1401.14	0.22
North Main	reach 1	212822	2496.00	51.25	54.59	53.92	55.39	0.008313	7.18	347.65	110.22	0.71
North Main	reach 1	212822	3976.00	51.25	56.57	54.86	57.32	0.003331	6.93	573.40	117.72	0.55
North Main	reach 1	212822	5665.00	51.25	58.10	55.82	58.97	0.002866	7.48	757.74	123.52	0.53
North Main	reach 1	212822	10632.00	51.25	60.22	58.08	61.42	0.003196	9.24	1643.17	672.49	0.58
North Main	reach 1	212816										
North Main	reach 1	212769	2496.00	44.29	54.58	47.61	54.69	0.000233	2.61	956.92	113.54	0.16
North Main	reach 1	212769	3976.00	44.29	56.56	48.71	58.74	0.000313	3.34	1189.24	120.91	0.19
North Main	reach 1	212769	5665.00	44.29	58.09	49.79	58.29	0.000340	3.72	2080.80	550.50	0.20
North Main	reach 1	212769	10632.00	44.29	60.22	52.37	60.50	0.000494	4.85	3440.31	706.32	0.24

HEC-RAS Plan: P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	211780	2496.00	43.36	54.45	46.20	54.51	0.000119	1.96	1274.81	142.18	0.12
North Main	reach 1	211780	3976.00	43.36	56.46	47.20	56.52	0.000116	2.12	3257.13	1449.07	0.12
North Main	reach 1	211780	5665.00	43.36	58.02	48.17	58.05	0.000103	1.94	6008.04	2089.99	0.11
North Main	reach 1	211780	10632.00	43.36	60.19	50.51	60.22	0.000099	1.92	11541.80	3122.10	0.11
North Main	reach 1	210419	2496.00	43.36	54.21	46.65	54.30	0.000197	2.43	1028.80	120.70	0.15
North Main	reach 1	210419	3976.00	43.36	56.31	47.80	56.36	0.000132	2.19	4199.25	2511.21	0.12
North Main	reach 1	210419	5665.00	43.36	57.92	48.91	57.94	0.000084	1.34	8861.06	3443.51	0.09
North Main	reach 1	210419	10632.00	43.36	60.13	51.54	60.14	0.000050	1.18	18098.20	4581.51	0.07
North Main	reach 1	209041	2496.00	43.31	53.94	46.47	54.03	0.000193	2.41	1034.72	120.35	0.14
North Main	reach 1	209041	3976.00	43.31	55.96	47.58	56.11	0.000261	3.09	1287.23	129.04	0.17
North Main	reach 1	209041	5665.00	43.31	57.54	48.65	57.73	0.000304	3.55	2327.98	1290.87	0.19
North Main	reach 1	209041	10632.00	43.31	59.91	51.22	60.02	0.000239	3.43	7691.68	4465.29	0.17
North Main	reach 1	208000	2496.00	43.31	53.73	46.42	53.82	0.000203	2.47	1008.91	117.16	0.15
North Main	reach 1	208000	3976.00	43.31	55.67	47.52	55.83	0.000281	3.20	1243.92	124.74	0.18
North Main	reach 1	208000	5665.00	43.31	57.14	48.59	57.37	0.000392	3.90	1688.28	888.31	0.21
North Main	reach 1	208000	10632.00	43.31	59.71	51.17	59.79	0.000312	2.86	8848.89	5310.74	0.18
North Main	reach 1	207786	2496.00	43.31	53.70	46.46	53.79	0.000204	2.42	1029.70	124.78	0.15
North Main	reach 1	207786	3976.00	43.31	55.62	47.57	55.77	0.000280	3.11	1279.33	135.09	0.18
North Main	reach 1	207786	5665.00	43.31	57.09	48.63	57.28	0.000353	3.58	2331.79	1737.30	0.20
North Main	reach 1	207786	10632.00	43.31	59.69	51.18	59.73	0.000188	2.27	11652.28	5236.79	0.14
North Main	reach 1	207730	2496.00	43.31	53.68	46.46	53.77	0.000205	2.43	1028.22	124.72	0.15
North Main	reach 1	207730	3976.00	43.31	55.60	47.57	55.75	0.000282	3.11	1277.13	135.01	0.18
North Main	reach 1	207730	5665.00	43.31	57.08	48.63	57.27	0.000355	3.59	2309.23	1727.38	0.20
North Main	reach 1	207730	10632.00	43.31	59.68	51.18	59.72	0.000190	2.28	11593.18	5223.45	0.14
North Main	reach 1	206000	2496.00	43.32	53.30	46.34	53.40	0.000218	2.51	992.70	118.50	0.15
North Main	reach 1	206000	3976.00	43.32	55.47	47.42	55.49	0.000072	1.61	7061.65	3946.52	0.09
North Main	reach 1	206000	5665.00	43.32	57.08	48.45	57.09	0.000030	1.00	13478.59	3985.96	0.06
North Main	reach 1	206000	10632.00	43.32	59.82	50.95	59.63	0.000019	0.83	24035.16	4359.47	0.05
North Main	reach 1	204471	2496.00	43.17	52.92	46.31	53.04	0.000261	2.69	927.28	114.84	0.17
North Main	reach 1	204471	3976.00	43.17	55.10	47.42	55.27	0.000324	3.35	1186.38	123.44	0.19
North Main	reach 1	204471	5665.00	43.17	56.69	48.50	56.94	0.000498	4.04	1491.58	388.90	0.24
North Main	reach 1	204471	10632.00	43.17	59.22	51.07	59.51	0.000624	4.80	3662.74	1347.14	0.27
North Main	reach 1	203192	2496.00	43.15	52.70	45.78	52.77	0.000163	2.14	1168.31	145.87	0.13
North Main	reach 1	203192	3976.00	43.15	54.81	46.71	54.92	0.000206	2.67	1488.65	157.54	0.15
North Main	reach 1	203192	5665.00	43.15	56.29	47.64	56.45	0.000265	3.23	1833.33	212.82	0.18
North Main	reach 1	203192	10632.00	43.15	58.48	49.84	58.82	0.000502	4.83	2727.38	720.38	0.25
North Main	reach 1	202000	2496.00	42.72	52.47	45.52	52.56	0.000188	2.34	1065.38	126.94	0.14
North Main	reach 1	202000	3976.00	42.72	54.51	46.50	54.65	0.000247	2.99	1331.86	134.54	0.17
North Main	reach 1	202000	5665.00	42.72	55.90	47.47	56.10	0.000326	3.64	1847.40	712.17	0.19
North Main	reach 1	202000	10632.00	42.72	57.92	49.83	58.17	0.000530	4.47	3875.41	1287.52	0.25
North Main	reach 1	201961	2496.00	42.72	52.47	45.53	52.55	0.000184	2.29	1089.34	132.91	0.14
North Main	reach 1	201961	3976.00	42.72	54.50	46.51	54.63	0.000239	2.90	1369.06	143.57	0.16
North Main	reach 1	201961	5665.00	42.72	55.88	47.47	56.07	0.000314	3.54	1891.69	794.95	0.19
North Main	reach 1	201961	10632.00	42.72	57.90	49.80	58.14	0.000455	4.39	4234.58	1556.96	0.23
North Main	reach 1	201917	2496.00	42.72	52.46	45.53	52.54	0.000185	2.29	1088.23	132.87	0.14
North Main	reach 1	201917	3976.00	42.72	54.49	46.51	54.62	0.000240	2.91	1367.50	143.42	0.16
North Main	reach 1	201917	5665.00	42.72	55.87	47.48	56.06	0.000316	3.55	1880.12	781.41	0.19
North Main	reach 1	201917	10632.00	42.72	57.89	49.80	58.12	0.000463	4.43	4188.49	1541.85	0.23
North Main	reach 1	201322	2496.00	42.52	52.35	45.31	52.43	0.000180	2.31	1082.67	127.58	0.14
North Main	reach 1	201322	3976.00	42.52	54.34	46.29	54.48	0.000240	2.96	1344.10	731.97	0.16
North Main	reach 1	201322	5665.00	42.52	55.65	47.25	55.86	0.000338	3.72	1522.44	940.88	0.20
North Main	reach 1	201322	10632.00	42.52	57.16	49.61	57.74	0.000810	6.12	1736.15	1134.68	0.31
North Main	reach 1	200676	2496.00	42.52	52.20	45.68	52.30	0.000251	2.54	982.97	130.69	0.16
North Main	reach 1	200676	3976.00	42.52	54.16	46.77	54.31	0.000309	3.12	1511.69	811.94	0.19
North Main	reach 1	200676	5665.00	42.52	55.51	47.83	55.65	0.000305	3.29	2761.61	1020.07	0.19
North Main	reach 1	200676	10632.00	42.52	57.08	50.32	57.21	0.000672	3.50	4797.36	1619.27	0.26
North Main	reach 1	200030	2496.00	42.52	52.04	45.42	52.14	0.000228	2.52	989.10	121.75	0.16
North Main	reach 1	200030	3976.00	42.52	53.99	46.45	54.13	0.000264	3.02	1798.87	765.51	0.17
North Main	reach 1	200030	5665.00	42.52	55.48	47.46	55.51	0.000112	2.11	8658.05	6195.38	0.11
North Main	reach 1	200030	10632.00	42.52	57.07	49.89	57.08	0.000063	1.89	18701.31	6423.89	0.09
North Main	reach 1	199964	2496.00	42.52	52.03	45.42	52.13	0.000229	2.53	987.18	121.69	0.16
North Main	reach 1	199964	3976.00	42.52	53.97	46.45	54.11	0.000267	3.03	1784.29	763.09	0.17
North Main	reach 1	199964	5665.00	42.52	55.47	47.46	55.51	0.000114	2.12	8607.03	6194.01	0.11
North Main	reach 1	199964	10632.00	42.52	57.06	49.89	57.08	0.000063	1.89	18673.92	6423.17	0.09

HEC-RAS Plan-P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	198000	2496.00	42.52	51.58	45.27	51.67	0.000230	2.50	1097.98	435.16	0.16
North Main	reach 1	198000	3976.00	42.52	53.78	46.26	53.80	0.000085	1.72	8441.07	3980.49	0.10
North Main	reach 1	198000	5665.00	42.52	55.37	47.22	55.38	0.000037	1.22	14698.69	7520.33	0.07
North Main	reach 1	198000	10632.00	42.52	56.99	49.54	57.00	0.000026	1.01	27084.35	7796.21	0.08
North Main	reach 1	197381	2496.00	42.52	51.42	45.31	51.52	0.000253	2.55	979.09	129.40	0.18
North Main	reach 1	197381	3976.00	42.52	53.64	46.29	53.72	0.000192	2.52	3595.04	3411.51	0.15
North Main	reach 1	197381	5665.00	42.52	55.34	47.26	55.36	0.000064	1.57	10158.39	5196.18	0.09
North Main	reach 1	197381	10632.00	42.52	56.97	49.60	56.96	0.000050	1.48	21152.03	8828.98	0.08
North Main	reach 1	197333	2496.00	42.52	51.41	45.31	51.51	0.000254	2.55	977.44	129.34	0.18
North Main	reach 1	197333	3976.00	42.52	53.59	46.30	53.70	0.000248	2.86	2366.31	2116.55	0.17
North Main	reach 1	197333	5665.00	42.52	55.32	47.27	55.35	0.000091	1.88	8623.65	5156.93	0.10
North Main	reach 1	197333	10632.00	42.52	56.96	49.80	56.98	0.000062	1.66	19645.46	8813.21	0.09
North Main	reach 1	198000	2496.00	42.53	51.02	45.36	51.14	0.000311	2.76	905.71	124.40	0.18
North Main	reach 1	198000	3976.00	42.53	53.13	48.35	53.30	0.000356	3.34	1257.11	234.51	0.20
North Main	reach 1	198000	5665.00	42.53	55.06	47.33	55.16	0.000238	2.98	4622.04	3687.46	0.17
North Main	reach 1	198000	10632.00	42.53	56.83	49.71	56.86	0.000146	2.10	12424.50	5074.20	0.13
North Main	reach 1	194500	2496.00	42.53	50.40	45.52	50.56	0.000477	3.24	770.23	114.29	0.22
North Main	reach 1	194500	3976.00	42.53	52.40	46.57	52.64	0.000547	3.95	1007.73	122.68	0.24
North Main	reach 1	194500	5665.00	42.53	54.28	47.59	54.80	0.000595	4.54	1303.36	500.78	0.26
North Main	reach 1	194500	10632.00	42.53	56.37	50.08	56.50	0.000404	3.87	7574.96	4419.28	0.21
North Main	reach 1	194434	2496.00	42.53	50.38	45.52	50.53	0.000484	3.26	766.38	114.15	0.22
North Main	reach 1	194434	3976.00	42.53	52.36	46.57	52.61	0.000554	3.96	1002.95	122.52	0.24
North Main	reach 1	194434	5665.00	42.53	54.24	47.58	54.56	0.000604	4.58	1283.83	433.12	0.26
North Main	reach 1	194434	10632.00	42.53	56.33	50.07	56.48	0.000421	3.94	7419.69	4414.78	0.22
North Main	reach 1	194000	2496.00	42.44	50.16	45.40	50.32	0.000482	3.22	776.12	117.84	0.22
North Main	reach 1	194000	3976.00	42.44	52.13	46.42	52.37	0.000550	3.91	1016.38	126.21	0.24
North Main	reach 1	194000	5665.00	42.44	53.99	47.44	54.30	0.000592	4.48	1435.08	2482.27	0.26
North Main	reach 1	194000	10632.00	42.44	56.25	49.86	56.30	0.000261	2.67	9963.62	4464.07	0.17
North Main	reach 1	192000	2496.00	42.24	48.94	45.08	49.15	0.000718	3.86	681.72	114.93	0.26
North Main	reach 1	192000	3976.00	42.24	50.74	46.09	51.04	0.000804	4.45	894.26	121.95	0.29
North Main	reach 1	192000	5665.00	42.24	52.51	47.07	52.90	0.000839	5.04	1197.09	357.87	0.30
North Main	reach 1	192000	10632.00	42.24	55.68	49.45	55.75	0.000290	2.98	7410.87	2439.52	0.18
North Main	reach 1	190533	2496.00	42.24	45.91	45.14	46.76	0.006038	7.40	337.51	98.18	0.70
North Main	reach 1	190533	3976.00	42.24	48.23	46.19	48.97	0.002930	6.92	574.48	106.30	0.52
North Main	reach 1	190533	5665.00	42.24	50.12	47.19	50.93	0.002330	7.25	781.76	112.93	0.49
North Main	reach 1	190533	10632.00	42.24	53.42	49.67	54.69	0.002497	9.04	1176.69	4681.43	0.52
North Main	reach 1	190526										
North Main	reach 1	190513	2496.00	38.26	45.90	41.26	46.09	0.000555	3.48	717.37	106.14	0.24
North Main	reach 1	190513	3976.00	38.26	48.22	42.33	46.48	0.000568	4.09	972.39	113.87	0.25
North Main	reach 1	190513	5665.00	38.26	50.11	43.39	50.46	0.000630	4.75	1193.16	120.05	0.27
North Main	reach 1	190513	10632.00	38.26	53.41	45.92	54.09	0.000972	6.60	1611.03	4641.72	0.34
North Main	reach 1	190000	2496.00	38.26	45.64	41.12	45.81	0.000521	3.28	760.61	118.79	0.23
North Main	reach 1	190000	3976.00	38.26	47.97	42.13	48.19	0.000508	3.79	1048.93	126.71	0.23
North Main	reach 1	190000	5665.00	38.26	49.84	43.13	50.14	0.000553	4.37	1297.23	2316.08	0.25
North Main	reach 1	190000	10632.00	38.26	53.00	45.51	53.57	0.000907	6.07	1751.28	5306.33	0.33
North Main	reach 1	189032	2496.00	38.26	45.02	41.16	45.22	0.000708	3.56	700.16	122.51	0.26
North Main	reach 1	189032	3976.00	38.26	47.41	42.16	47.65	0.000614	3.94	1008.92	135.98	0.25
North Main	reach 1	189032	5665.00	38.26	49.26	43.14	49.56	0.000643	4.46	1268.93	398.44	0.27
North Main	reach 1	189032	10632.00	38.26	52.00	45.51	52.61	0.001104	6.25	1701.56	4820.45	0.36
North Main	reach 1	188975	2496.00	38.26	44.98	41.15	45.18	0.000725	3.59	694.59	122.26	0.27
North Main	reach 1	188975	3976.00	38.26	47.37	42.16	47.62	0.000623	3.96	1003.70	135.76	0.26
North Main	reach 1	188975	5665.00	38.26	49.21	43.14	49.53	0.000651	4.49	1263.04	383.40	0.27
North Main	reach 1	188975	10632.00	38.26	51.93	45.51	52.54	0.001131	6.30	1688.41	4819.29	0.36
North Main	reach 1	188000	1974.00	37.63	44.45	40.80	44.56	0.000498	2.67	739.65	151.69	0.21
North Main	reach 1	188000	3035.00	37.63	47.03	41.54	47.14	0.000312	2.62	1157.89	170.29	0.18
North Main	reach 1	188000	4140.00	37.63	48.94	42.16	49.06	0.000266	2.78	1487.74	176.61	0.17
North Main	reach 1	188000	9192.00	37.63	51.30	44.42	51.66	0.000603	4.80	1915.19	5414.86	0.28
North Main	reach 1	187869	1974.00	37.63	44.32	40.48	44.48	0.000598	3.21	614.07	109.60	0.24
North Main	reach 1	187869	3035.00	37.63	46.91	41.30	47.09	0.000432	3.32	912.79	120.75	0.21
North Main	reach 1	187869	4140.00	37.63	48.80	42.04	49.00	0.000410	3.61	1148.35	128.71	0.21
North Main	reach 1	187869	9192.00	37.63	50.88	44.78	51.53	0.001079	8.45	1425.03	137.46	0.35
North Main	reach 1	187694	1974.00	34.85	44.31	38.18	44.40	0.000235	2.43	811.04	107.36	0.16

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	187694	3035.00	34.85	46.90	39.03	47.02	0.000227	2.76	1101.26	116.82	0.16
North Main	reach 1	187694	4140.00	34.85	48.78	39.82	48.93	0.000246	3.12	1328.31	123.98	0.17
North Main	reach 1	187694	9192.00	34.85	50.82	42.88	51.34	0.000727	5.79	1588.03	131.58	0.29
North Main	reach 1	188000	1974.00	34.04	44.04	36.81	44.10	0.000132	1.93	1022.40	125.69	0.12
North Main	reach 1	188000	3035.00	34.04	46.64	37.62	46.72	0.000135	2.23	1363.18	136.77	0.12
North Main	reach 1	188000	4140.00	34.04	48.56	38.36	48.61	0.000128	1.95	4617.70	3994.16	0.12
North Main	reach 1	188000	9192.00	34.04	50.93	41.06	50.94	0.000057	1.44	14601.44	4155.83	0.08
North Main	reach 1	184000	1974.00	34.09	43.79	36.53	43.85	0.000126	1.91	1035.28	124.93	0.12
North Main	reach 1	184000	3035.00	34.09	46.38	37.32	46.46	0.000130	2.21	1370.98	133.86	0.12
North Main	reach 1	184000	4140.00	34.09	48.23	38.04	48.33	0.000154	2.55	1625.14	158.78	0.13
North Main	reach 1	184000	9192.00	34.09	50.72	40.68	50.77	0.000146	2.33	9767.71	4099.29	0.13
North Main	reach 1	182000	1974.00	33.49	43.54	35.97	43.60	0.000119	1.87	1054.40	124.12	0.11
North Main	reach 1	182000	3035.00	33.49	46.12	36.78	46.20	0.000125	2.19	1387.44	133.82	0.12
North Main	reach 1	182000	4140.00	33.49	47.89	37.51	47.99	0.000178	2.53	1635.98	165.56	0.14
North Main	reach 1	182000	9192.00	33.49	50.56	40.20	50.57	0.000065	1.57	13830.96	4124.47	0.09
North Main	reach 1	180000	1974.00	33.44	43.29	35.98	43.35	0.000132	1.95	1012.90	121.55	0.12
North Main	reach 1	180000	3035.00	33.44	45.86	36.80	45.94	0.000138	2.27	1337.52	131.27	0.13
North Main	reach 1	180000	4140.00	33.44	47.54	37.54	47.65	0.000163	2.65	1564.01	137.64	0.14
North Main	reach 1	180000	9192.00	33.44	50.34	40.23	50.38	0.000136	2.27	10108.37	4109.54	0.13
North Main	reach 1	178120	1974.00	33.43	42.92	36.52	43.01	0.000243	2.44	809.03	110.95	0.16
North Main	reach 1	178120	3035.00	33.43	45.48	37.48	45.60	0.000235	2.73	1110.88	124.70	0.16
North Main	reach 1	178120	4140.00	33.43	47.10	38.34	47.26	0.000270	3.14	1319.95	133.40	0.18
North Main	reach 1	178120	9192.00	33.43	49.99	41.37	50.07	0.000214	3.10	8115.89	4097.10	0.16
North Main	reach 1	178059	1974.00	33.43	42.91	36.52	43.01	0.000244	2.44	808.02	110.90	0.16
North Main	reach 1	178059	3035.00	33.43	45.48	37.48	45.59	0.000235	2.73	1109.83	124.66	0.16
North Main	reach 1	178059	4140.00	33.43	47.09	38.34	47.25	0.000270	3.14	1318.64	133.34	0.18
North Main	reach 1	178059	9192.00	33.43	49.97	41.37	50.06	0.000217	3.12	8057.24	4096.46	0.16
North Main	reach 1	178000	1974.00	33.28	42.92	36.03	42.99	0.000164	2.12	932.98	117.05	0.13
North Main	reach 1	178000	3035.00	33.28	45.48	36.87	45.57	0.000167	2.44	1246.02	127.21	0.14
North Main	reach 1	178000	4140.00	33.28	47.10	37.65	47.23	0.000198	2.84	1457.21	133.63	0.15
North Main	reach 1	178000	9192.00	33.28	50.00	40.43	50.03	0.000144	2.18	10351.96	4159.74	0.13
North Main	reach 1	178000	1974.00	33.44	42.56	36.08	42.64	0.000187	2.19	902.71	119.65	0.14
North Main	reach 1	178000	3035.00	33.44	45.13	36.92	45.22	0.000182	2.48	1224.54	131.14	0.14
North Main	reach 1	178000	4140.00	33.44	46.68	37.68	46.81	0.000215	2.89	1433.77	138.09	0.16
North Main	reach 1	178000	9192.00	33.44	49.70	40.46	49.74	0.000145	2.31	10300.54	5018.62	0.13
North Main	reach 1	174282	1974.00	32.56	42.31	35.26	42.36	0.000131	1.93	1022.94	123.98	0.12
North Main	reach 1	174282	3035.00	32.56	44.87	36.04	44.95	0.000134	2.25	1351.54	132.10	0.12
North Main	reach 1	174282	4140.00	32.56	46.37	36.77	46.48	0.000196	2.87	1553.25	136.97	0.14
North Main	reach 1	174282	9192.00	32.56	49.24	39.35	49.39	0.000329	3.52	6487.58	6504.80	0.19
North Main	reach 1	173031	1974.00	32.46	42.11	35.14	42.18	0.000161	2.10	940.34	118.08	0.13
North Main	reach 1	173031	3035.00	32.46	44.67	35.99	44.76	0.000165	2.41	1257.01	129.57	0.14
North Main	reach 1	173031	4140.00	32.46	46.13	36.78	46.25	0.000205	2.86	1449.79	136.18	0.15
North Main	reach 1	173031	9192.00	32.46	48.95	39.58	49.05	0.000202	3.13	9342.23	7832.45	0.16
North Main	reach 1	172979	1974.00	32.46	42.11	35.14	42.17	0.000162	2.10	939.32	118.05	0.13
North Main	reach 1	172979	3035.00	32.46	44.67	35.99	44.78	0.000166	2.42	1255.87	129.53	0.14
North Main	reach 1	172979	4140.00	32.46	46.11	36.77	46.24	0.000205	2.86	1448.30	136.13	0.15
North Main	reach 1	172979	9192.00	32.46	48.93	39.58	49.03	0.000208	3.18	9150.24	7831.77	0.16
North Main	reach 1	172000	1974.00	32.46	41.95	35.04	42.02	0.000155	2.06	957.79	120.05	0.13
North Main	reach 1	172000	3035.00	32.46	44.51	35.86	44.60	0.000157	2.38	1276.18	128.96	0.13
North Main	reach 1	172000	4140.00	32.46	45.92	36.61	46.04	0.000196	2.83	1461.47	133.86	0.15
North Main	reach 1	172000	9192.00	32.46	48.43	39.37	48.71	0.000535	4.45	3910.20	3452.95	0.25
North Main	reach 1	170000	1974.00	32.45	41.65	34.87	41.71	0.000147	2.01	982.79	122.56	0.12
North Main	reach 1	170000	3035.00	32.45	44.20	35.65	44.28	0.000150	2.32	1306.65	132.25	0.13
North Main	reach 1	170000	4140.00	32.45	45.51	36.36	45.63	0.000217	2.78	1487.46	151.19	0.16
North Main	reach 1	170000	9192.00	32.45	46.94	38.97	47.38	0.000818	5.34	1720.52	178.75	0.30
North Main	reach 1	168000	1974.00	32.50	41.32	34.99	41.39	0.000182	2.15	919.68	122.35	0.14
North Main	reach 1	168000	3035.00	32.50	43.86	35.79	43.96	0.000174	2.44	1242.93	130.65	0.14
North Main	reach 1	168000	4140.00	32.50	45.06	36.53	45.15	0.000254	2.61	3036.13	3987.18	0.16
North Main	reach 1	168000	9192.00	32.50	46.35	39.17	46.42	0.000262	2.83	8235.54	4202.26	0.17
North Main	reach 1	167722	1974.00	32.50	41.25	35.05	41.33	0.000204	2.26	871.91	116.28	0.15
North Main	reach 1	167722	3035.00	32.50	43.80	35.87	43.91	0.000197	2.57	1180.42	125.85	0.15
North Main	reach 1	167722	4140.00	32.50	44.96	36.62	45.08	0.000227	2.91	2432.50	3101.53	0.16
North Main	reach 1	167722	9192.00	32.50	46.27	39.37	46.35	0.000226	3.07	9976.69	7209.73	0.16



HEC-RAS Plan P.50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	187842	1974.00	32.50	41.24	35.05	41.32	0.000205	2.27	869.95	116.21	0.15
North Main	reach 1	187842	3035.00	32.50	43.79	35.88	43.89	0.000198	2.58	1178.37	125.79	0.15
North Main	reach 1	187842	4140.00	32.50	44.94	36.62	45.07	0.000230	2.93	2371.19	2982.25	0.16
North Main	reach 1	187842	9192.00	32.50	46.25	39.37	46.33	0.000234	3.13	9790.33	7167.82	0.17
North Main	reach 1	186000	1974.00	32.51	40.87	35.10	40.95	0.000236	2.33	848.74	123.00	0.16
North Main	reach 1	186000	3035.00	32.51	43.43	35.92	43.53	0.000247	2.56	1183.53	152.94	0.16
North Main	reach 1	186000	4140.00	32.51	44.45	36.67	44.59	0.000374	3.03	1454.61	1304.02	0.20
North Main	reach 1	186000	9192.00	32.51	45.94	39.38	45.98	0.000179	2.27	12481.40	7846.60	0.14
North Main	reach 1	184000	1974.00	31.68	40.48	34.10	40.55	0.000168	2.06	958.62	128.92	0.13
North Main	reach 1	184000	3035.00	31.68	42.98	34.89	43.06	0.000212	2.29	1327.52	181.82	0.15
North Main	reach 1	184000	4140.00	31.68	44.05	35.60	44.10	0.000156	2.06	5299.46	6485.77	0.13
North Main	reach 1	184000	9192.00	31.68	45.75	38.22	45.76	0.000067	1.45	17973.91	7843.09	0.09
North Main	reach 1	183682	1974.00	31.34	40.43	33.78	40.49	0.000154	2.02	977.12	126.16	0.13
North Main	reach 1	183682	3035.00	31.34	42.92	34.56	43.00	0.000162	2.33	1303.89	140.35	0.13
North Main	reach 1	183682	4140.00	31.34	43.98	35.27	44.04	0.000215	2.15	4231.98	4430.39	0.15
North Main	reach 1	183682	9192.00	31.34	45.73	37.89	45.74	0.000104	1.66	13895.87	6000.00	0.11
North Main	reach 1	183605	1974.00	31.34	40.42	33.78	40.49	0.000155	2.02	975.98	126.12	0.13
North Main	reach 1	183605	3035.00	31.34	42.91	34.56	42.99	0.000161	2.33	1302.40	139.78	0.13
North Main	reach 1	183605	4140.00	31.34	43.97	35.28	44.03	0.000218	2.17	4170.09	4401.36	0.15
North Main	reach 1	183605	9192.00	31.34	45.72	37.90	45.74	0.000105	1.66	13859.00	6000.00	0.11
North Main	reach 1	182000	1974.00	31.35	40.15	33.81	40.22	0.000176	2.09	943.78	128.25	0.14
North Main	reach 1	182000	3035.00	31.35	42.60	34.60	42.69	0.000226	2.36	1286.70	176.80	0.15
North Main	reach 1	182000	4140.00	31.35	43.87	35.32	43.87	0.000046	1.10	10898.96	5626.67	0.07
North Main	reach 1	182000	9192.00	31.35	45.64	37.95	45.65	0.000029	0.94	24226.59	7862.08	0.06
North Main	reach 1	180000	1974.00	31.35	39.83	33.56	39.89	0.000151	1.95	1013.42	135.93	0.13
North Main	reach 1	180000	3035.00	31.35	42.23	34.27	42.31	0.000151	2.25	1351.00	145.49	0.13
North Main	reach 1	180000	4140.00	31.35	43.68	34.93	43.72	0.000135	1.98	4900.37	4799.01	0.12
North Main	reach 1	180000	9192.00	31.35	45.55	37.37	45.56	0.000062	1.48	17835.44	7833.30	0.08
North Main	reach 1	158000	1974.00	31.36	39.46	33.74	39.54	0.000208	2.19	899.41	129.17	0.15
North Main	reach 1	158000	3035.00	31.36	41.86	34.50	41.96	0.000205	2.48	1222.41	143.77	0.15
North Main	reach 1	158000	4140.00	31.36	43.36	35.20	43.42	0.000181	2.20	4167.42	4237.10	0.14
North Main	reach 1	158000	9192.00	31.36	45.42	37.72	45.44	0.000065	1.44	17806.34	7860.04	0.09
North Main	reach 1	157191	1974.00	31.36	39.26	33.81	39.35	0.000259	2.42	816.54	119.01	0.16
North Main	reach 1	157191	3035.00	31.36	41.86	34.61	41.78	0.000243	2.72	1113.90	126.50	0.16
North Main	reach 1	157191	4140.00	31.36	43.06	35.33	43.23	0.000281	3.15	1584.34	1820.91	0.18
North Main	reach 1	157191	9192.00	31.36	45.34	37.99	45.37	0.000103	2.06	14907.75	8000.00	0.11
North Main	reach 1	157140	1974.00	31.36	39.25	33.81	39.34	0.000261	2.42	814.90	118.96	0.16
North Main	reach 1	157140	3035.00	31.36	41.65	34.60	41.76	0.000244	2.73	1112.24	128.45	0.16
North Main	reach 1	157140	4140.00	31.36	43.07	35.33	43.22	0.000283	3.16	1562.15	1759.26	0.18
North Main	reach 1	157140	9192.00	31.36	45.34	37.98	45.36	0.000104	2.07	14862.52	8000.00	0.11
North Main	reach 1	156000	1974.00	31.36	38.93	33.74	39.03	0.000282	2.48	796.23	118.51	0.17
North Main	reach 1	156000	3035.00	31.36	41.36	34.52	41.48	0.000256	2.77	1094.52	127.19	0.17
North Main	reach 1	156000	4140.00	31.36	42.67	35.23	42.83	0.000407	3.21	1288.21	170.96	0.21
North Main	reach 1	156000	9192.00	31.36	45.25	37.85	45.26	0.000073	1.56	17233.10	7826.93	0.09
North Main	reach 1	154644	1974.00	31.37	38.55	33.62	38.64	0.000289	2.47	800.05	122.17	0.17
North Main	reach 1	154644	3035.00	31.37	41.02	34.36	41.14	0.000250	2.73	1111.31	129.47	0.18
North Main	reach 1	154644	4140.00	31.37	42.17	35.03	42.34	0.000316	3.28	1262.62	132.67	0.19
North Main	reach 1	154644	9192.00	31.37	44.99	37.54	45.08	0.000290	3.09	8917.78	7742.92	0.18
North Main	reach 1	153231	1974.00	31.03	38.05	33.60	38.16	0.000395	2.73	722.44	120.99	0.20
North Main	reach 1	153231	3035.00	31.03	40.61	34.38	40.74	0.000308	2.90	1047.67	132.66	0.18
North Main	reach 1	153231	4140.00	31.03	41.65	35.10	41.84	0.000396	3.48	1188.09	137.43	0.21
North Main	reach 1	153231	9192.00	31.03	44.07	37.67	44.44	0.000896	5.23	3629.83	4998.18	0.31
North Main	reach 1	152561	1974.00	31.03	37.74	33.55	37.87	0.000476	2.93	674.35	117.57	0.22
North Main	reach 1	152561	3035.00	31.03	40.38	34.35	40.52	0.000350	3.03	1002.64	131.13	0.19
North Main	reach 1	152561	4140.00	31.03	41.35	35.08	41.55	0.000458	3.66	1131.80	136.11	0.22
North Main	reach 1	152561	9192.00	31.03	43.59	37.76	43.80	0.000853	4.34	5044.71	4619.92	0.30
North Main	reach 1	152553										
North Main	reach 1	152515	1974.00	28.25	37.73	30.75	37.80	0.000145	2.00	988.86	123.74	0.12
North Main	reach 1	152515	3035.00	28.25	40.37	31.57	40.45	0.000144	2.28	1329.35	134.53	0.13
North Main	reach 1	152515	4140.00	28.25	41.34	32.30	41.48	0.000204	2.83	1461.30	138.49	0.15
North Main	reach 1	152515	9192.00	28.25	43.58	34.98	43.74	0.000517	3.67	5659.88	5396.13	0.23
North Main	reach 1	152000	1974.00	28.25	37.66	30.80	37.72	0.000156	2.04	965.84	123.14	0.13
North Main	reach 1	152000	3035.00	28.25	40.30	31.62	40.38	0.000153	2.32	1305.78	134.65	0.13

HEC-RAS Plan-P 50% D. (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	152000	4140.00	28.25	41.23	32.36	41.36	0.000217	2.89	1433.62	138.72	0.16
North Main	reach 1	152000	9192.00	28.25	43.47	35.10	43.54	0.000221	2.84	9578.62	7806.77	0.16
North Main	reach 1	151800	1974.00	28.25	37.60	30.65	37.66	0.000140	1.98	996.62	121.88	0.12
North Main	reach 1	151800	3035.00	28.25	40.24	31.43	40.32	0.000140	2.28	1329.49	130.56	0.13
North Main	reach 1	151800	4140.00	28.25	41.15	32.14	41.28	0.000202	2.86	1449.64	133.55	0.15
North Main	reach 1	151800	9192.00	28.25	42.90	34.77	43.36	0.000562	5.44	1689.32	4091.48	0.28
North Main	reach 1	151518	1974.00	28.25	37.59	30.65	37.65	0.000140	1.98	995.16	121.84	0.12
North Main	reach 1	151518	3035.00	28.25	40.23	31.43	40.31	0.000141	2.29	1327.91	130.52	0.13
North Main	reach 1	151518	4140.00	28.25	41.13	32.14	41.26	0.000203	2.86	1447.30	133.49	0.15
North Main	reach 1	151518	9192.00	28.25	42.84	34.76	43.31	0.000569	5.47	1680.58	4090.65	0.28
North Main	reach 1	150000	2001.00	27.92	37.35	30.55	37.42	0.000164	2.09	958.58	123.40	0.13
North Main	reach 1	150000	3014.00	27.92	40.00	31.34	40.09	0.000153	2.32	1301.49	135.44	0.13
North Main	reach 1	150000	4076.00	27.92	40.77	32.07	40.90	0.000281	2.86	1542.21	699.58	0.17
North Main	reach 1	150000	8892.00	27.92	41.76	34.70	42.14	0.000860	5.13	2951.90	3012.74	0.31
North Main	reach 1	148000	2001.00	27.14	37.06	28.83	37.12	0.000140	1.98	1011.37	125.02	0.12
North Main	reach 1	148000	3014.00	27.14	39.68	30.62	39.76	0.000175	2.20	1381.87	309.44	0.14
North Main	reach 1	148000	4076.00	27.14	40.54	31.35	40.56	0.000085	1.88	6470.94	5574.24	0.10
North Main	reach 1	148000	8892.00	27.14	41.47	33.98	41.50	0.000129	2.05	13262.16	7838.00	0.12
North Main	reach 1	147159	2001.00	27.14	36.95	29.72	37.00	0.000128	1.90	1051.45	128.48	0.12
North Main	reach 1	147159	3014.00	27.14	39.52	30.47	39.59	0.000227	2.09	1668.50	1158.01	0.15
North Main	reach 1	147159	4076.00	27.14	40.47	31.16	40.48	0.000086	1.11	9390.79	7982.92	0.09
North Main	reach 1	147159	8892.00	27.14	41.39	33.68	41.40	0.000088	1.23	16760.99	8000.00	0.09
North Main	reach 1	147111	2001.00	27.14	36.94	29.72	37.00	0.000128	1.90	1050.65	128.45	0.12
North Main	reach 1	147111	3014.00	27.14	39.51	30.47	39.58	0.000229	2.10	1655.03	1154.07	0.15
North Main	reach 1	147111	4076.00	27.14	40.47	31.16	40.48	0.000087	1.12	9356.44	7982.59	0.09
North Main	reach 1	147111	8892.00	27.14	41.39	33.68	41.40	0.000088	1.23	16726.63	8000.00	0.09
North Main	reach 1	146000	2001.00	27.13	36.78	29.76	36.85	0.000146	2.01	995.35	123.82	0.12
North Main	reach 1	146000	3014.00	27.13	39.27	30.53	39.35	0.000187	2.25	1338.33	169.80	0.14
North Main	reach 1	146000	4076.00	27.13	40.40	31.24	40.41	0.000049	1.21	10551.50	7812.82	0.07
North Main	reach 1	146000	8892.00	27.13	41.30	33.81	41.31	0.000066	1.46	17646.80	7827.91	0.09
North Main	reach 1	144000	2001.00	27.12	36.46	29.78	36.53	0.000169	2.12	941.85	120.21	0.13
North Main	reach 1	144000	3014.00	27.12	38.90	30.56	38.99	0.000169	2.42	1246.59	130.18	0.14
North Main	reach 1	144000	4076.00	27.12	40.25	31.29	40.27	0.000092	1.63	7286.21	7788.35	0.10
North Main	reach 1	144000	8892.00	27.12	41.12	33.88	41.14	0.000116	1.91	14067.28	7812.94	0.11
North Main	reach 1	143233	2001.00	27.12	36.33	29.78	36.40	0.000175	2.13	938.02	122.61	0.14
North Main	reach 1	143233	3014.00	27.12	38.77	30.56	38.86	0.000183	2.41	1250.45	140.30	0.14
North Main	reach 1	143233	4076.00	27.12	40.10	31.27	40.16	0.000254	2.19	3416.38	3876.20	0.16
North Main	reach 1	143233	8892.00	27.12	41.05	33.88	41.06	0.000094	1.20	16477.06	8000.00	0.09
North Main	reach 1	143179	2001.00	27.12	36.32	29.78	36.39	0.000176	2.14	936.83	122.57	0.14
North Main	reach 1	143179	3014.00	27.12	38.76	30.56	38.85	0.000183	2.41	1249.04	140.02	0.14
North Main	reach 1	143179	4076.00	27.12	40.08	31.27	40.14	0.000257	2.21	3353.08	3871.08	0.16
North Main	reach 1	143179	8892.00	27.12	41.04	33.87	41.05	0.000093	1.24	16432.60	8000.00	0.09
North Main	reach 1	142000	2001.00	27.13	36.08	29.92	36.16	0.000219	2.31	886.49	119.42	0.15
North Main	reach 1	142000	3014.00	27.13	38.52	30.73	38.62	0.000208	2.57	1172.40	131.57	0.15
North Main	reach 1	142000	4076.00	27.13	39.80	31.47	39.87	0.000207	2.40	3673.67	3424.88	0.15
North Main	reach 1	142000	8892.00	27.13	40.96	34.17	40.97	0.000051	1.23	19465.19	7841.16	0.08
North Main	reach 1	141221	2001.00	26.68	35.91	29.45	35.99	0.000200	2.27	882.75	116.06	0.14
North Main	reach 1	141221	3014.00	26.68	38.29	30.26	38.38	0.000489	2.40	1256.65	301.25	0.21
North Main	reach 1	141221	4076.00	26.68	39.71	31.03	39.73	0.000124	1.41	6034.85	3735.30	0.11
North Main	reach 1	141221	8892.00	26.68	40.95	33.73	40.95	0.000027	0.74	24661.63	8000.00	0.05
North Main	reach 1	141154	2001.00	26.68	35.90	29.45	35.98	0.000201	2.27	881.15	116.00	0.15
North Main	reach 1	141154	3014.00	26.68	38.25	30.26	38.34	0.000517	2.42	1246.33	308.36	0.21
North Main	reach 1	141154	4076.00	26.68	39.70	31.02	39.72	0.000126	1.40	6019.57	3733.40	0.11
North Main	reach 1	141154	8892.00	26.68	40.94	33.73	40.95	0.000027	0.73	24647.33	8000.00	0.05
North Main	reach 1	140000	2001.00	26.64	35.67	29.29	35.75	0.000204	2.29	872.54	114.28	0.15
North Main	reach 1	140000	3014.00	26.64	37.85	30.09	37.96	0.000234	2.65	1214.01	807.89	0.16
North Main	reach 1	140000	4076.00	26.64	39.51	30.85	39.56	0.000161	2.01	4648.87	3316.75	0.13
North Main	reach 1	140000	8892.00	26.64	40.91	33.52	40.91	0.000037	1.04	21994.08	7881.80	0.06
North Main	reach 1	138000	2001.00	25.62	35.33	28.29	35.40	0.000154	2.06	971.05	121.06	0.13
North Main	reach 1	138000	3014.00	25.62	37.47	29.09	37.56	0.000173	2.43	1239.50	130.81	0.14
North Main	reach 1	138000	4076.00	25.62	39.04	29.83	39.15	0.000260	2.70	1709.87	1542.00	0.17
North Main	reach 1	138000	8892.00	25.62	40.80	32.47	40.81	0.000067	1.47	17240.38	7841.93	0.09
North Main	reach 1	136000	2053.00	25.62	35.03	28.14	35.09	0.000153	2.06	997.07	122.86	0.13

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	136000	3060.00	25.62	37.12	28.87	37.22	0.000169	2.42	1263.05	130.77	0.14
North Main	reach 1	136000	4109.00	25.62	38.57	29.55	38.69	0.000201	2.82	1455.79	136.21	0.15
North Main	reach 1	136000	8932.00	25.62	40.60	32.07	40.63	0.000127	1.97	11693.34	7276.87	0.12
North Main	reach 1	135932	2053.00	25.63	35.02	28.19	35.09	0.000154	2.06	995.97	124.16	0.13
North Main	reach 1	135932	3060.00	25.63	37.12	28.93	37.21	0.000169	2.42	1264.40	131.86	0.14
North Main	reach 1	135932	4109.00	25.63	38.56	29.62	38.68	0.000200	2.82	1458.39	137.13	0.15
North Main	reach 1	135932	8932.00	25.63	40.60	32.15	40.63	0.000108	2.13	12184.19	6377.74	0.11
North Main	reach 1	135888	2053.00	25.63	35.01	28.19	35.08	0.000155	2.06	995.10	124.14	0.13
North Main	reach 1	135888	3060.00	25.63	37.11	28.93	37.20	0.000169	2.42	1263.38	131.84	0.14
North Main	reach 1	135888	4109.00	25.63	38.55	29.62	38.67	0.000201	2.82	1457.13	137.10	0.15
North Main	reach 1	135888	8932.00	25.63	40.59	32.15	40.62	0.000109	2.13	12144.07	6363.31	0.11
North Main	reach 1	134000	2053.00	25.63	34.67	28.53	34.75	0.000196	2.23	919.92	122.20	0.14
North Main	reach 1	134000	3060.00	25.63	36.74	29.29	36.85	0.000206	2.59	1179.88	129.06	0.15
North Main	reach 1	134000	4109.00	25.63	38.13	29.97	38.23	0.000264	2.69	2278.76	1419.51	0.17
North Main	reach 1	134000	8932.00	25.63	40.25	32.46	40.32	0.000245	2.84	7698.63	5120.35	0.17
North Main	reach 1	132000	2051.00	25.57	34.28	28.12	34.36	0.000199	2.21	927.55	127.29	0.14
North Main	reach 1	132000	3056.00	25.57	36.33	28.87	36.43	0.000209	2.55	1198.60	137.05	0.15
North Main	reach 1	132000	4078.00	25.57	37.59	29.54	37.72	0.000250	2.97	1374.78	467.75	0.17
North Main	reach 1	132000	8885.00	25.57	39.08	32.06	39.52	0.000856	5.36	1968.96	1983.72	0.31
North Main	reach 1	130750	2051.00	25.57	34.00	28.15	34.08	0.000234	2.37	865.65	120.26	0.16
North Main	reach 1	130750	3056.00	25.57	36.03	28.90	36.15	0.000243	2.73	1118.84	128.53	0.16
North Main	reach 1	130750	4078.00	25.57	37.24	29.58	37.38	0.000314	3.01	1746.72	876.94	0.18
North Main	reach 1	130750	8885.00	25.57	37.95	32.15	38.40	0.000997	5.65	2407.19	1639.79	0.33
North Main	reach 1	130698	2051.00	25.57	33.98	28.15	34.07	0.000235	2.37	864.08	120.21	0.16
North Main	reach 1	130698	3056.00	25.57	36.02	28.90	36.14	0.000244	2.74	1117.09	128.48	0.16
North Main	reach 1	130698	4078.00	25.57	37.23	29.58	37.36	0.000317	3.02	1733.29	855.25	0.19
North Main	reach 1	130698	8885.00	25.57	37.88	32.15	38.34	0.001041	5.74	2330.58	1572.11	0.34
North Main	reach 1	129441	2051.00	24.36	33.73	27.17	33.81	0.000183	2.21	927.85	117.90	0.14
North Main	reach 1	129441	3056.00	24.36	35.76	27.94	35.86	0.000202	2.60	1173.90	125.06	0.15
North Main	reach 1	129441	4078.00	24.36	36.85	28.63	37.00	0.000259	3.11	1312.90	128.93	0.17
North Main	reach 1	129441	8885.00	24.36	37.97	31.23	37.96	0.000684	1.51	15918.36	5560.09	0.09
North Main	reach 1	128185	2051.00	24.36	33.52	26.86	33.59	0.000163	2.11	972.33	121.85	0.13
North Main	reach 1	128185	3056.00	24.36	35.52	27.59	35.62	0.000183	2.50	1222.95	128.51	0.14
North Main	reach 1	128185	4078.00	24.36	36.53	28.25	36.67	0.000262	3.01	1355.02	141.25	0.17
North Main	reach 1	128185	8885.00	24.36	37.79	30.77	37.82	0.000182	2.20	8224.03	3949.50	0.14
North Main	reach 1	128137	2051.00	24.36	33.51	26.86	33.58	0.000164	2.11	970.66	121.80	0.13
North Main	reach 1	128137	3056.00	24.36	35.51	27.59	35.61	0.000184	2.50	1220.97	128.46	0.14
North Main	reach 1	128137	4078.00	24.36	36.51	28.25	36.65	0.000257	3.02	1352.01	138.01	0.17
North Main	reach 1	128137	8885.00	24.36	37.77	30.77	37.81	0.000184	2.21	8186.10	3947.74	0.14
North Main	reach 1	128000	2051.00	24.36	33.48	26.95	33.55	0.000177	2.15	952.64	123.59	0.14
North Main	reach 1	128000	3056.00	24.36	35.48	27.71	35.58	0.000208	2.53	1208.09	138.93	0.15
North Main	reach 1	128000	4078.00	24.36	36.47	28.40	36.61	0.000322	2.99	1361.86	186.75	0.19
North Main	reach 1	128000	8885.00	24.36	37.75	30.95	37.78	0.000166	2.25	8351.28	3909.78	0.14
North Main	reach 1	126275	2051.00	24.02	33.19	26.76	33.26	0.000166	2.07	992.82	131.41	0.13
North Main	reach 1	126275	3056.00	24.02	35.16	27.51	35.25	0.000176	2.42	1398.76	751.47	0.14
North Main	reach 1	126275	4078.00	24.02	36.06	28.18	36.16	0.000205	2.65	2625.21	2274.60	0.15
North Main	reach 1	126275	8885.00	24.02	37.26	30.65	37.36	0.000330	3.50	6966.53	4493.43	0.19
North Main	reach 1	126253	2051.00	24.02	33.18	26.76	33.25	0.000166	2.07	991.42	131.38	0.13
North Main	reach 1	126253	3056.00	24.02	35.15	27.51	35.24	0.000176	2.42	1395.53	745.00	0.14
North Main	reach 1	126253	4078.00	24.02	36.06	28.18	36.16	0.000205	2.66	2614.53	2259.59	0.15
North Main	reach 1	126253	8885.00	24.02	37.26	30.65	37.36	0.000333	3.51	6929.32	4482.73	0.20
North Main	reach 1	126194	2051.00	24.02	33.15	26.91	33.24	0.000212	2.31	888.45	119.24	0.15
North Main	reach 1	126194	3056.00	24.02	35.15	27.69	35.22	0.000174	2.32	2508.03	2115.95	0.14
North Main	reach 1	126194	4078.00	24.02	36.09	28.39	36.13	0.000128	1.86	5996.28	4472.18	0.12
North Main	reach 1	126194	8885.00	24.02	37.31	31.04	37.34	0.000137	2.08	12300.90	5803.83	0.12
North Main	reach 1	126142	2051.00	24.02	33.14	26.91	33.22	0.000213	2.31	886.25	119.16	0.15
North Main	reach 1	126142	3056.00	24.02	35.14	27.69	35.22	0.000174	2.33	2498.92	2111.44	0.14
North Main	reach 1	126142	4078.00	24.02	36.09	28.39	36.12	0.000128	1.86	5975.90	4462.43	0.12
North Main	reach 1	126142	8885.00	24.02	37.30	31.04	37.33	0.000139	2.09	12249.55	5794.95	0.12
North Main	reach 1	126000	2051.00	24.02	33.12	26.84	33.19	0.000174	2.13	963.31	125.50	0.14
North Main	reach 1	126000	3056.00	24.02	35.14	27.38	35.18	0.000149	1.91	3048.01	1901.56	0.12
North Main	reach 1	126000	4078.00	24.02	36.09	28.05	36.10	0.000062	1.31	8293.71	5145.80	0.08
North Main	reach 1	126000	8885.00	24.02	37.29	30.57	37.31	0.000087	1.67	14709.43	6810.33	0.10



HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	124276	2051.00	23.63	32.76	28.53	32.85	0.000227	2.41	852.15	112.24	0.15
North Main	reach 1	124276	3056.00	23.63	34.72	27.33	34.84	0.000251	2.83	1079.92	672.09	0.17
North Main	reach 1	124276	4078.00	23.63	35.73	28.04	35.89	0.000301	3.26	1615.50	4127.83	0.18
North Main	reach 1	124276	8885.00	23.63	36.35	30.74	36.90	0.001052	6.28	2231.66	5308.99	0.35
North Main	reach 1	124185	2051.00	23.63	32.74	26.49	32.83	0.000221	2.39	858.58	111.82	0.15
North Main	reach 1	124185	3056.00	23.63	34.70	27.28	34.82	0.000246	2.82	1084.49	617.02	0.16
North Main	reach 1	124185	4078.00	23.63	35.88	27.98	35.86	0.000324	3.39	1202.32	2171.18	0.19
North Main	reach 1	124185	8885.00	23.63	36.62	30.66	36.71	0.000384	3.41	7530.88	6382.86	0.20
North Main	reach 1	124085	2051.00	23.63	32.72	26.52	32.81	0.000227	2.42	848.78	110.61	0.15
North Main	reach 1	124085	3056.00	23.63	34.68	27.31	34.80	0.000252	2.85	1071.66	767.05	0.17
North Main	reach 1	124085	4078.00	23.63	35.72	28.01	35.80	0.000228	2.62	3789.14	4925.50	0.16
North Main	reach 1	124085	8885.00	23.63	36.59	30.71	36.68	0.000356	3.42	7810.76	6106.26	0.20
North Main	reach 1	124000	2051.00	23.63	32.71	26.52	32.79	0.000224	2.37	863.92	115.53	0.15
North Main	reach 1	124000	3056.00	23.63	34.67	27.31	34.78	0.000234	2.65	1692.89	1745.76	0.16
North Main	reach 1	124000	4078.00	23.63	35.72	28.03	35.77	0.000193	2.28	4230.76	4118.44	0.14
North Main	reach 1	124000	8885.00	23.63	36.57	30.70	36.65	0.000370	3.13	7622.74	6014.33	0.20
North Main	reach 1	122908	2051.00	23.63	32.47	26.43	32.55	0.000220	2.31	886.14	122.09	0.15
North Main	reach 1	122908	3056.00	23.63	34.41	27.19	34.52	0.000239	2.70	1131.50	1620.28	0.16
North Main	reach 1	122908	4078.00	23.63	35.33	27.87	35.50	0.000315	3.25	1254.64	2681.41	0.19
North Main	reach 1	122908	8885.00	23.63	36.37	30.46	36.40	0.000137	2.25	12888.17	5836.53	0.13
North Main	reach 1	122857	2051.00	23.63	32.45	26.43	32.54	0.000221	2.32	884.73	122.04	0.15
North Main	reach 1	122857	3056.00	23.63	34.39	27.19	34.51	0.000240	2.70	1129.85	1604.67	0.16
North Main	reach 1	122857	4078.00	23.63	35.32	27.88	35.48	0.000316	3.26	1252.39	2664.37	0.19
North Main	reach 1	122857	8885.00	23.63	36.36	30.45	36.39	0.000139	2.26	12816.90	6825.83	0.13
North Main	reach 1	122000	2051.00	23.45	32.27	26.24	32.35	0.000210	2.28	898.03	121.20	0.15
North Main	reach 1	122000	3056.00	23.45	34.19	26.97	34.31	0.000230	2.68	1154.32	330.40	0.16
North Main	reach 1	122000	4078.00	23.45	35.24	27.65	35.29	0.000122	2.06	5500.36	4809.76	0.12
North Main	reach 1	122000	8885.00	23.45	36.21	30.18	36.25	0.000198	2.49	10541.56	6297.42	0.15
North Main	reach 1	120000	2051.00	23.41	31.83	25.93	31.92	0.000226	2.33	879.56	121.88	0.15
North Main	reach 1	120000	3056.00	23.41	33.71	26.68	33.83	0.000248	2.74	1116.18	129.95	0.16
North Main	reach 1	120000	4078.00	23.41	34.74	27.35	34.90	0.000316	3.26	1252.06	134.37	0.19
North Main	reach 1	120000	8885.00	23.41	35.85	29.89	35.88	0.000167	2.16	10355.94	5372.42	0.13
North Main	reach 1	118000	2051.00	23.26	31.35	25.79	31.44	0.000254	2.42	846.43	120.70	0.16
North Main	reach 1	118000	3056.00	23.26	33.18	26.53	33.30	0.000277	2.85	1073.92	127.82	0.17
North Main	reach 1	118000	4078.00	23.26	34.03	27.20	34.21	0.000376	3.44	1184.43	133.10	0.20
North Main	reach 1	118000	8885.00	23.26	35.22	29.72	35.35	0.000484	3.64	6044.37	3800.76	0.23
North Main	reach 1	118000	2074.00	23.27	30.80	25.71	30.90	0.000289	2.50	830.52	125.28	0.17
North Main	reach 1	118000	3101.00	23.27	32.59	26.43	32.72	0.000309	2.93	1060.16	131.90	0.18
North Main	reach 1	118000	4409.00	23.27	33.37	27.22	33.47	0.000352	2.94	3559.29	4103.17	0.19
North Main	reach 1	118000	8884.00	23.27	34.61	29.44	34.65	0.000243	2.54	9587.68	5630.28	0.16
North Main	reach 1	114000	2074.00	21.89	30.33	24.47	30.41	0.000203	2.23	930.36	126.73	0.14
North Main	reach 1	114000	3101.00	21.89	32.12	25.17	32.20	0.000209	2.32	2707.91	3742.83	0.15
North Main	reach 1	114000	4409.00	21.89	33.02	25.96	33.06	0.000128	1.90	6915.80	5592.40	0.12
North Main	reach 1	114000	8884.00	21.89	34.35	28.16	34.37	0.000088	1.71	14903.12	6418.69	0.10
North Main	reach 1	113338	2074.00	21.88	30.18	24.53	30.27	0.000229	2.31	898.79	128.12	0.15
North Main	reach 1	113338	3101.00	21.88	31.92	25.25	32.04	0.000259	2.75	1127.14	1708.55	0.17
North Main	reach 1	113338	4409.00	21.88	32.70	26.05	32.90	0.000399	3.57	1234.01	4847.99	0.21
North Main	reach 1	113338	8884.00	21.88	34.31	28.30	34.32	0.000059	1.29	17601.40	7068.88	0.08
North Main	reach 1	113284	2074.00	21.88	30.18	24.48	30.25	0.000216	2.25	921.37	130.47	0.15
North Main	reach 1	113284	3101.00	21.88	31.91	25.18	32.02	0.000246	2.69	1153.63	1130.96	0.16
North Main	reach 1	113284	4409.00	21.88	32.69	25.98	32.88	0.000380	3.49	1281.73	5037.42	0.21
North Main	reach 1	113284	8884.00	21.88	33.61	28.18	34.25	0.001152	6.38	1393.51	6468.97	0.36
North Main	reach 1	112624	2074.00	22.02	29.98	24.75	30.08	0.000313	2.60	797.10	120.59	0.18
North Main	reach 1	112624	3101.00	22.02	31.68	25.53	31.83	0.000349	3.07	1010.91	180.51	0.19
North Main	reach 1	112624	4409.00	22.02	32.48	26.39	32.61	0.000371	3.22	3298.85	4287.48	0.20
North Main	reach 1	112624	8884.00	22.02	33.70	28.75	33.74	0.000278	2.43	10274.10	6489.88	0.17
North Main	reach 1	112620	Inline Weir									
North Main	reach 1	112604	2074.00	20.05	29.97	22.73	30.03	0.000150	2.06	1005.23	122.72	0.13
North Main	reach 1	112604	3101.00	20.05	31.67	23.52	31.77	0.000191	2.54	1223.77	204.91	0.15
North Main	reach 1	112604	4409.00	20.05	32.47	24.41	32.58	0.000240	2.82	3528.26	4278.39	0.16
North Main	reach 1	112604	8884.00	20.05	33.69	26.84	33.73	0.000230	2.42	10466.82	6461.85	0.16
North Main	reach 1	112000	2074.00	20.06	29.87	22.71	29.94	0.000152	2.07	1002.10	122.92	0.13
North Main	reach 1	112000	3101.00	20.06	31.55	23.50	31.65	0.000209	2.54	1307.00	717.22	0.15

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	112000	4409.00	20.06	32.36	24.37	32.42	0.000212	2.37	4723.08	4530.55	0.15
North Main	reach 1	112000	8884.00	20.06	33.58	26.81	33.61	0.000172	2.16	11822.63	6330.51	0.14
North Main	reach 1	110000	2440.80	19.82	29.47	22.77	29.57	0.000223	2.49	978.39	120.63	0.15
North Main	reach 1	110000	3700.00	19.82	31.08	23.67	31.18	0.000258	2.66	2243.78	1084.61	0.17
North Main	reach 1	110000	5229.00	19.82	31.96	24.63	32.01	0.000200	2.38	4413.67	1709.14	0.19
North Main	reach 1	110000	9869.00	19.82	33.27	27.02	33.29	0.000148	2.07	14166.89	7653.00	0.13
North Main	reach 1	108000	2440.00	19.53	29.03	22.41	29.12	0.000221	2.48	985.02	122.16	0.15
North Main	reach 1	108000	3700.00	19.53	30.74	23.29	30.80	0.000151	2.25	4612.37	4850.73	0.13
North Main	reach 1	108000	5229.00	19.53	31.76	24.23	31.78	0.000075	1.63	9741.40	5167.45	0.09
North Main	reach 1	108000	9869.00	19.53	33.12	26.59	33.13	0.000067	1.43	17528.29	6238.49	0.09
North Main	reach 1	107867	2440.00	19.53	28.95		29.05	0.000237	2.50	975.97	125.79	0.16
North Main	reach 1	107867	3700.00	19.53	30.57		30.72	0.000313	3.12	1187.00	135.30	0.19
North Main	reach 1	107867	5229.00	19.53	31.46		31.71	0.000473	3.99	1322.99	176.36	0.23
North Main	reach 1	107867	9869.00	19.53	32.35	26.58	33.00	0.001362	6.62	2270.54	4501.63	0.39
North Main	reach 1	107800	2440.00	19.53	28.93		29.03	0.000238	2.51	973.89	125.69	0.16
North Main	reach 1	107800	3700.00	19.53	30.54		30.70	0.000315	3.13	1183.97	135.17	0.19
North Main	reach 1	107800	5229.00	19.53	31.43		31.68	0.000477	4.00	1317.28	174.25	0.23
North Main	reach 1	107800	9869.00	19.53	32.15	26.58	32.89	0.001480	6.93	1628.81	2170.43	0.41
North Main	reach 1	106000	2440.00	19.52	28.53	22.34	28.64	0.000257	2.60	940.13	121.58	0.16
North Main	reach 1	106000	3700.00	19.52	29.94	23.22	30.11	0.000428	3.30	1121.95	148.98	0.21
North Main	reach 1	106000	5229.00	19.52	30.69	24.17	30.82	0.000555	3.27	2910.62	2350.37	0.23
North Main	reach 1	106000	9869.00	19.52	31.60	26.49	31.66	0.000358	2.82	10826.87	8933.80	0.19
North Main	reach 1	104000	2440.00	18.67	28.02	21.89	28.12	0.000259	2.60	938.77	121.85	0.17
North Main	reach 1	104000	3700.00	18.67	29.66	22.78	29.69	0.000107	1.71	5262.25	2684.12	0.11
North Main	reach 1	104000	5229.00	18.67	30.36	23.70	30.37	0.000109	1.55	7796.11	3661.41	0.11
North Main	reach 1	104000	9869.00	18.67	31.16	25.99	31.18	0.000163	2.01	10930.36	4162.06	0.13
North Main	reach 1	102396	2440.00	18.36	27.59	21.35	27.70	0.000268	2.65	920.07	119.40	0.17
North Main	reach 1	102396	3700.00	18.36	29.22	22.26	29.39	0.000347	3.30	1120.38	150.16	0.20
North Main	reach 1	102396	5229.00	18.36	30.04	23.23	30.12	0.000236	2.78	6517.85	10223.26	0.16
North Main	reach 1	102396	9869.00	18.36	30.89	25.63	30.92	0.000167	2.30	16073.88	11400.00	0.14
North Main	reach 1	102314	2440.00	18.36	27.57	21.35	27.68	0.000271	2.66	917.34	119.30	0.17
North Main	reach 1	102314	3700.00	18.36	29.20	22.26	29.37	0.000349	3.31	1117.62	1060.60	0.20
North Main	reach 1	102314	5229.00	18.36	30.02	23.23	30.10	0.000241	2.84	6292.63	9863.60	0.16
North Main	reach 1	102314	9869.00	18.36	30.87	25.63	30.90	0.000174	2.34	15835.53	11400.00	0.14
North Main	reach 1	102000	2440.00	18.36	27.50	21.14	27.60	0.000216	2.43	1004.40	126.24	0.15
North Main	reach 1	102000	3700.00	18.36	29.19	22.01	29.26	0.000189	2.32	3004.39	1549.46	0.14
North Main	reach 1	102000	5229.00	18.36	30.00	22.87	30.03	0.000142	1.92	9780.77	10765.88	0.12
North Main	reach 1	102000	9869.00	18.36	30.84	25.06	30.85	0.000103	1.72	18790.97	10776.15	0.11
North Main	reach 1	100000	2440.00	18.35	26.97	21.21	27.09	0.000300	2.72	897.37	122.34	0.18
North Main	reach 1	100000	3700.00	18.35	28.56	22.09	28.74	0.000381	3.37	1096.71	128.91	0.20
North Main	reach 1	100000	5229.00	18.35	29.15	23.02	29.46	0.000743	4.43	1238.72	702.85	0.28
North Main	reach 1	100000	9869.00	18.35	30.32	25.33	30.44	0.000530	3.74	8931.55	10724.50	0.24
North Main	reach 1	98000	2440.00	17.13	26.48	20.12	26.57	0.000217	2.42	1025.53	379.12	0.15
North Main	reach 1	98000	3700.00	17.13	28.06	20.96	28.13	0.000218	2.23	3211.33	1915.46	0.15
North Main	reach 1	98000	5229.00	17.13	28.63	21.86	28.67	0.000207	2.25	5254.84	3124.75	0.15
North Main	reach 1	98000	9869.00	17.13	29.71	24.07	29.75	0.000228	2.53	10210.35	5178.63	0.16
North Main	reach 1	97100	2440.00	16.79	26.28	20.01	26.37	0.000226	2.39	1022.46	138.00	0.15
North Main	reach 1	97100	3700.00	16.79	27.81	20.86	27.92	0.000257	2.74	2262.41	2184.17	0.17
North Main	reach 1	97100	5229.00	16.79	28.39	21.78	28.46	0.000257	2.60	5013.86	4222.72	0.17
North Main	reach 1	97100	9869.00	16.79	29.50	24.01	29.54	0.000252	2.45	11259.06	7059.15	0.16
North Main	reach 1	97052	2440.00	16.79	26.27	20.02	26.36	0.000227	2.39	1020.90	137.94	0.15
North Main	reach 1	97052	3700.00	16.79	27.79	20.86	27.90	0.000258	2.75	2230.56	2139.54	0.17
North Main	reach 1	97052	5229.00	16.79	28.38	21.78	28.45	0.000265	2.61	4958.17	4188.99	0.17
North Main	reach 1	97052	9869.00	16.79	29.49	24.01	29.52	0.000260	2.42	11179.99	7030.65	0.16
North Main	reach 1	96000	2440.00	16.79	26.02	19.74	26.12	0.000234	2.49	979.16	126.04	0.16
North Main	reach 1	96000	3700.00	16.79	27.52	20.60	27.60	0.000304	2.55	2899.70	2957.44	0.18
North Main	reach 1	96000	5229.00	16.79	28.30	21.52	28.31	0.000064	1.21	12003.81	7319.77	0.08
North Main	reach 1	96000	9869.00	16.79	29.39	23.77	29.40	0.000059	1.24	21218.20	9564.10	0.08
North Main	reach 1	94000	2440.00	16.80	25.70	19.66	25.74	0.000133	1.86	1722.08	310.80	0.12
North Main	reach 1	94000	3700.00	16.80	27.10	20.51	27.15	0.000158	2.21	2575.72	1618.65	0.13
North Main	reach 1	94000	5229.00	16.80	28.05	21.43	28.09	0.000170	2.27	5112.33	3731.96	0.14
North Main	reach 1	94000	9869.00	16.80	29.23	23.69	29.24	0.000113	1.74	16340.53	9109.35	0.11
North Main	reach 1	92434	2440.00	16.79	25.36	19.44	25.46	0.000254	2.54	958.81	127.05	0.16

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	92434	3700.00	16.79	26.62	20.27	26.79	0.000385	3.30	1122.09	163.68	0.20
North Main	reach 1	92434	5229.00	16.79	27.43	21.15	27.67	0.000501	4.05	1959.85	2022.29	0.24
North Main	reach 1	92434	9869.00	16.79	28.69	23.36	28.90	0.000548	4.51	6406.31	5012.94	0.25
North Main	reach 1	92378	2440.00	16.79	25.35	19.44	25.45	0.000256	2.55	956.87	127.00	0.16
North Main	reach 1	92378	3700.00	16.79	26.60	20.28	26.77	0.000368	3.31	1118.57	152.12	0.20
North Main	reach 1	92376	5229.00	16.79	27.39	21.16	27.64	0.000513	4.08	1889.27	1938.17	0.24
North Main	reach 1	92378	9869.00	16.79	28.63	23.36	28.86	0.000587	4.65	6106.57	4868.29	0.26
North Main	reach 1	92000	2440.00	16.79	25.24	19.46	25.35	0.000278	2.64	923.05	122.95	0.17
North Main	reach 1	92000	3700.00	16.79	26.44	20.30	26.62	0.000406	3.45	1076.17	203.29	0.21
North Main	reach 1	92000	5229.00	16.79	27.15	21.20	27.43	0.000590	4.33	1686.43	1626.86	0.25
North Main	reach 1	92000	9869.00	16.79	28.25	23.44	28.56	0.000919	5.31	4734.60	3908.70	0.32
North Main	reach 1	91033	2440.00	16.48	24.93	19.54	25.05	0.000331	2.77	879.48	125.63	0.18
North Main	reach 1	91033	3700.00	16.48	25.99	20.40	26.19	0.000490	3.62	1183.76	1352.59	0.23
North Main	reach 1	91033	5229.00	16.48	26.61	21.31	26.84	0.000594	4.14	2527.65	2755.05	0.25
North Main	reach 1	91033	9869.00	16.48	27.46	23.55	27.71	0.000807	5.05	5530.48	4283.40	0.30
North Main	reach 1	91030	Inline Weir									
North Main	reach 1	91000	2440.00	14.79	24.93	17.78	25.01	0.000192	2.36	1035.39	124.94	0.14
North Main	reach 1	91000	3700.00	14.79	25.98	18.70	26.13	0.000301	3.12	1500.57	1901.71	0.18
North Main	reach 1	91000	5229.00	14.79	26.61	19.66	26.77	0.000382	3.52	3430.39	4152.28	0.20
North Main	reach 1	91000	9869.00	14.79	27.48	22.07	27.61	0.000451	4.08	8181.64	6980.93	0.23
North Main	reach 1	90000	2440.00	14.79	24.78	17.55	24.84	0.000144	2.09	1653.74	817.49	0.12
North Main	reach 1	90000	3700.00	14.79	25.83	18.41	25.89	0.000153	2.28	4140.25	3653.45	0.13
North Main	reach 1	90000	5229.00	14.79	26.46	19.32	26.51	0.000150	2.33	6834.34	4915.36	0.13
North Main	reach 1	90000	9869.00	14.79	27.19	21.61	27.24	0.000280	2.69	10981.89	6425.69	0.17
North Main	reach 1	89000	2440.00	14.78	24.45	17.60	24.52	0.000173	2.23	1689.78	1461.50	0.14
North Main	reach 1	89000	3700.00	14.78	25.63	18.47	25.65	0.000091	1.72	6609.00	5038.64	0.10
North Main	reach 1	89000	5229.00	14.78	26.27	19.40	26.28	0.000086	1.59	10302.74	6511.32	0.10
North Main	reach 1	89000	9869.00	14.78	26.80	21.72	26.82	0.000169	2.04	14086.58	7749.21	0.13
North Main	reach 1	87169	2440.00	14.78	24.26	17.69	24.36	0.000225	2.48	983.28	1517.10	0.16
North Main	reach 1	87169	3700.00	14.78	25.33	18.58	25.50	0.000354	3.31	1117.91	5503.76	0.20
North Main	reach 1	87169	5229.00	14.78	25.80	19.52	26.10	0.000605	4.44	1177.38	6339.45	0.26
North Main	reach 1	87169	9869.00	14.78	26.66	21.86	26.68	0.000151	2.34	14262.29	7864.99	0.13
North Main	reach 1	87084	2440.00	14.78	24.24	17.69	24.34	0.000226	2.49	980.84	1508.24	0.16
North Main	reach 1	87084	3700.00	14.78	25.30	18.58	25.47	0.000358	3.32	1113.86	5446.84	0.20
North Main	reach 1	87084	5229.00	14.78	25.74	19.52	26.05	0.000617	4.47	1170.13	6238.17	0.26
North Main	reach 1	87084	9869.00	14.78	26.63	21.86	26.66	0.000155	2.37	14086.57	7825.63	0.13
North Main	reach 1	86000	2440.00	14.31	24.02	17.21	24.11	0.000199	2.36	1034.43	127.87	0.15
North Main	reach 1	86000	3700.00	14.31	25.18	18.09	25.21	0.000130	1.88	5126.76	3680.68	0.12
North Main	reach 1	86000	5229.00	14.31	25.65	19.03	25.68	0.000145	2.02	7108.18	4794.64	0.12
North Main	reach 1	86000	9869.00	14.31	26.44	21.31	26.47	0.000195	2.41	11686.81	6800.39	0.15
North Main	reach 1	84000	2493.00	13.56	23.66	16.38	23.74	0.000169	2.27	1099.20	126.57	0.14
North Main	reach 1	84000	3742.00	13.56	24.94	17.23	24.98	0.000103	1.90	4890.90	2946.08	0.11
North Main	reach 1	84000	5283.00	13.56	25.39	18.14	25.43	0.000114	1.96	8695.24	9320.45	0.11
North Main	reach 1	84000	10088.00	13.56	26.11	20.49	26.13	0.000143	2.06	15441.07	9604.00	0.12
North Main	reach 1	82000	2493.00	12.94	23.32	15.89	23.40	0.000175	2.32	1074.21	122.70	0.14
North Main	reach 1	82000	3742.00	12.94	24.69	16.78	24.74	0.000132	2.12	4773.25	4222.83	0.12
North Main	reach 1	82000	5283.00	12.94	25.05	17.75	25.11	0.000224	2.50	6661.41	10716.73	0.15
North Main	reach 1	82000	10088.00	12.94	25.74	20.17	25.77	0.000228	2.28	14139.33	10797.77	0.15
North Main	reach 1	81854	2493.00	12.94	23.31	15.79	23.38	0.000153	2.15	1161.58	136.12	0.13
North Main	reach 1	81854	3742.00	12.94	24.59	16.64	24.71	0.000227	2.79	1340.06	4414.54	0.16
North Main	reach 1	81854	5283.00	12.94	25.01	17.56	25.08	0.000186	2.57	6943.46	11286.84	0.15
North Main	reach 1	81854	10088.00	12.94	25.71	19.87	25.75	0.000178	2.60	14875.90	11347.69	0.14
North Main	reach 1	81817	2493.00	12.94	23.30	15.79	23.38	0.000153	2.15	1160.78	136.09	0.13
North Main	reach 1	81817	3742.00	12.94	24.58	16.65	24.70	0.000228	2.80	1338.79	4264.61	0.16
North Main	reach 1	81817	5283.00	12.94	25.00	17.57	25.07	0.000188	2.59	6853.71	11286.47	0.15
North Main	reach 1	81817	10088.00	12.94	25.69	19.87	25.74	0.000183	2.63	14706.45	11344.90	0.15
North Main	reach 1	80000	2493.00	12.93	22.97	15.85	23.06	0.000195	2.40	1036.72	122.10	0.15
North Main	reach 1	80000	3742.00	12.93	24.15	16.74	24.27	0.000250	2.86	2693.47	4488.89	0.17
North Main	reach 1	80000	5283.00	12.93	24.42	17.69	24.56	0.000413	3.46	4121.68	6431.15	0.21
North Main	reach 1	80000	10088.00	12.93	25.16	20.12	25.25	0.000410	3.55	10824.53	10718.78	0.21
North Main	reach 1	78000	2493.00	12.95	22.51	15.93	22.62	0.000253	2.57	1000.15	436.35	0.16
North Main	reach 1	78000	3742.00	12.95	23.56	16.83	23.67	0.000375	2.84	2663.00	3239.03	0.19
North Main	reach 1	78000	5283.00	12.95	23.90	17.81	23.94	0.000219	2.17	7439.61	7120.93	0.15

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	78000	10088.00	12.95	24.55	20.27	24.59	0.000260	2.50	12811.82	9293.08	0.16
North Main	reach 1	78000	2493.00	12.94	22.01	15.78	22.12	0.000252	2.59	962.86	123.10	0.16
North Main	reach 1	78000	3742.00	12.94	22.99	16.64	23.06	0.000244	2.48	4281.07	5793.42	0.16
North Main	reach 1	78000	5283.00	12.94	23.26	17.58	23.33	0.000309	2.78	5933.74	6489.32	0.18
North Main	reach 1	78000	10088.00	12.94	23.90	19.94	23.95	0.000389	3.05	10564.62	8061.21	0.20
North Main	reach 1	74000	2493.00	11.86	21.52	14.93	21.63	0.000240	2.55	976.94	123.81	0.16
North Main	reach 1	74000	3742.00	11.86	22.50	15.85	22.57	0.000241	2.45	4568.04	6866.36	0.16
North Main	reach 1	74000	5283.00	11.86	22.82	16.83	22.85	0.000186	2.20	8890.13	9596.38	0.14
North Main	reach 1	74000	10088.00	11.86	23.28	19.25	23.32	0.000256	2.66	13369.82	9608.56	0.17
North Main	reach 1	72000	2493.00	10.58	21.12	13.69	21.19	0.000195	2.24	1110.52	145.98	0.14
North Main	reach 1	72000	3742.00	10.58	22.00	14.60	22.08	0.000244	2.48	4028.65	8008.62	0.16
North Main	reach 1	72000	5283.00	10.58	22.40	15.55	22.45	0.000219	2.39	7194.73	8014.04	0.15
North Main	reach 1	72000	10088.00	10.58	23.04	17.92	23.05	0.000080	1.51	20301.87	10762.41	0.09
North Main	reach 1	70000	2493.00	10.48	20.73	13.44	20.81	0.000187	2.36	1056.03	144.80	0.14
North Main	reach 1	70000	3742.00	10.48	21.44	14.34	21.55	0.000283	2.81	3047.20	4824.36	0.17
North Main	reach 1	70000	5283.00	10.48	21.78	15.31	21.88	0.000390	3.09	4883.88	6055.78	0.20
North Main	reach 1	70000	10088.00	10.48	22.73	17.76	22.78	0.000271	2.73	11341.83	6862.71	0.17
North Main	reach 1	69760	2493.00	10.48	20.70	13.35	20.77	0.000181	2.18	1152.20	3084.82	0.13
North Main	reach 1	69760	3742.00	10.48	21.33	14.20	21.47	0.000292	3.02	1241.07	7038.28	0.18
North Main	reach 1	69760	5283.00	10.48	21.79	15.10	21.81	0.000093	1.74	10706.60	8387.72	0.10
North Main	reach 1	69760	10088.00	10.48	22.73	17.44	22.74	0.000084	1.72	18992.28	8938.61	0.10
North Main	reach 1	69893	2493.00	10.48	20.69	13.35	20.78	0.000181	2.17	1150.67	3064.24	0.13
North Main	reach 1	69893	3742.00	10.48	21.32	14.20	21.46	0.000293	3.02	1239.34	7007.63	0.18
North Main	reach 1	69893	5283.00	10.48	21.78	15.10	21.80	0.000094	1.75	10651.17	8374.47	0.10
North Main	reach 1	69893	10088.00	10.48	22.72	17.44	22.73	0.000084	1.73	18941.85	8937.30	0.10
North Main	reach 1	68373	2790.00	10.48	20.82	13.61	20.63	0.000051	1.08	8099.56	7242.84	0.07
North Main	reach 1	68373	4154.00	10.48	21.32	14.48	21.33	0.000029	0.85	15720.08	10762.97	0.05
North Main	reach 1	68373	5739.00	10.48	21.72	15.36	21.72	0.000029	0.88	19946.44	10779.31	0.06
North Main	reach 1	68373	11350.00	10.48	22.65	17.83	22.65	0.000034	1.03	30006.38	10615.15	0.06
North Main	reach 1	67000	2790.00	10.28	20.46	13.47	20.51	0.000128	1.96	4379.75	6328.33	0.12
North Main	reach 1	67000	4154.00	10.28	21.24	14.41	21.26	0.000069	1.37	10535.32	9380.40	0.09
North Main	reach 1	67000	5739.00	10.28	21.64	15.37	21.65	0.000067	1.27	14284.51	9429.20	0.08
North Main	reach 1	67000	11350.00	10.28	22.58	18.11	22.58	0.000068	1.32	23119.49	9458.56	0.08
North Main	reach 1	66000	2790.00	10.28	20.24	13.63	20.34	0.000238	2.57	2292.85	5103.78	0.16
North Main	reach 1	66000	4154.00	10.28	21.16	14.60	21.18	0.000103	1.58	8859.21	8046.72	0.10
North Main	reach 1	66000	5739.00	10.28	21.57	15.58	21.58	0.000096	1.44	12125.18	8085.29	0.10
North Main	reach 1	66000	11350.00	10.28	22.50	18.38	22.51	0.000094	1.48	19726.84	8109.14	0.10
North Main	reach 1	65430	2790.00	10.28	20.05	13.60	20.18	0.000305	2.89	965.04	2525.38	0.18
North Main	reach 1	65430	4154.00	10.28	21.10	14.56	21.12	0.000086	1.73	9263.41	9262.06	0.10
North Main	reach 1	65430	5739.00	10.28	21.51	15.54	21.52	0.000092	1.52	13328.29	10437.09	0.10
North Main	reach 1	65430	11350.00	10.28	22.46	18.35	22.46	0.000076	1.47	24153.90	11800.00	0.09
North Main	reach 1	65374	2790.00	10.28	20.03	13.60	20.16	0.000307	2.90	962.86	1723.81	0.18
North Main	reach 1	65374	4154.00	10.28	21.09	14.56	21.11	0.000099	1.74	9205.85	9244.73	0.10
North Main	reach 1	65374	5739.00	10.28	21.51	15.54	21.52	0.000092	1.58	13262.56	10419.97	0.10
North Main	reach 1	65374	11350.00	10.28	22.45	18.35	22.46	0.000076	1.51	24099.12	11800.00	0.09
North Main	reach 1	64000	2790.00	10.18	19.82	13.25	19.74	0.000307	2.74	1020.00	139.82	0.18
North Main	reach 1	64000	4154.00	10.18	20.92	14.14	20.95	0.000150	1.88	6185.81	4996.94	0.12
North Main	reach 1	64000	5739.00	10.18	21.42	15.04	21.42	0.000053	1.18	18311.75	10350.16	0.07
North Main	reach 1	64000	11350.00	10.18	22.37	17.66	22.37	0.000054	1.24	27001.97	11636.56	0.08
North Main	reach 1	62000	2790.00	10.03	18.89	13.18	19.02	0.000417	2.99	932.52	141.53	0.21
North Main	reach 1	62000	4154.00	10.03	20.67	14.08	20.69	0.000109	1.81	6680.36	4776.32	0.11
North Main	reach 1	62000	5739.00	10.03	21.26	15.00	21.28	0.000099	1.60	10007.52	6474.81	0.10
North Main	reach 1	62000	11350.00	10.03	22.19	17.64	22.21	0.000130	1.95	16800.73	7665.45	0.12
North Main	reach 1	60000	2790.00	9.59	18.04	12.72	18.19	0.000412	3.18	878.60	119.66	0.21
North Main	reach 1	60000	4154.00	9.59	20.17	13.62	20.31	0.000417	3.17	2563.00	3942.39	0.21
North Main	reach 1	60000	5739.00	9.59	20.93	14.53	20.98	0.000259	2.51	7375.88	8516.52	0.18
North Main	reach 1	60000	11350.00	9.59	21.87	17.16	21.90	0.000196	2.31	16224.85	10112.57	0.14
North Main	reach 1	58000	2790.00	9.33	16.91	12.73	17.13	0.000699	3.79	736.18	115.34	0.26
North Main	reach 1	58000	4154.00	9.33	18.99	13.65	19.27	0.000648	4.22	983.84	123.08	0.26
North Main	reach 1	58000	5739.00	9.33	20.63	14.56	20.65	0.000111	1.84	12157.84	10810.78	0.11
North Main	reach 1	58000	11350.00	9.33	21.64	17.24	21.65	0.000080	1.46	23381.79	11210.33	0.09
North Main	reach 1	57448	2790.00	9.38	16.48	12.70	16.72	0.000827	3.94	708.72	119.76	0.29
North Main	reach 1	57448	4154.00	9.38	18.61	13.61	18.89	0.000708	4.26	975.36	129.72	0.27

HFC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	57448	5739.00	9.38	20.37	14.52	20.53	0.000417	3.62	4071.52	4954.88	0.22
North Main	reach 1	57448	11350.00	9.38	21.50	17.13	21.57	0.000308	3.29	11833.09	8818.75	0.19
North Main	reach 1	57404	2790.00	9.38	16.43	12.70	16.68	0.000845	3.96	703.77	119.57	0.29
North Main	reach 1	57404	4154.00	9.38	18.58	13.61	18.88	0.000718	4.28	970.88	129.55	0.28
North Main	reach 1	57404	5739.00	9.38	20.34	14.52	20.51	0.000434	3.68	3934.88	4851.87	0.22
North Main	reach 1	57404	11350.00	9.38	21.48	17.13	21.55	0.000317	3.34	11648.33	8746.89	0.19
North Main	reach 1	58867	2790.00	9.80	16.04	12.48	16.24	0.000749	3.51	773.22	138.78	0.27
North Main	reach 1	58867	4154.00	9.80	18.28	13.26	18.50	0.000576	3.79	1095.60	149.19	0.25
North Main	reach 1	58867	5739.00	9.80	19.94	14.06	20.22	0.000591	4.25	1351.02	157.77	0.26
North Main	reach 1	58867	11350.00	9.80	21.12	16.39	21.31	0.000609	4.41	5870.11	2946.39	0.26
North Main	reach 1	58865	Inline Weir									
North Main	reach 1	58857	2790.00	7.31	16.03	10.09	16.13	0.000264	2.81	1068.13	141.15	0.17
North Main	reach 1	58857	4154.00	7.31	18.27	10.90	18.41	0.000264	2.98	1395.54	151.06	0.17
North Main	reach 1	58857	5739.00	7.31	19.94	11.73	20.12	0.000307	3.47	1653.47	158.48	0.19
North Main	reach 1	58857	11350.00	7.31	21.10	14.13	21.29	0.000401	4.17	6148.27	2915.97	0.22
North Main	reach 1	58000	2790.00	6.74	15.83	9.52	15.92	0.000220	2.47	1130.77	141.36	0.15
North Main	reach 1	58000	4154.00	6.74	18.07	10.31	18.19	0.000227	2.85	1468.17	218.07	0.16
North Main	reach 1	58000	5739.00	6.74	19.72	11.12	19.88	0.000254	3.26	2021.25	394.23	0.17
North Main	reach 1	58000	11350.00	6.74	20.91	13.50	21.00	0.000242	3.13	8028.01	2713.90	0.17
North Main	reach 1	54000	2790.00	6.00	15.44	8.74	15.52	0.000180	2.29	1220.47	148.75	0.14
North Main	reach 1	54000	4154.00	6.00	17.64	9.50	17.75	0.000212	2.67	1553.69	165.74	0.15
North Main	reach 1	54000	5739.00	6.00	19.19	10.29	19.34	0.000284	3.14	1827.24	190.58	0.18
North Main	reach 1	54000	11350.00	6.00	20.56	12.62	20.61	0.000152	2.47	11817.09	4495.17	0.13
North Main	reach 1	52275	2798.00	5.83	15.13	8.48	15.21	0.000185	2.29	1223.21	151.06	0.14
North Main	reach 1	52275	4150.00	5.83	17.27	9.25	17.38	0.000219	2.65	1565.70	175.13	0.16
North Main	reach 1	52275	5728.00	5.83	18.68	10.05	18.83	0.000313	3.13	1830.50	209.48	0.19
North Main	reach 1	52275	10810.00	5.83	20.33	12.18	20.36	0.000139	2.18	12987.57	10300.50	0.13
North Main	reach 1	51585	2798.00	5.69	14.95	8.60	15.06	0.000254	2.63	1064.47	134.57	0.16
North Main	reach 1	51585	4150.00	5.69	17.06	9.45	17.21	0.000271	3.05	1358.61	143.24	0.17
North Main	reach 1	51585	5728.00	5.69	18.37	10.33	18.58	0.000392	3.68	1556.15	162.67	0.21
North Main	reach 1	51585	10810.00	5.69	20.18	12.66	20.26	0.000223	3.09	11929.35	8753.78	0.16
North Main	reach 1	51519	2798.00	5.69	14.93	8.60	15.04	0.000255	2.63	1062.12	134.50	0.17
North Main	reach 1	51519	4150.00	5.69	17.05	9.45	17.19	0.000272	3.06	1355.94	143.18	0.18
North Main	reach 1	51519	5728.00	5.69	18.34	10.33	18.56	0.000396	3.69	1551.69	162.67	0.21
North Main	reach 1	51519	10810.00	5.69	20.17	12.66	20.25	0.000226	3.11	11783.36	8691.85	0.16
North Main	reach 1	50000	2798.00	5.58	14.57	8.34	14.67	0.000229	2.46	1137.05	148.21	0.16
North Main	reach 1	50000	4150.00	5.58	16.62	9.14	16.74	0.000313	2.82	1471.84	197.55	0.18
North Main	reach 1	50000	5728.00	5.58	18.11	9.96	18.16	0.000153	2.18	4627.78	1415.82	0.13
North Main	reach 1	50000	10810.00	5.58	20.06	12.14	20.07	0.000061	1.54	18139.73	5871.30	0.08
North Main	reach 1	48000	2798.00	4.89	14.15	7.64	14.23	0.000204	2.30	1219.16	161.38	0.15
North Main	reach 1	48000	4150.00	4.89	16.05	8.40	16.16	0.000262	2.65	1566.86	201.91	0.17
North Main	reach 1	48000	5728.00	4.89	17.80	9.19	17.86	0.000146	2.20	3978.95	919.18	0.13
North Main	reach 1	48000	10810.00	4.89	19.90	11.29	19.93	0.000086	1.89	17684.68	8608.42	0.10
North Main	reach 1	47232	2798.00	4.94	13.93	7.93	14.05	0.000284	2.69	1038.58	138.79	0.17
North Main	reach 1	47232	4150.00	4.94	15.78	8.60	15.93	0.000324	3.18	1304.31	149.44	0.19
North Main	reach 1	47232	5728.00	4.94	17.45	9.65	17.66	0.000400	3.65	1568.59	170.64	0.21
North Main	reach 1	47232	10810.00	4.94	19.80	11.97	19.84	0.000159	2.40	12644.90	6005.11	0.14
North Main	reach 1	46000	2798.00	4.90	13.61	7.72	13.71	0.000257	2.55	1152.73	175.06	0.16
North Main	reach 1	46000	4150.00	4.90	15.43	8.52	15.56	0.000272	2.93	1720.35	589.50	0.17
North Main	reach 1	46000	5728.00	4.90	17.15	9.37	17.26	0.000227	2.91	2980.15	809.76	0.16
North Main	reach 1	46000	10810.00	4.90	19.68	11.63	19.70	0.000077	1.78	17560.90	7581.55	0.10
North Main	reach 1	44000	2798.00	4.68	13.10	7.28	13.20	0.000254	2.54	1101.03	147.09	0.16
North Main	reach 1	44000	4150.00	4.68	14.85	8.04	14.99	0.000292	3.04	1364.29	153.87	0.18
North Main	reach 1	44000	5728.00	4.68	16.48	8.83	16.67	0.000378	3.52	1629.24	179.46	0.21
North Main	reach 1	44000	10810.00	4.68	19.45	10.96	19.50	0.000140	2.33	12075.70	5528.26	0.13
North Main	reach 1	43141	2798.00	4.68	12.88	7.23	12.98	0.000260	2.53	1104.82	151.62	0.17
North Main	reach 1	43141	4150.00	4.68	14.60	7.98	14.74	0.000297	3.03	1371.26	158.61	0.18
North Main	reach 1	43141	5728.00	4.68	16.17	8.76	16.37	0.000339	3.52	1652.00	322.28	0.20
North Main	reach 1	43141	10810.00	4.68	19.39	10.82	19.43	0.000142	2.27	12566.57	6243.00	0.13
North Main	reach 1	42941	2798.00	4.24	12.85	7.03	12.93	0.000230	2.36	1184.67	165.84	0.16
North Main	reach 1	42941	4150.00	4.24	14.55	7.77	14.67	0.000262	2.81	1474.91	174.11	0.17
North Main	reach 1	42941	5728.00	4.24	16.13	8.53	16.29	0.000294	3.26	1774.86	315.24	0.18
North Main	reach 1	42941	10810.00	4.24	19.34	10.56	19.39	0.000264	2.48	9715.14	6158.30	0.17



HEC-RAS Plan: P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	42938	Inline Weir									
North Main	reach 1	42932	2798.00	3.60	12.84	6.05	12.90	0.000142	2.01	1391.32	172.25	0.12
North Main	reach 1	42932	4150.00	3.60	14.54	8.76	14.64	0.000173	2.45	1690.53	178.84	0.14
North Main	reach 1	42932	5728.00	3.60	16.12	7.50	16.25	0.000205	2.90	1997.86	306.82	0.16
North Main	reach 1	42932	10810.00	3.60	19.33	9.47	19.39	0.000229	2.52	9629.19	6106.70	0.16
North Main	reach 1	42368	2798.00	3.60	12.81	5.54	12.85	0.000078	1.53	1825.67	217.37	0.09
North Main	reach 1	42368	4150.00	3.60	14.50	5.12	14.55	0.000097	1.89	2198.34	223.35	0.11
North Main	reach 1	42368	5728.00	3.60	16.07	6.72	16.15	0.000115	2.24	2552.53	227.28	0.12
North Main	reach 1	42368	10810.00	3.60	19.25	8.35	19.33	0.000109	2.48	9980.06	5496.50	0.12
North Main	reach 1	42313	2798.00	3.60	12.80	5.54	12.84	0.000079	1.53	1823.62	217.33	0.09
North Main	reach 1	42313	4150.00	3.60	14.49	6.12	14.54	0.000097	1.89	2195.74	223.31	0.11
North Main	reach 1	42313	5728.00	3.60	16.06	6.72	16.14	0.000116	2.25	2549.38	227.24	0.12
North Main	reach 1	42313	10810.00	3.60	19.25	8.35	19.32	0.000110	2.48	9947.15	5482.22	0.12
North Main	reach 1	42000	2798.00	3.60	12.78	5.46	12.81	0.000071	1.47	1902.70	223.19	0.09
North Main	reach 1	42000	4150.00	3.60	14.46	6.02	14.51	0.000088	1.82	2263.40	229.11	0.10
North Main	reach 1	42000	5728.00	3.60	16.03	6.59	16.10	0.000107	2.16	2646.22	234.63	0.11
North Main	reach 1	42000	10810.00	3.60	19.19	8.15	19.28	0.000126	2.69	8781.32	6401.17	0.13
North Main	reach 1	40000	2798.00	3.15	12.64	5.11	12.67	0.000067	1.44	1936.81	225.72	0.09
North Main	reach 1	40000	4150.00	3.15	14.28	5.68	14.33	0.000085	1.79	2312.85	231.19	0.10
North Main	reach 1	40000	5728.00	3.15	15.81	6.27	15.89	0.000104	2.14	2671.01	235.84	0.11
North Main	reach 1	40000	10810.00	3.15	18.83	7.86	18.98	0.000170	3.12	4347.73	2651.17	0.15
North Main	reach 1	38000	2798.00	3.14	12.49	5.03	12.53	0.000068	1.45	1929.22	225.38	0.09
North Main	reach 1	38000	4150.00	3.14	14.10	5.59	14.15	0.000088	1.81	2296.35	231.85	0.10
North Main	reach 1	38000	5728.00	3.14	15.60	6.17	15.67	0.000107	2.16	2648.97	237.13	0.11
North Main	reach 1	38000	10810.00	3.14	18.48	7.76	18.62	0.000187	3.24	3339.28	246.22	0.15
North Main	reach 1	36000	2798.00	3.15	12.33	5.07	12.37	0.000077	1.53	1833.50	217.01	0.09
North Main	reach 1	36000	4150.00	3.15	13.90	5.65	13.96	0.000099	1.91	2177.26	222.51	0.11
North Main	reach 1	36000	5728.00	3.15	15.35	6.24	15.44	0.000123	2.29	2504.92	227.71	0.12
North Main	reach 1	36000	10810.00	3.15	18.03	7.84	18.21	0.000222	3.46	3125.79	237.26	0.17
North Main	reach 1	34000	2798.00	3.16	12.18	5.17	12.22	0.000088	1.58	1766.03	220.14	0.10
North Main	reach 1	34000	4150.00	3.16	13.68	5.76	13.74	0.000113	1.97	2104.67	226.95	0.11
North Main	reach 1	34000	5728.00	3.16	15.09	6.37	15.17	0.000139	2.36	2427.14	231.74	0.13
North Main	reach 1	34000	10810.00	3.16	17.53	8.00	17.73	0.000266	3.60	3003.45	240.08	0.18
North Main	reach 1	32548	2798.00	3.16	12.04	5.24	12.08	0.000094	1.62	1724.21	216.53	0.10
North Main	reach 1	32548	4150.00	3.16	13.51	5.84	13.57	0.000121	2.03	2045.28	221.38	0.12
North Main	reach 1	32548	5728.00	3.16	14.87	6.45	14.97	0.000149	2.44	2350.33	225.89	0.13
North Main	reach 1	32548	10810.00	3.16	17.12	8.08	17.34	0.000288	3.77	2865.25	233.32	0.19
North Main	reach 1	32504	2798.00	3.16	12.04	5.24	12.08	0.000094	1.62	1723.31	216.52	0.10
North Main	reach 1	32504	4150.00	3.16	13.50	5.84	13.57	0.000121	2.03	2044.09	221.36	0.12
North Main	reach 1	32504	5728.00	3.16	14.87	6.45	14.96	0.000150	2.44	2348.82	225.87	0.13
North Main	reach 1	32504	10810.00	3.16	17.10	8.08	17.32	0.000289	3.78	2862.16	233.28	0.19
North Main	reach 1	32000	2798.00	3.16	12.00	5.14	12.03	0.000085	1.56	1790.88	221.21	0.10
North Main	reach 1	32000	4150.00	3.16	13.45	5.70	13.51	0.000111	1.96	2116.02	226.45	0.11
North Main	reach 1	32000	5728.00	3.16	14.80	6.28	14.88	0.000139	2.36	2424.91	231.31	0.13
North Main	reach 1	32000	10810.00	3.16	16.98	7.84	17.17	0.000304	3.66	2949.99	260.91	0.19
North Main	reach 1	30000	2798.00	2.92	11.83	4.82	11.87	0.000078	1.52	1844.92	222.78	0.09
North Main	reach 1	30000	4150.00	2.92	13.23	5.38	13.29	0.000105	1.92	2159.83	227.13	0.11
North Main	reach 1	30000	5728.00	2.92	14.53	5.95	14.61	0.000134	2.33	2456.07	231.15	0.13
North Main	reach 1	30000	10810.00	2.92	16.41	7.52	16.60	0.000259	3.58	4367.28	2802.21	0.18
North Main	reach 1	29585	3101.00	2.90	11.78	5.02	11.83	0.000108	1.76	1759.00	218.39	0.11
North Main	reach 1	29585	4233.00	2.90	13.18	5.50	13.24	0.000122	2.05	2064.74	221.55	0.12
North Main	reach 1	29585	5770.00	2.90	14.46	6.08	14.55	0.000152	2.45	2351.23	226.29	0.13
North Main	reach 1	29585	10695.00	2.90	16.25	7.62	16.48	0.000318	3.87	2761.74	4670.19	0.20
North Main	reach 1	29523	3101.00	2.90	11.78	5.02	11.82	0.000108	1.76	1757.53	218.36	0.11
North Main	reach 1	29523	4233.00	2.90	13.17	5.50	13.24	0.000122	2.05	2063.03	221.52	0.12
North Main	reach 1	29523	5770.00	2.90	14.45	6.08	14.54	0.000152	2.46	2349.05	226.25	0.13
North Main	reach 1	29523	10695.00	2.90	16.22	7.63	16.46	0.000320	3.88	2756.90	4664.82	0.20
North Main	reach 1	28000	3101.00	2.90	11.61	5.03	11.66	0.000109	1.75	1773.44	223.04	0.11
North Main	reach 1	28000	4233.00	2.90	12.98	5.51	13.05	0.000123	2.03	2083.03	227.42	0.12
North Main	reach 1	28000	5770.00	2.90	14.22	6.08	14.31	0.000153	2.44	2365.54	231.34	0.13
North Main	reach 1	28000	10695.00	2.90	15.97	7.61	16.06	0.000177	2.86	8018.53	3645.69	0.15
North Main	reach 1	26000	3101.00	2.90	11.37	5.04	11.42	0.000125	1.83	1690.86	219.82	0.12

HEC-RAS Plan D 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
North Main	reach 1	28000.	4233.00	2.90	12.71	5.52	12.78	0.000140	2.13	1989.97	225.00	0.13
North Main	reach 1	28000.	5770.00	2.90	13.90	6.10	13.99	0.000188	2.47	2740.91	682.40	0.14
North Main	reach 1	28000.	10695.00	2.90	15.45	7.66	15.60	0.000310	3.34	5975.54	4590.03	0.19
North Main	reach 1	24000.	3101.00	2.90	11.11	4.93	11.16	0.000126	1.83	1696.63	222.65	0.12
North Main	reach 1	24000.	4233.00	2.90	12.43	5.39	12.49	0.000140	2.08	2408.23	1064.88	0.12
North Main	reach 1	24000.	5770.00	2.90	13.61	5.94	13.67	0.000147	2.18	4201.73	1796.22	0.13
North Main	reach 1	24000.	10695.00	2.90	15.39	7.44	15.40	0.000035	1.13	23202.16	8086.94	0.06
North Main	reach 1	22000.	3101.00	2.90	10.84	4.92	10.89	0.000137	1.87	1657.80	222.68	0.12
North Main	reach 1	22000.	4233.00	2.90	12.12	5.37	12.19	0.000153	2.18	1951.74	238.37	0.13
North Main	reach 1	22000.	5770.00	2.90	13.23	5.91	13.33	0.000193	2.62	2230.65	309.56	0.15
North Main	reach 1	22000.	10695.00	2.90	15.00	7.40	15.22	0.000344	3.85	3657.41	1366.75	0.20
North Main	reach 1	20000.	3101.00	2.23	10.55	4.53	10.61	0.000144	1.93	1609.72	215.14	0.12
North Main	reach 1	20000.	4233.00	2.23	11.79	5.00	11.87	0.000165	2.25	1879.11	219.87	0.14
North Main	reach 1	20000.	5770.00	2.23	12.81	5.57	12.92	0.000216	2.74	2103.92	223.74	0.16
North Main	reach 1	20000.	10695.00	2.23	14.08	7.11	14.39	0.000500	4.47	2391.34	228.59	0.24
North Main	reach 1	19889	3101.00	2.23	10.54	4.62	10.60	0.000157	1.99	1560.78	212.52	0.13
North Main	reach 1	19889	4233.00	2.23	11.77	5.11	11.86	0.000179	2.32	1826.62	217.71	0.14
North Main	reach 1	19889	5770.00	2.23	12.78	5.70	12.90	0.000233	2.82	2047.81	221.44	0.16
North Main	reach 1	19889	10695.00	2.23	14.00	7.28	14.33	0.000542	4.61	2348.04	422.32	0.25
North Main	reach 1	19835	3101.00	2.23	10.53	4.62	10.59	0.000157	1.99	1558.93	212.48	0.13
North Main	reach 1	19835	4233.00	2.23	11.76	5.11	11.85	0.000179	2.32	1824.44	217.66	0.14
North Main	reach 1	19835	5770.00	2.23	12.77	5.70	12.89	0.000234	2.82	2044.88	221.39	0.16
North Main	reach 1	19835	10695.00	2.23	13.97	7.28	14.30	0.000548	4.62	2334.77	410.50	0.25
North Main	reach 1	18000.	3101.00	2.22	10.23	4.53	10.29	0.000168	2.03	1527.17	211.94	0.13
North Main	reach 1	18000.	4233.00	2.22	11.42	5.00	11.51	0.000193	2.38	1781.98	216.53	0.15
North Main	reach 1	18000.	5770.00	2.22	12.31	5.58	12.44	0.000257	2.90	2221.71	1792.31	0.17
North Main	reach 1	18000.	10695.00	2.22	12.94	7.13	13.24	0.000593	4.58	4376.17	5060.65	0.26
North Main	reach 1	16000.	3101.00	2.22	9.87	4.30	9.93	0.000182	2.09	1482.42	208.46	0.14
North Main	reach 1	16000.	4233.00	2.22	11.00	4.78	11.10	0.000212	2.46	1721.67	212.80	0.15
North Main	reach 1	16000.	5770.00	2.22	12.16	5.35	12.18	0.000063	1.43	11700.84	6913.07	0.08
North Main	reach 1	16000.	10695.00	2.22	12.69	6.92	12.72	0.000115	1.93	15356.09	6931.22	0.11
North Main	reach 1	14000.	3101.00	2.03	9.50	4.07	9.57	0.000181	2.07	1495.93	212.54	0.14
North Main	reach 1	14000.	4233.00	2.03	10.58	4.53	10.67	0.000215	2.45	1725.38	215.71	0.15
North Main	reach 1	14000.	5770.00	2.03	11.81	5.10	11.94	0.000259	2.89	1996.27	224.26	0.17
North Main	reach 1	14000.	10695.00	2.03	12.45	6.62	12.48	0.000125	1.99	14769.50	6924.33	0.12
North Main	reach 1	12000.	3101.00	1.79	9.10	3.96	9.18	0.000216	2.20	1408.37	208.60	0.15
North Main	reach 1	12000.	4233.00	1.79	10.09	4.43	10.20	0.000260	2.62	1616.50	212.01	0.17
North Main	reach 1	12000.	5770.00	1.79	11.23	5.01	11.38	0.000311	3.10	1859.55	215.93	0.19
North Main	reach 1	12000.	10695.00	1.79	12.37	6.56	12.37	0.000028	0.90	33665.03	13720.93	0.06
North Main	reach 1	10000.	3240.00	1.80	8.58	3.99	8.67	0.000295	2.46	1316.76	209.91	0.17
North Main	reach 1	10000.	4357.00	1.80	9.46	4.45	9.59	0.000352	2.90	1503.88	213.74	0.19
North Main	reach 1	10000.	5782.00	1.80	10.45	4.98	10.62	0.000462	3.35	1723.49	240.57	0.22
North Main	reach 1	10000.	10706.00	1.80	11.74	6.52	12.16	0.000990	5.21	2054.00	261.98	0.33
North Main	reach 1	8000.	3290.00	1.73	7.80	3.99	7.93	0.000470	2.89	1138.77	202.36	0.21
North Main	reach 1	8000.	4457.00	1.73	8.50	4.48	8.69	0.000593	3.48	1281.12	204.75	0.25
North Main	reach 1	8000.	5868.00	1.73	9.20	5.01	9.46	0.000734	4.12	1425.21	207.20	0.28
North Main	reach 1	8000.	10673.00	1.73	11.00	11.00	11.07	0.000294	2.98	10500.97	6877.30	0.18
North Main	reach 1	6000.	3290.00	1.77	6.86	3.58	6.97	0.000466	2.66	1306.97	296.76	0.21
North Main	reach 1	6000.	4457.00	1.77	7.23	4.11	7.40	0.000699	3.34	1416.92	301.04	0.26
North Main	reach 1	6000.	5868.00	1.77	7.43	4.58	7.69	0.001072	4.23	1475.75	303.30	0.32
North Main	reach 1	6000.	10673.00	1.77	7.66	5.87	8.46	0.003080	7.35	1546.69	306.03	0.55
North Main	reach 1	4056	3290.00	1.84	5.80	3.41	5.90	0.000621	2.52	1303.32	352.71	0.23
North Main	reach 1	4056	4457.00	1.84	6.15	3.74	6.22	0.000511	2.42	4851.21	16473.79	0.21
North Main	reach 1	4056	5868.00	1.84	6.37	4.10	6.41	0.000408	2.24	8558.91	16860.40	0.19
North Main	reach 1	4056	10673.00	1.84	6.85	5.14	6.87	0.000300	2.05	16936.41	17800.46	0.17
North Main	reach 1	4024	3290.00	1.84	5.79	3.41	5.89	0.000629	2.53	1298.36	352.64	0.23
North Main	reach 1	4024	4457.00	1.84	6.13	3.74	6.21	0.000532	2.47	4655.16	16453.33	0.22
North Main	reach 1	4024	5868.00	1.84	6.36	4.10	6.41	0.000421	2.27	8399.91	16844.12	0.19
North Main	reach 1	4024	10673.00	1.84	6.85	5.14	6.87	0.000300	2.05	16936.41	17800.46	0.17
North Main	reach 1	2000.	3574.00	1.72	4.16	2.81	4.25	0.001055	2.41	1484.01	642.56	0.28
North Main	reach 1	2000.	4919.00	1.72	4.43	3.05	4.56	0.001398	2.97	1653.93	644.18	0.33
North Main	reach 1	2000.	6522.00	1.72	4.68	3.32	4.88	0.001803	3.59	1816.57	645.72	0.38
North Main	reach 1	2000.	10850.00	1.72	5.13	3.91	5.54	0.003049	5.14	2109.80	648.49	0.50

HEC-RAS Plan P 50% D (Continued)

River	Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chi
North Main	reach 1	0.	3574.00	1.41	3.59	1.98	3.80	0.000155	0.77	6744.20	7371.81	0.10
North Main	reach 1	0.	4919.00	1.41	3.84	2.12	3.85	0.000155	0.84	8653.07	7645.83	0.10
North Main	reach 1	0.	8522.00	1.41	4.10	2.28	4.11	0.000155	0.90	10901.75	10307.77	0.11
North Main	reach 1	0.	10850.00	1.41	4.62	2.63	4.63	0.000155	1.03	16375.00	10712.36	0.11



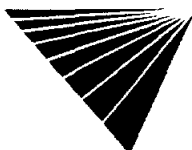
# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Not Provided Raymondville Corridor Hargill, TX Latitude/Longitude: ( 26.452196, 98.044196 )	Doug Zarker Turner Collie Braden 400 W. 15th Street Austin, TX 78701

Site Distribution Summary	<i>within 1 mile</i>
<b>Agency / Database - Type of Records</b>	
<b>A) Databases searched to 1 mile:</b>	
US EPA            NPL            National Priority List	0
US EPA            CORRACTS       RCRA Corrective Actions	0
STATE            SPL            State equivalent priority list	0
US EPA            RCRA-TSD       RCRA permitted treatment, storage, disposal facilities	0
STATE            SCL            State equivalent CERCLIS list	0
US EPA            CERCLIS/ NFRAP   Sites under review by US EPA	1
STATE/ REG/CO            LUST            Leaking Underground Storage Tanks	0
STATE/ REG/CO            SWLF            Solid waste landfills, incinerators, or transfer stations	1
US EPA            TRIS            Toxic Release Inventory database	0
STATE/ CO                UST            Registered underground storage tanks	2
STATE            AST            Registered aboveground storage tanks	0
US EPA            GNRTR           RCRA registered small or large generators of hazardous waste	0
US EPA/ STATE            SPILLS           ERNS and state spills lists	0

**LIMITATION OF LIABILITY**

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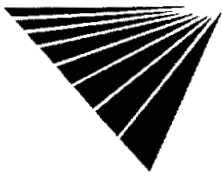
For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: **308492001**

Date of Report: **March 7, 2000**

Version 2.6.1

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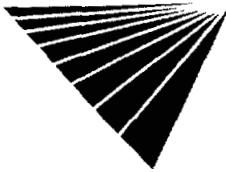


# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

## Overview Map



<p>Subject Centerline</p>	<p>Risk Sites</p>
<p>Search Area</p>	<p>Risk Sites Plotted as Polygons</p>
<p>Highways and Major Roads</p>	<p>Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.</p>
<p>Rivers or Water Bodies</p>	



# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

## Detail Map 1



<b>Subject Centerline</b> 	<b>Search Area</b> 	<b>Category:</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>Risk Sites Plotted as Polygons</b>
		<b>Single Sites</b>					
		<b>Multiple Sites</b>					
		<b>Highways and Major Roads</b>					
		<b>Roads</b>					
		<b>Railroads</b>					
		<b>Rivers or Water Bodies</b>					
		<b>Utilities</b>					

Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.

# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

## SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1 mile)	VISTA ID DISTANCE DIRECTION	A												
			NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRTR	ERNS SPILLS-STATE
1	CITY OF EDINBURG .4M E OF US281, 6.7M N OF EDINBURG C EDINBURG, TX	3049048 0.64 MI W								X					
2	M L MART N HWY 281 (FAYSVILLE) EDINBURG, TX 78539	5737580 0.75 MI W										X			
3	ILLINI HELICOPTER P.O. BOX 1601 EDINBURG, TX 78539	206226 0.79 MI W					X								
4	EDINBURG AUTO TRUCK STOP US 281 FM 2812 EDINBURG, TX 78539	1394603 0.81 MI SW										X			



X = search criteria; • = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

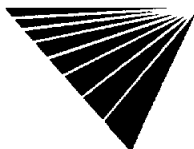
Report ID: 308492001

Date of Report: March 7, 2000

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UNMAPPED SITES	VISTA ID	A											
		NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRIR
EL TIGRE FOOD STORE #8 2828 W MONTE CRISTO RD EDINBURG, TX 78539	13561757										X		
LONGWELL FARMS, INC DIRT RD OFF FM490 1.5MI W FM88 HARGILL, TX 78549	249471					X							
TOMMY FARMS INC PO BOX 125 HARGILL, TX 78549	1786626											X	
NICKELL AERIAL CROP CARE P.O. BOX 160 FM 490E HARGILL, TX 78549	297086				X	X							
LOPEZ QUICK STOP HWY 493 5TH ST HARGILL, TX 78549	5736902									X			
GLENN HESTER BOX 55 HARGILL, TX 78549	1786625											X	
ELMA G. CORTINA PO BOX 117 HARGILL, TX 78549	1388864									X			
DOMINGUES GROCERY HWY 493 HARGILL, TX 78549	1391811									X			
US DEPT OF AGRICULTURE, APHIS N 7 MILES HWY 681 EDINBURG, TX 78539	1786621						X			X			
MID-VALLEY CONSTRUCTION HWY 107 2 MI W EDINBURG, TX 78539	1786617											X	
TRUCKING STORAGE HWY 281 LINN, TX 78563	1407224						X			X			
JESSE'S TOWN COUNTRY MART 4 MI N 281 DAVIS RD EDINBURG, TX 78539	13561429									X			
SAN MANUEL BUTANE SERVICE 18 MI N SH 281 LINN, TX 78563	12695368									X	X		
LA COMA HWY 186 LINN, TX 78563	1370828									X			
J.J. CILL 1 MILE WEST HWY 83 LINN, TX 78563	1786646									X			



X = search criteria; \* = tag-along (beyond search criteria).

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

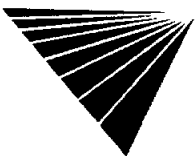
Report ID: 308492001

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UNMAPPED SITES	VISTA ID	A											
		NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRTR
FRED'S GAS DEPOT 2527 S HWY 281 EDINBURG, TX 78539	12695337										X		
HOP N SHOP #22 102 S HWY 281 EDINBURG, TX 78539	12695322									X			
WOODEN NICKLE BOX 955, RT 4 EDINBURG, TX 78539	1407663									X			
POOL COMPANY LTD - EDINBURG 4M NORTH OF US HWY 281 EDINBURG, TX 78539	8513816											X	
UNCLE SAM'S #30 N HWY 281 EDINBURG, TX 78539	11195754									X			
ALICE SPECIALTY CO INC N HWY 281 EDINBURG, TX 78539	3346709										X		
SAFETY-KLEEN CORP 6-048-02 CHAPIN ST ALONG CANAL RAILRD EDINBURG, TX 78539	1809421											X	
LINN FEED SUPPLY COMPANY, INC. PO BOX 200 LINN, TX 78563	1365986									X			
LA COMA RANCH HWY 281-14 MI N EDINBURG, TX 78539	2541575										X		
HELDT BROS TRUCKING CO N HWY 281 EDINBURG, tx 78539	3346712						X						
WARREN PETROLEUM CO LA REFORMA PLANT 3 M NORTH OF PUERTO RICO LINN, TX 78563	459675											X	
HOMCO 3.5M W HWY 107 EDINBURG, TX 78539	4090199											X	
MARTIN FARM RANCH ROUTE 4 BOX 473 EDINBURG, TX 78539	259941					X							
WEATHERFORD U S INC 3.5M N HWY 281 EDINBURG, TX 78539	5242268											X	
UNION Y DIGNIDAD INC 1/4 MI S FM 490 2 MI W 281 EDINBURG, TX 78539	443063					X							



X = search criteria; • = tag-along (beyond search criteria).

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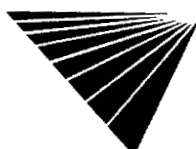
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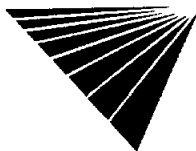
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UNMAPPED SITES	VISTA ID	A												
		NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRIR	ERNS SPILLS-STATE
SAN MANUEL BUTANE N HWY 281 LINN, tx 78563	5265632						X							
CACTUS DRIVE IN 1/4 M E OF HWY 81 ON S EDINBURG, TX 78539	2595221									X				
MC ALLEN PRODUCTION UNIT OFFICE BOX 173 EDINBURG, TX 78539	1395428									X				
J A M DISTRIBUTING COMPANY N HWY 281 EDINBURG, TX 78539	6480220										X			
TEXMART #25 1606 E RICHARDSON EDINBURG, TX 78539	12695043									X				
JIM LAMBERT RT 3 BOX 217.1 MI N OF FM3250 EDINBURG, TX 78539	218141					X								
EDINBURG WELL SERVICE BOX 166 B EDINBURG, TX 78539	6480393										X			
SALINAS 1925 DRIVE IN E FM 2812 DOOLITTLE RD EDINBURG, TX 78539	6480599									X				
DEKOCK PIT N HWY 281 LINN, TX 78563	3666007										X			
PUERTO RICO GROCERY RENARAY SCHUNIOR EDINBURG, TX 78539	3670225									X				
GUERRA BROS. INC. 181/2MI N OF EDINGBURG HWY 281 LINN, TX 78563	2561829									X				
HIDALGO COUNTY 3.2MI E US281,ADJACENT TO N SIDE DAV EDINBURG, TX	3051411							X						
CURLS FARM SERVICE JUNCT. 83 HWY 487 EDINBURG, TX 78539	109355					X								
VILLARREL GROCERY HWY 107 EDINBURG, tx 78539	2589910						X							
VISTA OIL E HALF OF BLOCK 171 EDINBURG, TX 00000	12694516									X				



UNMAPPED SITES	VISTA ID	A												
		NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRTR	ERNS SPILLS-STATE
Y-DRIVE INN 3 1/2 MI E FM 107 EDINBURG, TX 78539	12693610										X			
T C QUICK STOP N HWY 281 1017 LINN, TX 78563	1788564										X			
EDINBURG AUTO TRUCK STOP INC HWY 281 EDINBURG, tx 78539	2591477						X							
MCCOOK FUEL STOP 1/4 MI E FM 2056 ON EDINBURG, TX 78539	13561172									X				
GUERRA BROTHERS, INC. 18.5 MI N EDINBURG EDINBURG, tx	6529278						X							
DUVAL FARMS FM RD 1329-15 M S SAN EDINBURG, TX 78539	5172944											X		
LOPEZ CONVENIENCE STORE N HWY 281 EDINBURG, TX 78539	7426373									X				
US DEPARTMENT OF AGRICULTURE MOORE AIR BASE EDINBURG, TX 78539	12694827											X		
A B DRIVE-IN S BUS 281 EDINBURG, TX 78539	1391807									X				
EAST-SANTA FE RANCH 611 S RAILROAD LINN, TX 78563	1365794									X				
C T LANDFILL FM 1017 HWY 281 N LINN, TX 78563	3969808											X		
A D CHEVRON WEST HWY 107 EDINBURG, TX 78539	5168921									X				
FIKE FARMS BOX 347A EDINBURG, TX 78539	6982247											X		
HI JO HYDROCARBONS E FM 1926 EDINBURG, tx	5108423						X							
FFP #680 BOX 13M EDINBURG, TX 78539	2590987									X				



X = search criteria; • = tag-along (beyond search criteria).

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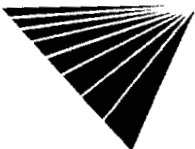
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UNMAPPED SITES	VISTA ID	A												
		NPL	CORRACTS(TSD)	SPL	RCRA TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	TRIS	UST	AST	GNRTR	ERNS SPILLS-STATE
JACK WALLACE EQUIPMENT 1/2 MI WALLACE RD EDINBURG, TX 78539	13624473											X		
MOBIL PROD TXNM EDINBURG FIELD WAREH ROUTE 2 BOX 176A EDINBURG, TX 78539	279803												X	
LINN FEED SEED SUPPLY HWY 281 EDINBURG, tx	6530443						X							
WAGNER, OTTO SR BOX 186 EDINBURG, TX 78540	5168931											X		
SUN-UP, THE FOOD STORE BOX 58 EDINBURG, TX 78540	5168929										X			
PORTER OIL LPG CO PO BOX 242 MCALLEN, TX 78505	5168901										X			
FUEL STOP HWY 681 MCCOOK, tx	6612180						X							
KOTZUR FARMS BOX 158 EDINBURG, TX 78540	2591834											X		
DIANA SALAZAR DBA A T DRIVE IN PO BOX 2287 MISSION, TX 78573	1384076										X			



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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

## DETAILS

### PROPERTY AND THE ADJACENT AREA (within 1 mile)

VISTA Address*:	<b>CITY OF EDINBURG</b> <b>.4M E OF US281, 6.7M N OF EDINBURG C</b> <b>EDINBURG, TX</b>	VISTA ID#:	3049048
		Distance/Direction:	0.64 MI / W
		Plotted as:	Point

Map ID

**1**

<b>STATE SWLF - Solid Waste Landfill / SRC# 6709</b>	Agency ID:	956.000
--	------------	---------

Agency Address: SAME AS ABOVE  
 Facility Type: SANITARY LANDFILL/LANDFILL  
 Facility Status: PREVIOUSLY APPROVED SITE  
 Facility Life: NOT REPORTED  
 Permit Status: PERMITTED/LICENSED  
 Waste: NOT REPORTED

<b>STATE SWLF - Solid Waste Landfill / SRC# 6709</b>	Agency ID:	956.000
--	------------	---------

Agency Address: EDINBURG, CITY OF  
 6.7M N OF EDINBURG .4M E OF US 281  
 URG, TX  
 Facility Type: SANITARY LANDFILL/LANDFILL  
 Facility Status: PROPOSED  
 Facility Life: NOT REPORTED  
 Permit Status: COMBINED WITH ANOTHER PERMIT  
 Waste: NOT REPORTED

VISTA Address*:	<b>M L MART</b> <b>N HWY 281 (FAYSVILLE)</b> <b>EDINBURG, TX 78539</b>	VISTA ID#:	5737580
		Distance/Direction:	0.75 MI / W
		Plotted as:	Point

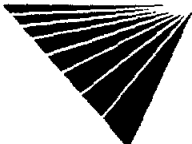
Map ID

**2**

<b>STATE UST - State Underground Storage Tank / SRC# 6708</b>	Agency ID:	0030772
---	------------	---------

Agency Address: SAME AS ABOVE  
 3  
 Underground Tanks: 3  
 Aboveground Tanks: NOT REPORTED  
 Tanks Removed: NOT REPORTED

Tank ID:	U1	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	GASOLINE (UNSPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	16	Tank Piping:	SINGLE WALL
Tank Size (Units):	8000 (GALLONS)	Tank Material:	STEEL
Tank ID:	U2	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	GASOLINE (UNSPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	16	Tank Piping:	SINGLE WALL
Tank Size (Units):	6000 (GALLONS)	Tank Material:	STEEL



\* VISTA address includes enhanced city and ZIP.

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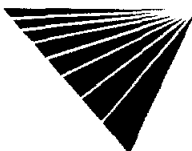
**PROPERTY AND THE ADJACENT AREA (within 1 mile) CONT.**

Tank ID:	U3	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	DIESEL	Leak Monitoring:	NO MONITOR
Tank Age:	16	Tank Piping:	WALLED/DOUBLE WALLED
Tank Size (Units):	10000 (GALLONS)	Tank Material:	STEEL
Tank ID#:	U1		
Tank Installed Date / Age:	01/01/1984		
Description / Comment:	TANK MONITOR: INVENTORY CONTROL--PIPE MONITOR: NONE		
Description / Comment:	OWNER: LA LOMITA, INC.--2105 REMINGTON AVE--EDINBURG, TX 785393931		
Tank ID#:	U3		
Tank Installed Date / Age:	01/01/1984		
Description / Comment:	TANK MONITOR: NONE--PIPE MONITOR: NONE		
Description / Comment:	OWNER: LA LOMITA, INC.--2105 REMINGTON AVE--EDINBURG, TX 785393931		
Tank ID#:	U2		
Tank Installed Date / Age:	01/01/1984		
Description / Comment:	TANK MONITOR: INVENTORY CONTROL--PIPE MONITOR: NONE		
Description / Comment:	OWNER: LA LOMITA, INC.--2105 REMINGTON AVE--EDINBURG, TX 785393931		

VISTA Address*:	<b>ILLINI HELICOPTER P.O. BOX 1601 EDINBURG, TX 78539</b>	VISTA ID#:	206226
		Distance/Direction:	0.79 MI / W
		Plotted as:	Point
NFRAP / SRC# 6475		EPA ID:	TXD981047871

Map ID  
**3**

Agency Address:	SAME AS ABOVE
Site Description:	THE SITE IS THE LOCATION OF A PESTICIDE APPLICATOR WHERE HAZARDOUS WASTE MAY BE TREATED, STORED OR DISPOSED.
EPA Region:	6
Congressional District:	0
Federal Facility:	Agency Code ( )
Facility Ownership:	OTHER
Site Incident Category:	unknown
Federal Facility Docket:	SITE IS NOT INCLUDED ON THE DOCKET
NPL Status:	NOT ON NPL
Incident Type:	Unknown
Proposed NPL Update #:	0
Final NPL Update #:	0
Financial Management System ID:	NOT REPORTED
Latitude:	0
Longitude:	0
Lat/Long Source:	Agency Code ( )
Lat/Long Accuracy:	Unknown
Dioxin Tier:	Unknown
USGS Hydro Unit:	12110208
RCRA Indicator:	Unknown
Unit Id:	0
Unit Name:	ENTIRE SITE



**PROPERTY AND THE ADJACENT AREA (within 1 mile) CONT.**

<b>Type:</b>	DISCOVERY	<b>Lead Agency:</b>	EPA FUND-FINANCED
<b>Qualifier:</b>	UNKNOWN	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN
<b>Type:</b>	PRELIMINARY ASSESSMENT	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	NO FURTHER REMEDIAL ACTION PLANNED	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	UNKNOWN
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN

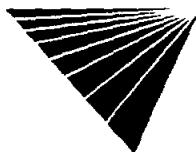
<b>VISTA Address*:</b>	<b>EDINBURG AUTO TRUCK STOP</b>	<b>VISTA ID#:</b>	1394603
	<b>US 281 FM 2812</b>	<b>Distance/Direction:</b>	0.81 MI / SW
	<b>EDINBURG, TX 78539</b>	<b>Plotted as:</b>	Point

Map ID

**4**

<b>STATE UST - State Underground Storage Tank / SRC# 6708</b>	<b>Agency ID:</b>	0033774
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<b>Agency Address:</b>	SAME AS ABOVE		
<b>Underground Tanks:</b>	9		
<b>Aboveground Tanks:</b>	NOT REPORTED		
<b>Tanks Removed:</b>	5		
<b>Tank ID:</b>	U1	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	GASOLINE (UNSPECIFIED)	<b>Leak Monitoring:</b>	NO MONITOR
<b>Tank Age:</b>	11	<b>Tank Piping:</b>	ANTI-CORROSIVE
<b>Tank Size (Units):</b>	3000 (GALLONS)	<b>Tank Material:</b>	STEEL
<b>Tank ID:</b>	U1A	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	DIESEL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	3	<b>Tank Piping:</b>	SINGLE WALL
<b>Tank Size (Units):</b>	20000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS REINFORCED PLASTIC
<b>Tank ID:</b>	U2	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	GASOLINE (UNSPECIFIED)	<b>Leak Monitoring:</b>	NO MONITOR
<b>Tank Age:</b>	11	<b>Tank Piping:</b>	ANTI-CORROSIVE
<b>Tank Size (Units):</b>	8000 (GALLONS)	<b>Tank Material:</b>	STEEL
<b>Tank ID:</b>	U2A	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	DIESEL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	3	<b>Tank Piping:</b>	SINGLE WALL
<b>Tank Size (Units):</b>	20000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS REINFORCED PLASTIC
<b>Tank ID:</b>	U3	<b>Tank Status:</b>	REMOVED
<b>Tank Contents:</b>	DIESEL	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	19	<b>Tank Piping:</b>	SINGLE WALL
<b>Tank Size (Units):</b>	1000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS REINFORCED PLASTIC
<b>Tank ID:</b>	U3A	<b>Tank Status:</b>	ACTIVE/IN SERVICE
<b>Tank Contents:</b>	GASOLINE (UNSPECIFIED)	<b>Leak Monitoring:</b>	MONITOR PRESENT
<b>Tank Age:</b>	3	<b>Tank Piping:</b>	SINGLE WALL
<b>Tank Size (Units):</b>	10000 (GALLONS)	<b>Tank Material:</b>	FIBERGLASS REINFORCED PLASTIC



\* VISTA address includes enhanced city and ZIP.

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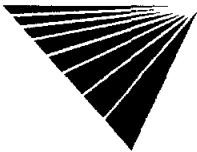
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**PROPERTY AND THE ADJACENT AREA (within 1 mile) CONT.**

Tank ID:	U4	Tank Status:	REMOVED
Tank Contents:	DIESEL	Leak Monitoring:	MONITOR PRESENT
Tank Age:	19	Tank Piping:	SINGLE WALL
Tank Size (Units):	8000 (GALLONS)	Tank Material:	FIBERGLASS REINFORCED PLASTIC
Tank ID:	U5	Tank Status:	REMOVED
Tank Contents:	DIESEL	Leak Monitoring:	MONITOR PRESENT
Tank Age:	19	Tank Piping:	SINGLE WALL
Tank Size (Units):	8000 (GALLONS)	Tank Material:	FIBERGLASS REINFORCED PLASTIC
Tank ID:	U6A	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	GASOLINE (UNSPECIFIED)	Leak Monitoring:	MONITOR PRESENT
Tank Age:	10	Tank Piping:	SINGLE WALL
Tank Size (Units):	8000 (GALLONS)	Tank Material:	FIBERGLASS REINFORCED PLASTIC
Tank ID#:	U1		
Tank Installed Date / Age:	01/01/1978		
Tank Removal Date:	09/12/1989		
Description / Comment:	TANK MONITOR: NONE--PIPE MONITOR: NONE		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U5		
Tank Installed Date / Age:	01/01/1978		
Tank Removal Date:	02/07/1997		
Description / Comment:	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U4		
Tank Installed Date / Age:	01/01/1978		
Tank Removal Date:	02/07/1997		
Description / Comment:	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U3		
Tank Installed Date / Age:	01/01/1978		
Tank Removal Date:	02/07/1997		
Description / Comment:	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U2		
Tank Installed Date / Age:	01/01/1978		
Tank Removal Date:	09/12/1989		
Description / Comment:	TANK MONITOR: NONE--PIPE MONITOR: NONE		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U6A		
Tank Installed Date / Age:	09/01/1990		
Description / Comment:	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS		
Description / Comment:	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539		
Tank ID#:	U1A		
Tank Installed Date / Age:	01/20/1997		



\* VISTA address includes enhanced city and ZIP.

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**PROPERTY AND THE ADJACENT AREA (within 1 mile) CONT.**

<b>Description / Comment:</b>	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS
<b>Description / Comment:</b>	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539
<b>Tank ID#:</b>	U2A
<b>Tank Installed Date / Age:</b>	01/20/1997
<b>Description / Comment:</b>	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS
<b>Description / Comment:</b>	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539
<b>Tank ID#:</b>	U3A
<b>Tank Installed Date / Age:</b>	01/20/1997
<b>Description / Comment:</b>	TANK MONITOR: AUTO IN-TANK MONITORING INVENTORY CONTROL--PIPE MONITOR: LINE LEAK DETECTORS
<b>Description / Comment:</b>	OWNER: EDINBURG AUTO TRUCK STOP INC--RT 5 BOX 2076--EDINBURG, TX 78539



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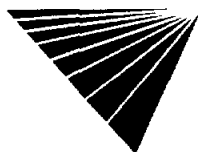
Date of Report: March 7, 2000

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**UNMAPPED SITES**

VISTA Address*:	<b>LONGWELL FARMS, INC</b> <b>DIRT RD OFF FM490 1.5MI W FM88</b> <b>HARGILL, TX 78549</b>	VISTA ID#:	249471
<b>NFRAP / SRC# 6475</b>		EPA ID:	TXD981600976
<b>Agency Address:</b>	LONGWELL FARMS, INC DIRT RD OFF FM490 1.5MI W FM88 HARGILL, TX 78549		
<b>Alias Name:</b>	LONGWELL FARMS, INC		
<b>Alias Street:</b>	NOT REPORTED		
<b>Alias City:</b>	WILLACY	<b>Alias Latitude:</b>	0
<b>Alias Zip:</b>	NOT REPORTED	<b>Alias Longitude:</b>	0
<b>Alias State:</b>	TX		
<b>Alias Description:</b>	NOT REPORTED		
<b>Site Description:</b>	THE SITE IS THE LOCATION OF A GROVE CARE BUSINESS INVOLVED IN THE GROUND APPLICATION OF HERBICIDES AND INSECTICIDES.		
<b>EPA Region:</b>	6		
<b>Congressional District:</b>	0		
<b>Federal Facility:</b>	Agency Code ( )		
<b>Facility Ownership:</b>	OTHER		
<b>Site Incident Category:</b>	unknown		
<b>Federal Facility Docket:</b>	SITE IS NOT INCLUDED ON THE DOCKET		
<b>NPL Status:</b>	NOT ON NPL		
<b>Incident Type:</b>	Unknown		
<b>Proposed NPL Update #:</b>	0		
<b>Final NPL Update #:</b>	0		
<b>Financial Management System ID:</b>	NOT REPORTED		
<b>Latitude:</b>	0		
<b>Longitude:</b>	0		
<b>Lat/Long Source:</b>	Agency Code ( )		
<b>Lat/Long Accuracy:</b>	Unknown		
<b>Dioxin Tier:</b>	Unknown		
<b>USGS Hydro Unit:</b>	12110208		
<b>RCRA Indicator:</b>	Unknown		
<b>Unit Id:</b>	0		
<b>Unit Name:</b>	ENTIRE SITE		
<b>Type:</b>	DISCOVERY	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	UNKNOWN	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN
<b>Type:</b>	PRELIMINARY ASSESSMENT	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	LOWER PRIORITY	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	UNKNOWN
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN



\* VISTA address includes enhanced city and ZIP.

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**UNMAPPED SITES CONT.**

<b>Type:</b>	SCREENING SITE INSPECTION	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	NO FURTHER REMEDIAL ACTION PLANNED	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN

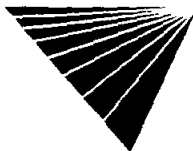
<b>VISTA Address*:</b>	<b>NICKELL AERIAL CROP CARE</b> P.O. BOX 160 FM 490E HARGILL, TX 78549	<b>VISTA ID#:</b>	297086
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<b>NFRAP / SRC# 6475</b>	<b>EPA ID:</b>	TXD981047608
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<b>Agency Address:</b>	SAME AS ABOVE
<b>Site Description:</b>	THE SITE IS THE LOCATION OF A PESTICIDE APPLICATOR WHERE HAZARDOUS WASTE MAY BE TREATED, STORED OR DISPOSED.
<b>EPA Region:</b>	6
<b>Congressional District:</b>	0
<b>Federal Facility:</b>	Agency Code ( )
<b>Facility Ownership:</b>	OTHER
<b>Site Incident Category:</b>	unknown
<b>Federal Facility Docket:</b>	SITE IS NOT INCLUDED ON THE DOCKET
<b>NPL Status:</b>	NOT ON NPL
<b>Incident Type:</b>	Unknown
<b>Proposed NPL Update #:</b>	0
<b>Final NPL Update #:</b>	0
<b>Financial Management System ID:</b>	NOT REPORTED
<b>Latitude:</b>	0
<b>Longitude:</b>	0
<b>Lat/Long Source:</b>	Agency Code ( )
<b>Lat/Long Accuracy:</b>	Unknown
<b>Dioxin Tier:</b>	Unknown
<b>USGS Hydro Unit:</b>	12110208
<b>RCRA Indicator:</b>	Unknown
<b>Unit Id:</b>	0
<b>Unit Name:</b>	ENTIRE SITE

<b>Type:</b>	DISCOVERY	<b>Lead Agency:</b>	EPA FUND-FINANCED
<b>Qualifier:</b>	UNKNOWN	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN

<b>Type:</b>	PRELIMINARY ASSESSMENT	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	NO FURTHER REMEDIAL ACTION PLANNED	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	UNKNOWN
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN





**UNMAPPED SITES CONT.**

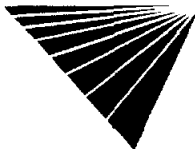
<b>SCL - State Equivalent CERCLIS List / SRC# 6559</b>		EPA ID:	TXD981047608
<b>Agency Address:</b>	SAME AS ABOVE		
<b>Status:</b>	UNKNOWN		
<b>Facility Type:</b>	NOT AVAILABLE		
<b>Lead Agency:</b>	NOT AVAILABLE		
<b>State Status:</b>	NOT AVAILABLE		
<b>Pollutant 1:</b>	UNKNOWN		
<b>Pollutant 2:</b>	UNKNOWN		
<b>Pollutant 3:</b>	UNKNOWN		

<b>VISTA Address*:</b>	<b>US DEPT OF AGRICULTURE, APHIS N 7 MILES HWY 681 EDINBURG, TX 78539</b>	<b>VISTA ID#:</b>	1786621
------------------------	---	-------------------	---------

<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	U S DEPT OF AGRICULTURE HWY 681 EDINBURG, tx 78539		
<b>Facility ID:</b>	0056157		
<b>Leak ID#:</b>	097951		
<b>Leak Report Date:</b>	02/07/1991		
<b>Region / District:</b>	HARLINGEN		
<b>Responsible Party:</b>	U S DEPT OF AGRICULTURE		
<b>Description / Comment:</b>	MEDIA AFFECTED: SOIL CONTAMINATION ONLY, REQUIRES FULL SITE ASSESSMENT RAPREMIATION STATUS: FINAL CONCURRENCE ISSUED, CASE CLOSEDRESPONSIBLE PARTY INFO: RR 3 BOX 1004,EDINBURG,TX,785390000,512/580-7222		

<b>VISTA Address*:</b>	<b>TRUCKING STORAGE HWY 281 LINN, TX 78563</b>	<b>VISTA ID#:</b>	1407224
------------------------	--	-------------------	---------

<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	TRUCKING STORAGE HWY 281 LINN, tx 78563		
<b>Facility ID:</b>	0047670		
<b>Leak ID#:</b>	110001		
<b>Leak Report Date:</b>	11/03/1995		
<b>Region / District:</b>	HARLINGEN		
<b>Responsible Party:</b>	L M B CORP		
<b>Description / Comment:</b>	MEDIA AFFECTED: NO GW IMPACT, NO APPARENT THREATS OR IMPACTS TORECEPTORSREMIATION STATUS: FINAL CONCURRENCE ISSUED, CASE CLOSEDRESPONSIBLE PARTY INFO: PO BOX 593,MISSION,TX,785730593,210/686-7426		



\* VISTA address includes enhanced city and ZIP.

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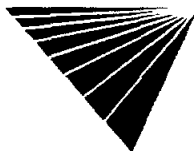
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**UNMAPPED SITES CONT.**

VISTA Address*:	<b>HELDT BROS TRUCKING CO N HWY 281 EDINBURG, tx 78539</b>	VISTA ID#:	3346712
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	0021265		
Leak ID#:	100884		
Leak Report Date:	11/15/1991		
Region / District:	HARLINGEN		
Responsible Party:	BILL NICOL TRANS. SERVICE INC		
Description / Comment:	MEDIA AFFECTED: GROUNDWATER OTHER THAN 1B. SITE CHARACTERIZATION IN COMPLETE REMEDIATION STATUS: FINAL CONCURRENCE ISSUED, CASE CLOSED RESPONSIBLE PARTY INFO: 2605 N CLOSNER BLVD, EDINBURG, TX, 78539, 956/316-3305		

VISTA Address*:	<b>MARTIN FARM RANCH ROUTE 4 BOX 473 EDINBURG, TX 78539</b>	VISTA ID#:	259941
<b>NFRAP / SRC# 6475</b>		EPA ID:	TXD981048499
Agency Address:	SAME AS ABOVE		
Site Description:	THE SITE IS THE LOCATION OF A PESTICIDE APPLICATOR WHERE HAZARDOUS WASTE MAY BE TREATED, STORED OR DISPOSED.		
EPA Region:	6		
Congressional District:	0		
Federal Facility:	Agency Code ( )		
Facility Ownership:	OTHER		
Site Incident Category:	unknown		
Federal Facility Docket:	SITE IS NOT INCLUDED ON THE DOCKET		
NPL Status:	NOT ON NPL		
Incident Type:	Unknown		
Proposed NPL Update #:	0		
Final NPL Update #:	0		
Financial Management System ID:	NOT REPORTED		
Latitude:	0		
Longitude:	0		
Lat/Long Source:	Agency Code ( )		
Lat/Long Accuracy:	Unknown		
Dioxin Tier:	Unknown		
USGS Hydro Unit:	12110208		
RCRA Indicator:	Unknown		
Unit Id:	0		
Unit Name:	ENTIRE SITE		
Type:	DISCOVERY	Lead Agency:	EPA FUND-FINANCED
Qualifier:	UNKNOWN	Category:	Unknown
Name:	NOT REPORTED	Actual Start Date:	NOT REPORTED
Plan Status:	Unknown	Actual Completion Date:	UNKNOWN



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 308492001

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**UNMAPPED SITES CONT.**

<b>Type:</b>	<i>PRELIMINARY ASSESSMENT</i>	<b>Lead Agency:</b>	<i>STATE, FUND FINANCED</i>
<b>Qualifier:</b>	<i>NO FURTHER REMEDIAL ACTION PLANNED</i>	<b>Category:</b>	<i>Unknown</i>
<b>Name:</b>	<i>NOT REPORTED</i>	<b>Actual Start Date:</b>	<i>UNKNOWN</i>
<b>Plan Status:</b>	<i>Unknown</i>	<b>Actual Completion Date:</b>	<i>UNKNOWN</i>

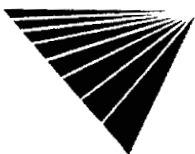
VISTA Address*:	<b>UNION Y DIGNIDAD INC</b> <b>1/4 MI S FM 490 2 MI W 281</b> <b>EDINBURG, TX 78539</b>	VISTA ID#:	443063
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<b>NFRAP / SRC# 6475</b>	EPA ID:	TXD980697403
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<b>Agency Address:</b>	<i>SAME AS ABOVE</i>
<b>EPA Region:</b>	<i>6</i>
<b>Congressional District:</b>	<i>0</i>
<b>Federal Facility:</b>	<i>Agency Code ( )</i>
<b>Facility Ownership:</b>	<i>OTHER</i>
<b>Site Incident Category:</b>	<i>unknown</i>
<b>Federal Facility Docket:</b>	<i>SITE IS NOT INCLUDED ON THE DOCKET</i>
<b>NPL Status:</b>	<i>NOT ON NPL</i>
<b>Incident Type:</b>	<i>Unknown</i>
<b>Proposed NPL Update #:</b>	<i>0</i>
<b>Final NPL Update #:</b>	<i>0</i>
<b>Financial Management System ID:</b>	<i>NOT REPORTED</i>
<b>Latitude:</b>	<i>0</i>
<b>Longitude:</b>	<i>0</i>
<b>Lat/Long Source:</b>	<i>Agency Code ( )</i>
<b>Lat/Long Accuracy:</b>	<i>Unknown</i>
<b>Dioxin Tier:</b>	<i>Unknown</i>
<b>USGS Hydro Unit:</b>	<i>12110208</i>
<b>RCRA Indicator:</b>	<i>Unknown</i>
<b>Unit Id:</b>	<i>0</i>
<b>Unit Name:</b>	<i>ENTIRE SITE</i>

<b>Type:</b>	<i>DISCOVERY</i>	<b>Lead Agency:</b>	<i>EPA FUND-FINANCED</i>
<b>Qualifier:</b>	<i>UNKNOWN</i>	<b>Category:</b>	<i>Unknown</i>
<b>Name:</b>	<i>NOT REPORTED</i>	<b>Actual Start Date:</b>	<i>NOT REPORTED</i>
<b>Plan Status:</b>	<i>Unknown</i>	<b>Actual Completion Date:</b>	<i>UNKNOWN</i>

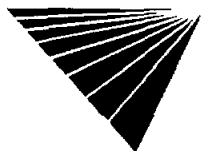
<b>Type:</b>	<i>PRELIMINARY ASSESSMENT</i>	<b>Lead Agency:</b>	<i>EPA FUND-FINANCED</i>
<b>Qualifier:</b>	<i>NO FURTHER REMEDIAL ACTION PLANNED</i>	<b>Category:</b>	<i>Unknown</i>
<b>Name:</b>	<i>NOT REPORTED</i>	<b>Actual Start Date:</b>	<i>UNKNOWN</i>
<b>Plan Status:</b>	<i>Unknown</i>	<b>Actual Completion Date:</b>	<i>UNKNOWN</i>



**UNMAPPED SITES CONT.**

VISTA Address*:	<b>SAN MANUEL BUTANE N HWY 281 LINN, tx 78563</b>	VISTA ID#:	5265632
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAN MANUEL BUTANE N HWY 281 SAN MANUEL, tx 78563		
Facility ID:	0020563		
Leak ID#:	101825		
Leak Report Date:	02/11/1992		
Region / District:	HARLINGEN		
Responsible Party:	CHAPA PAT		
Description / Comment:	MEDIA AFFECTED: MINOR SOIL CONTAMINATION - NO REMEDIAL ACTION REQUIRED REMEDIATION STATUS: FINAL CONCURRENCE ISSUED, CASE CLOSED RESPONSIBLE PARTY INFO: PO BOX 25, LINN, TX, 78563, 512/383-2821		

VISTA Address*:	<b>JIM LAMBERT RT 3 BOX 217, 1 MI N OF FM3250 EDINBURG, TX 78539</b>	VISTA ID#:	218141
<b>NFRAP / SRC# 6475</b>		EPA ID:	TXD981515745
Agency Address:	SAME AS ABOVE		
Site Description:	GROUND APPLICATOR OF PESTICIDES. CURRENT SITE ON JIM LAMBERT PROPERTY. CONTAINERS BURIAL SITE AT FORMER RANCH.		
EPA Region:	6		
Congressional District:	0		
Federal Facility:	Agency Code ( )		
Facility Ownership:	OTHER		
Site Incident Category:	unknown		
Federal Facility Docket:	SITE IS NOT INCLUDED ON THE DOCKET		
NPL Status:	NOT ON NPL		
Incident Type:	Unknown		
Proposed NPL Update #:	0		
Final NPL Update #:	0		
Financial Management System ID:	NOT REPORTED		
Latitude:	0		
Longitude:	0		
Lat/Long Source:	Agency Code ( )		
Lat/Long Accuracy:	Unknown		
Dioxin Tier:	Unknown		
USGS Hydro Unit:	12110208		
RCRA Indicator:	Unknown		
Unit Id:	0		
Unit Name:	ENTIRE SITE		
Type:	DISCOVERY	Lead Agency:	EPA FUND-FINANCED
Qualifier:	UNKNOWN	Category:	Unknown
Name:	NOT REPORTED	Actual Start Date:	NOT REPORTED
Plan Status:	Unknown	Actual Completion Date:	MAY 2, 1986



**UNMAPPED SITES CONT.**

<b>Type:</b>	PRELIMINARY ASSESSMENT	<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	NO FURTHER REMEDIAL ACTION PLANNED	<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED	<b>Actual Start Date:</b>	UNKNOWN
<b>Plan Status:</b>	Unknown	<b>Actual Completion Date:</b>	UNKNOWN

<b>VISTA Address*:</b>	<b>HIDALGO COUNTY</b> <b>3.2MI E US281,ADJACENT TO N SIDE DAV</b> <b>EDINBURG, TX</b>	<b>VISTA ID#:</b>	3051411
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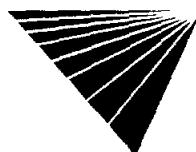
<b>STATE SWLF - Solid Waste Landfill / SRC# 6709</b>	<b>Agency ID:</b>	2102.00
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<b>Agency Address:</b>	SAME AS ABOVE
<b>Facility Type:</b>	SHREDDER FACILITY
<b>Facility Status:</b>	PROPOSED
<b>Permit Status:</b>	PERMITTED/LICENSED

<b>VISTA Address*:</b>	<b>CURLS FARM SERVICE</b> <b>JUNCT. 83 HWY 487</b> <b>EDINBURG, TX 78539</b>	<b>VISTA ID#:</b>	109355
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<b>NFRAP / SRC# 6475</b>	<b>EPA ID:</b>	TXD981918147
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<b>Agency Address:</b>	SAME AS ABOVE		
<b>Alias Name:</b>	CURLS FARM SERVICE		
<b>Alias Street:</b>	NOT REPORTED		
<b>Alias City:</b>	HIDALGO	<b>Alias Latitude:</b>	0
<b>Alias Zip:</b>	NOT REPORTED	<b>Alias Longitude:</b>	0
<b>Alias State:</b>	TX		
<b>Alias Description:</b>	NOT REPORTED		
<b>Site Description:</b>	FORMER SHEET METAL SITE. SITE WHERE PESTICIDE CONTAINERS ARE BURIED.		
<b>EPA Region:</b>	6		
<b>Congressional District:</b>	0		
<b>Federal Facility:</b>	Agency Code ( )		
<b>Facility Ownership:</b>	OTHER		
<b>Site Incident Category:</b>	unknown		
<b>Federal Facility Docket:</b>	SITE IS NOT INCLUDED ON THE DOCKET		
<b>NPL Status:</b>	NOT ON NPL		
<b>Incident Type:</b>	Unknown		
<b>Proposed NPL Update #:</b>	0		
<b>Final NPL Update #:</b>	0		
<b>Financial Management System ID:</b>	NOT REPORTED		
<b>Latitude:</b>	0		
<b>Longitude:</b>	0		
<b>Lat/Long Source:</b>	Agency Code ( )		
<b>Lat/Long Accuracy:</b>	Unknown		
<b>Dioxin Tier:</b>	Unknown		
<b>USGS Hydro Unit:</b>	12110208		
<b>RCRA Indicator:</b>	Unknown		



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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**UNMAPPED SITES CONT.**

<b>Unit Id:</b>	0
<b>Unit Name:</b>	ENTIRE SITE
<b>Type:</b>	DISCOVERY
<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	UNKNOWN
<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED
<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown
<b>Actual Completion Date:</b>	UNKNOWN
<b>Type:</b>	PRELIMINARY ASSESSMENT
<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	LOWER PRIORITY
<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED
<b>Actual Start Date:</b>	UNKNOWN
<b>Plan Status:</b>	Unknown
<b>Actual Completion Date:</b>	UNKNOWN
<b>Type:</b>	SCREENING SITE INSPECTION
<b>Lead Agency:</b>	STATE, FUND FINANCED
<b>Qualifier:</b>	NO FURTHER REMEDIAL ACTION PLANNED
<b>Category:</b>	Unknown
<b>Name:</b>	NOT REPORTED
<b>Actual Start Date:</b>	NOT REPORTED
<b>Plan Status:</b>	Unknown
<b>Actual Completion Date:</b>	UNKNOWN

VISTA Address*:	<b>VILLARREL GROCERY HWY 107 EDINBURG, tx 78539</b>	VISTA ID#:	2589910
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<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	VILLARREL GROCERY HWY 107 SAN CARLOS, tx 78539		
<b>Facility ID:</b>	0034085		
<b>Leak ID#:</b>	094184		
<b>Leak Report Date:</b>	11/03/1989		
<b>Region / District:</b>	HARLINGEN		
<b>Responsible Party:</b>	HERBS ENTERPRISES WALKER OIL		
<b>Description / Comment:</b>	MEDIA AFFECTED: SOIL CONTAMINATION ONLY, REQUIRES FULL SITE ASSESSMENT RAPREMEDIATION STATUS: FINAL CONCURRENCE ISSUED. CASE CLOSEDRESPONSIBLE PARTY INFO: 505 E SCHUNIOR, EDINBURG, TX, 785390000, 512/383-2412		

VISTA Address*:	<b>EDINBURG AUTO TRUCK STOP INC HWY 281 EDINBURG, tx 78539</b>	VISTA ID#:	2591477
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<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
<b>Agency Address:</b>	SAME AS ABOVE		
<b>Facility ID:</b>	0033774		
<b>Leak ID#:</b>	093623		
<b>Leak Report Date:</b>	09/12/1989		
<b>Region / District:</b>	HARLINGEN		
<b>Responsible Party:</b>	EDINBURG AUTO/TRUCK STOP		
<b>Description / Comment:</b>	MEDIA AFFECTED: GW IMPACT, PUBLIC/DOMESTIC WATER SUPPLY WELL W/IN 0.25MIREMEDIATION STATUS: PHASE 2 IN PROGRESSRESPONSIBLE PARTY INFO: PO BOX 2076, EDINBURG, TX, 78539, 281/646-0476		



\* VISTA address includes enhanced city and ZIP.

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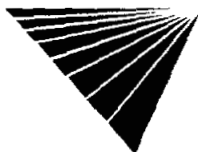
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**UNMAPPED SITES CONT.**

VISTA Address*:	<b>GUERRA BROTHERS, INC. 18.5 MI N EDINBURG EDINBURG, tx</b>	VISTA ID#:	6529278
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	0060073		
Leak ID#:	110881		
Leak Report Date:	04/19/1996		
Region / District:	HARLINGEN		
Responsible Party:	GUERRA BROTHERS, INC.		
Description / Comment:	MEDIA AFFECTED: GW IMPACTED, NO APPARENT THREATS OR IMPACTS TO RECEPTORS REMEDATION STATUS: PENDING CLOSURE, WAITING FOR MONITORING CLOSURE REPORT RESPONSIBLE PARTY INFO: PO BOX 38, LINN, TX, 78563, 956/383-2602		

VISTA Address*:	<b>HI JO HYDROCARBONS E FM 1926 EDINBURG, tx</b>	VISTA ID#:	5108423
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	0001056		
Leak ID#:	104398		
Leak Report Date:	08/26/1992		
Region / District:	HARLINGEN		
Responsible Party:	HI JO HYDROCARBONS		
Description / Comment:	MEDIA AFFECTED: GW IMPACTED, NO APPARENT THREATS OR IMPACTS TO RECEPTORS REMEDATION STATUS: FINAL CONCURRENCE ISSUED, CASE CLOSED RESPONSIBLE PARTY INFO: RR 6 BOX 9, WESLACO, TX, 78596, 512/968-7643		

VISTA Address*:	<b>LINN FEED SEED SUPPLY HWY 281 EDINBURG, tx</b>	VISTA ID#:	6530443
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	0002126		
Leak ID#:	110971		
Leak Report Date:	04/20/1996		
Region / District:	HARLINGEN		
Responsible Party:	GUERRA BROS INC		
Description / Comment:	MEDIA AFFECTED: NO GW IMPACT, NO APPARENT THREATS OR IMPACTS TO RECEPTORS REMEDATION STATUS: INCIDENT REPORTED, INITIAL DIRECTIVES NOT YET ISSUED RESPONSIBLE PARTY INFO: PO BOX 38, LINN, TX, 78563, 210/383-2602		



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

Report ID: 308492001

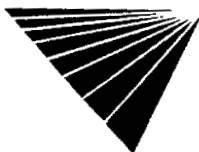
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**UNMAPPED SITES CONT.**

VISTA Address*:	<b>FUEL STOP HWY 681 MCCOOK, tx</b>	VISTA ID#:	6612180
<b>STATE LUST - State Leaking Underground Storage Tank / SRC# 6711</b>		EPA/Agency ID:	N/A
Agency Address:	SAME AS ABOVE		
Facility ID:	0006606		
Leak ID#:	110296		
Leak Report Date:	04/29/1996		
Region / District:	HARLINGEN		
Responsible Party:	SOUTHWEST GRAIN		
Description / Comment:	REMEDIATION STATUS: INITIAL DIRECTIVES ISSUED A WAITING INITIALRESPONSERESPONSIBLE PARTY INFO: RR3 BOX 188F.EDINBURG.TX,785399318,956/842-3355		



\* VISTA address includes enhanced city and ZIP.

For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.

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# SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1 MILE)

## DESCRIPTION OF DATABASES SEARCHED

### A) DATABASES SEARCHED TO 1/2 MILE

**NPL**  
**SRC#: 6558** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for NPL was January, 2000.**

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

**SPL**  
**SRC#: 6712** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for State Superfund Program was December, 1999.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-2458.

**CERCLIS**  
**SRC#: 6474** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for CERCLIS was October, 1999.**

The CERCLIS List contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activities or events at the site, financial funding information for the events, and unrestricted enforcement activities.

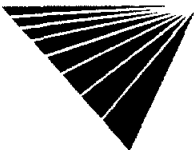
**NFRAP**  
**SRC#: 6475** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for CERCLIS-NFRAP was October, 1999.**

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

**SCL**  
**SRC#: 6559** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Site Assessment Report was December, 1999.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-2525.

The Texas Water Commission Superfund Registry Quarterly Status Report is an information newsletter containing detailed information for NPL sites in the state of Texas.



**SCL**  
**SRC#: 6710** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Voluntary Cleanup Program Site Listing was January, 2000.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-5891.

**CORRACTS**  
**SRC#: 6556** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for HWDMS/RCRIS was December, 1999.**

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

**ERNS**  
**SRC#: 6181** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for was August, 1999.**

The Emergency Response Notification System (ERNS) is a national database containing records from October 1986 to the release date above and is used to collect information for reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of Transportation. The ERNS hotline number is (202) 260-2342.

**RCRA-TSD**  
**SRC#: 6556** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for HWDMS/RCRIS was December, 1999.**

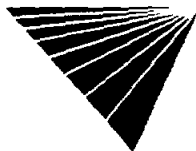
The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

**RCRA-LgGen**  
**SRC#: 6556** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for HWDMS/RCRIS was December, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste ( or 1 kg./month of acutely hazardous waste).

**RCRA-SmGen**  
**SRC#: 6556** VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for HWDMS/RCRIS was December, 1999.**

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.



**SWLF**  
**SRC#: 5884**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Closed Municipal Solid Waste Landfills was March, 1998.**

This database is provided by the Natural Resource Conservation Commission, Division of MSW. The agency may be contacted at: .

**SWLF**  
**SRC#: 6709**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Solid Waste Facilities Permit Applications File was January, 2000.**

THE TEXAS SOLID WASTE FACILITIES PERMIT APPLICATIONS FILE CURRENTLY INCLUDES RECORDS WITH ADDRESSES THAT HAVE LITTLE LOCATIONAL VALUE. A SMALL SAMPLING OF THESE SITES WILL BE INCLUDED IN THE UNMAPPABLE SECTION OF VISTA REPORTS. THE TNRCC IS DEVELOPING A GIS DATABASE FOR SOLID WASTE FACILITIES THAT WILL INCLUDE MAPPABLE LOCATION. UNTIL THIS DATABASE IS AVAILABLE, VISTA ENCOURAGES FURTHER INVESTIGATION BY THE ENVIRONMENTAL PROFESSIONAL TO LOCATE ALL POSSIBLE LANDFILLS IN THE AREA.

**SPILL**  
**SRC#: 6720**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Spills Incident Information System was January, 2000.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-2446.

**LUST**  
**SRC#: 6711**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Leaking Petroleum Storage Tank Case Report was January, 2000.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-0986.

**UST's**  
**SRC#: 6708**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Petroleum Storage Tank Database was January, 2000.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-0986; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

**AST's**  
**SRC#: 6708**

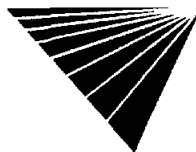
VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for Aboveground Storage Tank Database was January, 2000.**

This database is provided by the Natural Resource Conservation Commission. The agency may be contacted at: 512-239-0986.

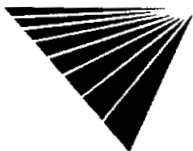
**TRIS**  
**SRC#: 4946**

VISTA conducts a database search to identify all sites within 1 mile of your property.  
**The agency release date for TRIS was January, 1998.**

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities( Toxic Release Inventory System). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form(Form R) for specified chemicals.



End of Report



For more information call VISTA Information Solutions, Inc. at **1 - 800 - 767 - 0403.**

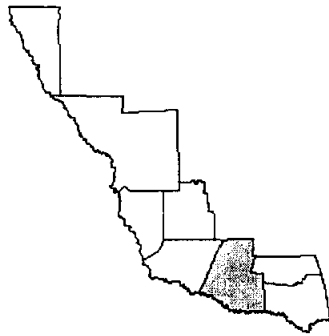
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## HIDALGO COUNTY



The following are population projections developed for the Texas Water Development Board as part of the Senate Bill 1 Regional Water project. Population in Hidalgo County is expected to increase by more than 150 percent in the period from the year 2000 to the year 2050.

**Table 9 - Population Projections for Hidalgo County**

Water User Group	Year 2000 Population	Year 2010 Population	Year 2020 Population	Year 2030 Population	Year 2040 Population	Year 2050 Population
Alamo	12,821	16,566	19,256	22,367	24,143	26,060
Alton	5,098	6,035	6,946	7,855	8,572	9,354
Donna	16,449	20,627	25,213	30,738	35,686	41,430
Edcouch	4,368	4,993	5,680	6,585	7,445	8,418
Edinburg	45,024	55,856	67,744	82,167	95,139	110,159
Elsa	6,605	7,428	8,328	9,559	10,744	12,077
Hidalgo	6,131	8,140	10,348	12,931	15,198	17,865
La Joya	4,352	5,836	7,257	8,592	9,590	10,702
La Villa	2,066	2,633	3,254	3,996	4,657	5,323
McAllen	116,891	128,278	139,070	154,689	178,632	206,280
Mercedes	15,962	18,745	21,797	25,691	29,302	33,421
Mission	44,401	57,933	80,193	97,764	113,229	131,375
Palmview	2,916	3,734	4,635	5,706	6,655	7,763
Pharr	45,960	61,198	77,929	97,479	114,631	134,800
Progreso	3,604	4,151	4,597	5,145	5,740	6,335
San Juan	25,310	28,981	32,521	35,952	38,585	41,485
Sullivan City	3,170	3,586	3,940	4,315	4,760	5,206
Weslaco	29,435	36,241	43,710	52,820	61,044	70,548
County Other	169,359	241,422	316,963	414,286	492,328	556,718
<b>Total Population</b>	<b>559,922</b>	<b>712,383</b>	<b>879,381</b>	<b>1,078,637</b>	<b>1,256,080</b>	<b>1,435,319</b>

**WILLACY COUNTY**



The following are population projections developed for the Texas Water Development Board as part of the Senate Bill 1 Regional Water project. The population of Willacy County is projected to increase from approximately 21,200 in the year 2000 to approximately 29,100 in the year 2050.

**Table 14 - Population and Water Demand Projections for Willacy County**

<b>Water User Group</b>	<b>Year 2000 Population</b>	<b>Year 2010 Population</b>	<b>Year 2020 Population</b>	<b>Year 2030 Population</b>	<b>Year 2040 population</b>	<b>Year 2050 Population</b>
Lyford	2,072	2,344	2,573	2,733	2,853	2,979
Raymondville	10,774	12,081	13,181	13,929	14,459	15,009
San Perlita	758	889	1,024	1,159	1,289	1,408
Sebastian	1,766	1,850	2,032	2,217	2,374	2,465
County Other	5,795	6,558	7,047	7,246	7,305	7,216
<b>Total Population</b>	<b>21,165</b>	<b>23,722</b>	<b>25,857</b>	<b>27,284</b>	<b>28,280</b>	<b>29,077</b>

SUB-BASIN	TOTAL AREA	URBAN AREA	URBAN AREA	IMPERVIOUS AREA	%IMPERVIOUS	%IMPERVIOUS
	SQ. MI.	S.F.	SQ. MI.	SQ. MI.	EXISTING	FUTURE
7S	29.5	2,488,633.73	0.089267452	0.0312	0.11%	0.15%
15S	25	16,921,362.00	0.606970343	0.2124	0.85%	1.16%
20S	10.5	9,501,101.47	0.34080512	0.1193	1.14%	1.56%
32S	17	9,411,007.15	0.337573431	0.1182	0.70%	1.78%
33S	16.5	16,633,010.00	0.596627138	0.2088	1.27%	3.24%
36S	11.8	80,474,498.00	2.886625416	1.0103	8.56%	21.92%
38S	5.3	10,528,308.53	0.377651104	0.1322	2.49%	6.38%
40S	12.8	17,994,340.30	0.645458143	0.2259	1.76%	4.52%
41S	20.3	72,209,461.55	2.590158027	0.9066	4.47%	11.43%
42S	8.3	17,331,175.23	0.62167037	0.2176	2.62%	6.71%
43S	7.8	49,988,623.00	1.79309512	0.6276	8.05%	20.60%
44S	30.8	451,325,889.93	16.18908868	5.6662	18.40%	47.10%
45S	14.5	355,889,321.61	12.76577284	4.4680	30.81%	78.88%
53S	61	95,617,710.51	3.429813422	1.2004	1.97%	5.04%
54S	125.5	534,708,944.80	19.18004422	6.7130	5.35%	13.69%
8R	11.5	47,309,803.00	1.697005675	0.5940	5.16%	7.08%
16R	16.25	1,956,023.90	0.070162703	0.0246	0.15%	0.21%

NOTE: IMPERVIOUS AREA IS FOUND BY MULTIPLYING URBAN AREA BY 35%.

% IMPERVIOUS IS FOUND BY DIVIDING IMPERVIOUS AREA BY TOTAL AREA

% IMPERVIOUS (FUTURE) FOUND BY MULTIPLYING THE IMPERVIOUS AREA BY A GROWTH FACTOR THAN DIVIDING BY TOTAL AREA

GROWTH FACTORS: HIDALGO COUNTY 2.56

WILLACY COUNTY 1.37

CAMERON COUNTY 1.93

Lag time calculation SCS Method											
		ORIGINAL	REVISED	REVISED	ORIGINA	REVISED	REVISED				
Water shed	Hydraulic length in ft, L	CN	CN II	CN I	S	S II	SI	Slope, %	SCS_LAG, hr	SCS_LAG, II hr	SCS_LAG, I hr
SC-1	26,400	71.71	70.78	60	3.945	4.128	6.667	0.04	28.48	29.22	38.71
SC-2	36,800	71.06	64.97	60	4.073	5.392	6.667	0.03	42.56	50.04	56.83
SC-3	132,000	72.21	68.36	60	3.848	4.628	6.667	0.19	45.65	50.67	62.91
SC-3A	28,000	72.05	67.71	60	3.879	4.769	6.667	0.02	42.97	48.32	58.96
SC-3B	18,400	71.96	71.47	60	3.897	3.992	6.667	0.03	25.14	25.48	34.41
SC-4	104,000	73.64	70.47	60	3.580	4.190	6.667	0.17	38.44	41.96	55.14
SC-4A	63,900	73.64	72.52	60	3.580	3.789	6.667	0.17	26.04	26.86	37.34
SC-4A1	15,200	73.64	69.9	60	3.580	4.306	6.667	0.20	0.00	8.39	10.85
SC-4B	7,900	73.64	63.51	60	3.580	5.746	6.667	0.19	4.60	6.03	6.59
SC-4B1	17,000	73.64	67	60	3.580	4.925	6.667	0.19	8.49	10.17	12.17
SC-5	120,800	74.22	69.08	60	3.473	4.476	6.667	0.17	42.88	49.40	62.53
SC-5A	93,600	74.22	69.19	60	3.473	4.453	6.667	0.17	34.97	40.17	50.98
SC-5A1	12,600	74.22	69.2	60	3.473	4.451	6.667	0.08	10.13	11.63	14.76
SC-5B	14,500	74.22	68.56	60	3.473	4.586	6.667	0.13	8.89	10.38	12.96
SC-6A	88,000	74.81	65.33	60	3.367	5.307	6.667	0.15	34.09	44.09	50.55
SC-6B	16,000	72.70	72.47	60	3.755	3.799	6.667	0.05	16.18	16.29	22.61
SC-7A	44,000	74.70	64.03	60	3.387	5.618	6.667	0.05	36.22	48.29	53.53
SC-7B	16,000	72.34	64.99	60	3.824	5.387	6.667	0.06	14.56	17.72	20.14
SC-7C	32,800	72.18	67.95	60	3.854	4.717	6.667	0.11	19.93	22.35	27.45
SC-7D	19,200	72.63	72.77	60	3.768	3.742	6.667	0.05	18.40	18.33	25.65
SC-8	37,600	73.35	75.68	60	3.633	3.214	6.667	0.04	37.63	35.21	53.53
SM-13	56,800	72.37	71.52	60	3.818	3.982	6.667	0.04	53.79	55.07	74.46
SM-14	48,000	73.68	72.11	60	3.572	3.868	6.667	0.03	48.16	50.31	69.15
SM-15	32,000	74.86	72.91	60	3.358	3.716	6.667	0.05	27.34	28.89	40.60
SM-16	44,000	70.86	71.85	60	4.112	3.918	6.667	0.03	46.38	45.14	61.59
SM-17	19,200	73.13	76.37	60	3.674	3.094	6.667	0.03	25.66	23.38	36.28
SM-18	47,200	76.42	78.5	61.96	3.086	2.739	6.139	0.04	37.73	35.46	55.76



Flow Title=North Main - Revised Existing

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4	,331370						
12 94 184 335 478 654 951 1228							
River Rch & RM=North Main,reach 3 (south)	,315796						
12 94 184 335 478 654 951 1228							
River Rch & RM=North Main,reach 3 (south)	,315287						
12 94 208 475 760 1133 1782 2403							
River Rch & RM=North Main,reach 3 (south)	,286897						
40 208 436 903 1384 2002 3069 4084							
River Rch & RM=North Main,reach 3 (south)	,271000						
64 301 594 1163 1740 2473 3728 4913							
River Rch & RM=North Main,reach 3 (south)	,260000						
77 378 741 1425 2109 2978 4467 5843							
River Rch & RM=North Main,reach 3 (south)	,250000						
77 378 751 1491 2247 3218 4896 6480							
River Rch & RM=North Main,reach 2	,157900						
1 2 3 40 100 188 352 515							
River Rch & RM=North Main,reach 2	,144259						
13 81 153 482 1051 1858 3255 4804							
River Rch & RM=North Main,reach 2	,132334						
14 204 468 962 1985 3435 6219 8788							
River Rch & RM=North Main,reach 2	,117690						
15 224 511 1120 2355 4175 7265 10250							
River Rch & RM=North Main,reach 2	,105420						
17 234 538 1279 2215 3804 6831 9537							
River Rch & RM=North Main,reach 2	,98900						
16 233 537 1295 2258 3818 6831 9620							
River Rch & RM=North Main,reach 2	,73000						
33 291 630 1481 2423 3782 6439 9328							
River Rch & RM=North Main,reach 1	,233824						
104 639 1325 2982 4760 6671 9260 12932							
River Rch & RM=North Main,reach 1	,188000						
71 476 1048 2312 3448 4800 7518 11140							
River Rch & RM=North Main,reach 1	,150000.						
71 476 1064 2286 3412 4695 7426 11052							
River Rch & RM=North Main,reach 1	,136000.						
71 481 1092 2321 3436 4708 7437 11062							
River Rch & RM=North Main,reach 1	,132000.						
70 480 1094 2316 3430 4643 7418 11045							
River Rch & RM=North Main,reach 1	,116000.						
70 480 1105 2330 3439 4641 7417 11046							
River Rch & RM=North Main,reach 1	,110000.						
69 482 1204 2641 3856 5335 7582 11115							
River Rch & RM=North Main,reach 1	,84000.						
69 482 1222 2668 3887 5378 7660 11080							
River Rch & RM=North Main,reach 1	,68373						
69 494 1338 2920 4267 5813 8433 11410							
River Rch & RM=North Main,reach 1	,52275						
67 488 1333 2923 4261 5802 8248 10992							
River Rch & RM=North Main,reach 1	,29585						
66 485 1356 3104 4305 5837 7896 10969							
River Rch & RM=North Main,reach 1	,10000.						
66 485 1361 3243 4358 5848 7901 10969							
River Rch & RM=North Main,reach 1	,8000.						
96 497 1361 3292 4458 5868 7978 10964							
River Rch & RM=North Main,reach 1	,2000.						
109 603 1378 3576 4920 6522 8929 10964							

Flow Title=North Main - Ultimate

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4					,331370		
17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 3 (south)					,315796		
17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 3 (south)					,315287		
17	123	261	569	889	1298	1995	2652
River Rch & RM=North Main,reach 3 (south)					,286897		
57	263	524	1044	1567	2228	3352	4412
River Rch & RM=North Main,reach 3 (south)					,271000		
81	357	684	1306	1925	2703	4016	5237
River Rch & RM=North Main,reach 3 (south)					,260000		
94	433	829	1565	2291	3206	4753	6165
River Rch & RM=North Main,reach 3 (south)					,250000		
94	433	838	1630	2428	3444	5182	6802
River Rch & RM=North Main,reach 2					,157900		
1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2					,144259		
13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2					,132334		
14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2					,117690		
15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 2					,105420		
17	234	538	1279	2215	3804	6831	9537
River Rch & RM=North Main,reach 2					,98900		
16	233	537	1295	2258	3818	6831	9620
River Rch & RM=North Main,reach 2					,73000		
33	291	630	1481	2423	3787	6482	9328
River Rch & RM=North Main,reach 1					,233824		
121	696	1415	3124	4940	6890	9534	13151
River Rch & RM=North Main,reach 1					,188000		
83	515	1113	2408	3552	4937	7771	11389
River Rch & RM=North Main,reach 1					,150000.		
82	515	1128	2375	3512	4821	7657	11296
River Rch & RM=North Main,reach 1					,136000.		
82	520	1156	2409	3536	4834	7670	11307
River Rch & RM=North Main,reach 1					,132000.		
82	518	1159	2404	3528	4763	7646	11290
River Rch & RM=North Main,reach 1					,116000.		
82	519	1170	2416	3537	4760	7645	11291
River Rch & RM=North Main,reach 1					,110000.		
81	520	1272	2672	3883	5354	7701	11370
River Rch & RM=North Main,reach 1					,84000.		
80	520	1291	2695	3913	5397	7675	11335
River Rch & RM=North Main,reach 1					,68373		
80	532	1408	2938	4285	5826	8447	11424
River Rch & RM=North Main,reach 1					,52275		
78	525	1403	2941	4279	5816	8262	11241
River Rch & RM=North Main,reach 1					,29585		
77	521	1426	3104	4319	5849	7911	11217
River Rch & RM=North Main,reach 1					,10000.		
77	521	1431	3243	4358	5860	7916	11217
River Rch & RM=North Main,reach 1					,8000.		
96	520	1430	3292	4458	5868	7978	11212
River Rch & RM=North Main,reach 1					,2000.		
109	603	1447	3576	4920	6522	8929	11212

Flow Title=Raymondville - Revised Existing

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=raymondville,Reach 8					,231612		
1	2	58	343	711	1224	2130	2929
River Rch & RM=raymondville,Reach 8					,168304		
1	71	293	1110	2080	3441	5898	8176
River Rch & RM=raymondville,reach 2					,164919		
1	70	233	620	1280	2416	4848	7561
River Rch & RM=raymondville,reach 2					,150792		
1	119	369	957	1830	3114	5526	8648
River Rch & RM=raymondville,reach 2					,149670		
1	96	307	792	1290	1866	3357	5055
River Rch & RM=raymondville,reach 3 (south)					,144530		
1	9	67	200	342	526	844	1146
River Rch & RM=raymondville,reach 1					,109185		
1	100	342	919	1436	2061	3476	5206
River Rch & RM=raymondville,reach 1					,86117		
1	162	553	1389	2200	3169	5226	7325
River Rch & RM=raymondville,reach 1					,69075		
1	186	658	1537	2345	3414	5734	8249
River Rch & RM=raymondville,reach 1					,54733		
1	198	698	1607	2449	3564	5982	8639
River Rch & RM=raymondville,reach 1					,52753		
18	190	656	1389	2042	3102	5481	8058
River Rch & RM=raymondville,reach 1					,34845		
82	429	891	1715	2255	2856	4710	7246
River Rch & RM=La Sal Vieja,Reach 1					,15060		
1	25	113	586	982	1341	1698	1390

Flow Title=Raymondville - Ultimate

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=raymondville,Reach 8								
1	2	58	343	711	1224	2130	2929	,231612
River Rch & RM=raymondville,Reach 8								
1	71	293	1110	2079	3445	5904	8176	,168304
River Rch & RM=raymondville,reach 2								
1	70	239	626	1293	2430	4874	7561	,164919
River Rch & RM=raymondville,reach 2								
1	119	372	968	1839	3118	5546	8648	,150792
River Rch & RM=raymondville,reach 2								
1	96	310	799	1292	1870	3369	5055	,149670
River Rch & RM=raymondville,reach 3 (south)								
1	9	67	201	343	528	846	1148	,144530
River Rch & RM=raymondville,reach 1								
1	100	345	927	1439	2065	3488	5206	,109185
River Rch & RM=raymondville,reach 1								
1	162	553	1391	2204	3176	5245	7345	,86117
River Rch & RM=raymondville,reach 1								
1	186	658	1539	2348	3420	5752	8265	,69075
River Rch & RM=raymondville,reach 1								
1	198	699	1609	2452	3570	6000	8657	,54733
River Rch & RM=raymondville,reach 1								
18	190	656	1391	2046	3108	5499	8075	,52753
River Rch & RM=raymondville,reach 1								
82	429	891	1715	2255	2856	4724	7258	,34845
River Rch & RM=La Sal Vieja,Reach 1								
1	25	110	579	974	1339	1711	1390	,15060

Flow Title=Proposed - 10% Diversion 2

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4					,331370		
17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 2					,157900		
1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2					,144259		
13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2					,132334		
14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2					,117690		
15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)					,315796		
17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 3 (south)					,315287		
17	123	261	569	889	1298	1995	2652
River Rch & RM=North Main,reach 3 (south)					,286897		
57	263	524	1044	1567	2228	3352	4412
River Rch & RM=North Main,reach 3 (south)					,271000		
81	357	684	1306	1925	2703	4016	5237
River Rch & RM=North Main,reach 3 (south)					,260000		
94	433	829	1565	2291	3206	4753	6165
River Rch & RM=North Main,reach 3 (south)					,250000		
94	433	838	1630	2428	3444	5182	6802
River Rch & RM=North Main,below diversion					,112500		
14	222	508	1045	2105	3525	5815	8125
River Rch & RM=North Main,below diversion					,105420		
14	223	519	1136	1918	3235	5062	7583
River Rch & RM=North Main,below diversion					,98900		
14	223	518	1152	1957	3301	5090	7683
River Rch & RM=North Main,below diversion					,73000		
31	279	568	1341	2165	3291	5005	7282
River Rch & RM=North Main,reach 1					,233824		
117	672	1368	2975	4660	6593	9167	11576
River Rch & RM=North Main,reach 1					,188000		
80	498	1081	2307	3399	4719	7370	10089
River Rch & RM=North Main,reach 1					,150000.		
80	498	1098	2281	3366	4598	7163	9932
River Rch & RM=North Main,reach 1					,136000.		
80	503	1127	2317	3394	4615	7186	9953
River Rch & RM=North Main,reach 1					,132000.		
79	502	1130	2313	3388	4548	7131	9933
River Rch & RM=North Main,reach 1					,116000.		
79	502	1141	2327	3399	4547	7124	9936
River Rch & RM=North Main,reach 1					,110000.		
78	504	1243	2639	3859	5336	7585	10085
River Rch & RM=North Main,reach 1					,84000.		
78	504	1262	2665	3889	5379	7663	10151
River Rch & RM=North Main,reach 1					,68373		
77	516	1379	2917	4268	5813	8436	11410
River Rch & RM=North Main,reach 1					,52275		
76	509	1373	2920	4262	5802	8251	10865
River Rch & RM=North Main,reach 1					,29585		
74	505	1396	3104	4305	5837	7899	10765
River Rch & RM=North Main,reach 1					,10000.		
74	505	1401	3243	4357	5848	7904	10776
River Rch & RM=North Main,reach 1					,8000.		
96	505	1401	3292	4457	5868	7978	10746
River Rch & RM=North Main,reach 1					,2000.		
109	603	1418	3575	4920	6522	8929	10850
River Rch & RM=raymondville,Reach 8					,296300		
1	17	52	151	363	820	1704	2458
River Rch & RM=raymondville,Reach 8					,279700		
1	17	52	152	307	589	1198	1876
River Rch & RM=raymondville,Reach 8					,260550		
1	26	56	270	539	923	1514	2115
River Rch & RM=raymondville,Reach 8					,240200		
3	24	73	398	803	1359	2206	2996
River Rch & RM=raymondville,Reach 8					,168304		
3	75	303	1146	2137	3507	5899	8107

River Rch & RM=raymondville,reach 2					,164919			
3	63	141	489	1010	1747	4547	7752	
River Rch & RM=raymondville,reach 2					,150792			
3	111	315	821	1518	2558	5036	8565	
River Rch & RM=raymondville,reach 2					,149670			
3	91	283	694	1202	1714	3224	5186	
River Rch & RM=raymondville,reach 3 (south)					,144530			
1	9	67	201	343	528	846	1148	
River Rch & RM=raymondville,reach 1					,109185			
3	95	315	827	1346	1918	3351	5312	
River Rch & RM=raymondville,reach 1					,86117			
3	161	549	1371	2190	3160	5217	7333	
River Rch & RM=raymondville,reach 1					,69075			
3	185	653	1521	2332	3398	5717	8244	
River Rch & RM=raymondville,reach 1					,54733			
3	197	694	1594	2439	3552	5968	8639	
River Rch & RM=raymondville,reach 1					,52753			
18	189	650	1371	2015	3073	5458	8046	
River Rch & RM=raymondville,reach 1					,34845			
82	429	891	1714	2255	2856	4673	7211	
River Rch & RM=La Sal Vieja,Reach 1					,15060			
1	34	190	743	1278	1876	1739	1182	

Flow Title=Proposed - 10% Diversion Exist Dev 2

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4	12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 2	1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2	13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2	14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2	15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)	12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 3 (south)	12	94	208	475	760	1133	1782	2403
River Rch & RM=North Main,reach 3 (south)	40	208	436	903	1384	2002	3069	4084
River Rch & RM=North Main,reach 3 (south)	64	301	594	1163	1740	2473	3728	4913
River Rch & RM=North Main,reach 3 (south)	77	378	741	1425	2109	2978	4467	5843
River Rch & RM=North Main,reach 3 (south)	77	378	751	1491	2247	3218	4896	6480
River Rch & RM=North Main,below diversion	14	222	508	1045	2105	3500	5815	8125
River Rch & RM=North Main,below diversion	14	223	519	1136	1918	3216	5056	7581
River Rch & RM=North Main,below diversion	14	223	518	1152	1957	3283	5082	7681
River Rch & RM=North Main,below diversion	31	279	609	1341	2135	3274	4996	7280
River Rch & RM=North Main,reach 1	100	615	1277	2832	4477	6370	8881	11243
River Rch & RM=North Main,reach 1	69	459	1017	2210	3297	4576	7099	9768
River Rch & RM=North Main,reach 1	68	459	1033	2193	3268	4467	6901	9626
River Rch & RM=North Main,reach 1	68	464	1060	2231	3297	4485	6923	9646
River Rch & RM=North Main,reach 1	68	463	1063	2229	3292	4427	6868	9631
River Rch & RM=North Main,reach 1	68	464	1073	2246	3305	4495	6861	9634
River Rch & RM=North Main,reach 1	67	466	1172	2606	3832	5317	7569	9919
River Rch & RM=North Main,reach 1	67	466	1190	2638	3864	5358	7647	10137
River Rch & RM=North Main,reach 1	66	478	1306	2899	4250	5798	8422	11397
River Rch & RM=North Main,reach 1	65	472	1303	2903	4244	5787	8236	10851
River Rch & RM=North Main,reach 1	64	470	1327	3103	4291	5824	7883	10745
River Rch & RM=North Main,reach 1	64	470	1332	3243	4357	5834	7889	10756
River Rch & RM=North Main,reach 1	96	497	1332	3292	4457	5868	7978	10725
River Rch & RM=North Main,reach 1	109	603	1350	3575	4920	6522	8929	10850
River Rch & RM=raymondville,Reach 8	1	17	52	151	363	845	1704	2458
River Rch & RM=raymondville,Reach 8	1	17	52	152	307	602	1133	1878
River Rch & RM=raymondville,Reach 8	1	17	56	270	539	926	1684	2120
River Rch & RM=raymondville,Reach 8	3	24	73	398	803	1361	2280	2999
River Rch & RM=raymondville,Reach 8	3	75	303	1146	2137	3508	5936	8109

River Rch & RM=raymondville, reach 2						,164919		
3	62	133	489	1010	1756	3718	7639	
River Rch & RM=raymondville, reach 2						,150792		
3	110	307	821	1520	2564	4470	8467	
River Rch & RM=raymondville, reach 2						,149670		
3	90	280	692	1202	1713	2904	5147	
River Rch & RM=raymondville, reach 3 (south)						,144530		
1	9	67	200	342	526	844	1146	
River Rch & RM=raymondville, reach 1						,109185		
3	94	312	824	1346	1918	3068	5277	
River Rch & RM=raymondville, reach 1						,86117		
3	161	548	1368	2187	3154	5234	7316	
River Rch & RM=raymondville, reach 1						,69075		
3	185	652	1519	2330	3393	5736	8230	
River Rch & RM=raymondville, reach 1						,54733		
3	197	694	1592	2437	3547	5986	8624	
River Rch & RM=raymondville, reach 1						,52753		
18	189	649	1369	2012	3067	5477	8032	
River Rch & RM=raymondville, reach 1						,34845		
82	429	891	1714	2255	2856	4684	7200	
River Rch & RM=La Sal Vieja, Reach 1						,15060		
1	35	198	743	1278	1869	2458	1193	



Flow Title=Proposed - 25% Diversion

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4	17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 2	1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2	13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2	14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2	15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)	17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 3 (south)	17	123	261	569	889	1298	1995	2652
River Rch & RM=North Main,reach 3 (south)	57	263	524	1044	1567	2228	3352	4412
River Rch & RM=North Main,reach 3 (south)	81	357	684	1306	1925	2703	4016	5237
River Rch & RM=North Main,reach 3 (south)	94	433	829	1565	2291	3206	4753	6165
River Rch & RM=North Main,reach 3 (south)	94	433	838	1630	2428	3444	5182	6802
River Rch & RM=North Main,below diversion	11	164	361	785	1580	2700	3845	5600
River Rch & RM=North Main,below diversion	11	167	379	880	1517	2546	3551	4853
River Rch & RM=North Main,below diversion	11	167	378	896	1573	2645	3669	4959
River Rch & RM=North Main,below diversion	28	225	474	1085	1812	2685	3686	4893
River Rch & RM=North Main,reach 1	115	628	1265	2722	4319	6086	8735	10949
River Rch & RM=North Main,reach 1	79	466	1005	2131	3219	4396	6954	9519
River Rch & RM=North Main,reach 1	78	466	1017	2121	3193	4299	6723	9227
River Rch & RM=North Main,reach 1	78	471	1041	2160	3229	4321	6750	9267
River Rch & RM=North Main,reach 1	78	470	1042	2160	3225	4273	6674	9224
River Rch & RM=North Main,reach 1	78	470	1051	2180	3241	4459	6663	9225
River Rch & RM=North Main,reach 1	77	472	1141	2536	3783	5288	7557	9904
River Rch & RM=North Main,reach 1	76	472	1155	2576	3822	5333	7636	10123
River Rch & RM=North Main,reach 1	76	483	1262	2850	4215	5778	8413	11383
River Rch & RM=North Main,reach 1	74	476	1258	2856	4210	5767	8226	10840
River Rch & RM=North Main,reach 1	73	473	1277	3102	4262	5805	7874	10731
River Rch & RM=North Main,reach 1	73	473	1281	3241	4357	5816	7880	10743
River Rch & RM=North Main,reach 1	96	497	1281	3291	4457	5868	7978	10712
River Rch & RM=North Main,reach 1	109	603	1340	3575	4920	6522	8929	10850
River Rch & RM=raymondville,Reach 8	6	69	160	395	887	1645	3673	4983
River Rch & RM=raymondville,Reach 8	5	68	159	414	804	1447	3088	4526
River Rch & RM=raymondville,Reach 8	5	67	166	529	986	1536	3163	4675
River Rch & RM=raymondville,Reach 8	5	65	178	624	1186	1705	2817	4264
River Rch & RM=raymondville,Reach 8	5	109	402	1342	2463	3863	6112	8322

River Rch & RM=raymondville, reach 2					,164919		
5	77	189	532	1096	2069	4833	7958
River Rch & RM=raymondville, reach 2					,150792		
5	117	332	860	1317	2708	5500	8925
River Rch & RM=raymondville, reach 2					,149670		
5	96	286	710	1130	1632	3402	5391
River Rch & RM=raymondville, reach 3 (south)					,144530		
1	9	67	201	343	528	846	1148
River Rch & RM=raymondville, reach 1					,109185		
5	100	320	842	1302	1852	3526	5522
River Rch & RM=raymondville, reach 1					,86117		
5	161	548	1373	2192	3160	5237	7314
River Rch & RM=raymondville, reach 1					,69075		
5	185	652	1523	2333	3393	5726	8210
River Rch & RM=raymondville, reach 1					,54733		
5	197	694	1595	2440	3548	5979	8609
River Rch & RM=raymondville, reach 1					,52753		
18	189	651	1374	2011	3058	5466	8012
River Rch & RM=raymondville, reach 1					,34845		
82	429	891	1714	2255	2856	4683	7187
River Rch & RM=La Sal Vieja, Reach 1					,15060		
1	47	238	766	1308	2030	1790	1235

Flow Title=Proposed - 25% Diversion Exist Dev

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4					,331370		
12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 2					,157900		
1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2					,144259		
13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2					,132334		
14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2					,117690		
15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)					,315796		
12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 3 (south)					,315287		
12	94	208	475	760	1133	1782	2403
River Rch & RM=North Main,reach 3 (south)					,286897		
40	208	436	903	1384	2002	3069	4084
River Rch & RM=North Main,reach 3 (south)					,271000		
64	301	594	1163	1740	2473	3728	4913
River Rch & RM=North Main,reach 3 (south)					,260000		
77	378	741	1425	2109	2978	4467	5843
River Rch & RM=North Main,reach 3 (south)					,250000		
77	378	751	1491	2247	3218	4896	6480
River Rch & RM=North Main,below diversion					,112500		
11	164	361	785	1580	2700	4265	5600
River Rch & RM=North Main,below diversion					,105420		
11	167	379	880	1517	2546	3822	4970
River Rch & RM=North Main,below diversion					,98900		
11	167	378	896	1573	2645	3905	5078
River Rch & RM=North Main,below diversion					,73000		
28	225	474	1085	1812	2685	3890	5023
River Rch & RM=North Main,reach 1					,233824		
98	572	1175	2580	4134	5866	8486	10706
River Rch & RM=North Main,reach 1					,188000		
67	427	940	2035	3121	4254	6726	9276
River Rch & RM=North Main,reach 1					,150000.		
67	428	950	2044	3100	4178	6508	8993
River Rch & RM=North Main,reach 1					,136000.		
67	432	975	2103	3140	4202	6533	9032
River Rch & RM=North Main,reach 1					,132000.		
66	431	974	2099	3136	4165	6450	8990
River Rch & RM=North Main,reach 1					,116000.		
66	432	982	2130	3157	4448	6438	8992
River Rch & RM=North Main,reach 1					,110000.		
66	434	1069	2503	3759	5266	7552	9891
River Rch & RM=North Main,reach 1					,84000.		
65	434	1083	2548	3797	5314	7632	10109
River Rch & RM=North Main,reach 1					,68373		
65	445	1190	2833	4198	5763	8409	11370
River Rch & RM=North Main,reach 1					,52275		
63	440	1187	2839	4193	5752	8221	10826
River Rch & RM=North Main,reach 1					,29585		
62	437	1208	3102	4250	5791	7868	10714
River Rch & RM=North Main,reach 1					,10000.		
62	437	1222	3241	4357	5803	7873	10725
River Rch & RM=North Main,reach 1					,8000.		
96	497	1224	3291	4457	5868	7978	10692
River Rch & RM=North Main,reach 1					,2000.		
109	603	1340	3574	4920	6522	8929	10850
River Rch & RM=raymondville,Reach 8					,296300		
6	69	160	395	887	1645	3253	4983
River Rch & RM=raymondville,Reach 8					,279700		
5	68	159	414	804	1447	2763	4434
River Rch & RM=raymondville,Reach 8					,260550		
5	67	166	529	989	1536	2853	4578
River Rch & RM=raymondville,Reach 8					,240200		
5	65	178	624	1189	1705	2603	4139
River Rch & RM=raymondville,Reach 8					,168304		
5	109	402	1342	2469	3863	6112	8313

River Rch & RM=raymondville, reach 2	5	82	189	532	1099	,164919	2079	4581	7768
River Rch & RM=raymondville, reach 2	5	120	333	861	1325	,150792	2716	5296	8770
River Rch & RM=raymondville, reach 2	5	99	288	711	1131	,149670	1633	3310	5326
River Rch & RM=raymondville, reach 3 (south)	1	9	67	200	342	,144530	526	844	1146
River Rch & RM=raymondville, reach 1	5	103	321	842	1302	,109185	1852	3442	5458
River Rch & RM=raymondville, reach 1	5	161	549	1373	2189	,86117	3155	5222	7292
River Rch & RM=raymondville, reach 1	5	185	653	1523	2331	,69075	3389	5714	8192
River Rch & RM=raymondville, reach 1	5	197	695	1595	2438	,54733	3544	5966	8589
River Rch & RM=raymondville, reach 1	18	190	651	1374	2009	,52753	3054	5453	7993
River Rch & RM=raymondville, reach 1	82	429	891	1714	2255	,34845	2856	4671	7171
River Rch & RM=La Sal Vieja, Reach 1	1	43	238	765	1309	,15060	2021	1969	1240

Flow Title=Proposed - 50% Diversion

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4	17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 2	1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2	13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2	14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2	15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)	17	123	233	410	573	770	1093	1392
River Rch & RM=North Main,reach 3 (south)	17	123	261	569	889	1298	1995	2652
River Rch & RM=North Main,reach 3 (south)	57	263	524	1044	1567	2228	3352	4412
River Rch & RM=North Main,reach 3 (south)	81	357	684	1306	1925	2703	4016	5237
River Rch & RM=North Main,reach 3 (south)	94	433	829	1565	2291	3206	4753	6165
River Rch & RM=North Main,reach 3 (south)	94	433	838	1630	2428	3444	5182	6802
River Rch & RM=North Main,below diversion	6	110	246	550	1180	1975	3215	4000
River Rch & RM=North Main,below diversion	6	115	269	649	1200	1878	3002	3703
River Rch & RM=North Main,below diversion	6	115	268	665	1249	1979	3176	3903
River Rch & RM=North Main,below diversion	23	175	368	856	1516	2106	3208	3932
River Rch & RM=North Main,reach 1	111	588	1180	2496	3976	5665	8326	10632
River Rch & RM=North Main,reach 1	76	437	943	1974	3035	4140	6547	9192
River Rch & RM=North Main,reach 1	76	436	951	2001	3014	4076	6297	8892
River Rch & RM=North Main,reach 1	76	441	973	2053	3060	4109	6325	8932
River Rch & RM=North Main,reach 1	75	440	971	2051	3056	4078	6206	8885
River Rch & RM=North Main,reach 1	75	440	979	2074	3101	4409	6192	8884
River Rch & RM=North Main,reach 1	74	441	1059	2440	3700	5229	7538	9869
River Rch & RM=North Main,reach 1	74	441	1070	2493	3742	5283	7620	10088
River Rch & RM=North Main,reach 1	73	452	1168	2790	4154	5739	8398	11350
River Rch & RM=North Main,reach 1	72	445	1164	2798	4150	5728	8210	10810
River Rch & RM=North Main,reach 1	70	442	1180	3101	4233	5770	7858	10695
River Rch & RM=North Main,reach 1	70	442	1198	3240	4357	5782	7864	10706
River Rch & RM=North Main,reach 1	96	497	1201	3290	4457	5868	7978	10673
River Rch & RM=North Main,reach 1	109	603	1340	3574	4919	6522	8929	10850
River Rch & RM=raymondville,Reach 8	10	120	275	629	1287	2370	4303	6583
River Rch & RM=raymondville,Reach 8	10	108	267	656	1240	2315	4071	6197
River Rch & RM=raymondville,Reach 8	9	108	270	770	1434	2395	4207	6408
River Rch & RM=raymondville,Reach 8	8	104	263	831	1497	2298	3869	5757
River Rch & RM=raymondville,Reach 8	8	146	486	1523	2763	4255	6945	9289

River Rch & RM=raymondville,reach 2						,164919		
8	93	230	671	1363	2177	5779	8918	
River Rch & RM=raymondville,reach 2						,150792		
8	125	356	942	1823	2704	6214	9738	
River Rch & RM=raymondville,reach 2						,149670		
7	104	298	787	1264	1810	4129	6269	
River Rch & RM=raymondville,reach 3 (south)						,144530		
1	9	67	201	343	528	846	1148	
River Rch & RM=raymondville,reach 1						,109185		
7	109	334	907	1437	1991	4256	6391	
River Rch & RM=raymondville,reach 1						,86117		
7	161	549	1375	2192	3163	5261	7349	
River Rch & RM=raymondville,reach 1						,69075		
7	185	653	1526	2336	3404	5769	8267	
River Rch & RM=raymondville,reach 1						,54733		
7	197	694	1597	2442	3556	6016	8659	
River Rch & RM=raymondville,reach 1						,52753		
18	190	651	1379	2028	3083	5517	8075	
River Rch & RM=raymondville,reach 1						,34845		
82	429	891	1714	2255	2856	4745	7259	
River Rch & RM=La Sal Vieja,Reach 1						,15060		
1	63	280	923	1531	2121	1569	1107	

Flow Title=Proposed - 50% Diversion Exist Dev

Version=Version 3.0.1 Mar 2001

Number of Profiles= 8

Profile Names=2-year,5-year,10-year,25-year,50-year,100-year,250-year,500-year

River Rch & RM=North Main,reach 4					,331370		
12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 2					,157900		
1	2	3	40	100	188	352	515
River Rch & RM=North Main,reach 2					,144259		
13	81	153	482	1051	1858	3255	4804
River Rch & RM=North Main,reach 2					,132334		
14	204	468	962	1985	3435	6219	8788
River Rch & RM=North Main,reach 2					,117690		
15	224	511	1120	2355	4175	7265	10250
River Rch & RM=North Main,reach 3 (south)					,315796		
12	94	184	335	478	654	951	1229
River Rch & RM=North Main,reach 3 (south)					,315287		
12	94	208	475	760	1133	1782	2403
River Rch & RM=North Main,reach 3 (south)					,286897		
40	208	436	903	1384	2002	3069	4084
River Rch & RM=North Main,reach 3 (south)					,271000		
64	301	594	1163	1740	2473	3728	4913
River Rch & RM=North Main,reach 3 (south)					,260000		
77	378	741	1425	2109	2978	4467	5843
River Rch & RM=North Main,reach 3 (south)					,250000		
77	378	751	1491	2247	3218	4896	6480
River Rch & RM=North Main,below diversion					,112500		
6	110	246	550	1180	1975	3215	4150
River Rch & RM=North Main,below diversion					,105420		
6	115	269	649	1200	1878	3002	3792
River Rch & RM=North Main,below diversion					,98900		
6	115	268	665	1249	1979	3176	3977
River Rch & RM=North Main,below diversion					,73000		
23	175	368	973	1516	2106	3208	3993
River Rch & RM=North Main,reach 1					,233824		
94	531	1089	2353	3790	5442	8045	10323
River Rch & RM=North Main,reach 1					,188000		
65	397	877	1877	2949	4008	6270	8882
River Rch & RM=North Main,reach 1					,150000.		
64	397	885	1887	2962	4014	6271	8884
River Rch & RM=North Main,reach 1					,136000.		
64	402	907	1960	2930	3969	6007	8588
River Rch & RM=North Main,reach 1					,132000.		
64	401	905	1966	2976	4000	5899	8581
River Rch & RM=North Main,reach 1					,116000.		
64	401	912	2012	3057	4396	5977	8581
River Rch & RM=North Main,reach 1					,110000.		
63	403	988	2398	3667	5207	7521	9856
River Rch & RM=North Main,reach 1					,84000.		
63	403	997	2461	3708	5262	7604	10073
River Rch & RM=North Main,reach 1					,68373		
62	414	1092	2772	4125	5724	8384	11337
River Rch & RM=North Main,reach 1					,52275		
61	409	1091	2871	4122	5713	8195	10796
River Rch & RM=North Main,reach 1					,29585		
60	406	1170	3100	4219	5756	7843	10677
River Rch & RM=North Main,reach 1					,10000.		
60	429	1191	3240	4356	5768	7849	10688
River Rch & RM=North Main,reach 1					,8000.		
96	497	1194	3290	4457	5868	7978	10653
River Rch & RM=North Main,reach 1					,2000.		
109	603	1340	3574	4919	6522	8929	10850
River Rch & RM=raymondville,Reach 8					,296300		
10	120	275	629	1287	2370	4303	6433
River Rch & RM=raymondville,Reach 8					,279700		
10	108	267	656	1240	2315	4071	6071
River Rch & RM=raymondville,Reach 8					,260550		
9	108	270	770	1434	2395	4207	6284
River Rch & RM=raymondville,Reach 8					,240200		
8	104	263	831	1497	2298	3869	5660
River Rch & RM=raymondville,Reach 8					,168304		
8	146	486	1523	2762	4255	6845	9289

River Rch & RM=raymondville, reach 2	8	93	230	671	1381	,164919	2201	5773	8918
River Rch & RM=raymondville, reach 2	8	125	356	942	1824	,150792	2689	6211	9738
River Rch & RM=raymondville, reach 2	7	104	298	787	1266	,149670	1811	4130	6265
River Rch & RM=raymondville, reach 3 (south)	1	9	67	200	342	,144530	526	844	1146
River Rch & RM=raymondville, reach 1	7	109	334	906	1439	,109185	1990	4256	6385
River Rch & RM=raymondville, reach 1	7	161	549	1374	2190	,86117	3157	5243	7330
River Rch & RM=raymondville, reach 1	7	185	653	1525	2334	,69075	3398	5752	8252
River Rch & RM=raymondville, reach 1	7	197	694	1596	2440	,54733	3551	6000	8642
River Rch & RM=raymondville, reach 1	18	190	651	1378	2026	,52753	3077	5501	8059
River Rch & RM=raymondville, reach 1	82	429	891	1714	2255	,34845	2856	4732	7247
River Rch & RM=La Sal Vieja, Reach 1	1	63	280	923	1519	,15060	2096	1546	1107



## Stage-Discharge Back-up Data

### North Main - Revised Existing

Sta	Q (cfs)	Cumulative Volume (acre-ft)	Incremental Volume (acre-ft)
<b>River Reach 1</b>			
188000	1000	2792.1	527.2
188000	2000	4269.7	816.2
188000	4000	12916.8	2044.3
188000	6000	27357.5	5147.3
188000	8000	40448.6	7902.7
188000	10000	51121.8	9972.5
188000	15000	74430.0	13505.4
150000	1000	2264.9	249.3
150000	2000	3453.5	385.4
150000	4000	10872.4	1661.6
150000	6000	22210.2	3718.7
150000	8000	32546.0	5233.8
150000	10000	41149.3	6730.1
150000	15000	60924.6	9844.1
132000	1000	2015.6	202.5
132000	2000	3068.1	312.7
132000	4000	9210.9	870.9
132000	6000	18491.5	2707.0
132000	8000	27312.1	3524.0
132000	10000	34419.3	4130.9
132000	15000	51080.5	5508.8
116000	1000	1813.1	71.1
116000	2000	2755.3	113.6
116000	4000	8340.0	428.0
116000	6000	15784.6	987.6
116000	8000	23788.2	1443.8
116000	10000	30288.4	1838.9
116000	15000	45571.7	2521.4
110000	1000	1742.0	325.1
110000	2000	2641.7	531.6
110000	4000	7912.0	2195.0
110000	6000	14797.0	4313.7
110000	8000	22344.4	5830.2
110000	10000	28449.5	7281.0
110000	15000	43050.4	10294.9
84000	1000	1417.0	208.7
84000	2000	2110.1	319.1
84000	4000	5717.1	1791.9
84000	6000	10483.3	3107.6

### Stage-Discharge Back-up Data

84000	8000	16514.2	4264.7
84000	10000	21168.5	5131.9
84000	15000	32755.5	7190.2
68373	1000	1208.2	197.3
68373	2000	1791.1	298.2
68373	4000	3925.1	1677.6
68373	6000	7375.7	3541.8
68373	8000	12249.5	4950.7
68373	10000	16036.6	5984.6
68373	15000	25565.2	8436.5
52275	1000	1011.0	433.0
52275	2000	1492.8	639.6
52275	4000	2247.5	954.7
52275	6000	3833.9	1433.1
52275	8000	7298.8	2543.3
52275	10000	10052.1	3518.8
52275	15000	17128.7	7805.3
29585	1000	578.0	388.6
29585	2000	853.3	558.7
29585	4000	1292.9	807.9
29585	6000	2400.9	1617.2
29585	8000	4755.6	3723.9
29585	10000	6533.3	4996.1
29585	15000	9323.4	6822.4
10000	1000	189.4	130.8
10000	2000	294.6	184.8
10000	4000	485.0	301.3
10000	6000	783.7	542.8
10000	8000	1031.7	727.6
10000	10000	1537.2	1178.3
10000	15000	2501.0	2020.7
2000	1000	58.6	58.6
2000	2000	109.8	109.8
2000	4000	183.7	183.7
2000	6000	240.9	240.9
2000	8000	304.1	304.1
2000	10000	358.8	358.8
2000	15000	480.3	480.3
0	1000		
0	2000		
0	4000		
0	6000		
0	8000		
0	10000		
0	15000		

**Raymondville - Revised Existing**

Sta	Q (cfs)	Cumulative Volume (acre-ft)	Incremental Volume (acre-ft)
<b>Raymondville Reaches 8, 2, and 1</b>			
231612	1000	947.91	880.95
231612	2000	4052.97	2991.98
231612	3000	7268.9	5186.12
231612	4000	9067.88	6885.54
231612	5000	11140.54	8871.5
231612	7500	14717.89	12258.43
231612	10000	18591.36	15897
169710	1000	66.96	
169710	2000	1060.99	
169710	3000	2082.78	
169710	4000	2182.34	
169710	5000	2269.04	
169710	7500	2459.46	
169710	10000	2694.36	
168304	1000	52.08	31.13
168304	2000	853.47	583.44
168304	3000	1642.01	1135
168304	4000	1720.24	1185.65
168304	5000	1787.49	1228.68
168304	7500	1931.99	1320.84
168304	10000	2109.54	1435.91
166078	1000	20.95	
166078	2000	270.03	
166078	3000	507.01	
166078	4000	534.59	
166078	5000	558.81	
166078	7500	611.15	
166078	10000	673.63	
164919	1000	1566.71	196.88
164919	2000	5304.88	297.78
164919	3000	8689.46	546.45
164919	4000	11982.84	982.63
164919	5000	16006.84	1367.29
164919	7500	24433.7	2212.32
164919	10000	28865.88	2871.43
150792	1000	1369.83	1350.77
150792	2000	5007.1	4980.13
150792	3000	8143.01	8032.34
150792	4000	11000.21	10778.4

150792	5000	14639.55	14308.23
150792	7500	22221.38	21706.77
150792	10000	25994.45	25407.26
149670	1000	1354.25	
149670	2000	4988.21	
149670	3000	8121.95	
149670	4000	10977.07	
149670	5000	14591.18	
149670	7500	22091.05	
149670	10000	25818.44	
110608	1000	19.06	
110608	2000	26.97	
110608	3000	110.67	
110608	4000	221.81	
110608	5000	331.32	
110608	7500	514.61	
110608	10000	587.19	
109185	1000	2593.63	312.83
109185	2000	9040.96	999.33
109185	3000	13801.57	1918.42
109185	4000	17796.32	2687.59
109185	5000	20862.55	3301.82
109185	7500	27918.58	4973.7
109185	10000	33726.79	6268.16
86117	1000	2280.8	449.95
86117	2000	8041.63	1513.48
86117	3000	11883.15	2080.21
86117	4000	15108.73	2620.81
86117	5000	17560.73	3076.17
86117	7500	22944.88	4216.6
86117	10000	27458.63	5147.07
69075	1000	1830.85	208.42
69075	2000	6528.15	1163.8
69075	3000	9802.94	1981.25
69075	4000	12487.92	2627.06
69075	5000	14484.56	3127.48
69075	7500	18728.28	4076.54
69075	10000	22311.56	4891.58
54733	1000	1622.43	555.09
54733	2000	5364.35	2027.13
54733	3000	7821.69	2912.69
54733	4000	9860.86	3589.64
54733	5000	11357.08	4021.27
54733	7500	14651.74	5120.12
54733	10000	17419.98	6031.23

34845	1000	1067.34	1067.34
34845	2000	3337.22	3337.22
34845	3000	4909	4909
34845	4000	6271.22	6271.22
34845	5000	7335.81	7335.81
34845	7500	9531.62	9531.62
34845	10000	11388.75	11388.75

0	1000
0	2000
0	3000
0	4000
0	5000
0	7500
0	10000

## Stage-Discharge Back-up Data

### Raymondville - 10% Diversion

Sta	Q (cfs)	Cumulative Volume (acre-ft)	Incremental Volume (acre-ft)
<b>River Reach 8</b>			
296300	100	243.9	60.5
296300	300	868.0	466.1
296300	500	1734.2	1122.7
296300	1000	4484.8	3117.2
296300	3000	13902.7	7667.6
296300	7500	32626.2	13792.6
296300	10000	41547.1	17233.3
296300	15000	55999.2	23413.1
260550	100	183.4	39.7
260550	300	401.9	86.8
260550	500	611.5	124.7
260550	1000	1367.6	263.5
260550	3000	6235.0	1229.1
260550	7500	18833.6	3325.6
260550	10000	24313.8	3788.3
260550	15000	32586.2	4842.5
240200	100	143.7	133.1
240200	300	315.0	292.2
240200	500	486.9	454.5
240200	1000	1104.1	1053.6
240200	3000	5005.9	4913.6
240200	7500	15508.0	13784.2
240200	10000	20525.5	18273.0
240200	15000	27743.6	24614.9
168304	100	10.6	6.5
168304	300	22.8	14.1
168304	500	32.4	20.1
168304	1000	50.5	31.1
168304	3000	92.3	55.7
168304	7500	1723.8	1179.8
168304	10000	2252.5	1531.0
168304	15000	3128.7	2099.8
166078	100	4.1	
166078	300	8.7	
166078	500	12.3	
166078	1000	19.3	
166078	3000	36.6	
166078	7500	544.0	
166078	10000	721.5	
166078	15000	1028.9	

## Stage-Discharge Back-up Data

### Raymondville - 25. % Diversion

Sta	Q (cfs)	Cumulative Volume (acre-ft)	Incremental Volume (acre-ft)
<b>River Reach 8</b>			
296300	100	249.2	64.7
296300	300	548.7	144.6
296300	500	848.4	233.2
296300	1000	2168.0	852.2
296300	3000	10392.9	4420.8
296300	7500	28113.6	9869.0
296300	10000	36782.6	13022.8
296300	15000	50234.4	18148.2
260550	100	184.5	40.4
260550	300	404.2	87.1
260550	500	615.2	124.9
260550	1000	1315.8	203.8
260550	3000	5972.1	953.8
260550	7500	18244.7	2713.0
260550	10000	23759.8	3219.1
260550	15000	32086.1	4328.1
240200	100	144.1	133.5
240200	300	317.1	294.2
240200	500	490.3	457.9
240200	1000	1112.1	1061.6
240200	3000	5018.3	4926.0
240200	7500	15531.7	13807.9
240200	10000	20540.7	18288.2
240200	15000	27758.0	24629.3
168304	100	10.6	6.5
168304	300	22.8	14.1
168304	500	32.4	20.1
168304	1000	50.5	31.1
168304	3000	92.3	55.7
168304	7500	1723.8	1179.8
168304	10000	2252.5	1531.0
168304	15000	3128.7	2099.8
166078	100	4.1	
166078	300	8.7	
166078	500	12.3	
166078	1000	19.3	
166078	3000	36.6	
166078	7500	544.0	
166078	10000	721.5	
166078	15000	1028.9	

## Stage-Discharge Back-up Data

### Raymondville - 25. % Diversion

Sta	Q (cfs)	Cumulative Volume (acre-ft)	Incremental Volume (acre-ft)
<b>River Reach 8</b>			
296300	100	249.65	61.09
296300	300	557.38	135.31
296300	500	838.08	196.91
296300	1000	1694.28	329.32
296300	3000	6929.67	1303.22
296300	7500	22717.67	5462.32
296300	10000	30392.91	7476.87
296300	15000	43370.2	12322.6
260550	100	188.56	36.12
260550	300	422.07	82.09
260550	500	641.17	122.03
260550	1000	1364.96	206.52
260550	3000	5626.45	546.55
260550	7500	17255.35	1642.38
260550	10000	22916.04	2304.29
260550	15000	31047.6	3221.39
240200	100	152.44	141.85
240200	300	339.98	317.14
240200	500	519.14	486.74
240200	1000	1158.44	1107.98
240200	3000	5079.9	4987.59
240200	7500	15612.97	13889.19
240200	10000	20611.75	18359.23
240200	15000	27826.21	24697.5
168304	100	10.59	6.52
168304	300	22.84	14.14
168304	500	32.4	20.07
168304	1000	50.46	31.13
168304	3000	92.31	55.71
168304	7500	1723.78	1179.82
168304	10000	2252.52	1531.01
168304	15000	3128.71	2099.79
166078	100	4.07	
166078	300	8.7	
166078	500	12.33	
166078	1000	19.33	
166078	3000	36.6	
166078	7500	543.96	
166078	10000	721.51	
166078	15000	1028.92	



**North Main / Raymondville Drains  
Structure Database**

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
1	Structures	Raymondville3	IWR_1S	110270	Left	\$101.30	36	35	1 structure
2	Structures	Raymondville128	IWR_1S	109085	Right	\$74.50	36	35	2 structures
3	Structures	Raymondville3	IWR_1S	114860	Right	\$62.93	38	37	2 structures
4	Structures	Raymondville3	IWR_1S	114860	Right	\$425.08	38	37	17 structures
5	Structures	Raymondville3	IWR_1S	121629	Left	\$47.10	34	33	1 structure
6	Structures	Raymondville3	IWR_1S	132244	Right	\$10.01	35	34	1 structure
7.1	Structures	Raymondville3	IWR_1S	133745	Left	\$29.27	36	35	1 structure
7.2	Structures	Raymondville3	IWR_1S	133745	Right	\$29.27	36	35	1 structure
8	Structures	Raymondville3	IWR_1S	135048	Right	\$35.48	36	35	2 structures
9	Structures	Raymondville128	IWR_1S	61180	Left	\$0.30	19	18	1 structure
10	Structures	Raymondville128	IWR_1S	78117	Right	\$0.10	18	17	1 structure
11	Structures	Raymondville128	IWR_1S	90057	Right	\$0.80	31	30	1 structure
12	Structures	Raymondville128	IWR_1S	90057	Right	\$0.27	31	30	1 structure
13	Structures	Raymondville128	IWR_1S	34845	Right	\$481.54	16	15	2 structures
14	Structures	Raymondville128	IWR_1S	173765	Right	\$831.45	46	45	62 structures
15	Structures	Raymondville128	IWR_1S	171741	Left	\$7.09	44	43	1 structure
16	Structures	Raymondville128	IWR_1S	166128	Left	\$107.49	41	40	4 structures
17	Structures	LaSalVieja	IWR_1S	9650	Left	\$88.42	41	40	1 structure
18	Structures	Raymondville128	IWR_1S	155106	Left	\$7.94	38	37	1 structure
19	Structures	Raymondville128	IWR_1S	177727	Right	\$212.58	51	50	4 structures
20	Structures	Raymondville128	IWR_1S	187150	Right	\$38.55	47	46	1 structure
21	Structures	Raymondville128	IWR_1S	193324	Right	\$4.46	51	50	1 structure
22	Structures	Raymondville128	IWR_1S	169710	Right	\$47.14	43	42	2 structures
23	Structures	Raymondville128	IWR_1S	169710	Right	\$41.97	46	45	2 structures
25	Structures	Raymondville128	IWR_1S	246200	Left	\$1.72	77	76	1 structure
27	Structures	Raymondville128	IWR_1S	245400	Right	\$7.83	66	65	1 structure
31.1	Structures	NorthMain134	IWR_1S	222000	Right	\$96.48	68	67	4 structures
31.2	Structures	NorthMain134	IWR_1S	222000	Right	\$385.93	71	70	18 structures
32.1	Structures	NorthMain134	IWR_1S	220295	Right	\$234.39	67	66	13 structures
32.2	Structures	NorthMain134	IWR_1S	220295	Right	\$234.39	70	69	14 structures
33.1	Structures	NorthMain134	IWR_1S	220295	Right	\$116.78	70	69	6 structures
33.2	Structures	NorthMain134	IWR_1S	220295	Right	\$116.78	75	74	6 structures
33.3	Structures	NorthMain134	IWR_1S	220295	Right	\$100.10	81	80	6 structures
34.1	Structures	NorthMain134	IWR_1S	220295	Right	\$156.04	71	70	14 structures
34.2	Structures	NorthMain134	IWR_1S	220295	Right	\$156.04	77	76	14 structures
35	Structures	NorthMain134	IWR_1S	224978	Left	\$37.87	71	70	1 structure
36	Structures	NorthMain134	IWR_1S	227602	Right	\$433.40	66	65	33 structures
37.1	Structures	NorthMain134	IWR_1S	232833	Right	\$95.38	75	74	7 structures
37.2	Structures	NorthMain134	IWR_1S	232833	Right	\$95.38	79	78	8 structures
38	Structures	NorthMain134	IWR_1S	230198	Right	\$12.46	70	69	1 structure
39	Structures	NorthMain2BD	IWR_1S	65500	Left	\$19.95	71	70	2 structures
40.1	Structures	NorthMain2BD	IWR_1S	73000	Left	\$481.10	71	70	11 structures
40.2	Structures	NorthMain2BD	IWR_1S	73000	Left	\$481.10	76	75	11 structures
40.3	Structures	NorthMain2BD	IWR_1S	73000	Left	\$240.55	81	80	6 structures
40.4	Structures	NorthMain2BD	IWR_1S	73000	Right	\$601.38	71	70	14 structures
40.5	Structures	NorthMain2BD	IWR_1S	73000	Right	\$601.38	75	74	15 structures
42.1	Structures	NorthMain2BD	IWR_1S	69000	Right	\$21.52	71	70	1 structure
42.2	Structures	NorthMain2BD	IWR_1S	69000	Right	\$39.97	76	75	2 structures
43.1	Structures	NorthMain2BD	IWR_1S	74000	Right	\$173.26	72	71	6 structures
43.2	Structures	NorthMain2BD	IWR_1S	74000	Right	\$43.31	76	75	1 structure
44	Structures	NorthMain2BD	IWR_1S	76000	Right	\$151.40	72	71	8 structures
45	Structures	NorthMain2BD	IWR_1S	76000	Right	\$181.52	73	72	21 structures
46.1	Structures	NorthMain2BD	IWR_1S	77548	Left	\$75.19	74	73	8 structures
46.2	Structures	NorthMain2BD	IWR_1S	77548	Left	\$75.19	76	75	8 structures
47	Structures	NorthMain2BD	IWR_1S	87300	Right	\$120.35	76	75	3 structures
48	Structures	NorthMain2BD	IWR_1S	95000	Left	\$182.24	86	85	13 structures

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
49	Structures	NorthMain2BD	IWR_1S	95000	Right	\$343.58	85	84	20 structure
50	Structures	NorthMain2BD	IWR_1S	95000	Right	\$401.33	85	84	10 structures
51	Structures	NorthMain2BD	IWR_1S	97900	Left	\$37.28	85	84	1 structure
52	Structures	NorthMain2BD	IWR_1S	104800	Left	\$247.43	85	84	12 structures
55	Structures	NorthMain2BD	IWR_1S	105420	Left	\$298.90	86	85	14 structures
56	Structures	NorthMain2BD	IWR_1S	105420	Left	\$42.09	86	85	2 structures
57	Structures	NorthMain2BD	IWR_1S	111500	Right	\$1,093.98	84	83	36 structures
58	Structures	NorthMain2BD	IWR_1S	111500	Left	\$444.07	86	85	18 structures
59	Structures	NorthMain2BD	IWR_1S	111500	Left	\$485.05	84	83	24 structures
60	Structures	NorthMain2BD	IWR_1S	116403	Right	\$413.18	81	80	12 structures
61	Structures	NorthMain2BD	IWR_1S	116403	Right	\$185.09	81	80	8 structures
62	Structures	NorthMain2BD	IWR_1S	60700	Left	\$113.95	68	67	4 structures
63	Structures	NorthMain134	IWR_1S	250860	Left	\$710.89	71	70	28 structures
64	Structures	Raymondville128	IWR_1S	293500	Right	\$813.05	84	83	28 structures
65	Structures	Raymondville128	IWR_1S	293500	Right	\$480.05	86	85	17 structures
66	Structures	Raymondville128	IWR_1S	293500	Right	\$272.19	86	85	6 structures
67	Structures	Raymondville128	IWR_1S	293500	Right	\$50.72	86	85	1 structure
68	Structures	Raymondville128	IWR_1S	291800	Right	\$469.16	86	85	23 structures
69	Structures	Raymondville128	IWR_1S	289400	Right	\$916.50	86	85	46 structures
70	Structures	Raymondville128	IWR_1S	289400	Right	\$725.54	86	85	34 structures
71	Structures	Raymondville128	IWR_1S	291800	Right	\$82.03	86	85	2 structures
72	Structures	Raymondville128	IWR_1S	289400	Right	\$535.54	86	85	19 structures
73	Structures	Raymondville128	IWR_1S	289400	Right	\$1,545.25	86	85	21 structures
74	Structures	NorthMain134	IWR_1S	254845	Left	\$1,888.82	71	70	70 structures
76	Structures	NorthMain134	IWR_1S	258681	Left	\$153.75	74	73	12 structures
77	Structures	NorthMain2BD	IWR_1S	69000	Right	\$18.53	71	70	3 structures
78	Structures	NorthMain2BD	IWR_1S	73000	Right	\$259.62	73	72	9 structures
79	Structures	NorthMain134	IWR_1S	258681	Left	\$1,272.39	71	70	63 structures
81	Structures	NorthMain134	IWR_1S	258681	Left	\$269.54	68	67	23 structures
82	Structures	NorthMain134	IWR_1S	256121	Left	\$363.99	71	70	19 structures
83	Structures	NorthMain134	IWR_1S	256121	Left	\$213.16	71	70	13 structures
84	Structures	NorthMain134	IWR_1S	256121	Left	\$891.91	71	70	29 structures
85	Structures	NorthMain134	IWR_1S	256121	Left	\$392.21	71	70	16 structures
86	Structures	NorthMain134	IWR_1S	254845	Left	\$117.44	71	70	2 structures
87	Structures	NorthMain134	IWR_1S	254845	Left	\$121.92	71	70	7 structures
101	Structures	Raymondville128	IWR_1S	250350	Left	\$18.89	73	72	1 structure
102	Structures	Raymondville128	IWR_1S	252200	Right	\$18.96	87	86	1 structure
106	Structures	Raymondville128	IWR_1S	268100	Right	\$5,166.92	96	95	1 structure
107	Structures	Raymondville128	IWR_1S	268100	Right	\$5,166.92	96	95	1 structure
108	Structures	Raymondville128	IWR_1S	270300	Right	\$5,166.92	86	85	1 structure
109	Structures	Raymondville128	IWR_1S	270300	Right	\$5,166.92	91	90	1 structure
110	Structures	Raymondville128	IWR_1S	270300	Right	\$5,166.92	77	76	1 structure
111	Structures	Raymondville128	IWR_1S	272300	Right	\$5,166.92	81	80	1 structure
112	Structures	Raymondville128	IWR_1S	272300	Right	\$202.43	82	81	1 structure
113	Structures	Raymondville128	IWR_1S	273500	Right	\$225.78	86	85	1 structure
114	Structures	Raymondville128	IWR_1S	273500	Right	\$2.10	88	87	1 structure
118	Structures	Raymondville128	IWR_1S	279700	Left	\$44.13	82	81	1 structure
122	Structures	Raymondville128	IWR_1S	281800	Right	\$173.46	81	80	1 structure
123	Structures	Raymondville128	IWR_1S	285100	Right	\$229.90	87	86	1 structure
124	Structures	Raymondville128	IWR_1S	285100	Left	\$288.66	78	77	1 structure
125	Structures	Raymondville128	IWR_1S	289400	Right	\$4,150.43	88	87	1 structure
126	Structures	Raymondville128	IWR_1S	295300	Left	\$19.05	82	81	1 structure
127	Structures	Raymondville128	IWR_1S	295300	Right	\$130.38	82	81	1 structure
128	Structures	Raymondville128	IWR_1S	296300	Right	\$75.11	80	79	1 structure
R10002	Structures	NorthMain134	IWR_1S	128000	Left	\$30.03	36	35	1 structure
R10009	Structures	NorthMain134	IWR_1S	128000	Left	\$17.60	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R10037	Structures	NorthMain134	IWR_1S	128000	Left	\$28.28	36	35	1 structure
R10038	Structures	NorthMain134	IWR_1S	128000	Left	\$17.84	36	35	1 structure
R10057	Structures	NorthMain134	IWR_1S	128000	Left	\$18.04	35	34	1 structure
R10060	Structures	NorthMain134	IWR_1S	128000	Left	\$27.58	36	35	1 structure
R10085	Structures	NorthMain134	IWR_1S	129441	Left	\$14.45	36	35	1 structure
R10096	Structures	NorthMain134	IWR_1S	128000	Left	\$4.38	36	35	1 structure
R10126	Structures	NorthMain134	IWR_1S	128000	Left	\$21.69	36	35	1 structure
R10140	Structures	NorthMain134	IWR_1S	128000	Left	\$15.29	34	33	1 structure
R10142	Structures	NorthMain134	IWR_1S	120000	Left	\$7.13	33	32	1 structure
R10149	Structures	NorthMain134	IWR_1S	128000	Left	\$24.18	36	35	1 structure
R10174	Structures	NorthMain134	IWR_1S	129441	Left	\$20.75	36	35	1 structure
R10201	Structures	NorthMain134	IWR_1S	128000	Left	\$27.17	36	35	1 structure
R10227	Structures	NorthMain134	IWR_1S	128000	Left	\$7.74	36	35	1 structure
R10235	Structures	NorthMain134	IWR_1S	124000	Left	\$8.34	36	35	1 structure
R10242	Structures	NorthMain134	IWR_1S	126000	Left	\$20.61	36	35	1 structure
R10291	Structures	NorthMain134	IWR_1S	128000	Left	\$17.06	36	35	1 structure
R10301	Structures	NorthMain134	IWR_1S	138000	Left	\$46.26	40	39	1 structure
R10355	Structures	NorthMain134	IWR_1S	128000	Left	\$27.74	36	35	1 structure
R10357	Structures	NorthMain134	IWR_1S	128000	Left	\$1.20	36	35	1 structure
R10358	Structures	NorthMain134	IWR_1S	128000	Left	\$11.46	36	35	1 structure
R10360	Structures	NorthMain134	IWR_1S	128000	Left	\$12.20	36	35	1 structure
R10363	Structures	NorthMain134	IWR_1S	128000	Left	\$9.42	32	31	1 structure
R10365	Structures	NorthMain134	IWR_1S	128000	Left	\$19.33	33	32	1 structure
R10373	Structures	NorthMain134	IWR_1S	128000	Left	\$20.90	34	33	1 structure
R10390	Structures	NorthMain134	IWR_1S	128000	Left	\$33.83	36	35	1 structure
R10414	Structures	NorthMain134	IWR_1S	126000	Left	\$34.98	36	35	1 structure
R10454	Structures	NorthMain134	IWR_1S	151600	Left	\$5.60	47	46	1 structure
R10460	Structures	NorthMain134	IWR_1S	128000	Left	\$20.69	36	35	1 structure
R10465	Structures	NorthMain134	IWR_1S	126000	Left	\$59.69	36	35	1 structure
R10496	Structures	NorthMain134	IWR_1S	122000	Left	\$21.72	31	30	1 structure
R10585	Structures	NorthMain134	IWR_1S	120000	Left	\$93.17	32	31	1 structure
R10704	Structures	NorthMain134	IWR_1S	94000	Left	\$0.35	27	26	1 structure
R10705	Structures	NorthMain134	IWR_1S	128000	Left	\$24.41	36	35	1 structure
R10711	Structures	NorthMain134	IWR_1S	138000	Left	\$79.37	38	37	1 structure
R10712	Structures	NorthMain134	IWR_1S	94000	Left	\$19.11	26	25	1 structure
R10820	Structures	NorthMain134	IWR_1S	108000	Right	\$65.51	31	30	1 structure
R10877	Structures	NorthMain134	IWR_1S	129441	Left	\$19.19	37	36	1 structure
R10899	Structures	NorthMain134	IWR_1S	134000	Left	\$19.33	35	34	1 structure
R10942	Structures	NorthMain134	IWR_1S	128000	Left	\$10.08	34	33	1 structure
R10950	Structures	NorthMain134	IWR_1S	128000	Left	\$9.50	36	35	1 structure
R10952	Structures	NorthMain134	IWR_1S	126000	Left	\$24.39	36	35	1 structure
R10977	Structures	NorthMain134	IWR_1S	128000	Left	\$21.64	34	33	1 structure
R10999	Structures	NorthMain134	IWR_1S	128000	Left	\$21.30	34	33	1 structure
R11005	Structures	NorthMain134	IWR_1S	124000	Left	\$3.04	36	35	1 structure
R11044	Structures	NorthMain134	IWR_1S	124000	Left	\$14.16	36	35	1 structure
R11045	Structures	NorthMain134	IWR_1S	124000	Left	\$17.51	36	35	1 structure
R11051	Structures	NorthMain134	IWR_1S	124000	Left	\$36.98	36	35	1 structure
R11053	Structures	NorthMain134	IWR_1S	126000	Left	\$22.03	36	35	1 structure
R11055	Structures	NorthMain134	IWR_1S	128000	Left	\$12.47	36	35	1 structure
R11057	Structures	NorthMain134	IWR_1S	126000	Left	\$16.56	36	35	1 structure
R11059	Structures	NorthMain134	IWR_1S	128000	Left	\$25.55	36	35	1 structure
R11076	Structures	NorthMain134	IWR_1S	128000	Left	\$42.74	36	35	1 structure
R11080	Structures	NorthMain134	IWR_1S	129441	Left	\$52.09	40	39	1 structure
R11081	Structures	NorthMain134	IWR_1S	128000	Left	\$6.18	34	33	1 structure
R11089	Structures	NorthMain134	IWR_1S	128000	Left	\$10.28	36	35	1 structure
R11090	Structures	NorthMain134	IWR_1S	128000	Left	\$6.37	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R11102	Structures	NorthMain134	IWR_1S	94000	Left	\$31.12	26	25	1 structure
R11104	Structures	NorthMain134	IWR_1S	128000	Left	\$5.35	33	32	1 structure
R11115	Structures	NorthMain134	IWR_1S	128000	Left	\$25.02	33	32	1 structure
R11125	Structures	NorthMain134	IWR_1S	128000	Left	\$43.47	36	35	1 structure
R11143	Structures	NorthMain134	IWR_1S	126000	Left	\$1.82	36	35	1 structure
R11161	Structures	NorthMain134	IWR_1S	102000	Right	\$53.62	36	35	1 structure
R11173	Structures	NorthMain134	IWR_1S	140000	Left	\$3.24	40	39	1 structure
R11176	Structures	NorthMain134	IWR_1S	140000	Left	\$90.86	40	39	1 structure
R11187	Structures	NorthMain134	IWR_1S	129441	Left	\$10.50	36	35	1 structure
R11215	Structures	NorthMain134	IWR_1S	128000	Left	\$12.45	35	34	1 structure
R11216	Structures	NorthMain134	IWR_1S	128000	Left	\$7.88	33	32	1 structure
R11222	Structures	NorthMain134	IWR_1S	129441	Left	\$39.90	36	35	1 structure
R11226	Structures	NorthMain134	IWR_1S	128000	Left	\$29.14	33	32	1 structure
R11236	Structures	NorthMain134	IWR_1S	129441	Left	\$34.11	35	34	1 structure
R11243	Structures	NorthMain134	IWR_1S	128000	Left	\$6.92	36	35	1 structure
R11252	Structures	NorthMain134	IWR_1S	128000	Left	\$57.85	35	34	1 structure
R11260	Structures	NorthMain134	IWR_1S	128000	Left	\$12.10	36	35	1 structure
R11263	Structures	NorthMain134	IWR_1S	128000	Left	\$56.82	36	35	1 structure
R11283	Structures	NorthMain134	IWR_1S	128000	Left	\$26.34	36	35	1 structure
R11307	Structures	NorthMain134	IWR_1S	128000	Left	\$24.30	36	35	1 structure
R11356	Structures	NorthMain134	IWR_1S	126000	Left	\$59.46	32	31	1 structure
R11384	Structures	NorthMain134	IWR_1S	128000	Left	\$24.47	36	35	1 structure
R11393	Structures	NorthMain134	IWR_1S	128000	Left	\$5.54	36	35	1 structure
R11399	Structures	NorthMain134	IWR_1S	128000	Left	\$18.44	36	35	1 structure
R11433	Structures	NorthMain134	IWR_1S	126000	Left	\$16.82	36	35	1 structure
R11462	Structures	NorthMain134	IWR_1S	128000	Left	\$7.23	36	35	1 structure
R11499	Structures	NorthMain134	IWR_1S	128000	Left	\$14.94	36	35	1 structure
R11538	Structures	NorthMain134	IWR_1S	124000	Left	\$26.12	36	35	1 structure
R11551	Structures	NorthMain134	IWR_1S	102000	Left	\$5.40	31	30	1 structure
R11553	Structures	NorthMain134	IWR_1S	98000	Left	\$0.20	30	29	1 structure
R11619	Structures	NorthMain134	IWR_1S	129441	Left	\$20.26	36	35	1 structure
R11677	Structures	NorthMain134	IWR_1S	129441	Left	\$21.67	34	33	1 structure
R11715	Structures	NorthMain134	IWR_1S	128000	Left	\$26.81	36	35	1 structure
R11735	Structures	NorthMain134	IWR_1S	128000	Left	\$22.19	36	35	1 structure
R11803	Structures	NorthMain134	IWR_1S	128000	Left	\$7.94	36	35	1 structure
R11857	Structures	NorthMain134	IWR_1S	128000	Left	\$25.74	35	34	1 structure
R11875	Structures	NorthMain134	IWR_1S	126000	Left	\$5.15	32	31	1 structure
R11940	Structures	NorthMain134	IWR_1S	128000	Left	\$10.83	36	35	1 structure
R11978	Structures	NorthMain134	IWR_1S	128000	Left	\$6.91	36	35	1 structure
R12023	Structures	NorthMain134	IWR_1S	128000	Left	\$7.55	34	33	1 structure
R12028	Structures	NorthMain134	IWR_1S	128000	Left	\$26.44	36	35	1 structure
R12031	Structures	NorthMain134	IWR_1S	136000	Left	\$16.76	36	35	1 structure
R12111	Structures	NorthMain134	IWR_1S	136000	Left	\$28.77	35	34	1 structure
R12117	Structures	NorthMain134	IWR_1S	126000	Left	\$54.10	36	35	1 structure
R12138	Structures	NorthMain134	IWR_1S	128000	Left	\$13.10	34	33	1 structure
R12146	Structures	NorthMain134	IWR_1S	128000	Left	\$12.73	36	35	1 structure
R12173	Structures	NorthMain134	IWR_1S	128000	Left	\$8.53	36	35	1 structure
R12186	Structures	NorthMain134	IWR_1S	128000	Left	\$7.31	35	34	1 structure
R12187	Structures	NorthMain134	IWR_1S	128000	Left	\$29.16	36	35	1 structure
R12191	Structures	NorthMain134	IWR_1S	128000	Left	\$31.35	36	35	1 structure
R12196	Structures	NorthMain134	IWR_1S	128000	Left	\$1.55	36	35	1 structure
R12271	Structures	NorthMain134	IWR_1S	104000	Right	\$0.60	32	31	1 structure
R12294	Structures	NorthMain134	IWR_1S	126000	Left	\$1.20	35	34	1 structure
R12304	Structures	NorthMain134	IWR_1S	124000	Left	\$10.74	36	35	1 structure
R12325	Structures	NorthMain134	IWR_1S	128000	Left	\$35.95	36	35	1 structure
R12381	Structures	NorthMain134	IWR_1S	128000	Left	\$13.25	36	35	1 structure



North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R12393	Structures	NorthMain134	IWR_1S	129441	Left	\$64.05	36	35	1 structure
R12432	Structures	NorthMain134	IWR_1S	138000	Left	\$77.61	38	37	1 structure
R12454	Structures	NorthMain134	IWR_1S	128000	Left	\$13.34	36	35	1 structure
R12457	Structures	NorthMain134	IWR_1S	129441	Left	\$80.92	36	35	1 structure
R12464	Structures	NorthMain134	IWR_1S	129441	Left	\$28.23	36	35	1 structure
R12497	Structures	NorthMain134	IWR_1S	128000	Left	\$7.77	36	35	1 structure
R12501	Structures	NorthMain134	IWR_1S	128000	Left	\$20.97	36	35	1 structure
R12506	Structures	NorthMain134	IWR_1S	124000	Left	\$29.37	36	35	1 structure
R12507	Structures	NorthMain134	IWR_1S	128000	Left	\$21.52	36	35	1 structure
R12510	Structures	NorthMain134	IWR_1S	128000	Left	\$34.16	36	35	1 structure
R12514	Structures	NorthMain134	IWR_1S	126000	Left	\$11.99	35	34	1 structure
R12515	Structures	NorthMain134	IWR_1S	126000	Left	\$7.80	35	34	1 structure
R12568	Structures	NorthMain134	IWR_1S	126000	Left	\$35.17	35	34	1 structure
R12614	Structures	NorthMain134	IWR_1S	124000	Left	\$26.92	36	35	1 structure
R12620	Structures	NorthMain134	IWR_1S	126000	Left	\$22.81	35	34	1 structure
R12642	Structures	NorthMain134	IWR_1S	126000	Left	\$25.99	32	31	1 structure
R12647	Structures	NorthMain134	IWR_1S	126000	Left	\$16.07	35	34	1 structure
R12662	Structures	NorthMain134	IWR_1S	129441	Left	\$17.70	35	34	1 structure
R12672	Structures	NorthMain134	IWR_1S	126000	Left	\$9.89	32	31	1 structure
R12692	Structures	NorthMain134	IWR_1S	126000	Left	\$20.49	36	35	1 structure
R12697	Structures	NorthMain134	IWR_1S	128000	Left	\$11.26	36	35	1 structure
R12700	Structures	NorthMain134	IWR_1S	126000	Left	\$34.94	36	35	1 structure
R12701	Structures	NorthMain134	IWR_1S	128000	Left	\$4.75	36	35	1 structure
R12702	Structures	NorthMain134	IWR_1S	128000	Left	\$13.44	36	35	1 structure
R12703	Structures	NorthMain134	IWR_1S	126000	Left	\$34.60	36	35	1 structure
R12703	Structures	NorthMain134	IWR_1S	126000	Left	\$34.60	36	35	1 structure
R12705	Structures	NorthMain134	IWR_1S	126000	Left	\$26.16	36	35	1 structure
R12708	Structures	NorthMain134	IWR_1S	128000	Left	\$9.01	36	35	1 structure
R12713	Structures	NorthMain134	IWR_1S	112624	Left	\$49.01	36	35	1 structure
R12782	Structures	NorthMain134	IWR_1S	104000	Left	\$38.48	32	31	1 structure
R12796	Structures	NorthMain134	IWR_1S	126000	Left	\$120.61	32	31	1 structure
R12852	Structures	NorthMain134	IWR_1S	102000	Right	\$48.44	32	31	1 structure
R12890	Structures	NorthMain134	IWR_1S	128000	Left	\$10.73	36	35	1 structure
R12892	Structures	NorthMain134	IWR_1S	128000	Left	\$5.90	36	35	1 structure
R12899	Structures	NorthMain134	IWR_1S	128000	Left	\$59.19	36	35	1 structure
R12902	Structures	NorthMain134	IWR_1S	124000	Left	\$13.01	36	35	1 structure
R12906	Structures	NorthMain134	IWR_1S	128000	Left	\$6.16	36	35	1 structure
R12917	Structures	NorthMain134	IWR_1S	128000	Left	\$19.13	36	35	1 structure
R12940	Structures	NorthMain134	IWR_1S	128000	Left	\$6.08	36	35	1 structure
R12960	Structures	NorthMain134	IWR_1S	126000	Left	\$5.10	32	31	1 structure
R12969	Structures	NorthMain134	IWR_1S	124000	Left	\$24.63	36	35	1 structure
R12984	Structures	NorthMain134	IWR_1S	126000	Left	\$29.88	36	35	1 structure
R12986	Structures	NorthMain134	IWR_1S	126000	Left	\$14.18	36	35	1 structure
R12993	Structures	NorthMain134	IWR_1S	126000	Left	\$5.71	36	35	1 structure
R13008	Structures	NorthMain134	IWR_1S	128000	Left	\$11.43	36	35	1 structure
R13032	Structures	NorthMain134	IWR_1S	128000	Left	\$6.19	35	34	1 structure
R13033	Structures	NorthMain134	IWR_1S	128000	Left	\$7.49	35	34	1 structure
R13037	Structures	NorthMain134	IWR_1S	126000	Left	\$2.85	31	30	1 structure
R13075	Structures	NorthMain134	IWR_1S	128000	Left	\$12.90	36	35	1 structure
R13118	Structures	NorthMain134	IWR_1S	128000	Left	\$3.89	36	35	1 structure
R13130	Structures	NorthMain134	IWR_1S	128000	Left	\$27.90	36	35	1 structure
R13152	Structures	NorthMain134	IWR_1S	128000	Left	\$24.71	36	35	1 structure
R13160	Structures	NorthMain134	IWR_1S	126000	Left	\$15.60	32	31	1 structure
R13178	Structures	NorthMain134	IWR_1S	128000	Left	\$13.76	36	35	1 structure
R13207	Structures	NorthMain134	IWR_1S	128000	Left	\$11.30	36	35	1 structure
R13209	Structures	NorthMain134	IWR_1S	126000	Left	\$7.71	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Gmd_Stage	Notes
R13223	Structures	NorthMain134	IWR_1S	124000	Left	\$3.17	36	35	1 structure
R13240	Structures	NorthMain134	IWR_1S	128000	Left	\$7.80	36	35	1 structure
R13248	Structures	NorthMain134	IWR_1S	104000	Left	\$58.07	36	35	1 structure
R13270	Structures	NorthMain134	IWR_1S	128000	Left	\$11.41	36	35	1 structure
R13296	Structures	NorthMain134	IWR_1S	128000	Left	\$30.33	34	33	1 structure
R13302	Structures	NorthMain134	IWR_1S	128000	Left	\$27.30	36	35	1 structure
R13315	Structures	NorthMain134	IWR_1S	126000	Left	\$7.93	34	33	1 structure
R13329	Structures	NorthMain134	IWR_1S	129441	Left	\$43.43	35	34	1 structure
R13330	Structures	NorthMain134	IWR_1S	128000	Left	\$9.41	36	35	1 structure
R13415	Structures	NorthMain134	IWR_1S	128000	Left	\$16.69	36	35	1 structure
R13416	Structures	NorthMain134	IWR_1S	128000	Left	\$18.75	36	35	1 structure
R13489	Structures	NorthMain134	IWR_1S	128000	Left	\$25.88	36	35	1 structure
R13496	Structures	NorthMain134	IWR_1S	128000	Left	\$24.19	33	32	1 structure
R13519	Structures	NorthMain134	IWR_1S	128000	Left	\$18.55	36	35	1 structure
R13528	Structures	NorthMain134	IWR_1S	128000	Left	\$5.63	33	32	1 structure
R13548	Structures	NorthMain134	IWR_1S	128000	Left	\$2.84	33	32	1 structure
R13556	Structures	NorthMain134	IWR_1S	72000	Right	\$1.87	22	21	1 structure
R13568	Structures	NorthMain134	IWR_1S	128000	Left	\$22.49	36	35	1 structure
R13570	Structures	NorthMain134	IWR_1S	128000	Left	\$12.24	36	35	1 structure
R13586	Structures	NorthMain134	IWR_1S	128000	Left	\$11.83	36	35	1 structure
R13597	Structures	NorthMain134	IWR_1S	128000	Left	\$14.50	36	35	1 structure
R13603	Structures	NorthMain134	IWR_1S	128000	Left	\$29.09	36	35	1 structure
R13630	Structures	NorthMain134	IWR_1S	126000	Left	\$21.29	36	35	1 structure
R13720	Structures	NorthMain134	IWR_1S	126000	Left	\$75.82	36	35	1 structure
R13731	Structures	NorthMain134	IWR_1S	128000	Left	\$10.27	36	35	1 structure
R13758	Structures	NorthMain134	IWR_1S	126000	Left	\$45.43	35	34	1 structure
R13788	Structures	NorthMain134	IWR_1S	124000	Left	\$3.98	36	35	1 structure
R13789	Structures	NorthMain134	IWR_1S	128000	Left	\$3.47	34	33	1 structure
R13795	Structures	NorthMain134	IWR_1S	128000	Left	\$18.77	36	35	1 structure
R13864	Structures	NorthMain134	IWR_1S	128000	Left	\$19.88	36	35	1 structure
R13914	Structures	NorthMain134	IWR_1S	122908	Left	\$3.75	34	33	1 structure
R13945	Structures	NorthMain134	IWR_1S	126000	Left	\$24.56	36	35	1 structure
R13950	Structures	NorthMain134	IWR_1S	128000	Left	\$22.55	36	35	1 structure
R14023	Structures	NorthMain134	IWR_1S	128000	Left	\$15.79	36	35	1 structure
R14025	Structures	NorthMain134	IWR_1S	128000	Left	\$35.01	36	35	1 structure
R14026	Structures	NorthMain134	IWR_1S	128000	Left	\$20.81	35	34	1 structure
R14027	Structures	NorthMain134	IWR_1S	128000	Left	\$11.67	36	35	1 structure
R14063	Structures	NorthMain134	IWR_1S	126000	Left	\$17.53	36	35	1 structure
R14076	Structures	NorthMain134	IWR_1S	129441	Left	\$14.82	34	33	1 structure
R14097	Structures	NorthMain134	IWR_1S	108000	Right	\$74.13	33	32	1 structure
R14110	Structures	NorthMain134	IWR_1S	106000	Left	\$29.36	33	32	1 structure
R14113	Structures	NorthMain134	IWR_1S	126000	Left	\$11.62	36	35	1 structure
R14128	Structures	NorthMain134	IWR_1S	108000	Right	\$34.10	33	32	1 structure
R14198	Structures	NorthMain134	IWR_1S	126000	Left	\$62.32	32	31	1 structure
R14303	Structures	NorthMain134	IWR_1S	129441	Left	\$17.38	34	33	1 structure
R14307	Structures	NorthMain134	IWR_1S	94000	Left	\$43.21	29	28	1 structure
R14334	Structures	NorthMain134	IWR_1S	128000	Left	\$34.37	36	35	1 structure
R14352	Structures	NorthMain134	IWR_1S	128000	Left	\$2.00	36	35	1 structure
R14385	Structures	NorthMain134	IWR_1S	88000	Left	\$57.88	28	27	1 structure
R14389	Structures	NorthMain134	IWR_1S	128000	Left	\$40.95	36	35	1 structure
R14394	Structures	NorthMain134	IWR_1S	128000	Left	\$13.13	36	35	1 structure
R14402	Structures	NorthMain134	IWR_1S	138000	Left	\$113.95	38	37	1 structure
R14417	Structures	NorthMain134	IWR_1S	124000	Left	\$9.99	36	35	1 structure
R14481	Structures	NorthMain134	IWR_1S	128000	Left	\$40.11	36	35	1 structure
R14486	Structures	NorthMain134	IWR_1S	126000	Left	\$25.50	35	34	1 structure
R14503	Structures	NorthMain134	IWR_1S	140000	Left	\$40.76	40	39	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R14504	Structures	NorthMain134	IWR_1S	126000	Left	\$14.79	35	34	1 structure
R14511	Structures	NorthMain134	IWR_1S	128000	Left	\$55.74	33	32	1 structure
R14517	Structures	NorthMain134	IWR_1S	128000	Left	\$18.14	35	34	1 structure
R14518	Structures	NorthMain134	IWR_1S	128000	Left	\$2.94	33	32	1 structure
R14520	Structures	NorthMain134	IWR_1S	128000	Left	\$9.14	36	35	1 structure
R14522	Structures	NorthMain134	IWR_1S	129441	Left	\$21.10	36	35	1 structure
R14541	Structures	NorthMain134	IWR_1S	147159	Left	\$4.32	41	40	1 structure
R14552	Structures	NorthMain134	IWR_1S	129441	Left	\$12.28	36	35	1 structure
R14570	Structures	NorthMain134	IWR_1S	86000	Right	\$3.20	29	28	1 structure
R14582	Structures	NorthMain134	IWR_1S	128000	Left	\$8.10	36	35	1 structure
R14586	Structures	NorthMain134	IWR_1S	128000	Left	\$20.15	36	35	1 structure
R14701	Structures	NorthMain134	IWR_1S	138000	Left	\$60.30	38	37	1 structure
R14781	Structures	NorthMain134	IWR_1S	126000	Left	\$37.39	36	35	1 structure
R14801	Structures	NorthMain134	IWR_1S	102000	Right	\$57.52	36	35	1 structure
R14808	Structures	NorthMain134	IWR_1S	80000	Right	\$38.57	22	21	1 structure
R14843	Structures	NorthMain134	IWR_1S	128000	Left	\$37.81	36	35	1 structure
R14844	Structures	NorthMain134	IWR_1S	126000	Left	\$191.90	36	35	1 structure
R14854	Structures	NorthMain134	IWR_1S	128000	Left	\$4.26	36	35	1 structure
R14918	Structures	NorthMain134	IWR_1S	104000	Left	\$55.12	36	35	1 structure
R14922	Structures	NorthMain134	IWR_1S	126000	Left	\$32.69	36	35	1 structure
R14929	Structures	NorthMain134	IWR_1S	128000	Left	\$9.50	34	33	1 structure
R14930	Structures	NorthMain134	IWR_1S	126000	Left	\$19.46	32	31	1 structure
R14931	Structures	NorthMain134	IWR_1S	128000	Left	\$34.80	36	35	1 structure
R14952	Structures	NorthMain134	IWR_1S	138000	Left	\$65.63	38	37	1 structure
R14959	Structures	NorthMain134	IWR_1S	80000	Right	\$2.00	25	24	1 structure
R14962	Structures	NorthMain134	IWR_1S	112000	Left	\$0.30	32	31	1 structure
R14998	Structures	NorthMain134	IWR_1S	126000	Left	\$12.55	36	35	1 structure
R15004	Structures	NorthMain134	IWR_1S	128000	Left	\$16.94	35	34	1 structure
R15073	Structures	NorthMain134	IWR_1S	98000	Right	\$0.20	31	30	1 structure
R15102	Structures	NorthMain134	IWR_1S	128000	Left	\$25.09	36	35	1 structure
R15103	Structures	NorthMain134	IWR_1S	129441	Left	\$13.62	36	35	1 structure
R15110	Structures	NorthMain134	IWR_1S	128000	Left	\$12.64	36	35	1 structure
R15149	Structures	NorthMain134	IWR_1S	126000	Left	\$23.29	36	35	1 structure
R15182	Structures	NorthMain134	IWR_1S	128000	Left	\$6.79	36	35	1 structure
R15189	Structures	NorthMain134	IWR_1S	126000	Left	\$16.96	33	32	1 structure
R15191	Structures	NorthMain134	IWR_1S	126000	Left	\$48.17	33	32	1 structure
R15199	Structures	NorthMain134	IWR_1S	128000	Left	\$18.05	32	31	1 structure
R15228	Structures	NorthMain134	IWR_1S	124000	Left	\$20.05	36	35	1 structure
R15254	Structures	NorthMain134	IWR_1S	128000	Left	\$21.30	33	32	1 structure
R15256	Structures	NorthMain134	IWR_1S	128000	Left	\$14.56	36	35	1 structure
R15261	Structures	NorthMain134	IWR_1S	124000	Left	\$9.75	36	35	1 structure
R15267	Structures	NorthMain134	IWR_1S	86000	Left	\$31.28	25	24	1 structure
R15268	Structures	NorthMain134	IWR_1S	128000	Left	\$18.03	36	35	1 structure
R15278	Structures	NorthMain134	IWR_1S	128000	Left	\$18.61	36	35	1 structure
R15279	Structures	NorthMain134	IWR_1S	128000	Left	\$14.54	36	35	1 structure
R15316	Structures	NorthMain134	IWR_1S	126000	Left	\$25.87	32	31	1 structure
R15324	Structures	NorthMain134	IWR_1S	128000	Left	\$104.50	35	34	1 structure
R15333	Structures	NorthMain134	IWR_1S	126000	Left	\$59.81	36	35	1 structure
R15338	Structures	NorthMain134	IWR_1S	128000	Left	\$7.27	36	35	1 structure
R15394	Structures	NorthMain134	IWR_1S	126000	Left	\$25.13	36	35	1 structure
R15396	Structures	NorthMain134	IWR_1S	128000	Left	\$20.81	36	35	1 structure
R15399	Structures	NorthMain134	IWR_1S	128000	Left	\$7.69	36	35	1 structure
R15416	Structures	NorthMain134	IWR_1S	128000	Left	\$52.05	34	33	1 structure
R15442	Structures	NorthMain134	IWR_1S	128000	Left	\$8.99	36	35	1 structure
R15443	Structures	NorthMain134	IWR_1S	128000	Left	\$18.37	35	34	1 structure
R15455	Structures	NorthMain134	IWR_1S	128000	Left	\$7.20	33	32	1 structure



North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R15459	Structures	NorthMain134	IWR_1S	126000	Left	\$18.58	34	33	1 structure
R15466	Structures	NorthMain134	IWR_1S	128000	Left	\$6.59	36	35	1 structure
R15467	Structures	NorthMain134	IWR_1S	126000	Left	\$12.97	34	33	1 structure
R15470	Structures	NorthMain134	IWR_1S	126000	Left	\$5.50	36	35	1 structure
R15471	Structures	NorthMain134	IWR_1S	126000	Left	\$23.59	36	35	1 structure
R15487	Structures	NorthMain134	IWR_1S	126000	Left	\$8.91	36	35	1 structure
R15503	Structures	NorthMain134	IWR_1S	126000	Left	\$16.05	36	35	1 structure
R15506	Structures	NorthMain134	IWR_1S	126000	Left	\$13.49	32	31	1 structure
R15592	Structures	NorthMain134	IWR_1S	124000	Left	\$16.66	36	35	1 structure
R15593	Structures	NorthMain134	IWR_1S	124000	Left	\$5.87	36	35	1 structure
R15594	Structures	NorthMain134	IWR_1S	128000	Left	\$18.36	36	35	1 structure
R15595	Structures	NorthMain134	IWR_1S	128000	Left	\$10.07	36	35	1 structure
R15597	Structures	NorthMain134	IWR_1S	124000	Left	\$11.84	36	35	1 structure
R15598	Structures	NorthMain134	IWR_1S	124000	Left	\$27.58	36	35	1 structure
R15622	Structures	NorthMain134	IWR_1S	128000	Left	\$7.50	36	35	1 structure
R15645	Structures	NorthMain134	IWR_1S	128000	Left	\$22.09	36	35	1 structure
R15647	Structures	NorthMain134	IWR_1S	128000	Left	\$28.43	35	34	1 structure
R15650	Structures	NorthMain134	IWR_1S	128000	Left	\$25.39	36	35	1 structure
R15655	Structures	NorthMain134	IWR_1S	128000	Left	\$10.44	36	35	1 structure
R15657	Structures	NorthMain134	IWR_1S	128000	Left	\$21.70	36	35	1 structure
R15686	Structures	NorthMain134	IWR_1S	128000	Left	\$16.41	36	35	1 structure
R15687	Structures	NorthMain134	IWR_1S	128000	Left	\$11.63	36	35	1 structure
R15716	Structures	NorthMain134	IWR_1S	128000	Left	\$18.78	36	35	1 structure
R15719	Structures	NorthMain134	IWR_1S	124000	Left	\$17.82	36	35	1 structure
R15720	Structures	NorthMain134	IWR_1S	128000	Left	\$12.34	36	35	1 structure
R15737	Structures	NorthMain134	IWR_1S	126000	Left	\$13.43	32	31	1 structure
R15737	Structures	NorthMain134	IWR_1S	128000	Left	\$13.43	36	35	1 structure
R15738	Structures	NorthMain134	IWR_1S	126000	Left	\$7.00	32	31	1 structure
R15828	Structures	NorthMain134	IWR_1S	128000	Left	\$10.37	33	32	1 structure
R15829	Structures	NorthMain134	IWR_1S	126000	Left	\$16.69	36	35	1 structure
R15911	Structures	NorthMain134	IWR_1S	128000	Left	\$20.41	36	35	1 structure
R15917	Structures	NorthMain134	IWR_1S	128000	Left	\$15.02	36	35	1 structure
R15919	Structures	NorthMain134	IWR_1S	128000	Left	\$12.21	36	35	1 structure
R15920	Structures	NorthMain134	IWR_1S	128000	Left	\$30.11	36	35	1 structure
R15930	Structures	NorthMain134	IWR_1S	113338	Left	\$5.99	36	35	1 structure
R16001	Structures	NorthMain134	IWR_1S	126000	Left	\$42.78	36	35	1 structure
R16067	Structures	NorthMain134	IWR_1S	126000	Left	\$21.58	36	35	1 structure
R16154	Structures	NorthMain134	IWR_1S	129441	Left	\$0.50	35	34	1 structure
R16179	Structures	NorthMain134	IWR_1S	126000	Left	\$7.21	36	35	1 structure
R16226	Structures	NorthMain134	IWR_1S	126000	Left	\$25.70	36	35	1 structure
R16246	Structures	NorthMain134	IWR_1S	112000	Left	\$0.30	32	31	1 structure
R16272	Structures	NorthMain134	IWR_1S	126000	Left	\$5.37	32	31	1 structure
R16302	Structures	NorthMain134	IWR_1S	126000	Left	\$16.74	36	35	1 structure
R16308	Structures	NorthMain134	IWR_1S	124000	Left	\$28.48	36	35	1 structure
R16424	Structures	NorthMain134	IWR_1S	128000	Left	\$6.91	36	35	1 structure
R16457	Structures	NorthMain134	IWR_1S	82000	Left	\$0.90	26	25	1 structure
R16496	Structures	NorthMain134	IWR_1S	126000	Left	\$28.01	32	31	1 structure
R16502	Structures	NorthMain134	IWR_1S	94000	Left	\$60.39	29	28	1 structure
R16505	Structures	NorthMain134	IWR_1S	128000	Left	\$29.44	36	35	1 structure
R16529	Structures	NorthMain134	IWR_1S	144000	Left	\$11.09	38	37	1 structure
R16547	Structures	NorthMain134	IWR_1S	128000	Left	\$31.05	36	35	1 structure
R16611	Structures	NorthMain134	IWR_1S	128000	Left	\$6.39	36	35	1 structure
R16613	Structures	NorthMain134	IWR_1S	128000	Left	\$24.29	36	35	1 structure
R16614	Structures	NorthMain134	IWR_1S	128000	Left	\$5.27	36	35	1 structure
R16624	Structures	NorthMain134	IWR_1S	140000	Left	\$17.25	40	39	1 structure
R16628	Structures	NorthMain134	IWR_1S	128000	Left	\$10.53	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R16629	Structures	NorthMain134	IWR_1S	124000	Left	\$7.76	36	35	1 structure
R16731	Structures	NorthMain134	IWR_1S	129441	Left	\$25.71	35	34	1 structure
R16761	Structures	NorthMain134	IWR_1S	128000	Left	\$32.12	36	35	1 structure
R16764	Structures	NorthMain134	IWR_1S	128000	Left	\$24.19	36	35	1 structure
R16789	Structures	NorthMain134	IWR_1S	86000	Right	\$58.63	31	30	1 structure
R16824	Structures	NorthMain134	IWR_1S	128000	Left	\$16.69	36	35	1 structure
R16829	Structures	NorthMain134	IWR_1S	128000	Left	\$11.59	33	32	1 structure
R16832	Structures	NorthMain134	IWR_1S	128000	Left	\$38.26	36	35	1 structure
R16833	Structures	NorthMain134	IWR_1S	124000	Left	\$31.49	36	35	1 structure
R16834	Structures	NorthMain134	IWR_1S	128000	Left	\$21.19	36	35	1 structure
R16850	Structures	NorthMain134	IWR_1S	124000	Left	\$21.02	36	35	1 structure
R16852	Structures	NorthMain134	IWR_1S	122908	Left	\$13.06	31	30	1 structure
R16864	Structures	NorthMain134	IWR_1S	128000	Left	\$12.49	36	35	1 structure
R16877	Structures	NorthMain134	IWR_1S	126000	Left	\$12.90	36	35	1 structure
R16879	Structures	NorthMain134	IWR_1S	126000	Left	\$12.20	36	35	1 structure
R16908	Structures	NorthMain134	IWR_1S	128000	Left	\$29.37	33	32	1 structure
R16911	Structures	NorthMain134	IWR_1S	126000	Left	\$34.28	32	31	1 structure
R16933	Structures	NorthMain134	IWR_1S	128000	Left	\$23.75	34	33	1 structure
R16942	Structures	NorthMain134	IWR_1S	126000	Left	\$30.52	36	35	1 structure
R16955	Structures	NorthMain134	IWR_1S	128000	Left	\$7.00	34	33	1 structure
R16959	Structures	NorthMain134	IWR_1S	126000	Left	\$32.90	36	35	1 structure
R16972	Structures	NorthMain134	IWR_1S	128000	Left	\$18.62	34	33	1 structure
R16978	Structures	NorthMain134	IWR_1S	128000	Left	\$18.29	36	35	1 structure
R16988	Structures	NorthMain134	IWR_1S	124000	Left	\$9.18	36	35	1 structure
R16989	Structures	NorthMain134	IWR_1S	124000	Left	\$22.81	36	35	1 structure
R17003	Structures	NorthMain134	IWR_1S	128000	Left	\$17.32	36	35	1 structure
R17007	Structures	NorthMain134	IWR_1S	128000	Left	\$6.22	36	35	1 structure
R17012	Structures	NorthMain134	IWR_1S	128000	Left	\$4.13	36	35	1 structure
R17143	Structures	NorthMain134	IWR_1S	128000	Left	\$19.34	35	34	1 structure
R17144	Structures	NorthMain134	IWR_1S	126000	Left	\$33.62	35	34	1 structure
R17149	Structures	NorthMain134	IWR_1S	128000	Left	\$6.82	36	35	1 structure
R17150	Structures	NorthMain134	IWR_1S	128000	Left	\$17.39	36	35	1 structure
R17156	Structures	NorthMain134	IWR_1S	128000	Left	\$14.54	36	35	1 structure
R17168	Structures	NorthMain134	IWR_1S	128000	Left	\$11.06	36	35	1 structure
R17174	Structures	NorthMain134	IWR_1S	128000	Left	\$13.98	36	35	1 structure
R17175	Structures	NorthMain134	IWR_1S	128000	Left	\$10.92	36	35	1 structure
R17280	Structures	NorthMain134	IWR_1S	129441	Left	\$30.28	35	34	1 structure
R17285	Structures	NorthMain134	IWR_1S	80000	Right	\$13.98	26	25	1 structure
R17367	Structures	NorthMain134	IWR_1S	128000	Left	\$9.20	36	35	1 structure
R17368	Structures	NorthMain134	IWR_1S	128000	Left	\$14.55	36	35	1 structure
R17417	Structures	NorthMain134	IWR_1S	118000	Left	\$9.03	33	32	1 structure
R17433	Structures	NorthMain134	IWR_1S	128000	Left	\$18.67	36	35	1 structure
R17435	Structures	NorthMain134	IWR_1S	128000	Left	\$27.39	36	35	1 structure
R17437	Structures	NorthMain134	IWR_1S	129441	Left	\$16.80	31	30	1 structure
R17451	Structures	NorthMain134	IWR_1S	126000	Left	\$36.64	32	31	1 structure
R17456	Structures	NorthMain134	IWR_1S	128000	Left	\$5.72	36	35	1 structure
R17463	Structures	NorthMain134	IWR_1S	126000	Left	\$32.72	36	35	1 structure
R17473	Structures	NorthMain134	IWR_1S	128000	Left	\$9.68	36	35	1 structure
R17528	Structures	NorthMain134	IWR_1S	128000	Left	\$29.43	33	32	1 structure
R17534	Structures	NorthMain134	IWR_1S	124000	Left	\$24.07	36	35	1 structure
R17579	Structures	NorthMain134	IWR_1S	128000	Left	\$20.39	33	32	1 structure
R17584	Structures	NorthMain134	IWR_1S	128000	Left	\$27.33	36	35	1 structure
R17589	Structures	NorthMain134	IWR_1S	124000	Left	\$6.66	36	35	1 structure
R17605	Structures	NorthMain134	IWR_1S	129441	Left	\$54.89	36	35	1 structure
R17647	Structures	NorthMain134	IWR_1S	128000	Left	\$21.05	36	35	1 structure
R17668	Structures	NorthMain134	IWR_1S	128000	Left	\$12.31	33	32	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R17671	Structures	NorthMain134	IWR_1S	124000	Left	\$26.04	36	35	1 structure
R17674	Structures	NorthMain134	IWR_1S	128000	Left	\$7.13	36	35	1 structure
R17724	Structures	NorthMain134	IWR_1S	126000	Left	\$33.46	35	34	1 structure
R17726	Structures	NorthMain134	IWR_1S	128000	Left	\$31.20	36	35	1 structure
R17727	Structures	NorthMain134	IWR_1S	128000	Left	\$11.98	36	35	1 structure
R17729	Structures	NorthMain134	IWR_1S	128000	Left	\$5.21	36	35	1 structure
R17730	Structures	NorthMain134	IWR_1S	128000	Left	\$8.02	36	35	1 structure
R17735	Structures	NorthMain134	IWR_1S	126000	Left	\$30.66	36	35	1 structure
R17784	Structures	NorthMain134	IWR_1S	129441	Left	\$29.95	34	33	1 structure
R17791	Structures	NorthMain134	IWR_1S	128000	Left	\$4.32	36	35	1 structure
R17821	Structures	NorthMain134	IWR_1S	129441	Left	\$18.58	36	35	1 structure
R17825	Structures	NorthMain134	IWR_1S	102000	Left	\$26.75	32	31	1 structure
R17826	Structures	NorthMain134	IWR_1S	128000	Left	\$4.93	36	35	1 structure
R17835	Structures	NorthMain134	IWR_1S	124000	Left	\$11.03	36	35	1 structure
R17840	Structures	NorthMain134	IWR_1S	126000	Left	\$25.84	36	35	1 structure
R17855	Structures	NorthMain134	IWR_1S	124000	Left	\$9.32	36	35	1 structure
R17876	Structures	NorthMain134	IWR_1S	124000	Left	\$0.50	36	35	1 structure
R17897	Structures	NorthMain134	IWR_1S	128000	Left	\$33.93	36	35	1 structure
R17898	Structures	NorthMain134	IWR_1S	126000	Left	\$38.23	35	34	1 structure
R17900	Structures	NorthMain134	IWR_1S	128000	Left	\$16.33	36	35	1 structure
R17901	Structures	NorthMain134	IWR_1S	128000	Left	\$33.39	36	35	1 structure
R17902	Structures	NorthMain134	IWR_1S	128000	Left	\$8.56	36	35	1 structure
R17905	Structures	NorthMain134	IWR_1S	128000	Left	\$27.40	36	35	1 structure
R17930	Structures	NorthMain134	IWR_1S	128000	Left	\$22.58	36	35	1 structure
R17956	Structures	NorthMain134	IWR_1S	128000	Left	\$6.23	33	32	1 structure
R17962	Structures	NorthMain134	IWR_1S	128000	Left	\$27.44	36	35	1 structure
R17975	Structures	NorthMain134	IWR_1S	128000	Left	\$7.56	36	35	1 structure
R17989	Structures	NorthMain134	IWR_1S	128000	Left	\$33.50	36	35	1 structure
R18047	Structures	NorthMain134	IWR_1S	128000	Left	\$23.94	36	35	1 structure
R18054	Structures	NorthMain134	IWR_1S	128000	Left	\$12.17	36	35	1 structure
R18116	Structures	NorthMain134	IWR_1S	128000	Left	\$14.83	35	34	1 structure
R18163	Structures	NorthMain134	IWR_1S	104000	Right	\$29.02	36	35	1 structure
R18172	Structures	NorthMain134	IWR_1S	106000	Left	\$22.53	32	31	1 structure
R18174	Structures	NorthMain134	IWR_1S	126000	Left	\$29.79	36	35	1 structure
R18174	Structures	NorthMain134	IWR_1S	128000	Left	\$29.79	36	35	1 structure
R18183	Structures	NorthMain134	IWR_1S	108000	Left	\$113.20	32	31	1 structure
R18265	Structures	NorthMain134	IWR_1S	128000	Left	\$14.62	36	35	1 structure
R18271	Structures	NorthMain134	IWR_1S	128000	Left	\$23.09	36	35	1 structure
R18274	Structures	NorthMain134	IWR_1S	128000	Left	\$23.82	36	35	1 structure
R18275	Structures	NorthMain134	IWR_1S	128000	Left	\$6.62	34	33	1 structure
R18374	Structures	NorthMain134	IWR_1S	126000	Left	\$11.42	36	35	1 structure
R18378	Structures	NorthMain134	IWR_1S	86000	Left	\$27.06	25	24	1 structure
R18384	Structures	NorthMain134	IWR_1S	124000	Left	\$34.00	36	35	1 structure
R18386	Structures	NorthMain134	IWR_1S	124000	Left	\$51.97	36	35	1 structure
R18387	Structures	NorthMain134	IWR_1S	124000	Left	\$14.34	36	35	1 structure
R18409	Structures	NorthMain134	IWR_1S	126000	Left	\$10.00	36	35	1 structure
R18410	Structures	NorthMain134	IWR_1S	126000	Left	\$17.38	36	35	1 structure
R18413	Structures	NorthMain134	IWR_1S	98000	Right	\$50.00	35	34	1 structure
R18447	Structures	NorthMain134	IWR_1S	126000	Left	\$45.30	33	32	1 structure
R18451	Structures	NorthMain134	IWR_1S	86000	Right	\$27.73	30	29	1 structure
R18456	Structures	NorthMain134	IWR_1S	86000	Right	\$6.57	30	29	1 structure
R18457	Structures	NorthMain134	IWR_1S	86000	Right	\$38.45	31	30	1 structure
R18523	Structures	NorthMain134	IWR_1S	128000	Left	\$34.67	34	33	1 structure
R18561	Structures	NorthMain134	IWR_1S	128000	Left	\$15.87	36	35	1 structure
R18576	Structures	NorthMain134	IWR_1S	126000	Left	\$26.37	36	35	1 structure
R18576	Structures	NorthMain134	IWR_1S	128000	Left	\$26.37	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R18583	Structures	NorthMain134	IWR_1S	128000	Left	\$34.48	36	35	1 structure
R18683	Structures	NorthMain134	IWR_1S	104000	Right	\$8.72	34	33	1 structure
R18684	Structures	NorthMain134	IWR_1S	104000	Right	\$20.16	35	34	1 structure
R18702	Structures	NorthMain134	IWR_1S	128000	Left	\$39.96	36	35	1 structure
R18756	Structures	NorthMain134	IWR_1S	136000	Left	\$11.27	35	34	1 structure
R18757	Structures	NorthMain134	IWR_1S	134000	Left	\$58.59	35	34	1 structure
R18782	Structures	NorthMain134	IWR_1S	112624	Left	\$15.22	36	35	1 structure
R18785	Structures	NorthMain134	IWR_1S	94000	Right	\$38.40	28	27	1 structure
R18840	Structures	NorthMain134	IWR_1S	126000	Left	\$31.41	36	35	1 structure
R18843	Structures	NorthMain134	IWR_1S	147159	Left	\$77.97	40	39	1 structure
R18871	Structures	NorthMain134	IWR_1S	126000	Left	\$12.67	34	33	1 structure
R18879	Structures	NorthMain134	IWR_1S	126000	Left	\$6.54	32	31	1 structure
R18891	Structures	NorthMain134	IWR_1S	129441	Left	\$14.34	36	35	1 structure
R18899	Structures	NorthMain134	IWR_1S	80000	Right	\$12.79	25	24	1 structure
R18904	Structures	NorthMain134	IWR_1S	98000	Right	\$0.20	35	34	1 structure
R18920	Structures	NorthMain134	IWR_1S	126000	Left	\$32.72	36	35	1 structure
R18945	Structures	NorthMain134	IWR_1S	126000	Left	\$20.25	34	33	1 structure
R19011	Structures	NorthMain134	IWR_1S	120000	Left	\$22.98	32	31	1 structure
R19067	Structures	NorthMain134	IWR_1S	138000	Left	\$92.13	38	37	1 structure
R19124	Structures	NorthMain134	IWR_1S	128000	Left	\$13.98	36	35	1 structure
R19147	Structures	NorthMain134	IWR_1S	128000	Left	\$18.48	36	35	1 structure
R19179	Structures	NorthMain134	IWR_1S	128000	Left	\$12.83	36	35	1 structure
R19186	Structures	NorthMain134	IWR_1S	128000	Left	\$10.18	35	34	1 structure
R19235	Structures	NorthMain134	IWR_1S	128000	Left	\$27.42	36	35	1 structure
R19263	Structures	NorthMain134	IWR_1S	128000	Left	\$4.88	32	31	1 structure
R19278	Structures	NorthMain134	IWR_1S	126000	Left	\$11.25	32	31	1 structure
R19285	Structures	NorthMain134	IWR_1S	86000	Right	\$38.88	28	27	1 structure
R19327	Structures	NorthMain134	IWR_1S	128000	Left	\$0.82	36	35	1 structure
R19357	Structures	NorthMain134	IWR_1S	140000	Left	\$34.42	40	39	1 structure
R19399	Structures	NorthMain134	IWR_1S	128000	Left	\$45.03	36	35	1 structure
R19410	Structures	NorthMain134	IWR_1S	128000	Left	\$8.07	36	35	1 structure
R19418	Structures	NorthMain134	IWR_1S	88000	Right	\$11.07	30	29	1 structure
R19424	Structures	NorthMain134	IWR_1S	128000	Left	\$25.19	36	35	1 structure
R19426	Structures	NorthMain134	IWR_1S	128000	Left	\$27.94	36	35	1 structure
R19428	Structures	NorthMain134	IWR_1S	128000	Left	\$3.72	36	35	1 structure
R19429	Structures	NorthMain134	IWR_1S	128000	Left	\$9.36	36	35	1 structure
R19440	Structures	NorthMain134	IWR_1S	126000	Left	\$31.61	36	35	1 structure
R19454	Structures	NorthMain134	IWR_1S	128000	Left	\$40.17	35	34	1 structure
R19455	Structures	NorthMain134	IWR_1S	128000	Left	\$44.81	34	33	1 structure
R19456	Structures	NorthMain134	IWR_1S	128000	Left	\$8.55	33	32	1 structure
R19470	Structures	NorthMain134	IWR_1S	128000	Left	\$8.70	32	31	1 structure
R19498	Structures	NorthMain134	IWR_1S	126000	Left	\$5.73	29	28	1 structure
R19499	Structures	NorthMain134	IWR_1S	126000	Left	\$176.97	34	33	1 structure
R19503	Structures	NorthMain134	IWR_1S	126000	Left	\$12.63	36	35	1 structure
R19602	Structures	NorthMain134	IWR_1S	128000	Left	\$6.15	34	33	1 structure
R19673	Structures	NorthMain134	IWR_1S	138000	Left	\$51.32	39	38	1 structure
R19684	Structures	NorthMain134	IWR_1S	138000	Left	\$75.71	38	37	1 structure
R19685	Structures	NorthMain134	IWR_1S	129441	Left	\$57.50	35	34	1 structure
R19712	Structures	NorthMain134	IWR_1S	128000	Left	\$4.03	36	35	1 structure
R19714	Structures	NorthMain134	IWR_1S	126000	Left	\$52.51	32	31	1 structure
R19734	Structures	NorthMain134	IWR_1S	129441	Left	\$22.95	35	34	1 structure
R19772	Structures	NorthMain134	IWR_1S	128000	Left	\$10.89	36	35	1 structure
R19813	Structures	NorthMain134	IWR_1S	126000	Left	\$37.40	36	35	1 structure
R19828	Structures	NorthMain134	IWR_1S	98000	Right	\$49.64	31	30	1 structure
R19846	Structures	NorthMain134	IWR_1S	126000	Left	\$40.66	32	31	1 structure
R19856	Structures	NorthMain134	IWR_1S	126000	Left	\$21.40	36	35	1 structure



North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R19859	Structures	NorthMain134	IWR_1S	126000	Left	\$10.70	32	31	1 structure
R19889	Structures	NorthMain134	IWR_1S	126000	Left	\$19.44	36	35	1 structure
R19890	Structures	NorthMain134	IWR_1S	126000	Left	\$20.13	36	35	1 structure
R19891	Structures	NorthMain134	IWR_1S	126000	Left	\$22.13	36	35	1 structure
R19911	Structures	NorthMain134	IWR_1S	128000	Left	\$18.86	36	35	1 structure
R19912	Structures	NorthMain134	IWR_1S	128000	Left	\$18.05	34	33	1 structure
R19913	Structures	NorthMain134	IWR_1S	128000	Left	\$9.23	36	35	1 structure
R19927	Structures	NorthMain134	IWR_1S	128000	Left	\$7.39	34	33	1 structure
R19955	Structures	NorthMain134	IWR_1S	128000	Left	\$4.05	36	35	1 structure
R19957	Structures	NorthMain134	IWR_1S	128000	Left	\$14.11	36	35	1 structure
R24076	Structures	NorthMain134	IWR_1S	126000	Left	\$7.34	32	31	1 structure
R24104	Structures	NorthMain134	IWR_1S	108000	Right	\$36.78	34	33	1 structure
R24129	Structures	NorthMain134	IWR_1S	98000	Right	\$71.94	35	34	1 structure
R24131	Structures	NorthMain134	IWR_1S	102000	Right	\$71.61	32	31	1 structure
R24132	Structures	NorthMain134	IWR_1S	112000	Right	\$26.78	32	31	1 structure
R24224	Structures	NorthMain134	IWR_1S	120000	Left	\$2.34	30	29	1 structure
R24225	Structures	NorthMain134	IWR_1S	120000	Left	\$55.21	30	29	1 structure
R24231	Structures	NorthMain134	IWR_1S	128000	Left	\$7.70	36	35	1 structure
R24236	Structures	NorthMain134	IWR_1S	102000	Left	\$1.30	31	30	1 structure
R24237	Structures	NorthMain134	IWR_1S	108000	Right	\$3.44	36	35	1 structure
R24267	Structures	NorthMain134	IWR_1S	129441	Left	\$9.95	35	34	1 structure
R24279	Structures	NorthMain134	IWR_1S	124000	Left	\$29.20	36	35	1 structure
R24342	Structures	NorthMain134	IWR_1S	128000	Left	\$11.32	36	35	1 structure
R24373	Structures	NorthMain134	IWR_1S	102000	Left	\$28.96	32	31	1 structure
R24390	Structures	NorthMain134	IWR_1S	129441	Left	\$5.76	36	35	1 structure
R24418	Structures	NorthMain134	IWR_1S	126000	Left	\$4.35	34	33	1 structure
R24457	Structures	NorthMain134	IWR_1S	124000	Left	\$27.67	36	35	1 structure
R24458	Structures	NorthMain134	IWR_1S	124000	Left	\$40.63	36	35	1 structure
R24460	Structures	NorthMain134	IWR_1S	124000	Left	\$28.82	36	35	1 structure
R24467	Structures	NorthMain134	IWR_1S	86000	Left	\$13.57	25	24	1 structure
R24489	Structures	NorthMain134	IWR_1S	128000	Left	\$6.54	36	35	1 structure
R24513	Structures	NorthMain134	IWR_1S	151600	Left	\$11.48	47	46	1 structure
R24514	Structures	NorthMain134	IWR_1S	126000	Left	\$3.46	32	31	1 structure
R24552	Structures	NorthMain134	IWR_1S	124000	Left	\$26.62	36	35	1 structure
R24971	Structures	NorthMain134	IWR_1S	124000	Left	\$4.32	36	35	1 structure
R24972	Structures	NorthMain134	IWR_1S	153231	Left	\$85.71	39	38	1 structure
R24973	Structures	NorthMain134	IWR_1S	153231	Left	\$28.93	39	38	1 structure
R24995	Structures	NorthMain134	IWR_1S	126000	Left	\$18.58	36	35	1 structure
R25042	Structures	NorthMain134	IWR_1S	124000	Left	\$8.19	36	35	1 structure
R25235	Structures	NorthMain134	IWR_1S	124000	Left	\$12.56	36	35	1 structure
R25238	Structures	NorthMain134	IWR_1S	126000	Left	\$26.32	32	31	1 structure
R25647	Structures	NorthMain134	IWR_1S	126000	Left	\$41.79	36	35	1 structure
R26457	Structures	NorthMain134	IWR_1S	126000	Left	\$9.20	32	31	1 structure
R26462	Structures	NorthMain134	IWR_1S	126000	Left	\$22.83	32	31	1 structure
R26470	Structures	NorthMain134	IWR_1S	126000	Left	\$7.31	32	31	1 structure
R26477	Structures	NorthMain134	IWR_1S	126000	Left	\$23.85	32	31	1 structure
R26483	Structures	NorthMain134	IWR_1S	136000	Left	\$50.76	35	34	1 structure
R26585	Structures	NorthMain134	IWR_1S	94000	Right	\$23.74	28	27	1 structure
R26604	Structures	NorthMain134	IWR_1S	128000	Left	\$2.59	36	35	1 structure
R26697	Structures	NorthMain134	IWR_1S	126000	Left	\$13.93	36	35	1 structure
R26707	Structures	NorthMain134	IWR_1S	129441	Left	\$32.16	36	35	1 structure
R26849	Structures	NorthMain134	IWR_1S	126000	Left	\$7.13	36	35	1 structure
R26865	Structures	NorthMain134	IWR_1S	128000	Left	\$26.28	36	35	1 structure
R26945	Structures	NorthMain134	IWR_1S	86000	Left	\$29.98	25	24	1 structure
R26946	Structures	NorthMain134	IWR_1S	128000	Left	\$2.42	35	34	1 structure
R26951	Structures	NorthMain134	IWR_1S	128000	Left	\$20.43	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Gmrd_Stage	Notes
R26978	Structures	NorthMain134	IWR_1S	128000	Left	\$36.29	36	35	1 structure
R27051	Structures	NorthMain134	IWR_1S	126000	Left	\$16.13	32	31	1 structure
R27060	Structures	NorthMain134	IWR_1S	136000	Left	\$37.39	36	35	1 structure
R27063	Structures	NorthMain134	IWR_1S	136000	Left	\$20.58	36	35	1 structure
R27085	Structures	NorthMain134	IWR_1S	128000	Left	\$18.97	36	35	1 structure
R27147	Structures	NorthMain134	IWR_1S	126000	Left	\$8.35	32	31	1 structure
R27155	Structures	NorthMain134	IWR_1S	108000	Right	\$38.67	36	35	1 structure
R27157	Structures	NorthMain134	IWR_1S	108000	Right	\$21.97	36	35	1 structure
R27226	Structures	NorthMain134	IWR_1S	94000	Right	\$74.84	30	29	1 structure
R27228	Structures	NorthMain134	IWR_1S	94000	Right	\$51.05	30	29	1 structure
R27232	Structures	NorthMain134	IWR_1S	152561	Left	\$10.46	40	39	1 structure
R27233	Structures	NorthMain134	IWR_1S	152561	Left	\$53.28	40	39	1 structure
R27245	Structures	NorthMain134	IWR_1S	102000	Left	\$6.62	31	30	1 structure
R27264	Structures	NorthMain134	IWR_1S	102000	Left	\$13.27	31	30	1 structure
R27447	Structures	NorthMain134	IWR_1S	102000	Right	\$76.12	32	31	1 structure
R27688	Structures	NorthMain134	IWR_1S	126000	Left	\$6.59	36	35	1 structure
R27708	Structures	NorthMain134	IWR_1S	126000	Left	\$3.46	36	35	1 structure
R27711	Structures	NorthMain134	IWR_1S	128000	Left	\$10.75	36	35	1 structure
R27719	Structures	NorthMain134	IWR_1S	128000	Left	\$7.78	34	33	1 structure
R27720	Structures	NorthMain134	IWR_1S	128000	Left	\$8.51	33	32	1 structure
R27721	Structures	NorthMain134	IWR_1S	88000	Right	\$33.79	26	25	1 structure
R27725	Structures	NorthMain134	IWR_1S	128000	Left	\$24.18	34	33	1 structure
R27733	Structures	NorthMain134	IWR_1S	128000	Left	\$24.68	36	35	1 structure
R27741	Structures	NorthMain134	IWR_1S	128000	Left	\$32.82	36	35	1 structure
R27742	Structures	NorthMain134	IWR_1S	128000	Left	\$32.34	36	35	1 structure
R27743	Structures	NorthMain134	IWR_1S	128000	Left	\$7.65	34	33	1 structure
R27748	Structures	NorthMain134	IWR_1S	128000	Left	\$43.37	36	35	1 structure
R27762	Structures	NorthMain134	IWR_1S	128000	Left	\$689.63	36	35	1 structure
R27767	Structures	NorthMain134	IWR_1S	128000	Left	\$23.77	36	35	1 structure
R27780	Structures	NorthMain134	IWR_1S	86000	Left	\$13.75	25	24	1 structure
R27812	Structures	NorthMain134	IWR_1S	88000	Right	\$39.02	27	26	1 structure
R27853	Structures	NorthMain134	IWR_1S	118000	Left	\$34.43	33	32	1 structure
R27889	Structures	NorthMain134	IWR_1S	124000	Left	\$0.40	36	35	1 structure
R27918	Structures	NorthMain134	IWR_1S	124000	Left	\$14.85	36	35	1 structure
R27931	Structures	NorthMain134	IWR_1S	122908	Left	\$71.22	34	33	1 structure
R27932	Structures	NorthMain134	IWR_1S	126000	Left	\$68.62	35	34	1 structure
R27933	Structures	NorthMain134	IWR_1S	126000	Left	\$5.13	35	34	1 structure
R27945	Structures	NorthMain134	IWR_1S	136000	Left	\$105.36	36	35	1 structure
R27954	Structures	NorthMain134	IWR_1S	124000	Left	\$8.69	36	35	1 structure
R27964	Structures	NorthMain134	IWR_1S	138000	Left	\$8.32	36	35	1 structure
R27985	Structures	NorthMain134	IWR_1S	128000	Left	\$7.83	36	35	1 structure
R28023	Structures	NorthMain134	IWR_1S	122908	Left	\$1.73	31	30	1 structure
R28387	Structures	NorthMain134	IWR_1S	124000	Left	\$25.14	36	35	1 structure
R28391	Structures	NorthMain134	IWR_1S	128000	Left	\$8.42	36	35	1 structure
R28396	Structures	NorthMain134	IWR_1S	151600	Left	\$166.85	42	41	1 structure
R28398	Structures	NorthMain134	IWR_1S	144000	Left	\$67.70	38	37	1 structure
R28403	Structures	NorthMain134	IWR_1S	128000	Left	\$15.33	36	35	1 structure
R28407	Structures	NorthMain134	IWR_1S	128000	Left	\$11.25	36	35	1 structure
R28481	Structures	NorthMain134	IWR_1S	153231	Left	\$26.54	41	40	1 structure
R28515	Structures	NorthMain134	IWR_1S	124000	Left	\$27.78	36	35	1 structure
R28564	Structures	NorthMain134	IWR_1S	152561	Left	\$41.67	46	45	1 structure
R28641	Structures	NorthMain134	IWR_1S	118000	Left	\$23.49	33	32	1 structure
R28650	Structures	NorthMain134	IWR_1S	128000	Left	\$3.82	36	35	1 structure
R28652	Structures	NorthMain134	IWR_1S	128000	Left	\$26.99	36	35	1 structure
R28653	Structures	NorthMain134	IWR_1S	128000	Left	\$75.81	36	35	1 structure
R28664	Structures	NorthMain134	IWR_1S	128000	Left	\$13.39	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R28673	Structures	NorthMain134	IWR_1S	128000	Left	\$10.44	36	35	1 structure
R28700	Structures	NorthMain134	IWR_1S	102000	Left	\$94.17	31	30	1 structure
R28707	Structures	NorthMain134	IWR_1S	80000	Left	\$42.83	26	25	1 structure
R28713	Structures	NorthMain134	IWR_1S	112000	Right	\$0.60	32	31	1 structure
R28718	Structures	NorthMain134	IWR_1S	108000	Left	\$16.59	36	35	1 structure
R28722	Structures	NorthMain134	IWR_1S	112000	Left	\$43.76	34	33	1 structure
R28733	Structures	NorthMain134	IWR_1S	114000	Left	\$12.00	35	34	1 structure
R28747	Structures	NorthMain134	IWR_1S	112000	Left	\$97.30	33	32	1 structure
R28751	Structures	NorthMain134	IWR_1S	140000	Left	\$64.49	40	39	1 structure
R28752	Structures	NorthMain134	IWR_1S	113338	Left	\$19.11	35	34	1 structure
R28753	Structures	NorthMain134	IWR_1S	140000	Left	\$18.24	40	39	1 structure
R28754	Structures	NorthMain134	IWR_1S	134000	Left	\$18.00	35	34	1 structure
R28767	Structures	NorthMain134	IWR_1S	124000	Left	\$4.08	36	35	1 structure
R28785	Structures	NorthMain134	IWR_1S	102000	Left	\$22.17	32	31	1 structure
R28787	Structures	NorthMain134	IWR_1S	98000	Left	\$6.99	31	30	1 structure
R28789	Structures	NorthMain134	IWR_1S	102000	Left	\$19.00	32	31	1 structure
R28791	Structures	NorthMain134	IWR_1S	98000	Left	\$68.84	28	27	1 structure
R28793	Structures	NorthMain134	IWR_1S	124000	Left	\$0.50	36	35	1 structure
R28824	Structures	NorthMain134	IWR_1S	116000	Left	\$34.65	37	36	1 structure
R28910	Structures	NorthMain134	IWR_1S	124000	Left	\$6.48	36	35	1 structure
R28925	Structures	NorthMain134	IWR_1S	153231	Left	\$33.26	40	39	1 structure
R29092	Structures	NorthMain134	IWR_1S	129441	Left	\$29.70	36	35	1 structure
R29102	Structures	NorthMain134	IWR_1S	129441	Left	\$30.27	36	35	1 structure
R29120	Structures	NorthMain134	IWR_1S	128000	Left	\$14.37	34	33	1 structure
R29121	Structures	NorthMain134	IWR_1S	128000	Left	\$20.72	34	33	1 structure
R29123	Structures	NorthMain134	IWR_1S	147159	Left	\$35.45	41	40	1 structure
R29143	Structures	NorthMain134	IWR_1S	126000	Left	\$17.41	36	35	1 structure
R29144	Structures	NorthMain134	IWR_1S	147159	Left	\$29.15	41	40	1 structure
R29147	Structures	NorthMain134	IWR_1S	136000	Left	\$60.19	36	35	1 structure
R29151	Structures	NorthMain134	IWR_1S	128000	Left	\$15.26	33	32	1 structure
R29152	Structures	NorthMain134	IWR_1S	128000	Left	\$26.41	34	33	1 structure
R29153	Structures	NorthMain134	IWR_1S	134000	Left	\$72.29	35	34	1 structure
R29154	Structures	NorthMain134	IWR_1S	128000	Left	\$24.72	35	34	1 structure
R29158	Structures	NorthMain134	IWR_1S	126000	Left	\$1.51	36	35	1 structure
R29160	Structures	NorthMain134	IWR_1S	129441	Left	\$17.88	34	33	1 structure
R29161	Structures	NorthMain134	IWR_1S	126000	Left	\$29.81	36	35	1 structure
R29164	Structures	NorthMain134	IWR_1S	126000	Left	\$14.92	36	35	1 structure
R29165	Structures	NorthMain134	IWR_1S	129441	Left	\$54.70	36	35	1 structure
R29167	Structures	NorthMain134	IWR_1S	128000	Left	\$24.43	36	35	1 structure
R29168	Structures	NorthMain134	IWR_1S	128000	Left	\$49.08	36	35	1 structure
R29173	Structures	NorthMain134	IWR_1S	126000	Left	\$10.07	36	35	1 structure
R29188	Structures	NorthMain134	IWR_1S	126000	Left	\$48.18	36	35	1 structure
R29188	Structures	NorthMain134	IWR_1S	128000	Left	\$48.18	36	35	1 structure
R29192	Structures	NorthMain134	IWR_1S	128000	Left	\$22.08	36	35	1 structure
R29215	Structures	NorthMain134	IWR_1S	128000	Left	\$8.71	36	35	1 structure
R29218	Structures	NorthMain134	IWR_1S	128000	Left	\$16.75	36	35	1 structure
R29220	Structures	NorthMain134	IWR_1S	128000	Left	\$5.90	36	35	1 structure
R29223	Structures	NorthMain134	IWR_1S	128000	Left	\$12.61	36	35	1 structure
R29225	Structures	NorthMain134	IWR_1S	128000	Left	\$10.13	36	35	1 structure
R29226	Structures	NorthMain134	IWR_1S	128000	Left	\$6.74	36	35	1 structure
R29227	Structures	NorthMain134	IWR_1S	128000	Left	\$1.90	36	35	1 structure
R29228	Structures	NorthMain134	IWR_1S	128000	Left	\$13.36	36	35	1 structure
R29229	Structures	NorthMain134	IWR_1S	128000	Left	\$2.57	36	35	1 structure
R29236	Structures	NorthMain134	IWR_1S	128000	Left	\$19.83	36	35	1 structure
R29238	Structures	NorthMain134	IWR_1S	128000	Left	\$3.17	36	35	1 structure
R29239	Structures	NorthMain134	IWR_1S	128000	Left	\$13.61	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R29241	Structures	NorthMain134	IWR_1S	128000	Left	\$12.80	36	35	1 structure
R29242	Structures	NorthMain134	IWR_1S	128000	Left	\$9.32	36	35	1 structure
R29244	Structures	NorthMain134	IWR_1S	128000	Left	\$7.12	36	35	1 structure
R29245	Structures	NorthMain134	IWR_1S	128000	Left	\$9.90	36	35	1 structure
R29247	Structures	NorthMain134	IWR_1S	128000	Left	\$9.45	36	35	1 structure
R29248	Structures	NorthMain134	IWR_1S	128000	Left	\$11.13	36	35	1 structure
R29250	Structures	NorthMain134	IWR_1S	128000	Left	\$0.20	36	35	1 structure
R29256	Structures	NorthMain134	IWR_1S	128000	Left	\$3.48	36	35	1 structure
R29260	Structures	NorthMain134	IWR_1S	128000	Left	\$3.55	36	35	1 structure
R29261	Structures	NorthMain134	IWR_1S	138000	Left	\$13.70	36	35	1 structure
R29263	Structures	NorthMain134	IWR_1S	138000	Left	\$30.96	36	35	1 structure
R29266	Structures	NorthMain134	IWR_1S	128000	Left	\$3.12	36	35	1 structure
R29272	Structures	NorthMain134	IWR_1S	128000	Left	\$6.83	36	35	1 structure
R29282	Structures	NorthMain134	IWR_1S	102000	Left	\$9.74	31	30	1 structure
R29292	Structures	NorthMain134	IWR_1S	134000	Left	\$100.51	36	35	1 structure
R29294	Structures	NorthMain134	IWR_1S	140000	Left	\$68.72	40	39	1 structure
R29295	Structures	NorthMain134	IWR_1S	88000	Right	\$22.75	30	29	1 structure
R29300	Structures	NorthMain134	IWR_1S	138000	Left	\$10.16	36	35	1 structure
R29315	Structures	NorthMain134	IWR_1S	122000	Left	\$35.93	34	33	1 structure
R29326	Structures	NorthMain134	IWR_1S	128000	Left	\$17.80	36	35	1 structure
R29332	Structures	NorthMain134	IWR_1S	128000	Left	\$12.38	36	35	1 structure
R29345	Structures	NorthMain134	IWR_1S	128000	Left	\$18.13	36	35	1 structure
R29367	Structures	NorthMain134	IWR_1S	143233	Left	\$32.29	40	39	1 structure
R29369	Structures	NorthMain134	IWR_1S	143233	Left	\$27.25	40	39	1 structure
R29495	Structures	NorthMain134	IWR_1S	128000	Left	\$1.50	36	35	1 structure
R29496	Structures	NorthMain134	IWR_1S	128000	Left	\$16.65	36	35	1 structure
R29528	Structures	NorthMain134	IWR_1S	128000	Left	\$9.53	36	35	1 structure
R29564	Structures	NorthMain134	IWR_1S	96000	Left	\$28.01	26	25	1 structure
R29569	Structures	NorthMain134	IWR_1S	98000	Left	\$12.01	28	27	1 structure
R29596	Structures	NorthMain134	IWR_1S	88000	Right	\$67.33	30	29	1 structure
R29598	Structures	NorthMain134	IWR_1S	86000	Right	\$48.70	29	28	1 structure
R29601	Structures	NorthMain134	IWR_1S	82000	Right	\$2.42	25	24	1 structure
R29602	Structures	NorthMain134	IWR_1S	82000	Right	\$18.31	26	25	1 structure
R29603	Structures	NorthMain134	IWR_1S	82000	Right	\$22.10	27	26	1 structure
R29637	Structures	NorthMain134	IWR_1S	80000	Right	\$23.28	22	21	1 structure
R29643	Structures	NorthMain134	IWR_1S	153231	Left	\$13.68	41	40	1 structure
R29645	Structures	NorthMain134	IWR_1S	152561	Left	\$84.91	40	39	1 structure
R29663	Structures	NorthMain134	IWR_1S	153231	Left	\$6.32	39	38	1 structure
R29692	Structures	NorthMain134	IWR_1S	126000	Left	\$12.99	36	35	1 structure
R30053	Structures	NorthMain134	IWR_1S	102000	Left	\$16.65	31	30	1 structure
R30159	Structures	NorthMain134	IWR_1S	128000	Left	\$31.74	36	35	1 structure
R31332	Structures	NorthMain134	IWR_1S	140000	Left	\$21.24	40	39	1 structure
R31984	Structures	NorthMain134	IWR_1S	120000	Left	\$9.65	30	29	1 structure
R32563	Structures	NorthMain134	IWR_1S	128000	Left	\$16.96	36	35	1 structure
R32573	Structures	NorthMain134	IWR_1S	128000	Left	\$5.18	36	35	1 structure
R32581	Structures	NorthMain134	IWR_1S	128000	Left	\$10.75	36	35	1 structure
R32706	Structures	NorthMain134	IWR_1S	128000	Left	\$5.95	36	35	1 structure
R32735	Structures	NorthMain134	IWR_1S	126000	Left	\$11.76	32	31	1 structure
R32778	Structures	NorthMain134	IWR_1S	129441	Left	\$15.35	36	35	1 structure
R32801	Structures	NorthMain134	IWR_1S	129441	Left	\$50.29	36	35	1 structure
R32817	Structures	NorthMain134	IWR_1S	126000	Left	\$16.95	35	34	1 structure
R33446	Structures	NorthMain134	IWR_1S	126000	Left	\$2.75	32	31	1 structure
R33447	Structures	NorthMain134	IWR_1S	126000	Left	\$2.77	32	31	1 structure
R33454	Structures	NorthMain134	IWR_1S	98000	Right	\$75.85	34	33	1 structure
R33526	Structures	NorthMain134	IWR_1S	126000	Left	\$58.37	36	35	1 structure
R33536	Structures	NorthMain134	IWR_1S	126000	Left	\$62.36	36	35	1 structure



North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R34097	Structures	NorthMain134	IWR_1S	126000	Left	\$4.38	32	31	1 structure
R34112	Structures	NorthMain134	IWR_1S	128000	Left	\$8.90	32	31	1 structure
R34120	Structures	NorthMain134	IWR_1S	151600	Left	\$0.50	42	41	1 structure
R34142	Structures	NorthMain134	IWR_1S	124000	Left	\$9.07	36	35	1 structure
R34143	Structures	NorthMain134	IWR_1S	120000	Left	\$11.65	29	28	1 structure
R34154	Structures	NorthMain134	IWR_1S	129441	Left	\$26.74	36	35	1 structure
R34197	Structures	NorthMain134	IWR_1S	140000	Left	\$10.94	40	39	1 structure
R34593	Structures	NorthMain134	IWR_1S	86000	Left	\$3.56	25	24	1 structure
R34692	Structures	NorthMain134	IWR_1S	114000	Left	\$3.70	34	33	1 structure
R34693	Structures	NorthMain134	IWR_1S	116000	Left	\$16.90	33	32	1 structure
R35188	Structures	NorthMain134	IWR_1S	128000	Left	\$7.34	36	35	1 structure
R35208	Structures	NorthMain134	IWR_1S	126000	Left	\$8.06	32	31	1 structure
R35539	Structures	NorthMain134	IWR_1S	126000	Left	\$45.14	32	31	1 structure
R35705	Structures	NorthMain134	IWR_1S	126000	Left	\$21.15	36	35	1 structure
R35713	Structures	NorthMain134	IWR_1S	128000	Left	\$8.70	36	35	1 structure
R35753	Structures	NorthMain134	IWR_1S	126000	Left	\$4.00	32	31	1 structure
R35837	Structures	NorthMain134	IWR_1S	128000	Left	\$9.05	36	35	1 structure
R35952	Structures	NorthMain134	IWR_1S	102000	Left	\$50.47	32	31	1 structure
R35997	Structures	NorthMain134	IWR_1S	126000	Left	\$24.69	32	31	1 structure
R36066	Structures	NorthMain134	IWR_1S	124000	Left	\$10.54	36	35	1 structure
R36070	Structures	NorthMain134	IWR_1S	126000	Left	\$14.23	36	35	1 structure
R36116	Structures	NorthMain134	IWR_1S	126000	Left	\$9.57	36	35	1 structure
R36119	Structures	NorthMain134	IWR_1S	128000	Left	\$8.50	34	33	1 structure
R36128	Structures	NorthMain134	IWR_1S	128000	Left	\$13.28	36	35	1 structure
R36143	Structures	NorthMain134	IWR_1S	147159	Left	\$9.50	40	39	1 structure
R36151	Structures	NorthMain134	IWR_1S	129441	Left	\$15.12	35	34	1 structure
R36179	Structures	NorthMain134	IWR_1S	126000	Left	\$5.45	32	31	1 structure
R36180	Structures	NorthMain134	IWR_1S	134000	Left	\$20.25	35	34	1 structure
R36182	Structures	NorthMain134	IWR_1S	122000	Left	\$6.30	31	30	1 structure
R36183	Structures	NorthMain134	IWR_1S	136000	Left	\$3.46	35	34	1 structure
R36185	Structures	NorthMain134	IWR_1S	129441	Left	\$12.80	35	34	1 structure
R36228	Structures	NorthMain134	IWR_1S	96000	Left	\$6.57	26	25	1 structure
R36233	Structures	NorthMain134	IWR_1S	152561	Left	\$2.60	46	45	1 structure
R36258	Structures	NorthMain134	IWR_1S	128000	Left	\$2.72	36	35	1 structure
R36276	Structures	NorthMain134	IWR_1S	126000	Left	\$11.99	35	34	1 structure
R36277	Structures	NorthMain134	IWR_1S	126000	Left	\$7.80	35	34	1 structure
R36279	Structures	NorthMain134	IWR_1S	129441	Left	\$15.23	36	35	1 structure
R36288	Structures	NorthMain134	IWR_1S	153231	Left	\$3.82	39	38	1 structure
R36302	Structures	NorthMain134	IWR_1S	128000	Left	\$5.36	36	35	1 structure
R36400	Structures	NorthMain134	IWR_1S	102000	Left	\$8.60	31	30	1 structure
R36401	Structures	NorthMain134	IWR_1S	128000	Left	\$7.22	33	32	1 structure
R36431	Structures	NorthMain134	IWR_1S	88000	Right	\$3.00	30	29	1 structure
R36432	Structures	NorthMain134	IWR_1S	88000	Right	\$11.40	30	29	1 structure
R36442	Structures	NorthMain134	IWR_1S	144000	Left	\$13.25	38	37	1 structure
R36489	Structures	NorthMain134	IWR_1S	128000	Left	\$9.72	36	35	1 structure
R36543	Structures	NorthMain134	IWR_1S	126000	Left	\$4.68	34	33	1 structure
R36662	Structures	NorthMain134	IWR_1S	88000	Right	\$2.16	27	26	1 structure
R36663	Structures	NorthMain134	IWR_1S	88000	Right	\$0.97	26	25	1 structure
R36664	Structures	NorthMain134	IWR_1S	80000	Right	\$3.46	25	24	1 structure
R36709	Structures	NorthMain134	IWR_1S	102000	Left	\$6.82	31	30	1 structure
R36711	Structures	NorthMain134	IWR_1S	128000	Left	\$1.08	36	35	1 structure
R36764	Structures	NorthMain134	IWR_1S	128000	Left	\$1.96	33	32	1 structure
R36769	Structures	NorthMain134	IWR_1S	128000	Left	\$5.69	36	35	1 structure
R36777	Structures	NorthMain134	IWR_1S	126000	Left	\$19.34	36	35	1 structure
R36779	Structures	NorthMain134	IWR_1S	128000	Left	\$44.37	36	35	1 structure
R36780	Structures	NorthMain134	IWR_1S	128000	Left	\$1.71	36	35	1 structure

North Main / Ramondville Drains  
Structure Database

Struc_Name	Cat_name	Stream_name	Occ_Name	Station	Bank	Struc_Val	1F_Stage	Grnd_Stage	Notes
R36782	Structures	NorthMain134	IWR_1S	86000	Left	\$11.92	25	24	1 structure
R36791	Structures	NorthMain134	IWR_1S	151600	Left	\$28.63	42	41	1 structure
R36798	Structures	NorthMain134	IWR_1S	126000	Left	\$27.80	32	31	1 structure
R36811	Structures	NorthMain134	IWR_1S	128000	Left	\$3.05	36	35	1 structure
R36813	Structures	NorthMain134	IWR_1S	126000	Left	\$5.00	32	31	1 structure
R36878	Structures	NorthMain134	IWR_1S	128000	Left	\$10.94	36	35	1 structure
R36896	Structures	NorthMain134	IWR_1S	126000	Left	\$0.62	32	31	1 structure
R36898	Structures	NorthMain134	IWR_1S	138000	Left	\$66.57	36	35	1 structure
R36899	Structures	NorthMain134	IWR_1S	128000	Left	\$10.89	36	35	1 structure
R36899	Structures	NorthMain134	IWR_1S	128000	Left	\$10.89	36	35	1 structure
R36948	Structures	NorthMain134	IWR_1S	126000	Left	\$12.16	32	31	1 structure
R36953	Structures	NorthMain134	IWR_1S	134000	Left	\$3.06	36	35	1 structure
R37306	Structures	NorthMain134	IWR_1S	126000	Left	\$9.42	36	35	1 structure

North Main and Raymondville Drains  
Meeting Agendas, Sign-in Sheet, and Other Documents

# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

902 NORTH ODOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2643

FAX (956) 318-2639

## HCDD#1



GODFREY GARZA, JR.  
MANAGER

October 15, 1999

Turner Colite & Braden  
Attn.: Mr. John A. Espinoza, P. E., C.F.M.  
6800 Park Ten Blvd., Suite 274 South  
San Antonio, Texas 78213

Dear Mr. Espinoza:

Hidalgo County Drainage District No. 1/ Willacy County are in the process of beginning preparations for the expansion of North Main / Raymondville Drain. This planning process is being brought about by the rapid growth within the Districts boundaries.

As in the preparation of the Hidalgo County Drainage District No. 1 Master Plan Phase I the participation by county wide elected officials, Irrigations District Board Members and private citizens was an essential part for the successful development of this project.

We look forward to seeing you at the scheduled "kick off meeting" at the following location:

DATE: OCTOBER 20, 1999  
TIME: 6:00 PM  
LOCATION: COMMISSIONERS COURTROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

If I can be of any assistance please feel free to contact me at (956) 318-2642.

Sincerely,

Godfrey Garza, Jr.  
District Manager

GG/ia

**Classified**

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**0-4-2**

ing Cash Five numbers  
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**15-24-32-39**

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**ANNOUNCEMENTS**

6-Legal Notices

**ANNOUNCEMENTS**

6-Legal Notices

**ANNOUNCEMENT**

6-Legal Notices

**RENTALS**

93—Houses Unfurnished

**North Main Drain/Raymondville Drain Project Meeting**

Hidalgo County Drainage District Number One and Willacy County are in the process of developing a flood protection plan for an area consisting of the Raymondville Drain and the North Main Drain (South Main Drain) located in Hidalgo and Willacy Counties, Texas. The flood protection plan will include structural alternatives to be investigated consist of a diversion of flows from the North Main Drain towards the Raymondville Drain, increasing the channel capacity of Raymondville Drain, levees for protection of the Raymondville area, and detention storage in Lake Edinburg and La Sal Vieja Lake. Non-structural alternatives include structural buy out, slab elevation of existing structures, and open spaces for flood storage.

In order to get input from local officials and private citizens, a "Kick-off Meeting" is scheduled from Wednesday, October 20 (, 6:00 PM, to be held at the Hidalgo County Commissioners Courtroom located at 100 S. Closer in Edinburg.

Should you have any questions concerning the project or meeting, contact Godfrey Garza, District Manager for the Drainage District at 956-318-2642.

**NOTICE**

NOTICE IS HEREBY GIVEN that Hidalgo County Irrigation District No. One (HCID#1) has declared as surplus and intends to convey to private sale that certain real property more particularly described as follows:

A Certain right of way out of Lot 16, Section 254, Tex- Mex (lateral 19, West of 3rd St., San Carlos)

(hereinafter "the Property"). The requirements and conditions of sale are set forth in a resolution adopted by the Board of Directors of HCID#1 at its regular meeting held on October 7, 1999, which may be reviewed by interested parties at the District's office. The Board of Directors will consider the conveyance of the Property by private sale at its regularly scheduled meeting occurring on or after the October 21, 1999.

**BUSINESS SERVICES**

30—Miscellaneous

Reasonable Prices Special. Kirby G-5- \$795.00 like new. Trade Ins accepted. Call 287-7044. Shampoo Hoover Vacs from \$99.95.

**EMPLOYMENT**

38—Trades and Professions

BEAUTY PALAZE SALON Looking for hairstylist. Three year experience. Call 316-

FOUR BEDROOMS, two baths, central air, stove & refrigerator fenced all around. Brick duplex 2222 Cypress off East Iowa Rd. Call 682-4915

HOUSE FOR rent. Two bedroom, brick house near UTPA. Refrigerator, stove, washer & dryer hook up and fenced back yard. \$500 month, \$250 deposit, call 956-383-7355.

ONE apartment for rent. Central air, stove & refrigerator. Washer & dryer connections. \$450 month, \$350 deposit. Available Jan. 1 381-9838, M-F.

TWO BEDROOM house for rent. \$300 month, \$150 deposit, no large families. Call 380-0672.

**REAL ESTATE**

112—Groves, Farms, Ranches

**30 ACRES**

Hunting Property South Texas Brush Country. Owner Fi-

Subject: North Main / Raymondville Drain Public Kick-off Meeting  
Job No.: 31-01001-001  
Place: Hidalgo County Commissioners Courtroom, Edinburg, Texas  
Date of Mtg.: October 20, 1999; 6:00 p.m.  
Attendees: See Attached List  
Date Prepared: 11/12/99  
Prepared By: John A. Espinoza

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The purpose of the Kick-off meeting was to obtain input from local officials and private citizens concerning the above-referenced project. In addition, the meeting was also used to present project scope of services and describe anticipated project final products.

For this meeting, letters were sent to various entities and officials informing them of the meeting. This meeting was also advertised in the *Edinburg Daily Review* newspaper on Tuesday, October 19, 1999. Copies of the letter (sent to John Espinoza) and the newspaper article are attached.

### **Meeting Summary**

The following is a summary of the meeting/presentation:

Godfrey Garza started the meeting by thanking everybody for attending and introduction of some of the people attending the meeting. Approximately 20 people attended the meeting including two county commissioners, Gilbert Ward from the Texas Water Development Board (TWDB), representatives from various irrigation districts, some of the consultants, and TC&B staff. Godfrey stated that TC&B would be conducting the project with the assistance of five local consultants. He also noted that funding for this project was from the TWDB and from the Hidalgo County Drainage District Number 1.

Alan Potok then gave a brief description of previous drainage studies conducted for the project site area. Previous studies mentioned included the following:

- 1956 study conducted by the US Department of Interior
- 1975 Design and Construction of Major Drainage Channels
- 1995 study by Corps of Engineers

Alan's presentation included some proposed design characteristics and cost related to the Corps of Engineers 1995 study proposed modifications for the North Main Drain.

John Espinoza then presented the project scope of services including a brief description of each major task that will be conducted as part of the project. The description also included the role of each project team consultant and which task they would be conducting.

During the presentation, the following was noted:

- An advisory committee will be formed consisting of people from local entities including drainage districts, commissioners, etc.
- Future public meeting will be conducted to present project findings and recommendations.

- Final products would consist of some form of preliminary plan and profile drawings.

#### **Audience Comments**

The following are some of the comments received from the audience:

- Since the project covers a large area, Gilbert Ward (TWDB) requested that for future public meetings, we need to advertise in more than one newspaper in order to reach more people.
- People that live in the western portion of Hidalgo County could be paying taxes for the construction of a project that will be in the eastern part of the county.
- Any modifications proposed at the outfall of the Raymondville Drain could encounter some environmental concerns and design challenges.
- One of the commissioners requested that we need to make sure we get word of the project out to the general public. We need to make sure that the public is aware of what we are doing and what modifications are being proposed, since eventually they would be voting and paying for improvements.

#### **Distribution:**

Godfrey Garza - HCDD1

Gilbert Ward - TWDB

Alan Potok - TC&B

File

HIDALGO / RAYMONDVILLE MEETING  
 OCTOBER 20, 1999  
 6 P.M.

<del>W. Otto Hoffman</del>	319 S. CAG & PHOENIX	787-2222
<del>W. Otto Hoffman</del>	108 W. 18 <sup>th</sup> St <sup>Hinojosa</sup> <sub>Eng. Inc.</sub>	581-0145
Gilbert Wood	Texas Cities Development Bd.	512 463-6418
Arturo Garcia Jr.	R. Gutierrez Engr. Corp.	788-2557
Mario R. Sarge	Tx Dot	702-6250
RAMIRO GUTIERREZ	R. GUTIERREZ ENGR. CORP.	782-2557
Jimmy Anthony	HCID #1	383-3886
Jim Piggan	Willacy Co. Drainage D <sup>#</sup>	347 5164
Jerry K. Taylor	El Saura Ranch	248-5593
Rudy Salcedo	TCTB	(956) 780-4100
Alfredo Salinas	HCID #1	383 3886
Jerry Bell	FEUNITAS PROPERTIES	585-6482
Dwain Bell	PO Box 653 Feunitas	78576
TITO PATAIOS	PO Box 582 San Juan	
OSCAR GARZA	1102 N Doalille	Edinburg TX
Richard Ruppert	1419 Mangold	McAllen TX
LARRY L SMITH	115 W. MCINTYRE	EDINBURG TX
RAMON E. SESIN	9120 N 23 <sup>RD</sup> ST MARWAN	686 8304
SONNY NINOSOSTA	PO Box 6 SAN JUAN	956 787 1422
Bill Green	Santa Fe # 15	383-3441
Laura Patricia	190 N. 3rd, Cithouse Rayville.	689-3398
Simon Salinas	" "	689-3393



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# AGENDA

*North Main / Raymondville Drains  
Advisory Committee Kick-Off*

**Time:** 6:30 p.m.

**Date:** February 2, 2000

**Location:** Hidalgo County Commissioners Courtroom  
Edinburg, Texas

## Introduction

### Purpose of Project

- Develop a Flood Protection Plan
- Proposed Modifications

### Watershed Description

### Background

### Project Team

- Turner Collie & Braden Inc.
- R. Gutierrez Engineering Corp.
- Hinojosa Engineering, Inc.
- Melden & Hunt, Inc.
- Sesin Engineering, Inc.
- Sigler, Winston, Greenwood & Associates, Inc.

### Scope of Services

- Preliminary Engineering Analysis
- Construction Cost Analysis
- Economic Evaluation
- Environmental Evaluation

### Project Products

- Hydrologic and Hydraulic Models
- Preliminary Design Report
- Field Reconnaissance

### Funding of Project

- Texas Water Development Board
- Hidalgo County Drainage District Number One

### Project Status

- Public Meeting
- Modeling Results

### Project Schedule



**FLOOD PROTECTION PLAN**  
**North Main Drain / Raymondville Drain**

**Hidalgo County Drainage District #1**

**Willacy County**

**Texas Water Development Board**

*Presented by*

**TurnerCollie & Braden Inc.**

# ***Purpose Of Project***

- **Develop a Flood Protection Plan**
- **Proposed Modifications**
  - **Diversion Channel**
  - **Raymondville Drain Channel Modification**
  - **Levee for Raymondville**
  - **Detention Storage (Lake Edinburg and La Sal Vieja)**

# ***Background***

- **1956 Study by US Department of Interior**
- **1975 Design and Construction of Major Drainage Channels**
  - 9 1/2 Year Design Capacity
- **1995 study by US Army Corps of Engineers**
  - 5 Year Design
  - Widen and Deepen North Main and Santa Cruz, and Divesion to IBWC North Floodway (\$131,618,600)
  - Widen and Deepen North Main and Santa Cruz (\$187,686,300)
- **HCDD#1 Initiates Regional Drainage Approach**
- **1999 TWDB Approves Planning Grant**

## ***Watershed Description***

- **Raymondville Drain**
  - **Drainage Area - Approximately 348 Square Miles**
  - **Length - 45 Miles**
- **North Main Drain**
  - **Drainage Area - Approximately 684 Square Miles**
  - **Length - 63 Miles**
- **Population - 500,000 Persons**

## **Background**

- **1956 Study by US Department of Interior**
- **1975 Design and Construction of Major Drainage Channels**
  - 9 1/2 Year Design Capacity
- **1995 study by US Army Corps of Engineers**
  - 5 Year Design
  - Widen and Deepen North Main and Santa Cruz, and Division to IBWC North Floodway (\$131,618,600)
  - Widen and Deepen North Main and Santa Cruz (\$187,686,300)
- **HCDD#1 Initiates Regional Drainage Approach**
- **1999 TWDB Approves Planning Grant**

## **Scope Of Services**

- **Preliminary Engineering Analysis**
  - **Structural**
  - **Non-structural**
- **Construction Cost Analysis**
- **Economic Evaluation**
- **Environmental Evaluation**



## ***Project Products***

- **Series of Hydrologic/Hydraulic Models**
- **Preliminary Design Report**
- **Field Reconnaissance Results**

# Contract

HCDD#1 \$ 78, 000

TWDB Planning Grant \$300,000

HCDD#1 in-kind services \$ 22,000

TOTAL PROJECT COST \$400,000

# *Project Subconsultants*

- **R. Gutierrez Engineering Corp.**
  - Construction Cost Analysis
  - Economic Evaluation
- **Hinojosa Engineering, Inc.**
  - Preliminary Engineering Analysis
- **Melden & Hunt, Inc.**
  - Preliminary Engineering Analysis
  - Economic Evaluation
  - Environmental Evaluation
- **Sesin Engineering, Inc.**
  - Preliminary Engineering Analysis
- **Sigler, Winston, Greenwood, & Associates, Inc.**
  - Preliminary Engineering Analysis
  - Economic Evaluation
  - Environmental Evaluation

## *Project Status*

- **Public Meetings**
- **Modeling Results**

# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

902 NORTH OODLITTLE

EDINBURG, TEXAS 78539

(956) 318-2843

FAX (956) 318-2839



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000  
TO: BILL BURNS  
COMMITTEE MEMBER  
FROM: GODFREY GARZA, JR. <sup>27</sup>  
DISTRICT MANAGER  
RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR THE FOLLOWING DATE AND TIME.

DATE: FEBRUARY 2, 2000  
TIME: 6:30 P.M.  
PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

IF YOU SHOULD HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CONTACT US.

# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

902 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2643

FAX (956) 318-2639



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: ALFONSO QUINTANILLA- QUINTANILLA, HEADLEY & ASSOC.  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *GG*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR THE FOLLOWING DATE AND TIME.

DATE: FEBRUARY 2, 2000

TIME: 6:30 P.M.

PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

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# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

902 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2843

FAX (956) 318-2838



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: HECTOR GUERRA - GUERRA CONSTRUCTION  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *GG*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

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EDINBURG, TEXAS 78539

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# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

302 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2643

FAX (956) 318-2638



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: CARL SCHUSTER  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *GG*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR THE FOLLOWING DATE AND TIME.

DATE: FEBRUARY 2, 2000

TIME: 6:30 P.M.

PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

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902 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2643

FAX (956) 318-2639



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: VONA WALKER - LAND ACQUISITION COORDINATOR  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. <sup>??</sup>  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR THE FOLLOWING DATE AND TIME.

DATE: FEBRUARY 2, 2000

TIME: 6:30 P.M.

PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

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# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

902 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2843

FAX (956) 318-2639

HCDD#1



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: RICHARD RUPERT-SANTA CRUZ LAND SALES  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *GG*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR THE FOLLOWING DATE AND TIME.

DATE: FEBRUARY 2, 2000

TIME: 6:30 P.M.

PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

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# HIDALGO COUNTY DRAINAGE DISTRICT NUMBER ONE

302 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2643

FAX (956) 318-2839

HCDD#1



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: NORBERTO SALINAS - MAYOR, CITY OF MISSION  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *sg*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

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DATE: FEBRUARY 2, 2000

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EDINBURG, TEXAS 78539

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902 NORTH DOOLITTLE

EDINBURG, TEXAS 78539

(956) 318-2843

FAX (956) 318-2839



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: OTHAL BRAND  
COMMITTEE MEMBER

FROM: GODFREY GARZA, JR. *GG*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR  
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EDINBURG, TEXAS 78539

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EDINBURG, TEXAS 78539

(956) 318-2843

FAX (956) 318-2639

HCDD#1



GODFREY GARZA, JR.  
MANAGER

## MEMO

DATE: JANUARY 19, 2000

TO: OSCAR GARZA  
COMMISSIONER PCT. 4

FROM: GODFREY GARZA, JR. *sgl.*  
DISTRICT MANAGER

RE: RAYMONDVILLE DRAIN

A COMMITTEE MEETING IN REFERENCE TO THE ABOVE HAS BEEN SET FOR  
THE FOLLOWING DATE AND TIME.

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PLACE: COMMISSIONERS COURT ROOM  
100 S. CLOSNER  
EDINBURG, TEXAS 78539

IF YOU SHOULD HAVE ANY QUESTIONS, PLEASE FEEL FREE TO CONTACT  
US.



APPROPRIATE LETTERS PLEASE...  
CLASSIFIED ADVERTISING DEPT.  
928-SELL  
CLASSIFIED

ADA Printing, design, records, newsletters, translations, etc.  
CALL 918-267-4547/4549  
FOR 918-267-4547/4549  
CALL 318-0002

APPROPRIATE LETTERS PLEASE...  
CLASSIFIED ADVERTISING DEPT.  
928-SELL  
CLASSIFIED

North Main Drain/Raymondville  
Drain Project Meeting Notice  
Hidalgo County Drainage District  
Number One and Willacy County con-  
ducted a drainage project with the  
purpose of evaluating flood protection  
plan alternatives for the area consist-  
ing of the Raymondville Drain and the  
North Main Drain (Swan Main Drain).  
located in Hidalgo and Willacy  
Counties, Texas. The project evaluat-

Invitation Homeowner DEI Housing R...  
The County of Hidalgo Urb...

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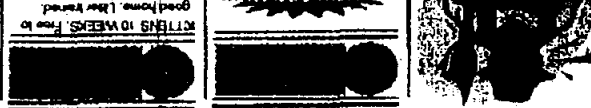
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The County of Hidalgo Urb...

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Invitation Homeowner DEI Housing R...  
The County of Hidalgo Urb...



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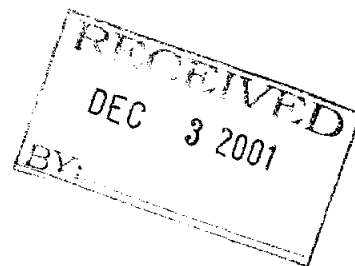
NOTICE TO CREDITORS

NOTICE TO CREDITORS

*Ann: Sylvia*

# TurnerCollie & Braden Inc.

Flood Protection Plan  
North Main and Raymondville Drains



Public Meeting Sign-in Sheet

Date: November 28, 2001  
Place: Hidalgo County Commissioners Court Room

1. James F Fessler
2. Raul E. Guesin, P.E. - County of Hidalgo
3. Hector Palacios
4. Alfredo Salinas H.C.I.D.#1
5. Jimmy Ashby HCT U#1
6. Enrique - Judge STB Infrastructure, Ltd.
7. Gustavo Guaza - H.C.D.#1
8. Richard Barza H.C.I.D.#1
9. Jim Ruggan WCDD#1
10. Jerry K. Taylor El Saury Ranch
11. LAMBERTO "BOB" BALDI - CITY OF MACALLEN
12. George W. Carpenter - H.C.I.D.#1
13. Oscar L. Garza Jr. PCT 4
14. Joe Flores Pct. 3
15. Joe E. Talley - Co. Judge
16. Glenn Stanley H.C.D.#1
- 17.
- 18.
- 19.
- 20.

Presentation

**FLOOD PROTECTION PLAN  
NORTH MAIN AND RAYMONDVILLE DRAINS**

Hidalgo County Drainage District No. 1  
Willacy County  
Texas Water Development Board

**November 28, 2001**



# Purpose of Project

- Develop a Flood Protection Plan
- Proposed Modifications Evaluated
  - Diversion Channel
  - Raymondville Drain Channel Modifications
  - Levee for the City of Raymondville
  - Stormwater Detention

# Watershed Description

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- Raymondville Drain
  - Drainage Area – 346 Square Miles
  - Length – 44 Miles
- North Main Drain
  - Drainage Area – 668 Square Miles
  - Length – 63 Miles
- Total Drainage Area – 1,014 Square Miles
- Population – 500,000 Persons

# Project Summary

---

- Reviewed Previous Drainage Studies
  - Numerous Drainage Studies (10)
  - U.S. Army Corps of Engineers
  - Original Study – 1956
  - Revised Hidalgo County FIS – April 2001
- Field Reconnaissance
  - Watershed Characteristics
  - Channel Crossings and Drainage Structures
  - Photographs

# Project Summary (Cont'd)

---

- Topographic Information
  - Digital Topography (North Main)
  - U.S.G.S. Topography
  - Design & Construction Drawings
  - Field Surveys (Lake Edinburg and La Sal Vieja)
- Hydrologic Analysis
  - Existing & Future Development
  - Developed HEC-1 Models Using Revised Hidalgo County FIS Models
  - 2-, 5-, 10-, 25-, 50-, 100-, 250-, and 500-year Storms

# Project Summary (Cont'd)

---

- Hydraulic Analysis
  - HEC-RAS Models
    - North Main Drain
    - Raymondville Drain
    - Proposed Diversion Channel
- Economic Evaluation
  - Determine if Proposed Flood Protection Plan Would Have Economic Benefit
  - Annual Flood Losses Determined Using HEC Flood Damage Analysis Program (HEC-FDA)
  - Agriculture Benefits From Previous Studies

# Project Summary (Cont'd)

---

- Environmental Evaluation
  - Extent of Environmental Mitigation/Future Needs
  - Considered:
    - Land Use
    - Surface Water
    - Vegetation
    - Endangered Species
    - Hazardous Materials
    - Site Reconnaissance

# Project Summary (Cont'd)

---

- Alternatives

- Structural Alternative

- Channel Modifications

- ✓ Diversion Channel

- ✓ North Main to Raymondville Drain

<u>% Diversion</u>	<u>Length</u>	<u>Average Bottom Width</u>	<u>Average Depth</u>
10%	63,500 feet	20 feet	15 feet
25%	63,500 feet	6-25 feet	15 feet
50%	63,500 feet	15-20 feet	15 feet

# Project Summary (Cont'd)

---

- Stormwater Detention
  - Diversion Channel
  - La Sal Vieja
  - Lake Edinburg
- Levee
  - Raymondville
- Non-Structural Alternative
  - Buy-Out
  - Flood Proofing



# **Conclusion**

---

- Computed 100-year Flows and Floodplain Less Than Considered to Be Effective by FEMA
- Three Diversion Channel Options Evaluated
- 50% Diversion Channel Option – Most Benefit
- Lake Edinburg Can Not Be Used for Stormwater Detention (Gravity)
- Stormwater Detention Improves La Sal Vieja Water Quality
- Levee Not Required for City of Raymondville

# Recommendations

---

- Continue to implement HCDD1 Drainage Criteria
- 50% Diversion Channel Option
  - Stormwater Detention
    - (Diversion Channel and La Sal Vieja)
  - Total Project Cost – \$31,777,700
  - Total Annual Benefit - \$276,609
  - Benefit Cost Ratio – 0.13
  - Current and Future Development

# Recommendations (Cont'd)

---

- Develop Detailed Topography
  - Raymondville Drain
  - Diversion Channel Alignment
  - Existing Channel Crossings
- Future Analysis
  - Verify Project Assumptions
  - Lateral Channels
  - Modify Models
  - Letter of Map Revision

# Recommendations (Cont'd)

---

- HCDD1 Compliance with EPA's
  - National Pollutant Discharge Elimination System
  - Notice of Intent
  - Stormwater Pollution Prevention Plan

# Proposed Alternative Summary

Description	Percent of Flow to be Diverted		
	10% Diversion Option	25% Diversion Option	50% Diversion Option
<b>Diversion Channel</b>			
Channel Length (feet)	63,500	63,500	63,500
Channel Slope	0.0005	0.0005	0.0005
Channel Reach - Station 2335+00 to 2625+00			
Bottom Width (feet)	20	25	20
Side Slopes (horizontal:vertical)	3:1	3:1	3:1
Channel Reach - Station 2625+00 to 2970+00			
Bottom Width (feet)	V Shape	6	15
Side Slopes (horizontal:vertical)	2:1	3:1	3:1
Excavation (cubic yards)	4,500,000	4,750,000	4,900,000
Required Right-of-Way (acres)	159	196	196
<b>La Sal Vieja Control Structure</b>			
Controls flows between Raymondville Drain and La Sal Vieja Lake	1 each	1 each	1 each

# Proposed 10% Diversion Option Cost

Description	Quantity	Unit	Unit Cost	Cost
<b>PROPOSED 10% DIVERSION OPTION</b>				
<b>Construction</b>				
Channel Excavation	4,500,000	C.Y.	\$3.13	\$14,085,000
From 2335+00 to 2625+00				
Side Slopes 3:1 (horizontal:vertical)				
Bottom Width: 20 feet				
Required Right of Way	78	A.C.	\$20,000.00	\$1,560,000
From 2625+00 to 2970+00				
Side Slopes 2:1 (horizontal:vertical)				
V-ditch (no bottom width)				
Required Right of Way	81	A.C.	\$20,000.00	\$1,620,000
La Sal Vieja Structure (approximate)	1	L.S.	\$500,000.00	\$500,000
Hydromulching	4,700,000	S.Y.	\$0.61	\$2,867,000
<b>PROPOSED 10% DIVERSION OPTION CONSTRUCTION SUBTOTAL</b>				
<b>\$20,632,000</b>				
<b>CONTINGENCIES</b>				
			20%	\$4,126,400
<b>ENGINEERING</b>				
			15%	\$3,094,800
<b>PROPOSED 10% DIVERSION OPTION GRAND TOTAL</b>				
<b>\$27,853,200</b>				

# Proposed 25% Diversion Option Cost

Description	Quantity	Unit	Unit Cost	Cost
<b>PROPOSED 25 % DIVERSION OPTION</b>				
<b>Construction</b>				
Channel Excavation	4,750,000	C.Y.	\$3.13	\$14,867,500
From 2335+00 to 2625+00				
Side Slopes 3:1 (horizontal:vertical)				
Bottom Width: 25 feet				
Required Right of Way	86	A.C.	\$20,000.00	\$1,720,000
From 2625+00 to 2970+00				
Side Slopes 3:1 (horizontal:vertical)				
Bottom Width: 6 feet				
Required Right of Way	110	A.C.	\$20,000.00	\$2,200,000
La Sal Vieja Structure (approximate)	1	L.S.	\$500,000.00	\$500,000
Hydromulching	6,300,000	S.Y.	\$0.61	\$3,843,000
<b>PROPOSED 25 % DIVERSION OPTION CONSTRUCTION SUBTOTAL</b>				<b>\$23,130,500</b>
CONTINGENCIES	-----	L.S.	20%	\$4,626,100
ENGINEERING	-----	L.S.	15%	\$3,469,600
<b>PROPOSED 25 % DIVERSION OPTION GRAND TOTAL</b>				<b>\$31,226,200</b>

# Proposed 50% Diversion Option Cost

Description	Quantity	Unit	Unit Cost	Cost
<b>PROPOSED 50% DIVERSION OPTION</b>				
<b>Construction</b>				
Channel Excavation	4,900,000	C.Y.	\$3.13	\$15,337,000
From 2335+00 to 2625+00				
Side Slopes 3:1 (horizontal:vertical)				
Bottom Width: 20 feet				
Required Right of Way	90			
From 2625+00 to 2970+00				
Side Slopes 3:1 (horizontal:vertical)				
Bottom Width: 15 feet				
Required Right of Way	106			
La Sal Vieja Structure (approximate)	1	L.S.	\$500,000.00	\$500,000
Hydromulching	6,200,000	S.Y.	\$0.61	\$3,782,000
<b>PROPOSED 50% DIVERSION OPTION CONSTRUCTION SUBTOTAL</b>				
				<b>\$23,539,000</b>
<b>CONTINGENCIES</b>				
			20%	\$4,707,800
<b>ENGINEERING</b>				
			15%	\$3,530,900
<b>PROPOSED 50% DIVERSION OPTION GRAND TOTAL</b>				<b>\$31,777,700</b>



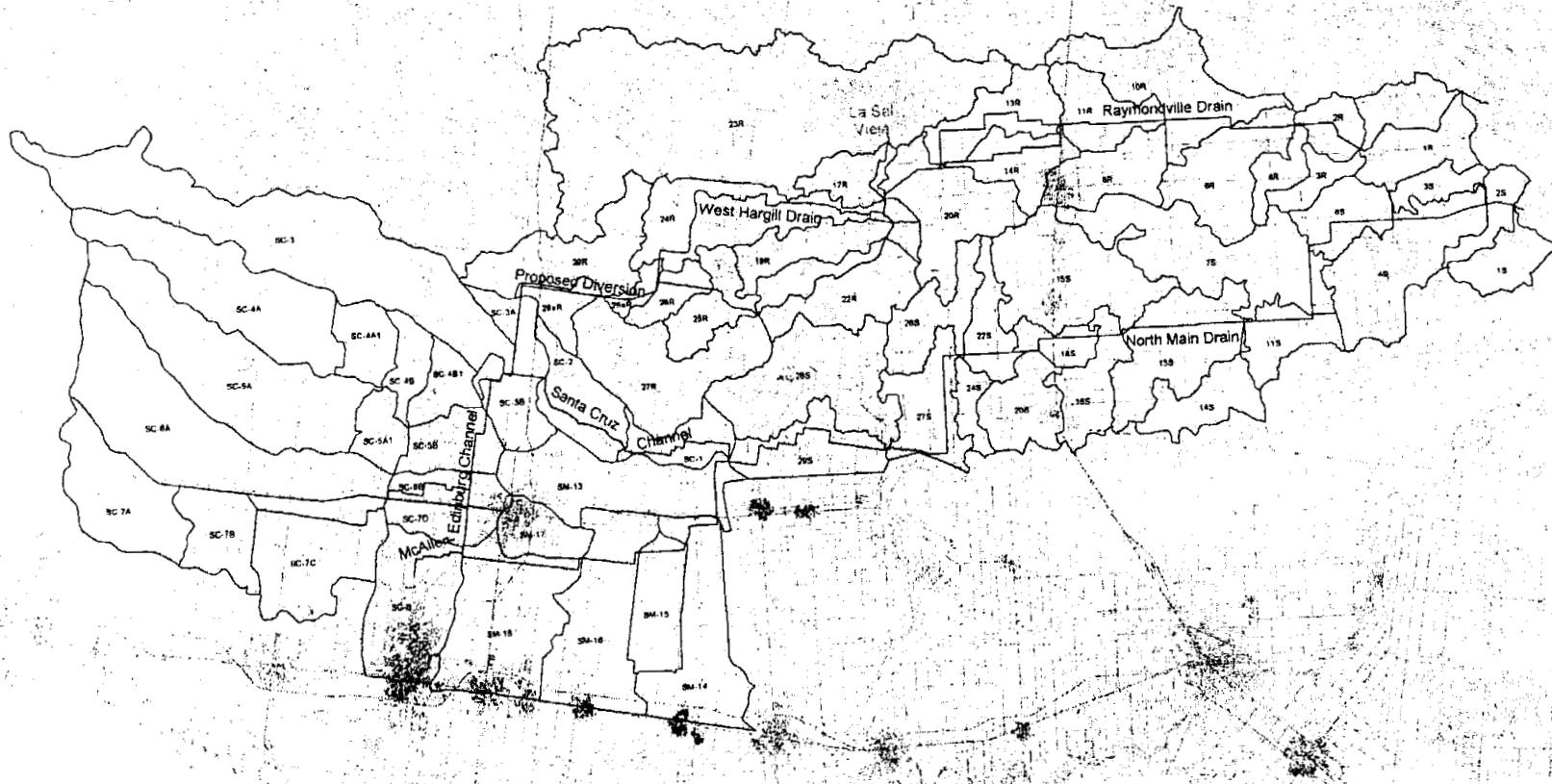
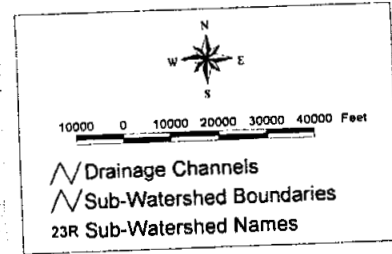
# Results of Structural Damage Analysis

Stream	HEC-FDA Stream Name	Reach	Station Range		Average Annual Equivalent Damages			
			Downstream	Upstream	Without Project	10% Diversion	25% Diversion	50% Diversion
La Sal Vieja	LaSalVieja	Reach 1	1000	15060	\$0	\$0	\$0	\$0
North Main	NorthMain134	Reach 1	0	233824	\$210,120	\$196,430	\$176,920	\$161,380
	NorthMain134	Reach 3	233825	315796	\$76,690	\$74,690	\$73,370	\$72,450
	NorthMain134	Reach 4	315797	331370	\$0	\$0	\$0	\$0
	NorthMain2BD	Below Diversion	48450	112500	\$47,820	\$37,090	\$24,240	\$15,520
	NorthMain2BD	Reach 2	112501	157900	\$13,990	\$12,030	\$9,020	\$6,640
Raymondville	Raymondville128	Reach 1	0	109185	\$4,380	\$4,370	\$4,370	\$4,370
	Raymondville128	Reach 2	109186	164919	\$0	\$1,060	\$0	\$10
	Raymondville128	Reach 8	164920	296300	\$90	\$51,230	\$46,410	\$12,530
	Raymondville 3	Reach 3	110270	144530	\$170	\$170	\$170	\$200
<b>Total Annual Damages</b>					<b>\$353,260</b>	<b>\$377,070</b>	<b>\$334,500</b>	<b>\$273,100</b>
<b>Annual Benefits</b>					<b>-</b>	<b>-\$23,810</b>	<b>\$18,760</b>	<b>\$80,160</b>

# Results of Agricultural Benefit Analysis

Alternative	500-Year Floodplain Area (Acres)	Reduction in Floodplain Area (Acres)	Adjusted Annual Unit Benefit			Total Annual Benefit		
			Cameron County (\$/acre)	Arroyo Colorado (\$/acre)	Average Unit Benefit (\$/acre)	Cameron County (Dollars)	Arroyo Colorado (Dollars)	Average Total Benefit (Dollars)
Without Project	77,728	-	-	-	-	-	-	-
10% Diversion	77,440	288	\$40	\$58	\$49	\$11,401	\$16,730	\$14,065
25% Diversion	75,011	2,717	\$40	\$58	\$49	\$107,658	\$157,981	\$132,819
50% Diversion	73,709	4,019	\$40	\$58	\$49	\$159,219	\$233,644	\$196,432

# Watershed Boundary Map

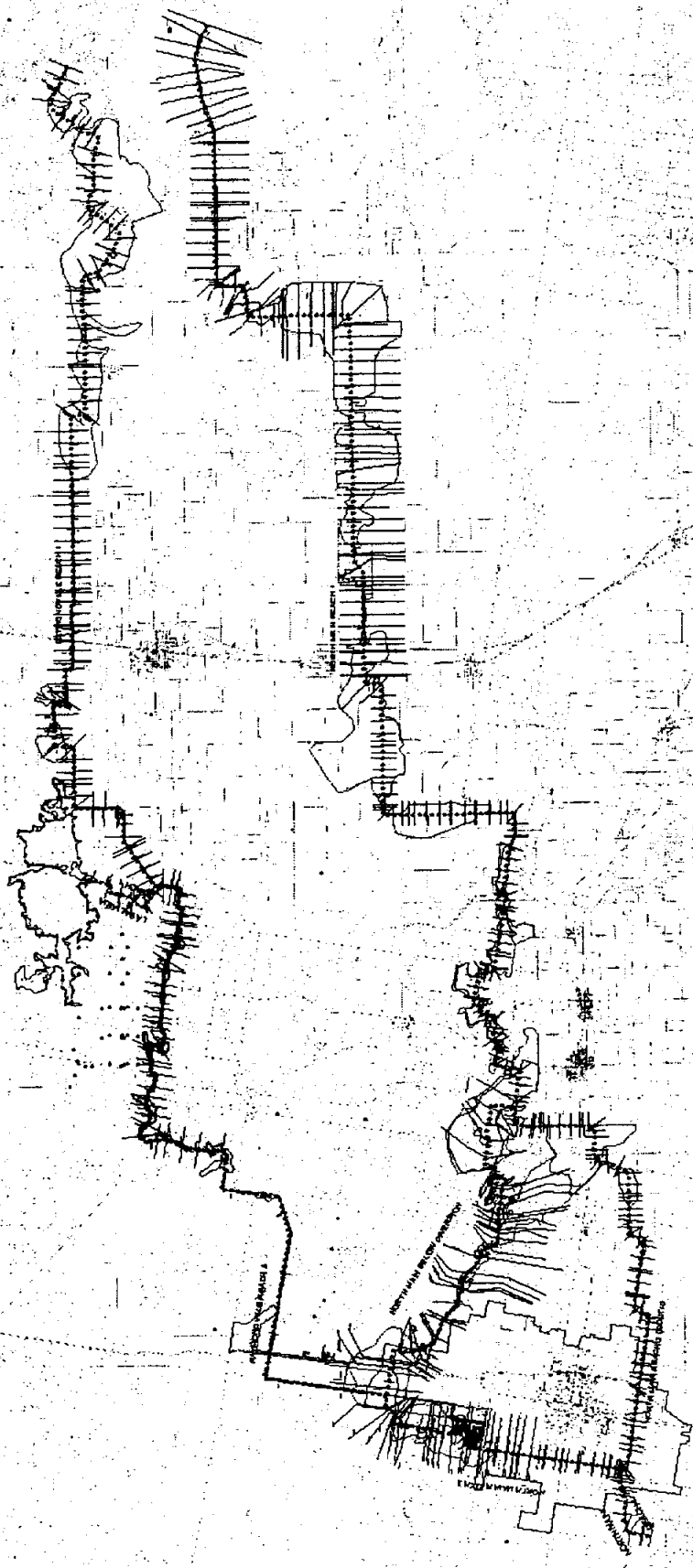


TurnerCollie & Braden Inc.  
Engineers • Planners • Project Managers  
Exhibit 1

November 2001

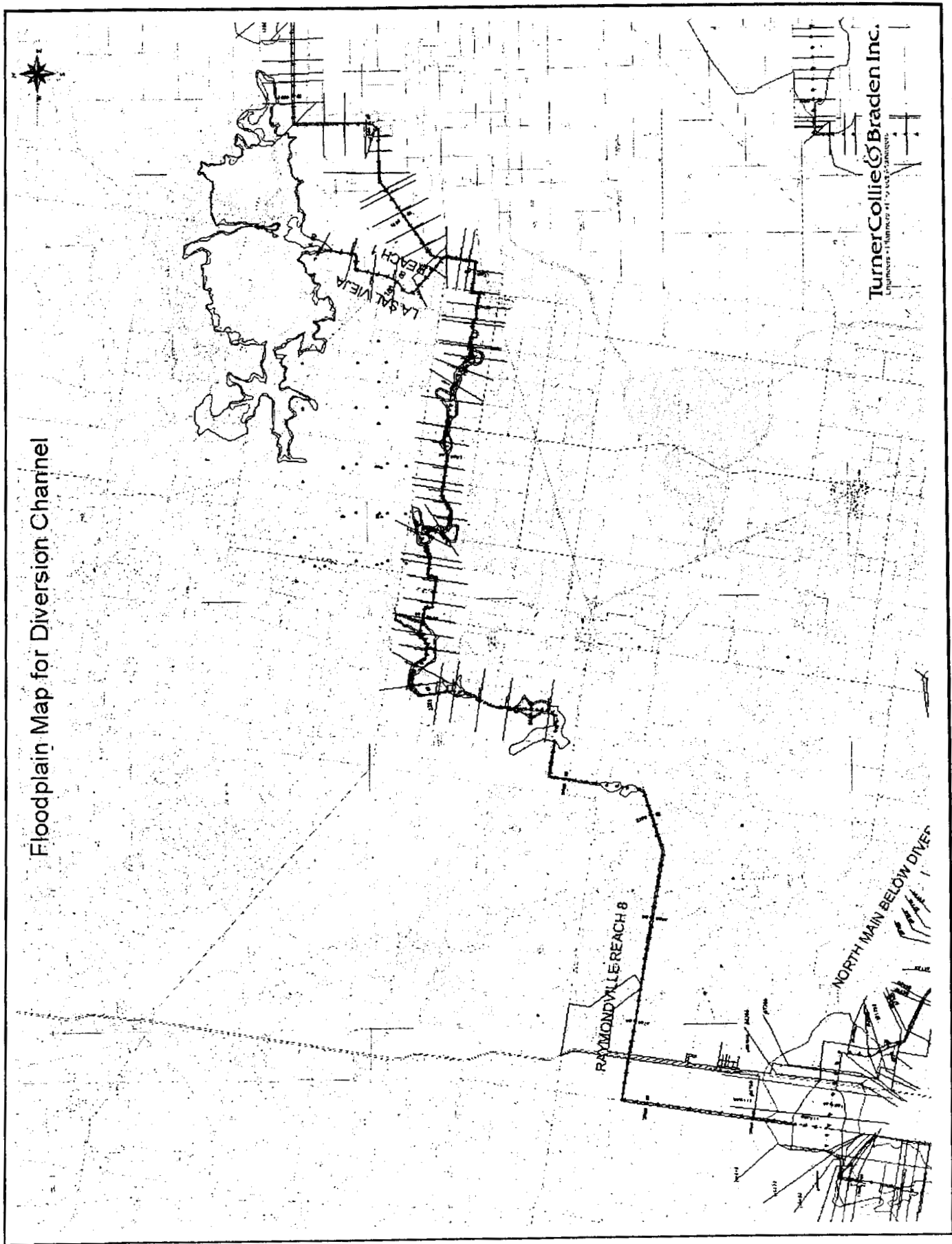
TurnerCollie & Braden Inc.

Floodplain Map



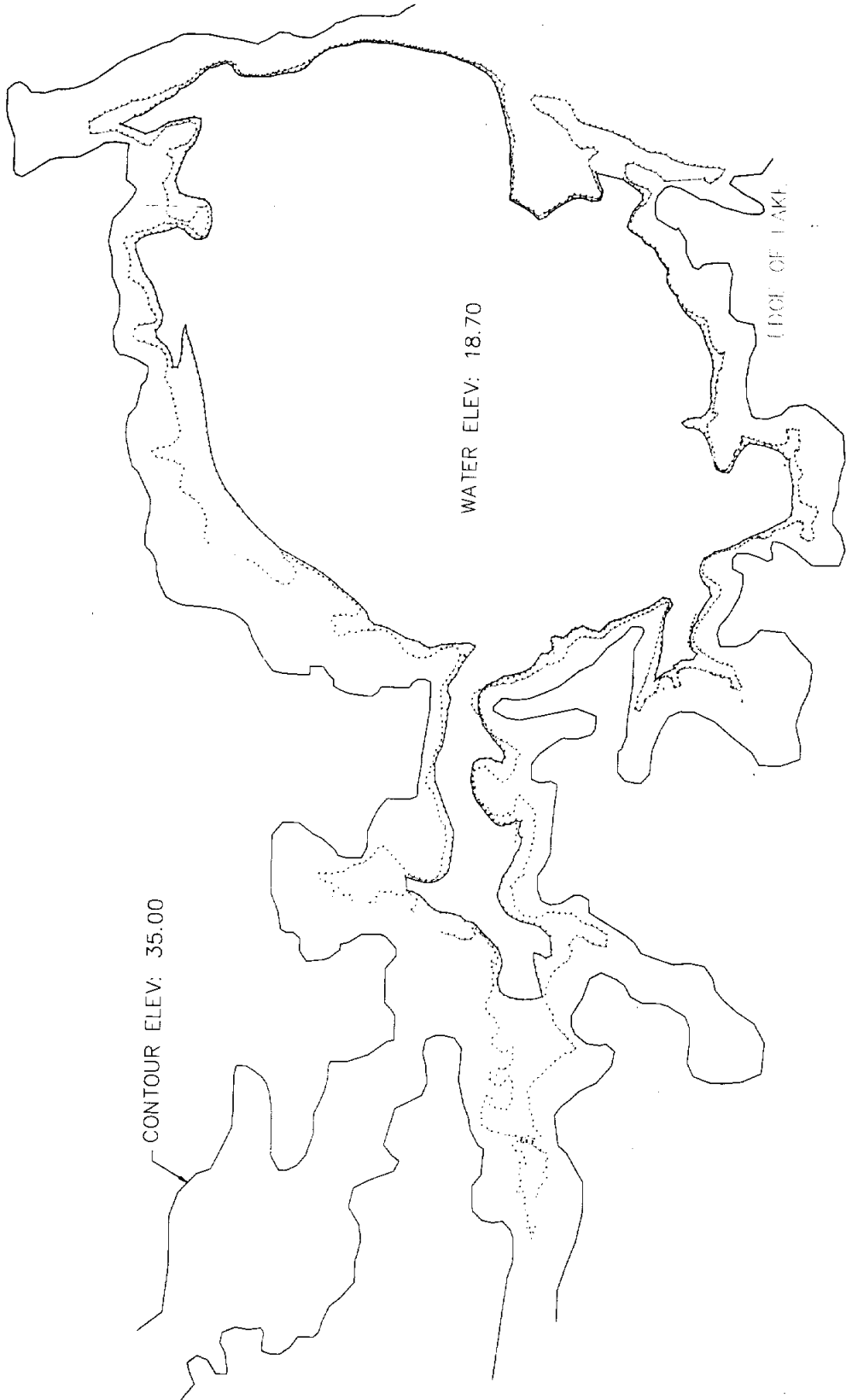
TurnerCollie & Braden Inc.  
Professional Engineers  
North Bay 2001

Floodplain Map for Diversion Channel



TurnerCollie & Braden Inc.  
Engineers - Planners - Surveyors

LA SAL VIEJA LAKE



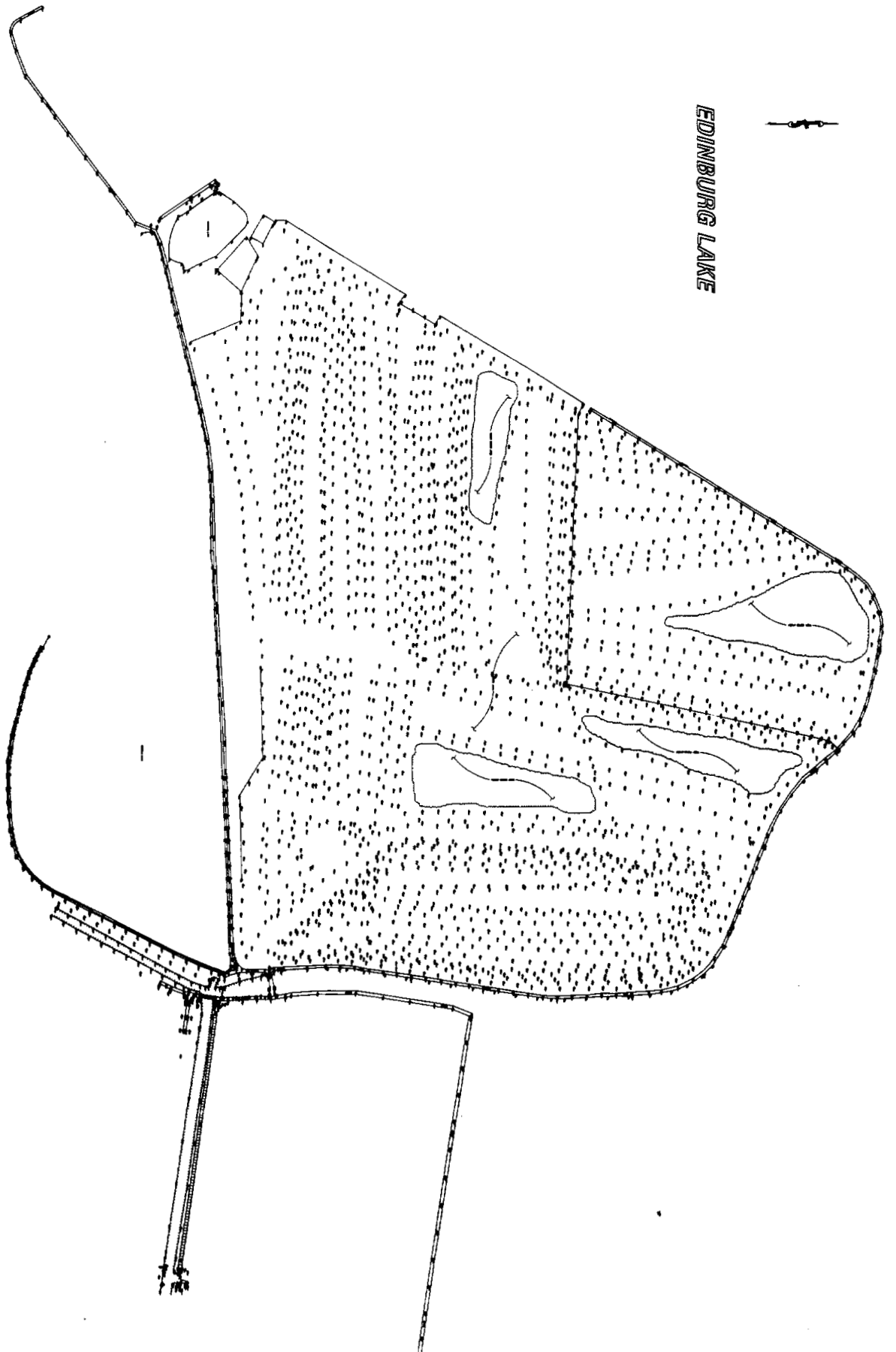
CONTOUR ELEV: 35.00

WATER ELEV: 18.70

EDGE OF LAKE

CONTOUR ELEV: 35.00

EDINBURG LAKE



# Turner Collie & Braden Inc.

Engineers • Planners • Project Managers

6800 Park Ten Blvd., Suite 180S  
San Antonio, Texas 78213  
210 296-2000  
Fax 210 296-2025

June 4, 2001

TC&B Job No. 31-01001-001  
North Main / Raymondville Drains

Mr. Godfrey Garza  
District Manager  
Hidalgo County Drainage District Number One  
902 North Doolittle  
Edinburg, Texas 78539

**RE: Submittal of Draft Final Report for the  
Flood Protection Plan for the North Main and Raymondville Drains**

Dear Mr. Garza:

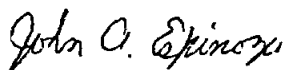
Attached for your review are seven copies of the Draft Final Report for the North Main and Raymondville Drains drainage investigation. The purpose of the investigation was to evaluate alternatives for a cost effective flood protection plan that alleviates flooding in sections of Hidalgo and Willacy Counties, Texas. The drainage investigation considered both structural and non-structural alternatives and future development in Hidalgo County.

All tasks as required by our project contract have been completed and results are reflected in the attached report except results for the Economic Evaluation task. We are currently finalizing Economic Evaluation results, in which we will then submit to your office. Also attached is one CD containing the latest versions of HEC-1 and HEC-RAS models.

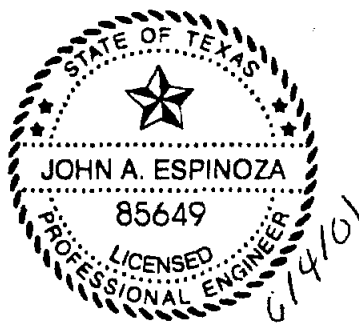
After your review, we need to schedule a meeting with the Advisory Committee to present project findings and recommendations. Once a meeting date has been selected I can contact Gilbert Ward, Texas Water Development Board (TWDB), and Alan Potok to inquire if they are available to attend. Prior to the meeting, we will also need to publish a "meeting notice" in the local newspaper.

If you have any questions or need additional information please call me at 210-296-2009.

Very truly yours,



John A. Espinoza, P.E., C.F.M.  
Project Manager



Attachments

cc: Mr. Gilbert Ward, TWDB (One copy of report)  
Mr. Alan J. Potok, P.E., (One copy of report)



September 20, 2001

TC&B Job No. 31-01001-001  
North Main / Raymondville Drains

Mr. Godfrey Garza  
District Manager  
Hidalgo County Drainage District Number One  
902 North Doolittle  
Edinburg, Texas 78539

**RE: Flood Protection Plan for the North Main and Raymondville Drains  
Revised Report and Response to S&B Infrastructure Review Comments**

Dear Mr. Garza:

Enclosed for your review are two copies of revised report sections for the Flood Protection Plan for the North Main and Raymondville Drains project. Revised report sections include report text (Table of Contents, Sections I – VI), tables, exhibits, and Appendix E. Also enclosed is a CD containing revised computer models. This revised report addresses comments as discussed during the meeting conducted August 24, 2001 in the office of S&B Infrastructure. This report also addresses report review comments prepared by S&B in three attachments (copies enclosed). This letter serves as our response to S&B report review comments.

## **RESPONSE TO S&B REPORT REVIEW COMMENTS**

We are responding to each comment as follows:

### **General Comments (S&B Attachment 1)**

**Comment 1: Task 1 – Public Management and Public Involvement** – Regarding referencing meetings in the report and attaching meeting minutes.

- **Response:** Copies of meeting agendas, handouts, and minutes for all meetings conducted to date (two) were handed out during the August 24 meeting. *Report Appendix E* also includes copies of these meeting documents.

**Comment 2: Task 1 – Public Management and Public Involvement** – Regarding referencing quarterly meeting notes from Project Advisory Committee meetings and listing of names and positions of committee members.

- **Response:** Project Advisory Committee members were based on individuals that were suggested by the Drainage District. Due to developments of the project, meetings were not conducted on quarterly time intervals. It is our plan to conduct a meeting with the Advisory Committee once the report has been finalized. *Report Appendix E* includes copies of all meeting documents including attendee listing.

September 20, 2001

TC&B Job No. 31-01001-001  
North Main / Raymondville Drains

Mr. Godfrey Garza  
District Manager  
Hidalgo County Drainage District Number One  
902 North Doolittle  
Edinburg, Texas 78539

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# TurnerCollie & Braden Inc.

Mr. Godfrey Garza  
September 20, 2001  
Page 2

**Comment 3: Task 2 – Engineering Evaluation – Field Reconnaissance** – Regarding project photographs of existing key channel sections.

- **Response:** Copies of photographs and a cross-reference listing referencing their location were distributed during the August 24 meeting. The photos were presented electronically (on CD) for the Raymondville Drain and on 4"x6" photos for the North Main Drain. *Report Appendix A* also includes a copy of the photograph cross-reference listing.

**Comment 4: Task 2 – Engineering Evaluation – Survey Requests** – Regarding field survey data and/or field book information, and a listing of recorded high water marks from residents and industries.

- **Response:** Electronic field topographic survey data was originally submitted to your office on June 4, 2001 as part of the submittal of the draft report. We are in the process of requesting original field book information from Sesin Engineering. Once field data has been obtained, data will be submitted to your office. There are no records of any recorded high water marks from residents and industries, and thus, are not included in the report.

**Comment 5: Task 2 – Engineering Evaluation** – Regarding preliminary schematics for alternatives depicting right of way requirements, utility constraints, and structural locations, and the evaluation of any improvements to the existing channels downstream of the diversion channel and to the Laguna Madre.

- **Response:** New *Report Table 11* presents a listing of right-of-way requirements for the proposed diversion channel right-of-way requirements and new *Report Exhibit 6* presents a schematic of right-of-way reaches. No improvements are proposed for the channels downstream of the diversion channel or to the Laguna Madre.

**Comment 6: Task 2 – Engineering Evaluation** – Task review comments are documented in S&B's Attachment 2.

- **Response:** Please refer to responses for Attachment 2 for this comment.

**Comment 7: Task 3 – Economic Reevaluation** – Task review comments are documented in S&B's Attachment 3.

- **Response:** Please refer to response for Attachment 3 for this comment.

**Comment 8: Task 4 – Environmental Evaluation** – Regarding contacting various resource agencies.

- **Response:** During the project, we conducted telephone conversations with representatives with the TNRCC and the U.S. Department of the Interior Fish and Wildlife Service to discuss the project. *Report Section VI* now includes a summary of these telephone conversations.

**Comment 9: Task 4 – Environmental Evaluation** – Regarding environmental evaluation of Laguna Madre and other areas.

- **Response:** This issue was discussed during the August 24 meeting. It is our understanding that all requirements as described on the project scope of work have been met. There are no additional actions required for this comment.

**Comment 10: Task 4 – Environmental Evaluation** – Referencing that an environmental assessment was not required.

- **Response:** No action required for this comment.

**Comment 11: Task 5 – Preliminary Engineering Report** – Referencing electronic files for Watershed Boundary Map and Floodplain Map.

- **Response:** Electronic files of the Watershed Boundary Map and Floodplain Map have been previously provided.

**Comment 12: Task 5 – Preliminary Engineering Report** – Regarding cross section data for reaches on Raymondville Drain, from Lake Edinburg to the Laguna Madre and identified by cross-section number.

- **Response:** *Report Exhibit 2* has been updated to include HEC-RAS cross-section locations.

**Comment 13: Task 5 – Preliminary Engineering Report** – Regarding electronic copy of final/approved PER.

- **Response:** An electronic copy of the final PER and all related files including report text, tables, exhibits, and models will be resubmitted as part of the final submittal.

#### **Task 2 - Engineering Evaluation (S&B Attachment 2)**

**Task 2.1.1.a - Preliminary Investigation, Available Mapping** – This comment referenced that FEMA map materials and the year of DOQQs be included in the report.

- **Response:** DOQQs used for this project were dated February 1995. *Report Section II* includes DOQQ date information.

**Task 2.1.1.b - Preliminary Investigation, Field Reconnaissance** – This comment referenced that project photographs be provided and describe how channel roughness coefficients were derived.

- **Response:** Project photographs have been submitted to HCDD1, as previously referenced S&B Attachment 1, Comment 3. A description of how roughness coefficients were determined has been added to *Report Section III*.

**Task 2.1.1.c - Preliminary Investigation, Survey Requests** – This comment referenced field surveys and their reference in report text.

- **Response:** The response for this comment has been addressed in our response for S&B Attachment 1, Comment 3.

**Task 2.1.2 - Development of HEC-1 basin model (existing w/o project)** – This comment referenced that the calibration process be described in the report and attach appropriate tables presenting subwatershed unitgraphs, channel routing data, and rainfall distribution information.

- **Response:** Project scope of work for Task 2.1.2, states that calibration of models will be based on previous models used for the FEMA FIS study and USACE studies. Due to a lack of stream gage stations located within the project study reaches, calibration process

did not include a comparison of model results with measured flow values. The current version of the report adequately describes development of HEC-1 models. Subwatershed unitgraphs were originally included *Report Table 2 – Watershed Characteristics*. Rainfall distribution data used for this project was originally presented in *Report Table 3*. This rainfall data has not changed. No actions were taken to address this comment.

**Task 2.1.3 – Hydraulic studies** – This comment referenced which cross sections were modified in HEC-RAS models and how bridge losses were determined to be minimal. This comment also referenced station-discharge tables be provided and storage-outflow models.

- **Response:** *Report Section III* was modified to include descriptions concerning cross sections and bridge losses. *Report Section III* also includes a description of flow routing and *Report Appendix C* includes copies of storage outflow HEC-RAS models.

**Task 2.1.4 – Frequency analysis for existing conditions** – This comment referenced that a discussion concerning frequency analysis, stage-discharge-frequency curves, and USACE ER 1105-2-101 be referenced in the report.

- **Response:** USACE ER 1105-2-101, *Risk Based Analysis for Evaluation of Hydrology/Hydraulics Geotechnical Stability, and Economics in Flood Damage Reduction Studies*, deals with risk-based analysis for flood reduction studies. Because of a lack of available data and circumstances described in the response under Task 3, a risk-based analysis was not performed.

**Task 2.1.5 – Floodplain mapping** – This comment referenced that the limits of the DTM be provided in the report and exhibits and that a flood damage map be provided.

- **Response:** *Report Section II* now has a statement concerning the digital terrain model (DTM). New *Report Exhibit 3* presents economic reaches for the project.

**Task 2.1.6 – Future without project conditions (50-year projection)** – This comment referenced a map of future floodplain is missing, growth factors assumptions, and the “base year” used for the project.

- **Response:** Growth factors were based on study conducted as part of the Texas Water Development Board Senate Bill 1 water resource project, which provided population increases from year 2000 to 2050. A table in *Report Appendix E* shows how the existing and future percent impervious area was computed. This was considered to be the best way to project the growth, since it is unknown where growth will actually occur.

The base year for the hydrologic modeling was assumed to be 1995, based on the year of available aerial photography. Due to the overall size of the watersheds and the fact that most of the development since 1995 has been sparse rural development, changes in development were considered to have a very minor impact on the hydrologic model parameters for the subwatersheds. Thus, the difference in the existing conditions hydrologic model and the economic base year conditions would not affect the overall results of the analysis.

As part of this project we evaluated scenarios with and without proposed project in place for existing and future watershed conditions. Since the purpose of this project was to develop a flood protection plan with the project in place, an exhibit showing proposed modifications and resulting floodplains was developed. An exhibit showing the future conditions without the project development of an exhibit showing future conditions without the project in place was not developed.

**Task 2.1.7 – Hydrologic analysis of alternatives** – This comment regarded that a clarification be provided why flood proofing was described but not clear which structures were selected for this alternative and additional clarification on selected alternatives.

- **Response:** The objective of the project is to determine a cost effective flood protection plan that would alleviate flooding in sections of Hidalgo and Willacy counties. This statement is found throughout the report. *Report Section IV*, in particular the buy-out and flood proofing alternatives, have statements that the other alternatives were determined to not meet project objectives, and therefore were determined to not be viable. A statement for each alternative was added that mentions specific structures were not evaluated for these alternatives.

**Task 3 – Economic Re-evaluation (S&B Attachment 3)**

**Task A - Assumptions** – This comment questioned the intent of the economic evaluation and that the benefits to be derived with risk-based analysis is not followed in the economic evaluation.

- **Response:** *Report Appendix E* includes structure data used for the economic evaluation.

The intent of the economic evaluation was to use the best data available to make a preliminary economic comparison of the various project alternatives. The scope deliverables were based on an understanding that a structure database with detailed location and property information would be obtained from the Hidalgo County Appraisal District (HCAD) and the Willacy County Appraisal District (WCAD). A database with the needed parameters was not available from the HCAD and WCAD at the time of the study. Physical location information was also not available for many of the structures. Instead, it was necessary to use hard copy maps and manual methods to develop the data on the structures in the study area.

This lack of available data increases the level of uncertainty. In order to perform a risk-based analysis under these conditions, new field surveys and structure appraisals would have to be undertaken. Based on past USACE studies, this field data can take from many months to several years to collect. Budget and time constraints did not permit this data collection.

However, the ultimate objective of making an economic comparison between the alternative plans was achieved. We believe that the economic analysis provides an accurate comparison of the project alternatives using the best available data. A statement concerning our conclusion has been added to *Report Section V*.

**Task 3.1 - Baseline economics investigation** – This comment requested that affected areas be delineated on a map.

- **Response:** A new *Report Exhibit 3* presenting the economic reaches for the study area is now included in the report.

**Task 3.1.1 - Establish Base Year** – The comment requested that the base year for the project, which is assumed to be year 2005, be consistent in the economic and hydraulic evaluations.

- **Response:** The study area impacted by the proposed project consists primarily of rural agricultural land and sparse residential development, and is not anticipated to develop appreciably in the near future. Additionally there is uncertainty as to where and when development will actually occur. We believe that our assumptions for development and base year reflect actual conditions and any changes in the assumed development would be minor and would not affect the overall results of the analysis.

**Task 3.1.3 - Select planning/economic reaches** – This comment requested that an exhibit showing the planning/economic reaches be included in the report and to define and justify the selected reaches.

- **Response:** Our response for Task 3.1 also addresses this comment. A new *Report Exhibit 3* showing the economic reaches for the study area is now included in the report. In the original submittal, *Report Section V*, discussed criteria used for selecting economic reaches.

**Task 3.1.4 - Evaluate existing and authorized plans** – Comment requesting a clarification of plans being evaluated.

- **Response:** The report presents the results of all plans that were evaluated as part of this project.

**Task 3.1.5.a - Define economic relationships** – Comment requesting a description regarding the structural inventory be provided in the report including the number and value of residential, commercial, public and others structures.

- **Response:** The discussion of the structural inventory has been expanded in *Report Section V*. Detailed information on the structure types was not readily available from HCAD and WCAD files. The report states that the assumption was made to use the depth-damage curve for one-story single-family residential structures, which is the predominant structure type in the study area.

**Task 3.1.5.b - Establish Structure Inventory Database** - Comment regarding that other damage types for the economic evaluation were omitted.

- **Response:** As stated in the assumptions in the project scope of work, “the structure inventory database will be obtained from HCAD/WCAD data.” It was assumed that the above data would be available for the economic analysis. However, as previously stated, data for the structure inventory database had to be manually developed using hard copy maps and printouts of parcel data. Similarly, no digital parcel mapping was available. Data for the other damage categories – vehicles, roads, etc. was also not available.

As an alternate means of computing damages for these categories, we investigated the potential of using data developed for recent Federal flood control studies in Harris County, Texas. However, the unit cost value data that was developed for these studies was based primarily on field sampling done by the U.S. Army Corps of Engineers for the Cypress Creek watershed. This Cypress Creek data is reflective of a more densely populated urban area and cannot be reasonably applied to the rural and sparsely developed areas as exists for this project.

In terms of their effect on the conclusions of the study, these other damage categories should only serve to increase the *relative* net benefits of the various alternative plans but would not affect the ranking of the various plans. In other words, the outcome of the economic analysis would not be affected by including these additional damage categories.

For comparison sake, in the densely populated urban watershed of Hunting Bayou in Harris County, Texas, the "other damage categories," comprised the following percentages of the total net benefits of the various projects:

Structural	80%
Vehicles	8%
Roads	1%
Utilities	1%
Emergency Costs	10%

This gives an indication that the benefits in "other" damage categories might comprise approximately 20% of the total annual net benefits.

This information has been added to the report.

**Task 3.1.5.c - Perform field sampling and surveys to verify accuracy of appraisal district data and complete replacement cost less depreciation** – Comment regarding that field sampling was not mentioned in the report and to provide backup documentation and explanation for this field sampling and survey.

- **Response:** Field sampling of data was conducted for some of the accessible structures to verify that structures existed and structure type. A statement has been describing this effort has been added to the report.

**Task 3.1.5.d - Develop depth-percent damage functions and/or stage-damage functions (residential)** - Comment requesting that the justification of the use of the IWR depth damage curves be used instead of the USACE-Galveston District curves.

- **Response:** *Report Appendix E* now includes a copy of the IWR damage curves. The IWR curves were used instead of the USACE-Galveston District curves, because the IWR curves were specifically developed to be used for all geographic regions of the U.S. The same degree of applicability cannot be assured for the Galveston District curves.



The IWR study, which is referenced in the report, includes the following statements that emphasize their accuracy and applicability to the study area:

“The standardized functions represent a substantive improvement over other generalized depth-damage functions, such as the Flood Insurance Administration (FIA) Rate Reviews.” (EGM 01-03 [2])

“These curves are developed for **nation-wide** applicability in flood damage reduction studies. When using these curves, the requirement to develop site-specific depth-damage curves contained in ER 1105-2-100 is waived. Additionally, the requirement to develop content valuations and content-to-structure ratios based on site-specific or comparable floodplain information is also waived.” (EGM 01-03 [6])

**Task 3.1.5.e - Develop commercial and industrial depth damage functions** – Comment regarding that no documentation was provided for this subtask and to clarify if this was ever used in the HEC-FDA and if not then explain its exclusion.

- **Response:** The vast majority of the structures in the study area can be classified as single-family residential, based on field observations. Data on the specific structure type was not readily available from HCAD and WCAD and therefore the one-story single-family residential depth damage curve was applied to all structures in the study area. This assumption is described in the report.

**Task 3.1.5.f - Develop agriculture depth-damage curves** – Comment regarding that no proper documentation was provided for this subtask and to justify the use of the methodology employed and the derived benefits with respect to the agriculture category.

- **Response:** Determination of agricultural benefits is a very complex and specialized type of economic analysis, which typically can take several years to complete. When the scope was written, it was assumed that the computation of agricultural benefits was similar to that of structural damages. However, as research was done in an effort to develop agricultural depth damage curves, it was determined that agricultural benefits are never determined in the same manner that structural damages are developed. Instead, an extensive economic analysis is undertaken involving data on crops and soils, and estimates of the effects of high water table (hwt), salinity, and periodic flooding on crop production. Such analysis typically also includes interviews of farmers and other agricultural professionals in the study area.

After several discussions with TAMU agricultural economics professor, Dr. Ron Lacewell, it was recommended that the best way to estimate the agricultural benefits was to adapt information from two previous studies in the LRGV. This approach was taken and is described in detail in the report. No further action will be done for this comment.

**Task 3.1.5.g - Develop infrastructure and personal damage curves for vehicles damage, utility damages, road damages, emergency costs, other costs of using the flood plain, and national flood insurance costs** – Comment regarding that this information was not mentioned in the economic evaluation.

- **Response:** Please refer to above response for **Task 3.1.5.b** for the explanation of why these other damage categories were not included.

**Tasks 3.2.1 and 3.2.2 Floodplain characteristics, project activities affected areas, and alternative plan damages** - Comment regarding that in addition to the above mentioned comments, provide the HEC-FDA model for the project and the work maps for the economic reaches, the finished floor elevation used in the HEC-FDA should be explained in the text, and explain and justify flood damage evaluation results.

- **Response:** The HEC-FDA model was originally submitted as part of this report. A new exhibit showing economic reaches is being submitted as part of this response. In addition, due to modifications concerning the hydraulic analysis, HEC-FDA models were modified. Revised models and tables are included as part of the revised report.

A description of the structure finished floor elevations is included in the report.

The alternative plans, with the exception of the 10% diversion, reduce overall damages in the study area. However, all three alternatives do increase the damages along reach 8 where the diversion is proposed. Under existing conditions, there is no channel located where the diversion is proposed, and consequently there are no flood damages because there is no flood source being analyzed along this reach. Under the proposed diversion scenarios, there is the potential that the diversion channel will not contain all of the flood flows and consequently damages would be expected for the structures along the diversion channel. In future phases of this study, a more detailed alternative plan could be designed which ensures that the flood risks to the structures along the diversion channel are not increased beyond existing flooding conditions.

### Summary

Submitted for your review are revised report sections (text, tables, exhibits, and Appendix E) and a CD containing computer models. This submittal incorporates report review comments prepared for the Hidalgo County Drainage District by S&B Infrastructures. In addition, this letter also serves as our response to S&B report review comments.

Please note that Texas Water Development Board (TWDB) staff is currently reviewing the report (same version that S&B reviewed). As of this submittal date, we have not received review comments from TWDB staff. Once all review comments have been received, we will submit a completed report that includes all sections and appendices.

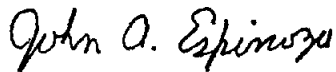
# TurnerCollie & Braden Inc.

Mr. Godfrey Garza  
September 20, 2001  
Page 10

Based on your approval, the next step is to schedule and prepare for the advisory/public meeting in which we can present project findings and results.

If you have any questions regarding our response or need additional information, please call me at 210-296-2009.

Very truly yours,



John A. Espinoza, P.E., C.F.M.  
Project Manager

Enclosures

cc: Gilbert Ward, Texas Water Development Board  
Alan J. Potok, P.E., TC&B (w/o enclosures)  
Lonnie Anderson, P.E., TC&B



## AGENDA



**Date:** 24 AUGUST 2001

**Purpose:** *To discuss the status and issues of the TC&B Report: "Flood Protection Plan for the North Main and Raymondville Drain", June 4, 2001*

### I. Introductions

### II. Review of Comments Regarding Submitted Report

The following discussion is in accordance with the outline of the scope (**Attachment 1**) within the contract between Turner Collie & Braden, Inc. (TC&B) and Hidalgo County Drainage District No. 1 (HCDD#1) and the Texas Water Development Board (TWDB):

#### Task 1 – Project Management and Public Involvement

(For description of this task, see page A-6, of Attachment 1)

- (1) **Public Meetings.** The *PER*, as a planning document, is required to describe the planning process. Public involvement is a part of the planning process for this project, and 3 public meetings are required to be held throughout the development of the *PER*: a scoping meeting at the project outset, a meeting when conceptual alternatives are defined, and a meeting upon completion of the alternatives analysis. These meetings need to be referenced in the *PER*, and the minutes of each meeting attached.
- (2) **Project Advisory Committee.** The project advisory committee is mentioned; however, no quarterly meeting notes and /or attached references were provided. The quarterly meeting notes need to be provided as an attached referenced. The names and positions of the members of the project advisory committee should also be listed.

#### Task 2 – Engineering Evaluation

(For description of this task, see page A-6, of Attachment 1)

- (3) **Field Reconnaissance.** Supplementary photography of existing key channel sections were required, and need to be included in the *PER* as referenced attachments.
- (4) **Survey Requests.** Actual field survey data and/or field book information appear to be missing from the attached exhibits, including field channel cross-section data, and this information needs to be included in the *PER*. Also, please include in the *PER* a listing of recorded high water marks from residents and industries.
- (5) **Alternative Evaluations and Preliminary Engineering Investigations.** The alternatives discussion and associated exhibits did not include any preliminary schematic(s) for each alternative depicting anticipated right of way requirements (existing and proposed widths), utility constraints (adjustments and/or relocations), and structural locations. There appear to be no evaluations of any improvements to the

existing channels downstream of the diversion channel and to the Laguna Madre.  
Please provide incorporate this information in the *PER* accordingly.

(6) **Technical Review Comments by S&B are shown in Attachment 2**

### **Task 3 – Economic Reevaluation**

(For description of this task, see page A-8, of **Attachment 1**)

(7) **Technical Review Comments by S&B are shown in Attachment 3**

### **Task 4 – Environmental Evaluation**

(For description of this task, see page A-9, of **Attachment 1**)

- (8) This task requirement includes the early invitation and notice to resource agencies. Has any preliminary coordination and/or scoping letters been submitted to the resource agencies? If so, these should be included as referenced attachments to the *PER*.
- (9) The environmental evaluation appears to be limited to the diversion channel area. The project limits for this project extend to the Laguna Madre. There is no discussion regarding the required coordination for the use of La Sal Vieja Lake for the proposed diversion alternative. Also, although the required goal of the project is not to increase the flow at the outfall to the Laguna Madre, drainage improvements along the existing channels (prior to and beyond La Sal Vieja Lake) are anticipated to be included in the design of the project, to assist in future maintenance and/or increase the efficiency of the channel (within the outfall permit requirements). The environmental evaluation needs to include the entire project limits.
- (10) With the exception of those items noted in (8) and (9), the environmental evaluation meets the preliminary requirements of the *PER*, which, under the TWDB contract, does not require a draft environmental assessment (EA) for agency review.

### **Task 5 – Preliminary Engineering Report**

Additional comments:

- (11) Please provide electronic files for Watershed Boundary Map and Floodplain Map.
- (12) Please provide cross-section data for the reaches on Raymondville Drain, from Lake Edinburg to the Laguna Madre; please place these on the Floodplain Map and identify by cross-section number.
- (13) Please provide an electronic copy of the final/approved *PER*.

## **III. Primary Purpose of Report**

The ultimate purpose of the report is to provide documentation for the following:

- To obtain appropriate approval for crossing major watershed boundaries
- To provide a basis for planning documents to be developed for future coordination and approval of project development, funding, and ultimate construction.

## **IV. Miscellaneous**

- Technical Review Committee Meeting
- Schedule

## **V. Adjournment**

## Raymondville Drain Outfall System

A technical review of the report entitled "Draft Final Report Flood Protection Plan for the North Main and Raymondville Drains, dated June 4, 2001 prepared by Turner Collie & Braden Inc., was reviewed by S&B infrastructure with respect to the scope of services as outlined in TC&B's contract with Hidalgo County Drainage District No. 1:

### TASK 2 – ENGINEERING EVALUATION

#### 2.1 HYDROLOGY AND HYDRAULICS

##### 2.1.1 Preliminary Investigations

Available Mapping.

**Comment:** Exhibits of the above mentioned map material will be helpful in the report and clarify in text that FEMA maps were provided for information purpose only. The year of DOQQs in the report will aid in supplementing the impervious calculations.

Field reconnaissance

**Comment:** Please review the June 11, 2001 memorandum from S&B Infrastructure, Ltd. Additionally, describe in text the channel roughness derived during field reconnaissance and also attach the supporting field data.

Survey requests

**Comment:** Please review the June 11, 2001 memorandum from S&B Infrastructure, Ltd. Describe in text with respect to item c and item d.

##### 2.1.2 Development of HEC-1 basin model (existing w/o project)

**Comment:** Describe in text the calibration process of the parameters and results derived and provide appropriate models. Attach appropriate tables for the subwatershed, unitgraph (Appendix E), and channel routing in the main text for the existing and future. In a table the rainfall distribution for all frequencies will be helpful.

##### 2.1.3 Hydraulic studies

**Comment:** Please clarify which cross sections were modified in HEC-RAS. Text indicates detailed bridge data was unavailable and was assumed that the bridge losses were considered to be minimal. Please attach a table for the location of new bridges and also justify the assumption in text that this is true for all the studied frequencies with appropriate photographs or any other pertinent information.

**Provide a flow distribution (station–discharge) table or graph.**

**Provide the S-O model for existing and future conditions. The text does not give any information on the S-O model. It appears that the SV–SQ relationship remain unchanged with various diversion options. Please justify the assumption and provide the explanation in text.**

**2.1.4 Frequency analysis for existing conditions**

**Comment: This section or discussion about the frequency analysis is missing in the text. Please describe the selection process for location of interest and also justify the validity of the selection for both the watersheds.**

**The stage-discharge–frequency curves are missing and the text should include the development of the curves.**

**The USACE reference ETL 1105-2-101 cannot be found. The risk-based analysis, which the scope implies is referenced in ER 1105-2-101. Please include in text and appropriate models for both the existing and future conditions as required by ER 1105-2-101.**

**2.1.5 Floodplain mapping**

**Comment: Please include in text the limits of the DTM developed and provide an exhibit for the effort. The flood damages map is missing and should include for both the existing condition and the residual flood damages with appropriate alternative or a selected alternative.**

**2.1.6 Future without project conditions (50-year projection)**

**Comment: Include in text about item a, and changes made to item b. The map of future condition floodplains is missing.**

**In Appendix E, growth factors were applied to the watershed to arrive at the future conditions land use. As an example in existing conditions Sub-basin 45s, which is at 30.8 % impervious and sub-basin 7s is at .1% impervious, it appears with the assumption both the areas are growing at the same rate for future condition. Please justify the assumption.**

**In Section V Economic Evaluation page V-2, “ A base year of 2005 was chosen since it is the year ....” For effective comparison the**

land use in 2005 is not defined and appropriate water surface elevations were not provided. From the information provided, the base conditions for this project was never established and thus any effective comparison with respect to the benefits derived by the plan can never be properly evaluated.

2.1.7 Hydrologic analysis of alternatives

**Comment:** Floodproofing was described in the text but it's not clear which structures were selected and without appropriate documentation, this option cannot be reviewed.

The report needs to clarify that only selected alternative is presented in detail and it will be helpful to document that sufficient alternatives were evaluated prior to recommending the selected alternative. Appropriate documentation with respect to in-house memorandum and models will be very helpful without which the selected alternative evaluation cannot be verified to be the best available solution.

The placement of fill on the Raymondville drain should be explained for positive drainage in the text.

The Buyout option was found to be not viable as described in the text. Without appropriate documentation, the conclusion derived cannot be determined.

It is to be noted that the base condition 2005 year was never established in the report.

With respect to the hydrological and hydraulic models,

- DI/DQ backup data is needed to confirm the diversion flows
- S-O model is needed to verify the routing
- Base conditions 2005 year should be established
- Future condition growth factors should be justified
- The diversion rates of 10%, 25% and 50% are not accurate when checked with respect to the flow rates in the channel
- Text should reference the diversion flow rate to the frequency with which it was assumed
- Based on the models, the diversion rates as assumed are ineffective for frequencies 50% to 2% flood. The flow rates will decrease for those frequencies and the percentage as assumed is not valid based on the presented results



- **With the diversion in place the SV-SQ relationship in the HEC-1 model remained unchanged. Please justify this assumption with appropriate model**
- **There are extended sections starting at the 4% flood**
- **The selection of the recommended plan is inconclusive with the data provided**
- **The confidence and the reliability of the model was never established**

## RAYMONDVILLE DRAIN OUTFALL SYSTEM

A technical review of the letter report entitled, "Submittal of Economic Evaluation Results for the Flood Protection Plan for the North Main and Raymondville Drains, dated August 06, 2001, prepared by Turner Collie & Braden, Inc., was reviewed by S & B Infrastructure, Ltd., with respect to the scope of services as outlined in Task 3 Economic Re-Evaluation.

### TASK 3 - ECONOMIC RE-EVALUATION

#### **A. ASSUMPTIONS**

The economic analysis provides a description of the investigations, procedures, and analyses conducted to establish the value of property within the floodplain; the expected annual flood losses under existing and future conditions; the residual flood losses; the annual flood losses; and the equivalent annual flood reduction benefits for various plans considered. The benefit of the flood hazard reduction plans will be determined by comparison of the with and without project conditions. A probabilistic display of benefits will be provided in accordance with the risk-based analysis as computed using HEC-FDA "Flood Damage Analysis Package" model.

**It is not clear on the intent of this economic evaluation. The assumptions in the scope clearly state the deliverables for this analysis. As outlined in the assumptions "and analyses conducted to establish the value of property within the floodplain", the economic evaluation report does not include the number of structures or the total value of the property in the floodplain and the expected damages for the future without project conditions. Further, the assumptions that the benefits are to be derived with risk-based analysis is not followed in this economic evaluation.**

- 3.1 Baseline economics investigation  
Delineate affected area

**An exhibit of the affected area with reaches will be helpful in understanding the economic evaluation.**

- 3.1.1 Establish base year

**The report needs to describe more clearly the base year for the project, which is assumed to be year 2005. There should be consistency in the economic and hydraulic evaluations on the base year.**

3.1.2 Establish period of analysis and analysis years

3.1.3 Select planning/economic reaches

**Exhibit on the planning/economic reaches will be helpful. Also, define and justify the selected reaches.**

3.1.4 Evaluate existing and authorized plans

**Please clarify what plans are being evaluated. The report does not imply any other plans were evaluated other than those analyzed.**

3.1.5 Define economic relationships

This subtask involves developing a structure inventory database using county tax records and parcel from Hidalgo and Willacy Counties' appraisal districts and determining what structures and other property are in the floodplain, the value of structures and associated contents and the structure's base elevation.

**Please describe in the report regarding the structural inventory. It should clearly state the number of residential, commercial public and others.**

Establish Structure Inventory Database

The structure inventory database will be obtained from HCAD/WCAD data. The structure database will include real property records and associated digital parcel mapping. The structure database will be compiled to define the Damage Categories, Structure Occupancy Types, and Structure Attributes for input into the HEC-FDA computer program. Damage categories will include residential, commercial, public, and industrial structure and contents, roads, emergency costs, vehicle, utilities, and park areas.

**The other damages for the economic evaluation were omitted. This is an essential element for the evaluation of this project and is a deviation from the presented scope of services.**

Perform field sampling and surveys to verify accuracy of appraisal district data and complete replacement cost less depreciation.

**The report does not mention anything with respect to this subtask. Provide backup documentation and explanation for the field sampling and survey.**

Establish value of floodplain property

Develop depth-percent damage functions and/or stage-damage functions (residential).

**Please provide and justify the use of the IWR depth damage curves instead of the USACE-Galveston district curves.**

Develop commercial and industrial depth-damage functions

**There is no proper documentation for this subtask. Clarify if this was ever used in the HEC-FDA and if not then explain its exclusion in HEC-FDA.**

Develop agriculture depth-damage functions

**There is no proper documentation for this subtask. Justify the use of the methodology employed and the derived benefits with respect to the agriculture category.**

Develop infrastructure and personal damage curves

Vehicle damage

Utility damage

Roads damage

Emergency costs

Determine other costs of using the flood plain

National flood insurance costs

**The above mentioned were never used in the economic evaluation. Please justify.**

### 3.2 Determine alternative damages

#### 3.2.1 Determine floodplain characteristics (existing conditions without project)

Damages for the baseline conditions without a project in place will be approximated using the data sources described, and identifying average annual damages using the HEC-FDA software.

### 3.2.1 Project activities in affected areas (future conditions without-project)

Estimates of future growth benefits will be based on current economic growth indices. Economic and demographic projections by analysis year will be determined for the study area using the data from the LRGVDC and the TWDB. The potential for additional damages resulting from increasing water surfaces will then be evaluated using the HEC-FDA model in concert with the hydrologic studies performed.

### 3.2.2 Alternative plan damages

Alternative plans are to be sized for 10-, 25-, and 100- year flood control capacity. Damage reductions associated with the alternatives will be performed using the HCAD data sets in the GI, and comparing the reduction in damages associated with modifications to the individual floodplains. The alternatives will be examined against multiple profile runs of the 2-, 5-, 10-, 25-, 100-, 250-, and 500-year storms.

**In addition to the above mentioned comments. Please provide the HEC-FDA model for the project and the work maps for the economic reaches. The finished floor elevation used in the HEC-FDA should be explained in the text. Based on Table 8, results of Structural Damage Analysis the residual flood damages with the all of the analyzed alternatives will result in the increase in flood damages. Please explain and justify.**

October 30, 2001

TC&B Job No. 31-01001-001 *2.4*  
Raymondville and North Main Drains

Mr. Gilbert R. Ward  
Texas Water Development Board  
1700 North Congress Avenue  
Austin, Texas 78711

**RE: Flood Protection Plan for the North Main and Raymondville Drains  
Response to TWDB / TxDOT Comments**

Dear Mr. Ward:

On October 10, 2001, we received from your office a copy of an email message dated September 12, 2001 addressed to you from David Stolpa with the Texas Department of Transportation. Mr. Stolpa's email presented his review comments for the North Main and Raymondville Drains report. A copy of Mr. Stolpa's email is enclosed.

After receiving the comments, Joseph Barrow, P.E., with TC&B had a telephone conversation with Mr. Stolpa to discuss his comments. The following is our response to Mr. Stolpa's comments.

- **Comment 1:** Concerning the calibration of data.
  - **Response:** As referenced in report *Section II – Modeling Methodology*, the purpose of this study was to establish a conceptual flood protection plan and not necessarily to determine detailed floodplain delineations. Due to a lack of stream gage stations located within the project study reaches, calibration process did not include a comparison of model computed peak discharges with measured flow values. The basis of project hydrologic methodologies, assumptions, factors, and models was from information developed as part of the revised Flood Insurance Study (FIS) conducted for Hidalgo County. Since the Revised FIS project was reviewed and approved by FEMA for this watershed, the FIS information was also used for this project.
  
- **Comment 2:** Concerning the use of 24-hour rainfall event (duration) and adjustment of point rainfall values (areal adjustment).
  - **Response:** As stated for Comment 1, project hydrologic methodologies, assumptions, factors, and models was developed in part from the revised FIS project for Hidalgo County including rainfall durations, depths, and other adjustments. To address the concern of project rainfall data, we compared peak flows with those calculated with the "Cypress Creek Formula". The "Cypress

# TurnerCollie & Braden Inc.

Mr. Gilbert Ward  
October 30, 2001

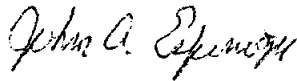
Page 2

Creek Formula" was developed to determine flow for agricultural watersheds along the Gulf Coast, Atlantic Cost and southern Florida considering rainfall excess. Results indicate that computed flows using the formula for subwatersheds have an average difference of 8 percent when compared with flows developed using project hydrologic methodologies and models.

In addition, we have also added additional text to report *Sections I, II, III, and VII* addressing Mr. Stolpa's review comments. This additional text has been high-lighted in the enclosed copies of the report sections.

If you have any questions regarding our response or need additional information, please call me at 210-296-2009.

Very truly yours,



John A. Espinoza, P.E., C.F.M.  
Project Manager

Enclosures

cc: Mr. Godfrey Garza, Hidalgo County Drainage District Number One  
Mr. Alan J. Potok, P.E., TC&B

## Espinoza, John

**From:** David Stolpa [DSTOLPA@dot.state.tx.us]  
**Content:** Wednesday, September 12, 2001 5:48 PM  
**To:** Gilbert.Ward@twdb.state.tx.us  
**Subject:** Contract No. 99-483-305, Hidalgo County Drainage District

Gilbert:

### SUMMARY

I have finished a quick review of the drainage study. Several things come to mind.

1. First, was there any attempt at calibration? It is possible that there may not be any data but some discussion of the implications the lack of or ability to calibrate would help set some direction as to how to use the study as a planning tool. That is, does the community desire a tool that is in line with statistical expectation, or is a conservative tool acceptable?
2. I also have some concerns regarding the hydrology, and in particular, the consultants's development of the storm models used in the HEC1 runs. Unless they can provide some clarification, the study may be in question.

### DURATION

In explanation, by looking at the HEC1 data for the North Main Drain, it would appear that this project was modeled as a series of sub watershed having a combined drainage area of at least 668 square miles. That is, an overall system. When selecting a storm duration for a basin, especially if the storm is to be applied to an analysis of the total a system, the storm duration selected should be equal to or greater than the time of concentration (Tc) for the total basin. Otherwise, we cannot be certain that the model output reflects a full basin response.

The selected storm duration appears to be a 24-hour event. However, it does not appear that a Tc was developed for the overall basin in this project. If the overall TC exceeds 24 hours, then use of the 24-hr storm is questionable. In fact, the HEC1 input indicates that many of the sub basins individually have lag times (lag is generally estimated as being 0.6 Tc) greater than 50 hours. Therefore, even the response of these sub basins, or any sub basin with a lag time over 14 hours, is questionable even if it was intended to individually apply a 24-hour storm to the sites.

### AREAL ADJUSTMENT

Another storm model issue regards the precipitation depths. After talking to you, I did find a note in the HEC1 input that indicated that point rainfall values (for areas up to 10 square miles) were adjusted. What is not clear is how the adjustments were (or were intended to be) made. The storm/ PH cards (contained under the KK card for sub basin SC-7a) appear to contain the point values computed using the USGS Report 98-4044. In addition, the second field of the PH card was left blank indicating that the basin area from the BA record would be used for the adjustment.

If we were simply looking at sub basin SC-7A, I would think that the areal adjustment for that individual basin using this approach worked just fine. In addition, since the storm data is not repeated for each basin, the default procedure in HEC1 should pick up the rainfall data from the SC-7A PH card and adjust the rainfall for each individual basin.

However, I have a question as to whether the intent was to model the response of the overall system. If so, the adjustment that should be expected for the 668 square mile basin "system" may not be appropriately considered with the approach that was actually used. Especially since most of the individual basin are relatively small and very little adjustment under these conditions would be expected. If the intent was to model the individual sub basins as being independent of each other and the "system" why the system routing?



Anyhow, let me know if you have any questions or if I can be of additional assistance. I would like to see what comes of this. TxDOT does try to consider local drainage plans when working with the communities and planning our own structures.

David

**Espinoza, John**

---

**From:** Gilbert Ward [Gilbert.Ward@twdb.state.tx.us]

**Sent:** Wednesday, November 07, 2001 1:28 PM

**To:** Espinoza, John

**Subject:** comment response to TxDOT

John,  
I'm satisfied with your response to comments made by David Stolpa of TxDOT. Be sure that when you finalize the report, you provide in the report the comments sent to you, which included the TxDOT comments and your responses to all comments. I talked with David and I guess you convinced him also. The format can be like your letter to me but you should reproduce the entire comment, and then provide your response. Call if you have questions.  
gil

11/29/01

# Turner Collie & Braden Inc.

Engineers • Planners • Project Managers

*File*

6800 Park Ten Blvd., Suite 180S  
San Antonio, Texas 78213  
210 296-2000  
Fax 210 296-2025

November 13, 2001

TC&B Job No. 31-01001-001 2.6  
Raymondville and North Main Drains

Mr. Gilbert R. Ward  
Texas Water Development Board  
1700 North Congress Avenue  
Austin, Texas 78711

**Re: Flood Protection Plan for the North Main and Raymondville Drains  
Response to TWDB / TxDOT Comments**

Dear Mr. Ward:

On October 30, 2001, we received a copy of a letter dated October 16, 2001, addressed to Godfrey Garza, Hidalgo County Drainage District No. 1, from Tommy Knowles with the Texas Water Development Board. Mr. Knowles' letter presented review comments for the North Main and Raymondville Drains draft final report. A copy of Mr. Knowles' letter is enclosed. The following is our response to Mr. Knowles' comments.

- **Comments 1 through 5:** Summary.
  - **Response:** No response required
- **Comment 6:** Concerning initial abstractions.
  - **Response:** As discussed in the report, an initial abstraction value of 1-inch was used as a base value. This base value was increased to 2 or 3-inches for certain land uses such as orchards or vineyards and for areas located within subareas that have numerous irrigation channels.

Additionally, initial abstraction values were increased for areas with major depression storage. Consequently, for subareas with extensive areas of major depressions, the initial abstraction values were calculated to be as high as 7.3-inches.

- **Comment 7:** Concerning peak flows related to 25 percent diversion at some cross sections being higher than peak flows related to 15 percent and 50 percent diversion at the same cross section.
  - **Response:** Upon review of the peak flows at the locations inquired about, the routing data for the 25% Diversion HEC-1 model was found to be different from the routing data in both the 10% Diversion and 50% Diversion HEC-1 models.

# TurnerCollie&Braden Inc.

Mr. Gilbert Ward  
November 13, 2001  
Page 2

The routing data for the Rt26A location was changed in the 25% Diversion model to match the correct data in the other models.

The 25% Diversion HEC-1 model was executed, and the peak flows were compared with those previously submitted. The largest increase in peak flows was 106 cubic feet per second (cfs), and the largest decrease was 121 cfs. These represent a 5 percent increase and a 6 percent decrease in flows, respectively.

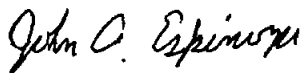
The new flows were entered in the HEC-RAS model, and the model was executed. The largest increase in the water surface elevations was 0.14 feet (0.14'), and the largest increase in flood plain was 0.01 feet (0.01'). This increase is not considered substantial, and the conclusions and recommendations will not change as a result of this modeling change.

Copies of revised 100-year storm HEC-1 input/output, HEC-RAS model output, and *Tables 4* and *5* are enclosed.

- **Comments 8 A-C:** Texas Department of Transportation comments.
  - **Response:** These comments were addressed in a previous letter sent to your office dated October 30, 2001.

If you have any questions regarding our response or need additional information, please call me at 210-296-2009.

Sincerely yours,



John A. Espinoza, P.E., C.F.M.  
Project Manager

Enclosures

cc: Mr. Godfrey Garza, Hidalgo County Drainage District No. One  
Mr. Alan J. Potok, P.E., TC&B, w/o enclosures



# TEXAS WATER DEVELOPMENT BOARD

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Kathleen Hartnett White, *Member*

October 16, 2001

Mr. Godfrey Garza, Manager  
Hidalgo County Drainage District No. 1  
902 N. Doolittle  
Edinburg, Texas 78539

RECEIVED  
OCT 21 2001  
BY \_\_\_\_\_

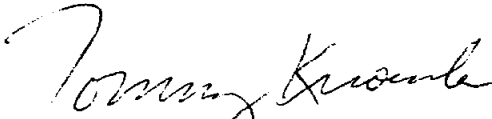
Re: Flood Protection Planning Contract Between the Hidalgo County Drainage District No. 1 (District) and the Texas Water Development Board (Board), Contract No. 99-483-305, Draft Final Report

Dear Mr. Garza:

Staff members of the Texas Water Development Board have completed a review of the draft report under TWDB Contract No. 99-483-305. As stated in the above referenced contract, the District will consider incorporating comments from the EXECUTIVE ADMINISTRATOR shown in Attachment 1, and other commentors on the draft final report into a final report. The District must include a copy of the EXECUTIVE ADMINISTRATOR's comments in the final report.

Prior to submitting the Final Report, please contact Mr. Gilbert Ward, the Board's designated Contract Manager for this study at (512) 463-6418 to discuss the comments attached. It may be possible that a revised draft will need to be submitted prior to the Final Report. If you have any other questions, please contact Mr. Ward.

Sincerely,

  
Tommy Knowles, Ph.D., P.E.  
Deputy Executive Administrator  
Office of Planning

Cc: Gilbert R. Ward, TWDB  
John Espinoza, TC&B

## Our Mission

Provide leadership, technical services and financial assistance to support planning, conservation, and responsible development of water for Texas.

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**ATTACHMENT 1**  
**TEXAS WATER DEVELOPMENT BOARD**  
**Contract No. 99-483-305**  
**Flood Protection Plan for the North Main**  
**and Raymondville Drains**

1. The report describes the results of hydrologic and hydraulic analyses completed in an effort to determine a cost effective flood protection plan that will alleviate flooding in sections of Hidalgo and Willacy Counties. The study examines structural and nonstructural alternatives and considers future development in the study area.
2. Recommendations include construction of a diversion channel to divert flow from the North Main Drain into the Raymondville Drain watershed and of facilities that would allow for storm water detention within the diversion channel, the Raymondville Drain and La Sal Viejo Lake. The report indicates that, with the proposed improvements, computed 100-year storm water surface elevations for the Raymondville Drain in the vicinity of the City of Raymondville are within existing bank elevations.
3. Standard principles and methodologies have been employed in the accumulation and presentation of data in this report. Proposed construction improvements appear to be eligible for Board financing. Estimations of project costs appear to be based on reasonable assumptions.
4. The Final Report would be appropriate for use in support of an application to the Board for financing the proposed improvements. All additional information required by appropriate Board rules, 31 TAC 363, and required to make legal findings required by Texas Water Code Chapter 17.771-776 would be required at the time of application. Flood control work is not eligible for the Board's pre-design funding option.
5. An Application for Approval of Reclamation Project need not be filed with the Texas Natural Resource Conservation Commission for the referenced proposal. It was determined from our review that the proposed project, since it is in **Hidalgo County**, needs to be permitted by the County. **Hidalgo County** by virtue of its participation in the National Flood Insurance Program, and in accordance with Section 16.236 (d) (3&4) of the Texas Water Code, has approval authority for the project. If the County has not already done so, they should insure that the proposed construction is documented and permitted in accordance with their Flood Hazard Prevention Ordinance. This documentation should also be submitted by the County to the Federal Emergency Management Agency to obtain a Letter of Map Revision (LOMR) of **Hidalgo County's** Flood Insurance Rate Map.
6. Table 2. The initial abstractions are high for many sub-regions. For example, it is 7.319 for 28R sub-region. Page III-3; text states that "initial abstraction rates of 1.0 inch was generally appropriate. Explain the reason for the higher rates and how the numbers are obtained.
7. Table 4. The peak flows related to 25% diversion at some cross sections are higher than the peak flows related to both 15% and 50% diversion at the same cross section (i.e. HEC-RAS stations 109185 and 149670). Explain.

8. A. There does not appear to be any attempt at calibration. It is possible that there may not be sufficient data but some discussion of the implications as to the lack of or ability to calibrate would help set some direction as to how to use the study as a planning tool. That is, does the community desire a tool that is in line with statistical expectation, or is a conservative tool acceptable?
- B. There are concerns regarding the hydrology, and in particular, the development of the storm models used in the HEC1 runs. Unless clarification can be provided, the results may be in question. It would appear that this project was modeled hydrologically as a series of sub-watersheds having a combined drainage area of at least 668 square miles, that is the overall system. When selecting a storm duration for a basin, especially if the storm is to be applied to an analysis of the total system, the storm duration selected should be equal to or greater than the time of concentration ( $T_c$ ) for the total basin. Otherwise, it cannot be certain that the model output reflects a full basin response. The selected storm duration appears to be a 24-hour event. However, it does not appear that a  $T_c$  was developed for the overall basin in this project. If the overall  $T_c$  exceeds 24 hours (as it does), then use of the 24-hr storm is questionable. In fact, the HEC1 input indicates that many of the sub basins individually have lag times (lag is generally estimated as being  $0.6 T_c$ ) greater than 50 hours. Therefore, even the response of these sub basins, or any sub basin with a lag time over 24 hours, is questionable even if it was intended to individually apply a 24-hour storm to the sites.
- C. Another storm model issue regards the precipitation depths. Notes in the HEC1 input indicate that point rainfall values (for areas up to 10 square miles) were adjusted. What is not clear is how the adjustments were (or were intended to be) made. The storm/ PH cards appear to contain the point values computed using the USGS Report 98-4044. In addition, the second field of the PH card was left blank indicating that the basin area from the BA record would be used for the adjustment. If we were simply looking at sub basin SC-7A, I would think that the areal adjustment for that individual basin using this approach worked just fine. In addition, since the storm data is not repeated for each basin, the default procedure in HEC1 should pick up the rainfall data from the SC-7A PH card and adjust the rainfall for each individual basin. However, the question is whether the intent was to model the response over the sub-area of the overall system. If so, the adjustment that should be expected for the 668 square mile basin "system" may not be appropriately considered with the approach that was actually used. Especially since most of the individual basins are relatively small and very little adjustment under these conditions would be expected. If the intent was to model the individual sub basins as being independent of each other and the "system", why the system routing?

**Espinoza, John**

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**From:** Gilbert Ward [Gilbert.Ward@twdb.state.tx.us]  
**Sent:** Wednesday, November 28, 2001 11:10 AM  
**To:** Espinoza, John  
**Cc:** Phyllis Thomas  
**Subject:** final report - Hidalgo Co Drainage Dist.- Contract 99-483-305

John,  
TC&Bs responses to the TWDB comments on the Draft report provided in the 16 October letter addressed to Mr Godfrey Garza, have been found to be complete and are acceptable to the Board. It will not be necessary to submit a revised draft for review. As stated in the contract, the final Report should include the Boards comments and responses. We look forward to receiving the final Report, 10 bound copies, 1 unbound and 1 electronic.  
Thanks again. Let me know if you have any questions.  
gil

11/29/01