Golden Valley Road Bridge Location Hydraulic Study



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March 31, 2005



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GOLDEN VALLEY ROAD BRIDGE LOCATION HYDRAULIC STUDY

1.0 EXECUTIVE SUMMARY

This Location Hydraulic Study was prepared for the City of Santa Clarita for the purpose of determining the impacts to the Santa Clara River from the construction of the Golden Valley Road Bridge.

Previous to this report, a separate study was performed by Pacific Advanced Civil Engineering, Inc. (PACE) titled *River Park Drainage Concept Report Soil Cement Bank Protection- Santa Clara River*, dated August 2004. The study consisted of analyses for potential bank protection downstream of the proposed Golden Valley Road Bridge. Beginning with PACE's analysis and extending the floodplain study further upstream, it was determined that the Golden Valley Road Bridge would raise flood levels by a maximum of 0.9 ft. The rise would lower back into existing conditions 1000 ft upstream and 700 ft downstream of the proposed bridge. All water surface elevations (WSE) and topography contained herein are based on the North American Vertical Datum 1988 (NAVD88).

2.0 PURPOSE OF STUDY

The intent of this study was to quantify impacts to the Santa Clara River due to the construction of the proposed Golden Valley Road Bridge. The study addresses the following:

- 1.) The Santa Clara River channel 100-year floodplain as it presently exists.
- 2.) The Santa Clara River channel 100-year floodplain after the construction of the Golden Valley Road Bridge.
- 3.) Risk assessment associated with any possible encroachment, including impacts on natural and beneficial floodplain values, probable incompatible floodplain development, and special mitigation measures needed (if any) to minimize impacts to the floodplain.

A scour study prepared by Dokken Engineering titled *Golden Valley Road Bridge Scour Study*; March 31, 2005 has incorporated standards from the Los Angeles Flood Control District, Hydraulic Design Manual to determine scour depths and freeboards, in accordance with local floodplain requirements.





3.0 PROJECT LOCATION AND VICINITY MAP

Figure 1: Project Site

The project site is located in central Santa Clarita, CA. North of the project are undeveloped hillsides and the Castaic Lake Water Agency Rio Vista Treatment Plant. Immediately south and to the west of the river, land uses are primarily commercial and residential.

4.0 DESCRIPTION OF BASIN

The total Santa Clara River Basin encompasses 1,634 square miles, consisting primarily of vacant land and unlined river banks. The river lies within the jurisdiction of the Los Angeles County Department of Public Works (LACDPW).

Annual rainfall in this region is approximately 17 inches. Nearly all rainfall in the area occurs from December through March. Precipitation during the summer is infrequent except for the occasional short-duration thunderstorms with major storms occasionally lasting for 4 days or longer.

A document entitled *Geologic and Geotechnical Report, Review of Tentative Tract Map (Dated February 25, 2003), Tentative Tract 53425 River Park Volume I* was completed by Allan E. Seward Engineering Geology, Inc. on April 4, 2003. The document reports recent river-channel deposits in the major tributaries of the Santa Clara River. Based on boring samples obtained for the project, the alluvial deposits consist of interbeds of sandy, silty, and clayey soils with limited inclusion of coarser soils.



5.0 FLOODPLAIN MODELING METHODOLOGY

HYDRAULIC/FLOODPLAIN ANALYSIS

According to the FEMA Flood Insurance Rate Map (FIRM) number 060729 0345C dated September 9, 1989, for the Unincorporated Areas of Los Angeles County, California, the project site lies within a Zone A floodplain. Zone A is defined as an area within the 100-year floodplain, determined by approximate means. Because detailed hydraulic analyses have not been performed for such areas, base flood elevations have not been established.

5.1 HEC-RAS PROGRAM

HEC-RAS River Analysis System v3.1.2 was used to model the Santa Clara River and proposed bridges. HEC-RAS is a graphically based computer program developed by the U.S. Army Corps of Engineers Hydrologic Engineering Center. Input required by the software includes channel cross sectional geometry, channel roughness coefficients, starting water surface elevation, and discharge.

5.11 Cross Sectional Geometry

Cross sections 155-172 of PACE's study were used to model the downstream river and a portion of the upstream section of the river. Cross sections 173 and 174 were created and placed 400 ft upstream, allowing HEC-RAS to measures backwater effects up to 900 ft upstream of the bridge (See Appendix 'A'). These two cross sections were based on a topographic map provided by the County of Los Angeles Department of County Engineer Survey Division, National Geodetic Vertical Datum 1929 (NGVD29) titled *Topographic Map of Flood Plain Mapping Santa Clarita Valley*, March 1977. All elevations for this study were converted to North American Vertical Datum 1988 (NAVD88).

Bridges

Two proposed bridge alternatives are currently under development. Alternative 1 consists of 4 ft wide pier columns, spaced 125 ft apart and alternative 2 consists of 2.5 ft wide pier walls spaced at 185 ft (See Appendix 'A'). The pier widths were doubled from 4 ft to 8 ft and 2.5 ft to 5 ft for alternatives 1 and 2 respectively, to simulate potential clogging from floating debris. For the energy losses through the bridge, the energy (standard step) equation was used. This method allowed HEC-RAS to determine the highest possible energy loss under the bridge.

The two alternatives were modeled in HEC-RAS to determine the shortest allowable bridge lengths without raising the water surface elevation (WSE) above 1 ft and encroaching upon the FEMA 100-yr floodplain. It is the policy of FEMA that a floodplain may be encroached so long as the rise in flood level does not exceed 1 ft.



Contraction and Expansion Coefficients

Contraction and expansion coefficients of 0.1 and 0.3 respectively, were used at the cross sections upstream and downstream of the Golden Valley Road Bridge. These values are typically used where the change in river cross section is gradual. For the cross sections on the upstream and downstream faces of the bridge, contraction and expansion coefficients of 0.3 and 0.5 were used. These values were obtained from Table 3.3 of the *HEC-RAS River Analysis System, Hydraulic Reference Manual*, April 2004.

Ineffective Flow Areas/Levees

Areas in which water was not actively being conveyed were labeled as ineffective flow areas. For existing and proposed conditions, ineffective flow areas were used along the left overbank to account for building structures. However, for the proposed condition, the ineffective flow areas became narrower to account for the abutments on the overbanks (See Appendix 'A').

For the proposed model, levees were used at each of the abutments to prevent water from traveling around the bridge. This forced the full flow of the 100-yr flood to move directly under the bridge, and thus generate a minimum freeboard between the WSE and the bottom soffit of the bridge.

5.1.2 Manning's Roughness Coefficient

Each cross section contains a left over bank, main channel, and right over bank, which represent the different regions of the waterway in terms of roughness coefficients. The main channel represents the base of the river and the left and right slopes represent the overbanks. A Flood Insurance Study (FIS), dated September 9, 1989 for the City of Santa Clarita provided a roughness value (Manning's n value) of 0.06 for the overbanks and an n value of 0.03 for the main channel of the Santa Clara River.

5.1.3 Starting Water Surface Elevation

Normal depth was used for the starting WSE in HEC-RAS. The starting slope of the model was 0.01.

5.1.4 Discharge

According to the report performed by PACE, the peak 100-yr discharge for the Santa Clara River was 15,272 cfs. This value was used throughout the model to determine the rise in WSE upstream and downstream of the Golden Valley Road Bridge as well as any possible encroachment on the existing 100-yr floodplain.



6.0 HEC-RAS OUTPUT

As stated previously, the two bridge alternatives were designed to prevent the existing 100-yr floodplain from rising no more than 1 ft. With the inputted data, different bridge lengths were tested to determine the different rises in WSE. It was concluded that the minimum allowable bridge length for alternative 1 was 1,100 ft. Shortening the bridge any further would raise the WSE above the 1 ft limit. Alternative 2 allowed the bridge length to be adjusted from 1100 ft to 950 ft. The results for comparison are summarized in Figure 2 and Figure 3.

Figure 2: Bridge Descriptions

	Alternative 1	Alternative 2
No. of Bents	8 (Columns)	4 (Pier walls)
Bent Spacing	125 ft	185 ft
Pier Width	4 ft \Rightarrow 8 ft (doubled for debris)	2.5 ft \Rightarrow 5 ft (doubled for debris)
Bridge Width	125 ft	125 ft
Bridge Length	1100 ft	950 ft

Figure 3: Changes in Water Surface Elevation (FEMA 100-yr Floodplain)

Cross Section	Exist W.S. Elev (ft)	Alt 1 W.S. Elev (ft)	∆ WSE (Alt1- Exist) (ft)	Alt 2 W.S. Elev (ft)	∆ WSE (Alt2- Exist) (ft)
174	1282.84	1282.84	0	1282.84	0
173	1277	1277	0	1277	0
172	1273.81	1273.81	0	1273.81	0
171	1271.78	1271.4	-0.38	1271.4	-0.38
170	1269.06	1269.06	0	1269.49	0.43
169	1267.64	1267.99	0.35	1268.28	0.64
168	1267.03	1267.1	0.07	1267.16	0.13
167	1265.91	1266.15	0.24	1266.35	0.44
166*	1264.88	1265.72	0.84	1265.79	0.91
165.5**	1263.09	1263.46	0.37	1263.63	0.54
165	1262.36	1263.02	0.66	1262.8	0.44
164	1260.96	1261.37	0.41	1261.37	0.41
163	1260.08	1260.16	0.08	1260.2	0.12
162	1259.16	1259.16	0	1259.2	0.04
161	1257.46	1257.46	0	1257.47	0.01
160	1255.21	1255.21	0	1255.21	0
159	1253.91	1253.91	0	1253.91	0
158	1251.74	1251.74	0	1251.74	0
157	1249.75	1249.75	0	1249.75	0
156	1247.57	1247.57	0	1247.57	0
155	1244.61	1244.61	0	1244.61	0

* = Upstream face of Golden Valley Roadway Bridge

** = Downstream face of Golden Valley Roadway Bridge



The proposed bridge alternatives experienced changes in WSE which were lower than the existing WSE. This is attributed to factors associated with the topography of the main channel and the velocity of flow. At cross section 172, the geometry of the channel changes and the flow path becomes narrower (See Appendix 'A'). As a result, depths approached critical depth indicating a shift between subcritical and supercritical flow. To produce higher WSEs, the model was run strictly using subcritical flow.

6.1 Warning Messages

Warning messages were produced between cross sections 174 and 173, indicating that the cross sections were experiencing divided flow. These warnings are appropriate due to the nature of the topography of the developed and hilly area along the left side of the river. Other warnings indicated that the energy equation could not be balanced for cross sections 170-169 and 158-155. These messages are typical in areas where the flow path becomes narrower, increasing the velocity to supercritical.

Further warnings were generated at cross sections 172, 171 and 165-163, indicating that the energy loss was greater than 1 ft. The program recommended using additional cross sections to resolve the warnings. The interpolated cross section function of HEC-RAS was used to provide the extra sections needed. This feature allowed the changes in energy loss to occur in smaller increments.

7.0 RISK ASSESSMENT

Encroachment is defined by FEMA as "construction, placement of fill, or similar alteration of topography in the floodplain that reduces the area available to convey floodwaters," and by the Federal Highway Administration (FHWA) as "an action within the base floodplain" (*Environmental Handbook Vol. 1*). The construction of the Golden Valley Road Bridge encroaches upon and increases the elevation of the existing floodplain immediately upstream of the proposed bridge (See Appendix 'A'). However, the increase is minimal and will not exceed the FEMA 100-yr floodplain boundary.

7.1 FLOODPLAIN VALUES

The Environmental Handbook Vol.1, 2002 defines floodplain values as fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, groundwater discharge, etc. According to the Environmental Impact Statement/Environmental Impact Report (EIS/EIR), dated August 1998, by the U.S. Army Corps of Engineers and the California Department of Fish and Game, the installation of bridges would cause both temporary and permanent impacts to floodplain values within the Santa Clara River. However, these habitats are mostly small and fragmented remnants of larger, previously undisturbed habitats, and are not likely to support self-sustaining wildlife or sensitive species. In addition, affects to these habitats can be mitigated



through the usage of controlled construction zones, restoration of disturbed streambeds, and temporarily relocating habitats.

8.0 CONCLUSION

Cross sectional data used to model the Santa Clara River was obtained from PACE's report. The proposed Golden Valley Road Bridge consisted of two bridge alternatives: alternative 1 and 2. In order to determine the minimum allowable bridge length, without increasing the water surface elevation by over a 1 ft, each bridge was ran in HEC-RAS using the 100-yr flood. It was determined that the minimum allowable bridge length for alternative 1 was 1100 ft. Alternative 2 allowed the bridge length to be adjusted to 950 ft while maintaining the 1 ft limit. Decreasing the length of each bridge any further would raise the water surface elevation above one ft and potentially infringe upon the existing FEMA 100-yr floodplain. The nature of the surrounding area consists of sparse and fragmented habitats. Therefore the construction of the Golden Valley Road Bridge will not cause any significant impacts to the floodplain values of the area.

9.0 REFERENCES

- Allan E. Seward Engineering Geology, Inc., April 4, 2003. Geologic and Geotechnical Report, Review of Tentative Tract Map (Dated February 25, 2003), Tentative Tract 53425 River Park Volume I.
- County of Los Angeles Department of County Engineer Survey Division, March 1977. Topographic Map of Floodplain Mapping Santa Clarity Valley.
- Dokken Engineering, March 2005. Advance Planning Study Alternative (APS) NO.1 &2 Cross Valley Connector.
- Dokken Engineering, March 2005. Golden Valley Road Bridge Scour Study.
- Federal Emergency Management Agency, *Flood Insurance Rate Map*, September 1989. *City of Santa Clarita, California Los Angeles County*, Panel Number 060729 0345C
- PACE, Pacific Advanced Civil Engineering, August 2004. Drainage Concept Report for River Park Santa Clara River Soil Cement Bank Protection.

Thomas Guide, 2004. Los Angeles County and Orange County.

- U.S. Army Corps of Engineers, Los Angeles District Regulatory Branch & California Department of Fish and Game, Region 5, August 1998. *Environmental Impact Statement/Environmental Impact Report*.
- U.S. Army Corps of Engineers, Hydrologic Engineering Center, April 2004 HEC-RAS River Analysis System, Hydraulic Reference Manual.



APPENDIX 'A'

Floodplain Exhibit

Ineffective Flow Area Exhibit

Bridge Advanced Planning Study (APS)

Flood Insurance Rate Map (FIRM)









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Date of estimate	=	1-20-05
Structure depth	=	5'-0"
Length	=	11001-0*
Width	=	124'-10"
Area	2	137, 316 sq ft
Cost/ "ft includir	ng	
10% mobilization 8	2	
10% contingency	3	\$128.00
Total Cost	2	\$17,570,000



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APPENDIX 'B'

Results Summary

HEC-RAS Cross Section Input/Output



HEC-RAS P	Plan: Existing	River: Santa Cl	lara Reach: 1	Profile: 100-	Year							
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chni	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	174	100-Year	15272.00	1275.00	1282.84	1282.84	1284.78	0.005994	11.47	1583.56	1375.84	0.89
1	173	100-Year	15272.00	1269.00	1277.00	1274.52	1277.51	0.001342	5.90	2830.97	2355.72	0.43
1	172	100-Year	15272.00	1268.71	1273.81	1273.81	1276.18	0.007724	12.36	1235.52	2026.21	0.99
1	171	100-Year	15272.00	1268.00	1271.78	1271.78	1273.40	0.010566	11.75	1754.76	2005.58	1.11
1.5	170	100-Year	15272.00	1266.00	1269.06	1269.06	1270.29	0.009827	9.32	1879.44	1791.87	1.02
1	169	100-Year	15272.00	1263.90	1267.64	1267.07	1268.23	0.005398	6.82	2762.66	1811.09	0.75
1	168	100-Year	15272.00	1263.60	1267.03	1266.09	1267.46	0.003977	6.26	3414.58	1878.26	0.65
1	167	100-Year	15272.00	1262.08	1265.91	1265.60	1266.60	0.007252	7.57	2672.84	1595.56	0.86
1	166	100-Year	15272.00	1261.35	1264.88	1264.08	1265.43	0.004912	6.48	3157.91	1643.01	0.71
1	165.5	100-Year	15272.00	1260.35	1263.09	1263.09	1264.37	0.016700	9.69	1951.52	1410.77	1.25
1	165	100-Year	15272.00	1257.79	1262.36	1261.79	1262.75	0.004575	5.02	3045.23	1763.22	0.65
1	164	100-Year	15272.00	1257.58	1260.96	1260.83	1261.65	0.008880	6.68	2285.72	1522.36	0.90
1	163	100-Year	15272.00	1256.19	1260.08	1259.84	1260.75	0.007966	6.54	2335.67	1385.69	0.86
1	162	100-Year	15272.00	1255.40	1259.16	1258.72	1259.56	0.004798	5.03	3033.60	1732.99	0.67
1	161	100-Year	15272.00	1253.90	1257.46	1257.46	1258.26	0.011281	7.16	2132.21	1341.81	1.00
1	160	100-Year	15272.00	1251.90	1255.21	1255.18	1255.99	0.010541	7.07	2160.59	1318.22	0.97
1	159	100-Year	15272.00	1250.87	1253.91	1253.54	1254.40	0.005731	5.64	2708.68	1468.79	0.73
1	158	100-Year	15272.00	1248.56	1251.74	1251.74	1252.49	0.011546	6.93	2202.78	1481.18	1.00
1	157	100-Year	15272.00	1246.18	1249.75	1249.75	1250.51	0.011444	7.00	2181.92	1436.14	1.00
1	156	100-Year	15272.00	1244.10	1247.57	1247.57	1248.37	0.011403	7.15	2134.93	1356.49	, 1.00
1	155	100-Year	15272.00	1240.90	1244.61	1244.61	1245.56	0.010751	7.84	1949.01	1033.46	1.01







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Existing Bridge.rep

HEC-RAS Version 3.1.2 April 2004 U.S. Army Corp of Engineers Hydrologic Engineering Center 609 Second Street Davis, California

Х	Х	XXXXXX	XXXX			XXXX		×	X	XXXX	
Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	
Х	Х	Х	Х			Х	Х	Х	Х	Х	
XXXX	(XXX)	XXXX	Х		XXX	XX	XX	XXX	XXX	XXXX	
Х	Х	Х	Х			Х	Х	Х	Х	Х	
Х	Х	Х	Х	Х		Х	Х	Х	Х	Х	
Х	Х	XXXXXX	XX	XX		Х	Х	Х	Х	XXXXX	

z

PROJECT DATA Project Title: Existing River Project File : Existing Bridge.prj Run Date and Time: 4/1/2005 10:10:05 AM

Project in English units

Project Description: Cross sections cut in LDD and imported 04-30-04

PLAN DATA

Plan Title: Existing Profile Plan File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS 3_11_05\Existing Bridge.p03

Geometry Title: Exist Project (banks=0.6, chnl=0.3) Geometry File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS 3_11_05\Existing Bridge.g07

: Steady Flow : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Flow Title Flow File Study\HEC-RAS 3_11_05\Existing Bridge.f01

Plan Summary Information: 21 Multiple Openings = Number of: Cross Sections = 0 Culverts = 0 Inline Structures = 0 0 Bridges = Lateral Structures = 0 Computational Information Water surface calculation tolerance = 0.01 Critical depth calculation tolerance = 0.01 Maximum number of iterations 20 = Maximum difference tolerance 0.3 = Flow tolerance factor = 0.001 Computation Options Critical depth computed only where necessary Conveyance Calculation Method: At breaks in n values only Friction Slope Method: Average Conveyance Subcritical Flow Computational Flow Regime:

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Page 1
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Existing Bridge.rep

RIVER: Santa Clara REACH: 1	RS: 17	3					
INPUT Description: Station Elevation Data Sta Elev Sta 0 1279 667.6 2565 1273 2666	num= Elev 1273 1303	8 Sta 1833 3000	Elev 1270 1353	Sta 2166	Elev 1273	Sta 2366	Elev 1269
Manning's n Values Sta n Val Sta 0 .06 2166	num= n Val .03	3 Sta 2666	n Val .06				
Bank Sta: Left Right 2166 2666 Ineffective Flow num Sta L Sta R Elev 0 2073 1290	Lengths Permane F	s: Left 379 L ent	Channel 427	Right 469	Coeft	F Contr. .1	Expan. .3
CROSS SECTION							
RIVER: Santa Clara REACH: 1	RS: 172	2					
INPUT Description: Station Elevation Data Sta Elev Sta 0 1272.61 12.11 71.31 1272.01 72.31 77.52 1272.01 78.27 83.13 1271.91 86.32 103.98 1271.95 105.31 187.78 1270.71 192.84 244.92 1271.01 276.73 382.73 1271.62 405.91 406.73 1271.85 407.35 408.44 1271.88 408.51 414.18 1271.88 416.74 562.71 1271.34 563.53 612.41 1271.31 673.01 729.84 1272.09 763.01 767.73 1271.32 768.09 772.31 1271.31 773.91 778.17 1271.41 815.76 829.27 1271.31 830.69 861.06 1271.23 985.31 1038.9 1270.71 1040.28 1053.87 1270.43 1054.99 1085.08 1269.81 1088.2 1121.84 1269.76 1128.71 1210.98 1269.81 1384.56 1507.87 1269.46 1510.58 1549.99 1269.5 1556.74 1627.2 1269.1 1631.35 1660.05 1269.01 1668.44 1723.82 1269.21 1726.01	num= Elev 1272.54 1272.02 1271.96 1271.95 1271.91 1270.71 1271.78 1271.88 1271.87 1271.89 1271.31 1271.69 1272.08 1271.31 1271.31 1271.31 1271.31 1271.31 1271.33 1270.83 1270.71 1270.41 1269.76 1269.71 1269.71 1269.69 1269.48 1269.49 1269.28 1269.28 1269.28 1269.28	337 Sta 45.45 74.24 79.13 90.96 106.6 198.32 305.39 406.26 407.57 411.55 417.95 580.77 687.46 732.49 764.04 769.49 775.09 819.66 834.59 1033.41 1048.88 1066.75 1106.54 1130.42 1228.01 1389.2 1528.04 1558.66 1635.69 1731.42 1768.77	Elev 1272.26 1272 1271.96 1271.95 1271.95 1271.51 1271.12 1271.87 1271.81 1271.81 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.71 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.41 1271.91 1269.74 1269.74 1269.74 1269.48 1269.48 1269.48 1269.26 1269.26 1269.26	Sta 51.09 75.77 80.47 92.99 184.31 198.87 315.78 406.45 407.82 411.84 418.72 597.72 719.86 733.04 765.48 769.96 776.44 823.12 844.98 1036.93 1049.62 1075.43 1111.89 1144.12 1231.57 1400.26 1530.48 1565.8 1645.8 1645.8 165.8 165.8 1645.8 1708.68 1738.13 1773.53	Elev 1272.22 1271.98 1271.95 1271.91 1270.79 1271.44 1271.12 1271.86 1271.87 1271.86 1271.89 1271.33 1272.11 1272.08 1271.26 1271.26 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1271.28 1269.83 1269.81 1269.51 1269.51 1269.37 1269.34 1269.59	Sta 51.69 76.93 81.69 97.02 184.7 221.81 321.04 406.62 408.13 413.57 419.41 605.62 723.17 735.37 766.77 770.46 777.35 826.45 855.3 1038.31 1051.24 1079.75 1119.51 1201.06 1244.21 1463.25 1547.74 1605.66 1651.58 1716.17 1742.11 1776.6	Elev 1272.21 1271.97 1271.95 1270.8 1270.85 1271.11 1271.81 1271.88 1271.87 1271.89 1271.33 1272.11 1272.09 1271.35 1271.27 1271.41 1270.72 1270.5 1269.8 1269.76 1269.8 1269.76 1269.8 1269.1 1269.1 1269.1 1269.3 1269.36 1269.36

				Existing	, Bridge.	rep			
244.92	1270.3	276.73	1271.07	305.39	1270.41	315.78	1270.41	321.04	1270.4
382.73	1270.91	405.91	1271.17	406.26	1271.16	406.45	1271.15	406.62	1271.1
406.73	1271.14	407.35	1271.14	407.57	1271.1	407.82	1271.16	408.13	1271.17
408.44	1271.17	408.51	1271.16	411.55	1271.2	411.84	1271.15	413.57	1271.16
414.18	1271.17	416.74	1271.18	417.95	1271.2	418.72	1271.18	419.41	1271.18
562.71	1270.63	563.53	1270.6	580.77	1270.97	597.72	1270.62	605.62	1270.62
612.41	1270.6	673.01	1270.98	687.46	1270.97	719.86	1271.4	723.17	1271.4
729 84	1271 38	731.51	1271.37	732 49	1271 4	733 04	1271 37	735 37	1271 38
736 57	1271 38	763 01	1270 67	764 04	1270 7	765 48	1270 65	766 77	1270 64
767 73	1270 61	768 09	1270 59	769 49	1270.6	769.96	1270 55	770 46	1270 56
772 31	1270.01	773 01	1270 6	775 00	1270 67	776 14	1270 60	777 35	1270.30
778 17	1270.0	815 76	1270.0	810 66	1270.07	873 17	1270.03	876 15	1270 55
820.27	1270.7	830 60	1270 50	834 50	1270.52	844 08	1270.52	Q55 2	1270.55
861 06	1270.0	025 21	1270.39	1033 /1	1270.09	1036 03	1270.37	1038 31	1270.01
1020 0	1270.32	1040 20	1270.12	10/0 00	1260 79	1040 62	1260 78	1050.51 1051.24	1260 70
1050.9	1260 72	1040.20	1260 7	1040.00	1209.70	1049.02	1209.70	1070 75	1209.79
1005.07	1209.72	1000 0	1209.7	1106 54	1209.2	1111 00	1209.12	1110 51	1209.09
1085.08	1209.1	1088.2	1209.05	1100.04	1269.00	1111.09	1209.1	1119.01	1269.05
1121.04	1269.05	1120./1	1209	1130.42	1269.03	1144.12	1269.02	1201.00	1209.14
1210.98	1269.14	1221.03	1269.1	1228.01	1269.12	1231.57	1269.11	1244.21	1269.12
1248.82	1269.1	1384.56	1268.98	1389.2	1269	1400.26	1268.96	1463.25	1268.88
1507.87	1268.75	1510.58	1268.77	1528.04	1268.77	1530.48	1268.8	1547.74	1268.78
1549.99	1268.79	1556.74	1268.78	1558.96	1268.77	1565.8	1268.8	1605.66	1268.39
1627.2	1268.39	1631.35	1268.4	1635.69	1268.37	1644.53	1268.37	1651.58	1268.35
1660.05	1268.3	1668.44	1268.31	1705.19	1268.61	1708.68	1268.66	1716.17	1268.59
1723.82	1268.5	1726.01	1268.57	1731.42	1268.55	1738.13	1268.63	1742.11	1268.65
1745.14	1268.7	1760.2	1268.78	1768.77	1268.86	1773.53	1268.88	1776.6	1268.9
1782.06	1268.78	1786.76	1268.64	1791.31	1268.45	1798.18	1268.1	1799.96	1268
1817.13	1268.07	1822.1	1268.1	1825.91	1268.09	1834.02	1268.1	1837.17	1268.11
1840.39	1268.11	1843.6	1268.1	1847.05	1268.11	1868.17	1268.09	1874.96	1268.1
1879.76	1268.08	1883.99	1268.08	1894.55	1268.1	1920.09	1268.09	1925.31	1268.1
1930.52	1268.08	1964.01	1268.04	1974.58	1268	1986.36	1268.01	1990.6	1268
1993.29	1268.1	2003.25	1268.41	2007.82	1268.6	2018.27	1270	2023.31	1271.57
2024.56	1272	2035.71	1279.46	2041.62	1282	2050.88	1284.8	2058.67	1287.22
2065.74	1289.39	2073.15	1292	2086.82	1301.7	2087.26	1302	2087.57	1302.14
2089.08	1302.78	2117.25	1315.4	2119.26	1316	2129.39	1317.86	2130.34	1318
2137.37	1318.19	2146.22	1318.4	2150.99	1318.48	2154.42	1318.53	2157.12	1318.55
2160.24	1318.54	2165.76	1318.5	2170.51	1318.43	2176.68	1318.32	2183.46	1318.15
2188.68	1318	2197.15	1316.2	2199.03	1316	2210.78	1314.49	2215.37	1314.41
2223.38	1314.41	2225.72	1314.5	2228	1314.38	2229.25	1314.34	2229.92	1314.36
2231.08	1314.4	2232.04	1314.47	2235.22	1314.72	2236.83	1314.81	2250.22	1316
2250.48	1316	2256.99	1316.22	2312.88	1318	2313.65	1318.09	2332.33	1320
2343.19	1320.2	2349.84	1320.36	2353.84	1320.43	2357.22	1320.48	2360.51	1320.51
2364.91	1320.6	2366.72	1320.57	2368.23	1320.57	2371.42	1320.56	2374.85	1320.54
2376.19	1320.5	2378.03	1320.54	2401.57	1321.57	2415.39	1321.74	2425.33	1321.9
2432.5	1322	2489.41	1324	2493.59	1324.6	2506.06	1326	2507.76	1326.18
2523.6	1328	2524.91	1328.2	2535.54	1330	2535.91	1330.2	2537.46	1330.83
2539.95	1332	2546.65	1333.99	2569.74	1340.5	2574.93	1342	2621.29	1343.59
2632.12	1343.9	2633.17	1343.96	2633.46	1343.97	2634.8	1344	2657	1345.52
2661.59	1346	2664.8	1346.24	2670.55	1346.64	2678.86	1347.09	2680.57	1347.2
2682.03	1347.17	2686.39	1347.07	2688.7	1347.21	2693.3	1347.08	2697.41	1347.3
2700.29	1347 22	2705 63	1347.46	2707.89	1347.38	2711.94	1347 42	2715.31	1347.2
2720 71	1346 83	2722 91	1346 6	2728 32	1346	2733 3	1345 15	2736 68	1344 3
2742 76	1342	2743 48	1341 57	2744 32	1341 14	2752 01	1336 86	2760 09	1334
2762 42	1332 94	2765 09	1332	2783 43	1329	2787 89	1328 4	2790 49	1328
2801 16	1225 81	2810 95	1324 38	2822 91	1322 92	2827 01	1322	2827 49	1321 88
2829 18	1321 00	2830 85	1321 02	2832 63	1320 88	2835 24	1320 5	2837 61	1320 04
2830 28	1310 16	2030.03	1310 15	2842 62	1318 05	2842 82	1218 8	2845 28	1318 78
28/7 7	1218 72	2851 05	1210	2854 50	1317 72	2855 02	1317 9	2855 85	1317 75
204/./	1217 72	2031.33	1317 60	2860 3	1217 /	2866 19	1316 0	2867 79	1216 82
2030.47	1216 74	2031,19	1216 71	2000.3	1216 20	2000.40 2077 A1	1216 /	2001.10	1316 09
2010.10	1210./4	2012.30	1215 66	2013.01	1215 77	20//.UL	1211 7	2013.40	121/ 51
2000.93	1310 1314	2030.90	101CTCT	2094.09	1313.77	2901.22	1314./	2902.93	1)14.)1
2904.4	1314	2924.98	1314						

$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2197.15 2225.72 2232.04 2256.99 2349.84 2366.72 2378.03 2489.41 2524.91 2546.65 2633.17 2664.8 2686.39 2705.63 2722.91 2743.48 2765.09 2810.95 2830.85 2841.1 2851.95 2857.19 2872.36 2890.96 2924.98	$1314.2 \\ 1312.5 \\ 1312.47 \\ 1314.22 \\ 1318.36 \\ 1318.57 \\ 1318.54 \\ 1322 \\ 1326.2 \\ 1326.2 \\ 1341.96 \\ 1344.24 \\ 1345.07 \\ 1345.46 \\ 1344.6 \\ 1345.07 \\ 1345.46 \\ 1345.07 \\ 1345.46 \\ 1345.68 \\ 1317.15 \\ 1316 \\ 1315.68 \\ 1314.71 \\ 1313.66 \\ 1312 \\$	Existing 2199.03 2228 2235.22 2312.88 2353.84 2368.23 2401.57 2493.59 2535.54 269.74 2633.46 2670.55 2688.7 2707.89 2728.32 2744.32 2783.43 2822.91 2832.63 2842.62 2854.59 2860.3 2875.07 2894.69	Bridge. 1314 1312.38 1312.72 1316 1318.43 1318.57 1319.57 1322.6 1328 1338.5 1341.97 1344.64 1345.21 1345.38 1344. 1339.14 1320.92 1318.88 1316.95 1315.78 1315.4 1314.38 1313.22	rep 2210.78 2229.25 2236.83 2313.65 2357.22 2371.42 2415.39 2506.06 2535.91 2574.93 2634.8 2678.86 2693.3 2711.94 2733.3 2752.01 2787.89 2827.01 2835.24 2843.83 2855.03 2866.48 2877.01 2901.22	$1312.49 \\ 1312.34 \\ 1312.81 \\ 1316.09 \\ 1318.48 \\ 1318.56 \\ 1319.74 \\ 1328.2 \\ 1340 \\ 1342 \\ 1345.09 \\ 1345.08 \\ 1345.08 \\ 1345.42 \\ 1345.08 \\ 1345.42 \\ 1345.08 \\ 1345.42 \\ 1345.64 \\ 1326.4 \\ 1320 \\ 1318.5 \\ 1318.5 \\ 1316.8 \\ 1315.8 \\ 1315.8 \\ 1314.9 \\ 1314.4 \\ 1312.7 \\ $	2215.37 2229.92 2250.22 2332.33 2360.51 2374.85 2425.33 2507.76 2537.46 2621.29 2657 2680.57 2697.41 2715.31 2736.68 2760.09 2790.49 2827.49 2837.61 2845.38 2855.85 2867.78 2879.46 2902.95	$1312.41 \\1312.36 \\1314 \\1318 \\1318.51 \\1318.54 \\1319.9 \\1324.18 \\1328.83 \\1341.59 \\1343.52 \\1345.2 \\1345.2 \\1345.2 \\1345.3 \\1345.2 \\1345.2 \\1345.3 \\1345.2 \\1345.3 \\1345.2 \\1345.3 \\1345.2 \\1345.3 \\1345.2 \\1312.51 \\1312$
Manning's n Value Sta n Val 0 .06 Bank Sta: Left	es Sta 1463.25 Right	num= n Val .03 Lengths	3 Sta 2035.71 s: Left (n Val .06 Channel	Right	Coeff	Contr.	Expan.
1463.25 20 Ineffective Flow Sta L Sta R 0 1260	035.71 num= Elev 1280	Permane F	120 Lent	112	122		.1	.3
CROSS SECTION								
RIVER: Santa Clan REACH: 1	ra	RS: 169)					
INPUT Description: Station Elevation Sta Elev 0 1269.4 9.41 1269.4 18.78 1269.35 21.99 1269.43 27.89 1269.38 43.42 1269.15 68.87 1268.61 74.01 1268.2 99.54 1267.89 126.47 1267.8 195.21 1267.78 287.86 1267.4 303.42 1267.4 362.87 1267.15 399.31 1267.19 459.53 1267.2 484.58 1267.11	Data Sta 6.06 10.28 19.84 22.56 30.27 46.05 68.95 78.7 102.14 132.9 198.91 290.26 308.16 367.74 401.14 466.82 486.23	num= Elev 1269.37 1269.43 1269.36 1269.44 1269.35 1269.12 1268.33 1268.06 1267.9 1267.78 1267.78 1267.78 1267.38 1267.15 1267.19 1267.07	359 Sta 6.85 13.06 20.25 23.39 32.93 50.51 69.99 78.95 103.91 168.88 203.35 295.46 313.72 372.52 406.48 468.45 491.65	Elev 1269.38 1269.43 1269.4 1269.3 1269.1 1268.3 1268.1 1267.86 1267.77 1267.77 1267.41 1267.41 1267.14 1267.17 1267.18 1266.9	Sta 7.49 13.96 20.73 24.85 36.13 53.54 71.86 80.79 117.36 183.99 245.39 296.71 320.28 380.28 411.36 473.32 495.51	Elev 1269.39 1269.4 1269.37 1269.43 1269.26 1269.04 1268.22 1268 1267.81 1267.8 1267.4 1267.4 1267.41 1267.14 1267.17 1267.18 1266.93	Sta 8.71 18.18 21.14 25.84 39.84 57.84 73.05 97.39 122.87 191.24 278.83 300.67 323.13 394.33 416.22 477.05 497.89	Elev 1269.42 1269.36 1269.4 1269.2 1268.98 1268.21 1267.91 1267.8 1267.78 1267.78 1267.42 1267.4 1267.2 1267.2 1267.2 1267.2 1266.89

Sta L (. Sta R) 950	Elev 1280	Perman F	ent	, 2, iuge	·· •P			
CROSS SE	CTION								
RIVER: S REACH: 1	anta Cla	ira	RS: 16	8					
RIVER: S REACH: 1 INPUT Descript Station Station 81.4 88.83 99.01 189.71 199.9 229.32 269.66 293.31 318.48 354.43 422.01 436.76 452.32 601.14 610.08 629.03 735.21 745.01 800.14 827.67 846.53 865.34 988.82 1013.59 1052.5 1087.1 1194.04 1201.9 81205.92 1206.93 1207.72 1210.58 1213.67	Santa Cla Santa Cla Elevatio Elevatio 1268 1267.28 1267.28 1267.28 1267.21 1266.4 1266.31 1266.13 1266.25 1266.25 1266.25 1265.31 1265.31 1265.31 1265.31 1265.31 1265.4.99 1264.99 1264.99 1264.99 1264.22 1264.22 1264.28 1264.29 1264.28 1264.28 1262.89 1262.80 1262.9 12	n Data Sta 48.14 83.16 91.01 107.33 192.8 203.33 230.77 273.3 296.85 320.88 363.32 424.6 444.99 456.35 602.48 611.36 621.81 631.26 736.35 746.09 804.92 833.21 851.72 871.16 991.12 1023.05 1058.42 1138.63 1195.65 1202.3 1204.28 1206.08 1207.04 1207.95 1211.38 1204.28 1206.08 1207.65 1204.28 1206.08 1207.65 1204.28 1206.08 1207.65 1204.28 1206.08 1207.65 1204.28 1206.08 1207.65 1204.28 1206.08 1207.65 1211.38 1206.08 1207.65 1211.38 1206.08 1207.65 1211.38 1206.08 1207.65 120	RS: 16 num= Elev 1267.63 1267.25 1267.19 1266.39 1266.38 1266.3 1266.3 1266.24 1265.28 1265.28 1265.29 1265.1 1265.29 1264.99 1264.99 1264.57 1264.25 1264.28 1264.28 1264.28 1262.88 1262.88 1262.85 1262.94 1262	8 336 Sta 52.54 83.86 92.2 110.37 195.21 204.4 239.05 276.76 299.41 322.99 377.49 431.95 445.94 596.89 603.84 612.74 632.65 740.29 754.97 810.06 835.45 853.57 875.5 998.4 1026.8 1026.8 1026.8 1026.8 1026.8 1026.8 1026.21 1141.24 1196.07 1202.75 1204.49 1206.23 1207.32 1208.37 1212.05 1215.72 1207.72 1207.72 1207.32 1208.37 1212.05 1215.72 1207.72 1207.72 1207.32	Elev 1267.59 1267.19 1267.1 1266.4 1266.4 1266.28 1266.25 1266.25 1265.28 1265.06 1265.05 1265.02 1264.97 1264.94 1264.56 1264.6 1264.6 1264.6 1264.21 1264.5 1264.3 1264.3 1264.3 1264.3 1264.3 1265.126 1264.95 1262.98 1262.88 1262.88 1262.87 1262.91 1262.93 1263.03	Sta 56.06 85.07 95.16 185.52 197.77 212.14 257.35 279.7 312.18 326.76 407.05 433.39 448.43 598.93 606.53 614.17 626.14 634.58 741.43 756.01 815.42 840.9 856.51 880.16 1001.67 1043.79 1073.87 1187.88 1199.12 1203.03 1204.67 1206.57 1208.86 1212.44 1227.41	Elev 1267.6 1267.2 1267.2 1266.41 1266.38 1266.36 1266.15 1266.16 1265.34 1265.34 1265.3 1265.05 1265.02 1264.94 1264.56 1264.94 1264.58 1264.2 1264.3 1264.29 1264.89 1264.89 1264.89 1264.89 1264.89 1262.9 1262.84 1262.84 1262.91 1262.91 1262.91	Sta 81.29 86.93 97.21 187.62 198.44 213.36 266.21 291.08 314.62 337.58 410.18 435.05 450.23 600.03 609.24 619.06 627.75 640.95 744 786.4 825.55 844.81 862.07 986.56 1004.84 1049.47 1079.9 1192.16 1200.15 1203.59 1204.87 1206.81 1207.46 1209.29 1213.08 1231.67	Elev 1267.28 1267.22 1267.16 1266.39 1266.36 1266.3 1266.3 1266.3 1265.3 1265.3 1265.3 1265.3 1265.3 1265.0 1264.9 1264.9 1264.2 1262.8 1263.1 1262.8 1263.1 1262.8 1263.1
1234.04 1338.04 1483.92 1579.8 1614.82 1659.93	1262.98 1263.8 1265.67 1264.6 1264.37 1264.02	1236.35 1367.84 1551.21 1584.78 1634.98 1671.88	$1262.99 \\ 1264 \\ 1264.7 \\ 1264.61 \\ 1264.18 \\ 1264.03$	1242.79 1377.91 1555.57 1592.96 1645.04 1680.08	$1263.03 \\ 1264.12 \\ 1264.65 \\ 1264.56 \\ 1264.11 \\ 1264$	$1246.18 \\ 1411.46 \\ 1569.04 \\ 1599.14 \\ 1652.2 \\ 1688.17$	$1263.1 \\ 1264.39 \\ 1264.63 \\ 1264.51 \\ 1264.1 \\ 1264.05 \\$	1248.99 1417.07 1574.41 1605.34 1656.4 1701.5	$1263.07 \\ 1264.45 \\ 1264.63 \\ 1264.5 \\ 1264.05 \\ 1264.04 \\ 1264.$
1579.8 1614.82 1659.93 1716.32 1837.95 1866.33 1881.85	1264.61264.371264.0212641263.761263.661263.6	1584.78 1634.98 1671.88 1718.7 1854.36 1868.67 1882.76	1264.61 1264.18 1264.03 1263.99 1263.7 1263.7 1263.63	1592.96 1645.04 1680.08 1749.34 1857.58 1871.34 1884.03	1264.56 1264.11 1263.9 1263.7 1263.65 1263.62	1599.14 1652.2 1688.17 1824.55 1860.32 1875.45 1885.16	1264.51 1264.05 1263.8 1263.68 1263.64 1263.62	1605.34 1656.4 1701.5 1830.9 1864.56 1880.61 1886.04	1264.5 1264.05 1264.04 1263.8 1263.66 1263.64 1263.61
1886.6 1895.47 1906.02 1978.82	1263.6 1263.62 1263.67 1264	1887.68 1896.69 1908.59 2012.45	1263.61 1263.6 1263.7 1270	1890.4 1897.4 1913.13 2015.94	1263.61 1263.63 1263.7 1270.9	1891.96 1898.42 1916.04 2018.48	1263.6 1263.63 1263.72 1271.56	1893.28 1899.55 1919.29 2041.38	1263.62 1263.64 1263.73 1277.47

Existing Bridge.rep

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$\begin{array}{c} 1246.74 & 1263 \\ 1427 & 126 \\ 1456.04 & 1262 \\ 1525.32 & 1262 \\ 1552.93 & 1262 \\ 1573.34 & 1262 \\ 1601.08 & 126 \\ 1627.12 & 128 \\ 1663.8 & 1295 \\ 1713.64 & 1303 \\ 1743.38 & 130 \\ 1751.25 & 1306 \\ 1776.43 & 1 \\ 1805.08 & 130 \\ 1816.85 & 1302 \\ 1901.31 & 1 \\ 1931.54 & 1275 \\ 1936.56 & 127 \\ 1943.5 & 1274 \\ 1954.24 & 1275 \\ 1971.03 & 1275 \\ \end{array}$	$ \begin{array}{r} 3.67 1251.93 \\ 5.7 1430.63 \\ 5.6 1471.85 \\ 5.38 1533.97 \\ 5.12 1557.17 \\ 5.6 1557.17 \\ 5.9 1601.23 \\ 5.1 1633.65 \\ 5.7 1672.81 \\ 5.6 1757.72 \\ 5.6 2 1757.72 \\ 5.6 1787.23 \\ 5.6 1807.93 \\ 7.0 1817.52 \\ 5.6 1807.93 \\ 7.0 1817.52 \\ 5.6 1807.93 \\ 7.0 1925.51 \\ .62 1934.8 \\ 4.8 1938.11 \\ .84 1946.32 \\ .99 1955.85 \\ .42 1975.51 \\ \end{array} $	$\begin{array}{c} 1263.7\\ 1262.69\\ 1262.45\\ 1262.28\\ 1262.28\\ 1262.28\\ 1262.82\\ 1262.82\\ 1270\\ 1287.2\\ 1297.29\\ 1304.33\\ 1306.8\\ 1306.03\\ 1303.28\\ 1302.18\\ 1302.18\\ 1280.37\\ 1275.16\\ 1274.76\\ 1274.76\\ 1274.99\\ 1275.6\end{array}$	Existing 1332.48 1433.57 1504.52 1536.27 1557.47 1585.3 1601.46 1642.48 1683.27 1734.5 1746.82 1759.76 1789.68 1810.7 1874.6 1926.38 1934.84 1934.84 1939.42 1948.12 1957.9 1983.03	g Bridge. 1263.48 1262.69 1262.53 1262.1 1262.96 1270.22 1290 1300 1305.97 1306.82 1306.07 1303.76 1302.27 1301.84 1280 1274.98 1275.02 1275.02 1276	rep 1425.05 1441.7 1522.18 1545.93 1562.16 1586.38 1611.23 1650.96 1689.43 1737.32 1748.16 1768.61 1797.27 1812.92 1892.99 1926.5 1934.85 1940.82 1950.25 1960.42 1985.78	1262.691262.661262.31262.11262.1126312801292.11306.21306.21306.21305.21303.11305.21303.1130213001279.81274.91274.81275.11276.9	$1425.96 \\ 1447.43 \\ 1523.64 \\ 1548.4 \\ 1566.9 \\ 1592.92 \\ 1619.76 \\ 1656.65 \\ 1695.88 \\ 1739.99 \\ 1749.46 \\ 1771.49 \\ 1799.33 \\ 1814.21 \\ 1895.83 \\ 1929.27 \\ 1934.87 \\ 1942.16 \\ 1951.24 \\ 1965.05 \\ 1985.81 \\ 185.81 \\ $	1262.69 1262.35 1262.23 1262.18 1264 1282.9 1293.4 1301.55 1306.47 1306.75 1305.2 1302.94 1301.79 1296.5 1276 1274.85 1274.8 1275.04 1275.22 1276.91
Manning's n V Sta n O	alues Val Sta .06 996.21	num= n Val 	3 Sta 1611.23	n Val .06				
Bank Sta: Lef 996.2 Ineffective F Sta L St 0	t Right 1 1611.23 low num a R Elev 430 1278	Length Perman F	s: Left (59.01 1 ent	Channel 231	Right 386.01	Coeff	- Contr. .1	Expan. .3
CROSS SECTION								
RIVER: Santa REACH: 1	Clara	RS: 16	6					
INPUT Description: Station Eleva Sta E 0 1 78.35 1264 109.01 126 148.02 126 254.76 1 347.99 1264 418.87 1264 491.41 1 510.11 1 562.44 1261 598.49 1262 659.71 126 782.32 126 785.92 126 785.92 126 785.92 126 792.44 1263 912.06 1264 926.01 1264 951.44 126 982.64 1263 1056.91 1262	tion Data lev Sta 265 54.79 .76 85.72 4.6 115.86 4.3 153.32 264 258.66 .03 423.13 264 493.15 262 522.53 .91 589.35 .02 604.4 2.1 664.67 3.2 782.87 3.2 786.71 .22 804.46 .14 914.9 .44 929.37 4.2 960.02 .76 1033.14 .95 1062.72	num= Elev 1264.82 1264.72 1264.6 1264.3 1263.98 1264.1 1264.04 1263.66 1261.98 1261.95 1262.03 1262.06 1263.16 1263.18 1264.2 1264.4 1264.2 1264.4 1264.9	153 Sta 64.69 88.08 121.7 169.11 320.84 367.22 436.86 495.89 523.62 590.11 604.7 670 783.5 787.58 810.63 919.43 932.6 960.68 1042.04 1069.07	Elev 1264.79 1264.7 1264.53 1264.26 1264.02 1264.04 1264.1 1263.27 1261.98 1261.97 1262.07 1263.16 1263.18 1263.4 1264.36 1264.44 1263.99 1263.1 1262.9	Sta 67.97 91.75 132.87 210.97 329.04 411.13 449.32 501.01 546.15 591.55 628.36 675.06 784.11 789.52 823.39 921.25 935.6 965.02 1046.81 1077.93	Elev 1264.8 1264.68 1264.45 1264 1264 1264.11 1262.32 1261.9 1262.08 1262.09 1263.17 1263.2 1263.44 1264.4 1264.4 1264.42 1263.94 1263.03 1262.86	Sta 71.36 95.8 141.61 250.46 332.7 414.71 486.14 504.94 553.64 593.86 649.24 772.7 784.8 790.63 904.54 922.88 938.2 980.54 1053.7 1146.34	Elev 1264.78 1264.65 1264.37 1263.99 1264.05 1264.03 1264.02 1262 1262 1262.07 1263.09 1263.17 1263.2 1264.43 1264.43 1264.39 1263.8 1262.97 1262.75

Existing Bridge.rep Manning's n Values num= Sta n Val Sta n Val n Val 3 Sta n Val .06 921.25 .03 1702.08 .06 Bank Sta: Left Right Lengths: Left Channel 921.25 1702.08 49 50 Ineffective Flow num= 1 Expan. .3 Sta R Elev Permanent Sta L 100 F 1268 CROSS SECTION RIVER: Santa Clara REACH: 1 RS: 165 INPUT Description: 372 Station Elevation Data num=

 199.87
 1267.6
 199.10
 1267.65
 200.10
 1267.66
 200.34
 1267.65

 200.52
 1267.6
 200.78
 1267.51
 200.01
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 228.02
 1265.06
 210.25
 1267.35

 211.72
 1264
 213.25
 1263.62
 220.07
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 226.82
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 239.75
 1258.7

 247.26
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 250.9
 1257.79
 274.52
 1257.82
 275.87
 1257.88
 239.75
 1258.7

 284.05
 1257.79
 267.51
 1257.79
 274.52
 1257.82
 275.87
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 239.56
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 301.66
 1258

 385.42
 1259.52
 389.5
 1259.66
 392.06
 1259.67
 393.1
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 395.58
 1259.95

 395.89
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 502.31
 1260.19
 506.64
 1260.2
 591.1
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 513.61
 1259.95

 557.96
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 549.43
 1259.95
 551.36
 1259.95

 557.96
 1259.94
 568.96
 1260.57
 572.16
 1260.03
 577.16 Page 13

				Existing) Bridge.	rep			
306.6	1266.56	307.36	1266.71	307.99	1266.84	308.4	1267.01	308.7	1267.1
309.02	1267.19	309.31	1267.23	311.75	1267.25	311.98	1267.2	312.23	1267.2
312.29	1267.07	312.37	1266.97	312.79	1266.81	313.39	1266.59	313.48	1266.4
313.59	1266.24	314.38	1266.01	320.94	1264.2	321.87	1264	325.84	1263.04
327.32	1262.68	329.87	1262	332.61	1261.3	334.15	1261.03	338.02	1260
343.32	1258.46	344.88	1258	359.69	1257.7	364.78	1257.65	368.21	1257.59
385 31	1257.58	392.23	1257.63	406.72	1257 7	410.64	1257 77	431 92	1258
450 79	1258	453 56	1258 01	455 05	1258 01	510 75	1259 2	516.03	1259 21
521 97	1259 29	561 14	1259 6	565 23	1259 57	566.83	1259 57	570 6	1259 59
572 60	1250 50	57/ 0	1250 6	576 85	1259 56	578 13	1250 52	579 56	1259 48
581 56	1250 35	500 63	1250 3	501 5	1259.30	502 77	1250 36	50/ 2	1250 27
505 71	1259.33	500.05	1259.5	602 22	1250.26	629 12	1259.50	652 55	1259.57
661 02	1253.57	555.00	1259.4	674 97	1205.00	COE 17	1260	7707	1253.04
702.26	1261 05	704.03	1223.3	074.07	1200	056 52	1260	062 00	1201.02
/03.30	1201.03	794.30	1201.10	002.02	1202	930.32	1202	905.09	1201.9
983.6	1201.//	994.79	1201.07	999.33	1201.0	999.41	1201.04	1004.33	1201.09
1004.94	1261.58	1006.23	1201.0	1007.32	1201.57	1008.6	1261.57	1010.55	1201.00
1014.28	1261.55	1015.31	1201.0	1016.48	1261.55	1018.01	1261.55	1018.41	1201.0
1019.05	1261.56	1019.69	1261.57	1020.51	1261.57	1021.35	1261.6	1023.08	1261.56
1026.44	1261.56	1028.7	1261.6	1032.29	1261.57	1036.31	1261.57	1113.02	1260.6
1123.56	1260.55	1184.46	1260	1188.28	1259.92	1195.02	1259.8	1198.11	1259.75
1202.23	1259.7	1210.88	1259.61	1213.73	1259.6	1219.18	1259.56	1223.5	1259.55
1227.73	1259.53	1231.14	1259.53	1233.63	1259.5	1236.79	1259.53	1238.95	1259.53
1240.79	1259.54	1243.06	1259.56	1245.87	1259.6	1248.15	1259.62	1249.78	1259.64
1251	1259.68	1252.19	1259.74	1253.66	1259.8	1255.53	1259.87	1262.32	1260
1264.75	1260.05	1281.45	1260.28	1306.92	1260.49	1311.94	1260.5	1314.27	1260.54
1318.82	1260.55	1320.95	1260.56	1323.9	1260.55	1326.05	1260.5	1328.18	1260.54
1331.25	1260.52	1341.94	1260.43	1343.27	1260.41	1358.29	1260.3	1365.08	1260.22
1379.35	1260.09	1387.34	1260	1425.31	1259.7	1488.07	1258.96	1493.39	1258.96
1496.29	1258.97	1498.17	1259	1499.99	1258.97	1504.93	1258.97	1506.13	1259
1508.01	1258.95	1510.7	1258.94	1511.81	1258.94	1576.93	1259.21	1579.61	1259.2
1583.79	1259.21	1586.24	1259.2	1589.63	1259.2	1592.92	1259.21	1596.88	1259.2
1598.74	1259.22	1600.84	1259.22	1606.67	1259.18	1610.42	1259.1	1616.85	1259.08
1624.96	1258.97	1628.69	1258.96	1634.09	1258.9	1636.8	1258.91	1641.92	1258.91
1645.14	1258.92	1648.17	1258.94	1651.79	1259	1654.44	1259	1657.98	1259.06
1660.11	1259.03	1662	1259.05	1666.9	1259	1670.26	1258.95	1673.62	1258.88
1676.08	1258.82	1679.63	1258.7	1687.85	1258.4	1688.63	1258.4	1699.22	1258
1701.4	1257.99	1712.4	1257.96	1721.81	1257.9	1734.99	1257.89	1760.75	1257.82
1766.12	1257.82	1773.83	1257.8	1792.42	1257.84	1796.07	1257.9	1797.95	1257.88
1800.33	1257.94	1803.16	1257.98	1805	1258	1807.8	1258.1	1820.77	1258.23
1823.78	1258.25	1827.29	1258.26	1830.79	1258.3	1833.45	1258.26	1836.48	1258.25
1841.78	1258.21	1843.41	1258.2	1846.52	1258.11	1850.44	1258.01	1850.96	1258
1854.63	1257.98	1859.94	1258	1863.77	1257.94	1866.69	1257.94	1868.42	1257.93
1878.28	1257.92	1879.74	1257.9	1881.91	1257.93	1886.81	1257.93	1890.53	1257.94
1895.88	1257.94	1897.83	1257.9	1901.49	1257.96	1914.1	1258	1940.14	1259.74
1943.77	1260	1972.07	1260.77	1976.6	1260.88	1990.97	1261.27	2005.93	1261.56
2008 51	1261 6	2010 26	1261 65	2011 95	1261 68	2028 62	1262	2029 29	1262.02
2036.78	1262.3	2043.93	1262.49	2065.79	1263.26	2087.92	1263 84	2090.05	1263.91
2093.92	1264	2111 16	1265 75	2114 18	1266	2140 53	1266 37	2142 25	1266 42
2144 18	1266 5	2162 76	1266 68	2165 95	1266 76	2174 38	1266 84	2177 34	1266 9
2186 96	1267 01	2102.70	1267 03	2103.03	1267 03	2174.30	1267 01	2108 68	1267
2100.30	1266 96	2203.11	1266 98	2203 2	1267 03	2209 59	1267 28	2210 44	1267 3
2133.33	1267 51	2201.13	1267 56	2203.2	1267 75	2209.39	1267 77	2210.44	1268 13
2213.32	1268 22	2210.33	1268 25	2223.0	1268 22	2223.13	1268 03	2233.3	1268 03
2233.20	1760	2241.03	1268 02	2272.03	1768 02	2233.14	1760	2253.42	1268 04
2233.33	1768 05	2233.00	1260.03	2233.13	1768 15	2233.0	1260 0	2233.90	1200.04
2234.UJ 2202 61	1270.00	2233.34	1222	2203.19	1772 67	2203.10	1272 0	2201.02	1274 00
2203.01	1200	220/.00	1202 C	2232.0	1200 7	2292.13	1200 01	2234.1	1200
2300.89	1200	2319.10	1202.0	2340.34	1202.07	2330.1	1202.01	2334.93	1202 00
23/1.91	1292	2390.21	1202 00	2403.34	1202 10	2407.74	1202 21	2412.04	1202 02
241/.54	1202	2421.35	1203.06	2420.02	1202 0	2420.0/	1202.21	2440.68	1202 05
2446.18	1293.9	2455.39	1293.94	2461.35	1293.9	2461.84	1293.88	2463.26	T5A2.A2
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Manning's	n Values		num=	3	
Sťa	n Val	Sta	n Val	Sta Pag	n Val e 15

			Existing) Bridge.	rep			
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	5 1543.52 4 1544.89 4 1546.34 1 1648.54 7 1653.54 7 1660.54 4 1713.48 5 1724.17 9 1739.5 1778.9 5 1792.92 2 1851.97 8 1884.03 6 1920.63 6 1949.31 3 1986.21 5 2005.64 6 2052.82 5 2095.46 3 2120.19 1 2139.86 2 2155.36 2 2157.7 6 2181.57 5 2206.23 2224.34 4 2226.58 1 2237.8 4 2261.85 8 2296.64 4 2319.17 4 2341.04 9 2372.53 2 2385.63	$\begin{array}{c} 1257.35\\ 1257.34\\ 1257.3\\ 1257.67\\ 1257.67\\ 1257.67\\ 1256.5\\ 1256.9\\ 1256.5\\ 1258\\ 1259.92\\ 1260.16\\ 1261.3\\ 1261.78\\ 1262.78\\ 1262.78\\ 1263.65\\ 1264.79\\ 1265.05\\ 1266.84\\ 1277.9\\ 1287.79\\ 1287.79\\ 1287.75\\ 1287.79\\ 1287.75\\ 1285.04\\ 1278.26\\ 1278.26\\ 1278.26\\ 1278.14\\ 1278.47\\ 1279.96\\ 1282.2\\ 1283.5\\ 1285.5\\ 1285.5\\ 1285.5\\ 1285.9\\ \end{array}$	1543.93 1545.76 1557.3 1649.65 1653.96 1661.01 1716.49 1727.05 1745.33 1779.62 1798.7 1860.74 1899.27 1932.51 1955.87 1989.55 2007.63 2054.44 2126.75 2141.64 2155.86 2158.87 2186.57 2209.03 2225.1 2227.66 2242.88 2262.36 2298.79 2320.43 2347.95 2374.76	1257.3 1257.35 1257.42 1257.7 1257.7 1257.67 1256.33 1256.78 1258.65 1260.3 1261.42 1263.26 1285.34 1287.67 1287.81 1278.2 1278.2 1278.2 1278.2 1278.2 1278.2 1278.2 1283.61 1284.68 1285.62	1544.26 1545.82 1643.76 1650.65 1656.32 1661.89 1717.44 1727.11 1748.4 1782.02 1805.45 1864.67 1901.71 1935.61 1960.29 1992.67 2016.57 2062.67 2108.71 2128.98 2146.8 2156.17 2161.54 2192.75 2211.69 2225.55 2211.69 2225.55 2211.69 2225.55 2211.69 2225.55 2231.2 2247.01 2278.36 2306.96 2326.4 2351.77 2376.01	$\begin{array}{c} 1257.35\\ 1257.34\\ 1257.7\\ 1257.68\\ 1257.68\\ 1257.68\\ 1256.8\\ 1256.8\\ 1256.8\\ 1258.8\\ 1260\\ 1260.4\\ 1261.5\\ 1262.06\\ 1263.35\\ 1263.77\\ 1264.96\\ 1265.2\\ 1270\\ 1281.2\\ 1287.4\\ 1287.5\\ 1279.2\\ 1278.2\\ 1279.2\\ 1278.2\\ 1279.2\\ 1278.2\\ 1278.2\\ 1279.2\\ 1281.28\\ 1287.4\\ 1282.7\\ 1284.8\\ 1285.67\\ \end{array}$	1544.81 1545.92 1645.28 1651.92 1658.37 1662.83 1718.72 1737.59 1752.85 1785.99 1831.85 1880.42 1903.22 1942.27 1966.33 1996.91 2018.24 2083.4 2111.45 2134.06 2151.62 2155.57 2215.57 2214.72 2225.7 2214.72 2225.7 2214.72 2252.02 2284.17 2310.94 2330.23 2355.45 2377.04	1257.35 1257.31 1257.68 1257.67 1257.68 1257.67 1257.68 1257.63 1257.83 1259.04 1260.05 1260.99 1261.72 1262.13 1263.49 1263.96 1265.26 1275.43 * 1282 1286.88 1287.87 1286.88 1287.87 1286.88 1287.87 1286.97 1282 1278.15 1278.24 1279.3 1281.63 1283.02 1284.14 1285.7
Manning's n Val Sta n Va 0 .00	ues 1 Sta 5 64.64	num= n Val .03	3 Sta 2062.67	n Val .06				
Bank Sta: Left 64.64 Ineffective Flow Sta L Sta 1 0 13	Right 2062.67 v num= R Elev 5 1266.51	Lengths = 1 Permane F	s: Left (76 ent	Channel 182	Right 285	Coeff	Contr. .1	Expan. .3
CROSS SECTION								
RIVER: Santa Cla REACH: 1	ara	RS: 162	<u>)</u>					
INPUT Description: Station Elevatio Sta Elev 0 1262 25.18 1259.3 54.89 1258.6 71.3 1264 91.08 1264 115.93 1258 183.72 1257.28 192.79 1257.39	on Data 2 10 3 31.75 5 60.52 4 75.91 4 94.37 3 129.08 3 183.88 9 193.48	num= Elev 1262 1258.45 1260 1265.5 1263.04 1257.59 1257.29 1257.4	377 Sta 14.3 39.59 64.64 77.32 98.26 136.71 186.18 194.19	Elev 1261.15 1259.4 1261.49 1266 1262 1257.37 1257.34 1257.43	Sta 19.95 48.47 65.86 85.38 103.91 139.97 188.21 194.88	Elev 1260 1258.47 1262 1266 1260.28 1257.3 1257.4 1257.5	Sta 22.28 52.65 69.15 88.78 104.94 183.36 191.81 196.31	Elev 1259.8 1258 1263.16 1264.9 1260 1257.26 1257.38 1257.59

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Existing Bridge.rep2410.221311.422415.381311.72416.151311.962422.531311.592424.011312.112430.331311.62430.961311.82439.141311.942440.141311.992448.011312.172450.2313122458.21311.72460.131311.752461.111311.662462.491311.422472.3113102495.291306.92497.781306.392501.171305.742506.991304.74 2472.31 1310 2495.29 2518.23 1301.19 2519.73 1300.8 Manning's n Values num= 3 sta n Val __Sta n Val Sta n Val .03 2142.24 75.91 .06 .06 Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. 75.91 2142.24 128 180 197 .1 Ineffective Flow num= 1 Expan. .3 StaL StaR 0 77 Elev Permanent 1268 F CROSS SECTION RIVER: Santa Clara REACH: 1 RS: 161 INPUT Description: 389 Station Elevation Data num= Elev Sta Elev 1260 9.01 1260 Sta 9 91 Elev Elev Elev Sta Elev 15.59 1260.78 Sta Sta 17.1 Sta Sta 9.91 43.33 9.01 1260 1260 1260 1260.5 0 49.57 1264 65.32 1264 83.46 1259.99 35.27 44.5 1262.32 1260 1262 44.5 1262.32 62.93 1265 83.38 1260 139.03 1256.65 147.93 1256.66 149.01 1256.7 152.3 1256.7 154.92 1256.7 156.69 1256.69 165 53 1256 8 51.09 1264.64 74.39 1262.47 94.51 1258 61.011266
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 480.08
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 675.59

 551.83 1257.55 557.16 1257.5 1257.9 659.54 1257.87 667.73 1257.86 669.52 1257.86 672.87 1257.86 670.33 1257.9 1257.9 669.521257.86670.331257.9671.11257.86672.381257.86672.681257.9672.871257.86673.641257.86674.231257.9674.761257.86675.591257.86676.391257.9678.331257.86679.11257.87680.261257.87681.071257.9759.461257.12762.81257.12767.181257.11770.711257.11777.481257.09779.51257.08784.141257.03788.81256.94791.711256.89796.91256.81800.121256.81802.261256.8804.591256.77808.671256.74810.591256.72812.951256.7814.841256.7816.341256.67820.151256.71823.761256.74829.211256.8834.441256.8836.851256.76912.581256.69918.611256.72924.371256.7942.881256.8977.321256.84982.221256.9987.011256.86991.221256.581037.951256.51051.61256.411068.111256.341071.671256.32Page 19

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				Evicting	Bridge	ren			
25 86	1261 5	11 77	1261 21	57 01	1260 10	55 51	1260 81	57 71	1260 71
53.00 61.60	1201.3	41.77	1201.21	67 7	1200.19	76 04	1764	77 72	1263 5
01.00	1202	05.00	1203.13	0/./	1204	70.94	1204	//./3	1203.3
/8.21	1263.39	79.49	1262.82	81.09	1262	85.47	1261.14	88.15	1260.0
90.86	1260	111.76	1258.25	114.68	1258	116.38	1257.88	119.62	1257.7
132.75	1256.73	135.93	1256.52	136.88	1256.47	137.69	1256.45	139.98	1256.4
143.22	1256	202.42	1255.62	207.09	1255.6	218.73	1255.57	219.85	1255.57
222 07	1255 56	225 65	1255.5	227.24	1255.54	230.36	1255.53	231.53	1255.53
225 25	1255 5	248 5	1255 5	249 76	1255 51	252 66	1255 51	253 72	1255 5
257.02	1755 52	250.3	1755 54	218 /2	1255 05	277 70	1255 07	376 37	1255 1
237.03	1255.55	230.44	1755 7	310.43	1255.05	220.24	1000 00	242 E	1755 5
330.12	1255.14	333.90	1200.2	330.03	1200.20	229.24	1255.55	242.2	1253.3
351.24	1255.96	352.19	1256	354.83	1256.12	328.18	1256.2	303.22	1256.29
366.11	1256.28	371.68	1256.15	372.17	1256.16	375.58	1256.1	382.96	1256.14
390.56	1256.11	394.78	1256.05	396.59	1256	404.31	1255.7	406.58	1255.6
419.17	1255.03	433.95	1254.3	436	1254.27	437.29	1254.39	439.58	1254.38
442.83	1254.29	450.22	1254	457.61	1254	478.19	1254.45	479.9	1254.5
486.19	1254.66	495.41	1254.93	497.6	1254.98	502.32	1255.13	505.81	1255.2
507 92	1255 25	512 28	1255.37	515.49	1255.45	521.4	1255.4	524.57	1255.34
530 24	1255 23	532 02	1255 3	535 73	1255 21	537 03	1255 2	538 75	1255 22
530.24	1755 21	556 55	1255 67	561 68	1755 0	567 17	1255 88	567 00	1255 80
543.22	1255.51	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1255.07		1253.0	10/.1/	1211.00	GOE 12	1755 00
572.90	1255.90	272.2	1255.97		1255 7	202.2	1255 72	003.13	1255.00
615.31	1255.78	625.9	1255.74	627.13	1235.7	627.98	1255.73	004.79	1200.00
/86.26	1254.69	786.44	1254.7	/86./3	1254.69	/8/.2	1254.69	/8/.63	1254.7
791.59	1254.7	791.78	1254.68	792.05	1254.67	792.49	1254.65	792.88	1254.6
793.82	1254.62	794.53	1254.61	795.4	1254.61	796.3	1254.6	797.18	1254.6
798.24	1254.61	799.76	1254.62	842.38	1254.51	845.09	1254.51	850.19	1254.5
861.61	1254.54	867.45	1254.58	887.05	1254,75	891.36	1254.8	894.59	1254.82
897.64	1254.83	904.16	1254.83	906.92	1254.8	908,99	1254.8	912.72	1254.74
920 27	1254 7	975	1254 28	983,15	1254 28	986.58	1254.3	989.67	1254.29
992 16	1254 3	997 62	1254 3	999 1	1254 31	1003 69	1254 31	1004 97	1254 3
1006 17	175/ 27	1000 2	1254 22	1010 1	1254 3	1011 24	1254.31	1015 2	1254 32
1016 00	1764 7	1017 22	1254.52	1010.1	1254.21	1011.24	1254.32	1026 62	175/ 3
1010.09	1254.5	1017.33	1204.01	1010.23	1254.51	1027.05	1254.20	1030.03	1254.5
1043.29	1254.23	1167.89	1253.//	1220.13	1253.04	1230.06	1253.04	1254.50	1253.1
1236.02	1253.05	1237.47	1253.05	1243.46	1253	1245.13	1252.96	1250.2	1252.93
1254.47	1252.93	1255.56	1252.9	1304.3	1252.73	1310.65	1252.77	1311.98	1252.77
1316.46	1252.8	1318.32	1252.8	1389.41	1253.02	1403.78	1253.14	1409.58	1253.2
1413.19	1253.21	1419.22	1253.26	1430.41	1253.3	1431.5	1253.3	1441.7	1253.15
1442.14	1253.11	1442.88	1253.1	1445.34	1253.1	1450.27	1253.13	1452.73	1253.2
1453.67	1253.16	1455.58	1253.2	1457.61	1253.25	1459.3	1253.3	1461.19	1253.3
1462.05	1253.34	1462.76	1253.35	1464.87	1253.35	1465.75	1253.4	1467.01	1253.35
1472.96	1253.3	1475.56	1253.26	1477.98	1253.23	1495.29	1252.98	1502.18	1252.9
1549 65	1252.02	1550.9	1252	1551.36	1251.98	1552.57	1252	1555.27	1251.96
1558 61	1251 95	1565 52	1251 95	1570 51	1251 9	1574 05	1251 95	1605.13	1251.97
1612 59	1252	1616 29	1251 98	1624 56	1251 98	1628 38	1251 97	1631 2	1252
1632 88	1251 06	1633 00	1251 05	1659 06	1251 0/	1663 96	1251 05	1670 05	1252
1676 76	1251.00	1679 72	1251	1710 61	1252 21	1721 04	1252 3	1731 65	1252 35
1720 00	1251.33	1744 05	1252 44	1746 72	1757 15	17/0 10	1252.5	1750 78	1252.33
1752.09	1252.41	1754.00	1252.44	1757 00	1252.43	1750 50		1760.69	1252.47
1/52.2/	1252.47	1/54.29	1252.48	1771.00	1252.48	1/09.00	1252.5	1770.00	1252.40
1/65.03	1252.5	1/68.91	1252.5	1//1.89	1252.51	1//5.68	1252.51	1//6.14	1252.52
1777.03	1252.5	1777.76	1252.53	1//8.4	1252.54	1/80.01	1252.54	1/81.3/	1252.5
1782.7	1252.53	1784.98	1252.53	1785.53	1252.52	1787.61	1252.5	1788.52	1252.5
1860.34	1253.88	1864.12	1254	1879.71	1255.56	1885.2	1256	1900.49	1256.24
1910.66	1256.35	1925.15	1256.55	1954.74	1256.9	1972.59	1257.06	1979.21	1257.13
1982.89	1257.15	1985.49	1257.2	1990.44	1257.21	1996.76	1257.3	2001.7	1257.38
2003 51	1257 4	2005.88	1257.4	2007.66	1257.43	2009.41	1257.44	2011.08	1257.44
2016 05	1257 43	2018 99	1257 4	2022.23	1257.41	2025 62	1257.4	2039.19	1257.43
2010.00	1257 /	2010.93	1257 /5	2057 51	1257 43	2079	1257 54	2081 43	1257 5
2041.97	1257 57	2001.01	1757 64	2037.31	1257.45 1257.74	20/9	1257.04	2115 25	1758
2000.9/	1257.00	2034.01	1227.04	2102.00	10000	2107.00	1250 00	211).)) 21/0 E	1250 6
	1257.99	2110.01	1208	2133./0	1200.03	2130.21	1209.00	2140.3	1223.0
2154.82	1723.83	215/.8	1260	2129.89	1200.04	2104.23	1200.1	21/2.4	1200.1
2180.26	1260.17	2181.21	1260.19	2182.09	1260.2	2183.39	1260.22	2206.24	T700.2
2209.46	1260.53	2211.4	1260.57	2218.14	1260.67	2227.04	1260.92	2231.07	1261
2237.59	1261.24	2242.27	1261.37	2244.16	1261.41	2245.15	1261.42	2247.61	1261.4
2258.49	1262	2260.5	1262.29	2273.04	1264	2278.95	1265.64	2280.6	1266
				e					
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1777.64 1782.46 1790.75 1796.69 1803.27 1809.31 1861.18 1867.23 1870.69 1873.75 1876.55 1914.58 1965.72 1984.77 2051.22 2060.44 2081.78 2106.46 2117.76 2146.22 2193.55 2243.33 2280.2 2300.96 2316.01 2335.09 2412.52 2443.01 2452.35 2512.17 2531.11 2581.94 2609.06 2616.18 2625.9 2632.61 2639.58 2729.91 2748.65 2768.81 279.93 275.75 2768.81 2775.75 2768.81 2775.75 2768.81 2775.75 2768.81 2775.75 2768.81 2775.75 2768.81 2775.75 2775	$\begin{array}{c} 1253.1\\ 1253.3\\ 1253.3\\ 1253.3\\ 1253.3\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.2\\ 1251.7\\ 1251.8\\ 1252.2\\ 1251.2\\ 1251.2\\ 1251.2\\ 1251.2\\ 1251.2\\ 1251.2\\ 1251.2\\ 1251.6\\$	1778.99 1783.96 1791.72 1798.45 1804.4 1810.29 1862.84 1868.38 1871.06 1874.74 1878.22 1935.65 1970.05 1986.92 2051.33 2062.41 2086.34 2108.7 2125.85 2166.04 2207.8 2264.45 2281.31 2305.05 2319.22 2342.55 2414.84 2446.16 2452.67 2517.5 2535.01 2590.44 2612.5 2616.32 2622.66 2629.44 2633.57 2641.04 2731.64 2772.83 2797.91 2839.05 2853.46 2861.56 2873.91 2954.28 2986.48	$\begin{array}{c} 1253.1\\ 1253.28\\ 1253.33\\ 1253.26\\ 1253.09\\ 1252.85\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.5\\ 1252.31\\ 1252.41\\ 1252.41\\ 1252.31\\ 1252.31\\ 1252.31\\ 1252.31\\ 1251.64\\ 1251.64\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.64\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.64\\ 1251.$	Existing 1786.5 1792.58 1799.67 1805.56 1857.97 1863.25 1869.22 1871.62 1874.87 1881.44 1940.28 1973.14 1991.65 2052.43 2067.88 2089.96 2112.01 2126.66 2172.62 2225.13 2268.34 2282.4 2306.63 2321.65 2356.99 2417.5 2447.5 2447.5 2540.99 2594.69 2594.69 2594.69 2594.69 2594.69 2614.7 2617.5 2633.58 2630.07 2634.47 2617.5 2634.47 2617.5 2633.58 2630.07 2634.69 2778.1 2753.67 2779.38 2853.64 2853.64 2853.64	Bridge. 1253.14 1253.32 1253.32 1253.25 1252.46 1252.51 1252.53 1252.53 1252.43 1251.94 1251.72 1252.43 1252.27 1252.26 1252.23 1251.71 1251.6 1251.	rep 1781.07 1787.54 1794.05 1800.67 1806.96 1858.5 1864.09 1869.75 1872.09 1874.97 1883.38 1948.23 1978.8 1995.06 2054.56 2069.76 2096.53 2113.05 2130.47 2177.66 2230.06 2272.24 2297.85 2311.03 2328.07 2400.65 2435.15 2449.68 2489.58 2525.07 2541.76 2598.36 2615.26 2617.86 2635.9 2643.88 2740.83 2757.39 2635.9 2635.9 2635.9 2635.9 2635.9 2635.9 2635.9 2635.9 2635.9 278.14 2855.06 2635.9 278.14 2854.37 2866.29 2881.57 2974.99 2997.41	$\begin{array}{c} 1253.22\\ 1253.33\\ 1253.3\\ 1253.3\\ 1253.3\\ 1252.9\\ 1252.46\\ 1252.51\\ 1252.51\\ 1252.51\\ 1252.41\\ 1251.86\\ 1251.74\\ 1252.05\\ 1252.42\\ 1252.44\\ 1252.3\\ 1252.42\\ 1252.44\\ 1252.3\\ 1252.61\\ 1251.61\\ 1251.28\\ 1251.2\\ 1251.25\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.63\\ 1251.61\\ 1251.63\\ 1251.64\\ 1251.61\\ 1251.63\\ 1251.63\\ 1251.63\\ 1251.64\\ 1251.63\\ 1251.63\\ 1251.64\\ 125$	1781.6 1788.65 1795.72 1801.39 1808.03 1860.63 1865.42 1870.41 1872.67 1875.18 1895.97 1954.95 1982.09 2029.59 2057.52 2075.89 2099.14 2116.95 2141.82 2186.19 2235.96 2278.29 2299.57 2314.77 2331.85 2408.42 2441.29 2451.32 2505.42 2526.92 2545.22 2606.83 2616.06 2618.45 2625.54 2631.74 2637.59 2726.84 2746.216 2788.71 2834.39 2855.08 2855.08 2869.12 2941.59 2979.87 3001.09	$\begin{array}{c} 1253.24\\ 1253.33\\ 1253.27\\ 1253.22\\ 1252.86\\ 1252.48\\ 1252.53\\ 1252.53\\ 1252.53\\ 1252.53\\ 1252.51\\ 1251.76\\ 1252.6\\ 1252.4\\ 1252.6\\ 1252.4\\ 1252.5\\ 1252.4\\ 1252.5\\ 1252.4\\ 1252.5\\ 1251.7\\ 1251.56\\ 1251.28\\ 1251.28\\ 1251.28\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.63\\ 1251.61\\ 1251.63\\ 1251.61\\ 1251.61\\ 1251.61\\ 1251.63\\ 1251.61\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.62\\ 1251.61\\ 1251.62\\ 1251.6$
2412.52 2443.01 2452.35 2512.17 2531.11 2581.94 2609.06 2616.18 2621.78 2625.9 2632.61 2639.58 2729.91 2748.65 2768.81 2790.81 2836.5 2853.09	1251.15 1251.2 1251.1 1251.51 1251.68 1251.68 1251.61 1251.61 1251.61 1251.62 1251.64 1251.64 1250.87 1250.9 1251.03 1251.13 1251.92 1251.92	2414.84 2446.16 2452.67 2517.5 2535.01 2590.44 2612.5 2616.32 2622.66 2629.44 2633.57 2641.04 2731.64 2750.21 2772.83 2797.91 2839.05 2853.46	1251.2 1251.2 1251.1 1251.57 1251.72 1251.79 1251.61 1251.61 1251.62 1251.64 1251.64 1250.88 1250.92 1251.2 1251.2 1251.9 1251.91	2417.5 2447.5 2470.39 2521.85 2540.99 2594.69 2614.7 2617.5 2623.58 2630.07 2634.47 2642.69 2738.1 2753.67 2779.38 2802.69 2841.73 2853.64	1251.15 1251.21 1250.98 1251.6 1251.6 1251.63 1251.61 1251.6 1251.6 1251.6 1251.6 1251.6 1251.6 1251.6 1251.6 1251.07 1251.29 1251.93 1251.9	2435.15 2449.68 2489.58 2525.07 2541.76 2598.36 2615.26 2630.86 2635.9 2643.88 2740.83 2757.39 2786.14 2805.06 2845.71 2854.37	1251.19 1251.2 1251.25 1251.64 1251.7 1251.63 1251.61 1251.61 1251.63 1251.63 1251.65 1250.89 1250.89 1250.99 1251.08 1251.3 1251.3 1251.92 1251.89	2441.29 2451.32 2505.42 2526.92 2545.22 2606.83 2616.06 2618.45 2625.54 2631.74 2637.59 2726.84 2746.21 2762.16 2788.71 2834.39 2851.53 2855.08	1251.19 1251.17 1251.4 1251.7 1251.69 1251.62 1251.61 1251.61 1251.61 1251.63 1250.87 1250.9 1251.1 1251.1 1251.92 1251.92 1251.89
2857.16 2871.36 2950.32 2983.55 3003 3027.46 3052.63 3080.53 3108.21 3145.87 3231.61 3252.3 3269.8 3294.64 3329.9 3341.85 3354.01 3381.99	1251.9 1251.94 1253.32 1254.7 1254.6 1254.8 1255.1 1255.2 1255.43 1256.97 1257.49 1258.43 1258.5 1258.5 1258.5 1258.3 1258.8	2861.56 2873.91 2954.28 2986.48 3007.97 3031.75 3058.32 3084.86 3118.78 3152.33 3238.49 3256.88 3277.45 3298.45 3333.45 3333.45 3345.31 3355.71 3385.7	$\begin{array}{c} 1251.9\\ 1251.95\\ 1254.65\\ 1254.67\\ 1254.67\\ 1254.92\\ 1255.17\\ 1255.17\\ 1255.17\\ 1255.51\\ 1257.1\\ 1257.3\\ 1257.6\\ 1258.1\\ 1258.54\\ 1258.33\\ 1258.29\\ 1258.93\\ \end{array}$	2863.99 2877.1 2966.93 2995.66 3009.99 3036.45 3064.38 3090.9 3122.2 3181.55 3242.01 3259.37 3279.33 3298.9 3335.69 3347.86 3358.04 3422.68	1251.911251.981254.351254.571254.681254.911255.081255.151255.181255.181257.671257.281257.671258.071258.551258.251258.251258.321260	2866.29 2881.57 2974.99 2997.41 3015.99 3040.55 3069.83 3094.49 3129.92 3184.24 3244.87 3262.78 3287.79 3308.32 3338.6 3350.55 3361.26 3432.67	$\begin{array}{r} 1251.91\\ 1252\\ 1254.54\\ 1254.6\\ 1254.75\\ 1254.99\\ 1255.14\\ 1255.2\\ 1255.25\\ 1256.06\\ 1257.13\\ 1257.38\\ 1257.38\\ 1257.84\\ 1258.22\\ 1258.54\\ 1258.27\\ 1258.39\\ 1261.9\\ \end{array}$	2869.12 2941.59 2979.87 3001.09 3022.67 3046.79 3075.23 3100.69 3130.11 3207.69 3247.24 3265.86 3288.46 3222.57 3340.95 3352.05 3363.83 3441.07	$\begin{array}{r} 1251.9\\ 1252\\ 1254.62\\ 1254.61\\ 1254.75\\ 1255.07\\ 1255.13\\ 1255.18\\ 1255.2\\ 1256.55\\ 1257.14\\ 1257.85\\ 1258.39\\ 1258.5\\ 1258.25\\ 1258.25\\ 1258.43\\ 1263.37\end{array}$
20, דינדינ	1204.0	J#/ I. ()	1207.04	Pa	ge 23	5450.42	1203.3		1270

				Existing) Bridge.	rep			
1515.29	$\frac{1250.1}{1250.1}$	1518.25	1250.13	1521.23	1250.1	1525.71	1250	1545.67	1250
1603 24	0 1200.07 1 1250 48	1603 98	1250.27	1605 4	1250.3	1559.15	1250.42	1613 16	1250.51
1615.01	L 1250.55	1616.47	1250.53	1618.11	1250.5	1621.67	1250.34	1623.14	1250.3
1625.16	5 1250.29	1627.51	1250.3	1637.01	1250.4	1639.38	1250.38	1641.71	1250.38
1645.72	2 1250.34	1647.46	1250.3	1652.62	1250.13	1654.78	1250.09	1656.82	1250.09
1657.78	$\frac{1250.1}{1250.1}$	1658.44	1250.26	1659.75	1250.35	1661.97	1250.66	1662.58	1250.7
1687 /) 1250./1 1250 51	1680 06	1250.71	1600 21	1250.65	1607 41	1250.6	1604 68	1250.53
1696.79	1250.11	1699.46	1250.06	1702.15	1250.40	1716.23	1250.12	1719.09	1250.08
1721.58	3 1250.07	1722.89	1250.1	1739.45	1250	1760.9	1250	1763.85	1249.92
1776.5	5 1250	1779.89	1250	1782.22	1250.02	1810.43	1250.2	1814.08	1250.2
1817.46	5 1250.23	1820.45	1250.23	1823.01	1250.24	1826.17	1250.23	1830.66	1250.2
1841.40	1250.2 1250.22	1882 12	1250.23	1827.97	1250.2	1888 20	1250.23 1250.24	1802 /0	1250.23
1900.36	5 1250.22 5 1250.32	1902.99	1250.35	1904.97	1250.2	1906.75	1250.24	1910.85	1250.20
1912.47	1250.45	1914.33	1250.5	1917.32	1250.46	1920.3	1250.45	1923.07	1250.45
1925.59	1250.44	1927.18	1250.4	1929.6	1250.42	1937.78	1250.37	1955.35	1250.2
1990.12		1999.27	1249.99	2048.89	1250	2052.68	1250.1	2056.19	1250.13
2058.27	1250.10	2060.79	1250.19	2062.88	1250.2	2066.89	1250.2	20/1.43	1250.22
2188 26	1249 27	2000.34	1249 23	2093.04	1230.2	2110.40	1249 21	2120.50	1249 2
2193.99	1249.19	2194.59	1249.19	2194.79	1249.2	2194.92	1249.18	2195.71	1249.18
2195.95	1249.2	2196.13	1249.18	2196.38	1249.18	2196.85	1249.19	2197.27	1249.2
2198.29	1249.2	2199.08	1249.21	2199.54	1249.21	2200.48	1249.2	2200.77	1249.23
2255.91	. 1250	2265.54	1250.1	2290.87	1250.29	2296.18	1250.32	2299.74	1250.3
2303.13	1250.55	2323.07	1250.33	2354 76	1250.3	2352.00	1250.31	2340.95	1250.25
2390.22	1250.2	2397.31	1250.14	2410.16	1250.09	2423.91	1250	2430.78	1249.9
2438.74	1249.71	2439.42	1249.7	2447.93	1249.49	2452.41	1249.43	2457.65	1249.3
2460.06	1249.29	2478.28	1248.87	2484.62	1248.69	2486.88	1248.6	2488.05	1248.6
2489.26	1248.58	2490.52	1248.57	2491.48	1248.56	2493.08	1248.6	2496.24	1248.57
2498.73	1248.38	2501.00	1248.0	2502.8	1248.0	2503.82	1248.05	2508.72	1248.81
2535.55	1249.48	2545.75	1250	2560.9	1250.55	2563.78	1250.63	2567.48	1250.71
2570.33	1250.8	2572.07	1250.78	2573.13	1250.79	2575.34	1250.78	2576.81	1250.77
2579.47	1250.7	2581.09	1250.71	2582.66	1250.66	2584.1	1250.56	2584.81	1250.45
2585.66	1250.3	2587.32	1250.22	2590.65	1250.11	2595.24	1250	2605.74	1250
2017	1250.19	2710.94	1252 55	2713.39	1252.05	2727.10	1252.31 1252.5	2/33	1252.4
2783.1	1252.41	2785.73	1252.43	2789.87	1252.43	2792.74	1252.5	2795.32	1252.49
2797.89	1252.52	2801.41	1252.6	2804.29	1252.7	2807.97	1252.76	2812.03	1252.78
2816.36	1252.89	2822.03	1252.94	2827.64	1253.1	2834.91	1253.15	2842.99	1253.34
2848.81	1253.44	2867.21	1253.8	2868.12	1253.81	2869.02	1253.84	2879.49	1254
2903.19	1254.22	2904.5	1254.2	2913.85	1254.31	2933.68	1254.42	2935.06	1254.4
2972.09	1254.67	2977.93	1254.69	2981.76	1254.71	2989.04	1254.8	2994.49	1254.8
3009.24	1254.83	3012.46	1254.83	3014.12	1254.8	3014.69	1254.81	3017.8	1254.83
3028.66	1254.92	3031.15	1254.95	3033.66	1255	3036.26	1255.03	3040.01	1255.12
3044.8	1255.25	3053.67	1255.52	3066.92	1256	3168.65	1259.25	3182.98	1259.6
3109.47	1260 54	3197.42	1259.92	3204.45	1260 57	3211.40	1260.19	321/./3	1260.5
3221.05	1260.77	3221.73	1260.84	3229.41	1261.78	3238.18	1262.7	3296.26	1269.9
Manning'	s n Value	es .	num=	3					
Sta	n Val	Sta	n Val	Sta	n Val				
0	.06	1119.0	.05	2100.02	.00				
Bank Sta	: Left	Right	Lengths	: Left C	hannel	Right	Coeff	Contr.	Expan.
	1119.8 31	.68.65	5	246	120	ັ 52		.1	.3
Ineffect	ive Flow	num=	= 1						
Sta L	STA R 1125 27	EIEV	rermane	IT					
0		TC10.11	r						

$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Existing 1248.14 1580.49 1248.1 1618.25 1248.2 1653.02 1247.59 1697.36 1247.52 1780.51 1247.59 1783.71 1247.5 1790.57 1247.37 1816.11 1247.24 1837.98 1247.94 1875.3 1248.69 1917.05 1248.9 1948.56 1248.9 1948.56 1248.9 1948.56 1248.9 1948.56 1248.9 1948.56 1248.9 1967.95 1248.34 2019.04 1247.7 2070.07 1247.7 2083.24 1247.79 2120.86 1248.01 2153.06 1248 2189.1 1247.93 2213.82 1247.93 2269.83 1247.93 2269.83 1247.9 2299.58 1247.6 2314.9 1247.5 2341.33 1248 2374.68 1248.81 2414.94 1249.22 2435.97 1249.34 2452.52 1249.46 2471.16 1249.55 2489.96 1251.57 2628.06 1251.59 2630.13 1251.59 2632.52 1252 2758.84 1252.4 2787.58 1252.7 2813.34 1254 2909.56 1256.2 2950.33 1258.6 3000.08 1263.78 3071.72 1267.83 3112.09	Bridge.rep 1248 1592.2 1248.04 1620.49 1247.52 1708.46 1247.52 1708.46 1247.53 1781.08 1247.59 1784.82 1247.59 1784.82 1247.59 1784.82 1247.59 1784.82 1247.37 1824.97 1247.25 1842.26 1248 1885.95 1248.7 1923.32 1248.95 1955.93 1248.95 1955.93 1248.95 1955.93 1248.95 1955.93 1248.95 1955.93 1248.95 1955.93 1248.2054.8 1247.74 2072.97 1247.73 2093.65 1247.82 2123.69 1248 2159 1247.95 2212.88 1247.9 2213.99 1248 2275.2 1247.79 2302.97 1247.53 2343.14 1248.33 2384.27 1248.87 2420.83 1249.25 2437.86 1249.4 2478.3 1249.25 2437.86 1249.4 2478.3 1249.25 2437.86 1249.4 2478.3 1249.6 2502.21 1251.58 2628.77 1251.6 2630.25 1251.59 2722.92 1252.02 2758.99 1252.46 2792.67 1252.73 2826.58 1254.1 2910.95 1256.47 2965.47 1259.11 3020.04 1264.3 3079.49 1268.78 3114.32	$\begin{array}{c} 1248\\ 1248.05\\ 1248.18\\ 1247.41\\ 1247.4\\ 1247.5\\ 1247.6\\ 1247.6\\ 1247.35\\ 1247.29\\ 1248.2\\ 1248.81\\ 1248.97\\ 1248.86\\ 1247.31\\ 1247.73\\ 1248.86\\ 1247.73\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.74\\ 1247.6\\ 1248.5\\ 1249.44\\ 1250\\ 1251.5\\ 1249.4\\ 1251.5\\ 1251.5\\ 1251.7\\ 1252.02\\ 1251.5\\ 1255.6\\ 1255.$	1606.29 1623.47 1666.8 1712.72 1767.9 1781.32 1785.93 1793.35 1828.63 1845.54 1903.83 1933.38 1958.51 1976.61 2054.95 2075.22 2096.65 2129.63 2167.75 2213.05 2214.39 2367.27 2326.65 2354.09 2391.98 2424.51 2440.06 2457.23 2481.35 2623.42 2354.09 2391.98 2424.51 2440.06 2457.23 2481.35 2623.42 2630.83 2730.74 2807.19 2830.95 2914.43 2968.29 3024.91 3084.86 3119.88	1248.13 1248.07 1248 1247.4 1247.59 1247.59 1247.59 1247.32 1247.32 1248.49 1248.97 1248.97 1248.97 1248.97 1248.97 1247.73 1247.73 1247.73 1247.93 1247.93 1247.93 1247.93 1247.93 1247.7 1247.42 1247.8 1247.42 1247.8 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.53 1247.73 1247.53 1247.53 1247.53 1247.53 1247.52 1251.52 1251.52 1251.53 1252.72 1252.72 1252.986 1265.77 1269.44
3030.38 1260 3067.65 3096.83 1267.2 3102.18 3135 1270	1263.78 3071.72 1267.83 3112.09	1264.3 3079.49 1268.78 3114.32	1265.16 1269.06	3084.86 3119.88	1265.77 1269.44
Manning's n Values Sta n Val Sta 0 .06 1008.28	num= 3 n Val Sta .03 2977.45	n Val .06			
Bank Sta: Left Right 1008.28 2977.45 Ineffective Flow num= Sta L Sta R Elev 0 949.64 1255	Lengths: Left C 298 Permanent F	hannel Right 184 118	Coeff	Contr. .1	Expan. .3
CROSS SECTION					
RIVER: Santa Clara REACH: 1	RS: 156				
INPUT Description: Station Elevation Data	num= 466 Pag	je 27			

$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Exp 1246.42 1246.55 1246.02 1 1245.57 1 1245.3 1 1245.4 1 1245.4 1 1245.6 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1245.67 1 1246.32 1 1246.32 1 1246.32 1 1246.28 1 1246.28 1 1247.9 1 1248.77 1 1249.52 2 1249.77 2 1249.88 2 1255.3 2 1255.3 2 1255.3 2 1258.29 2 1260 120 1260 12000 12000 12000 12000000000000000	xisting 1399 1420 455.44 480.68 512.14 553.18 561.17 563.18 569.81 572.16 579.39 608.68 618.17 686.25 717.48 732.49 927.27 968.39 013.62 035.25 068.61 160.74 252.55 303.87 442.74 453.62 475.88 481.22 514.76	Bridge. 1246.47 1246.54 1245.5 1245.31 1245.21 1245.68 1245.66 1245.66 1245.66 1245.66 1245.66 1245.66 1246.44 1246.31 1246.4 1246.31 1246.4 1246.3 1247.97 1248.98 1249.9 1249.9 1249.9 1250.89 1255.71 1255.71 1255.71 1258.29 1258.32 1260.81	rep 1403.18 1423.53 1459.07 1484.94 1519.61 1537.17 1557.32 1561.93 1568.59 1570.55 1572.68 1588.23 1612.12 1664.93 1687.12 1719.43 1734.26 1932.07 1972.49 2016.76 2036.2 2036.2 2036.2 2036.2 2036.71 2162.97 2255.69 2317.96 2416.64 2443.77 2454.94 2476.51 2481.99 2526.12	1246.51 1245.93 1245.47 1245.3 1245.23 1245.55 1245.72 1245.7 1245.7 1245.6 1245.6 1246.1 1246.4 1246.3 1246.43 1246.43 1246.43 1246.43 1246.43 1246.7 1249.67 1249.67 1249.86 1250.93 1251.6 1257.67 1258.02 1258.33 1258.34 1261.88	1407.8 1431.16 1459.24 1499.06 1521.85 1539.67 1558.02 1562.25 1568.69 1571.07 1573.31 1597.64 1613.86 1666.46 1697.24 1723.28 1757.51 1936.32 1981.3 2026.53 2037.47 2138.66 2207.11 2261.52 2340.4 2422.9 2443.98 2463.63 2477.18 2483.61 2530.74	1246.54 1246.4 1245.93 1245.41 1245.28 1245.73 1245.73 1245.73 1245.61 1245.61 1245.7 1246.14 1246.34 1246.34 1246.34 1246.34 1246.34 1246.34 1246.34 1246.34 1246.34 1249.23 1249.73 1249.73 1249.73 1249.73 1250.37 1250.39 1252 1256.46 1258.08 1258.08 1258.4 1262.46
Manning's n Values Sta n Val Sta 0.06492.24	num= n Val .03 24	3 Sta 428.92	n Val .06				
Bank Sta: Left Right 492.24 2428.92	Lengths:	Left C 121	hanne1 232	Right 363	Coeff	Contr. .1	Expan. .3
CROSS SECTION							
RIVER: Santa Clara REACH: 1	RS: 155						
INPUT Description: Station Elevation Data Sta Elev Sta 0 1249 3.13 83.9 1248.9 85.02 138.99 1248.6 141.01 158.37 1248.5 187.75 281.61 1247.7 299.85 336.83 1248.93 338.54 411.47 1247.93 413.05 426.55 1247.95 428.55 459.92 1250 503.48 562.35 1251.86 568.48 587.9 1246.36 588.98 606.22 1243.97 609.41 617.59 1243.69 618.24	num= Elev 1249 1248.86 1248.59 1248.2 1248.9 1247.91 1247.91 1251.2 1250.44 1246 1243.88 1243.68	500 Sta 4.36 88.15 144.81 203.34 336.41 404.32 414.34 433.49 537.35 570.73 594.99 615 619	Elev 1248.99 1248.91 1248.54 1247.86 1248.93 1248 1247.9 1248 1252 1250 1245.27 1243.76 1243.68	Sta 7.16 132.31 147.45 205.94 336.49 405.32 416.01 444.93 561.81 575.1 603.26 616.18 619.8	Elev 1248.95 1248.91 1248.53 1247.81 1248.93 1248 1247.9 1248 1247.9 1248 1252 1249.31 1244.28 1243.7 1243.7	Sta 50.28 136.53 148.23 206.45 336.59 409.13 424.44 450.39 561.97 583.25 605.38 617.07 620.58	Elev 1248.42 1248.69 1248.53 1247.79 1248.93 1247.94 1247.95 1248.68 1251.9 1248 1244 1243.7 1243.68

Page 29

				rui et inc					
1011 10	1747 7	1611 77	1747 10	EXISTING	Bridge.	rep	1242 24	1011 50	1242 22
1011.13	1242.2	1011.23	1242.18	1611.31	1242.18	1611.43	1242.21	1611.59	1242.23
1612.02	1242.3	1612.58	1242.3	1613.29	1242.34	1013.03	1242.36	1614.39	1242.43
1619.87	1243	1628.21	1244	1635.72	1244.79	1646	1246	1648.33	1246
1654.09	1246.1	1659.35	1246.14	1662.23	1246.15	1666.08	1246.2	1669.98	1246.17
1676.63	1246.17	1679.6	1246.16	1682	1246.2	1682.28	1246.15	1690.59	1246.09
1693.8	1246.06	1698.18	1246	1708.4	1245.9	1739.14	1245.65	1749.19	1245.55
1751.84	1245.5	1751.94	1245.53	1762.09	1245.49	1765.18	1245.5	1767.11	1245.46
1770.45	1245.44	1771.91	1245.42	1772.79	1245.41	1773.28	1245.4	1773.5	1245.4
1773.71	1245.37	1776.21	1245.36	1777.2	1245.36	1777.93	1245.4	1778.55	1245.36
1779.74	1245.35	1780.28	1245.35	1781.27	1245.34	1781.98	1245.3	1782.63	1245.34
1783.22	1245.34	1783.71	1245.35	1784.02	1245.35	1784.55	1245.4	1785.15	1245.38
1786.92	1245.41	1789.46	1245.44	1792.06	1245.5	1795.01	1245.47	1800.39	1245.52
1805.29	1245.59	1809.65	1245.6	1812.29	1245.68	1817.33	1245.72	1823.05	1245.73
1826.48	1245.7	1830.4	1245.78	1832.63	1245.79	1855.72	1246	1900.64	1246.91
1903.16	1247	1906.86	1247.05	1961.75	1247.94	1965.1	1247.94	1967.81	1247.9
1970.67	1247.94	1974.72	1247.95	2005.92	1248	2055.7	1248	2089.72	1248.26
2100.07	1248.3	2111.08	1248.4	2122.43	1248.47	2131.89	1248.51	2139.74	1248.5
2142.58	1248.56	2146.87	1248.58	2150.66	1248.61	2153.58	1248.62	2158.19	1248.6
2161.63	1248.65	2162.9	1248.65	2166.67	1248.66	2167.59	1248 67	2311.19	1250
2312.15	1250	2339.58	1250.57	2350.42	1250.78	2356.52	1250.88	2360.11	1250.9
2366 08	1250 99	2370 86	1251.04	2371 17	1251 04	2378 01	1251 09	2384 08	1251 2
2389 53	1251 37	2391 07	1251 39	2398 48	1251 53	2415 71	1251 8	2423 08	1251 9
2425 81	1252	2429 91	1252 46	2448 54	1254	2460 33	1255 04	2469 27	1256
2425.01	1256 94	2423.31	1252.40	2503 73	1250 2	2507 86	1250 5	2509.27	1259 6
2475.0	1230.34	2400.11	12,00	2303.73	1233.2	2307.00	1233.3	2303.42	1233.0
Manning'	s n Value	24	num=	3					
Sta	n Val	Sta	n Val	- Sta	n Val				
0		561.81	.03	2429.91	.06				

	Ũ		0 901.01	.05 2125					
Bank	Sta: 1 561	_eft 1.81 :	Right 2429.91	Lengths: Le	eft Cł 45	nannel 220	Right 330	Coeff Contr.	Expan.

SUMMARY OF MANNING'S N VALUES

River:Santa Clara

Reach	River Sta.	n1	n2	n3
1	174	.06	.03	.06
1	173	.06	.03	.06
1	172	.06	.03	.06
1	171	.06	.03	.06
1	170	.06	. 03	.06
1	169	.06	.03	.06
1	168	.06	.03	.06
1	167	.06	.03	.06
1	166	.06	.03	.06
1	165.5	.06	.03	.06
1	165	.06	.03	.06
1	164	.06	.03	.06
1	163	.06	.03	.06
1	162	.06	.03	.06
1	161	.06	.03	.06
1	160	.06	.03	.06
1	159	.06	.03	.06
1	158	.06	.03	.06
1	157	.06	.03	.06
1	156	.06	.03	.06
1	155	.06	.03	.06

HEC-RAS	Plan: A	Alt. 1	1	River: Santa Clara	Reach: Reach 1	Profile:	100-Yea

Reach	River Sta	Profile	Q Total	Min Ch Èl	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 1	174	100-Year	15272.00	1275.00	1282.84	1282.84	1284.78	0.005994	11.47	1583.56	1375.84	0.89
Reach 1	173	100-Year	15272.00	1269.00	1277.00	1274.52	1277.51	0.001339	5.89	2832.70	2356.12	0.43
Reach 1	172	100-Year	15272.00	1268.71	1273.81	1273.81	1276.19	0.007741	12.37	1234.26	2026.21	1.00
Reach 1	171	100-Year	15272.00	1268.00	1271.40	1271.40	1272.89	0.009201	9.82	1554.86	1955.56	1.00
Reach 1	170	100-Year	15272.00	1266.00	1269.06	1269.06	1270.29	0.009827	9.32	1879.44	1791.87	1.02
Reach 1	169	100-Year	15272.00	1263.90	1267.99	1267.15	1268.52	0.003905	6.31	2863.50	1948.31	0.65
Reach 1	168	100-Year	15272.00	1263.60	1267.10	1266.34	1267.78	0.005388	7.39	2558.50	1891.44	0.76
Reach 1	167	100-Year	15272.00	1262.08	1266.15	1265.62	1266.85	0.006069	7.37	2528.21	1595.89	0.80
Reach 1	166	100-Year	15272.00	1261.35	1265.72	1264.46	1266.08	0.002157	5.18	3561.03	1100.00	0.50
Reach 1	165.9		Bridge									
Reach 1	165.5	100-Year	15272.00	1260.35	1263.46	1263.46	1264.43	0.010667	8.47	2171.13	1100.00	1.02
Reach 1	165	100-Year	15272.00	1257.79	1263.02	1262.53	1263.50	0.004707	5.60	2724.85	1791.63	0.68
Reach 1	164	100-Year	15272.00	1257.58	1261.37	1261.37	1262.29	0.010758	7.73	1976.16	1619.11	1.00
Reach 1	163	100-Year	15272.00	1256.19	1260.16	1260.16	1261.05	0.010590	7.58	2014.97	1403.98	0.99
Reach 1	162	100-Year	15272.00	1255.40	1259.16	1258.72	1259.56	0.004798	5.04	3031.80	1732.89	0.67
Reach 1	161	100-Year	15272.00	1253.90	1257.46	1257.46	1258.26	0.011281	7.16	2132.21	1341.81	1.00
Reach 1	160	100-Year	15272.00	1251.90	1255.21	1255.18	1255.99	0.010541	7.07	2160.59	1318.22	0.97
Reach 1	159	100-Year	15272.00	1250.87	1253.91	1253.54	1254.40	0.005731	5.64	2708.68	1468.79	0.73
Reach 1	158	100-Year	15272.00	1248.56	1251.74	1251.74	1252.49	0.011546	6.93	2202.78	1481.18	1.00
Reach 1	157	100-Year	15272.00	1246.18	1249.75	1249.75	1250.51	0.011444	7.00	2181.92	1436.14	1.00
Reach 1	156	100-Year	15272.00	1244.10	1247.57	1247.57	1248.37	0.011403	7.15	2134.93	1356.49	1.00
Reach 1	155	100-Year	15272.00	1240.90	1244.61	1244.61	1245.56	0.010751	7.84	1949.01	1033.46	1.01















Alernative 1.rep

HEC-RAS Version 3.1.2 April 2004 U.S. Army Corp of Engineers Hydrologic Engineering Center 609 Second Street Davis, California

Х	Х	XXXXXX	XXXX			XX	XX	X	X	XXXX
Х	Х	Х	Х	Х		Х	Х	Х	Х	Х
Х	Х	Х	Х			Х	Х	Х	Х	Х
XXXX	(XXX	XXXX	Х		XXX	XX	XX	XXX	XXX	XXXX
Х	Х	Х	Х			Х	Х	Х	Х	Х
Х	Х	Х	Х	Х		Х	Х	Х	Х	Х
Х	Х	XXXXXX	XX	XX		Х	Х	Х	Х	XXXXX

1

PROJECT DATA Project Title: Proposed Bridge: Alternative 1 Project File : Alernative 1.prj Run Date and Time: 4/1/2005 8:07:17 AM

Project in English units

Project Description: Cross sections cut in LDD and imported 04-30-04

PLAN DATA

Plan Title: River Profile Plan File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS $3_{11_05} = 1.003$ Geometry Title: Exist Project (banks=0.6, chnl=0.3) Geometry File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS 3_11_05\Alernative 1.g07 Flow Title : Steady Flow : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Flow File Study\HEC-RAS 3_11_05\Alernative 1.f01 Plan Summary Information: Number of: Cross Sections = 21 Multiple Openings = 0 Culverts = 0 Inline Structures = 0 Bridges = 1 Lateral Structures = 0 Computational Information Water surface calculation tolerance = 0.01 Critical depth calculation tolerance = 0.01 Maximum number of iterations 20 -Maximum difference tolerance 0.3 = Flow tolerance factor 0.001 = Computation Options Critical depth computed only where necessary Conveyance Calculation Method: At breaks in n values only Friction Slope Method: Average Conveyance Subcritical Flow Computational Flow Regime: Page 1

CROSS SECTION RIVER: Santa Clara REACH: Reach 1 RS: 173 INPUT Description: Station Elevation Data num= 8 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev 1279 667.6 1273 0 1833 1270 2166 1273 2366 1269 2565 1273 2666 1303 3000 1353 Manning's n Values 3 num= n Val Sta n Val Sta n Val Sta 0 .06 2166 .03 2666 .06 Lengths: Left Channel Bank Sta: Left Right Right Coeff Contr. _ Expan. 2166 2666 379 427 **469** .1 .3 Ineffective Flow num= 1 Elev Permanent Sta L Sta R 0 2073 1290 F CROSS SECTION RIVER: Santa Clara RS: 172 REACH: Reach 1 INPUT Description: Station Elevation Data num= 337 Sta Elev 45.45 1272.26 Sta Elev Sta Elev Sta Elev Sta Elev 12.11 1272.54 72.31 1272.02 78.27 1271.96 51.09 1272.22 75.77 1271.98 80.47 1271.95 92.99 1271.91 1272.61 51.69 1272.21 0 71.31 1272.01 76.93 1271.97 74.24 1272 77.52 1272.01 79.13 1271.96 81.69 1271.95 83.13 1271.91 86.32 1271.95 90.96 1271.95 97.02 1271.95 105.31 1271.91 192.84 1270.71 103.98 1271.95 106.6 1271.95 184.31 1270.79 184.7 1270.8 198.32 1271.51 305.39 1271.12 187.78 1270.71 198.87 1271.44 221.81 1270.85 276.73 1271.78 315.78 1271.12 244.92 1271.01 321.04 1271.11 405.91 1271.88 406.26 1271.87 382.73 1271.62 406.45 1271.86 406.62 1271.81 407.35 1271.85 407.57 1271.81 411.55 1271.91 407.82 1271.87 408.13 1271.88 406.73 1271.85 408.44 1271.88 408.51 1271.87 411.84 1271.86 413.57 1271.87 417.95 1271.91 580.77 1271.68 416.74 1271.89 414.18 1271.88 418.72 1271.89 419.41 1271.89 605.62 1271.33 723.17 1272.11 735.37 1272.09 766.77 1271.35 563.53 1271.31 562.71 1271.34 597.72 1271.33 687.46 1271.68 732.49 1272.11 612.41 1271.31 673.01 1271.69 719.86 1272.11 731.51 1272.08 763.01 1271.38 768.09 1271.3 729.84 1272.09 733.04 1272.08 764.04 1271.41 769.49 1271.31 1272.09 1271.32 736.57 767.73 765.48 1271.36 769.96 1271.26 1271.3 770.46 1271.27 773.91 1271.31 815.76 1271.21 772.31 1271.31 775.09 1271.38 776.44 1271.4 777.35 1271.41 819.66 1271.23 826.45 1271.26 778.17 1271.41 823.12 1271.23 1271.3 834.59 1271.3 844.98 1271.28 829.27 1271.31 830.69 855.3 1271.21 861.06 1271.23 985.31 1270.83 1033.41 1270.75 1036.93 1270.71 1038.31 1270.72 1038.9 1270.71 1040.28 1270.71 1048.88 1270.49 1049.62 1270.49 1051.24 1270.5 1053.87 1270.43 1054.99 1270.41 1066.75 1269.91 1075.43 1269.83 1079.75 1269.8 1085.08 1269.81 1088.2 1269.76 1106.54 1269.77 1111.89 1269.81 1119.51 1269.76 1121.84 1269.76 1128.71 1269.71 1130.42 1269.74 1144.12 1269.73 1201.06 1269.85 1210.98 1269.85 1221.03 1269.81 1228.01 1269.83 1231.57 1269.82 1244.21 1269.83 1248.82 1269.81 1384.56 1269.69 1389.2 1269.71 1400.26 1269.67 1463.25 1269.59

 1507.87
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 1605.66
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 1631.35
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 1635.69
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 1269.06

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07 17	1271 2	06.22	1071 04	Alerna	tive L.r	ep	1091 0	07.00	1771 74
83.13	12/1.2	86.32	12/1.24	90.96	12/1.24	92.99	12/1.2	97.02	12/1.24
103.98	12/1.24	105.31	12/1.2	106.6	12/1.24	184.31	1270.08	184.7	1270.09
187.78	12/0	192.84	12/0	198.32	12/0.8	198.87	12/0./3	221.81	1270.14
244.92	1270.3	2/6./3	12/1.0/	305.39	1270.41	315.78	1270.41	321.04	1270.4
382.73	1270.91	405.91	12/1.1/	406.26	12/1.16	406.45	1271.15	406.62	12/1.1
406.73	1271.14	407.35	1271.14	407.57	1271.1	407.82	1271.16	408.13	1271.1/
408.44	1271.17	408.51	1271.16	411.55	1271.2	411.84	1271.15	413.57	1271.16
414.18	1271.17	416.74	1271.18	417.95	1271.2	418.72	1271.18	419.41	1271.18
562.71	1270.63	563.53	1270.6	580.77	1270.97	597.72	1270.62	605.62	1270.62
612.41	1270.6	673.01	1270.98	687.46	1270.97	719.86	1271.4	723.17	1271.4
729.84	1271.38	731.51	1271.37	732.49	1271.4	733.04	1271.37	735.37	1271.38
736.57	1271.38	763.01	1270.67	764.04	1270.7	765.48	1270.65	766.77	1270.64
767.73	1270.61	768.09	1270.59	769.49	1270.6	769.96	1270.55	770.46	1270.56
772.31	1270.6	773.91	1270.6	775.09	1270.67	776.44	1270.69	777.35	1270.7
778.17	1270.7	815.76	1270.5	819.66	1270.52	823.12	1270.52	826.45	1270.55
829.27	1270.6	830.69	1270.59	834.59	1270.59	844.98	1270.57	855.3	12/0.5
861.06	1270.52	985.31	1270.12	1033.41	1270.04	1036.93	1270	1038.31	12/0.01
1038.9	1270	1040.28	1270	1048.88	1269.78	1049.62	1269.78	1051.24	1269.79
1053.87	1269.72	1054.99	1269.7	1066.75	1269.2	1075.43	1269.12	1079.75	1269.09
1085.08	1269.1	1088.2	1269.05	1106.54	1269.06	1111.89	1269.1	1119.51	1269.05
1121.84	1269.05	1128.71	1269	1130.42	1269.03	1144.12	1269.02	1201.06	1269.14
1210.98	1269.14	1221.03	1269.1	1228.01	1269.12	1231.57	1269.11	1244.21	1269.12
1248.82	1269.1	1384.56	1268.98	1389.2	1269	1400.26	1268.96	1463.25	1268.88
1507.87	1268.75	1510.58	1268.77	1528.04	1268.77	1530.48	1268.8	1547.74	1268.78
1549.99	1268.79	1556.74	1268.78	1558.96	1268.77	1565.8	1268.8	1605.66	1268.39
1627.2	1268.39	1631.35	1268.4	1635.69	1268.37	1644.53	1268.37	1651.58	1268.35
1660.05	1268.3	1668.44	1268.31	1705.19	1268.61	1708.68	1268.66	1/16.1/	1268.59
1/23.82	1268.5	1/26.01	1268.57	1/31.42	1268.55	1/38.13	1268.63	1/42.11	1268.65
1/45.14	1268./	1/60.2	1268.78	1/68.//	1268.86	1//3.53	1268.88	1//6.6	1268.9
1/82.06	1268.78	1/86./6	1268.64	1/91.31	1268.45	1/98.18	1268.1	1/99.96	1268
1817.13	1268.07	1822.1	1268.1	1825.91	1268.09	1834.02	1268.1	183/.1/	1268.11
1840.39	1268.11	1843.6	1268.1	1847.05	1268.11	1868.17	1268.09	18/4.96	1268.1
18/9./6	1268.08	1883.99	1268.08	1894.55	1268.1	1920.09	1268.09	1925.31	1268.1
1930.52	1268.08	1964.01	1268.04	19/4.58	1268	1986.36	1268.01	1990.6	1271 57
1993.29	1268.1	2003.25	1268.41	2007.82	1268.6	2018.27	12/0	2023.31	12/1.0/
2024.50	1280 20	2035.71	12/9.40	2041.02	1201 7	2050.88	1204.0	2038.07	1207.22
2065.74	1289.39	20/3.13	1215 4	2000.02	1301.7	2087.20	1217 96	2007.37	1210
2009.00	1302.70	2117.23	1313.4	2119.20	1210 40	2129.39	1210 52	2150.54	1210 55
2137.37	1210.19	2140.22	1210.4	2130.99	1210,40	2134.42	1210.00	2107.12	1210.00
2100.24	10,04	2103.70	1216 2	21/0.31	1216	2170.00 2210.78	1310.32	2103.40	1310.13
2100.00	121/ /1	2137.13	1310.2	2199.03	121/ 28	2210.70	1214.49	2213.37	1314 36
2223.30	1314.41	2223.72	1314 17	2225 22	1314.30	2229.23	121/ 81	2250 22	1316
2251.00	1316	2252.04	1316 22	7317 88	1318	2212 65	1318 00	2230.22	1320
2230.40	1320 2	2349 84	1320 36	2353 84	1320 43	2357 22	1320 48	2360 51	1320 51
2364 91	1320.6	2366 72	1320 57	2368 23	1320 57	2371 42	1320 56	2374 85	1320.54
2376 19	1320.0	2378 03	1320.54	2401 57	1321 57	2415 39	1321 74	2425 33	1321.9
2432 5	1322	2489 41	1324	2493.59	1324 6	2506.06	1326	2507.76	1326.18
2523 6	1328	2524.91	1328.2	2535.54	1330	2535.91	1330.2	2537.46	1330.83
2539.95	1332	2546.65	1333.99	2569.74	1340.5	2574.93	1342	2621.29	1343.59
2632.12	1343.9	2633.17	1343.96	2633.46	1343.97	2634.8	1344	2657	1345.52
2661.59	1346	2664.8	1346.24	2670.55	1346.64	2678.86	1347.09	2680.57	1347.2
2682.03	1347.17	2686.39	1347.07	2688.7	1347.21	2693.3	1347.08	2697.41	1347.3
2700.29	1347.22	2705.63	1347.46	2707.89	1347.38	2711.94	1347.42	2715.31	1347.2
2720.71	1346.83	2722.91	1346.6	2728.32	1346	2733.3	1345.15	2736.68	1344.3
2742.76	1342	2743.48	1341.57	2744.32	1341.14	2752.01	1336.86	2760.09	1334
2762.42	1332.94	2765.09	1332	2783.43	1329	2787.89	1328.4	2790.49	1328
2801.46	1325.81	2810.95	1324.38	2822.91	1322.92	2827.01	1322	2827.49	1321.88
2829.48	1321.09	2830.85	1321.03	2832.63	1320.88	2835.24	1320.5	2837.61	1320.04
2839.38	1319.46	2841.1	1319.15	2842.62	1318.95	2843.83	1318.8	2845.38	1318.78
2847.7	1318.73	2851.95	1318	2854.59	1317.78	2855.03	1317.8	2855.85	1317.75
2856.47	1317.73	2857.19	1317.68	2860.3	1317.4	2866.48	1316.9	2867.78	1316.83
2870.18	1316.74	2872.36	1316.71	2875.07	1316.38	2877.01	1316.4	2879.46	1316.08
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	Alern	ative 1.r	ер			
2089.08 1300.78 2117.25 2137.37 1316.19 2146.22 2160.24 1316.54 2165.76 2188.68 1316 2197.15 2223.38 1312.41 2225.72 2231.08 1312.4 2232.04 2250.48 1314 2256.99 2343.19 1318.2 2349.84 2364.91 1318.6 2366.72 2376.19 1318.5 2378.03 2432.5 1320 2489.41 2523.6 1326 2524.91 2539.95 1330 2546.65 2632.12 1341.9 2633.17 2661.59 1344 2664.8 2682.03 1345.17 2686.39 2700.29 1345.22 2705.63 2720.71 1344.83 2722.91 2742.76 1340 2743.48 2762.42 1330.94 2765.09 2801.46 1323.81 2810.95 2829.48 1319.09 2830.85 2839.38 1317.46 2841.1 2847.7 1316.73 2851.95 2856.47 1315.73 2857.19 2870.18 1314.74 2872.36 2880.93 1314 2890.96 2904.4 1312 2924.98	$\begin{array}{c} 1313.4 \ 2119.2 \\ 1316.4 \ 2150.9 \\ 1316.5 \ 2170.5 \\ 1314.2 \ 2199.0 \\ 1312.5 \ 222 \\ 1312.47 \ 2235.2 \\ 1314.22 \ 2312.8 \\ 1318.36 \ 2353.8 \\ 1318.57 \ 2368.2 \\ 1318.57 \ 2368.2 \\ 1318.54 \ 2401.5 \\ 1322 \ 2493.5 \\ 1326.2 \ 2535.5 \\ 1326.2 \ 2535.5 \\ 1331.99 \ 2569.7 \\ 1341.96 \ 2633.4 \\ 1344.24 \ 2670.5 \\ 1345.07 \ 2688.5 \\ 1345.07 \ 2688.5 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1345.46 \ 2772.8 \\ 1339.57 \ 2744.3 \\ 1322.38 \ 2822.9 \\ 1319.03 \ 2832.6 \\ 1317.15 \ 2842.6 \\ 1316 \ 2854.5 \\ 1315.68 \ 2860. \\ 1314.71 \ 2875.0 \\ 1313.66 \ 2894.6 \\ 1312 \\ \end{array}$		2129.39 2154.42 2176.68 2210.78 2229.25 2236.83 2313.65 2357.22 2371.42 2415.39 2506.06 2535.91 2574.93 2634.8 2678.86 2693.3 2711.94 2733.3 2752.01 2787.89 2827.01 2835.24 2843.83 2855.03 2866.48 2877.01 2901.22	$1315.86 \\1316.53 \\1316.32 \\1312.49 \\1312.34 \\1312.81 \\1316.09 \\1318.48 \\1318.56 \\1319.74 \\1328.2 \\1345.09 \\1345.08 \\1345.09 \\1345.08 \\1345.08 \\1345.08 \\1345.42 \\1345.09 \\1345.08 \\1345.42 \\1345.08 \\1345.42 \\1345.08 \\1345.42 \\1345.08 \\1345.42 \\1345.15 \\1314.5 \\1316.8 \\1315.8 \\1315.8 \\1314.9 \\1314.4 \\1312.7 \\1314.4 \\1$	2130.34 2157.12 2183.46 2215.37 2229.92 2250.22 2332.33 2360.51 2374.85 2425.33 2507.76 2537.46 2621.29 2657 2680.57 2697.41 2715.31 2736.68 2760.09 2790.49 2827.49 2837.61 2845.38 2855.85 2867.78 2879.46 2902.95	$\begin{array}{c} 1316\\ 1316.55\\ 1316.15\\ 1312.41\\ 1312.36\\ 1314\\ 1318\\ 1318.51\\ 1318.54\\ 1319.9\\ 1324.18\\ 1328.83\\ 1341.59\\ 1343.52\\ 1345.2\\ 134$
Manning's n Values Sta n Val Sta 0 .06 1463.25	num= 3 n Val Sta .03 2035.71	n Val 06				
Bank Sta: Left Right 1463.25 2035.71 Ineffective Flow num= Sta L Sta R Elev 0 1260 1280	Lengths: Left 120 1 Permanent F	Channel 112	Right 122	Coeff	Contr. .1	Expan. .3
CROSS SECTION						
RIVER: Santa Clara REACH: Reach 1	RS: 169					
INPUT Description: Station Elevation Data Sta Elev Sta 0 1269.4 6.06 9.41 1269.4 10.28 18.78 1269.35 19.84 21.99 1269.43 22.56 27.89 1269.38 30.27 43.42 1269.15 46.05 68.87 1268.61 68.95 74.01 1268.2 78.7 99.54 1267.89 102.14 126.47 1267.8 132.9 195.21 1267.78 198.91 287.86 1267.4 290.26 303.42 1267.4 308.16 362.87 1267.15 367.74	num= 359 Elev Sta 1269.37 6.85 1269.43 13.06 1269.36 20.25 1269.44 23.39 1269.12 50.51 1268.33 69.99 1268.06 78.95 1267.9 103.91 1267.78 168.88 1267.77 203.35 1267.38 295.46 1267.43 313.72 1267.15 372.52	Elev 1269.38 1269.43 1269.4 1269.4 1269.3 1269.1 1268.3 1268.1 1267.86 1267.77 1267.77 1267.41 1267.41 1267.14 age 7	Sta 7.49 13.96 20.73 24.85 36.13 53.54 71.86 80.79 117.36 183.99 245.39 296.71 320.28 380.28	Elev 1269.39 1269.4 1269.37 1269.43 1269.26 1269.04 1268.22 1268 1267.81 1267.8 1267.4 1267.41 1267.14	Sta 8.71 18.18 21.14 25.84 39.84 57.84 73.05 97.39 122.87 191.24 278.83 300.67 323.13 394.33	Elev 1269.42 1269.36 1269.4 1269.2 1268.21 1267.91 1267.8 1267.78 1267.37 1267.42 1267.4 1267.2

Alernative 1.rep Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. ງດ num= 1358.13 2069.96 140 Ī55 165 .1 . 3 Ineffective Flow 1 Elev Permanent Sta R Sta L 1056 1280 F CROSS SECTION RIVER: Santa Clara REACH: Reach 1 RS: 168
 INPUT
 336

 Station Elevation Data
 nume
 336

 station Elevation Data
 nume
 336

 Station Elevation Data
 1268
 48.14
 1267.63
 52.54
 1267.99
 56.06
 1267.2
 81.29
 1267.28

 88.43
 1267.21
 91.01
 1267.19
 92.2
 1267.19
 95.16
 1267.2
 97.21
 1266.4

 189.71
 1266.4
 192.8
 1266.39
 95.21
 1266.4
 137.62
 1266.15
 297.71
 1266.38
 128.44
 1266.26

 229.32
 1266.21
 2166.31
 273.3
 1266.24
 232.91
 1266.25
 314.62
 1266.23

 229.31
 1266.26
 332.08
 1266.24
 322.91
 1265.36
 4407.05
 1265.56
 410.18
 1265.34

 41266.06
 12255
 424.6
 1265.37
 442.33.05
 1265.34
 435.05
 1265.34

 41266.25
 320.88
 1266.24
 322.91
 1265.36
 410.18
 1265.34

 41266. INPUT Description: Station Elevation Data num= 336

			Alerna	tive 1.re	ер			
$\begin{array}{c} 1149.07 & 1263.94 \\ 1188.21 & 1263.82 \\ 1212.59 & 1263.71 \\ 1246.74 & 1263.67 \\ 1427 & 1262.7 \\ 1456.04 & 1262.56 \\ 1525.32 & 1262.38 \\ 1552.93 & 1262.12 \\ 1573.34 & 1262.62 \\ 1601.08 & 1269.9 \\ 1627.12 & 1285.1 \\ 1663.8 & 1295.07 \\ 1713.64 & 1303.74 \\ 1743.38 & 1306.7 \\ 1751.25 & 1306.62 \\ 1776.43 & 1305 \\ 1805.08 & 1302.6 \\ 1816.85 & 1302.03 \\ 1901.31 & 1290 \\ 1931.54 & 1275.62 \\ 1936.56 & 1274.84 \\ 1943.5 & 1274.84 \\ 1954.24 & 1274.99 \\ 1971.03 & 1275.42 \end{array}$	$\begin{array}{c} 1157.18\\ 1199.22\\ 1216.04\\ 1251.93\\ 1430.63\\ 1471.85\\ 1533.97\\ 1557.17\\ 1580.16\\ 1601.23\\ 1633.65\\ 1672.81\\ 1718.71\\ 1745.5\\ 1757.72\\ 1787.23\\ 1807.93\\ 1817.52\\ 1925.51\\ 1934.8\\ 1938.11\\ 1946.32\\ 1955.85\\ 1975.51\\ \end{array}$	1263.94 1263.75 1263.7 1262.69 1262.45 1262.28 1262.28 1262.08 1262.82 1270 1287.2 1297.29 1304.33 1306.8 1306.03 1303.92 1302.28 1302.18 1280.37 1275.16 1274.76 1274.95 1275.6	1170.46 1202.66 1220.2 1332.48 1433.57 1504.52 1536.27 1557.47 1585.3 1601.46 1642.48 1632.7 1734.5 1746.82 1759.76 1789.68 1810.7 1874.6 1926.38 1934.84 1939.42 1957.9 1983.03	1263.9 1263.71 1263.71 1263.48 1262.69 1262.53 1262.1 1262.96 1270.22 1290 1300 1305.97 1306.82 1306.07 1303.76 1302.27 1301.84 1280 1274.98 1274.98 1274.76 1275.02 1276	1176.2 1206.06 1230.87 1425.05 1441.7 1522.18 1545.93 1562.16 1586.38 1611.23 1650.96 1689.43 1737.32 1748.16 1768.61 1797.27 1812.92 1892.99 1926.5 1934.85 1940.82 1950.25 1960.42 1985.78	1263.91263.721263.711262.691262.661262.31262.11262.11262.11262.11262.11262.11262.11306.213001292.11306.81305.21303.1130213001279.81274.91274.81275.11275.11276.9	$1182.92 \\ 1208.48 \\ 1244.78 \\ 1425.96 \\ 1447.43 \\ 1523.64 \\ 1548.4 \\ 1566.9 \\ 1592.92 \\ 1619.76 \\ 1656.65 \\ 1695.88 \\ 1739.99 \\ 1749.46 \\ 1771.49 \\ 1799.33 \\ 1814.21 \\ 1895.83 \\ 1929.27 \\ 1934.87 \\ 1942.16 \\ 1951.24 \\ 1965.05 \\ 1985.81 \\ 185.81$	$1263.84 1263.71 1263.67 1262.69 1262.6 1262.35 1262.23 1262.18 1264 1282.9 1293.4 1301.55 1306.47 1306.75 1305.2 1302.94 1301.79 1296.5 \times 12761274.81274.81275.041275.221276.91$
Manning's n Valu Sta n Val 0 .06	es Sta 996.21	num= n Val .03	3 Sta 1611.23	n Val .06				
Bank Sta: Left 996.21 1 Ineffective Flow Sta L Sta R 0 655 1611 1985.81	Right 611.23 num= Elev 1278 1290	Lengths 2 Permane F F	: Left (59.01 nt	channe1 231	Right 386.01	Coeff	Contr. .1	Expan. .3
RIVER: Santa Cla	ra							
REACH: Reach 1		RS: 166						
INPUT Description: Station Elevatio Sta Elev 0 1265 78.35 1264.76 109.01 1264.6 148.02 1264.3 254.76 1264 347.99 1264.03 491.41 1264 510.11 1262 562.44 1261.91 598.49 1262.02 659.71 1262.1 782.32 1263.2 792.44 1263.22 912.06 1264.14 926.01 1264.44	n Data 54.79 1 85.72 1 115.86 153.32 258.66 1 354.56 423.13 1 493.15 1 522.53 1 589.35 1 604.4 1 664.67 1 782.87 1 786.71 1 804.46 1 914.9 929.37	num= Elev 264.82 264.72 1264.6 1264.3 .263.98 1264.1 .264.04 .263.66 .261.98 .261.95 .262.03 .262.06 .263.16 .263.18 .263.31 1264.2 1264.4	153 Sta 64.69 88.08 121.7 169.11 320.84 367.22 436.86 495.89 523.62 590.11 604.7 670 783.5 787.58 810.63 919.43 932.6 Pat	Elev 1264.79 1264.53 1264.26 1264.02 1264.04 1264.1 1263.27 1261.98 1261.97 1262 1262.07 1263.16 1263.18 1263.4 1264.36 1264.44 ge 11	Sta 67.97 91.75 132.87 210.97 329.04 411.13 449.32 501.01 546.15 591.55 628.36 675.06 784.11 789.52 823.39 921.25 935.6	Elev 1264.8 1264.68 1264.45 1264 1264 1264.11 1262.32 1261.9 1262 1262.08 1262.09 1263.17 1263.2 1263.44 1264.4	Sta 71.36 95.8 141.61 250.46 332.7 414.71 486.14 503.64 593.86 649.24 772.7 784.8 790.63 904.54 922.88 938.2	Elev 1264.78 1264.65 1264.37 1263.99 1264.03 1264.03 1264.02 1262 1261.93 1262 1262.07 1263.09 1263.17 1263.2 1264.43 1264.39

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Alernative 1.rep	
1148.8 1262.7 1152.31 1262.74 1156.76 1262.75 1164.14 1262.75 1168.05 126 1172.97 1262.73 1175.52 1262.72 1177.79 1262.7 1181.54 1262.66 1185.68 126 1191.45 1262.58 1193.7 1262.58 1198.16 1262.6 1202.46 1262.6 1202.76 1262 1207.28 1262.59 1226.3 1262.44 1234.27 1262.4 1243.47 1262.28 1276.72 1261 1284.16 1261.8 1289.61 1261.78 1293.91 1261.75 1304.5 1261.7 1325.54 1261 1333.57 1261.67 1334.64 1261.7 1458.45 1261.35 1461.01 1261.35 1482.63 126 1601.16 1261.82 1611.88 1261.83 1616.73 1261.8 1621.72 1261.86 1660.76 1 1662.48 1262.3 1667.3 1262.95 1673.46 1263.8 1675.01 1264 1684.93 1266 1702.08 1270 1703.78 1270.4	52.7 52.6 2.61 1.93 1.69 51.5 1262 5.21 2.09 2.74
Manning's n Values num= 3 Sta n Val Sta n Val Sta n Val 0 .06 922.88 .03 1702.08 .06	
Bank Sta: Left Right Coeff Contr. Expan. 922.88 1702.08 .3 .5 Left Levee Station= 540 Elevation= 1272 Right Levee Station= 1640 Elevation= 1272	
Downstream Deck/Roadway Coordinates num= 2 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord 540 1279 1272 1640 1279 1272	
Downstream Bridge Cross Section Data Station Elevation Data num= 153 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta E 0 1264 54.79 1263.82 64.69 1263.79 67.97 1263.8 71.36 1263 78.35 1263.76 85.72 1263.72 88.08 1263.7 91.75 1263.68 95.8 1263 109.01 1263.6 115.86 1263.6 121.7 1263.53 132.87 1263.45 141.61 1263 148.02 1263.3 153.32 1263.3 169.11 1263.26 210.97 1263 250.46 1262 254.76 1263 258.66 1262.98 320.84 1263.02 329.04 1263 332.7 1263 418.87 1263.03 423.13 1263.04 436.86 1263.1 449.32 1263.11 486.14 1263 418.87 1263.03 423.13 1263.04 436.86 1263.1 449.32 1263.11 486.14 1263 418.87 1263.03 423.13 1262.66 495.89 1262.27 501.01 1261.32 504.94 1 510.11 1261 522.53 1260.98 523.62 1260.98 546.15 1260.9 553.64 1260 562.44 1260.91 589.35 1260.95 590.11 1260.97 591.55 1261 593.86 1 598.49 1261.02 604.4 1261.03 604.7 1261 628.36 1261.08 649.24 1261 659.71 1261.1 664.67 1261.06 670 1261.07 675.06 1261.09 772.7 1262 782.32 1262.2 782.87 1262.16 783.5 1262.16 784.11 1262.17 784.8 1262 785.92 1262.2 786.71 1262.18 787.58 1262.18 789.52 1262.2 790.63 126 792.44 1262.22 804.46 1262.13 1810.63 1262.4 823.39 1262.44 904.54 1 912.06 1263.14 914.9 1263.2 919.43 1263.36 921.25 1263.4 922.88 1263 951.44 1263.2 960.02 1263 960.68 1262.99 965.02 1262.94 980.54 126 982.64 1262.76 1033.14 1262.19 1042.04 1262.10 1077.93 1261.86 1146.34 1261 1056.91 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.97 1261.73 1175.52 1261.74 1156.76 1261.75 1164.14 1261.75 1168.05 126 1172.98 1261.59 1226.3 1261.44 1234.27 1261.4 1243.47 126	lev . 65 . 99 . 03 . 02 . 263 . 09 . 263 . 264 . 263 . 264 . 263 . 264 . 264

Manning's	n Values		num=	3	
Sťa	n Val	Sta	n Val	Sta	n Val
				-	10

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			ΓA	ernative 1 ren	
Pier Static Upstream	on Up num=	ostream= 2	350	Downstream=	350
Width 8	Elev 1250	Width 8	Elev 1275		
Width 8	num= Elev 1250	Width 8	Elev 1275		
Pier Data Pier Statio	n Up	stream=	475	Downstream=	475
Upstream Width	num= . Elev 1250	2 Width	Elev		
Downstream Width	num= Elev	: 2 Width	Elev		
8 Dian Data	1250	8	1275		
Pier Data Pier Statio Upstream	n Up num=	stream= 2	600	Downstream=	600
Width 8	Elev 1250	width 8	Elev 1275		
Downstream Width 8	num= Elev 1250	Width 8	Elev 1275		
Pier Data Pier Statio	n Up	stream=	725	Downstream=	725
Width 8	num= Elev 1250	2 Width 8	Elev 1275		
Downstream Width	num= Elev	2 Widţh	Elev		
o Pier Data	1230	0	1713		
Pier Station Upstream	n Up _num=	stream= 2	850	Downstream=	850
Width 8 Downstream	Elev 1250	Width 8 2	Elev 1275		
Width 8	Elev 1250	Width 8	Elev 1275		
Pier Data Pier Station	n Up:	stream=	975	Downstream=	975
Upstream Width 8	num= Elev 1250	2 Width 8	Elev 1275		
Downstream Width	num= Elev	2 Width	Elev		
ð Pier Data	1720	8	1712		
Pier Statior Upstream	n Up: num=	stream= 2	1100	Downstream=	1100
Width 8 Downstream	Elev 1250	Width 8	Elev 1275		
Width 8	Elev 1250	width 8	Elev 1275		

Pier Data

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1

RIVER: Santa Clara REACH: Reach 1

Alernative 1.rep

RS: 165.5

Station Elevation	Data	num=	153					
Station ElevationStaElev0126478.351263.76109.011263.6148.021263.3254.761263.3254.761263.03491.411263510.111261.02659.711261.02659.711262.2785.921262.2792.441262.22912.061263.14926.011263.44951.441263.2982.641262.761148.81261.731172.971261.731191.451261.581207.281261.591284.161260.81333.571260.671662.481261.31702.0812691718.531271.9	Data Sta Sta 54.79 85.72 115.86 153.32 258.66 354.56 423.13 493.15 522.53 589.35 604.4 664.67 782.87 786.71 804.46 914.9 929.37 960.02 033.14 062.72 1193.7 1226.3 289.61 334.64 611.88 1667.3 703.78 720.13	num= Elev 1263.82 1263.72 1263.6 1263.3 1262.98 1263.1 1263.04 1262.66 1260.98 1260.95 1261.03 1261.06 1262.18 1263.2 1263.4 1263.2 1263.4 1263.2 1261.74 1261.72 1261.58 1261.74 1260.78 1260.7 1260.83 1261.95 1269.43 1271.91	153 Sta 64.69 88.08 121.7 169.11 320.84 367.22 436.86 495.89 523.62 590.11 604.7 670 783.5 787.58 810.63 919.43 932.6 960.68 1042.04 1069.07 1156.76 1177.79 1198.16 1234.27 1293.91 1458.45 1616.73 1673.46 1704.06 1724.22	Elev 1263.79 1263.7 1263.3 1263.26 1263.02 1263.04 1263.1 1262.27 1260.98 1260.97 1261.07 1262.16 1262.18 1262.4 1262.3 1262.4 1262.99 1262.1 1261.7 1261.6 1261.7 1261.6 1261.4 1260.75 1260.35 1260.8 1262.8 1262.8	Sta 67.97 91.75 132.87 210.97 329.04 411.13 449.32 501.01 546.15 591.55 628.36 675.06 784.11 789.52 823.39 921.25 935.6 965.02 1046.81 1077.93 1164.14 1181.54 1202.46 1243.47 1304.5 1461.01 1621.72 1675.01 1704.29 1727.04	Elev 1263.8 1263.68 1263.45 1263 1263 1263 1263.11 1261.32 1260.9 1261.08 1261.09 1262.17 1262.2 1262.44 1263.42 1263.42 1263.42 1262.94 1261.66 1261.66 1261.66 1261.6 1261.63 1260.7 1260.35 1260.86 1263.12 1261.28 1261.28 1260.75 1260.35 1260.35 1260.35 1260.35 1260.55 1260.55 1263.12	Sta 71.36 95.8 141.61 250.46 332.7 414.71 486.14 504.94 553.64 593.86 649.24 772.7 784.8 790.63 904.54 922.88 938.2 980.54 1053.7 1146.34 1168.05 1185.68 1202.76 1276.72 1325.54 1482.63 1660.76 1684.93 1712.69 1731.43	Elev 1263.78 1263.65 1263.37 1262.99 1263.05 1263.02 1261 1260.93 1261 1261.07 1262.09 1262.17 1262.2 1263.43 1263.43 1263.43 1263.43 1261.75 1261.7 1261.61 1261.61 1260.93 1260.5 1261 1260.5 1261 1265.21 1271.09 1271.74
Manning's n Values Sta n Val 0 .06	5ta 922.88	num= n Val .03	3 Sta 1702.08	n Val .06				
Bank Sta: Left R 922.88 1702 Left Levee Sta Right Levee Sta	ight 2.08 ation= ation=	Lengths 540 1640	: Left C 49 Ele Ele	channel 50 evation= evation=	Right 232 1272 1272	Coeff	Contr. .3	Expan. .5
RIVER: Santa Clara REACH: Reach 1		RS: 165						
INPUT Description: Station Elevation E Sta Elev 17.4 1267.97 68.02 1264 87.59 1261.8 114.06 1259.6 1 149.02 1258.7 1	Data Sta 17.51 70.87 94 116.06 151.67	num= Elev 1268 1263.75 1260.47 1259.49 1258.81	372 Sta 38.95 72.3 98.34 117.95 155.51	Elev 1268 1263.63 1260 1259.42 1258.76	Sta 52.29 86.7 113.03 138.71 156.71	Elev 1266 1262 1259.68 1258.86 1258.82	Sta 58.8 87 113.61 142.62 159.16	Elev 1265.27 1261.91 1259.62 1258.77 1258.82

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INPUT Description:

2153.38 1269.6	2154.82	1269.59 1269.89	Alerna 2155.67 2167 46	tive 1.r 1269.6	ep 2157.11 2170 89	1269.53	2157.45	1269.52
2179.2 1270.07 2207.72 1269.91 2225.06 1270 2252.67 1274.8 2269.1 1280.26	2187.19 2216.43 2228 2254.27 2273.4	1270.02 1269.85 1270.31 1275.44 1280.79	2189.04 2219.53 2240.4 2261.16	1270 1269.8 1272 1277.6	2196.34 2221.09 2245.98 2267.41	1269.88 1269.86 1273.22 1280	2199.45 2222.71 2250.37 2268.98	1269.87 1269.89 1274 1280.24
Manning's n Value Sta n Val 17.4 .06	es Sta 199.87	num= n Val .03	3 Sta 2164.35	n Val .06				
Bank Sta: Left 199.87 22 Ineffective Flow Sta L Sta R 17.4 612 2164.35 2273.4	Right 164.35 num= Elev 1270 1275	Length = Perman F F	s: Left 146 2 ent	Channel 171	Right 76.5	Coef	f Contr. .1	Expan. .3
CROSS SECTION								
RIVER: Santa Clar REACH: Reach 1	a	RS: 16	4					
INPUT Description: Station Elevatior Sta Elev 0 1266.6 29.08 1264 43.5 1263.4 61.18 1263.4 110.56 1260.7 228.78 1257.5 269.24 1257.48 274.2 1258 295.51 1262.21 306.6 1266.56 309.02 1267.19 312.29 1267.07 313.59 1266.24 327.32 1262.68 343.32 1258.46 385.31 1257.58 450.79 1259.29 572.69 1259.29 581.56 1259.35 595.71 1259.37 661.82 1259.9 783.36 1261.05 983.6 1261.05 983.6 1261.55 1014.28 1261.55 1019.05 1261.56 1026.44 1261.56	Data Sta .24 34.13 48.65 63.92 118.58 230.84 251.21 270.37 281.7 300.81 307.36 309.31 312.37 314.38 392.23 453.56 561.14 574.9 590.63 599.86 664.83 794.38 994.79 1006.23 1015.31 1019.69 1028.7 1184.46 1210.88 1231.14 1243.06 1252.19	num= Elev 1266.58 1263.9 1263.28 1263.28 1263.58 1260 1257.7 1257.46 1257.52 1259.21 1264 1266.71 1266.07 1266.07 1266.07 1266.01 1259.6 1259.6 1259.6 1259.3 1259.4 1261.6 1261.6 1261.6 1261.6 1261.6 1261.6 1269.53 1259.51 1259.53	350 Sta 5.16 34.33 51.12 73.79 196.89 237.35 263.62 271.47 287.25 304.16 307.99 311.75 312.79 320.94 332.61 359.69 406.72 455.05 565.23 576.85 591.5 603.32 674.87 852.52 999.35 1007.32 1016.48 1032.29 1188.28 1213.73 1233.63 1245.87 1253.66	Elev 1266 1263.89 1263.36 1262.88 1258.62 1257.56 1257.44 1257.6 1260 1265.55 1266.84 1267.25 1266.81 1264.2 1261.3 1257.7 1259.56 1259.34 1259.34 1259.34 1259.34 1259.36 1261.57 1261.57 1261.57 1261.57 1259.6 1259.6 1259.8	Sta 17.42 34.89 55.46 75.48 200.36 240.44 266.49 272.05 292.6 305.47 308.4 311.98 313.39 321.87 334.15 364.78 410.64 510.75 566.83 578.13 592.77 638.42 685.47 956.52 999.41 1008.6 1018.01 1021.35 1036.31 1195.02 1219.18 1236.79 1248.15 1255.53	Elev 1264.7 1263.85 1263.19 1262 1258.57 1257.52 1257.45 1257.7 1261.39 1266 1267.01 1267.2 1266.59 1264 1261.03 1257.65 1259.57 1259.57 1259.57 1259.57 1259.57 1259.36 1260 1260 1261.64 1261.57 1259.8 1259.56 1259.53 1259.62 1259.87	Sta 24.49 42.44 58.57 101.7 225.13 242.15 267.6 272.74 294.76 305.65 308.7 312.23 313.48 325.84 338.02 368.21 431.92 516.03 570.6 579.56 594.2 653.55 778.7 963.09 1004.35 1010.55 1018.41 1023.08 1113.02 1198.11 1223.5 1238.95 1249.78 1262.32	Elev 1264.22 1263.43 1263.29 1258 1257.51 1257.5 1257.8 1262 1266.2 1267.1 1267.2 1266.4 1263.04 1263.04 1263.04 1259.59 1259.48 1259.21 1259.59 1259.84 1261.02 1261.9 1261.56 1261.5

				Alerna	tive 1 r	en			
51.96	1262	55.21	1262.91	58.51	1264	61.32	1265.35	62.7	1266
62.86	1266.07	63.46	1266.32	64.09	1266.42	64.64	1266.51	69.44	1266.5
69.88	1266.45	70.37	1266.35	70.49	1266.19	70.64	1266	70.7	1266
78.09	1264	85.81	1262.2	86.48	1262	89.17	1261.3	93.61	1260
99.21	1258.15	99.72	1258	100.2	1257.99	105.46	1257.85	180.4	1257.9
180.69	1257.92	184.31	1258	188.95	1258.01	200.01	1258	210.02	1258.06
212.7	1250.07	213.02	1258.07	220 88	1258.09	223.11	1250.1	227.52	1258.12
229.20	1258 13	229.03	1258 1	230.00	1258 13	232.33	1258 13	232.00	1250.13
238.5	1258.13	241.72	1258.13	242.77	1258 1	243.73	1258 13	284 67	1258 14
325.72	1258.42	326.18	1258.42	327	1258.4	327.33	1258.42	328.95	1258.42
329.34	1258.4	329.59	1258.41	329.88	1258.4	330.28	1258.37	332.07	1258.37
332.25	1258.4	332.5	1258.37	332.78	1258.38	333.07	1258.38	333.89	1258.37
334.56	1258.4	350.18	1258.65	350.99	1258.69	352.18	1258.73	354.42	1258.79
356.33	1258.8	359.98	1258.91	413.75	1260	460.78	1260.4	463.4	1260.44
498.39	1260.83	507.78	1260.9	512.28	1260.99	524.05	1261.09	529.39	1261.1
530.32	1201.13	540.05	1201.15	542.UL	1201.1	543.13	1201.13	544.95	1261.03
555 02	1260.93	560	1260.65	564 08	1260.7	572 14	1260.7	574 24	1260.03
580.92	1260.02	583 12	1260.74	590.39	1260.7	597 41	1260.00	599 5	1260 81
605.17	1260.82	612.88	1260.82	614.76	1260.8	622.23	1260.83	635.38	1260.72
637	1260.72	648.83	1260.6	653.35	1260.54	655.48	1260.52	659.37	1260.45
669.73	1260.34	672.22	1260.3	673.78	1260.28	678.63	1260.26	680.04	1260.24
680.7	1260.24	682.14	1260.3	682.73	1260.25	690.09	1260.15	693.8	1260.2
704.34	1260.38	712.22	1260.5	717.14	1260.59	722.92	1260.66	728.62	1260.71
/32./2	1260.73	/39.5	1260.8	/41.86	1260.78	/4/.44	1260.78	/49./9	1260.8
751.98	1260.75	759.40	1260.72	780.00	1260.69	760.99	1260.62	702.03	1260.6
786 26	1250.40	700.50	1250.30	80.09	1250.03	701.42 811 5	1250 0	222 82	1250 03
830 78	1260	870 02	1260	872 68	1259 94	878 23	1259.8	883 4	1259.77
903.24	1259.39	913.48	1259.21	918.45	1259.2	956.38	1258.56	995.71	1258.45
1022.56	1258.78	1030.8	1258.94	1034.68	1258.93	1041.09	1259.1	1044.89	1259.08
1047.94	1259.14	1051.46	1259.14	1054.4	1259.13	1058.56	1259.1	1063.23	1259.17
1066.38	1259.13	1069.46	1259.07	1071.81	1259	1074.11	1258.9	1080.31	1258.49
1081.07	1258.5	1082.25	1258.5	1088.83	1258.06	1088.94	1258.1	1089.89	1258
1093.31	1258	1098.36	1257.99	1187.98	1257.99	1194.24	1257.94	1225.92	1257.97
1220.23	1257 05	1230.93 1317.84	1257.98	1240.02	1257.99	12/0.0/	1257 05	1307.77	1257.95
1350 52	1257 95	1359 12	1257 93	1398 09	1257 55	1540 71	1257 3	1540.81	1257 35
1541.2	1257.35	1541.56	1257.4	1541.71	1257.35	1542.19	1257.35	1542.43	1257.4
1542.72	1257.35	1543.52	1257.35	1543.93	1257.3	1544.26	1257.35	1544.81	1257.35
1544.87	1257.4	1544.89	1257.35	1545.76	1257.35	1545.82	1257.34	1545.92	1257.3
1546.04	1257.34	1546.34	1257.34	1557.3	1257.42	1643.76	1257.7	1645.28	1257.71
1647.26	1257.71	1648.54	1257.7	1649.65	1257.7	1650.65	1257.68	1651.92	1257.68
1652.84	1257.67	1653.54	1257.67	1653.96	1257.7	1656.32	1257.67	1658.37	1257.67
1680 12	1257 74	1712 48	1257.07	1716 40	1257.07	1717 44	1257.08	1719 72	1257.00
1720 16	1256 45	1724 17	1256 5	1727 05	1256 78	1727 11	1256 8	1737 59	1257 83
1738.72	1257.9	1739.5	1258	1745.33	1258.65	1748.4	1258.8	1752.85	1259.04
1760.84	1259.63	1778.9	1259.92	1779.62	1260	1782.02	1260	1785.99	1260.05
1792.22	1260.15	1792.92	1260.16	1798.7	1260.3	1805.45	1260.4	1831.85	1260.99
1846.31	1261.2	1851.97	1261.3	1860.74	1261.42	1864.67	1261.5	1880.42	1261.72
1882.46	1261.8	1884.03	1261.78	1899.27	1262	1901.71	1262.06	1903.22	1262.13
1916.96	1262.6	1920.63	1262.78	1932.51	1263.26	1935.61	1263.35	1942.27	1263.49
1944.6	1263.6	1949.31	1263.65	1955.87	1263.68	1960.29	1263.77	1966.33	1263.96
1902.07	1265 05	7002 EV	1265 05	7002 C3	1265 07	1992.0/	1765 7	7018 24	1265 26
2000.79	1203.03	2003.04	1266 84	2007.03	1267 4	2010.37	1203.2	2010.24	1275 43
2087,91	1276.45	2095.46	1277.9	2104.42	1280	2108 71	1281 2	2111.45	1282
2117.05	1283.03	2120.19	1284	2126.75	1285.34	2128.98	1286	2134.06	1286.88
2136.79	1287.21	2139.86	1287.47	2141.64	1287.67	2146.8	1287.9	2151.62	1287.87
2152.36	1287.92	2155.36	1287.79	2155.86	1287.81	2156.17	1287.8	2156.51	1287.81
2156.92	1287.79	2157.7	1287.75	2158.87	1287.67	2161.54	1287.4	2168.22	1286.97
				Pa	ge 21				

	Alernative	1 ren		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1258.42 684.22 125 1258.53 714.99 12 1258.07 736.51 12 1258.2 792.28 125 1258.2 792.28 125 1258.47 805.44 125 1258.31 837.03 12 1257.9 1017.16 125 1257.84 1043.21 12 1257.84 1049.9 125 1256.69 1223.71 125 1256.93 1291.88 125 1256.93 1291.88 125 1256.7 1393.35 125 1256.87 1314.14 12 1255.47 1521.47 12 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.45 1577.55 125 1255.95 1741.41 125 1255.94 1763.69 12 1257.53 1824.1 126 1263.43 2018.54 126 1264.87 2056.21 126 1266.76 2125.04 127 1274.5 2281.52 127 1274.5 2281.52 127 1274.6 2295.94 127 1274.5 2285.94 127 1		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
Manning's n Values Sta n Val Sta 0 .06 75.91	num= 3 n Val Sta n .03 2142.24	Val .06		
Bank Sta: Left Right 75.91 2142.24 Ineffective Flow num= Sta L Sta R Elev 0 112 1268 2142.24 2519.73 1275	Lengths: Left Chan 128 2 Permanent F F	nel Right 180 197	Coeff Contr .1	r. Expan. .3
CROSS SECTION				
RIVER: Santa Clara REACH: Reach 1	RS: 161 Page 2	3		

				Alerna	tive 1.r	ер			
1724.99	1255.1	1784 9	1254.98	1785 35	1254.87	1///.3	1255.49	1813 06	1255.44
1820.32	1257.6	1834.31	1258	1849.68	1258.37	1851.85	1258.44	1859.18	1258.59
1861.89	1258.7	1871.24	1258.84	1878.51	1258.97	1898.59	1259.66	1900.6	1259.72
1934.17	1261	1937.46	1261.21	1943.95	1261.52	1945.5	1261.62	1929.03	1261.97
1955.44	1262	1972.01	1262.28	1981.36	1262.48	1998.46	1263.01	2006.08	1263.2
2009.93	1263.29	2012.97	1263.35	2017.37	1263.4	2022.64	1263.62	2024.06	1263.6
2042.28	1264	2047.22	1264.03	2047.31	1264.03	2047.65	1264.04	2047.8	1264
2047.95	1264.05	2048.11	1264.06	2048.4	1264.08	2055.6	1264.22	2056.27	1264.3
2109.25	1266.69	2141.09	1268	2141.88	1268.05	2142.07	1268.06	2142.31	1268.1
2142.71	1268.07	2164./2	1268.97	21/0.06	1269.02	21/5.2	1269.08	2181.01	1269.2
2232.76	1270.85	2236.72	1270.98	2245.7	1271.2	2250.09	1271.36	2252.68	1271.44
2256.03	1271.61	2263.08	1272	2276.22	1272.9	2287.44	1273.62	2292.69	1274
2335.72	1278	2340.7	1279.3	2342.42	1279.78	2343.52	1280	2356.67	1283.7
2372.79	1288.98	2372.93	1289	2375.97	1290	2379.75	1291.04		
Manning's	s n Value	es	num=	3	_				
Sta 0	n Val	55 36	n Val	Sta 2141 09	n Val				
			.05	2111.05	-1 7		<i></i>	_	
Bank Sta:	: Left 55.36-21	Right 41.09	Lengths	5: Left (79	Channe I 150	Right 223	Coett	Contr.	Expan.
Ineffecti	ive Flow		= 2	2	250	229		• -	.,
Sta L 0	Sta R 75	Elev 1265	Permane	ent					
2142	2379.75	1275	F						
CROSS SEC	TION								
RIVER: Sa	anta Clar	'a							
REACH: Re	each 1		RS: 160)					
INPUT									
Descripti Station E	ion: Elevation	Data	num=	347					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
35.86	1262.1	41.77	1262.04	25.68	1260,19	26 55,51	1261.99	35.21	1261.58
61.68	1262	65.08	1263.15	67.7	1264	76.94	1264	77.73	1263.5
78.21	1263.39	79.49	1258.25	81.09	1262	85.47	1257.88	88.15	1260.6
132.75	1256.73	135.93	1256.52	136.88	1256.47	137.69	1256.45	139.98	1256.4
143.22	1255.56	202.42	1255.62	207.09	1255.6	218.73	1255.57	219.85	1255.57
235.25	1255.5	248.5	1255.5	249.76	1255.51	252.66	1255.51	253.72	1255.5
257.03	1255.53	258.44	1255.54	318.43	1255.05	322.29	1255.07	326.32	1255.1
351.24	1255.96	352.19	1256	354.83	1256.12	358.18	1256.2	363.22	1256.29
366.11 390 56	1256.28	3/1.68	1256.15	372.17	1256.16	375.58	1256.1 1255.7	382.96	1256.14
419.17	1255.03	433.95	1254.3	436	1254.27	437.29	1254.39	439.58	1254.38
442.83	175/ 70	450.22	1254	457.61	1254	478.19	1254.45	479.9	1254 5
486 19	1254 66	495 41	1254 93	497 A	1254 98	502 22	1255 12	505 81	1255 2
486.19 507.92	1254.66	495.41 512.28	1254.93 1255.37	497.6 515.49	1254.98 1255.45	502.32 521.4	1255.13 1255.4	505.81 524.57	1255.2 1255.34
486.19 507.92 530.24 543 22	1254.66 1255.25 1255.33 1255.31	495.41 512.28 532.02 556 55	1254.93 1255.37 1255.3 1255.67	497.6 515.49 535.73 561.68	1254.98 1255.45 1255.21 1255.8	502.32 521.4 537.03 567 17	1255.13 1255.4 1255.2	505.81 524.57 538.75 567 99	1255.2 1255.34 1255.22 1255.89
486.19 507.92 530.24 543.22 572.96	1254.66 1255.25 1255.33 1255.31 1255.96	495.41 512.28 532.02 556.55 573.2	1254.93 1255.37 1255.3 1255.67 1255.97	497.6 515.49 535.73 561.68 577.53	1254.98 1255.45 1255.21 1255.8 1256	502.32 521.4 537.03 567.17 585.2	1255.13 1255.4 1255.2 1255.88 1256	505.81 524.57 538.75 567.99 605.13	1255.2 1255.34 1255.22 1255.89 1255.88

Alernative 1.rep

RIVER: Santa Clara REACH: Reach 1

INPUT

RS: 159

Descript	ion:								
Station	Elevatio	n Data	num=	499		_	-		_
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
000.4/	1202.22	800.14	1262.3	865.46	1262.41	868.19	1262.45	882.04	1262.6
801.20	1262.04	201 61	1202.09	009.0	1202.72	090.23	1202.7	890.61	1262.//
895 47	1262.79	892.01	1262.0	808 07	1262.02	095.94	1202.0	094.30	1202.03
964 66	1262	966 95	1261 2	970 47	1202.0	900.01	1250 00	902.33	1258 8
982.5	1258 59	990.97	1258	1023 14	1257 76	1041 36	1257 57	1043 7	1257 55
1048.09	1257.52	1049.26	1257.5	1086.28	1257.07	1126.49	1257 78	1134 13	1258
1135.78	1259.29	1137.07	1260	1137.27	1260.18	1138.98	1260.56	1156.73	1260.85
1162.72	1260.62	1166.43	1260.5	1170.6	1260.45	1177.09	1260.36	1191.48	1260
1227.08	1259.81	1228.25	1259.8	1229.38	1259.8	1233.09	1259.81	1238.8	1259.84
1244.89	1259.85	1251.31	1259.9	1257.66	1259.89	1274.77	1259.93	1278.42	1259.95
1284.32	1260	1286.79	1260	1314	1260.11	1319.18	1260.1	1323.7	1260.14
1346.51	1260.19	1383.99	1260.57	1394.9	1260.6	1401.13	1260.6	1414.86	1260.56
1420.57	1260.6	1426.36	1260.55	1428.76	1260.54	1430.35	1260.53	1433.08	1260.5
1434.13	1260.5	1435.66	1260.52	1436.83	1260.52	1438.95	1260.53	1445.31	1260.52
1440.51	1250.5	1449.10	1200.40	1433.3	1250.32	1407.10	1260.04	1408.20	1255 06
1480 89	1259.5	1500 15	1253 55	1518 79	1252 64	1510.77	1252 64	1520 27	1252 67
1521.64	1252.7	1522.43	1252.74	1522 53	1252.04	1522 86	1252.04	1523 32	1252.07
1523.68	1252.8	1524.3	1252.8	1524.64	1252.81	1524.8	1252.81	1524.94	1252.82
1525.05	1252.8	1525.22	1252.82	1526.33	1252.82	1527.18	1252.81	1527.5	1252.8
1528.02	1252.8	1528.43	1252.78	1528.84	1252.77	1529.38	1252.7	1529.79	1252.74
1530.25	1252.73	1530.57	1252.73	1566.43	1253.14	1570.96	1253.2	1575.75	1253.2
1578.18	1253.21	1580.57	1253.26	1582.86	1253.25	1620.1	1253.7	1625.75	1253.69
1640.39	1253.64	1689.21	1252.78	1694.36	1252.73	1698.86	1252.7	1700.92	1252.66
1710 20	1252.04	1720 2	1252.0	1721 1	1252.6	1714.39	1252.55	1722 6	1252.53
1725 34	1252.52 1252.43	1726 77	1252.49	1727 A3	1252.5 1252.4	1728 55	1252.47	1720 16	1252.40
1730.63	1252.36	1732.14	1252.36	1732.89	1252.4	1733.28	1252.30	1733 58	1252.36
1733.94	1252.38	1734.25	1252.4	1734.61	1252.4	1734.99	1252.44	1735.56	1252.45
1736.33	1252.46	1737.64	1252.46	1739.27	1252.5	1739.98	1252.46	1741.61	1252.49
1742.99	1252.49	1743.98	1252.5	1744.5	1252.48	1744.78	1252.47	1744.91	1252.45
1745.32	1252.45	1745.96	1252.5	1747.03	1252.48	1750.64	1252.57	1751.87	1252.59
1753.74	1252.6	1754.85	1252.64	1756.63	1252.66	1758.41	1252.7	1760.76	1252.76
1774 07	1252.9	1754.45	1252.88	1775 69	1253	1//2.06	1253.05	1//2.26	1253.07
1777 64	1233.1 1252.1	1778 00	1233.13 1352.1	1720	1255.14	1701 07	1253.13	1701 6	1253.08
1782 46	1253.1	1783 96	1252 28	1786 5	1253.14	1787 54	1253.22	1788 65	1253.24
1790.75	1253.3	1791.72	1253.33	1792 58	1253 32	1794 05	1253.33	1795 72	1253 27
1796.69	1253.3	1798.45	1253.26	1799.67	1253.25	1800.67	1253.23	1801.39	1253.22
1803.27	1253.1	1804.4	1253.09	1805.56	1253	1806.96	1252.9	1808.03	1252.86
1809.31	1252.8	1810.29	1252.85	1857.97	1252.46	1858.5	1252.46	1860.63	1252.48
1861.18	1252.5	1862.84	1252.5	1863.25	1252.51	1864.09	1252.51	1865.42	1252.52
1867.23	1252.52	1868.38	1252.5	1869.22	1252.52	1869.75	1252.53	1870.41	1252.53
18/0.69	1252.5	1871.06	1252.53	1871.62	1252.53	1872.09	1252.5	1872.67	1252.53
1076 55	1252.52	1874.74	1252.52	18/4.8/	1252.5	18/4.9/	1252.51	18/5.18	1252.5
10/0.00	1252.48	1075 65	1252.5	1001.44	1252.43	1049 22	1252.41	1895.97	1252.31
1914.30	1252.2	1070 05	1251 72	1940.20	1231.94 1251.72	1070 0	1251.00	1954.95	1251.01 1251.76
1984 77	1251 8	1986 02	1251 81	1991 65	1251.72	1995 06	1252 AS	7905.03	1252 6
2051.22	1252.53	2051.32	1252.49	2052 43	1252 45	2054 56	1252 42	2057 52	1252 4
2060.44	1252.4	2062.41	1252.41	2067.88	1252.43	2069.76	1252 44	2075.89	1252.5
2081.78	1252.5	2086.34	1252.51	2089.96	1252.51	2096.53	1252.46	2099.14	1252.4
2106.46	1252.29	2108.7	1252.31	2112.01	1252.27	2113.05	1252.3	2116.95	1252.27
2117.76	1252.27	2125.85	1252.26	2126.66	1252.26	2130.47	1252.3	2141.82	1252.35
				Pag	ge 27				

Alernative 1.rep

INPUT

Descript	ion:								
Station	Elevatio	n Data	num=	470					
Sta	Elev	Sta	Elev	Sta	Elev	Sta	L Elev	' Sta	Elev
28 20	1260.2	4.2	1260	7.56	1259.83	17.76	1260	33.31	1260.31
20.29	1260.3	43.02	1250.31	47.67	1260.27	54.92	1260.15	59.74	1260.01
79 16	1259 86	87 7	1259.99	88 18	1259.99	00.94	1250 46	/ /5.54	1250 22
103.98	1259.20	108 37	1259.77	110 32	1259.0	92.30	1259.40	112.12	1259.22
117.55	1260	123.65	1260.3	129.26	1260.44	131.93	1260 45	134 08	1260 38
139.32	1260	149.02	1260	153.38	1260.46	155.82	1260.63	158.68	1260.8
159.89	1260.85	160.15	1260.89	168.63	1261.33	169.97	1261.35	171.34	1261.4
173.35	1261.35	174.69	1261.35	178.63	1261.32	179.93	1261.32	181.19	1261.3
236.56	1260.85	240.47	1260.87	245.84	1260.87	247.64	1260.9	252.51	1260.84
204.12	1260.79	254.72	1260.79	263.09	1260.8	264.82	1260.73	267.74	1260.69
335 47	1200.33	304.29	1250.19	356 27	1250 68	308.33	1260.10	309.37	1260.1
365.6	1258_81	366.77	1258 82	367 71	1258 59	368 51	1258 55	370 53	1258 /
371.8	1258.36	380.27	1258.13	380.6	1258.13	389.27	1258.08	389.87	1258.1
391.84	1258	393.63	1257.98	404.31	1257.95	413.21	1257.97	419.44	1258
423.4	1258.06	423.53	1258.06	432.97	1258.21	435.61	1258.5	441.28	1258.41
448.03	1260	520.17	1260	530.56	1260.2	531.33	1260.21	534.1	1260.24
561.26	1260.68	563.8L	1260.7	568.8	1260.7	587.28	1260.98	592.27	1261.02
736 14	1201.00	599.05	1201.12 1261.24	511.18 771 71	1261.4	618.45	1261.53	633.54	1262
796 13	1260 1	800 11	1201.24	803 49	1258 /3	808 44	1260.84	795.18	1260.17
906.4	1254.6	915.38	1254.53	919,99	1254.47	920.19	1254 5	937 47	1254.73
938.13	1254.5	939.19	1254.5	940.81	1254.45	942.23	1254.42	942.72	1254.42
943.27	1254.5	943.86	1254.48	944.78	1254.49	945.81	1254.51	947.01	1254.49
948.01	1254.5	948.76	1254.48	949.67	1254.46	950.05	1254.46	951.49	1254.52
991.54	1255.9	992.4	1256	993.59	1255.91	993.67	1255.92	993.86	1255.94
995.88	1250	1031.02	1256.46	1036.88	1256.05	1037.55	1256	1039.01	1255.57
1059 98	1256 01	1046.42	1256 03	1049.30	1254,25	1084 56	1255.01	105/.08	1256 7
1125.27	1256.75	1172.57	1256.03	1189.55	1256	1192 3	1255 07	1194 52	1250.7
1202.54	1252.9	1207.76	1252.47	1213.87	1252	1220.57	1251.24	1222.91	1251
1224.7	1250.96	1229.7	1250.48	1230.24	1250.57	1241.22	1251.02	1250.68	1250.6
1256.21	1250.31	1261.54	1250	1275.91	1250	1278	1250.14	1278.42	1250.14
1278.6	1250.13	12/9.86	1250.23	1322.89	1251.4	1326.09	1251.35	1333.39	1251.27
1353.05	1251.22	1340.04	1250 95	1343.01	1251.07	1345.09	1251.04	1350.32	1251
1371.83	1251.1	1372 35	1251 12	1375 19	1250.90	1381 76	1250.97	1383 73	1250.97
1384.38	1251.33	1385.55	1251.34	1394.39	1251.37	1432.68	1251.24	1434.13	1251.2
1435.82	1251.23	1441.15	1251.17	1443.86	1251.13	1444.93	1251.1	1446.62	1251.11
1449.2	1251.09	1510.43	1250.15	1511.21	1250.15	1512.06	1250.1	1512.4	1250.13
1515.29	1250.1	1518.25	1250.13	1521.23	1250.1	1525.71	1250	1545.67	1250
1603 24	1250.07	1603 08	1250.27	1554.78	1250.3	1559.15	1250.42	1602.98	1250.51
1615.01	1250.55	1616 47	1250.53	1618 11	1250.5	1621 67	1250.54 1250.34	1013.10 1623.14	1250.33
1625.16	1250.29	1627.51	1250.3	1637.01	1250.4	1639.38	1250.34	1641 71	1250 38
1645.72	1250.34	1647.46	1250.3	1652.62	1250.13	1654.78	1250.09	1656.82	1250.09
1657.78	1250.1	1658.44	1250.26	1659.75	1250.35	1661.97	1250.66	1662.58	1250.7
1663.59	1250.71	1666.37	1250.71	1670.57	1250.65	1677.63	1250.6	1683.77	1250.53
1606 70	1250.51	1689.06	1250.49	1690.21	1250.46	1692.41	1250.3	1694.68	1250.17
1721 58	1250.11	1777 80	1250.06	1730 45	1250.03	1760 0	1250.12	1762 95	1250.08
1776.5	1250	1779 89	1250	1782 22	1250 02	1810 43	1250 2	1814 08	1249.92
1817.46	1250.23	1820.45	1250.23	1823.01	1250.24	1826.17	1250.23	1830.66	1250.2
1841.46	1250.2	1853.67	1250.23	1855.97	1250.2	1860.4	1250.23	1870.04	1250.23
1874.23	1250.22	1882.12	1250.22	1884.91	1250.2	1888.29	1250.24	1892.49	1250.26
1900.36	1250.32	1902.99	1250.35	1904.97	1250.4	1906.75	1250.41	1910.85	1250.45
1912.4/	1250.45	1914.33	1250.5	1917.32	1250.46	1920.3	1250.45	1923.07	1250.45
таср. 2д	1200.44	1971.19	1250.4	1929.0	1250.42	193/./8	1250.37	тарр.32	1250.2

				110000					
257 47	1254	270 86	1254	289 37	1254 23	ep 301 07	1254 4	308 62	1254 47
316.63	1254.56	318.88	1254.58	322.22	1254 63	325.1	1254 7	327 45	1254 68
328.62	1254.7	330.1	1254.72	330.78	1254.72	331.4	1254.7	332.47	1254.74
349.32	1254.66	349.55	1254.65	350.51	1254.63	351.61	1254.6	355.56	1254.54
357.14	1254.52	359.18	1254.5	361.59	1254.47	375.34	1254.35	430.19	1253.66
437.96	1253.6	469.52	1253.11	488.23	1253.77	538.96	1253.77	542.58	1253.75
544.68	1253.7	547.26	1253.76	553.06	1253.82	557.73	1253.85	557.89	1253.85
558.17	1253.9	558.57	1253.87	560.9	1253.89	560.97	1253.9	561.26	1253.9
566.38	1253.88	566.49	1253.88	566.57	1253.87	566.64	1253.9	566.73	1253.87
571.5	1253.77	571.68	1253.76	576.44	1253.75	576.67	1253.7	577.02	1253.73
577.78	1253.72	578.31	1253.7	582.57	1253.65	597.82	1253.3	606.4	1253.08
622.56	1252.72	624.09	1252.71	626.01	1252.67	638.23	1252.38	638.64	1252.36
639.58	1252.35	641.41	1252.31	642.94	1252.3	645.14	1252.26	645.99	1252.28
662.24	1252.26	6/2.3/	1252	6/3.84	1252	6/5.56	1251.93	676.69	1251.92
6//.9	1251.92	6/8.92	1251.98	6/9.4	1252	705.81	1252.53	/1/.26	1252.7
746.24	1253.2	//1.03	1253./	//2.48	1253./1	//4.45	1253./1	//6.38	1253./
024.00	1252.7	020.21	1252.72	000 64	1252.03	834.02	1252.04	027.22	1252.55
074.21	1254 22	022 05	1252	025 42	1253.4	902.34	1254	927.57	1254.28
930.00	1254.54	932.93	1254.5	955.42	1254.57	937.09	1254.59	940.13	1254.42
941.04	1254.4	942.30	1754 45	945.55	1254.44	944.22	1254.45	943.02	1254.4
949 64	1254.45	950.06	1254 45	950 54	1254 45	940.07	1254.45	949.13	1254 45
952.47	1254.43	953.02	1254.43	953 69	1254 42	954 5	1254 4	955 41	1254 41
956.19	1254.41	957.17	1254.4	959.75	1254.38	963.62	1254.3	965.51	1254.33
1008.28	1254	1009.1	1253.86	1019.65	1252	1056.69	1250	1060.14	1249.5
1069.09	1248	1071.54	1247.71	1082.67	1247.75	1082.84	1248	1084.79	1248.1
1087.52	1248.28	1089.66	1248.36	1092.3	1248.41	1093.72	1248.42	1096.39	1248.4
1098.53	1248.41	1101.16	1248.33	1102.75	1248.24	1105.73	1248	1106.98	1247.8
1116.03	1246.61	1117.08	1246.44	1117.67	1246.34	1118	1246.31	1118.42	1246.3
1119.59	1246.2	1120.08	1246.18	1120.42	1246.18	1120.55	1246.2	1120.64	1246.18
1120.87	1246.19	1120.93	1246.2	1121.04	1246.3	1121.29	1246.31	1122.79	1246.52
1123.99	1246.55	1132.04	1248	1135.48	1249.03	1136.22	1249.08	1137.17	1249.12
1138.27	1249.14	1140.47	1249.2	1142.29	1249.12	1144.67	1249.06	1147.16	1249.28
1151.92	1249.12	1154.52	1249.3	1252 76	1249.32	1157.43	1249.36	1160.51	1249.44
1206 41	1249.48	1231.40	1249.1	1252.76	1249.33	1291.86	1248.95	1295.01	1248.89
1290.41	1248.80	1333.79 1241.61	1248.8	1337.10	1248.78	1338.20	1248.78	1339.31	1248.8
1340.42	1240.03	1341.01	1240.9	1342.03 13/7.28	1249.02	1350 60	1249.04	1344.30	1249.03
1357 5	1249.04	1353 54	1249	1358 79	1249	1365 0	1240.09	1366 38	1240.04
1371 57	1240.75	1386 26	1248	1389 73	1248.02	1392 91	1248.10	1394 91	1748
1478.23	1248.12	1478.69	1248.09	1479.9	1248.07	1481.87	1248.06	1484.23	1248.1
1489.27	1248.12	1493.44	1248.12	1494.57	1248.09	1494.67	1248	1501.69	1248
1503.84	1248.08	1505.75	1248.11	1506.99	1248.1	1511.65	1248.12	1513.35	1248.15
1514.92	1248.22	1516.07	1248.24	1517.89	1248.2	1519.78	1248.24	1521.24	1248.23
1521.57	1248.21	1525.7	1248.13	1527.69	1248.1	1529.16	1248.11	1529.3	1248.16
1566.96	1248.17	1568.79	1248.14	1580.49	1248	1592.2	1248	1606.29	1248.13
1615.51	1248.08	1616.3	1248.1	1618.25	1248.04	1620.49	1248.05	1623.47	1248.07
1625.87	1248.12	1627.2	1248.2	1653.02	1248.19	1653.9	1248.18	1666.8	1248
1568.02	1248	1692.29	1247.59	1697.36	1247.52	1/08.46	1247.41	1/12./2	1247.4
1/18.03	1247.30	1774 55	1247.35	1790 51	1247.4	1791 09	1247.4	1767.9	1247.5
1703.93	1247.52	1702 06	1247.52 1247.50	1700.01	1247.55	1701.00	1247.5	1701.32	1247.04
1787 04	1247.50	1780 16	1247.39	1700 57	1247.39	1707 10	1247.0	1702 25	1247.39
1798 69	1247.30	1815 17	1247 37	1816 11	1247 37	1824 97	1247.40	1828 63	1247 32
1833.48	1247.2	1835 5	1247.24	1837.98	1247 25	1842 26	1247.33	1845 54	1247 34
1859.44	1247.62	1872.67	1247.94	1875.3	1248	1885.95	1248.2	1903.83	1248.49
1909.84	1248.62	1913.91	1248.69	1917.05	1248.7	1923.32	1248.81	1933.38	1248.9
1940.09	1248.93	1944.36	1248.9	1948.56	1248.95	1955.93	1248.97	1958.51	1248.97
1961.28	1249	1964.22	1248.95	1967.95	1248.93	1973.98	1248.86	1976.61	1248.8
1981.32	1248.74	2000.42	1248.34	2019.04	1248	2054.8	1247.81	2054.95	1247.81
2065.62	1247.75	2067.86	1247.7	2070.07	1247.74	2072.97	1247.73	2075.22	1247.73
2077.45	1247.72	2080.36	1247.7	2083.24	1247.73	2093.65	1247.74	2096.65	1247.75
2099.6	1247.8	2113.68	1247.79	2120.86	1247.82	2123.69	1247.84	2129.63	1247.9
				Pag	ge 31				

				-					
506.11	1249.68	507.15	1249.61	Alerna 507.97	tive 1.r 1249.53	ep 513.91	1248.9	522.96	1248
539.17 632.15	1247.05 1244.13	555.16	1246	609.84 633	1244.7 1244.1	626.52	1244.27	630.72	1244.17
639.54	1244.83	639.92	1244.7	645.3	1244.1	658.88	1246.69	660.31	1244.21
661.49	1246.7	744.94	1246.83	747.44	1246.81	750.03	1246.78	752.66	1246.74
766.02	1246.6	766.62	1246.55	768.13	1246.52	768.6	1246.52	769.09	1246.50
769.79	1246.5	770.19	1246.51	770.47	1246.52	770.63	1246.52	770.85	1246.54
773.93	1246.5	774.8	1246.5	775.11	1246.51	775.74	1246.52	776.07	1246.53
777.06	1246.6	778.35	1246.59	779.48	1246.61	815.04	1246.18	875.97	1246
893.98	1245.46	895.8	1245.45	897.31	1245.45	897.77	1245.5	899.43	1245.54
902.36	1245.59	904.26	1245.71	904.87	1245.88	905.29	1246	909.1	1246.08
940.69	1246.19	947.01	1246.1	949.74	1246.01	950.77	1240.2	955.3	1245.95
965.16	1245.86	974.16	1245.8	978.42	1245.7	979.87	1245.64	981.15	1245.61
998.14	1245.6	1000.04	1245.6	1001.79	1245.59	1004.45	1245.55	1006.26	1245.55
1007.97	1245.6	1015.67	1245.76	1024.52	1246	1026.18 1042 19	1246.01	1028.97 1044.3	1246
1046.18	1246.13	1047.55	1246.14	1048.41	1246.14	1050.47	1246.1	1052.55	1246.14
1054.49	1246.14 1246 11	1057.07 1065.24	1246.13 1246 1	1058.15 1074.39	1246.13	1059.48	1246.1	1060.96	1246.11
1087.16	1246.1	1093.7	1246.01	1094.96	1240.1	1102.86	1245.72	1105.03	1240.00
1106.9	1245.66	1107.93	1245.68	1108.48	1245.71	1108.69	1245.83	1108.91	1246
1119.01	1245.99	1123.51	1245.9	1126.48	1245.86	1129.08	1245.85	1130.5	1245.9
1132.12	1246 1246	1135.23	1246.06	1138.14	1246.1 1245 8	1143.34	1246.1	1144.11 1166 53	1246.07 1245 7
1170.01	1245.7	1178.76	1245.74	1185.29	1245.7	1188.21	1245.76	1202.65	1245.7
1205.35	1246.1 1246.1	1207.86	1246.13 1246.04	1210.58	1246.14	1210.98	1246.14	1220.25	1246.12
1237.96	1245.3	1242.88	1244.79	1244.37	1244.61	1244.99	1244.53	1245.46	1244.46
1246.31	1244.4	1247.1	1244.3	1247.32	1244.29	1248.3	1244.29	1248.62	1244.3 1244.5
1249.65	1244.55	1250.19	1244.56	1250.83	1244.56	1251.73	1244.58	1252.34	1244.5
1252.9	1244.46	1253.31 1255.16	1244.39	1255.48	1244.31	1254.31	1244.28	1254.54	1244.3 1244.3
1256.98	1244.29	1257.38	1244.3	1257.91	1244.3	1258.76	1244.31	1259.54	1244.3
1259.94	1244.3	1260.21	1244.29	1260.35	1244.29	1260.45	1244.27	1260.54	1244.3
1264.25	1244.25	1264.63	1244.26	1264.99	1244.26	1265.51	1244.3	1266.67	1244.31
1267.95	1244.35	1269.57	1244.39	1270.33	1244.41	1271.17	1244.4	1272.16	1244.42
1277.06	1244.36	1277.53	1244.4	1281.39	1244.43	1295.34	1244.7	1375.09	1246
1412.72	1246.5	1417.33	1246.42	1420	1246.47	1403.18	1246.51	1407.8	1246.54
1438.76	1246.19	1454.1	1246.02	1455.44	1246	1459.07	1245.93	1459.24	1245.93
1499.96	1245.09	1509.3	1245.37	1512.14	1245.31	1519.61	1245.47	1499.06	1245.41
1527.35	1245.22	1529.79	1245.2	1533.51	1245.21	1537.17	1245.23	1539.67	1245.26
1558.34	1245.52	1559.57	1245.4	1561.17	1245.68	1561.93	1245.55	1562.25	1245.57
1562.78	1245.74	1563	1245.7	1563.18	1245.76	1568.59	1245.77	1568.69	1245.7
1571.59	1245.68	1572.01	1245.67	1572.16	1245.66	1572.68	1245.7	1573.31	1245.60
1574.71	1245.57	1578.81	1245.61	1579.39	1245.6	1588.23	1245.6	1597.64	1245.7
1615.07	1246.25	1616.1	1246.35	1618.17	1246.44	1664.93	1240.1	1666.46	1240.14 1246.34
1667.86	1246.33	1670.44	1246.32	1686.25	1246.31	1687.12	1246.3	1697.24	1246.3
1725.36	1246.31	1729.47	1246.28	1732.49	1246.3	1734.26	1246.27	1757.51	1246.26
				Pa	ge 33	-			

				• 7 • • • • •					
005 41	1242 40	006 02	12/2 55	Alerna 006 70	1242 G		1242 72	000 51	12/2 8
910 78	1242.49	913 59	1242.55	915 7	1242.0	917 33	1242.72	966 39	1242 93
985 27	1242.75	985 85	1242.5	988 27	1242.5	989 01	1242.91	991 14	1241 99
991 79	1242.1	993 17	1242.13	994 5	1242 18	996.28	1242 19	1000.16	1242.07
1001 75	1242	1007 32	1241 9	1021 41	1242	1028.85	1242	1033.1	1241.89
1035.4	1241.86	1038.08	1241.85	1043.9	1241.9	1046.38	1242	1047	1242.03
1053.2	1242.33	1056.9	1242.5	1057.62	1242.51	1065.58	1242.77	1067.55	1242.81
1069.43	1242.83	1071.98	1242.8	1076.11	1242.79	1077.78	1242.79	1080.5	1242.81
1084.86	1242.89	1085.86	1242.9	1087.6	1243.06	1087.93	1243.08	1091.1	1243.21
1092.22	1243.23	1092.65	1243.2	1095.78	1243.27	1096.68	1243.28	1097.86	1243.27
1099.05	1243.25	1100.56	1243.2	1102	1243.18	1102.72	1243.15	1104.56	1243.04
1108.42	1242.87	1111.83	1242.8	1114.44	1242.68	1116.72	1242.65	1117.91	1242.63
1120.5	1242.56	1125.55	1242.4	1127.63	1242.4	1130.02	1242.36	1130.58	1242.34
1131.22	1242.33	1131.94	1242.3	1132.72	1242.27	1133.35	1242.24	1133.65	1242.24
1133.86	1242.23	1134.06	1242.2	1134.22	1242.24	1134.3	1242.24	1134.4	1242.28
1134.58	1242.3	1134.79	1242.29	1135.1	1242.3	1135.46	1242.3	1135.92	1242.29
1136.24	1242.3	1136.6	1242.26	1136.//	1242.24	1138.06	1242.26	1138.14	1242.26
1138.36	1242.3	1138.66	1242.27	1139.42	1242.27	1139.89	1242.25	1140.08	1242.3
1140.25	1242.26	1140.59	1242.27	1141.12	1242.29	1141.72	1242.31	1142.28	1242.3
1142.9	1242.35	1143.02	1242.37 1242.41	1152 52	1242.30	1154 49	1242.38	1140.23	1242.4
1147.11 1161 02	1242.39	1170 2	1242.41 1242.50	1172.32	1242.02	1176 57	1242.00	1120.04	1242.0
1182 33	1242.02 12/7 62	1184 45	1242.30	1186 75	1242.0	1189 76	1242.02	1103 00	1242.03
1104 91	1742.02	1106.98	1742.04	1100.73	1242.7	1204 79	1242.7	1209 21	1242.05
1211 52	1242.7	1215 39	1242 82	1229 94	1242.75	1235 1	1242.03	1241 2	1242 74
1243.7	1242.72	1249.49	1242.69	1252.93	1242.7	1255.03	1242.67	1268.68	1242.43
1285.03	1242.1	1290.23	1242.06	1293.35	1242	1301.11	1241.76	1303.27	1241.7
1305.51	1241.72	1306.99	1241.74	1309.54	1241.82	1314.36	1241.89	1315.22	1241.9
1315.34	1242	1344.23	1242.46	1360.44	1242.69	1373.01	1242.9	1376.06	1242.92
1382.9	1242.99	1387.72	1243.05	1389.63	1243.08	1394.53	1243.2	1396.2	1243.19
1398.83	1243.21	1401.39	1243.21	1401.76	1243.2	1405.48	1243.07	1406.67	1243.05
1408.51	1243.05	1410.41	1243.1	1413.47	1243.09	1414.82	1243.1	1416.87	1243.1
1418.29	1243.2	1419.13	1243.16	1419.96	1243.15	1420.84	1243.13	1425.14	1243.01
1427.49	1242.9	1430.21	1242.86	1430.86	1242.8/	1433.06	1242.83	1434.76	1242.83
1486.44	1242.7	148/.0/	1242.73	1490.41	1242.78	1491.4	1242.79	1491.94	1242.8
1494.49	1242.0	1494.70	1242.01	1494.95	1242.81	1495.15	1242.0	1495.30	1242.01
1/08 03	1242.01	1490.33	1242.0	1/00 01	1242.01	1500.74	1242.02	1497.47	1242.02
1502 11	1242.0	1503 48	1242.01	1505 36	1242.01	1564 12	1242.0	1565 6	1242.0
1566 29	1243 63	1570 54	1243.49	1574.63	1243 3	1576.75	1243 29	1579 64	1243.18
1581.03	1243.14	1585	1243.01	1593.26	1242.7	1597.62	1242.6	1599.16	1242.59
1601.76	1242.5	1602.65	1242.48	1603.91	1242.5	1604.54	1242.47	1605.11	1242.42
1605.26	1242.36	1605.64	1242.28	1605.83	1242.3	1606.19	1242.25	1606.59	1242.22
1606.9	1242.2	1607.04	1242.19	1607.25	1242.2	1607.51	1242.19	1607.64	1242.19
1608.07	1242.2	1608.71	1242.2	1608.92	1242.19	1608.98	1242.19	1609.12	1242.18
1609.3	1242.17	1609.66	1242.2	1609.87	1242.16	1610.13	1242.17	1610.64	1242.17
1611.15	1242.2	1611.23	1242.18	1611.31	1242.18	1611.43	1242.21	1611.59	1242.23
1612.02	1242.3	1612.58	1242.3	1613.29	1242.34	1613.63	1242.36	1614.39	1242.43
1619.87	1243	1628.21	1244	1635.72	1244.79	1646	1246	1648.33	1240
1676 62	1240.1	1670 6	1240.14	1692	1240.15	1600.08	1240.2	1609.98	1240.17
1602 8	1240.17	1602 12	1240,10	1708 /	1240.2	1720 14	1240.15	1090.09	1240.09
1751 84	1240.00	1751 94	1240	1762 09	1245.9	1765 18	1245.05	1767 11	1245.35
1770 45	1245 44	1771 91	1245 42	1772 79	1245 41	1773 28	1245.5	1773 5	1245.40
1773.71	1245.37	1776.21	1245.36	1777.2	1245.36	1777.93	1245.4	1778.55	1245 36
1779.74	1245.35	1780.28	1245.35	1781.27	1245.34	1781.98	1245.3	1782.63	1245.34
1783.22	1245.34	1783.71	1245.35	1784.02	1245.35	1784.55	1245.4	1785.15	1245.38
1786.92	1245.41	1789.46	1245.44	1792.06	1245.5	1795.01	1245.47	1800.39	1245.52
1805.29	1245.59	1809.65	1245.6	1812.29	1245.68	1817.33	1245.72	1823.05	1245.73
1826.48	1245.7	1830.4	1245.78	1832.63	1245.79	1855.72	1246	1900.64	1246.91
1903.16	1247	1906.86	1247.05	1961.75	1247.94	1965.1	1247.94	1967.81	1247.9
1970.67	1247.94	1974.72	1247.95	2005.92	1248	2055.7	1248	2089.72	1248.26
2100.07	1248.3	2111.08	1248.4	2122.43	1248.47	2131.89	1248.51	2139.74	1248.5
				Pa	ge 35				

		Alernative	1.rep	
Reach	1	166 120	120	120
Reach	1	165.9 Bridge		
Reach	1	165.5 49	50	232
Reach	1	165 146	171	76.5
Reach	1	164 75	107	69
Reach	1	163 76	182	285
Reach	1	162 128	180	197
Reach	1	161 79	150	223
Reach	1	160 250	198	139
Reach	1	159 312	240	210
Reach	1	158 246	120	52
Reach	1	157 298	184	118
Reach	1	156 121	232	363
Reach	1	155 745	220	330

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SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS River: Santa Clara

Reach	River Sta	. Contr.	Expan.
Reach 1 Reach 1 Reach 1 Reach 1 Reach 1 Reach 1 Reach 1 Reach 1 Reach 1 Reach 1	174 173 172 171 170 169 168 167 166	.1 .1 .1 .1 .1 .1 .1 .1 .1 .3	.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
Reach 1 Reach 1	165.9 165.5 164 163 162 161 160 159 158 157 156 155	Bridge .3 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1	. 5 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3 . 3

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W S.	E.G. Elev	E G. Slope	Vel Chni	Flow Area	Top Width	Froude # Chl
			(cts)	(ft)	(ft)	(#)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1	174	100-Year	15272.00	1275.00	1282.84	1282.84	1284.78	0.005994	11.47	1583.56	1375.84	0.89
1	173	100-Year	15272.00	1269.00	1277.00	1274.52	1277.51	0.001339	5.89	2832.70	2356.12	0.43
1	172	100-Year	15272.00	1268.71	1273.81	1273.81	1276.19	0.007741	12.37	1234.26	2026.21	1.00
1	171	100-Year	15272.00	1268.00	1271.40	1271.40	1272.89	0.009201	9.82	1554.86	1955.56	1.00
1	170	100-Year	15272.00	1266.00	1269.43	1269.06	1270.36	0.006222	8.10	2165.47	1964.59	0.83
Ger Stor Bo	169	100-Year	15272.00	1264.90	1268.23	1268.23	1269.38	0.011939	9.04	1840.95	1677.51	1.08
L STAR	168	100-Year	15272.00	1263.60	1267.11	1266.54	1267.91	0.006062	7.85	2352.10	1892.32	0.81
	167	100-Year	15272.00	1262.08	1266.35	1265.64	1266.96	0.004841	6.91	2693.50	1596.16	0.72
1	166	100-Year	15272.00	1261.35	1265.79	1264.65	1266.24	0.002362	5.51	3083.87	950.00	0.52
1	165.9		Bridge									
1	165.5	100-Year	15272.00	1260.35	1263.63	1263.63	1264.70	0.009648	8.50	1974.99	950.00	0.98
	165	100-Year	15272.00	1257.79	1262.80	1262.57	1263.62	0.007356	7.23	2111.25	1783.03	0.86
ビス装装	164	100-Year	15272.00	1257.58	1261.37	1261.29	1262.19	0.009571	7.25	2107.25	1620.23	0.94
	163	100-Year	15272.00	1256.19	1260.20	1260.18	1261.11	0.010378	7.66	1992.65	1417.47	0.99
	162	100-Year	15272.00	1255.40	1259.20	1258.80	1259.66	0.005300	5.43	2811.70	1739.32	0.70
	161	100-Year	15272.00	1253.90	1257.47	1257.47	1258.29	0.011044	7.31	2089.04	1342.80	1.00
	160	100-Year	15272.00	1251.90	1255.21	1255.18	1255.99	0.010541	7.07	2160.59	1318.22	0.97
	159	100-Year	15272.00	1250.87	1253.91	1253.54	1254.40	0.005731	5.64	2708.68	1468.79	0.73
	158	100-Year	15272.00	1248.56	1251.74	1251.74	1252.49	0.011546	6.93	2202.78	1481.18	1.00
	157	100-Year	15272.00	1246.18	1249.75	1249.75	1250.51	0.011444	7.00	2181.92	1436.14	1.00
12 / 18 S.P.	156	100-Year	15272.00	1244.10	1247.57	1247.57	1248.37	0.011403	7.15	2134.93	1356.49	1.00
	155	100-Year	15272.00	1240.90	1244.61	1244.61	1245.56	0.010751	7.84	1949.01	1033.46	1.01














Alernative 2.rep

HEC-RAS Version 3.1.2 April 2004 U.S. Army Corp of Engineers Hydrologic Engineering Center 609 Second Street Davis, California

Х	Х	XXXXXX	XX	XX		XX	XX	×	X	XXXX
Х	Х	Х	Х	Х		Х	Х	Х	Х	Х
Х	Х	Х	Х			Х	Х	Х	Х	Х
XXXX	(XXX	XXXX	Х		XXX	XX	XX	XXX	XXX	XXXX
Х	Х	Х	Х			Х	Х	Х	Х	Х
х	Х	Х	Х	Х		Х	Х	Х	Х	Х
Х	Х	XXXXXX	XX	XX		Х	Х	Х	Х	XXXXX

1

PROJECT DATA Project Title: Proposed Bridge: Altenative 2 Project File : Alernative 2.prj Run Date and Time: 4/1/2005 8:13:55 AM

Project in English units

Project Description: Cross sections cut in LDD and imported 04-30-04

PLAN DATA

Plan Title: River Profile Plan File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS $3_{11_05} A = 2.03$ Geometry Title: Exist Project (banks=0.6, chn]=0.3) Geometry File : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Study\HEC-RAS 3_11_05\Alernative 2 g07 : Steady Flow Flow Title : p:\1418_CVC\410_Drainage_Studies\Location Hydraulic Flow File Study\HEC-RAS 3_11_05\Alernative 2.f01 Plan Summary Information: Number of: Cross Sections = 21 Multiple Openings = 0 Inline Structures = Lateral Structures = Culverts 0 0 = Bridges = 1 0 Computational Information Water surface calculation tolerance = 0.01 Critical depth calculation tolerance = 0.01 Maximum number of iterations = 20 Maximum difference tolerance 0.3 = Flow tolerance factor = 0.001 Computation Options Critical depth computed only where necessary Conveyance Calculation Method: At breaks in n values only Average Conveyance Friction Slope Method: Computational Flow Regime: Subcritical Flow Page 1

.

RIVER: SANTA CLA REACH: 1	RA	RS: 17	3					
INPUT Description: Station Elevatio Sta Elev 0 1279 2565 1273	n Data Sta 667.6 2666	num= Elev 1273 1303	8 Sta 1833 3000	Elev 1270 1353	Sta 2166	Elev 1273	Sta 2366	Elev 1269
Manning's n Valu Sta n Val 0 .06	es Sta 2166	num= n Val .03	3 Sta 2666	n Val .06				
Bank Sta: Left 2166 Ineffective Flow Sta L Sta R 0 2073	Right 2666 num= Elev 1290	Length = : Permane F	s: Left 379 1 ent	Channel 426.95	Right 469	Coeff	⁼ Contr. .1	Expan. .3
CROSS SECTION								
RIVER: SANTA CLA REACH: 1	RA	RS: 172	2					
INPUT Description: Station Elevatio Sta Elev 0 1272.61 71.31 1272.01 77.52 1272.01 83.13 1271.91 103.98 1271.95 187.78 1270.71 244.92 1271.01 382.73 1271.62 406.73 1271.85 408.44 1271.88 414.18 1271.88 414.18 1271.88 562.71 1271.34 612.41 1271.31 729.84 1272.09 736.57 1272.09 736.57 1272.09 736.57 1272.09 736.57 1271.31 772.31 1271.31 778.17 1271.41 829.27 1271.31 861.06 1271.23 1038.9 1270.71 1053.87 1270.43 1085.08 1269.81 1121.84 1269.76 1210.98 1269.85 1248.82 1269.81 1507.87 1269.46 1549.99 1269.5 1627.2 1269.1 1660.05 1269.01 1723.82 1269.21	n Data Sta 12.11 72.31 78.27 86.32 105.31 192.84 276.73 405.91 407.35 408.51 416.74 563.53 673.01 768.09 773.91 815.76 830.69 985.31 1040.28 1054.99 1088.2 1128.71 1221.03 1384.56 1510.58 1556.74 1631.35 1668.44 1726.01 1760.2	num= Elev 1272.54 1272.02 1271.96 1271.95 1271.91 1270.71 1271.78 1271.88 1271.87 1271.89 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.41 1269.76 1269.71 1269.48 1269.49 1269.28 1269.28 1269.28 1269.28	337 Sta 45.45 74.24 79.13 90.96 106.6 198.32 305.39 406.26 407.57 411.55 580.77 687.46 732.49 764.04 769.49 775.09 819.66 834.59 1033.41 1048.88 1066.75 1106.54 1130.42 1228.01 1389.2 1528.04 1558.96 1635.69 1731.42 1768.77	Elev 1272.26 1272 1271.96 1271.95 1271.95 1271.51 1271.87 1271.81 1271.81 1271.81 1271.68 1271.68 1271.68 1271.68 1271.68 1271.68 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.31 1271.51 1269.71 1269.74 1269.74 1269.48 1269.48 1269.68 1269.57	Sta 51.09 75.77 80.47 92.99 184.31 198.87 315.78 406.45 407.82 411.84 418.72 597.72 719.86 733.04 765.48 769.96 776.44 823.12 844.98 1036.93 1049.62 1075.43 1111.89 1144.12 1231.57 1400.26 1530.48 1565.8 1644.53 1708.68 1738.13 1773.53	Elev 1272.22 1271.98 1271.95 1271.91 1270.79 1271.44 1271.12 1271.86 1271.87 1271.86 1271.87 1271.33 1272.11 1272.08 1271.26 1271.26 1271.28 1271.28 1271.28 1271.28 1271.28 1270.71 1270.49 1269.83 1269.81 1269.51 1269.51 1269.51 1269.37 1269.34 1269.34	Sta 51.69 76.93 81.69 97.02 184.7 221.81 321.04 406.62 408.13 413.57 419.41 605.62 723.17 735.37 766.77 770.46 777.35 826.45 855.3 1051.24 1079.75 1119.51 1201.06 1244.21 1463.25 1547.74 1605.66 1651.58 1716.17 1742.11 1776.6	Elev 1272.21 1271.97 1271.95 1270.85 1270.85 1271.11 1271.81 1271.81 1271.88 1271.87 1271.33 1271.33 1272.11 1272.09 1271.35 1271.27 1271.41 1270.72 1270.72 1270.5 1269.8 1269.8 1269.8 1269.8 1269.3 1269.3 1269.3 1269.61

244.02	1270 2	776 77	1271 07	Alerna	1270 41	ep	1 2 7 0 4 1	221 04	1270 4
244.92	1270.3	2/0./3	1271.07	303.39	1270.41	312.78	1270.41	321.04	1270.4
382.73	1270.91	405.91	12/1.1/	406.26	12/1.16	406.45	12/1.15	406.62	12/1.1
406.73	1271.14	407.35	1271.14	407.57	1271.1	407.82	1271.16	408.13	1271.17
408.44	1271.17	408.51	1271.16	411.55	1271.2	411.84	1271.15	413.57	1271.16
414.18	1271.17	416.74	1271.18	417.95	1271.2	418.72	1271.18	419.41	1271.18
562 71	1270 63	563 53	1270 6	580 77	1270 07	507 72	1270 62	605 62	1270 62
G12 11	1270.05	672 01	1270.00	697 16	1270.97	710 96	1270.02	702 17	1270.02
720 04	1271 20	0/3.UL	1270.90	722 40	1270.97	719.00	1271 27	725.17	1271 20
729.84	12/1.38	/31.51	12/1.3/	/32.49	12/1.4	733.04	12/1.3/	/35.3/	12/1.38
736.57	1271.38	763.01	1270.67	/64.04	1270.7	765.48	1270.65	/66.//	1270.64
767.73	1270.61	768.09	1270.59	769.49	1270.6	769.96	1270.55	770.46	1270.56
772.31	1270.6	773.91	1270.6	775.09	1270.67	776.44	1270.69	777.35	1270.7
778 17	1270 7	815 76	1270 5	819 66	1270 52	823.12	1270 52	826.45	1270.55
820 27	1270 6	830 60	1270 50	831 50	1270 50	811 08	1270 57	855 3	1270 5
029.27	1270 52	005 21	1070 10	1022 /1	1270.04	1026 02	1270	1020 21	1270 01
001.00	1270.52	903.31	1270.12	1033.41	12/0.04	1030.93	1200 70	1050.51	12/0.01
1038.9	1270	1040.28	12/0	1048.88	1209.78	1049.02	1269.78	1051.24	1209.79
1053.87	1269.72	1054.99	1269.7	1066.75	1269.2	10/5.43	1269.12	10/9./5	1269.09
1085.08	1269.1	1088.2	1269.05	1106.54	1269.06	1111.89	1269.1	1119.51	1269.05
1121.84	1269.05	1128.71	1269	1130.42	1269.03	1144.12	1269.02	1201.06	1269.14
1210.98	1269.14	1221.03	1269.1	1228.01	1269.12	1231.57	1269.11	1244.21	1269.12
1248 82	1269 1	1384 56	1268 98	1389 2	1269	1400 26	1268 96	1463 25	1268.88
1507 87	1268 75	1510 58	1268 77	1528 04	1268 77	1530 /8	1268 8	1547 74	1268 78
1507.07	1200.73	1510.30	1200.77	1520.04	1200.77	1565 0	1200.0	1605 66	1200.70
1549.99	1268.79	1556.74	1200./0	1000.90	1200.77	1202.0	1200.0	1005.00	1200.39
1627.2	1268.39	1631.35	1268.4	1635.69	1268.37	1644.53	1268.37	1651.58	1268.35
1660.05	1268.3	1668.44	1268.31	1705.19	1268.61	1708.68	1268.66	1716.17	1268.59
1723.82	1268.5	1726.01	1268.57	1731.42	1268.55	1738.13	1268.63	1742.11	1268.65
1745.14	1268.7	1760.2	1268.78	1768.77	1268.86	1773.53	1268.88	1776.6	1268.9
1782.06	1268.78	1786.76	1268.64	1791.31	1268.45	1798.18	1268.1	1799.96	1268
1817 13	1268 07	1822 1	1268 1	1825 91	1268 09	1834 02	1268 1	1837 17	1268 11
1017.13	1260.07	18/3 6	1260.1	18/7 05	1268 11	1868 17	1768 00	187/ 96	1268 1
1040.39	1200.11	1043.0	1200.1	104/.00	1200.11	1020.17	1208.09	1074.30	1760.1
18/9./6	1268.08	1883.99	1268.08	1894.55	1208.1	1920.09	1268.09	1923.31	1200.1
1930.52	1268.08	1964.01	1268.04	19/4.58	1268	1986.36	1268.01	1990.0	1268
1993.29	1268.1	2003.25	1268.41	2007.82	1268.6	2018.27	1270	2023.31	12/1.5/
2024.56	1272	2035.71	1279.46	2041.62	1282	2050.88	1284.8	2058.67	1287.22
2065.74	1289.39	2073.15	1292	2086.82	1301.7	2087.26	1302	2087.57	1302.14
2089 08	1302 78	2117.25	1315.4	2119.26	1316	2129.39	1317.86	2130.34	1318
2137 37	1318 10	2146 22	1318 4	2150 99	1318 48	2154 42	1318 53	2157 12	1318 55
2157.57 2160.24	1210.15	2165 76	1218 5	2170 51	1310.40	2176 68	1210.33	2183 16	1318 15
2100.24	1210.04	2107.10	10.0	21/0.01	10.40	21/0.00	1214 40	2103.40	1214 41
2100.00	1210	2197.13	1010.2	2199.03	1214 20	2210.78	1314.49	2213.37	1214.41
2223.38	1314.41	2225.72	1314.5	2228	1314.38	2229.25	1314.34	2229.92	1314.30
2231.08	1314.4	2232.04	1314.47	2235.22	1314.72	2236.83	1314.81	2250.22	1316
2250.48	1316	2256.99	1316.22	2312.88	1318	2313.65	1318.09	2332.33	1320
2343.19	1320.2	2349.84	1320.36	2353.84	1320.43	2357.22	1320.48	2360.51	1320.51
2364.91	1320.6	2366.72	1320.57	2368.23	1320.57	2371.42	1320.56	2374.85	1320.54
2376 19	1320 5	2378 03	1320.54	2401.57	1321.57	2415.39	1321.74	2425.33	1321.9
2/132 5	1322	2/89 /1	1324	2493 59	1324 6	2506 06	1326	2507 76	1326 18
2732.3	1222	2524 01	1228 2	2535 54	1220	2525 01	1220 2	2537 16	1220.20
	1220	2324.91	1222.0	2555.54	1240 5	2555.51	12/2	2557.40	12/2 50
2539.95	1332	2040.00	1333.99	2009.74	1240.5	23/4.93	1342	2021.29	1343.39
2632.12	1343.9	2633.17	1343.96	2633.46	1343.9/	2634.8	1344	2657	1345.52
2661.59	1346	2664.8	1346.24	2670.55	1346.64	2678.86	1347.09	2680.57	1347.2
2682.03	1347.17	2686.39	1347.07	2688.7	1347.21	2693.3	1347.08	2697.41	1347.3
2700.29	1347.22	2705.63	1347.46	2707.89	1347.38	2711.94	1347.42	2715.31	1347.2
2720 71	1346 83	2722 91	1346 6	2728 32	1346	2733 3	1345 15	2736 68	1344 3
7717 76	13/17	27/2 /8	13/1 57	27/1/ 32	13/1 1/	2752 01	1336 86	2760.00	1334
2742.70	1222 04	2745.40	1000	2744.32	1220	2792.01	1220.00	2700.09	1220
2762.42	1332.94	2765.09	1224 20	2/03.43	1222	2/0/.09	1020.4	2790.49	1221 00
2801.46	1325.81	2810.92	1324.38	2822.91	1322.92	282/.01	1322	2827.49	1321.00
2829.48	1321.09	2830.85	1321.03	2832.63	1320.88	2835.24	1320.5	2837.61	1320.04
2839.38	1319.46	2841.1	1319.15	2842.62	1318.95	2843.83	1318.8	2845.38	1318.78
2847.7	1318.73	2851.95	1318	2854.59	1317.78	2855.03	1317.8	2855.85	1317.75
2856 47	1317 73	2857 19	1317.68	2860.3	1317 4	2866 48	1316.9	2867 78	1316.83
2870 18	1316 74	2872 36	1316 71	2875 07	1316 38	2877 01	1316 4	2879 46	1316 08
202010	1216	2800 06	1215 66	2801 60	1215 22	2001 22	1314 7	2002 05	1314 51
2000.93	1214	2090.90	T)T)'00	2034.09	77. נדנד	2301.22	1)14./	2302.93	T)T4.)T
2904.4	1314	2924.98	1314						

2188.68 223.38 2231.08 2350.48 2343.19 2364.91 2376.19 2432.5 2523.6 2539.95 2632.12 2661.59 2682.03 2700.29 2720.71 2742.76 2762.42 2801.46 2829.48 2839.38 2847.7 2856.47 2870.18 2880.93 2904.4 Manning's Sta	1316 1312.41 1312.4 1318.2 1318.6 1318.6 1318.5 1320 1341.9 1341.9 1344.83 1340 1330.94 1323.81 1319.09 1317.46 1316.73 1315.73 1314.74 1312 5 n Value n Val .06	2197.15 2225.72 2232.04 2256.99 2349.84 2366.72 2378.03 2489.41 2524.91 2546.65 2633.17 2664.8 2686.39 2705.63 2722.91 2743.48 2765.09 2810.95 2830.85 2841.1 2851.95 2830.85 2841.1 2851.95 2830.85 2841.1 2857.19 2872.36 2890.96 2924.98	1314.2 1312.5 1312.47 1314.22 1318.36 1318.57 1318.54 1326.2 1326.2 1331.99 1341.96 1344.24 1345.07 1345.46 1344.6 1339.57 1345.46 1344.6 139.57 1316 1315.68 1314.71 1313.66 1312 num= n Va1 .03	Alernat 2199.03 2228 2235.22 2312.88 2353.84 2368.23 2401.57 2493.59 2535.54 2688.7 2707.89 2728.32 2744.32 2783.43 2822.91 2832.63 2842.62 2854.59 2860.3 2875.07 2894.69 3 sta 2035.71	tive 2.rd 1314 1312.38 1312.72 1316 1318.43 1318.57 1322.6 1328 1338.5 134.64 1345.21 1345.38 1344.64 1345.21 1345.38 1344.64 1327 1320.92 1318.88 1316.95 1315.78 1315.4 1314.38 1313.22 n Val .06	2210.78 2229.25 2236.83 2313.65 2357.22 2371.42 2415.39 2506.06 2535.91 2574.93 2634.8 2678.86 2693.3 2711.94 2733.3 2752.01 2787.89 2827.01 2835.24 2843.83 2855.03 2866.48 2877.01 2901.22	1312.491312.341312.811316.091318.481318.561319.741328.2134013421345.091345.081345.421345.091345.421345.421343.151334.861326.41326.41326.41326.41316.81315.81314.91314.41312.7	2215.37 2229.92 2250.22 2332.33 2360.51 2374.85 2425.33 2507.76 2637.46 2621.29 2657 2680.57 2697.41 2715.31 2736.68 2760.09 2790.49 2827.49 2837.61 2845.38 2855.85 2867.78 2879.46 2902.95	$1312.41 \\1312.36 \\1314 \\1318 \\1318.51 \\1318.54 \\1319.9 \\1324.18 \\1328.83 \\1341.59 \\1343.52 \\1345.2 \\1345.2 \\1345.2 \\1345.2 \\1345.2 \\1345.2 \\1345.2 \\1345.3 \\1314.58 \\1319.88 \\1318.04 \\1316.78 \\1315.75 \\1314.83 \\1314.08 \\1312.51 \\$
Bank Sta: 14 Ineffecti Sta L 0	: Left 463.25 20 ive Flow Sta R 1260	Right)35.71 num= Elev 1280	Lengths =] Permane F	: Left (120 ent	Channel 111.98	Right 122.02	Coeff	Contr. .1	Expan. .3
CROSS SEC	TION								
RIVER: SA REACH: 1	ANTA CLAF	RA	RS: 169)					
INPUT Descripti Station E Sta 0 9.41 18.78 21.99 27.89 43.42 68.87 74.01 99.54 126.47 195.21 287.86 303.42 362.87 399.31 459.53 484.58	ion: Elevatior Elev 1270.4 1270.4 1270.35 1270.43 1270.38 1270.15 1269.61 1269.2 1268.89 1268.8 1268.4 1268.4 1268.15 1268.19 1268.2 1268.11	Data Sta 6.06 10.28 19.84 22.56 30.27 46.05 68.95 78.7 102.14 132.9 198.91 290.26 308.16 367.74 401.14 466.82 486.23	num= Elev 1270.37 1270.43 1270.36 1270.44 1270.35 1270.12 1269.06 1268.9 1268.78 1268.77 1268.38 1268.43 1268.15 1268.19 1268.19 1268.07	359 5ta 6.85 13.06 20.25 23.39 32.93 50.51 69.99 78.95 103.91 168.88 203.35 295.46 313.72 372.52 406.48 468.45 491.65	Elev 1270.38 1270.43 1270.4 1270.4 1270.3 1270.1 1269.3 1269.1 1268.86 1268.77 1268.77 1268.41 1268.41 1268.14 1268.18 1267.9 19 7	Sta 7.49 13.96 20.73 24.85 36.13 53.54 71.86 80.79 117.36 183.99 245.39 296.71 320.28 380.28 411.36 473.32 495.51	Elev 1270.39 1270.4 1270.37 1270.43 1270.26 1270.04 1269.22 1269 1268.81 1268.8 1268.4 1268.4 1268.41 1268.14 1268.17 1268.18 1267.93	Sta 8.71 18.18 21.14 25.84 39.84 57.84 73.05 97.39 122.87 191.24 278.83 300.67 323.13 394.33 416.22 477.05 497.89	Elev 1270.42 1270.36 1270.4 1270.2 1269.98 1269.21 1268.91 1268.8 1268.78 1268.42 1268.4 1268.2 1268.2 1268.2 1268.2 1268.2

Alernative 2.rep

Sta	L	Sta R	Elev	Permanent
	0	1250	1281	F

CROSS SECTION RIVER: SANTA CLARA REACH: 1 RS: 168 INPUT Description:

 Station Elevation Data
 nume
 336

 Station Elevation Data
 nume
 33.66

 1268
 83.16
 1267.28
 83.36

 1267.11
 1267.13
 1267.13
 1267.14

 1283.71
 1266.31
 207.11
 1266.41
 1267.28

 229.32
 1266.31
 207.71
 1266.41
 1267.16
 1266.13

 229.32
 1266.31
 207.71
 1266.61
 229.71
 1266.15
 266.11
 217.81
 1266.24

 229.32
 1266.26
 31.24
 1267.61
 1266.15
 279.71
 1266.16
 1266.13

 235.43
 1266.26
 31.24
 1266.24
 229.91
 1265.34
 443.91
 1265.26
 127.41
 1265.26
 1266.21
 337.58
 1266.23

 345.22
 1265.54
 412.99
 1265.56
 413.26
 1266.23
 1265.2 INPUT Description:

1246 74 1262 6	1 1 1 1 0 1	1262 7	Alerna	tive 2.r	ep	1262 60	1475 00	1262 60
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 1251.93\\ 1430.63 1\\ 51471.85 1\\ 5153.97 1\\ 1557.17 1\\ 1557.17 1\\ 1580.16 1\\ 1601.23\\ 1633.65\\ 1672.81 1\\ 1718.71 1\\ 1745.5\\ 1757.72 1\\ 1787.23 1\\ 1807.93 1\\ 1817.52 1\\ 1925.51 1\\ 1938.11 1\\ 1938.11 1\\ 1946.32 1\\ 1955.85 1\end{array}$	1263.7 262.69 262.45 262.28 262.82 1270 1287.2 297.29 304.33 1306.8 306.03 303.92 302.28 302.18 280.37 275.16 274.76 274.95 274.99	A 167 na 1332.48 1433.57 1504.52 1536.27 1585.3 1601.46 1642.48 1683.27 1734.5 1746.82 1759.76 1789.68 1810.7 1874.6 1926.38 1934.84 1939.42 1948.12 1957.9	$\begin{array}{c} 1263.48\\ 1262.69\\ 1262.53\\ 1262.33\\ 1262.1\\ 1262.96\\ 1270.22\\ 1290\\ 1300\\ 1305.97\\ 1306.82\\ 1306.07\\ 1303.76\\ 1302.27\\ 1301.84\\ 1280\\ 1274.98\\ 1274.98\\ 1274.76\\ 1275\\ 1275.02\end{array}$	ep 1425.05 1441.7 1522.18 1545.93 1562.16 1586.38 1611.23 1650.96 1689.43 1737.32 1748.16 1768.61 1797.27 1812.92 1892.99 1926.5 1934.85 1940.82 1950.25 1960.42	1262.691262.661262.31262.11262.11262.1126312801292.113011306.21306.81305.21303.1130213001279.81274.91274.81275.1	1425.96 1447.43 1523.64 1548.4 1566.9 1592.92 1619.76 1695.88 1739.99 1749.46 1771.49 1799.33 1814.21 1895.83 1929.27 1934.87 1942.16 1951.24 1965.05	1262.69 1262.35 1262.33 1262.18 1264 1282.9 1293.4 1301.55 1306.47 1306.75 1305.2 1302.94 1301.79 1296.5 1274.85 1274.85 1274.8 1275.04 1275.22
19/1.03 12/5.42	1975.51	1275.6	1983.03	1276	1985.78	1276.9	1985.81	1276.91
Sta n Val 0.06	sta 996.21	n Val .03	Sta 1611.23	n Val .06				
Bank Sta: Left 996.21 1 Ineffective Flow Sta L Sta R 0 660	Right 611.23 num= Elev 1278	Lengths J Permane F	5: Left (59.01 L ent	Channel 231	Right 386.01	Coeff	Contr. .1	Expan. .3
CROSS SECTION								
RIVER: SANTA CLA REACH: 1	RA	RS: 166	5					
INPUT Description: Station Elevatio Sta Elev 0 1265 78.35 1264.76 109.01 1264.6 148.02 1264.3 254.76 1264.3 254.76 1264.3 491.41 1264 510.11 1262 562.44 1261.91 598.49 1262.02 659.71 1262.1 782.32 1263.2 792.44 1263.22 912.06 1264.14 926.01 1264.44 951.44 1264.2 982.64 1263.76 1056.91 1262.95 1148.8 1262.7	n Data Sta 54.79 12 85.72 12 115.86 12 354.56 12 354.56 12 354.56 12 354.56 12 354.56 12 354.56 12 354.56 12 604.4 12 664.67 12 782.87 12 804.46 12 914.9 12 929.37 12 960.02 1033.14 12 1062.72 12 1152.31 12	num= Elev 264.82 264.72 1264.6 1264.3 263.98 1264.1 264.04 263.66 261.98 262.03 262.06 263.16 263.18 263.31 1264.2 1264.4 1264.4 1264.9 263.19 1262.9 262.74	153 Sta 64.69 88.08 121.7 169.11 320.84 367.22 436.86 495.89 523.62 590.11 604.7 670 783.5 787.58 810.63 919.43 932.6 960.68 1042.04 1069.07 1156.76 Pau	Elev 1264.79 1264.7 1264.53 1264.26 1264.02 1264.04 1264.1 1263.27 1261.98 1261.97 1262.07 1263.16 1263.18 1263.4 1264.36 1264.44 1263.99 1263.1 1262.9 1262.75 ge 11	Sta 67.97 91.75 132.87 210.97 329.04 411.13 449.32 501.01 546.15 591.55 628.36 675.06 784.11 789.52 823.39 921.25 935.6 965.02 1046.81 1077.93 1164.14	Elev 1264.8 1264.68 1264.45 1264 1264 1264 1264.11 1262.32 1261.9 1262.08 1262.09 1263.17 1263.2 1263.44 1264.4 1264.42 1263.94 1263.03 1262.86 1262.75	Sta 71.36 95.8 141.61 250.46 332.7 414.71 486.14 504.94 553.64 593.86 649.24 772.7 784.8 790.63 904.54 922.88 938.2 980.54 1053.7 1146.34 1168.05	Elev 1264.78 1264.65 1264.37 1263.99 1264.05 1264.03 1264.02 1262 1261.93 1262 1263.09 1263.17 1263.2 1264.43 1264.43 1264.39 1263.8 1262.97 1262.75 1262.7

1284.161261.81289.1333.571261.671334.1601.161261.821611.1662.481262.316671702.0812701703.1718.531272.91720.1736.151272.11742.	Alerna 61 1261.78 1293.91 64 1261.7 1458.45 88 1261.83 1616.73 .3 1262.95 1673.46 78 1270.43 1704.06 13 1272.91 1724.22 18 1270.43 1743.42	ative 2.re 1261.75 5 1261.35 8 1261.8 5 1263.8 5 1270.48 2 1273.17 2 1270	p 1304.5 1461.01 1621.72 1675.01 1704.29 1727.04	1261.7 1261.35 1261.86 1264 1270.51 1273.13	1325.54 1482.63 1660.76 1684.93 1712.69 1731.43	1261.69 1261.5 1262 1266.21 1272.09 1272.74
Manning's n Values Sta n Val S 0 .06 922.	num≕ 3 ta n Val Sta 88 .03 1702.08	n Val .06				
Bank Sta: Left Right 922.88 1702.08 Left Levee Statio Right Levee Statio	Coeff Contr. .3 n= 710 El n= 1660 El	Expan. .5 evation= evation=	1272 1272			
Downstream Deck/Roadw num= 2 Sta Hi Cord Lo Co 710 1279 12	ay Coordinates rd Sta Hi Cord 72 1660 1279	Lo Cord 1272				2
Downstream Bridge Cros Station Elevation Data Sta Elev S 0 1264 54. 78.35 1263.76 85. 109.01 1263.6 115. 148.02 1263.3 153. 254.76 1263 258. 347.99 1263.05 354. 418.87 1263.03 423. 491.41 1263 493. 510.11 1261 522. 562.44 1260.91 589. 598.49 1261.02 604 659.71 1261.1 664. 782.32 1262.2 782. 785.92 1262.2 786. 792.44 1263.2 960.4 912.06 1263.14 914 926.01 1263.44 929. 951.44 1263.2 960.4 982.64 1262.76 1033. 1056.91 1261.95 1062. 1148.8 1261.7 1152. 1172.97 1261.73 1175. 1191.45 1261.58 1193 1207.28 1261.59 1226 1284.16 1260.8 1289.4 133.57 1260.67 1334.4 1601.16 1260.82 1611.4 1662.48 1261.3 1667 1702.08 1269 1703. 1718.53 1271.9 1720. 1736.15 1271.1 1742.5 Bank Sta: Left Right	s Section Data num= 153 ta Elev Sta 79 1263.82 64.69 72 1263.72 88.08 86 1263.6 121.7 82 1263.3 169.11 66 1262.98 320.84 56 1263.1 367.22 13 1263.04 436.86 15 1262.66 495.89 53 1260.98 523.62 85 1260.95 590.11 4 1261.03 604.7 57 1261.06 670 87 1262.16 783.5 71 1262.18 787.58 46 1262.31 810.63 .9 1263.2 919.43 87 1263.4 932.6 1261.74 1156.76 52 1261.74 1156.76 52 1261.72 1177.79 1261.58 1198.16 .3 1261.44 1234.27 51 1260.78 1293.91 54 1260.83 1616.73 3 1261.95 1673.46 78 1269.43 1704.06 1271.91 1724.22 8 1269.43 1704.06 1271.91 1724.22 8 1269.43 1704.06 1271.91 1724.22 8 1269.43 1704.08 70 1702.08 Coeff Contr.	Elev 1263.79 1263.7 1263.53 1263.02 1263.02 1263.04 1263.1 1262.27 1260.98 1260.97 1261 1262.16 1262.16 1262.16 1262.18 1262.4 1263.36 1263.44 1262.99 1261.75 1261.75 1261.75 1261.75 1261.75 1261.75 1261.8 1262.8 1262.8 1262.8 1260.8 1262.8 1260.	Sta 67.97 91.75 132.87 210.97 329.04 411.13 449.32 501.01 546.15 591.55 628.36 675.06 784.11 789.52 823.39 921.25 935.6 965.02 1046.81 1077.93 1164.14 1181.54 1202.46 1243.47 1304.5 1461.01 1621.72 1304.5	Elev 1263.8 1263.68 1263.45 1263 1263 1263.11 1261.32 1260.9 1261.09 1262.07 1262.17 1262.44 1263.42 1263.42 1263.42 1263.42 1261.66 1261.66 1261.61 1261.61 1260.35 1260.86 1263.12 1269.51 1272.13	Sta 71.36 95.8 141.61 250.46 332.7 414.71 486.14 593.86 649.24 772.7 784.8 790.63 904.54 922.88 938.2 980.54 1053.7 1146.34 1168.05 1185.68 1202.76 1276.72 1325.54 1482.63 1660.76 1684.93 1712.69 1731.43	Elev 1263.78 1263.65 1263.37 1262.99 1263.03 1263.02 1261 1260.93 1261 1261.07 1262.09 1262.17 1262.2 1263 1263.43 1263.39 1262.8 1261.7 1261.7 1261.6 1261.61 1260.93 1260.69 1260.5 1261 1265.21 1271.09 1271.74
	Pa	.ge 13				

Alernative 2.rep num= 2 Downstream Elev Elev Width Width 1250 5 1275 5 Pier Data Pier Station 1680 Downstream= 1680 Upstream= Upstream num= 2 Elev Width Elev Width 1250 5 1275 5 2 Downstream num= Elev Width Elev Width 1250 5 1275 5 Pier Data 1865 Pier Station Upstream= 1865 Downstream= num= Upstream 2 Width Width Elev Elev 1250 5 1275 -5 2 Downstream num= Elev Width Elev Width 5 1250 5 1275 Number of Bridge Coefficient Sets = 1Low Flow Methods and Data Energy Selected Low Flow Methods = Highest Energy Answer High Flow Method Energy Only Additional Bridge Parameters Add Friction component to Momentum Do not add Weight component to Momentum Class B flow critical depth computations use critical depth inside the bridge at the upstream end Criteria to check for pressure flow = Upstream energy grade line CROSS SECTION RIVER: SANTA CLARA REACH: 1 RS: 165.5 INPUT Description: num= 153 Station Elevation Data Elev Sta Elev Sta Elev Sta Elev Elev Sta Sta 54.79 1263.82 85.72 1263.72 115.86 1263.6 71.36 1263.78 67.97 64.69 1263.79 1263.8 1264 0 88.08 1263.7 91.75 95.8 1263.65 78.35 1263.76 1263.68 132.87 121.7 1263.53 1263.45 141.61 1263.37 109.01 1263.6 169.11 1263.26 210.97 250.46 1262.99 148.02 1263.3 153.32 1263.3 1263 258.66 1262.98 320.84 1263.02 329.04 1263 332.7 1263.05 254.76 1263 347.99 1263.05 1263.1 367.22 1263.04 411.13 1263 414.71 1263.03 354.56 436.86 449.32 1263.11 486.14 1263.02 418.87 1263.03 423.13 1263.04 1263.1 1263 1262.66 495.89 1262.27 501.01 1261.32 504.94 491.41 493.15 1261 553.64 1260.93 522.53 1260.98 523.62 1260.98 546.15 1260.9 510.11 1261 593.86 562.44 1260.91 589.35 1260.95 590.11 1260.97 591.55 1261 1261 598.49 1261.02 604.4 1261.03 604.7 1261 628.36 1261.08 649.24 1261.07 772.7 1262.09 670 1261.07 675.06 1261.09 659.71 1261.1 664.67 1261.06 782.87 1262.16 783.5 1262.16 784.11 1262.17 784.8 1262.17 782.32 1262.2 787.58 1262.18 789.52 1262.2 790.63 1262.2 785.92 1262.2 786.71 1262.18 810.63 1262.4 823.39 1262.44 904.54 804.46 1262.31 1263 792.44 1262.22

Page 15

967.06 1261.93 977.04 1261.93 1003.21 1261.7 1004.42 1261.72 1020.41 1261 1022.34 1261.63 1028.56 1261.59 1030.45 1261.6 1045.45 1261.43 1052.32 1261 1057.28 1261.3 1059.1 1261.32 1061.32 1261.36 1065.23 1261.46 1067.8 1261 1074.85 1261.5 1077.78 1261.47 1082.47 1261.45 1085.17 1261.4 1092.82 1261 1096.24 1261.33 1098.72 1261.33 1103.11 1261.3 1166.04 1261.45 1195.57 1261 1197.33 1261.29 1198.09 1261.3 1198.77 1261.3 1200.47 1261.32 1201.03 1261 1201.34 1261.3 1201.52 1261.35 1201.63 1261.36 1201.73 1261.37 1201.85 1261 1202.04 1261.4 1202.45 1261.39 1203.37 1261.4 1203.82 1261.41 1204.29 1261 1205.18 1261.4 1205.97 1261.42 1206.4 1261.43 1206.99 1261.43 1207.18 1261 1207.43 1261.43 1208.08 1261.43 1209.03 1261.4 1209.15 1261.42 1210.5 1261 1207.43 1261.4 1211.81 1261.39 1212.45 1261.4 1213 32 1261.38 1214 27 1261	.65 .34 1.5 .29 .33 .38 .41 1.4 1.4 .36
1215.4 1261.5 1216.5 1216.5 1217.95 1261.3 1217.95 1261.3 1227.87 1261.3 1220.68 1261.31 1221.5 1261.31 1222.41 1261.3 1225.98 1261.27 1227.87 1261.3 1231.92 1251.31 1259.74 1375.05 1259.71 1380.64 1259.92 1330.26 1255 1333.85 1259.74 1401.93 1259.8 1412.94 1259.82 1416.89 1259.84 1420.03 1435.79 1260 1443.2 1260.18 1450.08 1260.22 1455.02 1260.45 1508.15 1260.15 1512.47 1260 1519.01 1260.44 1492.15 1260.45 1504.61 1260.45 1508.15 1260.15 1512.47 1260 1519.01 1260.41 1526.02 1260.46 1559.23 1260.45 1562.31 1260 1551.93 1260.13 1529.73 1679.79 1259.61 1651.77 1260 1652.35 1259.03 1702.64 1259.93 1705.22 1259.03 1707.64 1259.93 170	· 249 · 737 · .4462 · .0038 ·
Manning's n Values num= 3 Sta n Val Sta n Val Sta n Val 17.4 .06 199.87 .03 2164.35 .06	
Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Exp 199.87 2164.35 146 171 76.48 .1 . Ineffective Flow num= 2 Sta L Sta R Elev Permanent 17.4 940 1267.9 F 1890 2273 4 1280 E	an. 3

CROSS SECTION

2036.78 1262.3 2093.92 1264 2144.18 1266.5 2186.96 1267.01 2199.39 1266.96 2215.32 1267.51 2239.28 1268.22 2253.53 1268 2254.03 1268.05 2283.61 1270.86 2306.89 1280 2371.91 1292 2417.54 1293 2446.18 1293.9 Manning's n Value Sta n Val 0 06	2043.93 2111.16 2162.76 2189.11 2201.19 2218.53 2241.85 2253.66 2259.54 2287.56 2319.18 2390.21 2421.35 2455.39 s s Sta 309.02	1262.49 1265.75 1266.68 1267.03 1266.98 1267.56 1268.25 1268.03 1268.12 1272 1282.6 1292.6 1293.06 1293.94 num= n Val	Alerna 2065.79 2114.18 2165.95 2193.03 2203.2 2223.6 2242.69 2253.75 2263.19 2291.8 2348.34 2405.54 2461.35 3 sta 2269 78	tive 2.rd 1263.26 1266.76 1267.03 1267.03 1267.03 1267.75 1268.22 1268.03 1268.45 1273.63 1288.7 1292.97 1293.19 1293.9 n Val	ep 2087.92 2140.53 2174.38 2195.32 2209.59 2225.15 2253.14 2253.8 2269.78 2292.15 2350.1 2407.74 2426.67 2461.84	1263.84 1266.37 1266.84 1267.01 1267.28 1267.77 1268.03 1268 1268.8 1273.8 1268.8 1273.8 1292.99 1293.21 1293.88	2090.05 2142.25 2177.34 2198.68 2210.44 2235.5 2253.42 2253.96 2281.02 2294.7 2354.95 2412.64 2440.68 2463.26	1263.91 1266.42 1266.9 1267.3 1268.13 1268.03 1268.04 1270 1274.88 1290 1292.99 1293.83 1293.95
Bank Sta: Left 309.02 22 Ineffective Flow Sta L Sta R 0 600 2000 2463.26	Right 69.78 num= Elev 1275 1275	Lengths E 2 Permane F F	Left (75	Channel 107.02	Right 69	Coeff	Contr. .1	Expan. .3
CROSS SECTION RIVER: SANTA CLAR/ REACH: 1	Ą	RS: 163						
INPUT Description: Station Elevation Sta Elev 0 1257.3 14.74 1256.8 18.91 1256.7 26.36 1256.7 28.24 1256.8 51.96 1262 62.86 1266.07 69.88 1266.45 78.09 1264 99.21 1258.15 180.69 1257.92 212.7 1258.07 229.28 1258.13 238.5 1258.13 325.72 1258.42 329.34 1258.4 332.55 1258.4 334.56 1258.4 334.56 1258.4 334.56 1258.4 334.56 1258.4 334.56 1258.4 356.33 1258.8 498.39 1260.83 536.32 1261.15 545.56 1260.95 555.02 1260.62 580.92 1260.7	Data Sta 3.26 15.39 20.57 27.19 34.71 55.21 63.46 70.37 85.81 99.72 184.31 215.02 229.85 234.99 241.72 326.18 329.59 332.5 350.18 359.98 507.78 540.03 546.28 560 583.12 612.88 648.83	num= Elev 1257.2 1256.78 1256.71 1256.7 1257.65 1262.91 1266.32 1266.35 1262.2 1258.1 1258.1 1258.1 1258.1 1258.1 1258.1 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.5 1258.9 1260.9 1260.5 1260.5 1260.8 1260.6	392 Sta 9.53 16.54 21.71 27.53 39.24 58.51 64.09 70.49 86.48 100.2 188.95 218.5 230.88 235.36 242.77 327 329.88 332.78 350.99 413.75 512.28 542.01 547.44 564.08 590.39 614.76 653.35	Elev 1257.02 1256.75 1256.71 1256.71 1258.56 1264 1266.42 1266.19 1262 1257.99 1258.01 1258.01 1258.09 1258.13 1258.13 1258.13 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1260.8 1260.8 1260.8 1260.54	Sta 12.45 17.42 23.38 27.86 45.75 61.32 64.64 70.64 89.17 105.46 200.01 223.11 232.33 236.97 243.73 327.33 330.28 333.07 352.18 460.78 524.05 543.13 549.06 572.14 597.41 622.23 655.48	Elev 1256.92 1256.73 1256.69 1256.74 1260 1265.35 1266.51 1266 1261.3 1257.85 1258.13 1258.13 1258.13 1258.13 1258.37 1258.37 1258.38 1258.73 1260.4 1261.09 1261.13 1260.7 1260.66 1260.78 1260.83 1260.52	sta 13.43 18.38 25.49 28.04 49.93 62.7 69.44 70.7 93.61 180.4 210.02 227.52 232.88 237.76 284.67 328.95 332.07 333.89 354.42 463.4 529.39 544.95 551.98 574.24 599.5 635.38 659.37	Elev 1256.88 1256.72 1256.69 1256.8 1261.4 1266 1266.5 1266 1260 1257.9 1258.06 1258.12 1258.13 1258.14 1258.14 1258.37 1258.37 1258.37 1258.37 1260.44 1261.1 1261.03 1260.65 1260.7 1260.81 1260.72 1260.45

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CROSS SECTION

RIVER: SANTA CLARA REACH: 1	RS: 162				
RIVER: SANTA CLARA REACH: 1 INPUT Description: Station Elevation Data Sta Elev Sta 0 1262 10 25.18 1259.3 31.75 54.89 1258.6 60.52 71.3 1264 75.91 91.08 1264 94.37 115.93 1258 129.08 183.72 1257.28 183.88 192.79 1257.39 193.48 198.61 1257.67 201.14 213.73 1257.75 215.77 233.58 1257.89 235.93 245.09 1257.73 246.12 262.94 1257.76 279.6 299.82 1258.03 302.98 309.04 1258.06 321.04 332.3 1258.1 338.27 398.11 1259.2 402.22 430.35 1259.4 430.46 434.5 1259.27 435.84 451.25 1258.82 453.43 469.65 1258.01 469.76 496.6 1258.67 498.45 524.78 1258.2 551.73 577.4 1258.4 528.51 546.31 1258.2 551.73 577.4 1258.4 578.44 603.43 1258.7 605.77 611.98 1258.6 624.23 653.5 1258.44 658.14 694.6 1258.53 701.69 729.97 1258.24 736.32 748.6 1257.99 751.39 779.25 1258.02 784.8 798.33 1258.4 831.18 1010.78 1257.86 1014.26 1035.65 1257.84 1042.29	RS: 162 num= 377 Elev Sta 1262 14.3 1258.45 39.59 1260 64.64 1265.5 77.32 1263.04 98.26 1257.59 136.71 1257.29 186.18 1257.4 194.19 1257.72 202.78 1257.75 220.11 1257.72 247.54 1258 280.11 1258.07 326.06 1258.07 324.06 1258.07 334.17 1258.05 340.26 1259.28 409.12 1259.36 431.06 1259.3 439.26 1258.87 455.68 1258.87 455.68 1258.87 455.68 1258.36 537.14 1258.36 537.14 1258.36 537.14 1258.36 537.14 1258.63 607.18 1258.63 607.18 1258.7 501.68 1258.63 607.18 1258.67 599.46 1258.63 607.18 1258.7 1 627.11 1258.42 684.22 1258.53 714.99 1258.7 90.03 1258.67 599.46 1258.7 1627.11 1258.42 684.22 1258.53 714.99 1258.7 90.03 1258.67 592.46 1258.7 1017.16 1257.84 1043.21 1257.84	Elev Sta 1261.15 19.95 1259.4 48.47 1261.49 65.86 1266 85.38 1262 103.91 1257.37 139.97 1257.34 188.21 1257.74 204.59 1257.76 224.75 1257.71 254.31 1258 294.47 1258.04 306.39 1258.1 328.44 1258.06 335.16 1258.05 393.58 1259.38 411.26 1259.3 431.7 1259.39 443.14 1258.89 461.53 1258.89 461.53 1258.82 539.64 1258.32 539.64 1258.32 539.64 1258.32 539.64 1258.53 591.33 1258.67 600.99 1258.53 591.33 1258.67 600.99 1258.52 687.02 1258.53 720.12 1258.51 740.01 1257.99 775.92 1258.39 794.48 1257.85 1032.56 1257.8 1044.14	Elev 1260 1258.47 1262 1266 1260.28 1257.3 1257.4 1257.5 1257.8 1257.8 1257.69 1258.03 1258.05 1258.07 1258.06 1259.12 1259.26 1259.26 1258.27 1258.28 1258.27 1258.28 1258.28 1258.28 1258.28 1258.68 1258.51 1258.68 1258.68 1258.61 1258.68 1258.61 1258.61 1258.41 1258.61 1258.61 1258.61 1258.62 1258.62 1258.63 1258.63 1258.64 1258.64 1258.64 1258.64 1258.78 1258.64 1258.64 1258.78 1258.64 1258.64 1258.64 1258.78 1258.65 1258.68 1258.78 1258.68 1258.68 1258.68 1258.78 1258.68 1258.78 1258.68 1258.78 1258.68 1258.78 1258.68 1258.78 1258.68 1258.78 1258.78 1258.68 1258.78	sta 22.28 52.65 69.15 88.78 104.94 183.36 191.81 196.31 208.31 226.94 243.06 258.48 296.21 307.62 331.54 336.09 396.97 416.74 432.76 446.41 462.44 493.15 520.27 549.6 573.38 593.66 602.32 611.22 638.78 688.4 725.04 746.1 778.33 796.24 813.57 852.67 1034.3 1047.07	Elev 1259.8 1258.1258 1263.16 1264.9 1260 1257.26 1257.38 1257.71 1257.81 1257.81 1257.85 1257.71 1258.07 1258.05 1259.21 1259.2 1259.2 1259.2 1259.2 1258.49 1258.5 1258.49 1258.63 1258.61 1258.63 1258.5 1258.5 1258.4 1258.63 1258.5 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4 1258.4
1010.78 1257.86 1014.26 1035.65 1257.84 1042.29 1047.97 1257.8 1048.71 1052.69 1257.84 1053.36	1257.9 1017.16 1257.84 1043.21 1257.84 1049.9 1257.8 1054.19	1257.85 1032.56 1257.8 1044.14 1257.84 1050.28 1257.84 1057.82	1257.84 1257.84 1257.8 1257.8	1034.3 1047.07 1050.66 1059.7	1257.8 1257.84 1257.84 1257.84 1257.8
1199.961256.681211.121286.991256.951288.851305.221256.851311.291322.641256.951333.641372.731256.761385.421437.971256.431479.351518.811255.461520.611528.641255.671532.56	1256.69 1223.71 1256.93 1291.88 1256.87 1314.14 1257 1336.22 1256.7 1393.35 1256 1509.4 1255.47 1521.47 1255.68 1536.8	1256.66 1227.96 1256.88 1294.56 1256.9 1318.27 1257 1351.04 1256.71 1401.39 1255.51 1512.76 1255.5 1523 1255.67 1551.85	1256.7 1256.9 1256.91 1256.92 1256.7 1255.48 1255.62 1255.6	1280.3 1297.69 1322.11 1356.66 1411.35 1515.95 1525.26 1558.46	1256.98 1256.85 1256.94 1256.9 1256.65 1255.5 1255.6 1255.53
1564.61 1255.48 1569.83 1599.27 1255.51 1603.03 1635.67 1256 1646.07	1255.45 1577.55 1255.6 1605.68 1255.98 1672.99	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1255.4 1255.9 1256	1593.13 1614.85 1682.88	1255.44 1256 1255.97

				. 7					
				Alerna	tive 2.r	ер			
498.41	1256.12	500.63	1256.08	502.87	1256	512.29	1256	513.56	1256.14
517.56	1256.64	519.85	1256.93	521.61	1257.1	525.87	1257.33	526.75	1257.37
527.73	1257.4	528.81	1257.43	529.35	1257.4	530.32	1257.46	531.01	1257.45
531.42	1257.44	531.61	1257.42	531.69	1257.3	532.13	1257.31	533.03	1257.29
533.61	1257.29	534.76	1257.31	537.95	1257.3	538.93	1257.32	539.52	1257.36
540.11	1257.44	540.57	1257.47	541.19	1257.5	541.96	1257.5	543.45	1257.51
547.26	1257.51	548 01	1257.5	548 67	1257 52	549 72	1257 55	551 83	1257 55
557 16	1257 5	557 68	1257 52	647 48	1257 88	653 09	1257 88	656 79	1257 9
659 54	1257 87	664 53	1257 87	665 86	1257 86	667 14	1257 0	667 73	1257 86
669 52	1257 86	670 33	1257 0	671 1	1257 86	672 38	1257 86	672 68	1257.00
672 87	1257 86	672 64	1257 86	674 73	1257 0	674 76	1257.00	675 50	1257 96
676 20	1257 0	670 22	1257.00	670 1	1757 07	690 26	1257.00	691 07	1257.00
750 46	1257 12	070.00	1257.00	767 10	1257.07	770 71	1207.07	777 40	1257.00
739.40	1257.12	702.0	1257.12	707.10	1257.11	7/0.71	1257.11	777.40	1257.09
//9.3	1257.00	/ 84.14	1257.03	700.0	1256.94	/91./1	1250.09	/90.9	1250.01
800.12	1256.81	802.26	1256.8	804.59	1256.77	808.67	1256.74	810.59	1256.72
812.95	1256.7	814.84	1256.7	816.34	1256.67	820.15	1256./1	823.76	1256.74
829.21	1256.8	834.44	1256.8	836.85	1256.76	912.58	1256.69	918.61	1256.72
924.37	1256.7	942.88	1256.8	977.32	1256.84	982.22	1256.9	987.01	1256.86
991.22	1256.87	994.2	1256.87	997.86	1256.86	1001.4	1256.8	1004.93	1256.82
1030.92	1256.58	1037.95	1256.5	1051.6	1256.41	1068.11	1256.34	1071.67	1256.32
1080.47	1256.2	1097.63	1256.12	1105.39	1256.1	1106.21	1256.1	1127.82	1256
1130.5	1255.98	1130.57	1255.98	1138.02	1255.92	1138.44	1255.9	1138.83	1255.92
1139.09	1255.93	1139.48	1255.93	1139.75	1255.9	1140.05	1255.92	1140.47	1255.92
1140.68	1255.91	1141.45	1255.9	1141.96	1255.9	1153.46	1255.78	1154.84	1255.76
1175.88	1255.54	1192.41	1255.4	1194.26	1255.42	1208.85	1255.33	1210.95	1255.32
1215.19	1255.28	1217.61	1255.3	1224.5	1255.2	1228.72	1255.17	1232.74	1255.15
1236.94	1255.15	1241.15	1255.2	1247.94	1255.17	1251.37	1255.19	1257.01	1255.25
1263.17	1255.3	1266.08	1255.3	1266.95	1255.31	1270.33	1255.32	1286.23	1255.44
1289.62	1255.45	1293.89	1255.5	1296.56	1255.48	1300.81	1255.48	1308.95	1255.54
1313.29	1255.52	1313.86	1255.5	1319.23	1255.48	1400.53	1254.96	1407.32	1254.9
1409.94	1254.87	1411.13	1254.86	1412.93	1254.86	1414.76	1254.9	1416.55	1254.86
1417 28	1254 85	1417 91	1254.85	1418 41	1254 84	1507 02	1254 3	1530 08	1254 05
1533 84	1254	1534 99	1253 98	1541 56	1253 9	1545 01	1253 92	1558 51	1253 98
1561 12	1254	1562 59	1254	1562 64	1254 03	1572 81	1254 24	1586 59	1254 56
1593 37	1254 64	1597 23	1254 66	1601 21	1254 66	1605 03	1254 64	1612 17	1254 56
1620 03	1254 42	1624 88	1254 31	1628 1	1254 26	1628 38	1254 3	1630 31	1254 24
1634 62	1254 24	1657 08	1254.51	1661 82	1254 5	1667 00	1254 55	1675 1	1254 7
1678 54	1254 70	1685 69	1755	1688 51	1755 1	1600 35	1255 16	1601 80	1255 22
160/ 08	1755 3	1606 51	1255 3	1607 76	1255 34	1600 73	1255 25	1702 02	1255 36
1705 00	1255 36	1707 10	1255 /	1710 27	1255 36	1713 17	1255.33	171/ 51	1255 37
1716 25	1255 3	1717 12	1755 77	1718 84	1255 24	1720 52	1255 10	1722 56	1255.52
1724 00	1755 1	1779 72	1254 08	1724 15	1251 07	1777 2	1255 40	1779 04	1255 11
1701 70	1255.1	179/ 0	1254.90	1705 25	1254.07	1002 4	1255.49	1012 06	1057 05
1920 22	1257 6	102/ 21	1750	1940 69	1250 27	1002.4	1750 11	1013.00	1259 50
1020.32	1257.0	1071 74	1750 01	1049.00	1250.57	1000 50	1250.44	1000 6	1250.39
1001.09	1200.7	10/1.24	120.04	1070.31	120.97	1022 12	1209.00	1000.0	1209.72
1024 17	1200	1910.05	1260.04	1922.05	1200.49	1922.13	1200.5	1929.05	1200.70
1954.17	1201	1937.40	1201.21	1943.95	1201.02	1945.5	1201.02	1954.79	1201.97
1900.44	1202	19/2.01	1202.20	1901.00	1202.40	1998.40	1203.01	2006.08	1203.2
2009.93	1263.29	2012.97	1263.35	2017.37	1263.4	2022.64	1263.62	2024.06	1263.6
2025.28	1263.63	2028.35	1263.76	2029.8	1263.74	2033.61	1263.88	2034	1263.9
2042.28	1264	2047.22	1264.03	2047.31	1264.03	2047.65	1264.04	2047.8	1264
2047.95	1264.05	2048.11	1264.06	2048.4	1264.08	2055.6	1264.22	2056.27	1264.3
2057.99	1264.34	2063.78	1264.54	2069.2	1264./9	20//.06	1265.11	2096.97	1266
2109.25	1266.69	2141.09	1268	2141.88	1268.05	2142.07	1268.06	2142.31	1268.1
2142.71	1268.07	2164.72	1268.97	2170.06	1269.02	2175.2	1269.08	2181.01	1269.2
2190.13	1269.41	2199.48	1269.59	2211.26	1269.9	2211.78	1269.9	2215.34	1270
2232.76	1270.85	2236.72	1270.98	2245.7	1271.2	2250.09	1271.36	2252.68	1271.44
2256.03	1271.61	2263.08	1272	2276.22	1272.9	2287.44	1273.62	2292.69	1274
2296.49	1274.48	2303.79	1275	2304.17	1275.01	2318.49	1276	2325.16	1276.9
2335.72	1278	2340.7	1279.3	2342.42	1279.78	2343.52	1280	2356.67	1283.7
2372.79	1288.98	2372.93	1289	2375.97	1290	2379.75	1291.04		

Manning's n Values num=

		Alerna	tive 2.r	ер			
1612.59 1252 1610 1632.88 1251.96 1633 1676.76 1251.99 1676 1738.89 1252.41 1744 1752.27 1252.47 1754 1765.03 1252.5 1776 1777.03 1252.5 1777 1782.7 1252.53 1784 1860.34 1253.88 1864 1910.66 1256.35 1925 1982.89 1257.15 1985 2003.51 1257.4 2005 2016.05 1257.4 2051 2086.97 1257.57 2094 2115.44 1257.99 2116 2154.82 1259.89 2157 2180.26 1260.17 2183 2209.46 1260.53 2282 2301.29 1271.68 2303 2340.38 1278.68 2346 2429.63 1295.04 2430 2459.88 1300 246	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1624.56 1659.06 1710.61 1746.72 1757.86 1771.89 1778.4 1785.53 1879.71 1954.74 1990.44 2007.66 2022.23 2057.51 2102.65 2133.78 2159.89 2182.09 2218.14 2244.16 2273.04 2284.52 2313.73 2349.27 2398.69 2436.91	1251.981251.941252.211252.451252.481252.511252.541252.521255.561256.91257.211257.431257.411257.431257.411257.431257.741260.041260.21260.671261.4112641267.681273.581280.61289.71296.09	1628.38 1663.96 1721.04 1749.18 1759.56 1775.68 1780.01 1787.61 1885.2 1972.59 1996.76 2009.41 2025.62 2079 2107.08 2138.21 2164.23 2183.39 2227.04 2245.15 2278.95 2291.38 2319.17 2350.01 2398.82 2441.06	1251.97 1251.95 1252.3 1252.5 1252.5 1252.51 1252.5 1252.5 1252.5 1257.06 1257.06 1257.3 1257.44 1257.44 1257.44 1257.44 1257.81 1260.22 1260.92 1260.92 1261.42 1265.64 1270 1274.15 1280.76 1289.72 1296.73	1631.2 1670.05 1731.65 1750.78 1760.68 1776.14 1781.37 1788.52 1900.49 1979.21 2001.7 2011.08 2039.19 2081.43 2115.35 2148.5 2172.4 2206.24 2231.07 2247.61 2280.6 2293.44 2338.71 2364.65 2399.92 2444.74	$\begin{array}{c} 1252\\ 1252.35\\ 1252.47\\ 1252.48\\ 1252.52\\ 1252.5\\ 1252.5\\ 1252.5\\ 1256.24\\ 1257.38\\ 1257.44\\ 1257.43\\ 1257.44\\ 1257.43\\ 1257.5\\ 1260.1\\ 1260.5\\ 1261.4\\ 1260.5\\ 1261.4\\ 1266.4\\ 1270.4\\ 1278.4\\ 1283.8\\ 1290\\ 1297.2\\ \end{array}$
Manning's n Values Sta n Val 0 .06 76	num= Sta n Val 5.94 .03	3 Sta 2284.52	n Val .06				
Bank Sta: Left Righ 76.94 2284.5 Ineffective Flow Sta L Sta R E 0 257 1 1880 2463.3 1	t Lengths 2 num= 2 Nev Permane 266 F 266 F	: Left C 250 nt	hannel 198	Right 139	Coeff	Contr. .1	Expan. .3
CROSS SECTION							
RIVER: SANTA CLARA REACH: 1	RS: 159						
INPUT Description: Station Elevation Dat Sta Elev 853.47 1262.22 860 886.28 1262.64 88 891.2 1262.79 891 895.47 1262.82 898 964.66 1262 966 982.5 1258.59 990 1048.09 1257.52 1049 1135.78 1259.29 1137 1162.72 1260.62 1166 1227.08 1259.81 1228 1244.89 1259.85 1251 1284.32 1260 1286 1346.51 1260.19 1383 1420.57 1260.6 1426	a num= Sta Elev .14 1262.3 9.1 1262.69 .61 1262.8 .24 1262.81 .95 1261.2 .97 1258 .26 1257.5 .07 1260 .43 1260.5 .25 1259.8 .31 1259.9 .79 1260 .99 1260.57 .36 1260.55	499 Sta 865.46 889.8 892.84 898.92 970.47 1023.14 1086.28 1137.27 1170.6 1229.38 1257.66 1314 1394.9 1428.76	Elev 1262.41 1262.72 1262.82 1262.8 1260 1257.76 1257.07 1260.18 1260.45 1259.89 1260.11 1260.6 1260.54	Sta 868.19 890.23 893.94 900.61 977.33 1041.36 1126.49 1138.98 1177.09 1233.09 1274.77 1319.18 1401.13 1430.35	Elev 1262.45 1262.7 1262.8 1262.8 1259.09 1257.57 1257.78 1260.56 1260.36 1259.81 1259.93 1260.1 1260.6 1260.53	Sta 882.04 890.61 894.38 902.53 980.59 1043.7 1134.13 1156.73 1191.48 1238.8 1278.42 1323.7 1414.86 1433.08	Elev 1262.6 1262.77 1262.83 1262.76 1258.8 1257.55 1258 1260.85 1260 1259.84 1259.95 1260.14 1260.56 1260.5

$\begin{array}{c} 2790.81 \\ 2836.5 \\ 12 \\ 2836.5 \\ 12 \\ 2853.09 \\ 12 \\ 2857.16 \\ 12 \\ 2950.32 \\ 12 \\ 2983.55 \\ 12 \\ 3003 \\ 13 \\ 3027.46 \\ 13 \\ 3052.63 \\ 3080.53 \\ 13 \\ 3052.63 \\ 3080.53 \\ 13 \\ 3052.63 \\ 3080.53 \\ 13 \\ 3052.63 \\ 12 \\ 3252.3 \\ 12 \\ 3269.8 \\ 12 \\ 3294.64 \\ 3329.9 \\ 13 \\ 341.85 \\ 13 \\ 354.01 \\ 13 \\ 354.01 \\ 13 \\ 354.01 \\ 13 \\ 3512.06 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 12 \\ 1$	251.13 251.92 1251.9 251.94 253.32 1254.6 1255.1 1255.2 255.43 256.97 257.11 257.49 1258 258.5 1258.5 258.5 258.5 258.8 258.8 258.8 258.8 258.8	2797.91 2839.05 2853.46 2853.46 2853.91 2954.28 2954.28 2956.48 3007.97 3031.75 3058.32 3084.86 3118.78 3152.33 3238.49 3256.88 3277.45 3298.45 3333.45 3345.31 3355.71 3385.7 3471.25 3515.05	$1251.2\\1251.9\\1251.9\\1251.9\\1251.9\\1254.9\\1254.6\\1254.6\\1254.6\\1255.1\\1255.1\\1255.1\\1255.1\\1255.5\\1257.1\\1257.3\\1257.6\\1258.5\\1258.3\\1258.5\\1258.3\\1258.29\\1258.9\\3\\1267.0\\4\\1272.32$	Alerna 2802.69 2841.73 2853.64 2863.99 2877.1 2966.93 2995.66 3009.99 3036.45 3064.38 3090.9 3122.2 3181.55 3242.01 3259.37 3279.33 3298.9 3355.69 3347.86 3358.04 3422.68 3496.22 3524.68	tive 2.re 1251.29 1251.91 1251.91 1251.98 1254.35 1254.57 1254.68 1255.15 1255.18 1255.18 1255.18 1257.28 1257.67 1258.07 1258.55 1258.25 1258.25 1258.32 1260 1269.27 1274.3	ep 2805.06 2845.71 2854.37 2866.29 2881.57 2974.99 2974.99 3040.55 3069.83 3094.49 3129.92 3184.24 3244.87 3262.78 3287.79 3308.32 3338.6 3350.55 3361.26 3432.67 3498.42 3526.23	$\begin{array}{r} 1251.3\\ 1251.92\\ 1251.89\\ 1251.91\\ 1252\\ 1254.54\\ 1254.6\\ 1254.75\\ 1254.99\\ 1255.14\\ 1255.2\\ 1255.25\\ 1255.25\\ 1255.25\\ 1256.06\\ 1257.13\\ 1257.38\\ 1257.38\\ 1257.84\\ 1258.22\\ 1258.54\\ 1258.27\\ 1258.39\\ 1261.9\\ 1269.5\\ 1274.6\end{array}$	2834.39 2851.53 2855.08 2869.12 2941.59 2979.87 3001.09 3022.67 3046.79 3075.23 3100.69 3130.11 3207.69 3247.24 3265.86 3288.46 3322.57 3340.95 3352.05 3363.83 3441.07 3503.73	$1251.92 \\ 1251.92 \\ 1251.89 \\ 1251.9 \\ 1252 \\ 1254.62 \\ 1254.61 \\ 1254.75 \\ 1255.07 \\ 1255.13 \\ 1255.13 \\ 1255.2 \\ 1255.14 \\ 1257.4 \\ 1257.4 \\ 1257.4 \\ 1257.4 \\ 1258.39 \\ 1258.5 \\ 1258.25 \\ 1258.43 \\ 1263.37 \\ 1270 \\ 1270 \\ 1270 \\ 1257 \\ 1257 \\ 1270 \\ 1257 \\ $
Manning's n Sta 853.47 Bank Sta: L 1469 Ineffective Sta L 853.47	Value n Val .06 .44 34 Flow Sta R 1445	s Sta 1469.44 Right 32.67 num= Elev 1262	num= n Val .03 Lengths = 2 Permane <u>F</u>	3 Sta 3432.67 : Left C 312	n Val .06 Channel 240	Right 210	Coeff	Contr. .1	Expan. .3
CROSS SECTI		1200	F						
REACH: 1	A CLAR	A	RS: 158		·				
INPUT Description Station Ele Sta 0 1 38.29 1 60.63 79.16 12 103.98 12 117.55 139.32 159.89 12 173.35 12 236.56 12 254.12 12 289.39 12 335.47 365.6 12 371.8 12 391.84 423.4 12 448.03	: vation Elev 260.2 260.3 1260 59.86 59.21 1260 1260 60.85 61.35 60.85 60.79 60.35 1260 58.81 58.36 1258 58.06 1260	Data Sta 4.2 43.02 61.34 83.2 108.37 123.65 149.02 160.15 174.69 240.47 254.72 304.29 355.99 366.77 380.27 393.63 423.53 520.17	num= Elev 1260 1260.31 1259.99 1259.77 1259.26 1260.3 1260 1260.89 1261.35 1260.87 1260.79 1260.19 1259.7 1258.82 1258.13 1257.98 1258.06 1260	470 Sta 7.56 47.67 68.7 88.48 110.32 129.26 153.38 168.63 178.63 245.84 263.09 308.1 356.27 367.71 380.6 404.31 432.97 530.56 Pag	Elev 1259.83 1260.27 1259.99 1259.6 1259.4 1260.44 1260.46 1261.33 1261.32 1260.87 1260.8 1260.16 1259.68 1258.59 1258.13 1257.95 1258.21 1260.2 ge 27	Sta 17.76 54.92 68.94 92.58 112.07 131.93 155.82 169.97 179.93 247.64 264.82 308.55 358.9 368.51 389.27 413.21 435.61 531.33	Elev 1260 1260.15 1260 1259.46 1259.48 1260.45 1260.63 1261.35 1261.32 1260.9 1260.73 1260.16 1259.6 1258.55 1258.08 1257.97 1258.5 1260.21	Sta 33.31 59.74 75.54 102.12 115.72 134.08 158.68 171.34 181.19 252.51 267.74 309.37 364.07 370.53 389.87 419.44 441.28 534.1	Elev 1260.31 1260.01 1259.22 1259.89 1260.38 1260.8 1261.4 1261.3 1260.84 1260.69 1260.1 1258.9 1258.4 1258.1 1258.1 1258.41 1258.41 1260.24

			Alerna	tive 2.r	ер			
2783.1 1252.41 2797.89 1252.52 2816.36 1252.89 2848.81 1253.44 2903.19 1254.22 2941.75 1254.47 2972.09 1254.67 3009.24 1254.83 3028.66 1254.92 3044.8 1255.25 3189.47 1259.8 3218.18 1260.54 3221.05 1260.77	2785.73 2801.41 2822.03 2867.21 2904.5 2943.21 2977.93 3012.46 3031.15 3053.67 3197.42 3218.55 3221.73	1252.43 1252.6 1252.94 1253.8 1254.2 1254.48 1254.69 1254.83 1254.95 1255.52 1255.52 1260.55 1260.84	2789.87 2804.29 2827.64 2868.12 2913.85 2959.32 2981.76 3014.12 3033.66 3066.92 3204.45 3218.83 3229.41	$1252.43 \\ 1252.7 \\ 1253.1 \\ 1253.81 \\ 1254.31 \\ 1254.61 \\ 1254.61 \\ 1254.8 \\ 1255 \\ 1256 \\ 1260 \\ 1260.57 \\ 1261.78 \\ 1261.78 \\ 1251.78 \\ 1252.43 \\ 1252.43 \\ 1252.43 \\ 1253.43 \\ 1253.43 \\ 1254.43 \\ 1256.43 \\ 1266.57 \\ 1261.78 \\ 1261.7$	2792.74 2807.97 2834.91 2869.02 2933.68 2961.01 2989.04 3014.69 3036.26 3168.65 3211.48 3219.33 3238.18	1252.5 1252.76 1253.15 1253.84 1254.42 1254.62 1254.8 1254.8 1255.03 1259.25 1260.19 1260.61 1262.7	2795.32 2812.03 2842.99 2935.06 2967.94 2994.49 3017.8 3040.01 3182.98 3217.73 3220.32 3296.26	1252.49 1252.78 1253.34 1254.4 1254.7 1254.8 1254.8 1255.12 1259.6 1260.5 1260.7 1269.9
Manning's n Valu Sta n Val 0 .06	es Sta 1119.8	num= n Val .03	3 Sta 3168.65	n Val .06				
Bank Sta: Left 1119.8 3 Ineffective Flow Sta L Sta R 0 1125.27	Right 168.65 num= Elev 1256.75	Lengths =] Permane F	s: Left (246 L ent	channe1 120	Right 52	Coeff	² Contr. .1	Expan. .3
CROSS SECTION								
RIVER: SANTA CLAR REACH: 1	RA	RS: 157	1					
INPUT Description: Station Elevation Sta Elev 0 1254.3 27.93 1254.56 55.98 1254.32 88.18 1254 115.7 1254.74 143.03 1256.16 156.81 1255.8 257.47 1254 316.63 1254.56 328.62 1254.7 349.32 1254.66 357.14 1254.52 437.96 1253.6 544.68 1253.7 558.17 1253.9 566.38 1253.88 571.5 1253.77 577.78 1253.72 622.56 1252.72 639.58 1252.35 662.24 1252.26 677.9 1251.92 746.24 1252.26 677.9 1251.92 746.24 1252.7 874.21 1252 930.68 1254.32 941.84 1254.45 949.64 1254.5	Data 5.94 31.26 67.29 104.82 127.48 145.48 224.58 270.86 318.88 330.1 349.55 359.18 469.52 547.26 558.57 566.49 571.68 578.31 624.09 641.41 672.37 678.92 771.63 826.21 890.1 932.95 942.58 946.19 950.06	num= Elev 1254 1254.59 1254.3 1255.6 1256.2 1254.36 1254.58 1254.58 1254.65 1254.65 1253.76 1253.76 1253.76 1253.77 1252.71 1252.31 1252 1251.98 1253.7 1252.72 1254.3 1254.44 1254.45	471 Sta 8.91 34.7 72.64 106.15 136.04 147.98 229.34 289.37 322.22 330.78 350.51 361.59 488.23 553.06 560.9 566.57 576.44 582.57 626.01 642.94 673.84 679.4 772.48 833.65 898.64 935.42 943.35 946.52 950.54	Elev 1254.12 1254.6 1254.21 1254.07 1256 1256.12 1254.27 1254.23 1254.63 1254.63 1254.63 1254.63 1254.47 1253.77 1253.82 1253.87 1253.65 1252.67 1252.3 1252.67 1252.3 1252.63 1252.4 1254.44 1254.5 1254.45	Sta 15.16 40.38 81.19 107.04 138.63 149.61 230.58 301.07 325.1 331.4 351.61 375.34 538.96 557.73 566.64 576.67 597.82 638.23 645.14 675.56 705.81 774.45 834.02 902.54 937.09 944.22 946.87 950.72	Elev 1254.31 1254.6 1254 1254.14 1256.04 1256 1254.27 1254.4 1254.7 1254.6 1254.7 1254.6 1254.35 1253.77 1253.85 1253.9 1253.9 1253.3 1252.38 1252.38 1252.38 1252.38 1252.38 1252.4 1254.4 1254.45 1254.45 1254.4	Sta 19.38 46.44 86.6 111.77 140.98 155.08 248.9 308.62 327.45 332.47 355.56 430.19 542.58 557.89 561.26 566.73 577.02 606.4 638.64 645.99 676.69 717.26 776.38 852.22 927.57 940.13 945.02 949.15 950.82	Elev 1254.41 1254.54 1254.3 1254.48 1256.12 1255.88 1254.2 1254.47 1254.68 1254.74 1254.68 1253.75 1253.66 1253.75 1253.87 1253.87 1253.73 1253.08 1252.36 1252.36 1252.28 1251.92 1252.7 1252.7 1252.7 1252.7 1252.7 1252.7 1253.7

Page 29

Alernative 2.rep 3030.3812603067.651263.783071.721264.33079.491265.163084.861265.773096.831267.23102.181267.833112.091268.783114.321269.063119.881269.4431351270 Manning's n Values num= 3 n Val Sta n Val Sta .06 1008.28 .03 2977.45 Sta n Val 0 .06 Bank Sta: Left a: Left Right Lengths: Left Channel Right Coeff Contr. 1008.28 2977.45 298 184 118 .1 Expan. Ineffective Flow num= .3 1 Sta R Elev Permanent Sta L 0 949.64 1255 F CROSS SECTION RIVER: SANTA CLARA REACH: 1 RS: 156 INPUT Description: 466 Station Elevation Data num= Elev Sta Elev 1252 87.84 1251.74 Elev 1252

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 Elev Sta 1251.9 11 Sta Sta Elev Sta 92.65 61.03 1251.7 101.43 1251.82 102.38 1251.82 103.33 $\begin{array}{c} 102.38 & 1251.82 \\ 118.92 & 1251.32 \\ 138.57 & 1251.11 \\ 153.87 & 1251.1 \\ 177.03 & 1250 \\ 228.62 & 1250.4 \\ 251.19 & 1250.9 \\ 272.67 & 1250.92 \\ 300.61 & 1250.79 \\ 355.98 & 1250.59 \\ 374.57 & 1250.05 \\ 401.08 & 1252.2 \\ 451.67 & 1254.01 \\ \end{array}$ 1251.8 116.24 1251.37 134.79 1251.24 152.2 1251.03 170.95 1250.4 123.66 1251.4 143.4 1250.99 143.4 1250.99 155.37 1251.04 180.09 1250 237.29 1250.61 253.1 1250.97 276.67 1250.88 326.28 1250.4 357.37 1250.5 375.83 1250

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CROSS SECTION

RIVER: SANTA CLA REACH: 1	RA RS: 15	55				
INPUT						
Station Elevation Station Elevation	n Data num= v Sta Elev	500 / Sta F	ilev Sta	i Flev	Sta	Flev
0 1249 83.9 1248.9	3.13 1249 85.02 1248.86	4.36 1248 88.15 1248	.99 7.16 .91 132.31	5 1248.95 1248.91	50.28 136.53	1248.42 1248.69
138.99 1248.6 158.37 1248.5	141.01 1248.59 187.75 1248) 144.81 1248 3 203.34 1247	5.54 147.45 .86 205.94	1248.53 1247.81	148.23 206.45	1248.53 1247.79
281.61 1247.7 336.83 1248.93	299.85 1248 338.54 1248.9	8 336.41 1248 9 404.32 1	.93 336.49 .248 405.32	1248.93 1248	336.59 409.13	1248.93 1247.94
411.47 1247.93 426.55 1247.95	413.05 1247.91 428.55 1247.9	414.34 124 433.49 1	7.9 416.01 248 444.93	1247.9 1248	424.44 450.39	1247.95 1248.68
459.92 1250 562.35 1251.86	503.48 1251.2 568.48 1250.44	537.35 1 570.73 1	252 561.81 250 575.1	1252 1249.31	561.97 583.25	$ \begin{array}{r} 1251.9 \\ 1248 \end{array} $
587.9 1246.36 606.22 1243.97	588.98 1246 609.41 1243.88	594.99 1245 615 1243	.27 603.26 .76 616.18	1244.28	605.38 617.07	1244 1243.7
617.59 1243.69 623.22 1243.7	618.24 1243.68 624.86 1243.72	$619 1243 \\ 626.9 124$.68 619.8 3.7 629.11	1243.7 1243.77	620.58 632.04	1243.68 1243.79
635.2 1243.8 694.89 1242.33	640.81 1243.8 700.7 1242	681.87 1242 712.24 1241	.86 691.73 .06 713.22	1242.41 1240.99	693.25 713.62	1242.38 1240.97
713.97 1240.95 723.6 1242	714.1 1240.9 767.85 1243.02	714.48 1240	.95 714.69 .16 774.71	1241 1243.19	715.32	1241.08
786.04 1243.14 792.83 1242.85	795.66 1242.82	803.49 1242	.96 /90.0/ 2.8 806.79	1242.91	/91./3 816.07	1242.9
817.5 1242.72 829.97 1242.69	819.06 1242.71 835.46 1242.68	843.35 1242	2.7 825.35	1242.7	851.35	1242.69
878.42 1242.39 878.42 1242.39	880.07 1242.47 880.07 1242.36	880.93 124 883.93 124	2.3 881.49	1242.44	882.09	1242.41
884.79 1242.37 886 59 1242.46	884.96 1242.4 886 98 1242 46	885.18 124	2.3 885.73 2.4 885.73 2.4 891 49	1242.33	886.25	1242.45
894.04 1242.4 898 33 1242 44	894.56 1242.46	896.3 1242	.49 896.95	1242.45 1242.5 1242.45	897.48	1242.5 1242.5 1242.44
902.9 1242.43	903.53 1242.42	904.19 124 906.79 124	2.4 904.5 2.6 907.93	1242.44	904.96	1242.45
910.78 1242.79 985.27 1242.1	913.59 1242.9 985.85 1242.1	915.7 124 988.27 1	2.9 917.33 242 989.01	1242.91	966.39 991.14	1242.93
991.79 1242 1001.75 1242	993.17 1242.13 1007.32 1241.9	994.5 1242 1021.41 1	.18 996.28 242 1028.85	1242.19 1242	$1000.16 \\ 1033.1$	1242.07 1241.89
1035.4 1241.86 1053.2 1242.33	1038.08 1241.85 1056.9 1242.5	1043.9 124 1057.62 1242	1.9 1046.38 .51 1065.58	1242 1242.77	1047 1067.55	1242.03 1242.81
$\begin{array}{c} 1069.43 \\ 1084.86 \\ 1242.89 \\ 1084.86 \\ 1242.89 \\ \end{array}$	1071.981242.81085.861242.9	$\begin{array}{cccccccccccccccccccccccccccccccccccc$.79 1077.78 .06 1087.93	1242.79 1243.08	1080.5 1091.1	1242.81 1243.21
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1108.42 $1242.871120.5$ 1242.561121 22 1242.32	1111.83 1242.8 1125.55 1242.4	1114.44 12421127.63 1241122.72 1242	2.4 1130.02	1242.65	1117.91 1130.58	1242.03
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1131.94 $1242.31134.06$ $1242.21134.79$ 1242.29	1132.72 12421134.22 12421135 1 124	.27 1133.33 .24 1134.3 .23 1135 46	1242.24 1242.24 1242.24	1133.03 1134.4 1135.92	1242.24
1136.24 1242.3 1138.36 1242.3	1136.6 1242.26 1138.66 1242.27	1136.77 1242	.24 1138.06	1242.26	1139.92 1138.14 1140.08	1242.26
1140.25 1242.26	1140.59 1242.27 1143.62 1242.37	1141.12 1242 1144.21 1242	.29 1141.72	1242.31	1142.28 1146.23	1242.3
1147.11 1242.39 1161.92 1242.62	1148.48 1242.41 1170.2 1242.58	1152.52 1242 1172.44 124	.52 1154.48 2.6 1176.57	1242.56 1242.62	1156.84 1180.3	1242.6 1242.63
1182.33 1242.62	1184.45 1242.64	1186.75 124	2.7 1189.76	1242.7	1193.09	1242.69

		Alernative 2.r	'ep	
1	174	.06	.03	.06
1	173	.06	.03	.06
1	172	.06	.03	.06
1	171	.06	.03	.06
1	170	.06	.03	.06
1	169	.06	.03	.06
1	168	.06	.03	.06
1	167	.06	.03	.06
1	166	.06	.03	.06
1	165.9	Bridge		
1	165.5	.06	.03	.06
1	165	.06	.03	.06
1	164	.06	.03	.06
1	163	.06	.03	.06
1	162	.06	.03	.06
1	161	.06	.03	.06
1	160	.06	.03	.06
1	159	.06	.03	.06
1	158	.06	.03	.06
1	157	.06	.03	.06
1	156	.06	.03	.06
1	155	.06	.03	.06

7

SUMMARY OF REACH LENGTHS

River: SANTA CLARA

	Reach	River Sta.	Left	Channe1	Right
1		174	730.96	727.04	709.04
		173 172	3/9	420.95	469
1		171	150	157	160
1		170	120	111.98	122,02
1		169	140	165	155
1		168	121	178	319
1		167	59.01	231	386.01
1		166	120	120	120
		165.9	Bridge	50	
		105.5	49	5U 171	76 49
1 1		164	75	10702	70.40
1		163	76	182	285
ī		162	128	180	197
1		161	78.98	150	223
1		160	250	198	139
1		159	312	240	210
1		158	246	120	52
1		15/	298	184	118
1		150	120.99	231.99	363
T		T22	/45	220	330

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS River: SANTA CLARA

Reach	River	Sta.	Contr.	Expan.
			Page	35

APPENDIX 'C'

Location Hydraulic Study Form

Floodplain Evaluation Form



LOCATION HYDRAULIC STUDY FORM

Dist. 7 Co. *LA* Rte. Cross Valley Connector K.P. EA Bridge No. Floodplain Description: Shallow river with steep hills on the right overbank and developed land on the left overbank. Location of interest: Santa Clara River 2000 ft upstream of the CA aqueduct.

1. Description of Proposal (include any physical barriers i.e. concrete barriers. soundwalls, etc. and design elements to minimize floodplain impacts)

<u>This project includes placement of fill and construction of the Golden Valley Road</u> Bridge within the existing floodplain. The proposed construction would have minor impacts on the existing floodplain.

Current <u>N/A</u> Projected 2. ADT:

Base Flood Q100= <u>15,272</u> m³ / s (Taken from report titled 3. Hydraulic Data: Drainage Concept Report for River Park Santa Clara River Soil Cement Bank Protection, August 2004 by PACE, Pacific Advanced Civil Engineering, Inc.)

WSE100= <u>(See Appendix 'B')</u> The flood of record, if greater than Q100: $Q = \underline{N/A} m^3 / s WSE = \underline{N/A}$ Overtopping flood Q=N/A m³/s WSE=<u>N/A</u>

Are NFIP maps and studies available? YES X NO

4. Is the highway location alternative within a regulatory floodway? YES_____ NO X

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain. (See Appendix 'A')

Potential Q100 backwater damages:

А.	Residences?	NO	_YES <u>(no increase</u>	from	existing	condition)
B.	Other Bldgs?	NO	YES (no increase	from	oristina	condition

Other Bldgs? NO__YES (no increase from existing condition)

- С. Crops? NO _YES (no increase from existing condition)
- D. Natural and beneficial

FLOODPLAIN VALUES? NO X YES

6. Type of Traffic:

A. Emergency supply or evacuation route? NO_____YES_X

В.	Emergency vehicle access?	NO	YES_	X
С.	Practicable detour available?	NO	_YES	X
D.	School bus or mail route?	NO	YES_	X

7. Estimated duration of traffic interruption for 100-year event hours: <u>N/A (The Golden</u> <u>Valley Road Bridge would be entirely above floodplain).</u>

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	\$ (no increase from existing condition)
В	Property	\$ (no increase from existing condition)
	Total	\$ (no increase from existing condition)

9. Assessment of Level of Risk Low X Moderate_____ High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis May be necessary to determine design alternative.

7

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible

Floodplain development? NO____YES (encroachment with minor impacts)

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113 *(See report)*

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

Signature – Hydraulic/Project Engineer <u>Hlu Paulu</u> Date <u>3/31</u>	ک <u>د</u>
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FLOODPLAIN ENCROACHMENT REPORT SUMMARY

Dist.7Co.LARte.Cross Valley ConnectorK.P.Bridge No.Limits:Santa Clara River between Bouquet Canyon Road and Whites Canyon Road.

Floodplain Description: <u>Shallow river with steep hills on the right overbank and</u> <u>developed land on the left overbank. Location of interest: Santa Clara River 2000 ft</u> <u>upstream of the CA aqueduct.</u>

1.	Is the proposed action a longitudinal encroachment of the base floodplain?	No	Yes
			No impacts
2.	Are the risks associated with the implementation of the proposed action significant?	X	
3.	Will the proposed action support probable incompatible floodplain development?	<u>_X</u>	
4.	Are there any significant impacts on natural and beneficial floodplain values?	<u>_X</u>	
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	<u>_X</u>	
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	<u>_X</u>	
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.		<u>_X</u>

PREPARED BY

Signature - Hydraulic/Project Engineer

Tojeet Engl

31/05

Date

APPROVED BY:

Signature - City Project Manager

CONCURRED BY:

Signature – District Local Assistance Engineer

Signature – FHWA Transportation Engineer

Date

Date

Date