

Appendix E Hydrology Report, Osuna Segment of the Coast to Crest Trail Project

OSUNA TRAIL SEGMENT OF THE CREST TO COAST TRAIL

HYDROLOGY AND HYDRAULIC ANALYSIS
FOR SAN DIEGUITO RIVER SOUTHERNLY
ADJACENT TO MORGAN RUN

Prepared for

San Dieguito River Park JPA
18372 Sycamore Creek Rd.
Escondido, CA 92025

Prepared By

Kimley»»Horn

Kimley-Horn and Associate, Inc.
401 B Street, Suite 600
San Diego, CA 92101

March 30, 2020

Revised March 2023

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PURPOSE AND BACKGROUND

The purpose and intent of this report is to satisfy the requirements under the scope of work provided by Kimley-Horn to the San Dieguito River Park Joint Powers Authority (JPA) for a hydrology and hydraulic technical study. The study shall be used to refine the trail bridge design based on the recommendation of the Osuna Valley Trail Bridge Feasibility Study ("Feasibility Study") and for CEQA support. The analysis will consider the chosen bridge design to pass the 2-year and 10-year storm event, while overtopping larger 50-year and 100-year storms. The trail bridge is required to connect the Osuna Trail Segment of the Coast to Crest (CTC) Trail at the east end of the Surf Cup Sports property to San Dieguito Road in the Fairbanks Ranch area within the City of San Diego ("the project site") in continuance with the development of the 71-mile long CTC. This report is intended to inform the initial planning process and preliminary engineering design process specifically by:

1. Summarizing the applicability of results and constraints from prior Feasibility Study as well as FEMA for San Dieguito River on the preliminary design process.
2. Establish the 100-year existing condition Water Surface Elevations (WSE) at the project site.
3. Confirm there is no rise to the preliminary established WSE in the 100-year proposed condition, and therefore the trail bridge design will not impact the hydrology of the San Dieguito River and adjacent properties with a Proposed No-Rise Condition.
4. Establish the height of the bridge to bypass the defined 2-year and 10-year storm events with minimal impact to the ecology at the project site.
5. Establish scour depths for the selected abutment footings at the bridge within the project site by performing hydraulic analysis of the channelized flow area.
6. Establish the bridge abutments to be located outside mapped jurisdictional waters.

The project site is located approximately 2.5 miles east of the intersection of I-5 and Via De La Valle and directly adjacent south to Morgan Run Club and Resort. The vicinity of the project site is shown in Figure 1.



Figure 1 - Project Vicinity Map

PRIOR STUDIES

Based upon the established Feasibility Study discharge flows and coordination with City of San Diego Public Works staff, it is understood that the hydraulic basis of design for this project requires that 2-year, 10-year, 50-year, and 100-year on grade flows will be evaluated. Smaller, more frequent storm events also established in the Feasibility Study will be analyzed to demonstrate minimal impact to the surrounding sensitive ecological areas.

1. *FEMA FIRM [Panel 1327G] – The project site is located in City of San Diego and borders the unincorporated County of San Diego. The area is designated as FEMA Zone A with no established BFE. The project site is identified in the FEMA FIRM in Attachment A with a revised date of May 16, 2012. The map number is 06073C1327G with a vertical datum NAVD 88.*
2. *Osuna Valley Trail Bridge Feasibility Study (August 2015) – The Feasibility Study conducted by Kleinfelder lists the peak flow rates as determined by FEMA and Rick Engineering that are used in this report's hydraulic analysis (see Table 1). The smaller flow rates (10-year storm events and less) are conveyed by the main channel alignment for the San Dieguito River, while large storm events (50-year and 100-year) overtop the channel banks and expand across the very wide floodplain as identified in Attachment A. Per the guidelines of the Feasibility Study, the trail bridge will be designed to convey the 10-year storm (with flow rate identified per FEMA) and span the main channel to minimize impacts to the surrounding sensitive habitats, channel velocities, and water surface elevations.*

HYDROLOGY & HYDRAULIC METHODS

To accurately model hydrology and hydraulic conditions within the vicinity of the project site, the following major sub-tasks were performed:

1. Assess project topography, defined peak flow rates, and verify established requisite hydrologic parameters.
2. HEC-RAS Modeling
3. Scour Analysis

An aerial photograph of the study area is found in Appendix I. Each sub-task is discussed in detail in the following sections.

PROJECT TOPOGRAPHY, DRAINAGE AREA DETERMINATION, AND HYDROLOGIC PARAMETERS

Study Area Topography

The Project Site is on the San Dieguito River, and properties adjacent to the channel just south of the Morgan Run Golf Course. The San Dieguito River flows northeast to southwest. The study area includes 1000 feet upstream and downstream of the Project Site and considers other nearby existing bridge crossing in the area including the Morgan Run Golf Course bridge (upstream). The San Dieguito River contains a wide and flat floodplain that the proposed bridge will not span. The main channel is approximately 100 feet to 150 feet wide, and can be seen in Appendix I.

Study Area Soils

The soils at the Project Site and on the proposed trail are predominately fine sandy loam and riverwash with minimal slopes of 0-2 percent and 2-5 percent. The soil identification was not used to determine peak flows because these were established in the Feasibility Study. See Appendix F for soil report details.

Study Area Land Use, Impervious, and Pervious Vegetation

The study area is predominately pervious and vegetated with riparian habitat in the vicinity of the Project Site. The trail itself is also pervious and is hand graded to minimize impacts to the surrounding habitat. A biological survey was conducted to evaluate the identified sensitive vegetation species and its proximity to the Project Site. See Appendix H for details.

Study Area Established Peak Flows

The watershed for the San Dieguito River is approximately 338 square miles, and the portion downstream of Lake Hodges Dam is approximately 35 square miles to the El Camino Real Bridge crossing, located just downstream of the project site. The Feasibility Study, Appendix J, identifies the peak flows in Table 1 below that are used in further analysis for refining the trail bridge design.

Table 1: Summary of Peak Flow Rates in San Dieguito River

Summary of Peak Flow Rates in San Dieguito River						
Storm Event	1.0" (1.15-Year)	1.5" (1.7-Year)	2" (2-Year)	10-Year	50-Year	100-Year
Peak Flow Rate, Q (cfs)	426	1,624	3,450	5,900	32,500	42,800

Notes:

¹ - Peak Flow Rates for 10-year, 50-year, and 100-year storm event per FEMA Flood Insurance Study

² - Peak Flow Rates for Smaller Storm Events per Rick Engineering Company Hydrologic and Hydraulic Study for El Camino Real Bridge (Construction Phase), May 13, 2013

HEC RAS MODEL AND FLOODPLAIN IMPACT DETERMINATION

The floodplain analysis was conducted in HEC-RAS using a steady state subcritical flow analysis. The peak flows identified in the previous Feasibility Study were inputted along with the appropriate channel data to determine the minimum height of the proposed trail bridge to pass the 2-year and 10-year storm. The 50-year and 100-year storm have been identified to overtop the trail bridge. The effective FEMA Zone A floodplain at the Project Site has no established BFEs. Therefore, the existing conditions model is used to set the baseline for the 2-year and 10-year flow regimes to show no rise and no impacts to hydrology in the San Dieguito River in the proposed conditions.

Steady State Flow

The steady state flow file incorporates the resultant flow rates from the Feasibility Study. There is no established BFE in the Zone A floodplain for the San Dieguito River. The calculated downstream hydraulic limit was established by a normal depth boundary condition at cross section 43. The steady flow file was not altered between existing and proposed conditions.

Existing Conditions Model

- Cross sections were cut along approximately 4,000-feet of reach upstream and downstream of the proposed crossing. Cross section locations were chosen to capture the hydraulic impacts of the stream and floodplain overbanks.
- The cross sections were drawn to capture the full width of the Zone A boundary.
- Existing conditions topography is based off a combination of photogrammetric survey (NAVD 88) and public County contour data.
- Roughness coefficient inputted to reflect the main channel and channel banks per the United States Army Corps of Engineers (USACE) Table 3.1 recommendations. The Manning's coefficient selected for the main channel is 0.035 (natural streams with stones and weeds). The Manning's coefficient selected for the floodplain overbanks is 0.040 (light brush and vegetation).
- Default contraction and expansion coefficients of 0.1 and 0.3 were maintained at each added cross section.

Proposed Condition Model

- The proposed conditions model was developed by revising the existing conditions model to include the proposed trail bridge crossing.
- The 150' proposed trail crossing was added at cross section 4701. The deck width was set to 14-feet with a thickness of 2'-9".
- Ineffective flow areas were placed upstream in downstream of the bridge approach where flow cannot pass due to the proposed abutments. A ratio of 1:1 was used for the ineffective flow area contraction and a ratio of 2:1 was used for the ineffective flow area expansion.
- Contraction and expansion coefficients were updated to 0.3 and 0.5 in the contraction and expansion regions resulting from the proposed crossing

For more information on the Existing Condition and Proposed Condition Modeling Plan, refer to Appendix C for inputs and outputs of the HEC-RAS model that reflect the 1", 1.5", 2-year, 10-year, 50-year, and 100-year peak flows.

SCOUR ANALYSIS AND RIP RAP SIZING

The proposed trail bridge will incorporate spread footings. A preliminary scour analysis was conducted to set the depth of the footings at 13.7 feet and provide protection to abutments in the channel. The Federal Highway Administration (FHWA) Equation 7.3 from HEC-18 method for calculating local scour provides output for local scour depth based on the maximum depth of flow. Local scour was assessed at

cross section No. 4720 due to its proximity of the proposed abutments itself. Additional analysis will be completed in HEC-RAS during Final Design.

Scour Condition Plan

Input Variables

- Froude #'s from cross section No. 4720 taken from outputs of the HEC-RAS summary table that can be found in Appendix C.
- Flow depth from cross section No. 4720 taken from outputs of the HEC-RAS summary table that can be found in Appendix C.

Local Scour Depth

The FHWA formula for local scour depth incorporates factors from the hydraulic model, and well as predefined factors relating to the size and shape of the abutments. The local scour depth was determined to be 19.2 feet. Per Section 7.6.12 of the City of San Diego Manual, the riprap blanket extends at minimum 3 feet past the local scour depth to at least 22.2 feet. See Appendix D for calculations and Appendix K on Sheet 18 for the Foundation Plan.

Rip Rap Sizing

The proposed riprap blanket uses stones that will be held in place for the averaged max permissible velocity that is 8.5 fps in the main channel. The max permissible velocity is an average of Cross Sections 4720 and 4684, the sections closest to the location of the bridge. Per Figure 7-8 in the City of San Diego Drainage Manual, the minimum rip rap size is 0.3 feet diameter. See Appendix D for calculations.

RESULTS

The results of the hydraulic analysis yield that the trail bridge spanning 150 feet will have no impacts to the San Dieguito River hydrology and surrounding adjacent properties. The proposed trail bridge completely spans the main channel with no additional fill within the defined jurisdictional waters of the U.S. The existing conditions analysis set the water surface elevations for the proposed bridge deck which was set to convey the 10-year storm event with one-foot of freeboard. The analysis of the proposed bridge model yields a no-rise condition over the course of the study area with no impacts to properties upstream. The table below compares the existing and proposed WSE at the respective cross sections, indicating no-rise in the proposed condition:

River Sta	Profile	Plan	W.S. Elev (ft)
8741	50-Year	EX	33.09
8741	50-Year	PR	32.84
8741	100-Year	EX	34.01
8741	100-Year	PR	33.78
7940	50-Year	EX	31.97

River Sta	Profile	Plan	W.S. Elev (ft)
7940	50-Year	PR	31.75
7940	100-Year	EX	32.97
7940	100-Year	PR	32.81
7205	50-Year	EX	29.93
7205	50-Year	PR	29.99
7205	100-Year	EX	30.76
7205	100-Year	PR	30.53
6896	50-Year	EX	29.7
6896	50-Year	PR	29.56
6896	100-Year	EX	30.37
6896	100-Year	PR	30.19
6538	50-Year	EX	28.88
6538	50-Year	PR	28.84
6538	100-Year	EX	29.53
6538	100-Year	PR	29.41
6112	50-Year	EX	27.86
6112	50-Year	PR	28.08
6112	100-Year	EX	28.62
6112	100-Year	PR	28.79
5568	50-Year	EX	26.97
5568	50-Year	PR	27.67
5568	100-Year	EX	27.87
5568	100-Year	PR	28.32
4967	50-Year	EX	27
4967	50-Year	PR	27.6
4967	100-Year	EX	27.86
4967	100-Year	PR	28.25
4720	50-Year	EX	26.29
4720	50-Year	PR	27.16
4720	100-Year	EX	27.53

River Sta	Profile	Plan	W.S. Elev (ft)
4720	100-Year	PR	27.91
4684	50-Year	EX	26.39
4684	50-Year	PR	26.45
4684	100-Year	EX	27.53
4684	100-Year	PR	27.65
4125	50-Year	EX	24.84
4125	50-Year	PR	24.85
4125	100-Year	EX	26.04
4125	100-Year	PR	26.01
3545	50-Year	EX	24.43
3545	50-Year	PR	24.36
3545	100-Year	EX	25.66
3545	100-Year	PR	25.57
2554	50-Year	EX	22.85
2554	50-Year	PR	22.77
2554	100-Year	EX	24.07
2554	100-Year	PR	23.99
2215	50-Year	EX	22.04
2215	50-Year	PR	21.89
2215	100-Year	EX	23.02
2215	100-Year	PR	22.84
1817	50-Year	EX	21.09
1817	50-Year	PR	20.87
1817	100-Year	EX	22.07
1817	100-Year	PR	21.83
1183	50-Year	EX	20.96
1183	50-Year	PR	20.77
1183	100-Year	EX	21.9
1183	100-Year	PR	21.67

River Sta	Profile	Plan	W.S. Elev (ft)
612	50-Year	EX	20.42
612	50-Year	PR	20.22
612	100-Year	EX	21.32
612	100-Year	PR	21.09
43	50-Year	EX	19.85
43	50-Year	PR	19.65
43	100-Year	EX	20.75
43	100-Year	PR	20.52

The proposed trail bridge conveys the 10-year storm with 1.05 feet of freeboard to the low chord of the bridge. The freeboard for the 10-year is minimal. At the westerly abutment, freeboard for the 10-year storm is 1.05 feet while the easterly abutment is 2.01 feet, with water surface elevations developed from conservative peak flow rates from FEMA for the San Dieguito River.

The freeboard for the more typical storm events (1", 1.5") have freeboard well over 1 foot. The more anticipated intense storm event is the 2-year storm with 1.82 freeboard to the low chord of the bridge. The provided freeboard will reduce the risk of saltwater corrosion at the bridge.

Spread footings were selected minimize impacts to the channel bank during lower flow velocities for the smaller storm events of the 1", 1.5", and 2-year storm. Riprap is proposed within around the abutments to minimize potential scour at a minimum of 3 feet past the calculated local scour depth. The abutments are set at a depth below the maximum scour of 13.7 feet. See the Osuna Bridge General Plans, sheets 17 and 18, for more detail for the design.

APPENDIX A – FEMA FIRM SAN DIEGUITO RIVER

APPENDIX B – HYDRAULIC WORK MAP

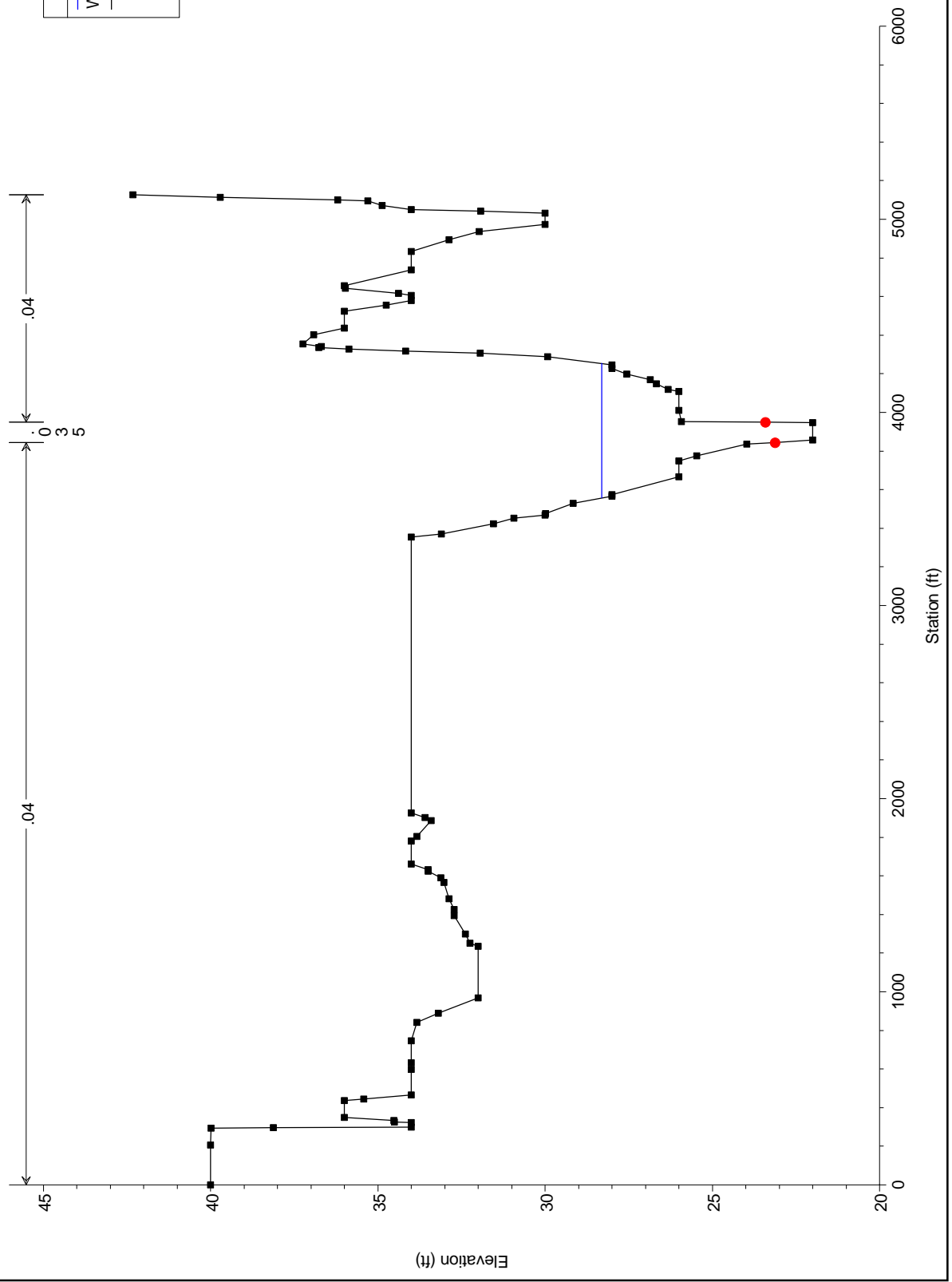


LEGEND:

- FEMA EFFECTIVE 100 - YEAR FLOODPLAIN (ZONE A)
- MAIN CHANNEL CENTERLINE (SAN DIEGO RIVER)
- - - EXISTING CONTOURS (NAD83 DATUM)
- CHANNEL CROSS SECTION
- TRAIL
- BRIDGE DECK

APPENDIX C – HEC RAS HYDRAULIC SUMMARY REPORT

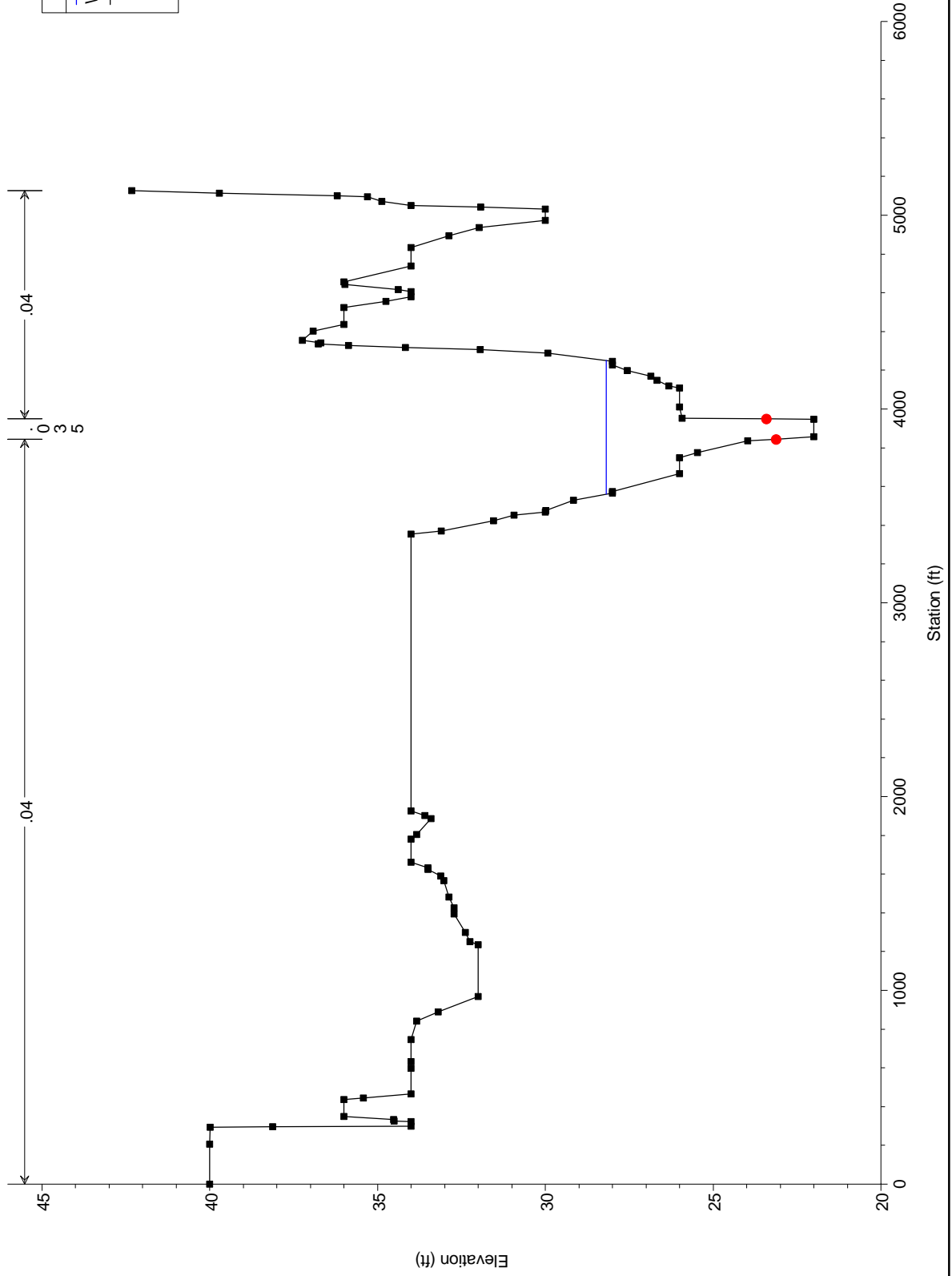
Osuna Bridge_update Plan: 1) EX 3/13/2023



Legend

- WS 10-Year
- Ground
- Bank Sta

Osuna Bridge_update Plan: Proposed Conditions 3/10/2023



Legend

- WS 10-Year
- Ground
- Bank Sta

Plan: EX River 1 Reach 1 RS: 8741 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	23.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	23.58	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	1.26	155.60	0.02
E.G. Slope (ft/ft)	0.002451	Area (sq ft)	1.26	155.60	0.02
Q Total (cfs)	426.00	Flow (cfs)	0.77	425.22	0.01
Top Width (ft)	110.24	Top Width (ft)	5.48	104.52	0.24
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	0.61	2.73	0.28
Max Chl Dpth (ft)	1.58	Hydr. Depth (ft)	0.23	1.49	0.09
Conv. Total (cfs)	8605.6	Conv. (cfs)	15.6	8589.9	0.1
Length Wtd. (ft)	800.55	Wetted Per. (ft)	5.50	104.93	0.29
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.04	0.23	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.02	0.62	0.00
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	12.47	49.10	0.37
C & E Loss (ft)	0.02	Cum SA (acres)	11.27	48.21	0.74

Plan: EX River 1 Reach 1 RS: 8741 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	25.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	25.59	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	72.58	365.97	3.31
E.G. Slope (ft/ft)	0.001811	Area (sq ft)	72.58	365.97	3.31
Q Total (cfs)	1624.00	Flow (cfs)	99.20	1520.51	4.29
Top Width (ft)	183.16	Top Width (ft)	75.61	104.52	3.03
Vel Total (ft/s)	3.68	Avg. Vel. (ft/s)	1.37	4.15	1.30
Max Chl Dpth (ft)	3.59	Hydr. Depth (ft)	0.96	3.50	1.09
Conv. Total (cfs)	38163.4	Conv. (cfs)	2331.3	35731.4	100.7
Length Wtd. (ft)	797.84	Wetted Per. (ft)	75.67	104.93	3.73
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.11	0.39	0.10
Alpha	1.21	Stream Power (lb/ft s)	0.15	1.64	0.13
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	29.95	113.08	7.32
C & E Loss (ft)	0.03	Cum SA (acres)	19.56	57.65	9.85

Plan: EX River 1 Reach 1 RS: 8741 Profile: 10-Year

E.G. Elev (ft)	28.60	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	28.30	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	643.42	649.50	533.66
E.G. Slope (ft/ft)	0.001451	Area (sq ft)	643.42	649.50	533.66
Q Total (cfs)	5900.00	Flow (cfs)	1383.01	3540.87	976.12
Top Width (ft)	695.93	Top Width (ft)	287.93	104.52	303.48
Vel Total (ft/s)	3.23	Avg. Vel. (ft/s)	2.15	5.45	1.83
Max Chl Dpth (ft)	6.30	Hydr. Depth (ft)	2.23	6.21	1.76
Conv. Total (cfs)	154889.9	Conv. (cfs)	36307.4	92956.7	25625.7
Length Wtd. (ft)	776.75	Wetted Per. (ft)	288.01	104.93	304.32
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.20	0.56	0.16
Alpha	1.87	Stream Power (lb/ft s)	0.43	3.06	0.29
Frctn Loss (ft)	0.93	Cum Volume (acre-ft)	91.58	231.45	74.33
C & E Loss (ft)	0.02	Cum SA (acres)	34.49	59.60	33.46

Plan: EX River 1 Reach 1 RS: 7940 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	22.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	22.63	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	11.77	207.92	13.38
E.G. Slope (ft/ft)	0.000741	Area (sq ft)	11.77	207.92	13.38
Q Total (cfs)	426.00	Flow (cfs)	8.71	407.92	9.37
Top Width (ft)	128.99	Top Width (ft)	15.70	93.90	19.39
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	0.74	1.96	0.70
Max Chl Dpth (ft)	2.63	Hydr. Depth (ft)	0.75	2.21	0.69
Conv. Total (cfs)	15653.0	Conv. (cfs)	319.9	14988.7	344.4
Length Wtd. (ft)	735.67	Wetted Per. (ft)	15.77	93.97	19.44
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.03	0.10	0.03
Alpha	1.11	Stream Power (lb/ft s)	0.03	0.20	0.02
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	12.35	45.75	0.26
C & E Loss (ft)	0.00	Cum SA (acres)	11.07	46.39	0.58

Plan: EX River 1 Reach 1 RS: 7940 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	24.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	24.59	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	63.11	392.25	177.48
E.G. Slope (ft/ft)	0.001013	Area (sq ft)	63.11	392.25	177.48
Q Total (cfs)	1624.00	Flow (cfs)	93.19	1374.27	156.54
Top Width (ft)	362.43	Top Width (ft)	37.74	93.90	230.79
Vel Total (ft/s)	2.57	Avg. Vel. (ft/s)	1.48	3.50	0.88
Max Chl Dpth (ft)	4.59	Hydr. Depth (ft)	1.67	4.18	0.77
Conv. Total (cfs)	51016.1	Conv. (cfs)	2927.3	43171.2	4917.6
Length Wtd. (ft)	740.96	Wetted Per. (ft)	37.90	93.97	230.91
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.11	0.26	0.05
Alpha	1.61	Stream Power (lb/ft s)	0.16	0.93	0.04
Frctn Loss (ft)	0.73	Cum Volume (acre-ft)	28.66	106.11	5.88
C & E Loss (ft)	0.01	Cum SA (acres)	18.48	55.82	7.99

Plan: EX River 1 Reach 1 RS: 7940 Profile: 10-Year

E.G. Elev (ft)	27.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.23	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	27.43	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	250.07	658.19	1081.97
E.G. Slope (ft/ft)	0.000996	Area (sq ft)	250.07	658.19	1081.97
Q Total (cfs)	5900.00	Flow (cfs)	440.06	3228.04	2231.91
Top Width (ft)	595.91	Top Width (ft)	113.72	93.90	388.29
Vel Total (ft/s)	2.96	Avg. Vel. (ft/s)	1.76	4.90	2.06
Max Chl Dpth (ft)	7.43	Hydr. Depth (ft)	2.20	7.01	2.79
Conv. Total (cfs)	186965.3	Conv. (cfs)	13944.9	102293.4	70727.0
Length Wtd. (ft)	755.59	Wetted Per. (ft)	113.95	93.97	388.45
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.14	0.44	0.17
Alpha	1.71	Stream Power (lb/ft s)	0.24	2.14	0.36
Frctn Loss (ft)	0.67	Cum Volume (acre-ft)	83.05	219.42	61.47
C & E Loss (ft)	0.02	Cum SA (acres)	30.66	57.78	27.95

Plan: EX River 1 Reach 1 RS: 7205 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	22.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.000	0.035	0.045
W.S. Elev (ft)	22.01	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	0.00	222.36	0.04
E.G. Slope (ft/ft)	0.000947	Area (sq ft)	0.00	222.36	0.04
Q Total (cfs)	426.00	Flow (cfs)	0.00	426.00	0.00
Top Width (ft)	127.63	Top Width (ft)	0.55	125.00	2.08
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	0.03	1.92	0.08
Max Chl Dpth (ft)	2.01	Hydr. Depth (ft)	0.01	1.78	0.02
Conv. Total (cfs)	13839.9	Conv. (cfs)	0.0	13839.8	0.1
Length Wtd. (ft)	308.70	Wetted Per. (ft)	0.56	125.26	2.08
Min Ch El (ft)	20.00	Shear (lb/sq ft)		0.10	0.00
Alpha	1.00	Stream Power (lb/ft s)		0.20	0.00
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	12.24	42.12	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	10.93	44.54	0.38

Plan: EX River 1 Reach 1 RS: 7205 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	24.02	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	23.89	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	82.86	456.59	132.97
E.G. Slope (ft/ft)	0.000957	Area (sq ft)	82.86	456.59	132.97
Q Total (cfs)	1624.00	Flow (cfs)	80.59	1420.04	123.37
Top Width (ft)	367.69	Top Width (ft)	89.13	125.00	153.56
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)	0.97	3.11	0.93
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)	0.93	3.65	0.87
Conv. Total (cfs)	52506.0	Conv. (cfs)	2605.6	45911.8	3988.6
Length Wtd. (ft)	305.45	Wetted Per. (ft)	89.15	125.26	153.58
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.06	0.22	0.05
Alpha	1.47	Stream Power (lb/ft s)	0.05	0.68	0.05
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	27.39	98.95	3.06
C & E Loss (ft)	0.01	Cum SA (acres)	17.37	53.98	4.50

Plan: EX River 1 Reach 1 RS: 7205 Profile: 10-Year

E.G. Elev (ft)	26.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.18	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	26.79	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	539.44	819.19	810.72
E.G. Slope (ft/ft)	0.000805	Area (sq ft)	539.44	819.19	810.72
Q Total (cfs)	5900.00	Flow (cfs)	869.96	3450.32	1579.73
Top Width (ft)	633.92	Top Width (ft)	238.76	125.00	270.16
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	1.61	4.21	1.95
Max Chl Dpth (ft)	6.79	Hydr. Depth (ft)	2.26	6.55	3.00
Conv. Total (cfs)	207975.6	Conv. (cfs)	30666.1	121624.0	55685.6
Length Wtd. (ft)	292.65	Wetted Per. (ft)	238.81	125.26	270.23
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.11	0.33	0.15
Alpha	1.59	Stream Power (lb/ft s)	0.18	1.38	0.29
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	76.16	206.96	44.29
C & E Loss (ft)	0.00	Cum SA (acres)	27.58	55.93	21.97

Plan: EX River 1 Reach 1 RS: 6896 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	21.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.035	
W.S. Elev (ft)	21.54	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)		170.86	
E.G. Slope (ft/ft)	0.002255	Area (sq ft)		170.86	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	124.02	Top Width (ft)		124.02	
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)		2.49	
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)		1.38	
Conv. Total (cfs)	8971.8	Conv. (cfs)		8971.8	
Length Wtd. (ft)	358.20	Wetted Per. (ft)		124.21	
Min Ch El (ft)	20.00	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	12.24	40.73	0.14
C & E Loss (ft)	0.02	Cum SA (acres)	10.93	43.66	0.38

Plan: EX River 1 Reach 1 RS: 6896 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	23.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	23.46	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)	65.72	420.65	32.58
E.G. Slope (ft/ft)	0.001530	Area (sq ft)	65.72	420.65	32.58
Q Total (cfs)	1624.00	Flow (cfs)	69.36	1519.03	35.60
Top Width (ft)	261.66	Top Width (ft)	88.94	130.90	41.81
Vel Total (ft/s)	3.13	Avg. Vel. (ft/s)	1.06	3.61	1.09
Max Chl Dpth (ft)	3.46	Hydr. Depth (ft)	0.74	3.21	0.78
Conv. Total (cfs)	41524.9	Conv. (cfs)	1773.6	38840.9	910.4
Length Wtd. (ft)	360.28	Wetted Per. (ft)	88.95	131.15	41.84
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.07	0.31	0.07
Alpha	1.25	Stream Power (lb/ft s)	0.07	1.11	0.08
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	26.84	95.84	2.63
C & E Loss (ft)	0.05	Cum SA (acres)	16.71	53.07	3.99

Plan: EX River 1 Reach 1 RS: 6896 Profile: 10-Year

E.G. Elev (ft)	26.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	26.48	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)	581.84	816.90	609.21
E.G. Slope (ft/ft)	0.000993	Area (sq ft)	581.84	816.90	609.21
Q Total (cfs)	5900.00	Flow (cfs)	1050.68	3700.35	1148.96
Top Width (ft)	635.02	Top Width (ft)	254.52	130.90	249.60
Vel Total (ft/s)	2.94	Avg. Vel. (ft/s)	1.81	4.53	1.89
Max Chl Dpth (ft)	6.48	Hydr. Depth (ft)	2.29	6.24	2.44
Conv. Total (cfs)	187202.2	Conv. (cfs)	33337.3	117409.2	36455.7
Length Wtd. (ft)	365.98	Wetted Per. (ft)	254.56	131.15	249.72
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.14	0.39	0.15
Alpha	1.64	Stream Power (lb/ft s)	0.26	1.75	0.29
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	72.03	201.16	40.53
C & E Loss (ft)	0.08	Cum SA (acres)	25.76	55.02	20.60

Plan: EX River 1 Reach 1 RS: 6538 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	20.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.035	
W.S. Elev (ft)	20.20	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)	19.65	Flow Area (sq ft)		106.52	
E.G. Slope (ft/ft)	0.005157	Area (sq ft)		106.52	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	70.46	Top Width (ft)		70.46	
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)		4.00	
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)		1.51	
Conv. Total (cfs)	5932.4	Conv. (cfs)		5932.4	
Length Wtd. (ft)	425.70	Wetted Per. (ft)		70.89	
Min Ch El (ft)	18.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.93	
Frctn Loss (ft)	1.71	Cum Volume (acre-ft)	12.24	39.59	0.14
C & E Loss (ft)	0.03	Cum SA (acres)	10.93	42.86	0.38

Plan: EX River 1 Reach 1 RS: 6538 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	22.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.74	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	21.88	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)		Flow Area (sq ft)	3.60	234.21	1.78
E.G. Slope (ft/ft)	0.006086	Area (sq ft)	3.60	234.21	1.78
Q Total (cfs)	1624.00	Flow (cfs)	5.64	1615.21	3.16
Top Width (ft)	87.78	Top Width (ft)	7.52	77.39	2.87
Vel Total (ft/s)	6.78	Avg. Vel. (ft/s)	1.57	6.90	1.77
Max Chl Dpth (ft)	3.88	Hydr. Depth (ft)	0.48	3.03	0.62
Conv. Total (cfs)	20817.7	Conv. (cfs)	72.2	20705.0	40.5
Length Wtd. (ft)	425.49	Wetted Per. (ft)	7.58	77.95	3.13
Min Ch El (ft)	18.00	Shear (lb/sq ft)	0.18	1.14	0.22
Alpha	1.03	Stream Power (lb/ft s)	0.28	7.87	0.38
Frctn Loss (ft)	1.64	Cum Volume (acre-ft)	26.44	93.15	2.52
C & E Loss (ft)	0.13	Cum SA (acres)	16.16	52.21	3.85

Plan: EX River 1 Reach 1 RS: 6538 Profile: 10-Year

E.G. Elev (ft)	25.96	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.01	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	24.95	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)	24.95	Flow Area (sq ft)	289.90	471.99	312.73
E.G. Slope (ft/ft)	0.004289	Area (sq ft)	289.90	471.99	312.73
Q Total (cfs)	5900.00	Flow (cfs)	865.05	4359.65	675.30
Top Width (ft)	568.82	Top Width (ft)	178.76	77.39	312.67
Vel Total (ft/s)	5.49	Avg. Vel. (ft/s)	2.98	9.24	2.16
Max Chl Dpth (ft)	6.95	Hydr. Depth (ft)	1.62	6.10	1.00
Conv. Total (cfs)	90089.7	Conv. (cfs)	13208.9	66569.4	10311.5
Length Wtd. (ft)	416.92	Wetted Per. (ft)	178.85	77.95	313.42
Min Ch El (ft)	18.00	Shear (lb/sq ft)	0.43	1.62	0.27
Alpha	2.15	Stream Power (lb/ft s)	1.30	14.98	0.58
Frctn Loss (ft)	1.78	Cum Volume (acre-ft)	67.04	195.86	37.77
C & E Loss (ft)	0.00	Cum SA (acres)	23.28	54.17	18.91

Plan: EX River 1 Reach 1 RS: 6112 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	18.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	18.57	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)		141.59	
E.G. Slope (ft/ft)	0.003225	Area (sq ft)		141.59	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	101.18	Top Width (ft)		101.18	
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)		3.01	
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		1.40	
Conv. Total (cfs)	7501.4	Conv. (cfs)		7501.4	
Length Wtd. (ft)	544.06	Wetted Per. (ft)		101.57	
Min Ch El (ft)	17.00	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	12.24	38.38	0.14
C & E Loss (ft)	0.03	Cum SA (acres)	10.93	42.02	0.38

Plan: EX River 1 Reach 1 RS: 6112 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	20.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	20.55	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)		369.03	
E.G. Slope (ft/ft)	0.002655	Area (sq ft)		369.03	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	128.46	Top Width (ft)		128.46	
Vel Total (ft/s)	4.40	Avg. Vel. (ft/s)		4.40	
Max Chl Dpth (ft)	3.55	Hydr. Depth (ft)		2.87	
Conv. Total (cfs)	31515.4	Conv. (cfs)		31515.4	
Length Wtd. (ft)	544.77	Wetted Per. (ft)		129.35	
Min Ch El (ft)	17.00	Shear (lb/sq ft)		0.47	
Alpha	1.00	Stream Power (lb/ft s)		2.08	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	26.43	90.20	2.51
C & E Loss (ft)	0.05	Cum SA (acres)	16.14	51.21	3.84

Plan: EX River 1 Reach 1 RS: 6112 Profile: 10-Year

E.G. Elev (ft)	23.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.00	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	22.98	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)	9.94	702.98	73.85
E.G. Slope (ft/ft)	0.004268	Area (sq ft)	9.94	702.98	73.85
Q Total (cfs)	5900.00	Flow (cfs)	18.81	5716.90	164.29
Top Width (ft)	221.35	Top Width (ft)	11.97	138.92	70.46
Vel Total (ft/s)	7.50	Avg. Vel. (ft/s)	1.89	8.13	2.22
Max Chl Dpth (ft)	5.98	Hydr. Depth (ft)	0.83	5.06	1.05
Conv. Total (cfs)	90315.5	Conv. (cfs)	287.9	87512.7	2514.9
Length Wtd. (ft)	543.71	Wetted Per. (ft)	12.09	140.00	70.51
Min Ch El (ft)	17.00	Shear (lb/sq ft)	0.22	1.34	0.28
Alpha	1.14	Stream Power (lb/ft s)	0.41	10.88	0.62
Frctn Loss (ft)	1.19	Cum Volume (acre-ft)	66.03	190.12	35.82
C & E Loss (ft)	0.20	Cum SA (acres)	22.64	53.11	16.98

Plan: EX River 1 Reach 1 RS: 5568 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	18.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	18.02	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	5.83	244.97	9.64
E.G. Slope (ft/ft)	0.000563	Area (sq ft)	5.83	244.97	9.64
Q Total (cfs)	426.00	Flow (cfs)	3.25	418.40	4.34
Top Width (ft)	142.62	Top Width (ft)	9.65	110.90	22.08
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	0.56	1.71	0.45
Max Chl Dpth (ft)	2.52	Hydr. Depth (ft)	0.60	2.21	0.44
Conv. Total (cfs)	17948.4	Conv. (cfs)	137.1	17628.3	183.0
Length Wtd. (ft)	600.62	Wetted Per. (ft)	9.72	111.01	22.12
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.02	0.08	0.02
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.13	0.01
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	12.21	35.96	0.08
C & E Loss (ft)	0.00	Cum SA (acres)	10.87	40.70	0.23

Plan: EX River 1 Reach 1 RS: 5568 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	20.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	19.90	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	90.16	452.77	106.86
E.G. Slope (ft/ft)	0.000861	Area (sq ft)	90.16	452.77	106.86
Q Total (cfs)	1624.00	Flow (cfs)	59.68	1439.85	124.47
Top Width (ft)	351.41	Top Width (ft)	159.50	110.90	81.00
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)	0.66	3.18	1.16
Max Chl Dpth (ft)	4.40	Hydr. Depth (ft)	0.57	4.08	1.32
Conv. Total (cfs)	55346.0	Conv. (cfs)	2033.8	49070.3	4241.9
Length Wtd. (ft)	589.33	Wetted Per. (ft)	159.66	111.01	81.08
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.03	0.22	0.07
Alpha	1.45	Stream Power (lb/ft s)	0.02	0.70	0.08
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	25.90	85.07	1.80
C & E Loss (ft)	0.01	Cum SA (acres)	15.20	49.71	3.30

Plan: EX River 1 Reach 1 RS: 5568 Profile: 10-Year

E.G. Elev (ft)	22.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.32	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	22.27	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	510.69	715.36	343.28
E.G. Slope (ft/ft)	0.001324	Area (sq ft)	510.69	715.36	343.28
Q Total (cfs)	5900.00	Flow (cfs)	1227.64	3827.54	844.82
Top Width (ft)	406.80	Top Width (ft)	178.92	110.90	116.98
Vel Total (ft/s)	3.76	Avg. Vel. (ft/s)	2.40	5.35	2.46
Max Chl Dpth (ft)	6.77	Hydr. Depth (ft)	2.85	6.45	2.93
Conv. Total (cfs)	162117.2	Conv. (cfs)	33732.5	105171.1	23213.6
Length Wtd. (ft)	564.24	Wetted Per. (ft)	180.50	111.01	117.14
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.23	0.53	0.24
Alpha	1.46	Stream Power (lb/ft s)	0.56	2.85	0.60
Frctn Loss (ft)	0.37	Cum Volume (acre-ft)	62.96	181.26	33.05
C & E Loss (ft)	0.08	Cum SA (acres)	21.51	51.55	15.73

Plan: EX River 1 Reach 1 RS: 4967 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	17.58	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	0.63	212.63	0.39
E.G. Slope (ft/ft)	0.000895	Area (sq ft)	0.63	212.63	0.39
Q Total (cfs)	426.00	Flow (cfs)	0.15	425.79	0.07
Top Width (ft)	117.83	Top Width (ft)	5.68	106.70	5.46
Vel Total (ft/s)	1.99	Avg. Vel. (ft/s)	0.23	2.00	0.17
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)	0.11	1.99	0.07
Conv. Total (cfs)	14241.4	Conv. (cfs)	4.9	14234.3	2.2
Length Wtd. (ft)	247.19	Wetted Per. (ft)	5.68	107.39	5.46
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.01	0.11	0.00
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.22	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	12.19	32.80	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.82	39.20	0.03

Plan: EX River 1 Reach 1 RS: 4967 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	19.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	19.17	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	87.74	382.04	88.14
E.G. Slope (ft/ft)	0.001491	Area (sq ft)	87.74	382.04	88.14
Q Total (cfs)	1624.00	Flow (cfs)	98.82	1459.58	65.61
Top Width (ft)	451.77	Top Width (ft)	105.67	106.70	239.40
Vel Total (ft/s)	2.91	Avg. Vel. (ft/s)	1.13	3.82	0.74
Max Chl Dpth (ft)	3.67	Hydr. Depth (ft)	0.83	3.58	0.37
Conv. Total (cfs)	42057.0	Conv. (cfs)	2559.0	37799.0	1699.0
Length Wtd. (ft)	246.56	Wetted Per. (ft)	105.70	107.39	239.43
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.08	0.33	0.03
Alpha	1.56	Stream Power (lb/ft s)	0.09	1.27	0.03
Frctn Loss (ft)	0.53	Cum Volume (acre-ft)	25.30	79.30	0.35
C & E Loss (ft)	0.02	Cum SA (acres)	14.31	48.21	0.91

Plan: EX River 1 Reach 1 RS: 4967 Profile: 10-Year

E.G. Elev (ft)	22.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	22.08	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	662.28	692.66	2719.78
E.G. Slope (ft/ft)	0.000386	Area (sq ft)	662.28	692.66	2719.78
Q Total (cfs)	5900.00	Flow (cfs)	813.02	2001.01	3085.97
Top Width (ft)	1647.01	Top Width (ft)	252.67	106.70	1287.64
Vel Total (ft/s)	1.45	Avg. Vel. (ft/s)	1.23	2.89	1.13
Max Chl Dpth (ft)	6.58	Hydr. Depth (ft)	2.62	6.49	2.11
Conv. Total (cfs)	300447.5	Conv. (cfs)	41401.6	101898.0	157147.8
Length Wtd. (ft)	258.92	Wetted Per. (ft)	254.25	107.39	1289.30
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.06	0.16	0.05
Alpha	1.77	Stream Power (lb/ft s)	0.08	0.45	0.06
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	59.04	171.54	10.18
C & E Loss (ft)	0.13	Cum SA (acres)	20.07	50.05	5.25

Plan: EX River 1 Reach 1 RS: 4720 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.31	Reach Len. (ft)	79.20	35.50	80.30
Crit W.S. (ft)		Flow Area (sq ft)		196.50	
E.G. Slope (ft/ft)	0.001304	Area (sq ft)		196.50	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	116.37	Top Width (ft)		116.37	
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)		2.17	
Max Chl Dpth (ft)	1.81	Hydr. Depth (ft)		1.69	
Conv. Total (cfs)	11798.8	Conv. (cfs)		11798.8	
Length Wtd. (ft)	35.55	Wetted Per. (ft)		116.83	
Min Ch El (ft)	15.50	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	12.19	31.64	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.81	38.56	0.01

Plan: EX River 1 Reach 1 RS: 4720 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.83	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.36	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	18.47	Reach Len. (ft)	79.20	35.50	80.30
Crit W.S. (ft)		Flow Area (sq ft)	2.94	336.15	
E.G. Slope (ft/ft)	0.003384	Area (sq ft)	2.94	336.15	
Q Total (cfs)	1624.00	Flow (cfs)	2.76	1621.24	
Top Width (ft)	131.07	Top Width (ft)	8.57	122.50	
Vel Total (ft/s)	4.79	Avg. Vel. (ft/s)	0.94	4.82	
Max Chl Dpth (ft)	2.97	Hydr. Depth (ft)	0.34	2.74	
Conv. Total (cfs)	27916.4	Conv. (cfs)	47.4	27869.0	
Length Wtd. (ft)	36.24	Wetted Per. (ft)	8.60	123.18	
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.07	0.58	
Alpha	1.01	Stream Power (lb/ft s)	0.07	2.78	
Frctn Loss (ft)	0.12	Cum Volume (acre-ft)	25.11	77.27	0.03
C & E Loss (ft)	0.00	Cum SA (acres)	14.07	47.56	0.05

Plan: EX River 1 Reach 1 RS: 4720 Profile: 10-Year

E.G. Elev (ft)	21.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.38	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	20.36	Reach Len. (ft)	79.20	35.50	80.30
Crit W.S. (ft)	20.17	Flow Area (sq ft)	80.17	569.87	52.32
E.G. Slope (ft/ft)	0.006857	Area (sq ft)	80.17	569.87	52.32
Q Total (cfs)	5900.00	Flow (cfs)	242.13	5534.38	123.48
Top Width (ft)	257.57	Top Width (ft)	68.94	123.39	65.23
Vel Total (ft/s)	8.40	Avg. Vel. (ft/s)	3.02	9.71	2.36
Max Chl Dpth (ft)	4.86	Hydr. Depth (ft)	1.16	4.62	0.80
Conv. Total (cfs)	71248.6	Conv. (cfs)	2924.0	66833.4	1491.2
Length Wtd. (ft)	39.41	Wetted Per. (ft)	69.06	124.12	65.25
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.50	1.97	0.34
Alpha	1.26	Stream Power (lb/ft s)	1.50	19.09	0.81
Frctn Loss (ft)	0.27	Cum Volume (acre-ft)	57.45	167.96	0.30
C & E Loss (ft)	0.04	Cum SA (acres)	19.38	49.39	0.42

Plan: EX River 1 Reach 1 RS: 4684 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.33	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	17.25	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)		Flow Area (sq ft)	2.10	191.65	0.10
E.G. Slope (ft/ft)	0.001514	Area (sq ft)	2.10	191.65	0.10
Q Total (cfs)	426.00	Flow (cfs)	0.96	425.02	0.03
Top Width (ft)	134.21	Top Width (ft)	9.93	123.10	1.18
Vel Total (ft/s)	2.20	Avg. Vel. (ft/s)	0.46	2.22	0.25
Max Chl Dpth (ft)	1.75	Hydr. Depth (ft)	0.21	1.56	0.09
Conv. Total (cfs)	10946.9	Conv. (cfs)	24.6	10921.6	0.7
Length Wtd. (ft)	559.78	Wetted Per. (ft)	9.94	123.23	1.19
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.02	0.15	0.01
Alpha	1.02	Stream Power (lb/ft s)	0.01	0.33	0.00
Frctn Loss (ft)	1.10	Cum Volume (acre-ft)	12.18	31.48	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	10.80	38.47	0.01

Plan: EX River 1 Reach 1 RS: 4684 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	18.35	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)		Flow Area (sq ft)	27.19	326.99	5.49
E.G. Slope (ft/ft)	0.003490	Area (sq ft)	27.19	326.99	5.49
Q Total (cfs)	1624.00	Flow (cfs)	44.20	1571.93	7.87
Top Width (ft)	167.44	Top Width (ft)	35.71	123.10	8.63
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	1.63	4.81	1.43
Max Chl Dpth (ft)	2.85	Hydr. Depth (ft)	0.76	2.66	0.64
Conv. Total (cfs)	27488.6	Conv. (cfs)	748.2	26607.1	133.2
Length Wtd. (ft)	571.53	Wetted Per. (ft)	35.74	123.23	8.72
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.17	0.58	0.14
Alpha	1.10	Stream Power (lb/ft s)	0.27	2.78	0.20
Frctn Loss (ft)	1.12	Cum Volume (acre-ft)	25.08	76.99	0.03
C & E Loss (ft)	0.08	Cum SA (acres)	14.03	47.46	0.05

Plan: EX River 1 Reach 1 RS: 4684 Profile: 10-Year

E.G. Elev (ft)	21.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.24	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	20.19	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)	19.86	Flow Area (sq ft)	148.39	553.68	32.88
E.G. Slope (ft/ft)	0.006639	Area (sq ft)	148.39	553.68	32.88
Q Total (cfs)	5900.00	Flow (cfs)	567.07	5214.94	118.00
Top Width (ft)	231.80	Top Width (ft)	87.59	123.10	21.11
Vel Total (ft/s)	8.03	Avg. Vel. (ft/s)	3.82	9.42	3.59
Max Chl Dpth (ft)	4.69	Hydr. Depth (ft)	1.69	4.50	1.56
Conv. Total (cfs)	72412.7	Conv. (cfs)	6959.8	64004.7	1448.2
Length Wtd. (ft)	603.98	Wetted Per. (ft)	87.66	123.23	21.34
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.70	1.86	0.64
Alpha	1.24	Stream Power (lb/ft s)	2.68	17.54	2.29
Frctn Loss (ft)	1.39	Cum Volume (acre-ft)	57.25	167.50	0.22
C & E Loss (ft)	0.32	Cum SA (acres)	19.24	49.29	0.35

Plan: EX River 1 Reach 1 RS: 4125 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	16.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	16.17	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)		237.64	
E.G. Slope (ft/ft)	0.002678	Area (sq ft)		237.64	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	322.08	Top Width (ft)		322.08	
Vel Total (ft/s)	1.79	Avg. Vel. (ft/s)		1.79	
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	8232.6	Conv. (cfs)		8232.6	
Length Wtd. (ft)	580.70	Wetted Per. (ft)		322.41	
Min Ch El (ft)	14.56	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.22	
Frctn Loss (ft)	0.34	Cum Volume (acre-ft)	12.15	28.73	
C & E Loss (ft)	0.01	Cum SA (acres)	10.63	35.61	

Plan: EX River 1 Reach 1 RS: 4125 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	17.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.43	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)		750.07	
E.G. Slope (ft/ft)	0.001253	Area (sq ft)		750.07	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	433.21	Top Width (ft)		433.21	
Vel Total (ft/s)	2.17	Avg. Vel. (ft/s)		2.17	
Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)		1.73	
Conv. Total (cfs)	45871.8	Conv. (cfs)		45871.8	
Length Wtd. (ft)	580.70	Wetted Per. (ft)		433.84	
Min Ch El (ft)	14.56	Shear (lb/sq ft)		0.14	
Alpha	1.00	Stream Power (lb/ft s)		0.29	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	24.61	70.09	
C & E Loss (ft)	0.01	Cum SA (acres)	13.40	43.89	

Plan: EX River 1 Reach 1 RS: 4125 Profile: 10-Year

E.G. Elev (ft)	19.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	19.54	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)	2.15	1681.20	1.76
E.G. Slope (ft/ft)	0.001154	Area (sq ft)	2.15	1681.20	1.76
Q Total (cfs)	5900.00	Flow (cfs)	1.68	5897.13	1.18
Top Width (ft)	449.35	Top Width (ft)	3.45	442.25	3.65
Vel Total (ft/s)	3.50	Avg. Vel. (ft/s)	0.78	3.51	0.67
Max Chl Dpth (ft)	4.98	Hydr. Depth (ft)	0.62	3.80	0.48
Conv. Total (cfs)	173714.0	Conv. (cfs)	49.6	173629.5	34.8
Length Wtd. (ft)	580.70	Wetted Per. (ft)	3.67	443.10	3.77
Min Ch El (ft)	14.56	Shear (lb/sq ft)	0.04	0.27	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.03	0.96	0.02
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	54.62	153.17	0.04
C & E Loss (ft)	0.02	Cum SA (acres)	17.65	45.67	0.21

Plan: EX River 1 Reach 1 RS: 3545 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	15.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.86	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)		566.46	
E.G. Slope (ft/ft)	0.000246	Area (sq ft)		566.46	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	472.32	Top Width (ft)		472.32	
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75	
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)		1.20	
Conv. Total (cfs)	27144.9	Conv. (cfs)		27144.9	
Length Wtd. (ft)	990.40	Wetted Per. (ft)		472.38	
Min Ch El (ft)	14.22	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	12.15	23.37	
C & E Loss (ft)	0.01	Cum SA (acres)	10.63	30.32	

Plan: EX River 1 Reach 1 RS: 3545 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	17.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.12	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)		1173.58	
E.G. Slope (ft/ft)	0.000327	Area (sq ft)		1173.58	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	485.00	Top Width (ft)		485.00	
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38	
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		2.42	
Conv. Total (cfs)	89750.7	Conv. (cfs)		89750.7	
Length Wtd. (ft)	990.40	Wetted Per. (ft)		485.41	
Min Ch El (ft)	14.22	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	24.61	57.27	
C & E Loss (ft)	0.01	Cum SA (acres)	13.40	37.77	

Plan: EX River 1 Reach 1 RS: 3545 Profile: 10-Year

E.G. Elev (ft)	19.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.045	0.035	0.045
W.S. Elev (ft)	19.13	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)	0.66	2159.62	1.61
E.G. Slope (ft/ft)	0.000581	Area (sq ft)	0.66	2159.62	1.61
Q Total (cfs)	5900.00	Flow (cfs)	0.26	5899.39	0.35
Top Width (ft)	507.11	Top Width (ft)	1.72	494.02	11.36
Vel Total (ft/s)	2.73	Avg. Vel. (ft/s)	0.40	2.73	0.22
Max Chl Dpth (ft)	4.91	Hydr. Depth (ft)	0.38	4.37	0.14
Conv. Total (cfs)	244858.1	Conv. (cfs)	10.9	244832.8	14.4
Length Wtd. (ft)	990.40	Wetted Per. (ft)	1.89	494.91	11.37
Min Ch El (ft)	14.22	Shear (lb/sq ft)	0.01	0.16	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.01	0.43	0.00
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	54.60	127.57	0.02
C & E Loss (ft)	0.02	Cum SA (acres)	17.62	39.43	0.12

Plan: EX River 1 Reach 1 RS: 2554 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	15.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.23	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		209.09	
E.G. Slope (ft/ft)	0.002615	Area (sq ft)		209.09	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	229.82	Top Width (ft)		229.82	
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)		2.04	
Max Chl Dpth (ft)	1.23	Hydr. Depth (ft)		0.91	
Conv. Total (cfs)	8331.0	Conv. (cfs)		8331.0	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		229.97	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	12.15	14.55	
C & E Loss (ft)	0.02	Cum SA (acres)	10.63	22.33	

Plan: EX River 1 Reach 1 RS: 2554 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	16.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	
W.S. Elev (ft)	16.26	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		575.70	
E.G. Slope (ft/ft)	0.003579	Area (sq ft)		575.70	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	491.50	Top Width (ft)		491.50	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)		2.82	
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.17	
Conv. Total (cfs)	27144.3	Conv. (cfs)		27144.3	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		491.90	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.74	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	24.61	37.38	
C & E Loss (ft)	0.02	Cum SA (acres)	13.40	26.67	

Plan: EX River 1 Reach 1 RS: 2554 Profile: 10-Year

E.G. Elev (ft)	18.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.89	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		1389.25	
E.G. Slope (ft/ft)	0.002587	Area (sq ft)		1389.25	
Q Total (cfs)	5900.00	Flow (cfs)		5900.00	
Top Width (ft)	502.73	Top Width (ft)		502.73	
Vel Total (ft/s)	4.25	Avg. Vel. (ft/s)		4.25	
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)		2.76	
Conv. Total (cfs)	115997.3	Conv. (cfs)		115997.3	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		503.69	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.89	
Frctn Loss (ft)	0.59	Cum Volume (acre-ft)	54.59	87.22	
C & E Loss (ft)	0.03	Cum SA (acres)	17.60	28.10	

Plan: EX River 1 Reach 1 RS: 2215 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	14.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.035	
W.S. Elev (ft)	14.96	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		492.08	
E.G. Slope (ft/ft)	0.000447	Area (sq ft)		492.08	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	519.52	Top Width (ft)		519.52	
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87	
Max Chl Dpth (ft)	0.96	Hydr. Depth (ft)		0.95	
Conv. Total (cfs)	20145.8	Conv. (cfs)		20145.8	
Length Wtd. (ft)	409.50	Wetted Per. (ft)		519.65	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	12.15	11.82	
C & E Loss (ft)	0.01	Cum SA (acres)	10.63	19.41	

Plan: EX River 1 Reach 1 RS: 2215 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	15.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.83	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		950.71	
E.G. Slope (ft/ft)	0.000751	Area (sq ft)		950.71	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	534.10	Top Width (ft)		534.10	
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.78	
Conv. Total (cfs)	59264.0	Conv. (cfs)		59264.0	
Length Wtd. (ft)	404.55	Wetted Per. (ft)		534.35	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.14	
Frctn Loss (ft)	0.87	Cum Volume (acre-ft)	24.61	31.43	
C & E Loss (ft)	0.03	Cum SA (acres)	13.40	22.68	

Plan: EX River 1 Reach 1 RS: 2215 Profile: 10-Year

E.G. Elev (ft)	17.55	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.39	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		1796.39	
E.G. Slope (ft/ft)	0.001240	Area (sq ft)		1796.39	
Q Total (cfs)	5900.00	Flow (cfs)		5900.00	
Top Width (ft)	551.05	Top Width (ft)		551.05	
Vel Total (ft/s)	3.28	Avg. Vel. (ft/s)		3.28	
Max Chl Dpth (ft)	3.39	Hydr. Depth (ft)		3.26	
Conv. Total (cfs)	167531.1	Conv. (cfs)		167531.1	
Length Wtd. (ft)	402.18	Wetted Per. (ft)		551.76	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.25	
Alpha	1.00	Stream Power (lb/ft s)		0.83	
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	54.59	74.81	
C & E Loss (ft)	0.02	Cum SA (acres)	17.60	23.99	

Plan: EX River 1 Reach 1 RS: 1817 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	14.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	14.25	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)	14.25	Flow Area (sq ft)	37.31	108.38	
E.G. Slope (ft/ft)	0.026384	Area (sq ft)	37.31	108.38	
Q Total (cfs)	426.00	Flow (cfs)	133.21	292.79	
Top Width (ft)	510.57	Top Width (ft)	68.65	441.92	
Vel Total (ft/s)	2.92	Avg. Vel. (ft/s)	3.57	2.70	
Max Chl Dpth (ft)	0.73	Hydr. Depth (ft)	0.54	0.25	
Conv. Total (cfs)	2622.6	Conv. (cfs)	820.1	1802.6	
Length Wtd. (ft)	630.69	Wetted Per. (ft)	68.69	441.99	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	0.89	0.40	
Alpha	1.05	Stream Power (lb/ft s)	3.19	1.09	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	11.95	9.08	
C & E Loss (ft)	0.04	Cum SA (acres)	10.25	15.02	

Plan: EX River 1 Reach 1 RS: 1817 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	14.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	14.64	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)	14.64	Flow Area (sq ft)	65.75	281.70	
E.G. Slope (ft/ft)	0.022706	Area (sq ft)	65.75	281.70	
Q Total (cfs)	1624.00	Flow (cfs)	294.74	1329.26	
Top Width (ft)	521.29	Top Width (ft)	76.79	444.50	
Vel Total (ft/s)	4.67	Avg. Vel. (ft/s)	4.48	4.72	
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)	0.86	0.63	
Conv. Total (cfs)	10777.5	Conv. (cfs)	1956.0	8821.5	
Length Wtd. (ft)	631.46	Wetted Per. (ft)	76.87	444.69	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	1.21	0.90	
Alpha	1.00	Stream Power (lb/ft s)	5.43	4.24	
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	24.25	25.81	
C & E Loss (ft)	0.10	Cum SA (acres)	12.99	18.21	

Plan: EX River 1 Reach 1 RS: 1817 Profile: 10-Year

E.G. Elev (ft)	16.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	16.26	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)		Flow Area (sq ft)	228.57	1010.94	
E.G. Slope (ft/ft)	0.005067	Area (sq ft)	228.57	1010.94	
Q Total (cfs)	5900.00	Flow (cfs)	700.00	5200.00	
Top Width (ft)	607.98	Top Width (ft)	153.41	454.58	
Vel Total (ft/s)	4.76	Avg. Vel. (ft/s)	3.06	5.14	
Max Chl Dpth (ft)	2.74	Hydr. Depth (ft)	1.49	2.22	
Conv. Total (cfs)	82882.2	Conv. (cfs)	9833.4	73048.8	
Length Wtd. (ft)	631.76	Wetted Per. (ft)	153.69	455.29	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	0.47	0.70	
Alpha	1.08	Stream Power (lb/ft s)	1.44	3.61	
Frctn Loss (ft)	0.39	Cum Volume (acre-ft)	53.35	62.00	
C & E Loss (ft)	0.10	Cum SA (acres)	16.76	19.40	

Plan: EX River 1 Reach 1 RS: 1183 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	12.93	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	377.01	438.81	
E.G. Slope (ft/ft)	0.000226	Area (sq ft)	377.01	438.81	
Q Total (cfs)	426.00	Flow (cfs)	176.01	249.99	
Top Width (ft)	932.60	Top Width (ft)	412.92	519.69	
Vel Total (ft/s)	0.52	Avg. Vel. (ft/s)	0.47	0.57	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)	0.91	0.84	
Conv. Total (cfs)	28351.2	Conv. (cfs)	11714.1	16637.2	
Length Wtd. (ft)	591.07	Wetted Per. (ft)	413.05	519.95	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.01	0.01	
Alpha	1.03	Stream Power (lb/ft s)	0.01	0.01	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	8.97	5.10	
C & E Loss (ft)	0.00	Cum SA (acres)	6.80	8.03	

Plan: EX River 1 Reach 1 RS: 1183 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	14.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	14.13	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	891.23	1127.61	
E.G. Slope (ft/ft)	0.000199	Area (sq ft)	891.23	1127.61	
Q Total (cfs)	1624.00	Flow (cfs)	616.60	1007.40	
Top Width (ft)	1109.02	Top Width (ft)	491.42	617.60	
Vel Total (ft/s)	0.80	Avg. Vel. (ft/s)	0.69	0.89	
Max Chl Dpth (ft)	2.13	Hydr. Depth (ft)	1.81	1.83	
Conv. Total (cfs)	115219.9	Conv. (cfs)	43746.4	71473.5	
Length Wtd. (ft)	587.66	Wetted Per. (ft)	491.74	618.11	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.02	0.02	
Alpha	1.05	Stream Power (lb/ft s)	0.02	0.02	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	17.39	15.55	
C & E Loss (ft)	0.00	Cum SA (acres)	8.91	10.48	

Plan: EX River 1 Reach 1 RS: 1183 Profile: 10-Year

E.G. Elev (ft)	16.14	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	16.11	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	1900.01	2358.32	
E.G. Slope (ft/ft)	0.000229	Area (sq ft)	1900.01	2358.32	
Q Total (cfs)	5900.00	Flow (cfs)	2237.03	3662.97	
Top Width (ft)	1155.74	Top Width (ft)	529.83	625.91	
Vel Total (ft/s)	1.39	Avg. Vel. (ft/s)	1.18	1.55	
Max Chl Dpth (ft)	4.11	Hydr. Depth (ft)	3.59	3.77	
Conv. Total (cfs)	389906.5	Conv. (cfs)	147836.2	242070.3	
Length Wtd. (ft)	585.07	Wetted Per. (ft)	530.54	627.31	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.05	0.05	
Alpha	1.05	Stream Power (lb/ft s)	0.06	0.08	
Frctn Loss (ft)	0.24	Cum Volume (acre-ft)	38.09	37.47	
C & E Loss (ft)	0.01	Cum SA (acres)	11.86	11.54	

Plan: EX River 1 Reach 1 RS: 612 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	12.75	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	376.37	95.24	
E.G. Slope (ft/ft)	0.000380	Area (sq ft)	376.37	95.24	
Q Total (cfs)	426.00	Flow (cfs)	373.28	52.72	
Top Width (ft)	369.74	Top Width (ft)	196.03	173.72	
Vel Total (ft/s)	0.90	Avg. Vel. (ft/s)	0.99	0.55	
Max Chl Dpth (ft)	2.75	Hydr. Depth (ft)	1.92	0.55	
Conv. Total (cfs)	21867.4	Conv. (cfs)	19160.9	2706.4	
Length Wtd. (ft)	544.90	Wetted Per. (ft)	196.60	173.91	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.05	0.01	
Alpha	1.10	Stream Power (lb/ft s)	0.04	0.01	
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	3.76	1.60	
C & E Loss (ft)	0.00	Cum SA (acres)	2.59	3.49	

Plan: EX River 1 Reach 1 RS: 612 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	13.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	13.89	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	627.60	370.87	
E.G. Slope (ft/ft)	0.000772	Area (sq ft)	627.60	370.87	
Q Total (cfs)	1624.00	Flow (cfs)	1130.31	493.69	
Top Width (ft)	592.10	Top Width (ft)	283.34	308.77	
Vel Total (ft/s)	1.63	Avg. Vel. (ft/s)	1.80	1.33	
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)	2.22	1.20	
Conv. Total (cfs)	58462.5	Conv. (cfs)	40690.1	17772.4	
Length Wtd. (ft)	551.66	Wetted Per. (ft)	284.22	309.25	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.11	0.06	
Alpha	1.06	Stream Power (lb/ft s)	0.19	0.08	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	6.89	5.74	
C & E Loss (ft)	0.00	Cum SA (acres)	3.56	4.41	

Plan: EX River 1 Reach 1 RS: 612 Profile: 10-Year

E.G. Elev (ft)	15.90	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	15.81	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	1361.88	1083.49	
E.G. Slope (ft/ft)	0.000885	Area (sq ft)	1361.88	1083.49	
Q Total (cfs)	5900.00	Flow (cfs)	3153.35	2746.65	
Top Width (ft)	815.89	Top Width (ft)	435.91	379.97	
Vel Total (ft/s)	2.41	Avg. Vel. (ft/s)	2.32	2.54	
Max Chl Dpth (ft)	5.81	Hydr. Depth (ft)	3.12	2.85	
Conv. Total (cfs)	198285.6	Conv. (cfs)	105976.9	92308.8	
Length Wtd. (ft)	555.26	Wetted Per. (ft)	437.54	381.14	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.17	0.16	
Alpha	1.01	Stream Power (lb/ft s)	0.40	0.40	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	15.53	14.94	
C & E Loss (ft)	0.00	Cum SA (acres)	5.19	4.95	

Plan: EX River 1 Reach 1 RS: 43 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.44	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	12.42	Reach Len. (ft)			
Crit W.S. (ft)	11.17	Flow Area (sq ft)	232.26	149.71	
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	232.26	149.71	
Q Total (cfs)	426.00	Flow (cfs)	313.84	112.16	
Top Width (ft)	581.54	Top Width (ft)	222.48	359.06	
Vel Total (ft/s)	1.12	Avg. Vel. (ft/s)	1.35	0.75	
Max Chl Dpth (ft)	2.42	Hydr. Depth (ft)	1.04	0.42	
Conv. Total (cfs)	13469.8	Conv. (cfs)	9923.4	3546.4	
Length Wtd. (ft)		Wetted Per. (ft)	222.81	359.18	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.07	0.03	
Alpha	1.20	Stream Power (lb/ft s)	0.09	0.02	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: EX River 1 Reach 1 RS: 43 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	13.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	13.40	Reach Len. (ft)			
Crit W.S. (ft)	12.46	Flow Area (sq ft)	485.81	506.08	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	485.81	506.08	
Q Total (cfs)	1624.00	Flow (cfs)	780.36	843.64	
Top Width (ft)	657.06	Top Width (ft)	291.46	365.60	
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	1.61	1.67	
Max Chl Dpth (ft)	3.40	Hydr. Depth (ft)	1.67	1.38	
Conv. Total (cfs)	51321.1	Conv. (cfs)	24660.7	26660.4	
Length Wtd. (ft)		Wetted Per. (ft)	292.01	366.13	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.10	0.09	
Alpha	1.00	Stream Power (lb/ft s)	0.17	0.14	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: EX River 1 Reach 1 RS: 43 Profile: 10-Year

E.G. Elev (ft)	15.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.045	0.035	
W.S. Elev (ft)	15.27	Reach Len. (ft)			
Crit W.S. (ft)	13.24	Flow Area (sq ft)	1149.51	1199.62	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	1149.51	1199.62	
Q Total (cfs)	5900.00	Flow (cfs)	2420.09	3479.91	
Top Width (ft)	778.92	Top Width (ft)	402.49	376.43	
Vel Total (ft/s)	2.51	Avg. Vel. (ft/s)	2.11	2.90	
Max Chl Dpth (ft)	5.27	Hydr. Depth (ft)	2.86	3.19	
Conv. Total (cfs)	186526.3	Conv. (cfs)	76510.2	110016.1	
Length Wtd. (ft)		Wetted Per. (ft)	403.60	377.84	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.18	0.20	
Alpha	1.08	Stream Power (lb/ft s)	0.37	0.58	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: PR River 1 Reach 1 RS: 8741 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	23.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	23.57	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	1.24	155.14	0.02
E.G. Slope (ft/ft)	0.002474	Area (sq ft)	1.24	155.14	0.02
Q Total (cfs)	426.00	Flow (cfs)	0.85	425.15	0.01
Top Width (ft)	110.18	Top Width (ft)	5.43	104.52	0.23
Vel Total (ft/s)	2.72	Avg. Vel. (ft/s)	0.69	2.74	0.31
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)	0.23	1.48	0.08
Conv. Total (cfs)	8564.9	Conv. (cfs)	17.1	8547.7	0.1
Length Wtd. (ft)	800.45	Wetted Per. (ft)	5.45	104.93	0.29
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.04	0.23	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.02	0.63	0.00
Frctn Loss (ft)	0.99	Cum Volume (acre-ft)	11.93	48.48	0.37
C & E Loss (ft)	0.02	Cum SA (acres)	11.22	48.02	0.73

Plan: PR River 1 Reach 1 RS: 8741 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	25.82	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	25.56	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	70.61	363.21	3.23
E.G. Slope (ft/ft)	0.001833	Area (sq ft)	70.61	363.21	3.23
Q Total (cfs)	1624.00	Flow (cfs)	108.58	1510.72	4.70
Top Width (ft)	181.72	Top Width (ft)	74.21	104.52	2.99
Vel Total (ft/s)	3.72	Avg. Vel. (ft/s)	1.54	4.16	1.46
Max Chl Dpth (ft)	3.56	Hydr. Depth (ft)	0.95	3.47	1.08
Conv. Total (cfs)	37929.0	Conv. (cfs)	2536.0	35283.3	109.7
Length Wtd. (ft)	797.63	Wetted Per. (ft)	74.27	104.93	3.69
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.11	0.40	0.10
Alpha	1.18	Stream Power (lb/ft s)	0.17	1.65	0.15
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	29.12	112.15	7.42
C & E Loss (ft)	0.03	Cum SA (acres)	19.41	57.52	10.08

Plan: PR River 1 Reach 1 RS: 8741 Profile: 10-Year

E.G. Elev (ft)	28.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	28.18	Reach Len. (ft)	831.20	801.40	693.80
Crit W.S. (ft)		Flow Area (sq ft)	608.84	636.86	497.12
E.G. Slope (ft/ft)	0.001481	Area (sq ft)	608.84	636.86	497.12
Q Total (cfs)	5900.00	Flow (cfs)	1447.10	3461.57	991.33
Top Width (ft)	689.23	Top Width (ft)	283.87	104.52	300.84
Vel Total (ft/s)	3.39	Avg. Vel. (ft/s)	2.38	5.44	1.99
Max Chl Dpth (ft)	6.18	Hydr. Depth (ft)	2.14	6.09	1.65
Conv. Total (cfs)	153332.1	Conv. (cfs)	37607.9	89961.0	25763.3
Length Wtd. (ft)	775.92	Wetted Per. (ft)	283.95	104.93	301.68
Min Ch El (ft)	22.00	Shear (lb/sq ft)	0.20	0.56	0.15
Alpha	1.69	Stream Power (lb/ft s)	0.47	3.05	0.30
Frctn Loss (ft)	0.92	Cum Volume (acre-ft)	90.87	230.91	83.26
C & E Loss (ft)	0.02	Cum SA (acres)	34.28	59.57	35.25

Plan: PR River 1 Reach 1 RS: 7940 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	22.69	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	22.63	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	11.74	207.75	13.34
E.G. Slope (ft/ft)	0.000735	Area (sq ft)	11.74	207.75	13.34
Q Total (cfs)	426.00	Flow (cfs)	9.73	405.81	10.46
Top Width (ft)	128.95	Top Width (ft)	15.68	93.90	19.38
Vel Total (ft/s)	1.83	Avg. Vel. (ft/s)	0.83	1.95	0.78
Max Chl Dpth (ft)	2.63	Hydr. Depth (ft)	0.75	2.21	0.69
Conv. Total (cfs)	15712.0	Conv. (cfs)	358.7	14967.4	385.9
Length Wtd. (ft)	735.77	Wetted Per. (ft)	15.75	93.97	19.42
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.03	0.10	0.03
Alpha	1.10	Stream Power (lb/ft s)	0.03	0.20	0.02
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	11.80	45.14	0.26
C & E Loss (ft)	0.00	Cum SA (acres)	11.02	46.19	0.58

Plan: PR River 1 Reach 1 RS: 7940 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	24.73	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.16	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	24.57	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	62.33	390.30	172.71
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	62.33	390.30	172.71
Q Total (cfs)	1624.00	Flow (cfs)	102.51	1353.88	167.61
Top Width (ft)	361.24	Top Width (ft)	37.46	93.90	229.88
Vel Total (ft/s)	2.60	Avg. Vel. (ft/s)	1.64	3.47	0.97
Max Chl Dpth (ft)	4.57	Hydr. Depth (ft)	1.66	4.16	0.75
Conv. Total (cfs)	51357.2	Conv. (cfs)	3241.9	42814.8	5300.4
Length Wtd. (ft)	741.48	Wetted Per. (ft)	37.62	93.97	230.00
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.10	0.26	0.05
Alpha	1.53	Stream Power (lb/ft s)	0.17	0.90	0.05
Frctn Loss (ft)	0.72	Cum Volume (acre-ft)	27.85	105.22	6.02
C & E Loss (ft)	0.01	Cum SA (acres)	18.34	55.69	8.23

Plan: PR River 1 Reach 1 RS: 7940 Profile: 10-Year

E.G. Elev (ft)	27.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.22	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	27.32	Reach Len. (ft)	760.30	734.80	790.40
Crit W.S. (ft)		Flow Area (sq ft)	237.82	647.86	1039.42
E.G. Slope (ft/ft)	0.000972	Area (sq ft)	237.82	647.86	1039.42
Q Total (cfs)	5900.00	Flow (cfs)	462.32	3105.49	2332.18
Top Width (ft)	588.17	Top Width (ft)	109.09	93.90	385.18
Vel Total (ft/s)	3.06	Avg. Vel. (ft/s)	1.94	4.79	2.24
Max Chl Dpth (ft)	7.32	Hydr. Depth (ft)	2.18	6.90	2.70
Conv. Total (cfs)	189285.1	Conv. (cfs)	14832.4	99631.1	74821.6
Length Wtd. (ft)	756.63	Wetted Per. (ft)	109.32	93.97	385.34
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.13	0.42	0.16
Alpha	1.53	Stream Power (lb/ft s)	0.26	2.00	0.37
Frctn Loss (ft)	0.66	Cum Volume (acre-ft)	82.79	219.09	71.03
C & E Loss (ft)	0.01	Cum SA (acres)	30.53	57.75	29.78

Plan: PR River 1 Reach 1 RS: 7205 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	22.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.000	0.035	0.040
W.S. Elev (ft)	22.01	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	0.00	222.35	0.04
E.G. Slope (ft/ft)	0.000948	Area (sq ft)	0.00	222.35	0.04
Q Total (cfs)	426.00	Flow (cfs)	0.00	426.00	0.00
Top Width (ft)	127.63	Top Width (ft)	0.55	125.00	2.08
Vel Total (ft/s)	1.92	Avg. Vel. (ft/s)	0.04	1.92	0.09
Max Chl Dpth (ft)	2.01	Hydr. Depth (ft)	0.01	1.78	0.02
Conv. Total (cfs)	13839.4	Conv. (cfs)	0.0	13839.3	0.1
Length Wtd. (ft)	308.70	Wetted Per. (ft)	0.55	125.26	2.08
Min Ch El (ft)	20.00	Shear (lb/sq ft)		0.11	0.00
Alpha	1.00	Stream Power (lb/ft s)		0.20	0.00
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	11.70	41.52	0.14
C & E Loss (ft)	0.00	Cum SA (acres)	10.88	44.35	0.38

Plan: PR River 1 Reach 1 RS: 7205 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	24.01	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	23.88	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	82.00	455.39	131.49
E.G. Slope (ft/ft)	0.000938	Area (sq ft)	82.00	455.39	131.49
Q Total (cfs)	1624.00	Flow (cfs)	88.55	1400.21	135.24
Top Width (ft)	366.70	Top Width (ft)	88.68	125.00	153.02
Vel Total (ft/s)	2.43	Avg. Vel. (ft/s)	1.08	3.07	1.03
Max Chl Dpth (ft)	3.88	Hydr. Depth (ft)	0.92	3.64	0.86
Conv. Total (cfs)	53016.3	Conv. (cfs)	2890.8	45710.6	4414.9
Length Wtd. (ft)	305.12	Wetted Per. (ft)	88.70	125.26	153.04
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.05	0.21	0.05
Alpha	1.41	Stream Power (lb/ft s)	0.06	0.65	0.05
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	26.59	98.09	3.26
C & E Loss (ft)	0.01	Cum SA (acres)	17.24	53.85	4.75

Plan: PR River 1 Reach 1 RS: 7205 Profile: 10-Year

E.G. Elev (ft)	26.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	26.69	Reach Len. (ft)	320.90	308.70	230.70
Crit W.S. (ft)		Flow Area (sq ft)	517.57	807.57	785.70
E.G. Slope (ft/ft)	0.000780	Area (sq ft)	517.57	807.57	785.70
Q Total (cfs)	5900.00	Flow (cfs)	916.53	3315.90	1667.58
Top Width (ft)	625.29	Top Width (ft)	231.95	125.00	268.34
Vel Total (ft/s)	2.80	Avg. Vel. (ft/s)	1.77	4.11	2.12
Max Chl Dpth (ft)	6.69	Hydr. Depth (ft)	2.23	6.46	2.93
Conv. Total (cfs)	211317.0	Conv. (cfs)	32826.8	118763.7	59726.6
Length Wtd. (ft)	291.77	Wetted Per. (ft)	232.00	125.26	268.41
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.11	0.31	0.14
Alpha	1.44	Stream Power (lb/ft s)	0.19	1.29	0.30
Frctn Loss (ft)	0.25	Cum Volume (acre-ft)	76.20	206.82	54.47
C & E Loss (ft)	0.00	Cum SA (acres)	27.56	55.90	23.86

Plan: PR River 1 Reach 1 RS: 6896 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	21.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.035	
W.S. Elev (ft)	21.54	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)		170.84	
E.G. Slope (ft/ft)	0.002255	Area (sq ft)		170.84	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	124.01	Top Width (ft)		124.01	
Vel Total (ft/s)	2.49	Avg. Vel. (ft/s)		2.49	
Max Chl Dpth (ft)	1.54	Hydr. Depth (ft)		1.38	
Conv. Total (cfs)	8970.3	Conv. (cfs)		8970.3	
Length Wtd. (ft)	358.20	Wetted Per. (ft)		124.21	
Min Ch El (ft)	20.00	Shear (lb/sq ft)		0.19	
Alpha	1.00	Stream Power (lb/ft s)		0.48	
Frctn Loss (ft)	1.17	Cum Volume (acre-ft)	11.70	40.12	0.14
C & E Loss (ft)	0.02	Cum SA (acres)	10.88	43.46	0.38

Plan: PR River 1 Reach 1 RS: 6896 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	23.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	23.45	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)	65.32	420.05	32.39
E.G. Slope (ft/ft)	0.001514	Area (sq ft)	65.32	420.05	32.39
Q Total (cfs)	1624.00	Flow (cfs)	76.99	1507.48	39.53
Top Width (ft)	261.26	Top Width (ft)	88.67	130.90	41.69
Vel Total (ft/s)	3.14	Avg. Vel. (ft/s)	1.18	3.59	1.22
Max Chl Dpth (ft)	3.45	Hydr. Depth (ft)	0.74	3.21	0.78
Conv. Total (cfs)	41744.0	Conv. (cfs)	1978.9	38748.9	1016.2
Length Wtd. (ft)	360.51	Wetted Per. (ft)	88.68	131.15	41.72
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.07	0.30	0.07
Alpha	1.23	Stream Power (lb/ft s)	0.08	1.09	0.09
Frctn Loss (ft)	0.97	Cum Volume (acre-ft)	26.05	94.99	2.83
C & E Loss (ft)	0.05	Cum SA (acres)	16.59	52.94	4.24

Plan: PR River 1 Reach 1 RS: 6896 Profile: 10-Year

E.G. Elev (ft)	26.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	26.40	Reach Len. (ft)	498.50	358.20	261.20
Crit W.S. (ft)		Flow Area (sq ft)	560.74	805.94	588.39
E.G. Slope (ft/ft)	0.000970	Area (sq ft)	560.74	805.94	588.39
Q Total (cfs)	5900.00	Flow (cfs)	1113.31	3574.82	1211.87
Top Width (ft)	627.81	Top Width (ft)	249.35	130.90	247.56
Vel Total (ft/s)	3.02	Avg. Vel. (ft/s)	1.99	4.44	2.06
Max Chl Dpth (ft)	6.40	Hydr. Depth (ft)	2.25	6.16	2.38
Conv. Total (cfs)	189460.8	Conv. (cfs)	35750.6	114794.7	38915.5
Length Wtd. (ft)	366.81	Wetted Per. (ft)	249.39	131.15	247.68
Min Ch El (ft)	20.00	Shear (lb/sq ft)	0.14	0.37	0.14
Alpha	1.49	Stream Power (lb/ft s)	0.27	1.65	0.30
Frctn Loss (ft)	0.65	Cum Volume (acre-ft)	72.23	201.10	50.83
C & E Loss (ft)	0.08	Cum SA (acres)	25.79	54.99	22.49

Plan: PR River 1 Reach 1 RS: 6538 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	20.45	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.25	Wt. n-Val.		0.035	
W.S. Elev (ft)	20.20	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)	19.65	Flow Area (sq ft)		106.61	
E.G. Slope (ft/ft)	0.005144	Area (sq ft)		106.61	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	70.47	Top Width (ft)		70.47	
Vel Total (ft/s)	4.00	Avg. Vel. (ft/s)		4.00	
Max Chl Dpth (ft)	2.20	Hydr. Depth (ft)		1.51	
Conv. Total (cfs)	5939.7	Conv. (cfs)		5939.7	
Length Wtd. (ft)	425.70	Wetted Per. (ft)		70.91	
Min Ch El (ft)	18.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		1.93	
Frctn Loss (ft)	1.72	Cum Volume (acre-ft)	11.70	38.98	0.14
C & E Loss (ft)	0.03	Cum SA (acres)	10.88	42.66	0.38

Plan: PR River 1 Reach 1 RS: 6538 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	22.62	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.73	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	21.88	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)		Flow Area (sq ft)	3.61	234.31	1.79
E.G. Slope (ft/ft)	0.006069	Area (sq ft)	3.61	234.31	1.79
Q Total (cfs)	1624.00	Flow (cfs)	6.35	1614.09	3.55
Top Width (ft)	87.79	Top Width (ft)	7.53	77.39	2.87
Vel Total (ft/s)	6.78	Avg. Vel. (ft/s)	1.76	6.89	1.99
Max Chl Dpth (ft)	3.88	Hydr. Depth (ft)	0.48	3.03	0.62
Conv. Total (cfs)	20846.0	Conv. (cfs)	81.5	20718.9	45.6
Length Wtd. (ft)	425.46	Wetted Per. (ft)	7.59	77.95	3.13
Min Ch El (ft)	18.00	Shear (lb/sq ft)	0.18	1.14	0.22
Alpha	1.03	Stream Power (lb/ft s)	0.32	7.85	0.43
Frctn Loss (ft)	1.65	Cum Volume (acre-ft)	25.66	92.30	2.73
C & E Loss (ft)	0.13	Cum SA (acres)	16.04	52.08	4.11

Plan: PR River 1 Reach 1 RS: 6538 Profile: 10-Year

E.G. Elev (ft)	25.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.98	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	24.90	Reach Len. (ft)	295.40	425.70	439.50
Crit W.S. (ft)	24.90	Flow Area (sq ft)	280.46	467.87	296.11
E.G. Slope (ft/ft)	0.004258	Area (sq ft)	280.46	467.87	296.11
Q Total (cfs)	5900.00	Flow (cfs)	927.04	4281.13	691.82
Top Width (ft)	565.64	Top Width (ft)	176.05	77.39	312.20
Vel Total (ft/s)	5.65	Avg. Vel. (ft/s)	3.31	9.15	2.34
Max Chl Dpth (ft)	6.90	Hydr. Depth (ft)	1.59	6.05	0.95
Conv. Total (cfs)	90411.5	Conv. (cfs)	14206.0	65604.1	10601.5
Length Wtd. (ft)	416.23	Wetted Per. (ft)	176.14	77.95	312.95
Min Ch El (ft)	18.00	Shear (lb/sq ft)	0.42	1.60	0.25
Alpha	1.98	Stream Power (lb/ft s)	1.40	14.60	0.59
Frctn Loss (ft)	1.58	Cum Volume (acre-ft)	67.41	195.86	48.18
C & E Loss (ft)	0.04	Cum SA (acres)	23.35	54.14	20.81

Plan: PR River 1 Reach 1 RS: 6112 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	18.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.		0.035	
W.S. Elev (ft)	18.56	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)		141.36	
E.G. Slope (ft/ft)	0.003241	Area (sq ft)		141.36	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	101.15	Top Width (ft)		101.15	
Vel Total (ft/s)	3.01	Avg. Vel. (ft/s)		3.01	
Max Chl Dpth (ft)	1.56	Hydr. Depth (ft)		1.40	
Conv. Total (cfs)	7482.7	Conv. (cfs)		7482.7	
Length Wtd. (ft)	544.07	Wetted Per. (ft)		101.54	
Min Ch El (ft)	17.00	Shear (lb/sq ft)		0.28	
Alpha	1.00	Stream Power (lb/ft s)		0.85	
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	11.70	37.77	0.14
C & E Loss (ft)	0.03	Cum SA (acres)	10.88	41.83	0.38

Plan: PR River 1 Reach 1 RS: 6112 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	20.84	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.30	Wt. n-Val.		0.035	
W.S. Elev (ft)	20.54	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)		367.62	
E.G. Slope (ft/ft)	0.002685	Area (sq ft)		367.62	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	128.31	Top Width (ft)		128.31	
Vel Total (ft/s)	4.42	Avg. Vel. (ft/s)		4.42	
Max Chl Dpth (ft)	3.54	Hydr. Depth (ft)		2.87	
Conv. Total (cfs)	31339.1	Conv. (cfs)		31339.1	
Length Wtd. (ft)	544.84	Wetted Per. (ft)		129.20	
Min Ch El (ft)	17.00	Shear (lb/sq ft)		0.48	
Alpha	1.00	Stream Power (lb/ft s)		2.11	
Frctn Loss (ft)	0.74	Cum Volume (acre-ft)	25.64	89.35	2.72
C & E Loss (ft)	0.05	Cum SA (acres)	16.01	51.08	4.09

Plan: PR River 1 Reach 1 RS: 6112 Profile: 10-Year

E.G. Elev (ft)	24.13	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.85	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	23.29	Reach Len. (ft)	513.00	544.00	578.90
Crit W.S. (ft)		Flow Area (sq ft)	13.97	745.84	96.04
E.G. Slope (ft/ft)	0.003388	Area (sq ft)	13.97	745.84	96.04
Q Total (cfs)	5900.00	Flow (cfs)	29.71	5621.98	248.31
Top Width (ft)	226.51	Top Width (ft)	14.20	138.92	73.39
Vel Total (ft/s)	6.89	Avg. Vel. (ft/s)	2.13	7.54	2.59
Max Chl Dpth (ft)	6.29	Hydr. Depth (ft)	0.98	5.37	1.31
Conv. Total (cfs)	101362.3	Conv. (cfs)	510.4	96585.9	4266.0
Length Wtd. (ft)	543.82	Wetted Per. (ft)	14.33	140.00	73.45
Min Ch El (ft)	17.00	Shear (lb/sq ft)	0.21	1.13	0.28
Alpha	1.15	Stream Power (lb/ft s)	0.44	8.49	0.72
Frctn Loss (ft)	0.76	Cum Volume (acre-ft)	66.42	189.93	46.20
C & E Loss (ft)	0.19	Cum SA (acres)	22.71	53.08	18.87

Plan: PR River 1 Reach 1 RS: 5568 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	18.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.04	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	18.02	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	5.81	244.67	9.58
E.G. Slope (ft/ft)	0.000563	Area (sq ft)	5.81	244.67	9.58
Q Total (cfs)	426.00	Flow (cfs)	3.64	417.52	4.85
Top Width (ft)	142.54	Top Width (ft)	9.62	110.90	22.02
Vel Total (ft/s)	1.64	Avg. Vel. (ft/s)	0.63	1.71	0.51
Max Chl Dpth (ft)	2.52	Hydr. Depth (ft)	0.60	2.21	0.44
Conv. Total (cfs)	17950.2	Conv. (cfs)	153.3	17592.7	204.2
Length Wtd. (ft)	600.50	Wetted Per. (ft)	9.70	111.01	22.06
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.02	0.08	0.02
Alpha	1.07	Stream Power (lb/ft s)	0.01	0.13	0.01
Frctn Loss (ft)	0.42	Cum Volume (acre-ft)	11.67	35.36	0.08
C & E Loss (ft)	0.00	Cum SA (acres)	10.82	40.50	0.23

Plan: PR River 1 Reach 1 RS: 5568 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	20.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	19.91	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	92.15	454.15	107.88
E.G. Slope (ft/ft)	0.000825	Area (sq ft)	92.15	454.15	107.88
Q Total (cfs)	1624.00	Flow (cfs)	68.01	1417.03	138.96
Top Width (ft)	352.29	Top Width (ft)	160.11	110.90	81.28
Vel Total (ft/s)	2.48	Avg. Vel. (ft/s)	0.74	3.12	1.29
Max Chl Dpth (ft)	4.41	Hydr. Depth (ft)	0.58	4.10	1.33
Conv. Total (cfs)	56524.1	Conv. (cfs)	2367.0	49320.5	4836.6
Length Wtd. (ft)	587.53	Wetted Per. (ft)	160.27	111.01	81.36
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.03	0.21	0.07
Alpha	1.41	Stream Power (lb/ft s)	0.02	0.66	0.09
Frctn Loss (ft)	0.61	Cum Volume (acre-ft)	25.10	84.22	2.00
C & E Loss (ft)	0.01	Cum SA (acres)	15.07	49.59	3.55

Plan: PR River 1 Reach 1 RS: 5568 Profile: 10-Year

E.G. Elev (ft)	23.18	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.21	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	22.98	Reach Len. (ft)	291.40	601.60	650.50
Crit W.S. (ft)		Flow Area (sq ft)	639.01	794.16	429.02
E.G. Slope (ft/ft)	0.000759	Area (sq ft)	639.01	794.16	429.02
Q Total (cfs)	5900.00	Flow (cfs)	1447.08	3448.92	1004.00
Top Width (ft)	427.00	Top Width (ft)	192.21	110.90	123.89
Vel Total (ft/s)	3.17	Avg. Vel. (ft/s)	2.26	4.34	2.34
Max Chl Dpth (ft)	7.48	Hydr. Depth (ft)	3.32	7.16	3.46
Conv. Total (cfs)	214143.8	Conv. (cfs)	52522.7	125180.5	36440.6
Length Wtd. (ft)	535.40	Wetted Per. (ft)	194.15	111.01	124.08
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.16	0.34	0.16
Alpha	1.32	Stream Power (lb/ft s)	0.35	1.47	0.38
Frctn Loss (ft)	0.36	Cum Volume (acre-ft)	62.57	180.32	42.71
C & E Loss (ft)	0.02	Cum SA (acres)	21.49	51.52	17.56

Plan: PR River 1 Reach 1 RS: 4967 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.64	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	17.58	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	0.61	212.17	0.37
E.G. Slope (ft/ft)	0.000901	Area (sq ft)	0.61	212.17	0.37
Q Total (cfs)	426.00	Flow (cfs)	0.16	425.77	0.07
Top Width (ft)	117.56	Top Width (ft)	5.57	106.70	5.29
Vel Total (ft/s)	2.00	Avg. Vel. (ft/s)	0.26	2.01	0.19
Max Chl Dpth (ft)	2.08	Hydr. Depth (ft)	0.11	1.99	0.07
Conv. Total (cfs)	14190.3	Conv. (cfs)	5.2	14182.8	2.3
Length Wtd. (ft)	247.19	Wetted Per. (ft)	5.57	107.39	5.29
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.01	0.11	0.00
Alpha	1.01	Stream Power (lb/ft s)	0.00	0.22	0.00
Frctn Loss (ft)	0.26	Cum Volume (acre-ft)	11.64	32.20	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.77	39.00	0.03

Plan: PR River 1 Reach 1 RS: 4967 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	19.43	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	19.24	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	95.28	389.34	79.76
E.G. Slope (ft/ft)	0.001351	Area (sq ft)	95.28	389.34	105.30
Q Total (cfs)	1624.00	Flow (cfs)	113.36	1433.84	76.79
Top Width (ft)	486.28	Top Width (ft)	117.13	106.70	262.46
Vel Total (ft/s)	2.88	Avg. Vel. (ft/s)	1.19	3.68	0.96
Max Chl Dpth (ft)	3.74	Hydr. Depth (ft)	0.81	3.65	0.59
Conv. Total (cfs)	44183.4	Conv. (cfs)	3084.2	39009.9	2089.3
Length Wtd. (ft)	246.56	Wetted Per. (ft)	117.15	107.39	134.69
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.07	0.31	0.05
Alpha	1.46	Stream Power (lb/ft s)	0.08	1.13	0.05
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	24.47	78.40	0.41
C & E Loss (ft)	0.04	Cum SA (acres)	14.14	48.08	0.98

Plan: PR River 1 Reach 1 RS: 4967 Profile: 10-Year

E.G. Elev (ft)	22.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	22.67	Reach Len. (ft)	186.00	247.20	310.40
Crit W.S. (ft)		Flow Area (sq ft)	824.31	754.92	1561.41
E.G. Slope (ft/ft)	0.000610	Area (sq ft)	824.31	754.92	3524.30
Q Total (cfs)	5900.00	Flow (cfs)	1469.87	2905.08	1525.05
Top Width (ft)	1853.87	Top Width (ft)	302.67	106.70	1444.50
Vel Total (ft/s)	1.88	Avg. Vel. (ft/s)	1.78	3.85	0.98
Max Chl Dpth (ft)	7.17	Hydr. Depth (ft)	2.72	7.08	1.08
Conv. Total (cfs)	238869.7	Conv. (cfs)	59509.9	117616.2	61743.6
Length Wtd. (ft)	249.06	Wetted Per. (ft)	304.26	107.39	1446.19
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.10	0.27	0.04
Alpha	2.36	Stream Power (lb/ft s)	0.18	1.03	0.04
Frctn Loss (ft)	0.32	Cum Volume (acre-ft)	57.68	169.62	13.19
C & E Loss (ft)	0.30	Cum SA (acres)	19.84	50.02	5.84

Plan: PR River 1 Reach 1 RS: 4720 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.37	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.30	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	16.31	Flow Area (sq ft)		195.82	
E.G. Slope (ft/ft)	0.001282	Area (sq ft)		195.82	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	116.32	Top Width (ft)		116.32	
Vel Total (ft/s)	2.18	Avg. Vel. (ft/s)		2.18	
Max Chl Dpth (ft)	1.80	Hydr. Depth (ft)		1.68	
Conv. Total (cfs)	11896.6	Conv. (cfs)		11896.6	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		116.77	
Min Ch El (ft)	15.50	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.29	
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	11.64	31.05	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.76	38.37	0.01

Plan: PR River 1 Reach 1 RS: 4720 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.91	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.		0.035	
W.S. Elev (ft)	18.57	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	17.44	Flow Area (sq ft)		348.48	
E.G. Slope (ft/ft)	0.002955	Area (sq ft)	3.88	348.72	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	132.67	Top Width (ft)	9.85	122.81	
Vel Total (ft/s)	4.66	Avg. Vel. (ft/s)		4.66	
Max Chl Dpth (ft)	3.07	Hydr. Depth (ft)		2.84	
Conv. Total (cfs)	29872.9	Conv. (cfs)		29872.9	
Length Wtd. (ft)	10.00	Wetted Per. (ft)		123.22	
Min Ch El (ft)	15.50	Shear (lb/sq ft)		0.52	
Alpha	1.00	Stream Power (lb/ft s)		2.43	
Frctn Loss (ft)	0.03	Cum Volume (acre-ft)	24.26	76.30	0.03
C & E Loss (ft)	0.03	Cum SA (acres)	13.87	47.43	0.05

Plan: PR River 1 Reach 1 RS: 4720 Profile: 10-Year

E.G. Elev (ft)	22.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.14	Wt. n-Val.		0.035	0.033
W.S. Elev (ft)	21.03	Reach Len. (ft)	10.00	10.00	10.00
Crit W.S. (ft)	20.00	Flow Area (sq ft)		651.23	52.20
E.G. Slope (ft/ft)	0.004517	Area (sq ft)	127.02	652.18	104.88
Q Total (cfs)	5900.00	Flow (cfs)		5654.30	245.70
Top Width (ft)	287.28	Top Width (ft)	71.53	123.39	92.36
Vel Total (ft/s)	8.39	Avg. Vel. (ft/s)		8.68	4.71
Max Chl Dpth (ft)	5.53	Hydr. Depth (ft)		5.29	1.94
Conv. Total (cfs)	87790.0	Conv. (cfs)		84134.0	3656.0
Length Wtd. (ft)	10.00	Wetted Per. (ft)		123.82	26.91
Min Ch El (ft)	15.50	Shear (lb/sq ft)		1.48	0.55
Alpha	1.04	Stream Power (lb/ft s)		12.88	2.57
Frctn Loss (ft)		Cum Volume (acre-ft)	55.64	165.63	0.26
C & E Loss (ft)		Cum SA (acres)	19.04	49.36	0.37

Plan: PR River 1 Reach 1 RS: 4701 BR U Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.36	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.28	Reach Len. (ft)	14.00	14.00	14.00
Crit W.S. (ft)	16.32	Flow Area (sq ft)		186.28	
E.G. Slope (ft/ft)	0.001410	Area (sq ft)		186.28	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	107.49	Top Width (ft)		107.49	
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)		2.29	
Max Chl Dpth (ft)	1.78	Hydr. Depth (ft)		1.73	
Conv. Total (cfs)	11345.2	Conv. (cfs)		11345.2	
Length Wtd. (ft)	14.00	Wetted Per. (ft)		109.42	
Min Ch El (ft)	15.50	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.34	
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	11.64	31.00	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.76	38.34	0.01

Plan: PR River 1 Reach 1 RS: 4701 BR U Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.85	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.		0.035	
W.S. Elev (ft)	18.43	Reach Len. (ft)	14.00	14.00	14.00
Crit W.S. (ft)	17.47	Flow Area (sq ft)		311.92	
E.G. Slope (ft/ft)	0.003853	Area (sq ft)		311.92	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	110.99	Top Width (ft)		110.99	
Vel Total (ft/s)	5.21	Avg. Vel. (ft/s)		5.21	
Max Chl Dpth (ft)	2.93	Hydr. Depth (ft)		2.81	
Conv. Total (cfs)	26161.8	Conv. (cfs)		26161.8	
Length Wtd. (ft)	14.00	Wetted Per. (ft)		114.29	
Min Ch El (ft)	15.50	Shear (lb/sq ft)		0.66	
Alpha	1.00	Stream Power (lb/ft s)		3.42	
Frctn Loss (ft)	0.05	Cum Volume (acre-ft)	24.26	76.23	0.03
C & E Loss (ft)	0.04	Cum SA (acres)	13.87	47.40	0.05

Plan: PR River 1 Reach 1 RS: 4701 BR U Profile: 10-Year

E.G. Elev (ft)	22.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.02	Wt. n-Val.		0.035	0.033
W.S. Elev (ft)	20.15	Reach Len. (ft)	14.00	14.00	14.00
Crit W.S. (ft)	20.15	Flow Area (sq ft)		504.29	22.01
E.G. Slope (ft/ft)	0.010028	Area (sq ft)		504.29	22.01
Q Total (cfs)	5900.00	Flow (cfs)		5794.23	105.77
Top Width (ft)	131.05	Top Width (ft)		111.97	19.08
Vel Total (ft/s)	11.21	Avg. Vel. (ft/s)		11.49	4.81
Max Chl Dpth (ft)	4.65	Hydr. Depth (ft)		4.50	1.15
Conv. Total (cfs)	58916.4	Conv. (cfs)		57860.2	1056.2
Length Wtd. (ft)	14.00	Wetted Per. (ft)		117.08	20.01
Min Ch El (ft)	15.50	Shear (lb/sq ft)		2.70	0.69
Alpha	1.03	Stream Power (lb/ft s)		30.98	3.31
Frctn Loss (ft)		Cum Volume (acre-ft)	55.63	165.50	0.25
C & E Loss (ft)		Cum SA (acres)	19.03	49.34	0.36

Plan: PR River 1 Reach 1 RS: 4701 BR D Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	17.26	Reach Len. (ft)	11.50	11.50	11.50
Crit W.S. (ft)	16.36	Flow Area (sq ft)	1.52	192.64	0.11
E.G. Slope (ft/ft)	0.001449	Area (sq ft)	1.52	192.64	0.11
Q Total (cfs)	426.00	Flow (cfs)	1.22	424.74	0.04
Top Width (ft)	128.88	Top Width (ft)	4.55	123.10	1.23
Vel Total (ft/s)	2.19	Avg. Vel. (ft/s)	0.80	2.20	0.34
Max Chl Dpth (ft)	1.76	Hydr. Depth (ft)	0.33	1.56	0.09
Conv. Total (cfs)	11190.2	Conv. (cfs)	32.0	11157.2	1.0
Length Wtd. (ft)	11.50	Wetted Per. (ft)	4.78	123.23	1.24
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.03	0.14	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.02	0.31	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	11.64	30.94	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	10.76	38.30	0.01

Plan: PR River 1 Reach 1 RS: 4701 BR D Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.35	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	18.41	Reach Len. (ft)	11.50	11.50	11.50
Crit W.S. (ft)	17.46	Flow Area (sq ft)	6.77	334.63	3.70
E.G. Slope (ft/ft)	0.003276	Area (sq ft)	6.77	334.63	3.70
Q Total (cfs)	1624.00	Flow (cfs)	19.00	1596.33	8.67
Top Width (ft)	131.06	Top Width (ft)	4.54	123.10	3.42
Vel Total (ft/s)	4.71	Avg. Vel. (ft/s)	2.81	4.77	2.34
Max Chl Dpth (ft)	2.91	Hydr. Depth (ft)	1.49	2.72	1.08
Conv. Total (cfs)	28375.6	Conv. (cfs)	331.9	27892.2	151.5
Length Wtd. (ft)	11.50	Wetted Per. (ft)	5.95	123.23	4.28
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.23	0.56	0.18
Alpha	1.02	Stream Power (lb/ft s)	0.65	2.65	0.41
Frctn Loss (ft)	0.04	Cum Volume (acre-ft)	24.26	76.12	0.03
C & E Loss (ft)	0.01	Cum SA (acres)	13.87	47.37	0.05

Plan: PR River 1 Reach 1 RS: 4701 BR D Profile: 10-Year

E.G. Elev (ft)	21.79	Element	Left OB	Channel	Right OB
Vel Head (ft)	2.00	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	19.78	Reach Len. (ft)	11.50	11.50	11.50
Crit W.S. (ft)	19.78	Flow Area (sq ft)	12.98	503.13	8.37
E.G. Slope (ft/ft)	0.010965	Area (sq ft)	12.98	503.13	8.37
Q Total (cfs)	5900.00	Flow (cfs)	89.84	5758.86	51.29
Top Width (ft)	131.03	Top Width (ft)	4.53	123.10	3.40
Vel Total (ft/s)	11.25	Avg. Vel. (ft/s)	6.92	11.45	6.13
Max Chl Dpth (ft)	4.28	Hydr. Depth (ft)	2.86	4.09	2.46
Conv. Total (cfs)	56344.5	Conv. (cfs)	858.0	54996.6	489.8
Length Wtd. (ft)	11.50	Wetted Per. (ft)	7.29	123.23	5.65
Min Ch El (ft)	15.50	Shear (lb/sq ft)	1.22	2.79	1.01
Alpha	1.02	Stream Power (lb/ft s)	8.43	31.99	6.21
Frctn Loss (ft)		Cum Volume (acre-ft)	55.63	165.33	0.24
C & E Loss (ft)		Cum SA (acres)	19.03	49.30	0.35

Plan: PR River 1 Reach 1 RS: 4684 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	17.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	17.24	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)		Flow Area (sq ft)	1.99	190.20	0.09
E.G. Slope (ft/ft)	0.001512	Area (sq ft)	1.99	190.20	0.09
Q Total (cfs)	426.00	Flow (cfs)	1.21	424.76	0.03
Top Width (ft)	133.85	Top Width (ft)	9.65	123.10	1.10
Vel Total (ft/s)	2.22	Avg. Vel. (ft/s)	0.61	2.23	0.32
Max Chl Dpth (ft)	1.74	Hydr. Depth (ft)	0.21	1.55	0.08
Conv. Total (cfs)	10956.4	Conv. (cfs)	31.2	10924.5	0.7
Length Wtd. (ft)	560.06	Wetted Per. (ft)	9.66	123.23	1.11
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.02	0.15	0.01
Alpha	1.01	Stream Power (lb/ft s)	0.01	0.33	0.00
Frctn Loss (ft)	1.09	Cum Volume (acre-ft)	11.64	30.89	0.00
C & E Loss (ft)	0.01	Cum SA (acres)	10.76	38.27	0.01

Plan: PR River 1 Reach 1 RS: 4684 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	18.72	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.33	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	18.39	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)		Flow Area (sq ft)	22.78	331.37	5.46
E.G. Slope (ft/ft)	0.003187	Area (sq ft)	28.48	331.37	5.80
Q Total (cfs)	1624.00	Flow (cfs)	62.70	1549.29	12.01
Top Width (ft)	168.51	Top Width (ft)	36.54	123.10	8.87
Vel Total (ft/s)	4.52	Avg. Vel. (ft/s)	2.75	4.68	2.20
Max Chl Dpth (ft)	2.89	Hydr. Depth (ft)	1.13	2.69	0.81
Conv. Total (cfs)	28765.7	Conv. (cfs)	1110.7	27442.4	212.7
Length Wtd. (ft)	576.87	Wetted Per. (ft)	20.22	123.23	6.77
Min Ch El (ft)	15.50	Shear (lb/sq ft)	0.22	0.54	0.16
Alpha	1.04	Stream Power (lb/ft s)	0.62	2.50	0.35
Frctn Loss (ft)	1.08	Cum Volume (acre-ft)	24.26	76.04	0.03
C & E Loss (ft)	0.13	Cum SA (acres)	13.87	47.33	0.05

Plan: PR River 1 Reach 1 RS: 4684 Profile: 10-Year

E.G. Elev (ft)	21.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.30	Wt. n-Val.	0.033	0.035	0.033
W.S. Elev (ft)	20.33	Reach Len. (ft)	1518.00	558.70	463.90
Crit W.S. (ft)		Flow Area (sq ft)	61.96	570.12	18.45
E.G. Slope (ft/ft)	0.006150	Area (sq ft)	160.21	570.12	35.76
Q Total (cfs)	5900.00	Flow (cfs)	461.57	5311.34	127.09
Top Width (ft)	234.51	Top Width (ft)	89.39	123.10	22.02
Vel Total (ft/s)	9.07	Avg. Vel. (ft/s)	7.45	9.32	6.89
Max Chl Dpth (ft)	4.83	Hydr. Depth (ft)	3.07	4.63	2.75
Conv. Total (cfs)	75235.7	Conv. (cfs)	5885.9	67729.2	1620.6
Length Wtd. (ft)	595.35	Wetted Per. (ft)	20.22	123.23	6.77
Min Ch El (ft)	15.50	Shear (lb/sq ft)	1.18	1.78	1.05
Alpha	1.02	Stream Power (lb/ft s)	8.76	16.55	7.20
Frctn Loss (ft)	1.33	Cum Volume (acre-ft)	55.61	165.19	0.24
C & E Loss (ft)	0.55	Cum SA (acres)	19.02	49.27	0.35

Plan: PR River 1 Reach 1 RS: 4125 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	16.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	16.17	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)		239.80	
E.G. Slope (ft/ft)	0.002603	Area (sq ft)		239.80	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	322.53	Top Width (ft)		322.53	
Vel Total (ft/s)	1.78	Avg. Vel. (ft/s)		1.78	
Max Chl Dpth (ft)	1.61	Hydr. Depth (ft)		0.74	
Conv. Total (cfs)	8349.5	Conv. (cfs)		8349.5	
Length Wtd. (ft)	580.70	Wetted Per. (ft)		322.86	
Min Ch El (ft)	14.56	Shear (lb/sq ft)		0.12	
Alpha	1.00	Stream Power (lb/ft s)		0.21	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	11.61	28.13	
C & E Loss (ft)	0.02	Cum SA (acres)	10.59	35.41	

Plan: PR River 1 Reach 1 RS: 4125 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	17.51	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.43	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)		753.20	
E.G. Slope (ft/ft)	0.001236	Area (sq ft)		753.20	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	433.28	Top Width (ft)		433.28	
Vel Total (ft/s)	2.16	Avg. Vel. (ft/s)		2.16	
Max Chl Dpth (ft)	2.87	Hydr. Depth (ft)		1.74	
Conv. Total (cfs)	46186.5	Conv. (cfs)		46186.5	
Length Wtd. (ft)	580.70	Wetted Per. (ft)		433.91	
Min Ch El (ft)	14.56	Shear (lb/sq ft)		0.13	
Alpha	1.00	Stream Power (lb/ft s)		0.29	
Frctn Loss (ft)	0.33	Cum Volume (acre-ft)	23.76	69.08	
C & E Loss (ft)	0.02	Cum SA (acres)	13.23	43.77	

Plan: PR River 1 Reach 1 RS: 4125 Profile: 10-Year

E.G. Elev (ft)	19.74	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.19	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	19.55	Reach Len. (ft)	655.60	580.70	518.20
Crit W.S. (ft)		Flow Area (sq ft)	2.18	1686.50	1.80
E.G. Slope (ft/ft)	0.001141	Area (sq ft)	2.19	1686.50	1.80
Q Total (cfs)	5900.00	Flow (cfs)	2.00	5896.63	1.37
Top Width (ft)	449.43	Top Width (ft)	3.49	442.25	3.69
Vel Total (ft/s)	3.49	Avg. Vel. (ft/s)	0.92	3.50	0.76
Max Chl Dpth (ft)	4.99	Hydr. Depth (ft)	0.66	3.81	0.49
Conv. Total (cfs)	174642.4	Conv. (cfs)	59.2	174542.7	40.5
Length Wtd. (ft)	580.71	Wetted Per. (ft)	3.50	443.10	3.82
Min Ch El (ft)	14.56	Shear (lb/sq ft)	0.04	0.27	0.03
Alpha	1.00	Stream Power (lb/ft s)	0.04	0.95	0.03
Frctn Loss (ft)	0.46	Cum Volume (acre-ft)	52.78	150.72	0.04
C & E Loss (ft)	0.04	Cum SA (acres)	17.40	45.64	0.21

Plan: PR River 1 Reach 1 RS: 3545 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	15.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.86	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)		566.38	
E.G. Slope (ft/ft)	0.000246	Area (sq ft)		566.38	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	472.31	Top Width (ft)		472.31	
Vel Total (ft/s)	0.75	Avg. Vel. (ft/s)		0.75	
Max Chl Dpth (ft)	1.64	Hydr. Depth (ft)		1.20	
Conv. Total (cfs)	27139.0	Conv. (cfs)		27139.0	
Length Wtd. (ft)	990.40	Wetted Per. (ft)		472.37	
Min Ch El (ft)	14.22	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)		0.01	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	11.61	22.76	
C & E Loss (ft)	0.01	Cum SA (acres)	10.59	30.12	

Plan: PR River 1 Reach 1 RS: 3545 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	17.15	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.12	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)		1173.46	
E.G. Slope (ft/ft)	0.000328	Area (sq ft)		1173.46	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	485.00	Top Width (ft)		485.00	
Vel Total (ft/s)	1.38	Avg. Vel. (ft/s)		1.38	
Max Chl Dpth (ft)	2.90	Hydr. Depth (ft)		2.42	
Conv. Total (cfs)	89735.9	Conv. (cfs)		89735.9	
Length Wtd. (ft)	990.40	Wetted Per. (ft)		485.41	
Min Ch El (ft)	14.22	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)		0.07	
Frctn Loss (ft)	0.77	Cum Volume (acre-ft)	23.76	56.24	
C & E Loss (ft)	0.01	Cum SA (acres)	13.23	37.65	

Plan: PR River 1 Reach 1 RS: 3545 Profile: 10-Year

E.G. Elev (ft)	19.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.	0.040	0.035	0.040
W.S. Elev (ft)	19.13	Reach Len. (ft)	984.80	990.40	952.10
Crit W.S. (ft)		Flow Area (sq ft)	0.66	2158.57	1.59
E.G. Slope (ft/ft)	0.000582	Area (sq ft)	0.66	2158.57	1.59
Q Total (cfs)	5900.00	Flow (cfs)	0.29	5899.32	0.38
Top Width (ft)	507.02	Top Width (ft)	1.72	494.02	11.28
Vel Total (ft/s)	2.73	Avg. Vel. (ft/s)	0.44	2.73	0.24
Max Chl Dpth (ft)	4.91	Hydr. Depth (ft)	0.38	4.37	0.14
Conv. Total (cfs)	244662.9	Conv. (cfs)	12.1	244634.8	15.9
Length Wtd. (ft)	990.40	Wetted Per. (ft)	1.88	494.91	11.28
Min Ch El (ft)	14.22	Shear (lb/sq ft)	0.01	0.16	0.01
Alpha	1.00	Stream Power (lb/ft s)	0.01	0.43	0.00
Frctn Loss (ft)	1.06	Cum Volume (acre-ft)	52.75	125.09	0.02
C & E Loss (ft)	0.02	Cum SA (acres)	17.36	39.40	0.12

Plan: PR River 1 Reach 1 RS: 2554 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	15.29	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.23	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		209.00	
E.G. Slope (ft/ft)	0.002617	Area (sq ft)		209.00	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	229.74	Top Width (ft)		229.74	
Vel Total (ft/s)	2.04	Avg. Vel. (ft/s)		2.04	
Max Chl Dpth (ft)	1.23	Hydr. Depth (ft)		0.91	
Conv. Total (cfs)	8327.2	Conv. (cfs)		8327.2	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		229.89	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.15	
Alpha	1.00	Stream Power (lb/ft s)		0.30	
Frctn Loss (ft)	0.31	Cum Volume (acre-ft)	11.61	13.95	
C & E Loss (ft)	0.02	Cum SA (acres)	10.59	22.13	

Plan: PR River 1 Reach 1 RS: 2554 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	16.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.12	Wt. n-Val.		0.035	
W.S. Elev (ft)	16.26	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		575.21	
E.G. Slope (ft/ft)	0.003590	Area (sq ft)		575.21	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	491.49	Top Width (ft)		491.49	
Vel Total (ft/s)	2.82	Avg. Vel. (ft/s)		2.82	
Max Chl Dpth (ft)	2.26	Hydr. Depth (ft)		1.17	
Conv. Total (cfs)	27106.1	Conv. (cfs)		27106.1	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		491.89	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.74	
Frctn Loss (ft)	0.48	Cum Volume (acre-ft)	23.76	36.36	
C & E Loss (ft)	0.02	Cum SA (acres)	13.23	26.54	

Plan: PR River 1 Reach 1 RS: 2554 Profile: 10-Year

E.G. Elev (ft)	18.17	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.28	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.89	Reach Len. (ft)	462.60	339.40	246.70
Crit W.S. (ft)		Flow Area (sq ft)		1384.76	
E.G. Slope (ft/ft)	0.002615	Area (sq ft)		1384.76	
Q Total (cfs)	5900.00	Flow (cfs)		5900.00	
Top Width (ft)	502.67	Top Width (ft)		502.67	
Vel Total (ft/s)	4.26	Avg. Vel. (ft/s)		4.26	
Max Chl Dpth (ft)	3.89	Hydr. Depth (ft)		2.75	
Conv. Total (cfs)	115383.4	Conv. (cfs)		115383.4	
Length Wtd. (ft)	339.40	Wetted Per. (ft)		503.63	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.45	
Alpha	1.00	Stream Power (lb/ft s)		1.91	
Frctn Loss (ft)	0.60	Cum Volume (acre-ft)	52.75	84.81	
C & E Loss (ft)	0.03	Cum SA (acres)	17.34	28.07	

Plan: PR River 1 Reach 1 RS: 2215 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	14.97	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.		0.035	
W.S. Elev (ft)	14.96	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		491.09	
E.G. Slope (ft/ft)	0.000450	Area (sq ft)		491.09	
Q Total (cfs)	426.00	Flow (cfs)		426.00	
Top Width (ft)	519.49	Top Width (ft)		519.49	
Vel Total (ft/s)	0.87	Avg. Vel. (ft/s)		0.87	
Max Chl Dpth (ft)	0.96	Hydr. Depth (ft)		0.95	
Conv. Total (cfs)	20079.3	Conv. (cfs)		20079.3	
Length Wtd. (ft)	410.18	Wetted Per. (ft)		519.61	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)		0.02	
Frctn Loss (ft)	0.57	Cum Volume (acre-ft)	11.61	11.22	
C & E Loss (ft)	0.01	Cum SA (acres)	10.59	19.22	

Plan: PR River 1 Reach 1 RS: 2215 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	15.87	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.035	
W.S. Elev (ft)	15.83	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		948.84	
E.G. Slope (ft/ft)	0.000756	Area (sq ft)		948.84	
Q Total (cfs)	1624.00	Flow (cfs)		1624.00	
Top Width (ft)	534.05	Top Width (ft)		534.05	
Vel Total (ft/s)	1.71	Avg. Vel. (ft/s)		1.71	
Max Chl Dpth (ft)	1.83	Hydr. Depth (ft)		1.78	
Conv. Total (cfs)	59074.4	Conv. (cfs)		59074.4	
Length Wtd. (ft)	405.21	Wetted Per. (ft)		534.29	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.08	
Alpha	1.00	Stream Power (lb/ft s)		0.14	
Frctn Loss (ft)	0.87	Cum Volume (acre-ft)	23.76	30.42	
C & E Loss (ft)	0.03	Cum SA (acres)	13.23	22.55	

Plan: PR River 1 Reach 1 RS: 2215 Profile: 10-Year

E.G. Elev (ft)	17.54	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.17	Wt. n-Val.		0.035	
W.S. Elev (ft)	17.37	Reach Len. (ft)	473.20	397.70	335.30
Crit W.S. (ft)		Flow Area (sq ft)		1786.59	
E.G. Slope (ft/ft)	0.001263	Area (sq ft)		1786.59	
Q Total (cfs)	5900.00	Flow (cfs)		5900.00	
Top Width (ft)	550.92	Top Width (ft)		550.92	
Vel Total (ft/s)	3.30	Avg. Vel. (ft/s)		3.30	
Max Chl Dpth (ft)	3.37	Hydr. Depth (ft)		3.24	
Conv. Total (cfs)	166038.3	Conv. (cfs)		166038.3	
Length Wtd. (ft)	402.52	Wetted Per. (ft)		551.62	
Min Ch El (ft)	14.00	Shear (lb/sq ft)		0.26	
Alpha	1.00	Stream Power (lb/ft s)		0.84	
Frctn Loss (ft)	0.95	Cum Volume (acre-ft)	52.75	72.45	
C & E Loss (ft)	0.02	Cum SA (acres)	17.34	23.97	

Plan: PR River 1 Reach 1 RS: 1817 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	14.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.14	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	14.26	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)	14.26	Flow Area (sq ft)	37.95	112.52	
E.G. Slope (ft/ft)	0.022094	Area (sq ft)	37.95	112.52	
Q Total (cfs)	426.00	Flow (cfs)	140.83	285.17	
Top Width (ft)	510.83	Top Width (ft)	68.84	441.98	
Vel Total (ft/s)	2.83	Avg. Vel. (ft/s)	3.71	2.53	
Max Chl Dpth (ft)	0.74	Hydr. Depth (ft)	0.55	0.25	
Conv. Total (cfs)	2866.0	Conv. (cfs)	947.5	1918.5	
Length Wtd. (ft)	630.47	Wetted Per. (ft)	68.89	442.06	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	0.76	0.35	
Alpha	1.10	Stream Power (lb/ft s)	2.82	0.89	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	11.40	8.46	
C & E Loss (ft)	0.04	Cum SA (acres)	10.21	14.83	

Plan: PR River 1 Reach 1 RS: 1817 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	14.98	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.34	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	14.64	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)	14.64	Flow Area (sq ft)	66.08	283.61	
E.G. Slope (ft/ft)	0.021259	Area (sq ft)	66.08	283.61	
Q Total (cfs)	1624.00	Flow (cfs)	323.28	1300.72	
Top Width (ft)	521.40	Top Width (ft)	76.88	444.53	
Vel Total (ft/s)	4.64	Avg. Vel. (ft/s)	4.89	4.59	
Max Chl Dpth (ft)	1.12	Hydr. Depth (ft)	0.86	0.64	
Conv. Total (cfs)	11138.3	Conv. (cfs)	2217.3	8921.0	
Length Wtd. (ft)	631.25	Wetted Per. (ft)	76.96	444.72	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	1.14	0.85	
Alpha	1.00	Stream Power (lb/ft s)	5.57	3.88	
Frctn Loss (ft)	0.43	Cum Volume (acre-ft)	23.40	24.80	
C & E Loss (ft)	0.10	Cum SA (acres)	12.81	18.08	

Plan: PR River 1 Reach 1 RS: 1817 Profile: 10-Year

E.G. Elev (ft)	16.56	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.42	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	16.14	Reach Len. (ft)	624.70	634.10	658.00
Crit W.S. (ft)		Flow Area (sq ft)	210.47	956.85	
E.G. Slope (ft/ft)	0.005951	Area (sq ft)	210.47	956.85	
Q Total (cfs)	5900.00	Flow (cfs)	753.17	5146.83	
Top Width (ft)	604.53	Top Width (ft)	150.57	453.96	
Vel Total (ft/s)	5.05	Avg. Vel. (ft/s)	3.58	5.38	
Max Chl Dpth (ft)	2.62	Hydr. Depth (ft)	1.40	2.11	
Conv. Total (cfs)	76479.1	Conv. (cfs)	9763.0	66716.1	
Length Wtd. (ft)	631.58	Wetted Per. (ft)	150.83	454.63	
Min Ch El (ft)	14.00	Shear (lb/sq ft)	0.52	0.78	
Alpha	1.05	Stream Power (lb/ft s)	1.86	4.21	
Frctn Loss (ft)	0.40	Cum Volume (acre-ft)	51.60	59.93	
C & E Loss (ft)	0.12	Cum SA (acres)	16.52	19.38	

Plan: PR River 1 Reach 1 RS: 1183 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.88	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	12.87	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	353.96	409.97	
E.G. Slope (ft/ft)	0.000251	Area (sq ft)	353.96	409.97	
Q Total (cfs)	426.00	Flow (cfs)	188.31	237.69	
Top Width (ft)	924.76	Top Width (ft)	412.17	512.60	
Vel Total (ft/s)	0.56	Avg. Vel. (ft/s)	0.53	0.58	
Max Chl Dpth (ft)	0.87	Hydr. Depth (ft)	0.86	0.80	
Conv. Total (cfs)	26869.1	Conv. (cfs)	11877.4	14991.7	
Length Wtd. (ft)	591.89	Wetted Per. (ft)	412.30	512.85	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.01	0.01	
Alpha	1.01	Stream Power (lb/ft s)	0.01	0.01	
Frctn Loss (ft)	0.17	Cum Volume (acre-ft)	8.59	4.66	
C & E Loss (ft)	0.00	Cum SA (acres)	6.77	7.88	

Plan: PR River 1 Reach 1 RS: 1183 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	14.07	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.01	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	14.06	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	857.59	1085.29	
E.G. Slope (ft/ft)	0.000205	Area (sq ft)	857.59	1085.29	
Q Total (cfs)	1624.00	Flow (cfs)	662.72	961.28	
Top Width (ft)	1107.33	Top Width (ft)	490.02	617.31	
Vel Total (ft/s)	0.84	Avg. Vel. (ft/s)	0.77	0.89	
Max Chl Dpth (ft)	2.06	Hydr. Depth (ft)	1.75	1.76	
Conv. Total (cfs)	113328.7	Conv. (cfs)	46246.8	67081.9	
Length Wtd. (ft)	588.64	Wetted Per. (ft)	490.33	617.79	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.02	0.02	
Alpha	1.01	Stream Power (lb/ft s)	0.02	0.02	
Frctn Loss (ft)	0.21	Cum Volume (acre-ft)	16.78	14.83	
C & E Loss (ft)	0.00	Cum SA (acres)	8.75	10.35	

Plan: PR River 1 Reach 1 RS: 1183 Profile: 10-Year

E.G. Elev (ft)	16.04	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	16.00	Reach Len. (ft)	602.40	570.50	842.40
Crit W.S. (ft)		Flow Area (sq ft)	1845.67	2293.49	
E.G. Slope (ft/ft)	0.000228	Area (sq ft)	1845.67	2293.49	
Q Total (cfs)	5900.00	Flow (cfs)	2405.60	3494.40	
Top Width (ft)	1146.61	Top Width (ft)	521.14	625.47	
Vel Total (ft/s)	1.43	Avg. Vel. (ft/s)	1.30	1.52	
Max Chl Dpth (ft)	4.00	Hydr. Depth (ft)	3.54	3.67	
Conv. Total (cfs)	390363.3	Conv. (cfs)	159162.5	231200.8	
Length Wtd. (ft)	586.06	Wetted Per. (ft)	521.83	626.83	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.05	0.05	
Alpha	1.02	Stream Power (lb/ft s)	0.07	0.08	
Frctn Loss (ft)	0.23	Cum Volume (acre-ft)	36.86	36.27	
C & E Loss (ft)	0.01	Cum SA (acres)	11.70	11.52	

Plan: PR River 1 Reach 1 RS: 612 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.02	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	12.69	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	364.40	84.84	
E.G. Slope (ft/ft)	0.000349	Area (sq ft)	364.40	84.84	
Q Total (cfs)	426.00	Flow (cfs)	383.02	42.98	
Top Width (ft)	361.26	Top Width (ft)	195.11	166.14	
Vel Total (ft/s)	0.95	Avg. Vel. (ft/s)	1.05	0.51	
Max Chl Dpth (ft)	2.69	Hydr. Depth (ft)	1.87	0.51	
Conv. Total (cfs)	22789.5	Conv. (cfs)	20490.1	2299.4	
Length Wtd. (ft)	543.78	Wetted Per. (ft)	195.67	166.32	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.04	0.01	
Alpha	1.13	Stream Power (lb/ft s)	0.04	0.01	
Frctn Loss (ft)	0.30	Cum Volume (acre-ft)	3.62	1.42	
C & E Loss (ft)	0.00	Cum SA (acres)	2.57	3.43	

Plan: PR River 1 Reach 1 RS: 612 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	13.86	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	13.81	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	606.60	347.91	
E.G. Slope (ft/ft)	0.000729	Area (sq ft)	606.60	347.91	
Q Total (cfs)	1624.00	Flow (cfs)	1183.97	440.03	
Top Width (ft)	572.85	Top Width (ft)	273.21	299.64	
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)	1.95	1.26	
Max Chl Dpth (ft)	3.81	Hydr. Depth (ft)	2.22	1.16	
Conv. Total (cfs)	60157.3	Conv. (cfs)	43857.3	16300.1	
Length Wtd. (ft)	550.60	Wetted Per. (ft)	274.07	300.10	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.10	0.05	
Alpha	1.11	Stream Power (lb/ft s)	0.20	0.07	
Frctn Loss (ft)	0.47	Cum Volume (acre-ft)	6.65	5.45	
C & E Loss (ft)	0.00	Cum SA (acres)	3.47	4.35	

Plan: PR River 1 Reach 1 RS: 612 Profile: 10-Year

E.G. Elev (ft)	15.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	15.70	Reach Len. (ft)	538.90	569.90	595.10
Crit W.S. (ft)		Flow Area (sq ft)	1315.02	1042.41	
E.G. Slope (ft/ft)	0.000866	Area (sq ft)	1315.02	1042.41	
Q Total (cfs)	5900.00	Flow (cfs)	3349.94	2550.06	
Top Width (ft)	809.53	Top Width (ft)	430.20	379.33	
Vel Total (ft/s)	2.50	Avg. Vel. (ft/s)	2.55	2.45	
Max Chl Dpth (ft)	5.70	Hydr. Depth (ft)	3.06	2.75	
Conv. Total (cfs)	200488.3	Conv. (cfs)	113834.6	86653.7	
Length Wtd. (ft)	554.29	Wetted Per. (ft)	431.78	380.46	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.16	0.15	
Alpha	1.00	Stream Power (lb/ft s)	0.42	0.36	
Frctn Loss (ft)	0.52	Cum Volume (acre-ft)	15.00	14.43	
C & E Loss (ft)	0.00	Cum SA (acres)	5.13	4.94	

Plan: PR River 1 Reach 1 RS: 43 Profile: 1.15-Year (1.0")

E.G. Elev (ft)	12.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.03	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	12.37	Reach Len. (ft)			
Crit W.S. (ft)	11.17	Flow Area (sq ft)	221.48	132.19	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	221.48	132.19	
Q Total (cfs)	426.00	Flow (cfs)	334.75	91.25	
Top Width (ft)	578.46	Top Width (ft)	219.73	358.73	
Vel Total (ft/s)	1.20	Avg. Vel. (ft/s)	1.51	0.69	
Max Chl Dpth (ft)	2.37	Hydr. Depth (ft)	1.01	0.37	
Conv. Total (cfs)	13464.8	Conv. (cfs)	10580.7	2884.1	
Length Wtd. (ft)		Wetted Per. (ft)	220.04	358.83	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.06	0.02	
Alpha	1.31	Stream Power (lb/ft s)	0.10	0.02	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: PR River 1 Reach 1 RS: 43 Profile: 1.7-Year (1.5")

E.G. Elev (ft)	13.39	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	13.35	Reach Len. (ft)			
Crit W.S. (ft)	12.47	Flow Area (sq ft)	469.01	484.87	
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	469.01	484.87	
Q Total (cfs)	1624.00	Flow (cfs)	838.23	785.77	
Top Width (ft)	652.80	Top Width (ft)	287.59	365.21	
Vel Total (ft/s)	1.70	Avg. Vel. (ft/s)	1.79	1.62	
Max Chl Dpth (ft)	3.35	Hydr. Depth (ft)	1.63	1.33	
Conv. Total (cfs)	51344.6	Conv. (cfs)	26501.6	24843.0	
Length Wtd. (ft)		Wetted Per. (ft)	288.13	365.72	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.10	0.08	
Alpha	1.01	Stream Power (lb/ft s)	0.18	0.13	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Plan: PR River 1 Reach 1 RS: 43 Profile: 10-Year

E.G. Elev (ft)	15.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.	0.040	0.035	
W.S. Elev (ft)	15.17	Reach Len. (ft)			
Crit W.S. (ft)	13.26	Flow Area (sq ft)	1110.70	1163.16	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	1110.70	1163.16	
Q Total (cfs)	5900.00	Flow (cfs)	2591.33	3308.67	
Top Width (ft)	774.48	Top Width (ft)	398.44	376.04	
Vel Total (ft/s)	2.59	Avg. Vel. (ft/s)	2.33	2.84	
Max Chl Dpth (ft)	5.17	Hydr. Depth (ft)	2.79	3.09	
Conv. Total (cfs)	186488.7	Conv. (cfs)	81907.4	104581.3	
Length Wtd. (ft)		Wetted Per. (ft)	399.52	377.40	
Min Ch El (ft)	12.00	Shear (lb/sq ft)	0.17	0.19	
Alpha	1.03	Stream Power (lb/ft s)	0.41	0.55	
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

HEC-RAS River: River 1 Reach: Reach 1

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	8741	1.15-Year (1.0")	EX	426.00	22.00	23.58		23.69	0.002451	2.73	156.88	110.24	0.39
Reach 1	8741	1.15-Year (1.0")	PR	426.00	22.00	23.57		23.69	0.002474	2.74	156.39	110.18	0.40
Reach 1	8741	1.7-Year (1.5")	EX	1624.00	22.00	25.59		25.84	0.001811	4.15	441.86	183.16	0.39
Reach 1	8741	1.7-Year (1.5")	PR	1624.00	22.00	25.56		25.82	0.001833	4.16	437.04	181.72	0.39
Reach 1	8741	2-Year	EX	3450.00	22.00	27.07		27.38	0.001667	5.04	1056.37	560.70	0.40
Reach 1	8741	2-Year	PR	3450.00	22.00	27.00		27.31	0.001708	5.06	1016.14	554.30	0.40
Reach 1	8741	10-Year	EX	5900.00	22.00	28.30		28.60	0.001451	5.45	1826.58	695.93	0.39
Reach 1	8741	10-Year	PR	5900.00	22.00	28.18		28.48	0.001481	5.44	1742.82	689.23	0.39
Reach 1	8741	50-Year	EX	32500.00	22.00	33.09		33.67	0.001866	9.05	6592.56	1790.76	0.48
Reach 1	8741	50-Year	PR	32500.00	22.00	32.84		33.43	0.001807	8.77	6177.28	1642.03	0.47
Reach 1	8741	100-Year	EX	42800.00	22.00	34.01	31.57	35.16	0.003222	12.54	8434.56	4215.50	0.64
Reach 1	8741	100-Year	PR	42800.00	22.00	33.78	31.29	34.40	0.001866	9.42	7909.12	2058.75	0.49
Reach 1	7940	1.15-Year (1.0")	EX	426.00	20.00	22.63		22.69	0.000741	1.96	233.07	128.99	0.23
Reach 1	7940	1.15-Year (1.0")	PR	426.00	20.00	22.63		22.69	0.000735	1.95	232.83	128.95	0.23
Reach 1	7940	1.7-Year (1.5")	EX	1624.00	20.00	24.59		24.76	0.001013	3.50	632.84	362.43	0.30
Reach 1	7940	1.7-Year (1.5")	PR	1624.00	20.00	24.57		24.73	0.001000	3.47	625.34	361.24	0.30
Reach 1	7940	2-Year	EX	3450.00	20.00	26.17		26.36	0.000969	4.24	1295.22	509.77	0.31
Reach 1	7940	2-Year	PR	3450.00	20.00	26.10		26.29	0.000947	4.16	1263.51	505.72	0.31
Reach 1	7940	10-Year	EX	5900.00	20.00	27.43		27.66	0.000996	4.90	1990.24	595.91	0.33
Reach 1	7940	10-Year	PR	5900.00	20.00	27.32		27.54	0.000972	4.79	1925.10	588.17	0.32
Reach 1	7940	50-Year	EX	32500.00	20.00	31.97		32.39	0.001386	8.08	8926.26	2907.20	0.42
Reach 1	7940	50-Year	PR	32500.00	20.00	31.75		32.17	0.001373	7.93	8274.83	2871.68	0.42
Reach 1	7940	100-Year	EX	42800.00	20.00	32.97		33.35	0.001297	8.25	12048.32	3209.76	0.41
Reach 1	7940	100-Year	PR	42800.00	20.00	32.81		33.18	0.001207	7.89	11541.23	3193.46	0.40
Reach 1	7205	1.15-Year (1.0")	EX	426.00	20.00	22.01		22.07	0.000947	1.92	222.40	127.63	0.25
Reach 1	7205	1.15-Year (1.0")	PR	426.00	20.00	22.01		22.07	0.000948	1.92	222.40	127.63	0.25
Reach 1	7205	1.7-Year (1.5")	EX	1624.00	20.00	23.89		24.02	0.000957	3.11	672.42	367.69	0.29
Reach 1	7205	1.7-Year (1.5")	PR	1624.00	20.00	23.88		24.01	0.000938	3.07	668.89	366.70	0.28
Reach 1	7205	2-Year	EX	3450.00	20.00	25.58		25.72	0.000724	3.49	1469.13	533.23	0.27
Reach 1	7205	2-Year	PR	3450.00	20.00	25.54		25.67	0.000697	3.40	1445.16	529.81	0.26
Reach 1	7205	10-Year	EX	5900.00	20.00	26.79		26.97	0.000805	4.21	2169.35	633.92	0.29
Reach 1	7205	10-Year	PR	5900.00	20.00	26.69		26.87	0.000780	4.11	2110.85	625.29	0.28
Reach 1	7205	50-Year	EX	32500.00	20.00	29.93	28.88	30.83	0.003044	10.64	5811.75	1962.62	0.60
Reach 1	7205	50-Year	PR	32500.00	20.00	29.99	28.75	30.75	0.002536	9.75	5919.86	1987.08	0.55
Reach 1	7205	100-Year	EX	42800.00	20.00	30.76	29.75	31.78	0.003358	11.80	8307.61	3129.99	0.64
Reach 1	7205	100-Year	PR	42800.00	20.00	30.53	29.61	31.64	0.003536	11.93	7602.86	3119.15	0.66
Reach 1	6896	1.15-Year (1.0")	EX	426.00	20.00	21.54		21.63	0.002255	2.49	170.86	124.02	0.37
Reach 1	6896	1.15-Year (1.0")	PR	426.00	20.00	21.54		21.63	0.002255	2.49	170.84	124.01	0.37
Reach 1	6896	1.7-Year (1.5")	EX	1624.00	20.00	23.46		23.65	0.001530	3.61	518.95	261.66	0.36
Reach 1	6896	1.7-Year (1.5")	PR	1624.00	20.00	23.45		23.64	0.001514	3.59	517.76	261.26	0.35

HEC-RAS River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	6896	2-Year	EX	3450.00	20.00	25.30		25.47	0.000944	3.84	1315.90	538.16	0.30
Reach 1	6896	2-Year	PR	3450.00	20.00	25.26		25.43	0.000916	3.76	1296.96	535.87	0.30
Reach 1	6896	10-Year	EX	5900.00	20.00	26.48		26.70	0.000993	4.53	2007.96	635.02	0.32
Reach 1	6896	10-Year	PR	5900.00	20.00	26.40		26.61	0.000970	4.44	1955.07	627.81	0.32
Reach 1	6896	50-Year	EX	32500.00	20.00	29.70		30.16	0.001979	8.44	8925.09	3531.90	0.48
Reach 1	6896	50-Year	PR	32500.00	20.00	29.56		30.01	0.001917	8.22	8432.10	3489.89	0.47
Reach 1	6896	100-Year	EX	42800.00	20.00	30.37		30.84	0.002064	9.02	11382.59	3773.32	0.50
Reach 1	6896	100-Year	PR	42800.00	20.00	30.19		30.67	0.002062	8.90	10703.25	3766.26	0.50
Reach 1	6538	1.15-Year (1.0")	EX	426.00	18.00	20.20	19.65	20.45	0.005157	4.00	106.52	70.46	0.57
Reach 1	6538	1.15-Year (1.0")	PR	426.00	18.00	20.20	19.65	20.45	0.005144	4.00	106.61	70.47	0.57
Reach 1	6538	1.7-Year (1.5")	EX	1624.00	18.00	21.88		22.62	0.006086	6.90	239.59	87.78	0.70
Reach 1	6538	1.7-Year (1.5")	PR	1624.00	18.00	21.88		22.62	0.006069	6.89	239.70	87.79	0.70
Reach 1	6538	2-Year	EX	3450.00	18.00	23.39	23.03	24.65	0.006420	9.27	433.93	173.93	0.77
Reach 1	6538	2-Year	PR	3450.00	18.00	23.38	23.05	24.62	0.006372	9.22	432.55	173.46	0.76
Reach 1	6538	10-Year	EX	5900.00	18.00	24.95	24.95	25.96	0.004289	9.24	1074.62	588.82	0.66
Reach 1	6538	10-Year	PR	5900.00	18.00	24.90	24.90	25.88	0.004258	9.15	1044.43	565.64	0.66
Reach 1	6538	50-Year	EX	32500.00	18.00	28.88		29.29	0.002174	9.16	9030.43	3207.74	0.51
Reach 1	6538	50-Year	PR	32500.00	18.00	28.84		29.20	0.001877	8.49	8899.18	3196.19	0.47
Reach 1	6538	100-Year	EX	42800.00	18.00	29.53		29.94	0.002127	9.45	11186.28	3402.59	0.51
Reach 1	6538	100-Year	PR	42800.00	18.00	29.41		29.80	0.001936	8.95	10782.78	3367.98	0.49
Reach 1	6112	1.15-Year (1.0")	EX	426.00	17.00	18.57		18.71	0.003225	3.01	141.59	101.18	0.45
Reach 1	6112	1.15-Year (1.0")	PR	426.00	17.00	18.56		18.71	0.003241	3.01	141.36	101.15	0.45
Reach 1	6112	1.7-Year (1.5")	EX	1624.00	17.00	20.55		20.85	0.002655	4.40	369.03	128.46	0.46
Reach 1	6112	1.7-Year (1.5")	PR	1624.00	17.00	20.54		20.84	0.002685	4.42	367.62	128.31	0.46
Reach 1	6112	2-Year	EX	3450.00	17.00	21.84		22.46	0.003613	6.32	552.42	167.99	0.56
Reach 1	6112	2-Year	PR	3450.00	17.00	21.91		22.51	0.003415	6.21	563.55	173.18	0.55
Reach 1	6112	10-Year	EX	5900.00	17.00	22.98		23.98	0.004268	8.13	786.76	221.35	0.64
Reach 1	6112	10-Year	PR	5900.00	17.00	23.29		24.13	0.003388	7.54	855.85	226.51	0.57
Reach 1	6112	50-Year	EX	32500.00	17.00	27.86		28.47	0.002279	9.32	8231.85	3104.92	0.52
Reach 1	6112	50-Year	PR	32500.00	17.00	28.08		28.54	0.001770	8.33	8938.34	3591.45	0.46
Reach 1	6112	100-Year	EX	42800.00	17.00	28.62		29.18	0.002140	9.49	10894.15	3631.51	0.51
Reach 1	6112	100-Year	PR	42800.00	17.00	28.79		29.19	0.001565	8.20	11514.62	3644.11	0.44
Reach 1	5568	1.15-Year (1.0")	EX	426.00	15.50	18.02		18.07	0.000563	1.71	260.45	142.62	0.20
Reach 1	5568	1.15-Year (1.0")	PR	426.00	15.50	18.02		18.07	0.000563	1.71	260.06	142.54	0.20
Reach 1	5568	1.7-Year (1.5")	EX	1624.00	15.50	19.90		20.04	0.000861	3.18	649.79	351.41	0.28
Reach 1	5568	1.7-Year (1.5")	PR	1624.00	15.50	19.91		20.04	0.000825	3.12	654.18	352.29	0.27
Reach 1	5568	2-Year	EX	3450.00	15.50	21.07		21.30	0.001191	4.42	1091.70	388.99	0.34
Reach 1	5568	2-Year	PR	3450.00	15.50	21.40		21.57	0.000831	3.85	1221.10	393.90	0.29
Reach 1	5568	10-Year	EX	5900.00	15.50	22.27		22.59	0.001324	5.35	1569.33	406.80	0.37
Reach 1	5568	10-Year	PR	5900.00	15.50	22.98		23.18	0.000759	4.34	1862.18	427.00	0.29

HEC-RAS River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	5568	50-Year	EX	32500.00	15.50	26.97		27.42	0.001587	8.44	9392.10	3666.08	0.45
Reach 1	5568	50-Year	PR	32500.00	15.50	27.67		27.88	0.000755	6.06	11985.56	3755.84	0.31
Reach 1	5568	100-Year	EX	42800.00	15.50	27.87		28.23	0.001340	8.17	12732.60	3779.59	0.41
Reach 1	5568	100-Year	PR	42800.00	15.50	28.32		28.55	0.000835	6.60	14450.68	3835.89	0.33
Reach 1	4967	1.15-Year (1.0")	EX	426.00	15.50	17.58		17.65	0.000895	2.00	213.66	117.83	0.25
Reach 1	4967	1.15-Year (1.0")	PR	426.00	15.50	17.58		17.64	0.000901	2.01	213.15	117.56	0.25
Reach 1	4967	1.7-Year (1.5")	EX	1624.00	15.50	19.17		19.38	0.001491	3.82	557.92	451.77	0.36
Reach 1	4967	1.7-Year (1.5")	PR	1624.00	15.50	19.24		19.43	0.001351	3.68	564.38	486.28	0.34
Reach 1	4967	2-Year	EX	3450.00	15.50	20.66		20.75	0.000692	3.28	2104.60	1303.72	0.26
Reach 1	4967	2-Year	PR	3450.00	15.50	20.96		21.11	0.000821	3.71	1338.59	1318.39	0.28
Reach 1	4967	10-Year	EX	5900.00	15.50	22.08		22.14	0.000386	2.89	4074.73	1647.01	0.20
Reach 1	4967	10-Year	PR	5900.00	15.50	22.67		22.80	0.000610	3.85	3140.64	1853.87	0.26
Reach 1	4967	50-Year	EX	32500.00	15.50	27.00		27.05	0.000247	3.37	21798.77	5607.94	0.18
Reach 1	4967	50-Year	PR	32500.00	15.50	27.60		27.66	0.000225	3.33	21257.44	5627.47	0.17
Reach 1	4967	100-Year	EX	42800.00	15.50	27.86		27.92	0.000240	3.48	26662.22	5635.90	0.18
Reach 1	4967	100-Year	PR	42800.00	15.50	28.25		28.32	0.000245	3.59	24912.46	5648.43	0.18
Reach 1	4720	1.15-Year (1.0")	EX	426.00	15.50	17.31		17.38	0.001304	2.17	196.50	116.37	0.29
Reach 1	4720	1.15-Year (1.0")	PR	426.00	15.50	17.30	16.31	17.37	0.001282	2.18	195.82	116.32	0.30
Reach 1	4720	1.7-Year (1.5")	EX	1624.00	15.50	18.47		18.83	0.003384	4.82	339.09	131.07	0.51
Reach 1	4720	1.7-Year (1.5")	PR	1624.00	15.50	18.57	17.44	18.91	0.002955	4.66	348.48	132.67	0.49
Reach 1	4720	2-Year	EX	3450.00	15.50	19.44		20.29	0.005470	7.47	487.32	193.99	0.69
Reach 1	4720	2-Year	PR	3450.00	15.50	19.91	18.63	20.58	0.003607	6.62	535.07	237.28	0.57
Reach 1	4720	10-Year	EX	5900.00	15.50	20.36	20.17	21.75	0.006857	9.71	702.36	257.57	0.80
Reach 1	4720	10-Year	PR	5900.00	15.50	21.03	20.00	22.17	0.004517	8.68	703.42	287.28	0.67
Reach 1	4720	50-Year	EX	32500.00	15.50	26.29		26.86	0.002137	9.40	9693.17	4704.07	0.51
Reach 1	4720	50-Year	PR	32500.00	15.50	27.16	26.57	27.47	0.001117	7.20	11651.81	4943.65	0.38
Reach 1	4720	100-Year	EX	42800.00	15.50	27.53		27.79	0.001092	7.24	15777.06	5105.37	0.37
Reach 1	4720	100-Year	PR	42800.00	15.50	27.91	26.89	28.15	0.000938	6.88	15429.28	5217.38	0.35
Reach 1	4684	1.15-Year (1.0")	EX	426.00	15.50	17.25		17.33	0.001514	2.22	193.85	134.21	0.31
Reach 1	4684	1.15-Year (1.0")	PR	426.00	15.50	17.24		17.32	0.001512	2.23	192.27	133.85	0.32
Reach 1	4684	1.7-Year (1.5")	EX	1624.00	15.50	18.35		18.70	0.003490	4.81	359.67	167.44	0.52
Reach 1	4684	1.7-Year (1.5")	PR	1624.00	15.50	18.39		18.72	0.003187	4.68	359.61	168.51	0.50
Reach 1	4684	2-Year	EX	3450.00	15.50	19.30		20.07	0.005292	7.25	535.95	208.23	0.67
Reach 1	4684	2-Year	PR	3450.00	15.50	19.40		20.13	0.004613	6.96	511.83	213.16	0.64
Reach 1	4684	10-Year	EX	5900.00	15.50	20.19	19.86	21.44	0.006639	9.42	734.95	231.80	0.78
Reach 1	4684	10-Year	PR	5900.00	15.50	20.33		21.63	0.006150	9.32	650.53	234.51	0.76
Reach 1	4684	50-Year	EX	32500.00	15.50	26.39		26.67	0.001186	7.09	12213.50	5165.64	0.38
Reach 1	4684	50-Year	PR	32500.00	15.50	26.45	26.45	27.15	0.002310	10.01	8657.63	5182.19	0.54
Reach 1	4684	100-Year	EX	42800.00	15.50	27.53		27.70	0.000736	5.98	18269.82	5366.31	0.31
Reach 1	4684	100-Year	PR	42800.00	15.50	27.65		27.92	0.001037	7.20	15061.94	5371.81	0.37

HEC-RAS River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	4125	1.15-Year (1.0")	EX	426.00	14.56	16.17		16.22	0.002678	1.79	237.64	322.08	0.37
Reach 1	4125	1.15-Year (1.0")	PR	426.00	14.56	16.17		16.22	0.002603	1.78	239.80	322.53	0.36
Reach 1	4125	1.7-Year (1.5")	EX	1624.00	14.56	17.43		17.50	0.001253	2.17	750.07	433.21	0.29
Reach 1	4125	1.7-Year (1.5")	PR	1624.00	14.56	17.43		17.51	0.001236	2.16	753.20	433.28	0.29
Reach 1	4125	2-Year	EX	3450.00	14.56	18.50		18.63	0.001144	2.82	1221.60	442.48	0.30
Reach 1	4125	2-Year	PR	3450.00	14.56	18.52		18.64	0.001126	2.81	1227.42	442.57	0.30
Reach 1	4125	10-Year	EX	5900.00	14.56	19.54		19.73	0.001154	3.51	1685.11	449.35	0.32
Reach 1	4125	10-Year	PR	5900.00	14.56	19.55		19.74	0.001141	3.50	1690.48	449.43	0.32
Reach 1	4125	50-Year	EX	32500.00	14.56	24.84		25.67	0.001674	7.56	5395.15	1651.52	0.44
Reach 1	4125	50-Year	PR	32500.00	14.56	24.85		25.67	0.001650	7.51	5365.28	1652.54	0.44
Reach 1	4125	100-Year	EX	42800.00	14.56	26.04		26.89	0.001569	7.95	7440.82	1934.60	0.44
Reach 1	4125	100-Year	PR	42800.00	14.56	26.01		26.84	0.001551	7.89	7321.23	1918.05	0.43
Reach 1	3545	1.15-Year (1.0")	EX	426.00	14.22	15.86		15.87	0.000246	0.75	566.46	472.32	0.12
Reach 1	3545	1.15-Year (1.0")	PR	426.00	14.22	15.86		15.87	0.000246	0.75	566.38	472.31	0.12
Reach 1	3545	1.7-Year (1.5")	EX	1624.00	14.22	17.12		17.15	0.000327	1.38	1173.58	485.00	0.16
Reach 1	3545	1.7-Year (1.5")	PR	1624.00	14.22	17.12		17.15	0.000328	1.38	1173.46	485.00	0.16
Reach 1	3545	2-Year	EX	3450.00	14.22	18.14		18.21	0.000464	2.07	1670.32	491.13	0.20
Reach 1	3545	2-Year	PR	3450.00	14.22	18.15		18.21	0.000462	2.06	1672.59	491.16	0.20
Reach 1	3545	10-Year	EX	5900.00	14.22	19.13		19.25	0.000581	2.73	2161.89	507.11	0.23
Reach 1	3545	10-Year	PR	5900.00	14.22	19.13		19.25	0.000582	2.73	2160.81	507.02	0.23
Reach 1	3545	50-Year	EX	32500.00	14.22	24.43		24.87	0.000883	5.72	7701.36	1910.76	0.32
Reach 1	3545	50-Year	PR	32500.00	14.22	24.36		24.79	0.000879	5.68	7572.40	1899.81	0.32
Reach 1	3545	100-Year	EX	42800.00	14.22	25.66		26.12	0.000848	6.07	10188.33	2129.94	0.32
Reach 1	3545	100-Year	PR	42800.00	14.22	25.57		26.01	0.000838	6.00	9979.00	2109.83	0.32
Reach 1	2554	1.15-Year (1.0")	EX	426.00	14.00	15.23		15.29	0.002615	2.04	209.09	229.82	0.38
Reach 1	2554	1.15-Year (1.0")	PR	426.00	14.00	15.23		15.29	0.002617	2.04	209.00	229.74	0.38
Reach 1	2554	1.7-Year (1.5")	EX	1624.00	14.00	16.26		16.38	0.003579	2.82	575.70	491.50	0.46
Reach 1	2554	1.7-Year (1.5")	PR	1624.00	14.00	16.26		16.38	0.003590	2.82	575.21	491.49	0.46
Reach 1	2554	2-Year	EX	3450.00	14.00	17.08		17.27	0.002786	3.52	980.05	497.11	0.44
Reach 1	2554	2-Year	PR	3450.00	14.00	17.08		17.27	0.002758	3.51	983.08	497.15	0.44
Reach 1	2554	10-Year	EX	5900.00	14.00	17.89		18.17	0.002587	4.25	1389.25	502.73	0.45
Reach 1	2554	10-Year	PR	5900.00	14.00	17.89		18.17	0.002615	4.26	1384.76	502.67	0.45
Reach 1	2554	50-Year	EX	32500.00	14.00	22.85		23.58	0.001977	7.25	5388.85	1157.34	0.47
Reach 1	2554	50-Year	PR	32500.00	14.00	22.77		23.50	0.002008	7.26	5297.25	1149.88	0.47
Reach 1	2554	100-Year	EX	42800.00	14.00	24.07		24.89	0.001874	7.80	6868.53	1333.45	0.46
Reach 1	2554	100-Year	PR	42800.00	14.00	23.99		24.79	0.001857	7.72	6766.07	1272.58	0.46
Reach 1	2215	1.15-Year (1.0")	EX	426.00	14.00	14.96		14.97	0.000447	0.87	492.08	519.52	0.16
Reach 1	2215	1.15-Year (1.0")	PR	426.00	14.00	14.96		14.97	0.000450	0.87	491.09	519.49	0.16
Reach 1	2215	1.7-Year (1.5")	EX	1624.00	14.00	15.83		15.88	0.000751	1.71	950.71	534.10	0.23

HEC-RAS River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	2215	1.7-Year (1.5")	PR	1624.00	14.00	15.83		15.87	0.000756	1.71	948.84	534.05	0.23
Reach 1	2215	2-Year	EX	3450.00	14.00	16.59		16.69	0.001050	2.53	1362.33	545.14	0.28
Reach 1	2215	2-Year	PR	3450.00	14.00	16.61		16.71	0.001030	2.52	1370.29	545.25	0.28
Reach 1	2215	10-Year	EX	5900.00	14.00	17.39		17.55	0.001240	3.28	1796.39	551.05	0.32
Reach 1	2215	10-Year	PR	5900.00	14.00	17.37		17.54	0.001263	3.30	1786.59	550.92	0.32
Reach 1	2215	50-Year	EX	32500.00	14.00	22.04		22.87	0.002071	7.32	4445.44	740.16	0.47
Reach 1	2215	50-Year	PR	32500.00	14.00	21.89		22.76	0.002199	7.47	4352.68	596.95	0.49
Reach 1	2215	100-Year	EX	42800.00	14.00	23.02		24.12	0.002371	8.46	5199.43	797.91	0.52
Reach 1	2215	100-Year	PR	42800.00	14.00	22.84		24.00	0.002552	8.66	5054.24	787.12	0.53
Reach 1	1817	1.15-Year (1.0")	EX	426.00	14.00	14.25	14.25	14.39	0.026384	2.70	145.69	510.57	0.96
Reach 1	1817	1.15-Year (1.0")	PR	426.00	14.00	14.26	14.26	14.39	0.022094	2.53	150.47	510.83	0.89
Reach 1	1817	1.7-Year (1.5")	EX	1624.00	14.00	14.64	14.64	14.98	0.022706	4.72	347.45	521.29	1.04
Reach 1	1817	1.7-Year (1.5")	PR	1624.00	14.00	14.64	14.64	14.98	0.021259	4.59	349.69	521.40	1.01
Reach 1	1817	2-Year	EX	3450.00	14.00	15.29		15.68	0.010620	5.15	694.09	539.20	0.80
Reach 1	1817	2-Year	PR	3450.00	14.00	15.17	15.07	15.64	0.014032	5.55	630.19	535.94	0.91
Reach 1	1817	10-Year	EX	5900.00	14.00	16.26		16.64	0.005067	5.14	1239.51	607.98	0.61
Reach 1	1817	10-Year	PR	5900.00	14.00	16.14		16.56	0.005951	5.38	1167.32	604.53	0.65
Reach 1	1817	50-Year	EX	32500.00	14.00	21.09		21.88	0.002856	7.75	5027.36	1060.70	0.54
Reach 1	1817	50-Year	PR	32500.00	14.00	20.87		21.70	0.003060	7.92	4801.27	1039.68	0.56
Reach 1	1817	100-Year	EX	42800.00	14.00	22.07		22.98	0.003016	8.45	6134.86	1406.96	0.57
Reach 1	1817	100-Year	PR	42800.00	14.00	21.83		22.77	0.003174	8.54	5837.18	1148.17	0.58
Reach 1	1183	1.15-Year (1.0")	EX	426.00	12.00	12.93		12.93	0.000226	0.57	815.82	932.60	0.11
Reach 1	1183	1.15-Year (1.0")	PR	426.00	12.00	12.87		12.88	0.000251	0.58	763.93	924.76	0.11
Reach 1	1183	1.7-Year (1.5")	EX	1624.00	12.00	14.13		14.14	0.000199	0.89	2018.83	1109.02	0.12
Reach 1	1183	1.7-Year (1.5")	PR	1624.00	12.00	14.06		14.07	0.000205	0.89	1942.88	1107.33	0.12
Reach 1	1183	2-Year	EX	3450.00	12.00	15.15		15.17	0.000207	1.22	3162.24	1134.13	0.13
Reach 1	1183	2-Year	PR	3450.00	12.00	15.07		15.09	0.000208	1.20	3070.35	1132.14	0.13
Reach 1	1183	10-Year	EX	5900.00	12.00	16.11		16.14	0.000229	1.55	4258.33	1155.74	0.14
Reach 1	1183	10-Year	PR	5900.00	12.00	16.00		16.04	0.000228	1.52	4139.16	1146.61	0.14
Reach 1	1183	50-Year	EX	32500.00	12.00	20.96		21.12	0.000435	3.66	10638.06	1518.62	0.22
Reach 1	1183	50-Year	PR	32500.00	12.00	20.77		20.93	0.000429	3.58	10346.15	1503.92	0.22
Reach 1	1183	100-Year	EX	42800.00	12.00	21.90		22.12	0.000520	4.29	12096.42	1583.53	0.25
Reach 1	1183	100-Year	PR	42800.00	12.00	21.67		21.90	0.000516	4.21	11743.31	1570.19	0.25
Reach 1	612	1.15-Year (1.0")	EX	426.00	12.00	12.75		12.76	0.000380	0.55	471.61	369.74	0.13
Reach 1	612	1.15-Year (1.0")	PR	426.00	12.00	12.69		12.70	0.000349	0.51	449.23	361.26	0.12
Reach 1	612	1.7-Year (1.5")	EX	1624.00	12.00	13.89		13.93	0.000772	1.33	998.47	592.10	0.21
Reach 1	612	1.7-Year (1.5")	PR	1624.00	12.00	13.81		13.86	0.000729	1.26	954.51	572.85	0.21
Reach 1	612	2-Year	EX	3450.00	12.00	14.88		14.95	0.000856	1.94	1716.34	761.58	0.24
Reach 1	612	2-Year	PR	3450.00	12.00	14.80		14.87	0.000831	1.86	1650.52	756.49	0.24
Reach 1	612	10-Year	EX	5900.00	12.00	15.81		15.90	0.000885	2.54	2445.37	815.89	0.26

HEC-RAS River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	612	10-Year	PR	5900.00	12.00	15.70		15.80	0.000866	2.45	2357.44	809.53	0.26
Reach 1	612	50-Year	EX	32500.00	12.00	20.42		20.72	0.001132	5.44	8456.44	2235.59	0.35
Reach 1	612	50-Year	PR	32500.00	12.00	20.22		20.53	0.001126	5.33	8025.27	2232.42	0.35
Reach 1	612	100-Year	EX	42800.00	12.00	21.32		21.67	0.001158	5.93	10475.35	2250.34	0.36
Reach 1	612	100-Year	PR	42800.00	12.00	21.09		21.44	0.001153	5.81	9960.60	2246.59	0.36
Reach 1	43	1.15-Year (1.0")	EX	426.00	12.00	12.42	11.17	12.44	0.001000	0.75	381.97	581.54	0.20
Reach 1	43	1.15-Year (1.0")	PR	426.00	12.00	12.37	11.17	12.40	0.001001	0.69	353.67	578.46	0.20
Reach 1	43	1.7-Year (1.5")	EX	1624.00	12.00	13.40	12.46	13.45	0.001001	1.67	991.89	657.06	0.25
Reach 1	43	1.7-Year (1.5")	PR	1624.00	12.00	13.35	12.47	13.39	0.001000	1.62	953.88	652.80	0.25
Reach 1	43	2-Year	EX	3450.00	12.00	14.36	12.84	14.43	0.001001	2.34	1660.90	738.45	0.27
Reach 1	43	2-Year	PR	3450.00	12.00	14.29	12.86	14.36	0.001001	2.29	1607.28	735.22	0.27
Reach 1	43	10-Year	EX	5900.00	12.00	15.27	13.24	15.37	0.001001	2.90	2349.13	778.92	0.29
Reach 1	43	10-Year	PR	5900.00	12.00	15.17	13.26	15.28	0.001001	2.84	2273.86	774.48	0.29
Reach 1	43	50-Year	EX	32500.00	12.00	19.85	15.96	20.12	0.001000	5.24	9509.33	2406.32	0.33
Reach 1	43	50-Year	PR	32500.00	12.00	19.65	15.96	19.93	0.001000	5.16	9051.15	2396.93	0.33
Reach 1	43	100-Year	EX	42800.00	12.00	20.75	17.30	21.05	0.001000	5.64	11783.92	2541.53	0.34
Reach 1	43	100-Year	PR	42800.00	12.00	20.52	17.18	20.83	0.001000	5.54	11210.23	2537.55	0.34

HEC-RAS Plan: EX River: River 1 Reach: Reach 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	8741	1.15-Year (1.0")	426.00	22.00	23.58		23.69	0.002451	2.73	156.88	110.24	0.39
Reach 1	8741	1.7-Year (1.5")	1624.00	22.00	25.59		25.84	0.001811	4.15	441.86	183.16	0.39
Reach 1	8741	2-Year	3450.00	22.00	27.07		27.38	0.001667	5.04	1056.37	560.70	0.40
Reach 1	8741	10-Year	5900.00	22.00	28.30		28.60	0.001451	5.45	1826.58	695.93	0.39
Reach 1	8741	50-Year	32500.00	22.00	33.09		33.67	0.001866	9.05	6592.56	1790.76	0.48
Reach 1	8741	100-Year	42800.00	22.00	34.01	31.57	35.16	0.003222	12.54	8434.56	4215.50	0.64
Reach 1	7940	1.15-Year (1.0")	426.00	20.00	22.63		22.69	0.000741	1.96	233.07	128.99	0.23
Reach 1	7940	1.7-Year (1.5")	1624.00	20.00	24.59		24.76	0.001013	3.50	632.84	362.43	0.30
Reach 1	7940	2-Year	3450.00	20.00	26.17		26.36	0.000969	4.24	1295.22	509.77	0.31
Reach 1	7940	10-Year	5900.00	20.00	27.43		27.66	0.000996	4.90	1990.24	595.91	0.33
Reach 1	7940	50-Year	32500.00	20.00	31.97		32.39	0.001386	8.08	8926.26	2907.20	0.42
Reach 1	7940	100-Year	42800.00	20.00	32.97		33.35	0.001297	8.25	12048.32	3209.76	0.41
Reach 1	7205	1.15-Year (1.0")	426.00	20.00	22.01		22.07	0.000947	1.92	222.40	127.63	0.25
Reach 1	7205	1.7-Year (1.5")	1624.00	20.00	23.89		24.02	0.000957	3.11	672.42	367.69	0.29
Reach 1	7205	2-Year	3450.00	20.00	25.58		25.72	0.000724	3.49	1469.13	533.23	0.27
Reach 1	7205	10-Year	5900.00	20.00	26.79		26.97	0.000805	4.21	2169.35	633.92	0.29
Reach 1	7205	50-Year	32500.00	20.00	29.93	28.88	30.83	0.003044	10.64	5811.75	1962.62	0.60
Reach 1	7205	100-Year	42800.00	20.00	30.76	29.75	31.78	0.003358	11.80	8307.61	3129.99	0.64
Reach 1	6896	1.15-Year (1.0")	426.00	20.00	21.54		21.63	0.002255	2.49	170.86	124.02	0.37
Reach 1	6896	1.7-Year (1.5")	1624.00	20.00	23.46		23.65	0.001530	3.61	518.95	261.66	0.36
Reach 1	6896	2-Year	3450.00	20.00	25.30		25.47	0.000944	3.84	1315.90	538.16	0.30
Reach 1	6896	10-Year	5900.00	20.00	26.48		26.70	0.000993	4.53	2007.96	635.02	0.32
Reach 1	6896	50-Year	32500.00	20.00	29.70		30.16	0.001979	8.44	8925.09	3531.90	0.48
Reach 1	6896	100-Year	42800.00	20.00	30.37		30.84	0.002064	9.02	11382.59	3773.32	0.50
Reach 1	6538	1.15-Year (1.0")	426.00	18.00	20.20	19.65	20.45	0.005157	4.00	106.52	70.46	0.57
Reach 1	6538	1.7-Year (1.5")	1624.00	18.00	21.88		22.62	0.006086	6.90	239.59	87.78	0.70
Reach 1	6538	2-Year	3450.00	18.00	23.39	23.03	24.65	0.006420	9.27	433.93	173.93	0.77
Reach 1	6538	10-Year	5900.00	18.00	24.95	24.95	25.96	0.004289	9.24	1074.62	568.82	0.66
Reach 1	6538	50-Year	32500.00	18.00	28.88		29.29	0.002174	9.16	9030.43	3207.74	0.51
Reach 1	6538	100-Year	42800.00	18.00	29.53		29.94	0.002127	9.45	11186.28	3402.59	0.51
Reach 1	6112	1.15-Year (1.0")	426.00	17.00	18.57		18.71	0.003225	3.01	141.59	101.18	0.45
Reach 1	6112	1.7-Year (1.5")	1624.00	17.00	20.55		20.85	0.002655	4.40	369.03	128.46	0.46
Reach 1	6112	2-Year	3450.00	17.00	21.84		22.46	0.003613	6.32	552.42	167.99	0.56
Reach 1	6112	10-Year	5900.00	17.00	22.98		23.98	0.004268	8.13	786.76	221.35	0.64

HEC-RAS Plan: EX River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	6112	50-Year	32500.00	17.00	27.86		28.47	0.002279	9.32	8231.85	3104.92	0.52
Reach 1	6112	100-Year	42800.00	17.00	28.62		29.18	0.002140	9.49	10894.15	3631.51	0.51
Reach 1	5568	1.15-Year (1.0")	426.00	15.50	18.02		18.07	0.000563	1.71	260.45	142.62	0.20
Reach 1	5568	1.7-Year (1.5')	1624.00	15.50	19.90		20.04	0.000861	3.18	649.79	351.41	0.28
Reach 1	5568	2-Year	3450.00	15.50	21.07		21.30	0.001191	4.42	1091.70	388.99	0.34
Reach 1	5568	10-Year	5900.00	15.50	22.27		22.59	0.001324	5.35	1569.33	406.80	0.37
Reach 1	5568	50-Year	32500.00	15.50	26.97		27.42	0.001587	8.44	9392.10	3666.08	0.45
Reach 1	5568	100-Year	42800.00	15.50	27.87		28.23	0.001340	8.17	12732.60	3779.59	0.41
Reach 1	4967	1.15-Year (1.0")	426.00	15.50	17.58		17.65	0.000895	2.00	213.66	117.83	0.25
Reach 1	4967	1.7-Year (1.5')	1624.00	15.50	19.17		19.38	0.001491	3.82	557.92	451.77	0.36
Reach 1	4967	2-Year	3450.00	15.50	20.66		20.75	0.000692	3.28	2104.60	1303.72	0.26
Reach 1	4967	10-Year	5900.00	15.50	22.08		22.14	0.000386	2.89	4074.73	1647.01	0.20
Reach 1	4967	50-Year	32500.00	15.50	27.00		27.05	0.000247	3.37	21798.77	5607.94	0.18
Reach 1	4967	100-Year	42800.00	15.50	27.86		27.92	0.000240	3.48	26662.22	5635.90	0.18
Reach 1	4720	1.15-Year (1.0")	426.00	15.50	17.31		17.38	0.001304	2.17	196.50	116.37	0.29
Reach 1	4720	1.7-Year (1.5')	1624.00	15.50	18.47		18.83	0.003384	4.82	339.09	131.07	0.51
Reach 1	4720	2-Year	3450.00	15.50	19.44		20.29	0.005470	7.47	487.32	193.99	0.69
Reach 1	4720	10-Year	5900.00	15.50	20.36	20.17	21.75	0.006857	9.71	702.36	257.57	0.80
Reach 1	4720	50-Year	32500.00	15.50	26.29		26.86	0.002137	9.40	9693.17	4704.07	0.51
Reach 1	4720	100-Year	42800.00	15.50	27.53		27.79	0.001092	7.24	15777.06	5105.37	0.37
Reach 1	4684	1.15-Year (1.0")	426.00	15.50	17.25		17.33	0.001514	2.22	193.85	134.21	0.31
Reach 1	4684	1.7-Year (1.5')	1624.00	15.50	18.35		18.70	0.003490	4.81	359.67	167.44	0.52
Reach 1	4684	2-Year	3450.00	15.50	19.30		20.07	0.005292	7.25	535.95	208.23	0.67
Reach 1	4684	10-Year	5900.00	15.50	20.19	19.86	21.44	0.006639	9.42	734.95	231.80	0.78
Reach 1	4684	50-Year	32500.00	15.50	26.39		26.67	0.001186	7.09	12213.50	5165.64	0.38
Reach 1	4684	100-Year	42800.00	15.50	27.53		27.70	0.000736	5.98	18269.82	5366.31	0.31
Reach 1	4125	1.15-Year (1.0")	426.00	14.56	16.17		16.22	0.002678	1.79	237.64	322.08	0.37
Reach 1	4125	1.7-Year (1.5')	1624.00	14.56	17.43		17.50	0.001253	2.17	750.07	433.21	0.29
Reach 1	4125	2-Year	3450.00	14.56	18.50		18.63	0.001144	2.82	1221.60	442.48	0.30
Reach 1	4125	10-Year	5900.00	14.56	19.54		19.73	0.001154	3.51	1685.11	449.35	0.32
Reach 1	4125	50-Year	32500.00	14.56	24.84		25.67	0.001674	7.56	5395.15	1651.52	0.44
Reach 1	4125	100-Year	42800.00	14.56	26.04		26.89	0.001569	7.95	7440.82	1934.60	0.44
Reach 1	3545	1.15-Year (1.0")	426.00	14.22	15.86		15.87	0.000246	0.75	566.46	472.32	0.12

HEC-RAS Plan: EX River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	3545	1.7-Year (1.5")	1624.00	14.22	17.12		17.15	0.000327	1.38	1173.58	485.00	0.16
Reach 1	3545	2-Year	3450.00	14.22	18.14		18.21	0.000464	2.07	1670.32	491.13	0.20
Reach 1	3545	10-Year	5900.00	14.22	19.13		19.25	0.000581	2.73	2161.89	507.11	0.23
Reach 1	3545	50-Year	32500.00	14.22	24.43		24.87	0.000883	5.72	7701.36	1910.76	0.32
Reach 1	3545	100-Year	42800.00	14.22	25.66		26.12	0.000848	6.07	10188.33	2129.94	0.32
Reach 1	2554	1.15-Year (1.0")	426.00	14.00	15.23		15.29	0.002615	2.04	209.09	229.82	0.38
Reach 1	2554	1.7-Year (1.5")	1624.00	14.00	16.26		16.38	0.003579	2.82	575.70	491.50	0.46
Reach 1	2554	2-Year	3450.00	14.00	17.08		17.27	0.002786	3.52	980.05	497.11	0.44
Reach 1	2554	10-Year	5900.00	14.00	17.89		18.17	0.002587	4.25	1389.25	502.73	0.45
Reach 1	2554	50-Year	32500.00	14.00	22.85		23.58	0.001977	7.25	5388.85	1157.34	0.47
Reach 1	2554	100-Year	42800.00	14.00	24.07		24.89	0.001874	7.80	6868.53	1333.45	0.46
Reach 1	2215	1.15-Year (1.0")	426.00	14.00	14.96		14.97	0.000447	0.87	492.08	519.52	0.16
Reach 1	2215	1.7-Year (1.5")	1624.00	14.00	15.83		15.88	0.000751	1.71	950.71	534.10	0.23
Reach 1	2215	2-Year	3450.00	14.00	16.59		16.69	0.001050	2.53	1362.33	545.14	0.28
Reach 1	2215	10-Year	5900.00	14.00	17.39		17.55	0.001240	3.28	1796.39	551.05	0.32
Reach 1	2215	50-Year	32500.00	14.00	22.04		22.87	0.002071	7.32	4445.44	740.16	0.47
Reach 1	2215	100-Year	42800.00	14.00	23.02		24.12	0.002371	8.46	5199.43	797.91	0.52
Reach 1	1817	1.15-Year (1.0")	426.00	14.00	14.25	14.25	14.39	0.026384	2.70	145.69	510.57	0.96
Reach 1	1817	1.7-Year (1.5")	1624.00	14.00	14.64	14.64	14.98	0.022706	4.72	347.45	521.29	1.04
Reach 1	1817	2-Year	3450.00	14.00	15.29		15.68	0.010620	5.15	694.09	539.20	0.80
Reach 1	1817	10-Year	5900.00	14.00	16.26		16.64	0.005067	5.14	1239.51	607.98	0.61
Reach 1	1817	50-Year	32500.00	14.00	21.09		21.88	0.002856	7.75	5027.36	1060.70	0.54
Reach 1	1817	100-Year	42800.00	14.00	22.07		22.98	0.003016	8.45	6134.86	1406.96	0.57
Reach 1	1183	1.15-Year (1.0")	426.00	12.00	12.93		12.93	0.000226	0.57	815.82	932.60	0.11
Reach 1	1183	1.7-Year (1.5")	1624.00	12.00	14.13		14.14	0.000199	0.89	2018.83	1109.02	0.12
Reach 1	1183	2-Year	3450.00	12.00	15.15		15.17	0.000207	1.22	3162.24	1134.13	0.13
Reach 1	1183	10-Year	5900.00	12.00	16.11		16.14	0.000229	1.55	4258.33	1155.74	0.14
Reach 1	1183	50-Year	32500.00	12.00	20.96		21.12	0.000435	3.66	10638.06	1518.62	0.22
Reach 1	1183	100-Year	42800.00	12.00	21.90		22.12	0.000520	4.29	12096.42	1583.53	0.25
Reach 1	612	1.15-Year (1.0")	426.00	12.00	12.75		12.76	0.000380	0.55	471.61	369.74	0.13
Reach 1	612	1.7-Year (1.5")	1624.00	12.00	13.89		13.93	0.000772	1.33	998.47	592.10	0.21
Reach 1	612	2-Year	3450.00	12.00	14.88		14.95	0.000856	1.94	1716.34	761.58	0.24
Reach 1	612	10-Year	5900.00	12.00	15.81		15.90	0.000885	2.54	2445.37	815.89	0.26
Reach 1	612	50-Year	32500.00	12.00	20.42		20.72	0.001132	5.44	8456.44	2235.59	0.35

HEC-RAS Plan: EX River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	612	100-Year	42800.00	12.00	21.32		21.67	0.001158	5.93	10475.35	2250.34	0.36
Reach 1	43	1.15-Year (1.0")	426.00	12.00	12.42	11.17	12.44	0.001000	0.75	381.97	581.54	0.20
Reach 1	43	1.7-Year (1.5")	1624.00	12.00	13.40	12.46	13.45	0.001001	1.67	991.89	657.06	0.25
Reach 1	43	2-Year	3450.00	12.00	14.36	12.84	14.43	0.001001	2.34	1660.90	738.45	0.27
Reach 1	43	10-Year	5900.00	12.00	15.27	13.24	15.37	0.001001	2.90	2349.13	778.92	0.29
Reach 1	43	50-Year	32500.00	12.00	19.85	15.96	20.12	0.001000	5.24	9509.33	2406.32	0.33
Reach 1	43	100-Year	42800.00	12.00	20.75	17.30	21.05	0.001000	5.64	11783.92	2541.53	0.34

HEC-RAS Plan: PR River: River 1 Reach: Reach 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Ch
Reach 1	8741	1.15-Year (1.0")	426.00	22.00	23.57		23.69	0.002474	2.74	156.39	110.18	0.40
Reach 1	8741	1.7-Year (1.5")	1624.00	22.00	25.56		25.82	0.001833	4.16	437.04	181.72	0.39
Reach 1	8741	2-Year	3450.00	22.00	27.00		27.31	0.001708	5.06	1016.14	554.30	0.40
Reach 1	8741	10-Year	5900.00	22.00	28.18		28.48	0.001481	5.44	1742.82	689.23	0.39
Reach 1	8741	50-Year	32500.00	22.00	32.84		33.43	0.001807	8.77	6177.28	1642.03	0.47
Reach 1	8741	100-Year	42800.00	22.00	33.78	31.29	34.40	0.001866	9.42	7909.12	2058.75	0.49
Reach 1	7940	1.15-Year (1.0")	426.00	20.00	22.63		22.69	0.000735	1.95	232.83	128.95	0.23
Reach 1	7940	1.7-Year (1.5")	1624.00	20.00	24.57		24.73	0.001000	3.47	625.34	361.24	0.30
Reach 1	7940	2-Year	3450.00	20.00	26.10		26.29	0.000947	4.16	1263.51	505.72	0.31
Reach 1	7940	10-Year	5900.00	20.00	27.32		27.54	0.000972	4.79	1925.10	588.17	0.32
Reach 1	7940	50-Year	32500.00	20.00	31.75		32.17	0.001373	7.93	8274.83	2871.68	0.42
Reach 1	7940	100-Year	42800.00	20.00	32.81		33.18	0.001207	7.89	11541.23	3193.46	0.40
Reach 1	7205	1.15-Year (1.0")	426.00	20.00	22.01		22.07	0.000948	1.92	222.40	127.63	0.25
Reach 1	7205	1.7-Year (1.5")	1624.00	20.00	23.88		24.01	0.000938	3.07	668.89	366.70	0.28
Reach 1	7205	2-Year	3450.00	20.00	25.54		25.67	0.000697	3.40	1445.16	529.81	0.26
Reach 1	7205	10-Year	5900.00	20.00	26.69		26.87	0.000780	4.11	2110.85	625.29	0.28
Reach 1	7205	50-Year	32500.00	20.00	29.99	28.75	30.75	0.002536	9.75	5919.86	1987.08	0.55
Reach 1	7205	100-Year	42800.00	20.00	30.53	29.61	31.64	0.003536	11.93	7602.86	3119.15	0.66
Reach 1	6896	1.15-Year (1.0")	426.00	20.00	21.54		21.63	0.002255	2.49	170.84	124.01	0.37
Reach 1	6896	1.7-Year (1.5")	1624.00	20.00	23.45		23.64	0.001514	3.59	517.76	261.26	0.35
Reach 1	6896	2-Year	3450.00	20.00	25.26		25.43	0.000916	3.76	1296.96	535.87	0.30
Reach 1	6896	10-Year	5900.00	20.00	26.40		26.61	0.000970	4.44	1955.07	627.81	0.32
Reach 1	6896	50-Year	32500.00	20.00	29.56		30.01	0.001917	8.22	8432.10	3489.89	0.47
Reach 1	6896	100-Year	42800.00	20.00	30.19		30.67	0.002062	8.90	10703.25	3766.26	0.50
Reach 1	6538	1.15-Year (1.0")	426.00	18.00	20.20	19.65	20.45	0.005144	4.00	106.61	70.47	0.57
Reach 1	6538	1.7-Year (1.5")	1624.00	18.00	21.88		22.62	0.006069	6.89	239.70	87.79	0.70
Reach 1	6538	2-Year	3450.00	18.00	23.38	23.05	24.62	0.006372	9.22	432.55	173.46	0.76
Reach 1	6538	10-Year	5900.00	18.00	24.90	24.90	25.88	0.004258	9.15	1044.43	565.64	0.66
Reach 1	6538	50-Year	32500.00	18.00	28.84		29.20	0.001877	8.49	8899.18	3196.19	0.47
Reach 1	6538	100-Year	42800.00	18.00	29.41		29.80	0.001936	8.95	10782.78	3367.98	0.49
Reach 1	6112	1.15-Year (1.0")	426.00	17.00	18.56		18.71	0.003241	3.01	141.36	101.15	0.45
Reach 1	6112	1.7-Year (1.5")	1624.00	17.00	20.54		20.84	0.002685	4.42	367.62	128.31	0.46
Reach 1	6112	2-Year	3450.00	17.00	21.91		22.51	0.003415	6.21	563.55	173.18	0.55
Reach 1	6112	10-Year	5900.00	17.00	23.29		24.13	0.003388	7.54	855.85	226.51	0.57

HEC-RAS Plan: PR River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	6112	50-Year	32500.00	17.00	28.08		28.54	0.001770	8.33	8938.34	3591.45	0.46
Reach 1	6112	100-Year	42800.00	17.00	28.79		29.19	0.001565	8.20	11514.62	3644.11	0.44
Reach 1	5568	1.15-Year (1.0")	426.00	15.50	18.02		18.07	0.000563	1.71	260.06	142.54	0.20
Reach 1	5568	1.7-Year (1.5")	1624.00	15.50	19.91		20.04	0.000825	3.12	654.18	352.29	0.27
Reach 1	5568	2-Year	3450.00	15.50	21.40		21.57	0.000831	3.85	1221.10	393.90	0.29
Reach 1	5568	10-Year	5900.00	15.50	22.98		23.18	0.000759	4.34	1862.18	427.00	0.29
Reach 1	5568	50-Year	32500.00	15.50	27.67		27.88	0.000755	6.06	11985.56	3755.84	0.31
Reach 1	5568	100-Year	42800.00	15.50	28.32		28.55	0.000835	6.60	14450.68	3835.89	0.33
Reach 1	4967	1.15-Year (1.0")	426.00	15.50	17.58		17.64	0.000901	2.01	213.15	117.56	0.25
Reach 1	4967	1.7-Year (1.5")	1624.00	15.50	19.24		19.43	0.001351	3.68	564.38	486.28	0.34
Reach 1	4967	2-Year	3450.00	15.50	20.96		21.11	0.000821	3.71	1338.59	1318.39	0.28
Reach 1	4967	10-Year	5900.00	15.50	22.67		22.80	0.000610	3.85	3140.64	1853.87	0.26
Reach 1	4967	50-Year	32500.00	15.50	27.60		27.66	0.000225	3.33	21257.44	5627.47	0.17
Reach 1	4967	100-Year	42800.00	15.50	28.25		28.32	0.000245	3.59	24912.46	5648.43	0.18
Reach 1	4720	1.15-Year (1.0")	426.00	15.50	17.30	16.31	17.37	0.001282	2.18	195.82	116.32	0.30
Reach 1	4720	1.7-Year (1.5")	1624.00	15.50	18.57	17.44	18.91	0.002955	4.66	348.48	132.67	0.49
Reach 1	4720	2-Year	3450.00	15.50	19.91	18.63	20.58	0.003607	6.62	535.07	237.28	0.57
Reach 1	4720	10-Year	5900.00	15.50	21.03	20.00	22.17	0.004517	8.68	703.42	287.28	0.67
Reach 1	4720	50-Year	32500.00	15.50	27.16	26.57	27.47	0.001117	7.20	11651.81	4943.65	0.38
Reach 1	4720	100-Year	42800.00	15.50	27.91	26.89	28.15	0.000938	6.88	15429.28	5217.38	0.35
Reach 1	4701		Bridge									
Reach 1	4684	1.15-Year (1.0")	426.00	15.50	17.24		17.32	0.001512	2.23	192.27	133.85	0.32
Reach 1	4684	1.7-Year (1.5")	1624.00	15.50	18.39		18.72	0.003187	4.68	359.61	168.51	0.50
Reach 1	4684	2-Year	3450.00	15.50	19.40		20.13	0.004613	6.96	511.83	213.16	0.64
Reach 1	4684	10-Year	5900.00	15.50	20.33		21.63	0.006150	9.32	650.53	234.51	0.76
Reach 1	4684	50-Year	32500.00	15.50	26.45	26.45	27.15	0.002310	10.01	8657.63	5182.19	0.54
Reach 1	4684	100-Year	42800.00	15.50	27.65		27.92	0.001037	7.20	15061.94	5371.81	0.37
Reach 1	4125	1.15-Year (1.0")	426.00	14.56	16.17		16.22	0.002603	1.78	239.80	322.53	0.36
Reach 1	4125	1.7-Year (1.5")	1624.00	14.56	17.43		17.51	0.001236	2.16	753.20	433.28	0.29
Reach 1	4125	2-Year	3450.00	14.56	18.52		18.64	0.001126	2.81	1227.42	442.57	0.30
Reach 1	4125	10-Year	5900.00	14.56	19.55		19.74	0.001141	3.50	1690.48	449.43	0.32
Reach 1	4125	50-Year	32500.00	14.56	24.85		25.67	0.001650	7.51	5365.28	1652.54	0.44
Reach 1	4125	100-Year	42800.00	14.56	26.01		26.84	0.001551	7.89	7321.23	1918.05	0.43

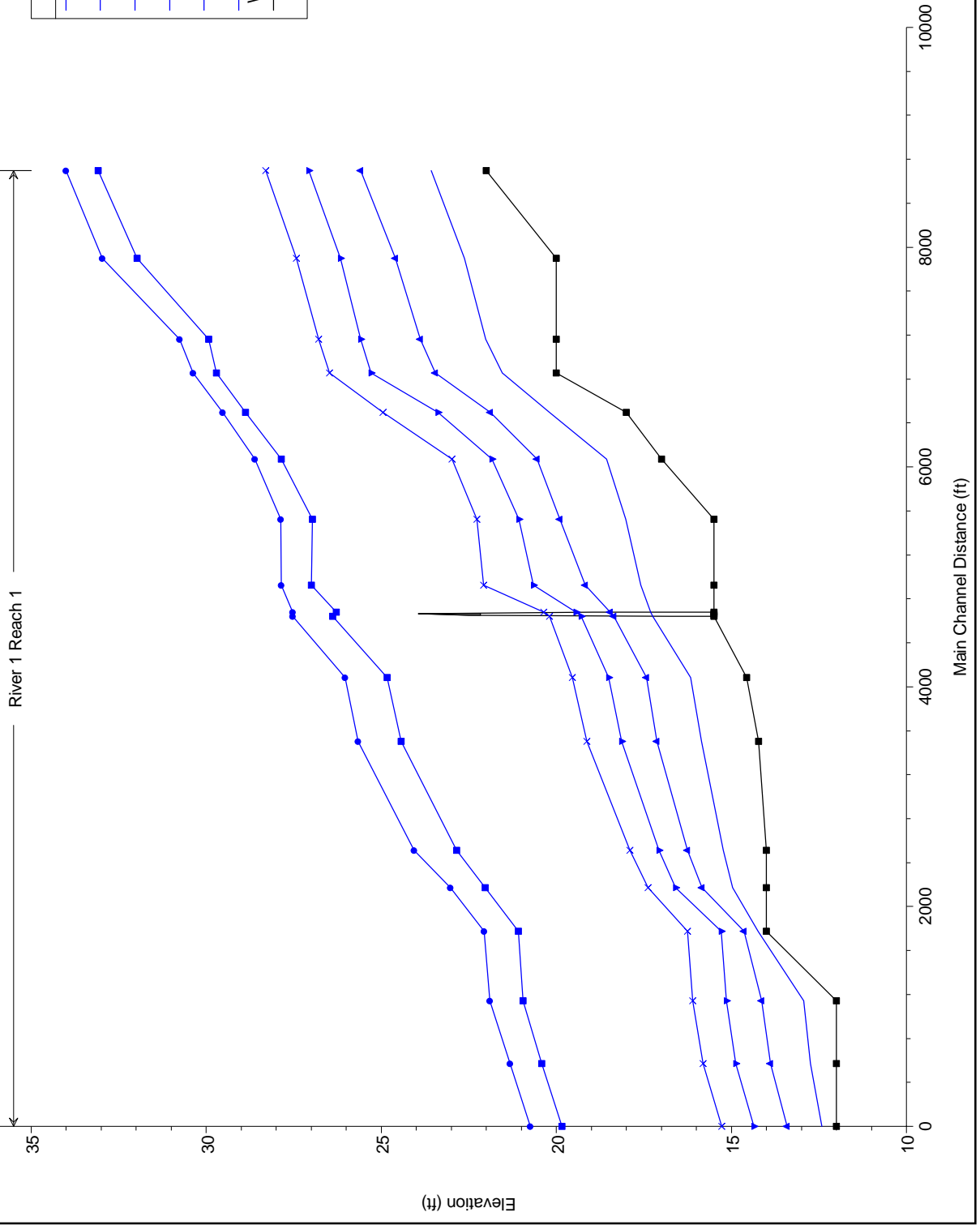
HEC-RAS Plan: PR River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	3545	1.15-Year (1.0")	426.00	14.22	15.86		15.87	0.000246	0.75	566.38	472.31	0.12
Reach 1	3545	1.7-Year (1.5")	1624.00	14.22	17.12		17.15	0.000328	1.38	1173.46	485.00	0.16
Reach 1	3545	2-Year	3450.00	14.22	18.15		18.21	0.000462	2.06	1672.59	491.16	0.20
Reach 1	3545	10-Year	5900.00	14.22	19.13		19.25	0.000582	2.73	2160.81	507.02	0.23
Reach 1	3545	50-Year	32500.00	14.22	24.36		24.79	0.000879	5.68	7572.40	1899.81	0.32
Reach 1	3545	100-Year	42800.00	14.22	25.57		26.01	0.000838	6.00	9979.00	2109.83	0.32
Reach 1	2554	1.15-Year (1.0")	426.00	14.00	15.23		15.29	0.002617	2.04	209.00	229.74	0.38
Reach 1	2554	1.7-Year (1.5")	1624.00	14.00	16.26		16.38	0.003590	2.82	575.21	491.49	0.46
Reach 1	2554	2-Year	3450.00	14.00	17.08		17.27	0.002758	3.51	983.08	497.15	0.44
Reach 1	2554	10-Year	5900.00	14.00	17.89		18.17	0.002615	4.26	1384.76	502.67	0.45
Reach 1	2554	50-Year	32500.00	14.00	22.77		23.50	0.002008	7.26	5297.25	1149.88	0.47
Reach 1	2554	100-Year	42800.00	14.00	23.99		24.79	0.001857	7.72	6766.07	1272.58	0.46
Reach 1	2215	1.15-Year (1.0")	426.00	14.00	14.96		14.97	0.000450	0.87	491.09	519.49	0.16
Reach 1	2215	1.7-Year (1.5")	1624.00	14.00	15.83		15.87	0.000756	1.71	948.84	534.05	0.23
Reach 1	2215	2-Year	3450.00	14.00	16.61		16.71	0.001030	2.52	1370.29	545.25	0.28
Reach 1	2215	10-Year	5900.00	14.00	17.37		17.54	0.001263	3.30	1786.59	550.92	0.32
Reach 1	2215	50-Year	32500.00	14.00	21.89		22.76	0.002199	7.47	4352.68	596.95	0.49
Reach 1	2215	100-Year	42800.00	14.00	22.84		24.00	0.002552	8.66	5054.24	787.12	0.53
Reach 1	1817	1.15-Year (1.0")	426.00	14.00	14.26	14.26	14.39	0.022094	2.53	150.47	510.83	0.89
Reach 1	1817	1.7-Year (1.5")	1624.00	14.00	14.64	14.64	14.98	0.021259	4.59	349.69	521.40	1.01
Reach 1	1817	2-Year	3450.00	14.00	15.17	15.07	15.64	0.014032	5.55	630.19	535.94	0.91
Reach 1	1817	10-Year	5900.00	14.00	16.14		16.56	0.005951	5.38	1167.32	604.53	0.65
Reach 1	1817	50-Year	32500.00	14.00	20.87		21.70	0.003060	7.92	4801.27	1039.68	0.56
Reach 1	1817	100-Year	42800.00	14.00	21.83		22.77	0.003174	8.54	5837.18	1148.17	0.58
Reach 1	1183	1.15-Year (1.0")	426.00	12.00	12.87		12.88	0.000251	0.58	763.93	924.76	0.11
Reach 1	1183	1.7-Year (1.5")	1624.00	12.00	14.06		14.07	0.000205	0.89	1942.88	1107.33	0.12
Reach 1	1183	2-Year	3450.00	12.00	15.07		15.09	0.000208	1.20	3070.35	1132.14	0.13
Reach 1	1183	10-Year	5900.00	12.00	16.00		16.04	0.000228	1.52	4139.16	1146.61	0.14
Reach 1	1183	50-Year	32500.00	12.00	20.77		20.93	0.000429	3.58	10346.15	1503.92	0.22
Reach 1	1183	100-Year	42800.00	12.00	21.67		21.90	0.000516	4.21	11743.31	1570.19	0.25
Reach 1	612	1.15-Year (1.0")	426.00	12.00	12.69		12.70	0.000349	0.51	449.23	361.26	0.12
Reach 1	612	1.7-Year (1.5")	1624.00	12.00	13.81		13.86	0.000729	1.26	954.51	572.85	0.21
Reach 1	612	2-Year	3450.00	12.00	14.80		14.87	0.000831	1.86	1650.52	756.49	0.24

HEC-RAS Plan: PR River: River 1 Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W. S. Elev (ft)	Crit W. S. (ft)	E. G. Elev (ft)	E. G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach 1	612	10-Year	5900.00	12.00	15.70		15.80	0.000866	2.45	2357.44	809.53	0.26
Reach 1	612	50-Year	32500.00	12.00	20.22		20.53	0.001126	5.33	8025.27	2232.42	0.35
Reach 1	612	100-Year	42800.00	12.00	21.09		21.44	0.001153	5.81	9960.60	2246.59	0.36
Reach 1	43	1.15-Year (1.0")	426.00	12.00	12.37	11.17	12.40	0.001001	0.69	353.67	578.46	0.20
Reach 1	43	1.7-Year (1.5")	1624.00	12.00	13.35	12.47	13.39	0.001000	1.62	953.88	652.80	0.25
Reach 1	43	2-Year	3450.00	12.00	14.29	12.86	14.36	0.001001	2.29	1607.28	735.22	0.27
Reach 1	43	10-Year	5900.00	12.00	15.17	13.26	15.28	0.001001	2.84	2273.86	774.48	0.29
Reach 1	43	50-Year	32500.00	12.00	19.65	15.96	19.93	0.001000	5.16	9051.15	2396.93	0.33
Reach 1	43	100-Year	42800.00	12.00	20.52	17.18	20.83	0.001000	5.54	11210.23	2537.55	0.34

Osuna Bridge_update Plan: 1) EX 3/13/2023



Legend	
●	WS 100-Year
■	WS 50-Year
×	WS 10-Year
▲	WS 2-Year
▲	WS 1.7-Year (1.5')
■	WS 1.15-Year (1.0')
■	Ground

APPENDIX D – SCOUR ANALYSIS OUTPUT

Average Velocity at XS adjacent to bridge – 8.48 ft/s (for 10-year storm)

Z = 2

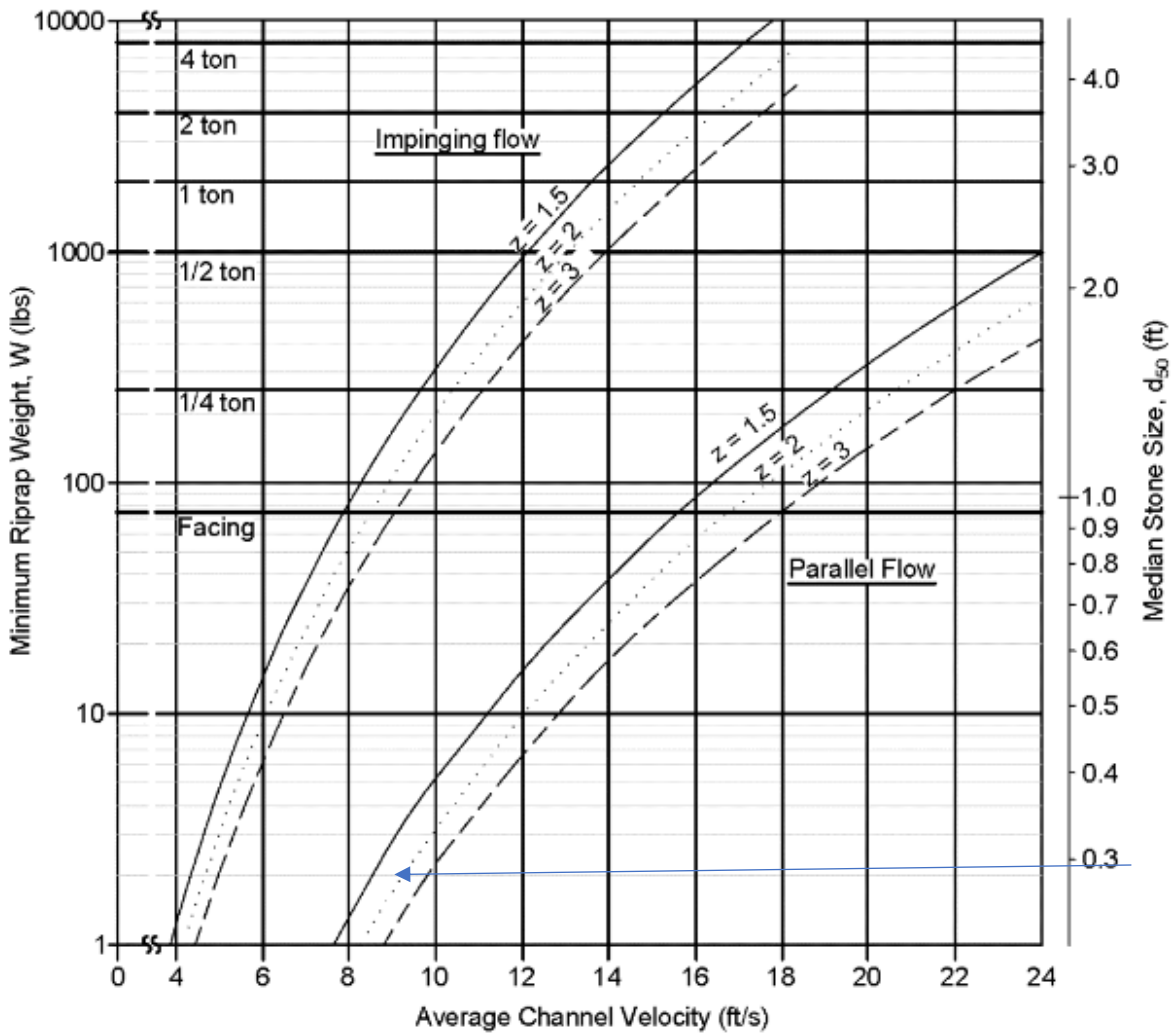


Figure 7-8. Minimum Stone Weight for Riprap Channel Sideslopes

Result

D50 = 0.3 FT



Scour Analysis

All Calcs based on FHWA HEC-18

Date: 14-Mar-23

Calculated/Checked by: JLC

Project: OSUNA

Locality: City of San Diego

State California

Note: Flows based on Hydrologic and Hydraulic Calculations from Osuna Feasibility Study and Hydraulic Model

Cross Section	Froude #	Flow Depth (ft)	Local Scour ^{1,5} (ft)
4,720	0.54	6.14	19.2

Abutment Width (in)			42
Abument Length (in)			164
Abutment Width (ft)		a	3.50
Abutment (ft)		L	13.66666667
K1 ²	Square Nose		1.1
Angle (deg)			90
Angle (rad)			1.57
K2 ³	Square Nose		2.424
K3 ⁴	Plane Bed		1.1

¹ Equation 7.3 FHWA HEC 18

² Correction factor for pier nose shape Table 7.1

³ Correction factor for angle of attach Equation 7.4

⁴ Correction factor for bed condition Table 7.3

⁵ Local scour based on maximum depth of flow

APPENDIX E – OSUNA SEGMENT CTC FLOOPLAIN MAP

Notes:

1. The Study Area will not span the FEMA Zone A floodplain as it is infeasible to pass the 100-year storm event with the proposed bridge design.
2. The 100-year floodplain is referenced from FEMA Firm Panel 06073C1327G.



APPENDIX F – SOILS MAP



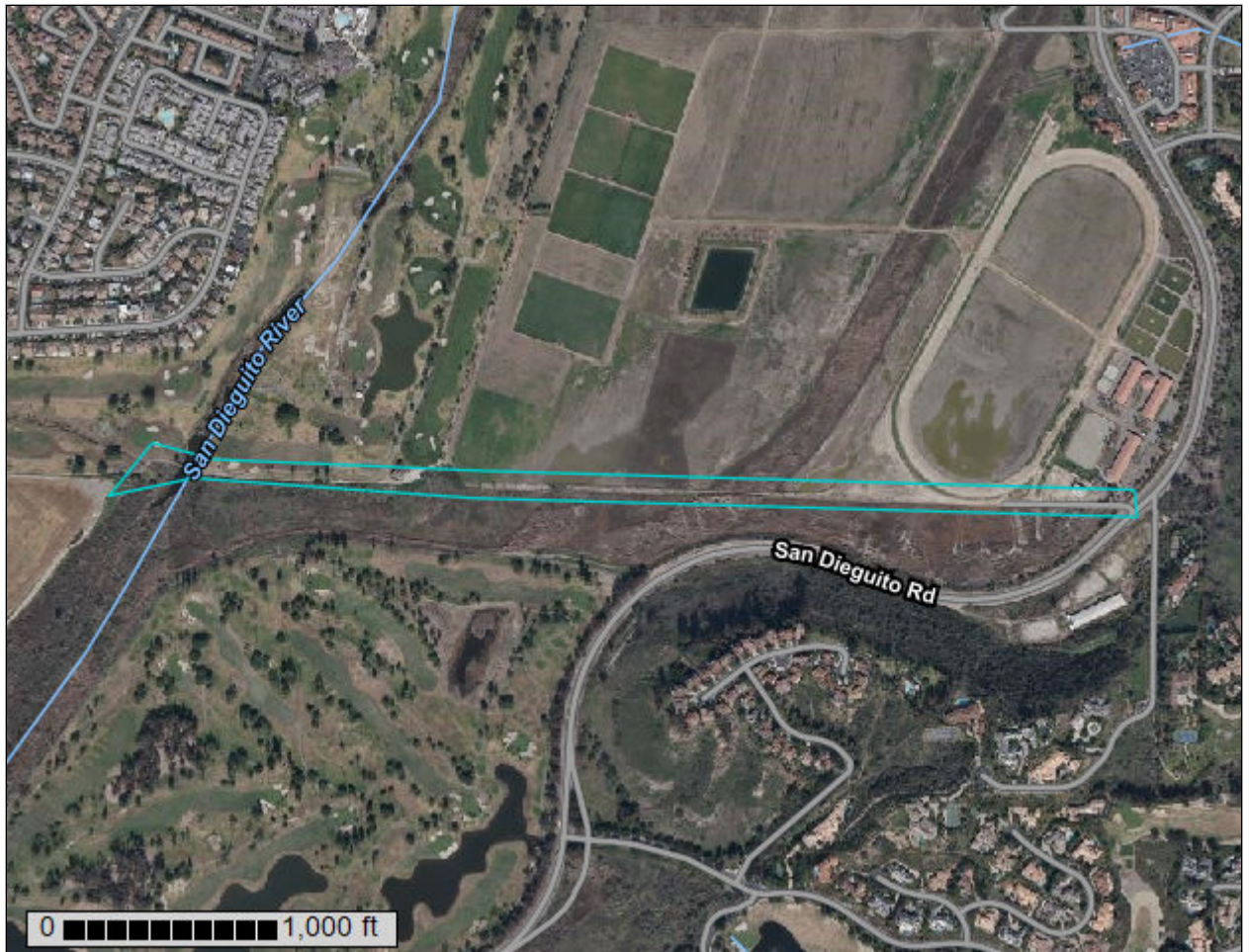
United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for San Diego County Area, California



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

Custom Soil Resource Report

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

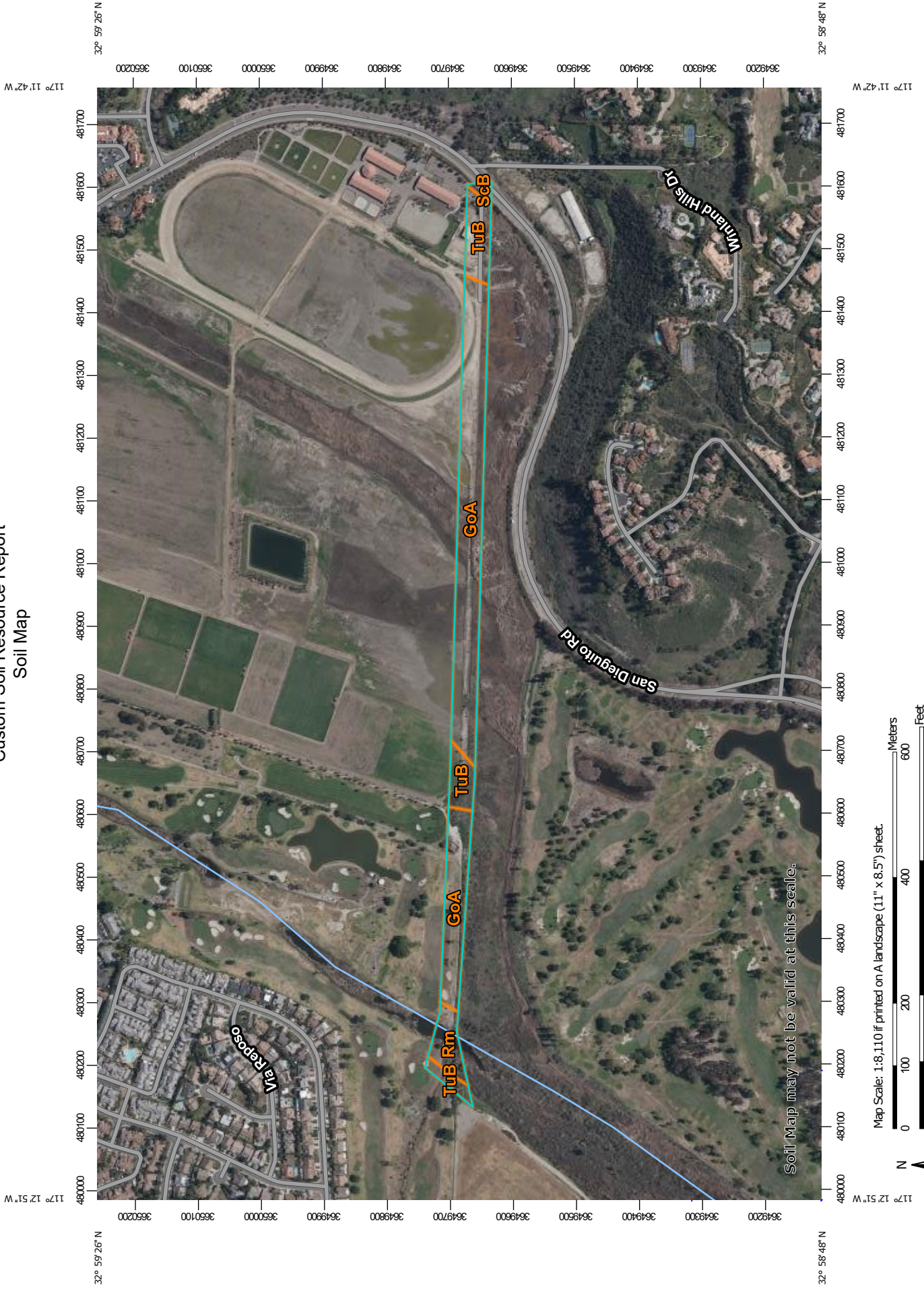
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Soil Map may not be valid at this scale.

Map Scale: 1:8,110 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

- Area of Interest (AOI)**
 -  Area of Interest (AOI)
- Soils**
 -  Soil Map Unit Polygons
 -  Soil Map Unit Lines
 -  Soil Map Unit Points
- Special Point Features**
 -  Blowout
 -  Borrow Pit
 -  Clay Spot
 -  Closed Depression
 -  Gravel Pit
 -  Gravelly Spot
 -  Landfill
 -  Lava Flow
 -  Marsh or swamp
 -  Mine or Quarry
 -  Miscellaneous Water
 -  Perennial Water
 -  Rock Outcrop
 -  Saline Spot
 -  Sandy Spot
 -  Severely Eroded Spot
 -  Sinkhole
 -  Slide or Slip
 -  Sodic Spot
- Water Features**
 -  Streams and Canals
- Transportation**
 -  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads
- Background**
 -  Aerial Photography
- Other Features**
 -  Spoil Area
 -  Stony Spot
 -  Very Stony Spot
 -  Wet Spot
 -  Other
 -  Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
 Survey Area Data: Version 16, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 23, 2020—Feb 13, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
GoA	Grangeville fine sandy loam, 0 to 2 percent slopes	10.0	72.2%
Rm	Riverwash	1.1	7.8%
ScB	Salinas clay, 2 to 5 percent slopes	0.2	1.4%
TuB	Tujunga sand, 0 to 5 percent slopes	2.6	18.6%
Totals for Area of Interest		13.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

Custom Soil Resource Report

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Diego County Area, California

GoA—Grangeville fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hbc8

Elevation: 10 to 1,800 feet

Mean annual precipitation: 8 to 16 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 260 to 300 days

Farmland classification: Prime farmland if irrigated and drained

Map Unit Composition

Grangeville and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Alluvial fans

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, rise

Down-slope shape: Linear

Across-slope shape: Convex

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 11 inches: fine sandy loam

H2 - 11 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat poorly drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: About 24 to 48 inches

Frequency of flooding: Rare

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: B

Ecological site: R019XG911CA - Loamy Fan

Hydric soil rating: No

Minor Components

Tujunga

Percent of map unit: 5 percent

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Hydric soil rating: No

Chino

Percent of map unit: 5 percent

Hydric soil rating: No

Visalia

Percent of map unit: 3 percent

Hydric soil rating: No

Unnamed

Percent of map unit: 2 percent

Landform: Alluvial fans

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope, rise

Down-slope shape: Linear

Across-slope shape: Convex

Hydric soil rating: Yes

Rm—Riverwash

Map Unit Setting

National map unit symbol: hbg6

Elevation: 700 to 2,900 feet

Mean annual precipitation: 8 to 15 inches

Mean annual air temperature: 46 to 52 degrees F

Frost-free period: 110 to 180 days

Farmland classification: Not prime farmland

Map Unit Composition

Riverwash: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Drainageways

Parent material: Sandy, gravelly, or cobbly alluvium derived from mixed sources

Typical profile

H1 - 0 to 6 inches: gravelly coarse sand

H2 - 6 to 60 inches: stratified extremely gravelly coarse sand to gravelly sand

Properties and qualities

Slope: 0 to 4 percent

Drainage class: Excessively drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: About 60 to 72 inches

Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Ecological site: R019XG905CA - Riparian
Hydric soil rating: Yes

ScB—Salinas clay, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: hbgj
Elevation: 50 to 300 feet
Mean annual precipitation: 12 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Salinas and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Salinas

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from mixed sources

Typical profile

H1 - 0 to 22 inches: clay
H2 - 22 to 46 inches: clay loam
H3 - 46 to 64 inches: loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R019XG910CA - Clayey Fan
Hydric soil rating: No

Minor Components

Tujunga

Percent of map unit: 5 percent
Hydric soil rating: No

Diablo

Percent of map unit: 5 percent
Hydric soil rating: No

Huerhuero

Percent of map unit: 5 percent
Hydric soil rating: No

TuB—Tujunga sand, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: hbh0
Elevation: 10 to 2,500 feet
Mean annual precipitation: 10 to 25 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 280 to 350 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

Landform: Flood plains
Landform position (three-dimensional): Riser, flat
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: sand
H2 - 14 to 34 inches: loamy sand
H3 - 34 to 60 inches: stratified gravelly sand to gravelly loamy sand

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Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Somewhat excessively drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): 3s

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: A

Ecological site: R019XD035CA - SANDY (1975)

Hydric soil rating: No

Minor Components

Ramona

Percent of map unit: 5 percent

Hydric soil rating: No

Grangeville

Percent of map unit: 5 percent

Hydric soil rating: No

Visalia

Percent of map unit: 2 percent

Hydric soil rating: No

Riverwash

Percent of map unit: 2 percent

Landform: Drainageways

Hydric soil rating: Yes

Unnamed

Percent of map unit: 1 percent

Landform: Flood plains

Hydric soil rating: Yes

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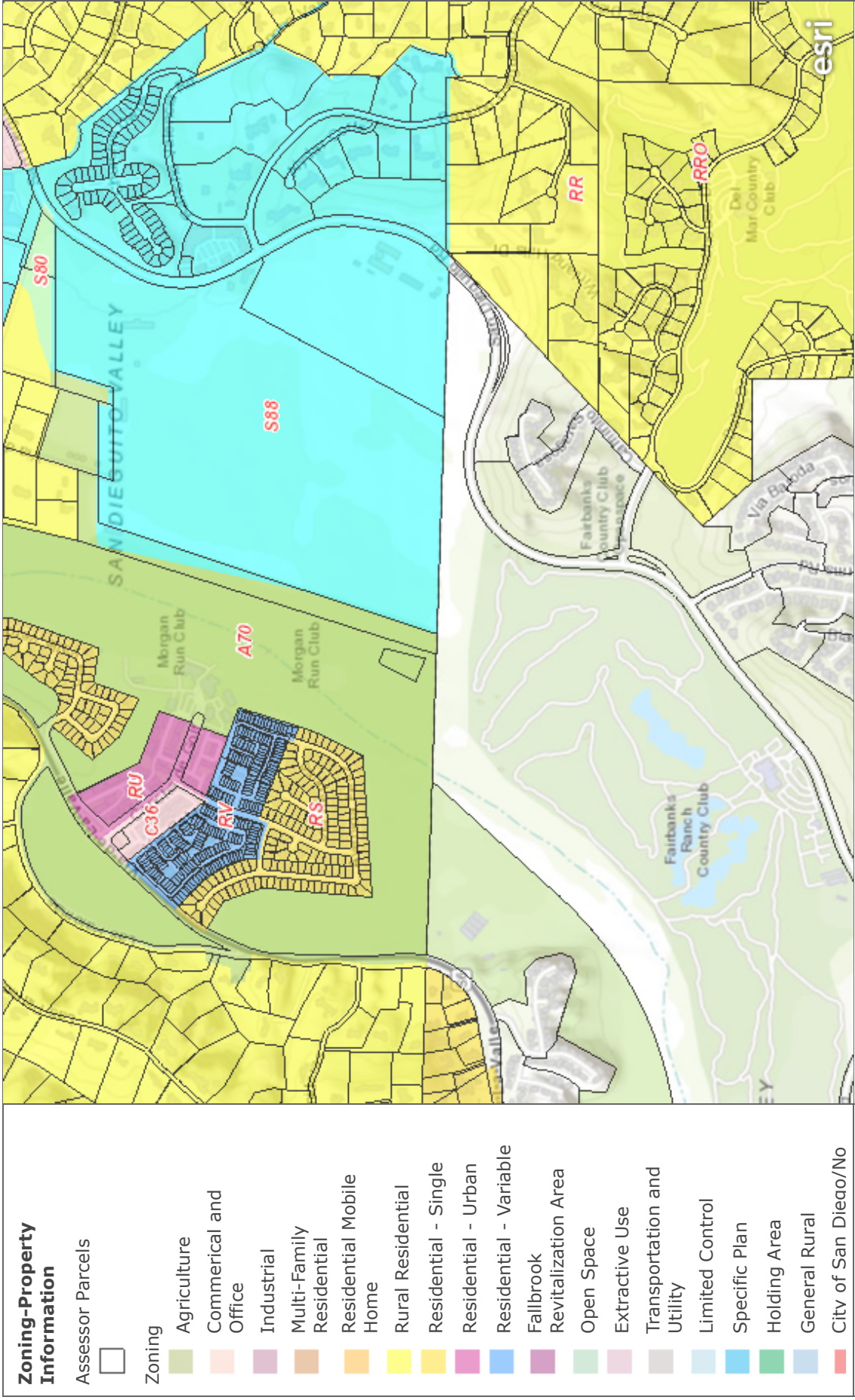
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APPENDIX G – LAND USE MAP

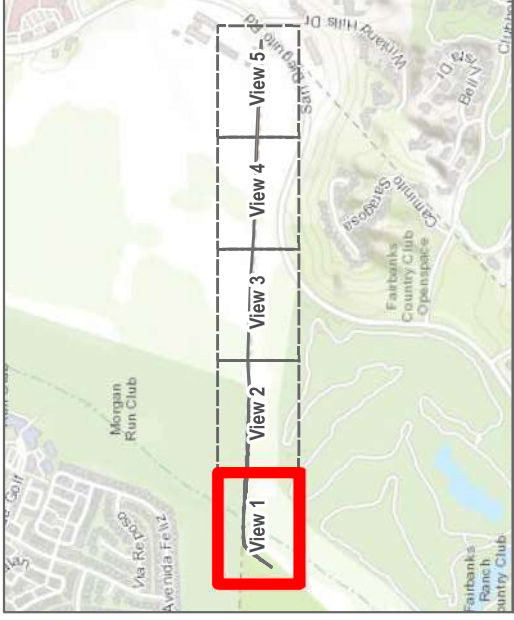
County of San Diego - PDS - Zoning & Property Information - Simplified (zoom in to see zoning)



Provides Zoning and General Plan information for parcels in the unincorporated County of San Diego - This map is easy to use. You must zoom in to the neighborhood level to see the zoning data.

Esri, HERE | SanGIS, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

APPENDIX H – VEGETATION MAP



- Project Site
- Vegetation Communities/Land Covers
 - ADR, Arundo Donax Riparian
 - CSM, Coastal Salt Marsh
 - CSS, Coastal Sage Scrub
 - CSSB, Coastal Sage Scrub-Baccharis Dominated
 - DEV, Developed
 - DH, Disturbed Habitat
 - DW, Disturbed Wetlands
 - FWM, Freshwater Marsh
 - MFS, Mulefat Scrub
 - NNR, Non-Native Riparian
 - ORN, Ornamental
 - OW, Open Water
 - dSRW, disturbed Southern Riparian Woodland
 - SWS, Southern Willow Scrub
 - dSWS, disturbed Southern Willow Scrub
 - TS, Tamarisk Scrub
- Jurisdictional Delineation**
 - USACE/RWQCB Non-Wetland Waters; CDFW Streambed
 - USACE/RWQCB Wetlands; CDFW Riparian Habitat
 - CDFW Riparian Habitat

SOURCE: AERIAL - KIMLEY-HORN APRIL 2021



FIGURE 3A
 Biological Resources Map - View 1
 Biological Resources Report for the Osuna Trail Project

APPENDIX I – AERIAL PHOTOGRAPH MAP



J-17359
DATE: JULY 27, 2015

STUDY AREA	FIGURE
OSUNA VALLEY TRAIL BRIDGE FEASIBILITY STUDY	1



5620 FRIARS ROAD
SAN DIEGO, CA 92110
619.291.0707
(FAX) 619.291.4165



San Diego
Riverside - Orange - San Luis Obispo - Bakersfield - Sacramento - Phoenix - Tucson
rickengineering.com

APPENDIX K – BRIDGE PLANS

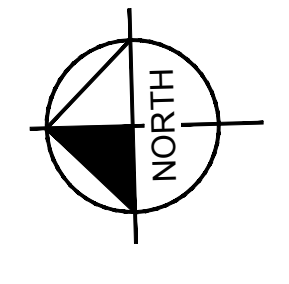
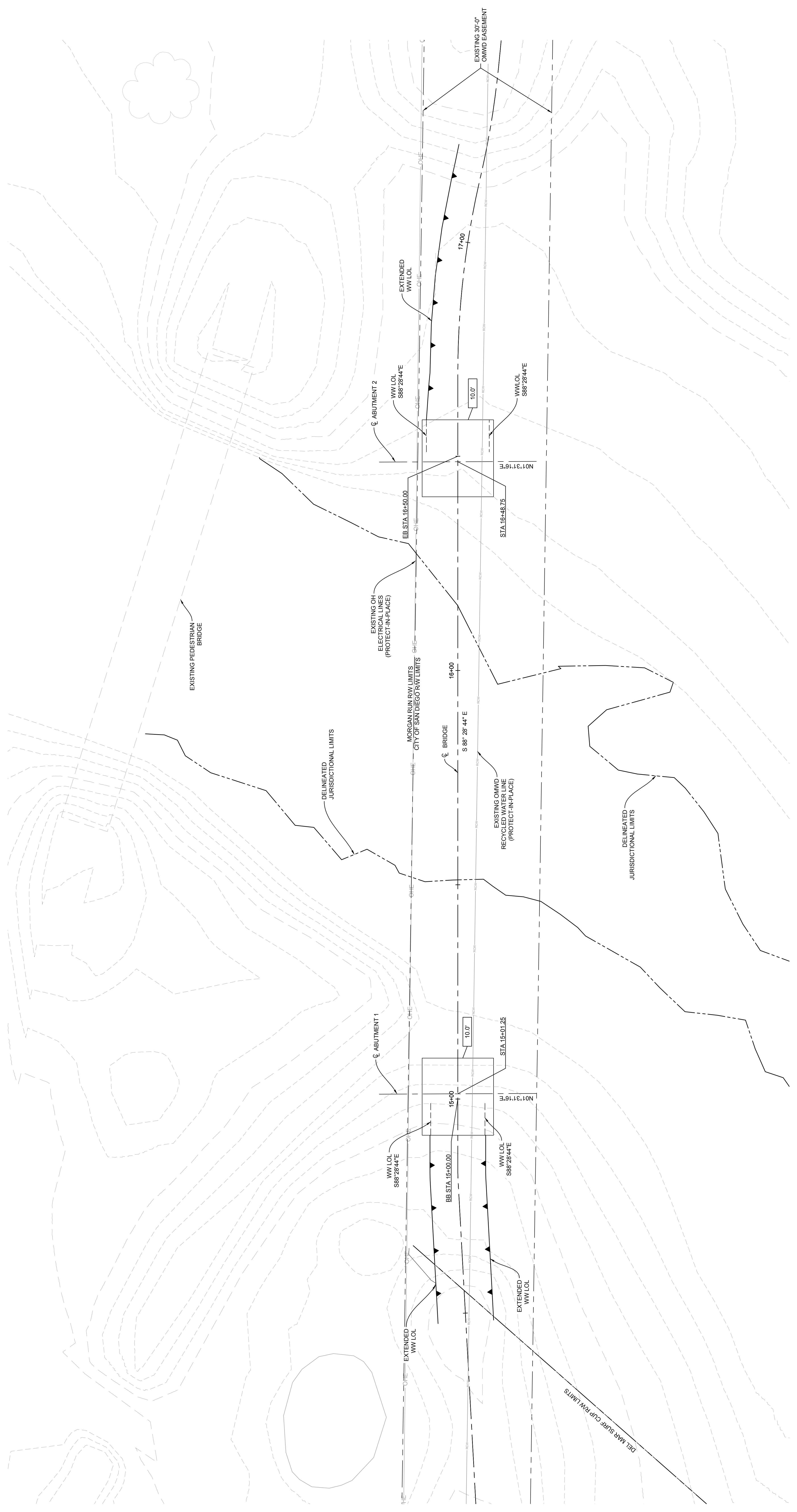
FOUNDATION PLAN

KHA PROJECT
095228008
DATE
3/15/2023
SCALE AS SHOWN
DESIGNED BY TK
DRAWN BY TK
CHECKED BY MK
DATE

LICENSED PROFESSIONAL
JULIANA CUOMO
CALIFORNIA LICENSE NUMBER
#52787
DATE

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NO.	REVISIONS	DATE	BY



FOUNDATION PLAN
1" = 10'-0"

LEGEND:
--- INDICATES BOTTOM OF CONCRETE FOOTING ELEVATION
XX'X'

Printed by: Frank Kimley-Horn. Sheet Set Name: Layout/Foundation Plan. March 15, 2023 10:29:47am. K:\SNO_L06\195228008 - Osuna Bridge\CAD\Plan Sheets\Sheet\KHA\KHA-Foundation Plan.dwg. This document, together with the contracts and drawings prepared thereon, is intended only for the specific purpose and shall be void if used for any other purpose. Release of and engineer's liability to Kimley-Horn and Associates, Inc. shall be without prejudice to Kimley-Horn and Associates, Inc.