

TOWN OF CALEDON
PLANNING
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TRIBAL PARTNERS CANADA INC

NATURALIZED CHANNEL DESIGN 12035 DIXIE ROAD SITE

MARCH 11, 2021

CONFIDENTIAL



WSP



**NATURALIZED
CHANNEL DESIGN
12035 DIXIE ROAD SITE
TRIBAL PARTNERS CANADA INC**

CONFIDENTIAL

PROJECT NO.: 20M-01429
DATE: MARCH 11, 2021

WSP

REVISION HISTORY

FIRST ISSUE

March 11, 2021				
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APPENDICES

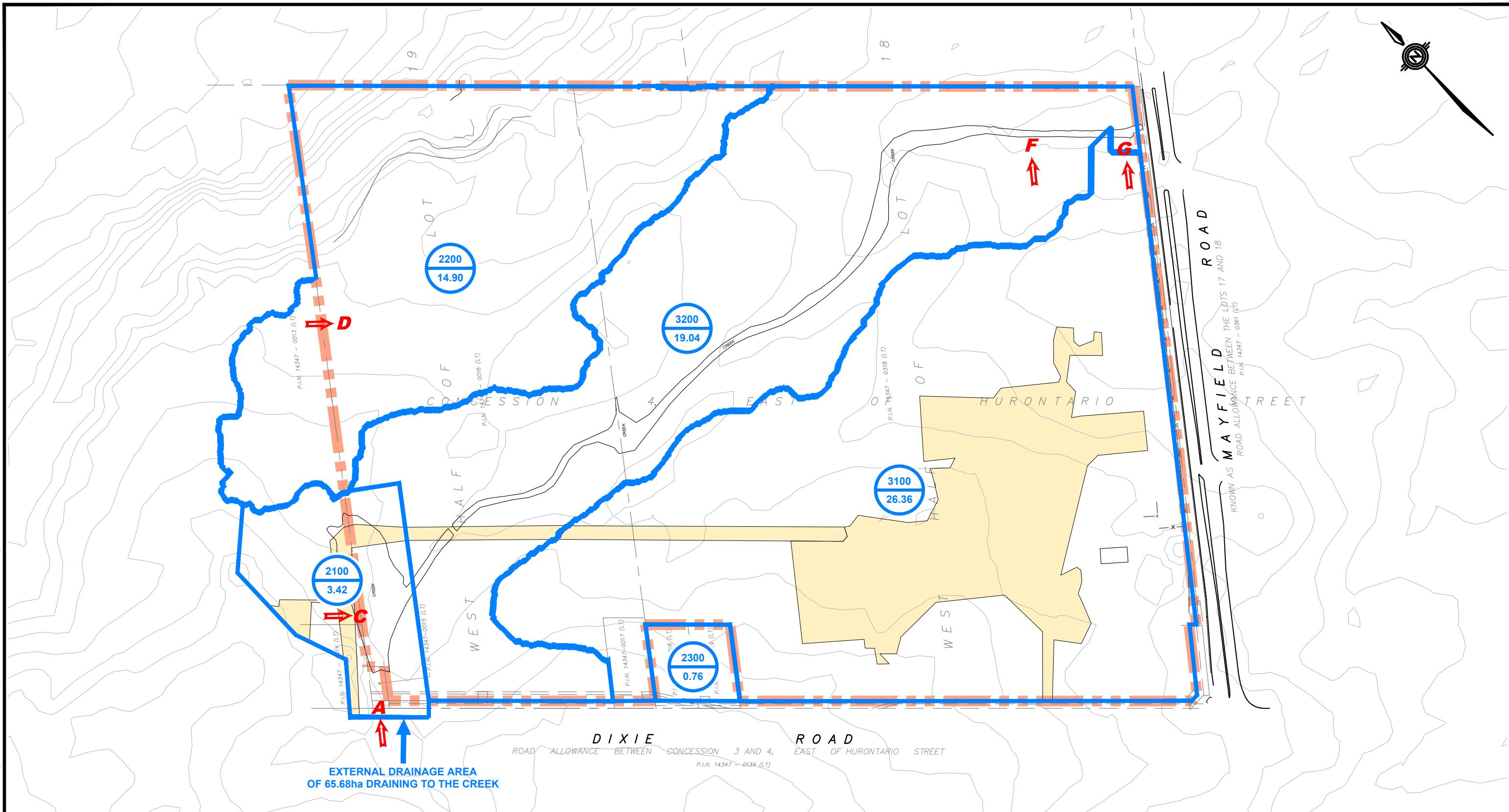
- A** HYDROLOGIC CALCULATIONS
- B** NATURAL CHANNEL DESIGN
- C** HEC-RAS OUTPUT

1 INTRODUCTION

WSP Group Limited was retained by Tribal Partners Canada Inc. to prepare a natural channel design for the proposed realignment of the section of the Humber River Tributary H2 located downstream of the culvert at Dixie Road. This reach is located within the limits of the proposed 12035 Dixie Road in the Town of Caledon.

The proposed naturalized channel stretches east of the existing culvert at Dixie Road all the way to the existing culvert at Mayfield Road. The newly designed reach extends from the northwest limit of the 12035 Dixie Road to the existing culvert at Mayfield Road. The location of the project reach of the Tributary H2 is shown on **Figure 1.1**.

This design report presents the rationale and technical support for the proposed natural channel design for the Tributary H2 of the Humber River within the limits of the proposed 12035 Dixie Road Site. In this report, the morphological basis of the design is explained, and the supporting hydraulic analysis is provided. Detailed design drawings have been prepared including grading, plantings, and other pertinent construction details are submitted along this report under separate cover.



LEGEND

- PROPERTY BOUNDARY
- CATCHMENT BOUNDARY
- CATCHMENT ID.
- DRAINAGE AREA (ha)

- IMPERVIOUS
- FLOW POINT
- G

0 50 100 150 200m

CLIENT	TRIBAL PARTNERS CANADA INC.	
TITLE	12035 DIXIE ROAD	

PRE-DEVELOPMENT DRAINAGE PLAN

WSP

Checked V.N.	Drawn AutoCAD/B.K.B.
Date MARCH 2021	Proj. No. 20M-01429-00
Scale AS SHOWN	Figure No. 1.1

2 NATURAL CHANNEL DESIGN

The components of the works covered herein is the detailed design of the naturalized channel located in the 17 m wide open space corridor (approximately 1385 m long as a total linear distance). The project reach H2 extends from the northwestern limit of the 12035 Road site and ties into the existing culvert at Mayfield Road. The proposed natural channel follows the alignment of the creek block with the meandering belt and also provides morphological periodicity in the vertical dimension in the form of riffle/pool sequences. Based on Fluvial Geomorphological Assessment conducted by GEO Morphix Ltd., to design a system like naturalized channel, a sinuosity of 1.13 would be applied to the realigned channel. As a result of this sinuosity, channel length will be increased to 1570 m. The design criteria, design flows, channel morphological, and hydraulic analysis for the proposed channel design are presented in the following sections.

At northwest side of the 12035 Dixie Road site, downstream of culvert at Dixie Road, there is a watercourse that does not have a clearly defined channel. The flow in the watercourse originates northwest of 12035 Dixie Road and is conveyed from northwest to southeast towards the culvert crossing at Mayfield Road. The proposed naturalized channel is to be constructed in a 17 m wide open space corridor, starting just northwest of 12035 Dixie Road and terminating approximately 2 m upstream of the existing culvert at Mayfield Road.

2.1 DESIGN CRITERIA

The design criteria for the naturalized channel are as follows (Adaptive Management of Stream Corridors in Ontario):

- Provide an active flow channel for frequent (bankfull) storm events;
- Convey the 100-year flood with a minimum freeboard of 0.3 m;
- Keep the maximum channel velocity less than 1.8 m/s for the bankfull condition and 2.0 m/s for storms up to a 100-year flood, to enable the use of vegetation for channel protection as much as possible;

The access for future maintenance will be provided from the adjacent parking lots and there will not be any access road or water crossing structure along with the realigned channel. Therefore, at this stage there is no need to provide adequate hydraulic capacity through the crossing at access road, as there is no access road.

2.2 HYDROLOGIC ANALYSIS AND DESIGN FLOWS

Under existing conditions, a water course runs through the proposed development. The intent of the current study is to realign the existing channel within the proposed land. A hydrologic analysis was carried out as part of a preliminary natural channel design in order to calculate design flows for the channel.

In the post-development condition, the natural channel will receive runoff from various drainage areas located north and northwest of the site. With considering the grading of this site, there will not be any flows from the site 12035 Dixie Road into the proposed realignment channel in post-development condition. Figure 2.1 shows the post-development drainage plan and alignment of the channel through the proposed development.

The objectives of the hydrologic analysis are as follows:

1. To estimate the post-development design flows in the realigned natural channel;
2. To estimate the post-development flows entering the culvert at Mayfield Road. This involves the following sub-objective:

- To ensure that the proposed stormwater management facilities for the proposed development are able to control flows to pre-development levels for 2- to 100-year.

Hydraulic analysis of the channel will be based on post-development flows in the channel and at the culvert at Mayfield Road.

The natural channel will receive runoff from the west industrial development (Prologis Park 410 – Mayfield), north external drainage areas and natural channel drainage corridor. In addition, minor and major flows from the proposed development at municipal address 12035 Dixie Road will be controlled within a proposed SWM facility and will be conveyed through the realigned natural channel upstream of the existing culvert at Mayfield Road.

The design flows were determined using the Visual OTTHYMO (VO). This model yielded the design flows used to determine the preliminary size of the natural channel. A mix of NashHyd and StandHyd subroutines were used in the model to represent the proposed conditions. To run the model, input parameters such as Curve Number (CN) is extracted from the Prologis Natural Channel H2 Design Report dated June 2016. In addition, the conservative XIMP and TIMP input parameters of 90% were considered. To calculate the design flows within the natural channel 12-hour AES, 6-hour AES and 25 mm 24-hour Chicago storms were applied in the model. The parameters of drainage areas to aligned channel is shown within **Table 2.1**.

The drainage area to the natural channel and the channel alignment are shown in **Figure 2.1**.

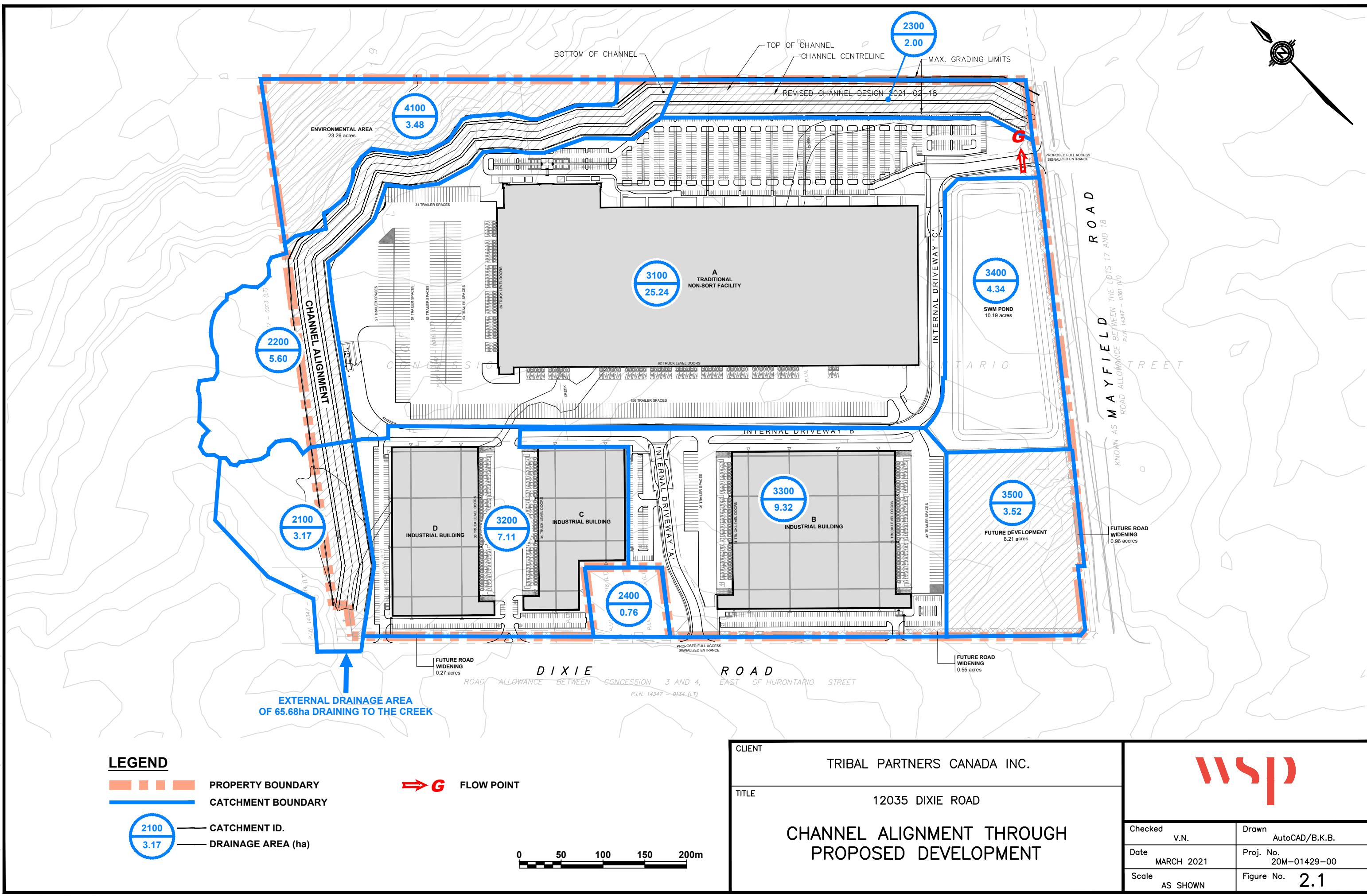
A CN number of 87 and an Initial Abstraction (IA) of 5 mm is applied to cultivated area, as indicated by TRCA (Humber River Hydrology Update, 2015). The time of concentration (T_c) is calculated using Upland Method and time to peak (T_p) is related to time of concentration using following equation: $T_p=2/3T_c$. The VO hydrologic parameters are presented in **Table 2.1**. The calculated design peak flows for the channel are outlined in **Table 2.2** which presents the estimated 2 to 100-year peak flow rates in the realigned natural channel. Detailed calculations are shown in the **Appendix A**.

Table 2-1 Sub-catchment Parameters of the Drainage Area to the Natural Channel

SUB-CATCHMENT	AREA(HA)	CN	IA(MM)	TP(HR)
2100	3.11	87	5	0.14
2200	5.6	87	5	0.22
2300	2.0	87	5	0.21

Table 2-2 Post-development Peak Flow Rates in the Natural Channel

Return Period (Years)	Post-development Peak Flow Rates(m ³ /s)			
	Culvert at Dixie Road	Outlet C	Outlet D	Outlet F
25 mm Chicago	0.12	0.13	0.14	0.16
2	0.36	0.38	0.47	0.51
5	0.59	0.63	0.76	0.83
10	0.76	0.81	0.98	1.07
25	0.99	1.04	1.27	1.39
50	1.16	1.23	1.49	1.64
100	1.34	1.41	1.73	1.89



2.3 ALLOWABLE FLOW RATES FROM THE PROPOSED POND

WSP determined the allowable and controlled discharge rates for the proposed stormwater management pond at the south side of the site, as shown in **Table 2.3**. The total allowable flow rate at the culvert located at Mayfield Road was determined using the unit flow equation for Humber River based on existing drainage area, and the allowable flow rates for the proposed pond were calculated to be proportional to the post-development drainage area to the pond.

Table 2-3 Allowable and Controlled Peak Flow Rates for the Stormwater Management Pond

RETURN PERIOD(YR)	ALLOWABLE PEAK FLOW RATE (M ³ /S)	CONTROLLED FLOW AT POND OUTLET (M ³ /S)
2	0.150	0.069
5	0.250	0.160
10	0.400	0.235
25	0.550	0.353
50	0.650	0.445
100	0.750	0.550

Table 2.4 presents the post-development peak flow rates which consists of flows from the proposed stormwater management pond flowing towards the culvert at Mayfield Road,

Table 2-4 Post-Development Peak Flow Rates at Pond Outlet

RETURN PERIOD(YR)	PRE-DEVELOPMENT PEAK FLOW RATES (M ³ /S)	POST-DEVELOPMENT PEAK FLOW RATES (M ³ /S)
2	0.694	0.55
5	1.099	0.94
10	1.389	1.25
25	1.773	1.67
50	2.075	2.00
100	2.371	2.35

The analysis showed that post-development peak flow rates at the culvert at Mayfield Road will be controlled to less than pre-development levels for 2-year through 100-year events (**Table 2.4**). The hydraulic analysis of the channel will be based on post-development peak flows in the channel (as shown in **Table 2.2**) with starting water levels corresponding to post-development peak flow rates at the culvert at Mayfield Road.

Table 2.5 summarizes the design flows for the reach of the channel. The bankfull discharge corresponding to 1.5-year event was determined using regression method. Detailed calculations are included in **Appendix B**.

Table 2-5 Design Flow Rates for Realigned Channel

RETURN PERIOD (YR)	AT THE END OF CHANNEL, BEFORE POND OUTLET (M ³ /S)	RELEASE RATES FROM THE POND (M ³ /S)	AT MAYFIELD ROAD CULVERT (M ³ /S)
2	0.52	0.55	0.93
5	0.81	0.94	1.53
10	1.06	1.25	2.01
25	1.39	1.67	2.66
50	1.63	2.00	3.16
100	1.885	2.35	3.69

* Includes outflows from SWM pond.

2.4 CHANNEL ALIGNMENT

The alignment of the proposed naturalized channel begins immediately downstream of culvert at Dixie Road (15 m) east of Dixie Road. The channel runs northeast for a distance of approximately 420 m, continues with minor meandering in a south-easterly direction, before turning easterly (adjacent to the main creek) for a further distance of 280 m, goes to the southeast direction then flows south, and for a distance of 685 m before it eventually ties into the existing culvert at Mayfield Road, adjacent to the proposed SWM pond. A meandering low flow channel with an average longitudinal slope of 0.38 % is defined along the proposed channel alignment. The alignment of the proposed naturalized channel is shown in **Figure 2.1**.

2.5 CHANNEL MORPHOLOGY

The straight sections of the bankfull channel, which depict a natural channel profile, are generally trapezoidal including a thalweg to convey low flows. Along the channel, the bankfull average width and depth are 2.31 m and 0.24 m, respectively.

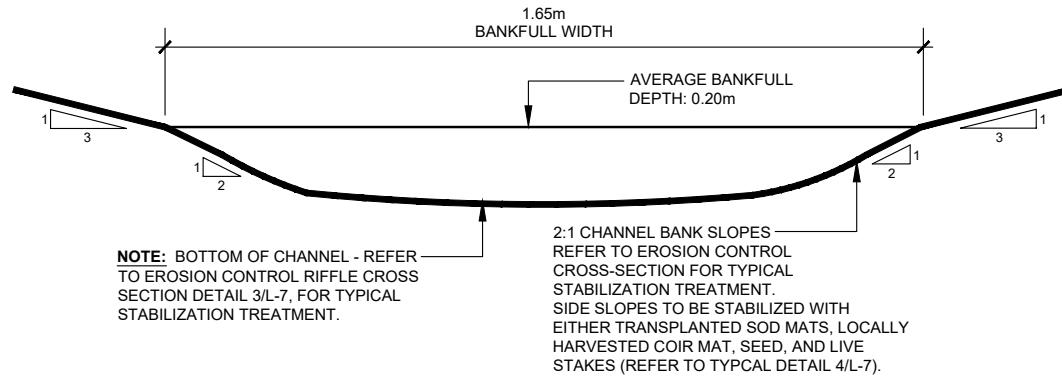
Based on the characteristics of the natural channel, the bankfull channel will have a width to depth ratio of approximately 8.5, which is well within the range associated with stable natural channel systems.

As has been mentioned, the basic morphology of the proposed channel consists of a relatively irregular channel alignment with riffle/pool sequences. An average meander belt width of 15 m was selected in accordance with Modified Williams (Width) method (Equation 7).

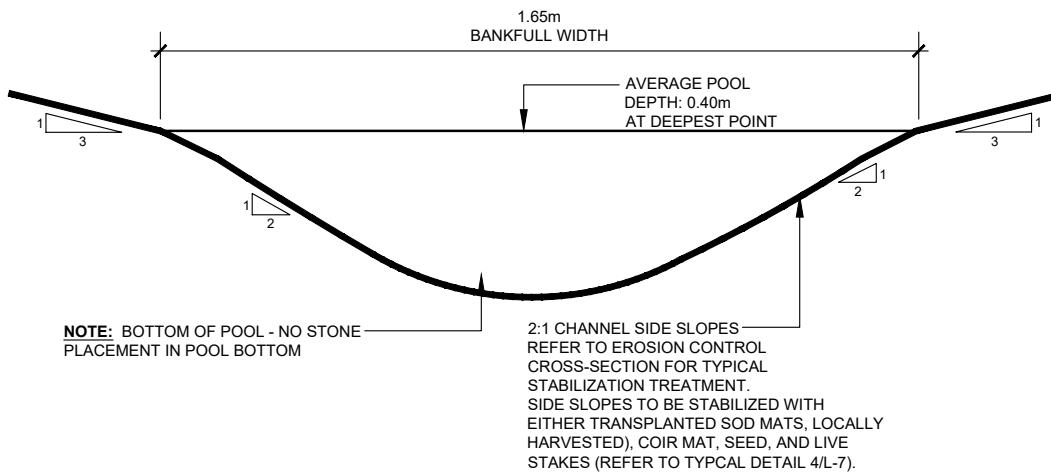
The morphological parameters for the channel are given in **Table 2.6**. The typical riffle and pool cross-sections are shown in **Figure 2.2**. The typical longitudinal channel profile along the riffle/pool sequence is shown in **Figure 2.3**.

Table 2-6 Morphological Parameters for Realignment Natural Channel

Average Bankfull discharge	0.33 m ³ /s
Average Bankfull width	2.31 m
Average Bankfull depth	0.24 m
Average Bankfull width/depth ratio	8.5
Average channel slope	0.38 %
Average Meander Width	15 m
Sinuosity	1.13



RIFFLE SECTION - TYPICAL CROSS-SECTION STA 40.0 TO STA 500.0



POOL SECTION - TYPICAL CROSS-SECTION STA 40.0 TO STA 500.0

CLIENT

TRIBAL PARTNERS CANADA INC.

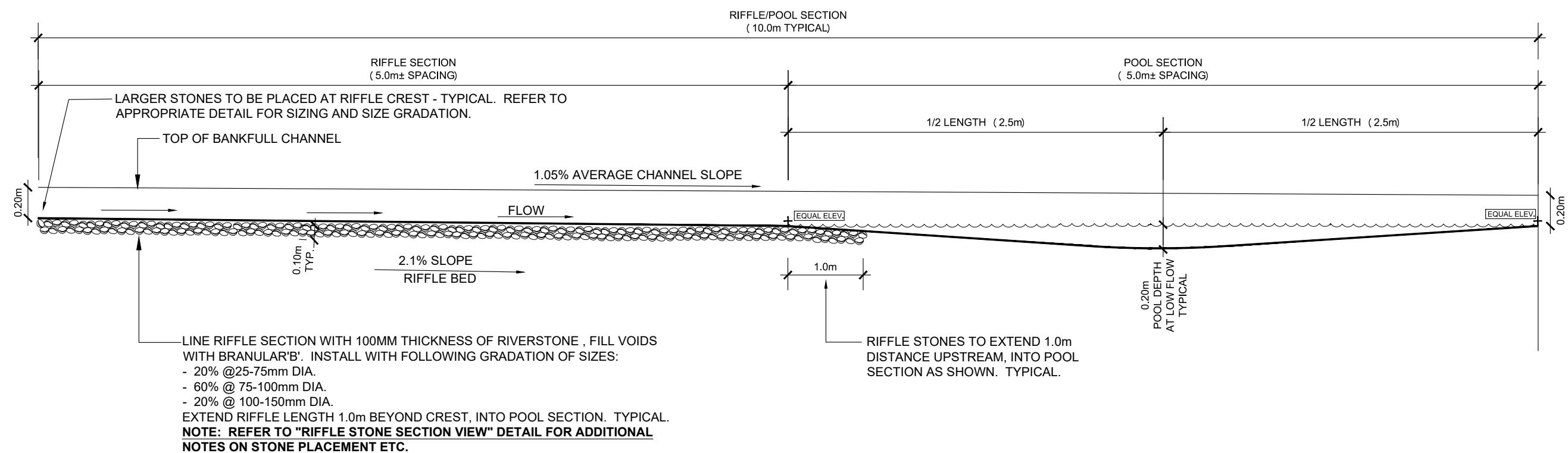
TITLE

12035 DIXIE ROAD

**TYPICAL CROSS-SECTIONS ALONG
RIFFLE POOL SEQUENCES**



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Date MARCH 2021	Proj. No. 20M-01429-00
Scale N.T.S.	Figure No. 2.2



CLIENT

TRIBAL PARTNERS CANADA INC.

TITLE

12035 DIXIE ROAD

**TYPICAL LONGITUDINAL PROFILE
ALONG RIFFLE AND POOL SEQUENCE**

WSP

Checked V.N.	Drawn AutoCAD/B.K.B.
Date MARCH 2021	Proj. No. 20M-01429
Scale N.T.S.	Figure No. 2.3

2.6 HYDRAULIC ANALYSIS

A hydraulic analysis of the proposed channel was carried out using the U.S. Army Corps of Engineers HEC-RAS (1D) computer model. The purpose of the hydraulic analysis is to establish the 1.5 to 100-year water surface profiles along the reach, and to confirm the adequacy of the width and freeboard. The hydraulic analysis was also used to confirm that the flow depths and velocities below design thresholds.

HEC-RAS channel cross-sections were established at the beginning and end of riffle sections and at the mid-point of the pools (i.e., at all changes in channel cross-section). Typical cross-section of bankfulls as specified in the HEC-RAS model are shown in **Figure 2.4**. The longitudinal profile of the channel as modelled with HEC-RAS is shown in **Figure 2.5**.

Channel parameters such as Manning's roughness coefficients (n) and contraction and expansion coefficients were selected based on TRCA design criteria for floodline mapping (Humber River Hydrology Update, 2015). The HEC-RAS parameters are given in **Table 2.7**.

Table 2-7 HEC-RAS Parameters

HEC-RAS Parameter		Value
Average Manning's Roughness	Bankfull Channel	0.045
	Overbanks	0.06
Contraction Coefficient	Channel	0.1
Expansion Coefficient	Channel	0.3

HEC-RAS simulations were conducted for the 1.5 to 100-year . A tabulation of this simulation results can be found in **Appendix C**.

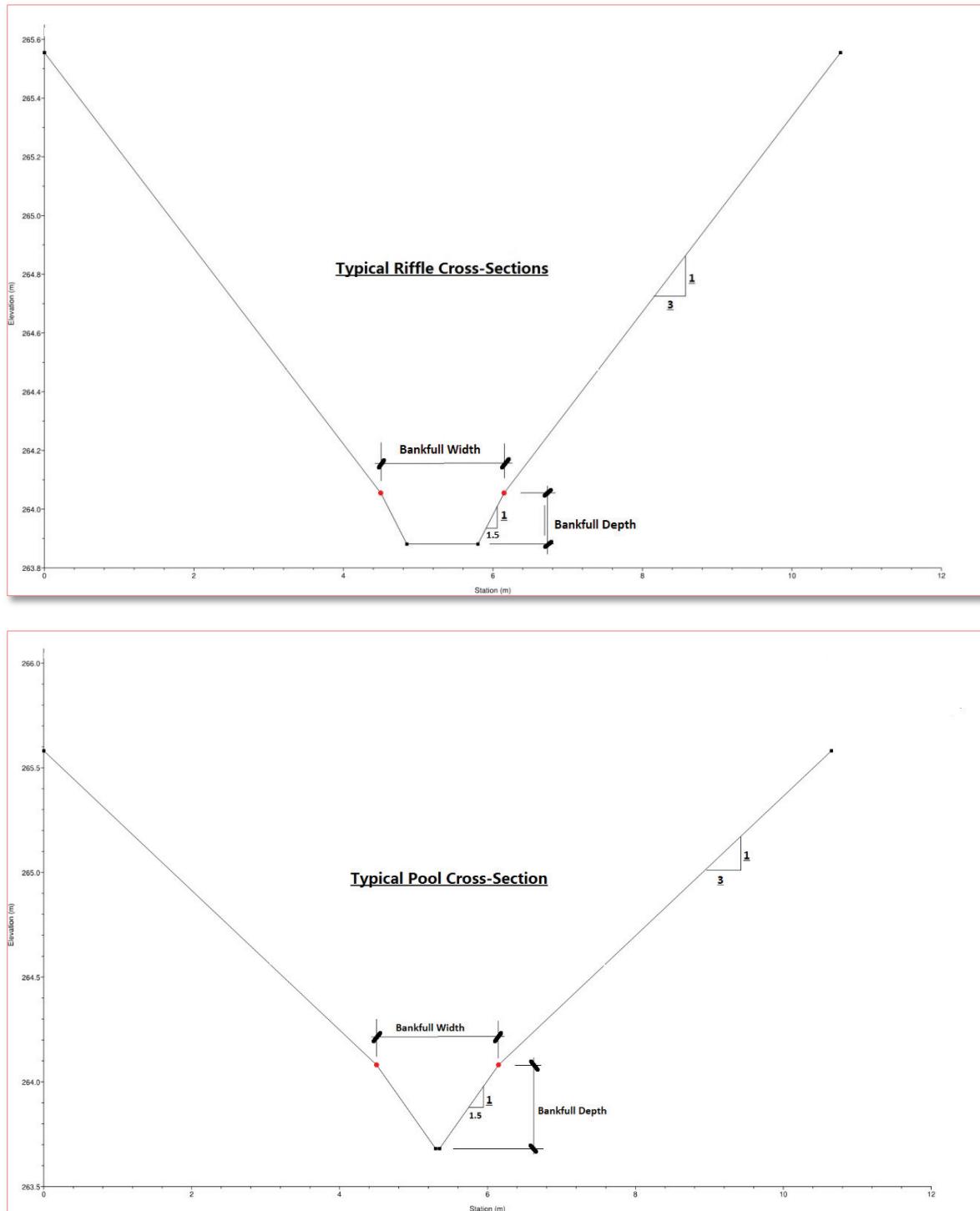


Figure 2-4: Typical Riffle and Pool Cross-Sections as Specified in the HEC-RAS

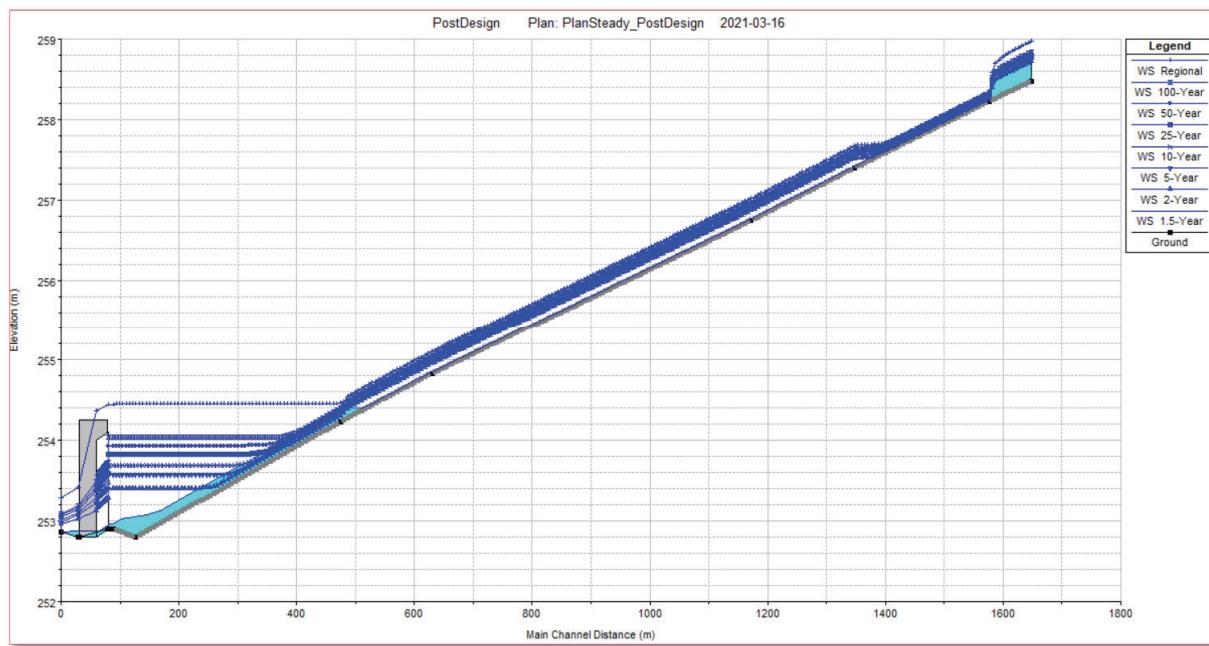


Figure 2-5: The Longitudinal Profile of the Channel After Running the HEC-RAS Model

The results from HEC-RAS model show that there is adequate capacity at existing culvert at Mayfield Road to pass the flows from 1.5-year to 100 year. It is able to 100 year without surcharge. The cross-section of the opening at existing culvert at Mayfield Road (modelled in HEC-RAS) is shown in **Figure 2.6**.

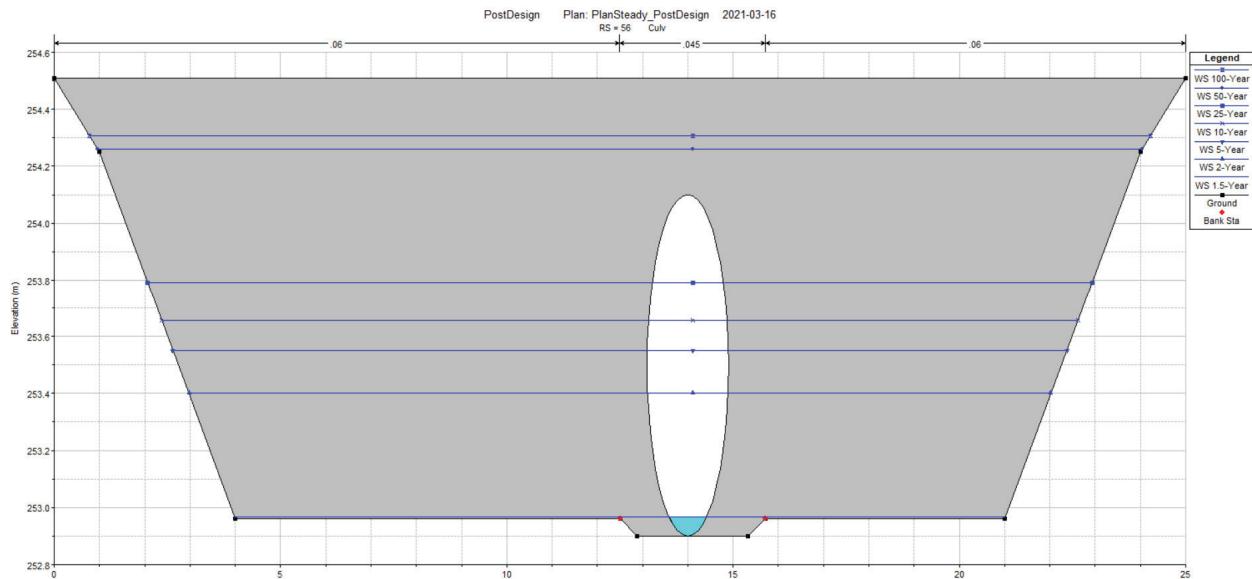


Figure 2-6: The cross section of Culvert Opening Cross Section at Mayfield Road after Hydraulic Modelling

2.7 CHANNEL PROTECTION AND STABILIZATION

The proposed channel protection due to erosion and stabilization methods were selected to effectively protect the channel during bankfull conditions, and in case of 100-year flow conditions. More specifically, the maximum flow velocities along the channel for the bankfull (1.5 year) and 100-year events were used to guide the selection of the appropriate methods of channel protection.

The maximum bankfull and 100-year flow velocities for the proposed channel are summarized in **Table 2.10**. The maximum bankfull velocity along the riffle/pool sequences is 0.37 m/s and well less than 1.8 m/s, which means that the channel can be effectively protected with vegetation. The average flow velocities during the 100-year event are less than 2 m/s, which means that they can withstand a 100-year flood.

Table 2-8 Maximum Flow Velocities for Realigned Channel

CROSS SECTION	SEQUENCE	BANKFULL FLOW (1.5-YEAR EVENT) (M/S)	CHANNEL 100-YEAR STORM (M/S)	OVERBANKS 100- YEAR STORM (M/S)
Station 89 to 1648	Riffle/Pool	0.54	0.72	0.37

Considering the obtained velocities, it is proposed that the banks of the reach along both the riffle and pool sections be protected with vegetation. Two alternatives for the establishment of the bank vegetation are proposed:

- Lining of the banks with sod mats harvested from the adjacent fields (if available), supplemented with live stakes.
- Lining of the banks with coir matting over grass seed, supplemented with live stakes.

3 CONCLUSION

A hydrologic analysis was carried out to determine design flows in the proposed channel following the H2 tributary of the Humber River extending from the culvert at Dixie Road to the existing culvert at Mayfield Road.

This design brief presents the rationale and technical support for the proposed natural channel through the 12035 Dixie Road development in the Town of Caledon.

Natural channel design principles were used in the relocation of channel contained within the 12035 Dixie Road site. The design criteria for the naturalized channel were as follows:

- Provide a bankfull channel to convey the 1.5-year event;
- Convey the 100-year flood with a minimum freeboard of 0.3 m; and,
- The maximum flow velocity should be less than 1.8 m/s for the bankfull condition and 2.0 m/s for storms up to a 100-year flood, to enable the use of vegetation for channel protection.

The proposed natural channel has been designed to consist of riffle / pool sequences and no meandering of the bankfull channel. Sizing of the proposed crossing at the access road was also carried out. A detailed hydraulic analysis of the proposed channel using HEC-RAS was conducted. The culvert crossing at Mayfield Road was also modelled to verify its hydraulic capacity and any impacts on flood levels upstream and downstream of the crossing. The results of the hydraulic analysis were used to design the erosion protection for the channel.

The main features of the proposed natural channel design are as follows:

- The naturalized channel located in the 17 m wide open space corridor (approximately 1385 m long);
- An average bankfull width of 2.31 m and an average bankfull depth of 0.24 m;
- A mildly sinuous channel with an average gradient of 0.19 %;
- A riffle/pool morphology with irregular meandering of the bankfull channel;
- Riffle and pool banks protected with vegetation;
- Riparian plantings of grasses, shrubs and trees.

Based on the design criteria (section 2.1), the proposed channel was found to have no adverse impacts on flood levels or on adjacent structures. The flow velocities along the channel were generally less than the maximum permissible velocity of 1.8 m/s. The culvert beneath the Mayfield Road is able to pass the flows 2-year to 100-year without surcharging,

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- Ministry of Natural Resources. (1994). Adaptive Management of Stream Corridors in Ontario. Morphologic Relationship of Rural Watercourses in Southern Ontario and Selected Fields Methods in Fluvial Geomorphology.
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APPENDIX

A HYDROLOGIC CALCULATIONS



Project	12035 Dixie Road		No.	20M-01429
By	R. J.		Date	2021-03-16
Checked	V. N.		Checked	

Subject	Natural Channel Design
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Design Criteria

The design criteria for the natural channel can be summarized as follows:

- 1) Convey the larger of the 100-year and Regional floods with a minimum freeboard of 0.30 m.
- 2) Design an active channel based on morphologic relationships for watercourses in Southern Ontario developed by Annable to convey the **1.5 year** flow (bankfull discharge).
- 3) Provide adequate hydraulic capacity through the crossing at the access road.
- 4) Keep the maximum channel velocity less than 1.7 m/s for the bankfull condition and 2.0 m/s for storms up to a 100-year flood, to enable the use of vegetation for channel protection as much as possible.

Design Flows

WSP Canada Inc. has been retained with Tribal Partners Canada Inc. to provide a stormwater management report for the lands located at 1235 Dixie Road within the Town of Caledon. Under existing conditions an existing water course runs through the proposed development. The intent of the current study is to realign the existing channel within the proposed land.

The realigned reach will extend from the existing culvert at Dixie Road towards the existing culvert at Mayfield Road. The natural channel will receive runoff from the west industrial development, north external drainage areas and natural channel drainage corridor. In addition, minor and major flows from the proposed development at municipal address # 12035 Dixie Road will be controlled within a proposed SWM facility and will be conveyed through the realigned natural channel upstream of the existing culvert at Mayfield Road.

Visual SWMM model v5 was used to determine the natural channel design flows. A mix of NashPyu and Stanyu subroutines were used in the model to represent the proposed conditions. To run the model, input parameters such as Curve Number is extracted from the Prologis Natural Channel H2 Design Report dated June 2016. The time to peak (Tp) input parameters are calculated in the following table. In addition, the conservative XIMP and TIMP input parameters of 90% were assumed for the proposed development at #12035 Dixie Road municipal address. To calculate the design flows within the natural channel 12-hour AES, 6-hour AES and 25 mm 24 hour Chicago storms were applied in the model. Since the release rate from the proposed pond within the #12035 Dixie Road Development Block is not available at this stage of the report, allowable release rates from a drainage area of 50.5 ha (i.e. total development drainage area) was estimated based on the unit flow rates for Humber River Sub basin 36. Since under the existing conditions a drainage area smaller than 5.5 ha is discharged into the existing Mayfield Road culvert from the proposed development, the calculated allowable release rates within the following table in terms of the natural channel design would be a conservative approach.

Time to peak calculations

Catchment	Description	Length (m)	E1 (m)	E2 (m)	Slope (%)	V (m/s)	Tc (min)	Tp (min)	Tp (hr)
2100	Pasture	215	263.0	259.5	1.63	0.29	12.2	8.1	0.14
2200	Pasture	581.0	260.5	254.0	1.12	0.24	39.8	26.5	0.44
2300	Pasture	438	257.0	254	0.68	0.19	38.4	25.6	0.43

Allowable release rate assumptions from the proposed development at #12035 Dixie Road

Catchment#	Area (ha)	Storm Event	Unit Flow Relationship (Basin 36)	Allowable Flow Rates	
				Unit Flow Rate (L/s/ha)	Allowable Flow from Pond (m³/s)
3100	49.59	2-yr	$Q = 9.506 - 0.719 \ln(A)$	6.70	0.332
		5-yr	$Q = 14.652 - 1.136 \ln(A)$	10.22	0.507
		10-yr	$Q = 17.957 - 1.373 \ln(A)$	12.60	0.625
		25-yr	$Q = 22.639 - 1.741 \ln(A)$	15.84	0.786
		50-yr	$Q = 26.566 - 2.082 \ln(A)$	18.44	0.914
		100-yr	$Q = 29.912 - 2.316 \ln(A)$	20.87	1.035

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\visual OTTHYMO 6.1\VO2\voin.dat
Output filename: C:\Users\ramin.jalalirad\AppData\Local\Civica\VH5\99f5a664-5479-41e3-a06e-5100674363bc\39a
Summary filename: C:\Users\ramin.jalalirad\AppData\Local\Civica\VH5\99f5a664-5479-41e3-a06e-5100674363bc\39a

DATE: 03-16-2021 TIME: 07:25:11

USER:

COMMENTS: _____

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*****
** SIMULATION : Run 01
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READ STORM	Filename: C:\Users\ramin.jalalirad\AppData\Local\Temp\8309d67c-2258-4fe4-93e5-afc713b64b34\83be866c																																																																																
Ptotal = 36.00 mm	Comments: 2yr/6hr																																																																																
	<table border="1"> <thead> <tr> <th>TIME hrs</th> <th>RAIN mm/hr</th> <th>TIME hrs</th> <th>RAIN mm/hr</th> <th>'</th> <th>TIME hrs</th> <th>RAIN mm/hr</th> <th>'</th> <th>TIME hrs</th> <th>RAIN mm/hr</th> </tr> </thead> <tbody> <tr><td>0.25</td><td>0.00</td><td>2.00</td><td>12.24</td><td></td><td>3.75</td><td>5.04</td><td></td><td>5.50</td><td>0.72</td></tr> <tr><td>0.50</td><td>0.72</td><td>2.25</td><td>12.24</td><td></td><td>4.00</td><td>2.88</td><td></td><td>5.75</td><td>0.72</td></tr> <tr><td>0.75</td><td>0.72</td><td>2.50</td><td>33.12</td><td></td><td>4.25</td><td>2.88</td><td></td><td>6.00</td><td>0.72</td></tr> <tr><td>1.00</td><td>0.72</td><td>2.75</td><td>33.12</td><td></td><td>4.50</td><td>1.44</td><td></td><td>6.25</td><td>0.72</td></tr> <tr><td>1.25</td><td>0.72</td><td>3.00</td><td>9.36</td><td></td><td>4.75</td><td>1.44</td><td></td><td></td><td></td></tr> <tr><td>1.50</td><td>4.32</td><td>3.25</td><td>9.36</td><td></td><td>5.00</td><td>0.72</td><td></td><td></td><td></td></tr> <tr><td>1.75</td><td>4.32</td><td>3.50</td><td>5.04</td><td></td><td>5.25</td><td>0.72</td><td></td><td></td><td></td></tr> </tbody> </table>	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr	0.25	0.00	2.00	12.24		3.75	5.04		5.50	0.72	0.50	0.72	2.25	12.24		4.00	2.88		5.75	0.72	0.75	0.72	2.50	33.12		4.25	2.88		6.00	0.72	1.00	0.72	2.75	33.12		4.50	1.44		6.25	0.72	1.25	0.72	3.00	9.36		4.75	1.44				1.50	4.32	3.25	9.36		5.00	0.72				1.75	4.32	3.50	5.04		5.25	0.72			
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr																																																																								
0.25	0.00	2.00	12.24		3.75	5.04		5.50	0.72																																																																								
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0.75	0.72	2.50	33.12		4.25	2.88		6.00	0.72																																																																								
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1.50	4.32	3.25	9.36		5.00	0.72																																																																											
1.75	4.32	3.50	5.04		5.25	0.72																																																																											

CALIB NASHYD (1000) ID= 1 DT= 2.0 min	Area (ha)= 19.21 Ia (mm)= 7.70 U.H. Tp(hrs)= 1.07	Curve Number (CN)= 87.0 # of Linear Res.(N)= 3.00
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NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32		3.167	9.36		4.73	1.44
0.067	0.00	1.633	4.32		3.200	9.36		4.77	1.08
0.100	0.00	1.667	4.32		3.233	9.36		4.80	0.72
0.133	0.00	1.700	4.32		3.267	7.20		4.83	0.72
0.167	0.00	1.733	4.32		3.300	5.04		4.87	0.72
0.200	0.00	1.767	8.28		3.333	5.04		4.90	0.72
0.233	0.00	1.800	12.24		3.367	5.04		4.93	0.72
0.267	0.36	1.833	12.24		3.400	5.04		4.97	0.72
0.300	0.72	1.867	12.24		3.433	5.04		5.00	0.72
0.333	0.72	1.900	12.24		3.467	5.04		5.03	0.72
0.367	0.72	1.933	12.24		3.500	5.04		5.07	0.72
0.400	0.72	1.967	12.24		3.533	5.04		5.10	0.72
0.433	0.72	2.000	12.24		3.567	5.04		5.13	0.72
0.467	0.72	2.033	12.24		3.600	5.04		5.17	0.72

0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Unit Hyd Qpeak (cms)= 0.686

PEAK FLOW (cms)= 0.237 (i)
 TIME TO PEAK (hrs)= 4.033
 RUNOFF VOLUME (mm)= 12.088
 TOTAL RAINFALL (mm)= 36.000
 RUNOFF COEFFICIENT = 0.336

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	NASHYD (1100)	Area (ha)= 2.08	Curve Number (CN)= 87.0
ID= 1 DT= 2.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.29		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME
hrs	mm/hr	hrs	mm/hr	'	hrs	mm/hr	hrs
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72

0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Unit Hyd Qpeak (cms)= 0.274

PEAK FLOW (cms)= 0.066 (i)
 TIME TO PEAK (hrs)= 2.900
 RUNOFF VOLUME (mm)= 13.936
 TOTAL RAINFALL (mm)= 36.000
 RUNOFF COEFFICIENT = 0.387

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

DUHYD (2000)	
Inlet Cap.= 0.949	
#of Inlets= 1	
Total(cms)= 0.9	

AREA (ha)	QPEAK (cms)
2.08	0.07
TOTAL HYD.(ID= 1):	2.90 13.94
=====	
MAJOR SYS.(ID= 2):	0.00 0.00 0.00 0.00
MINOR SYS.(ID= 3):	2.08 0.07 2.90 13.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (1200)	Area (ha)= 25.19	Total Imp(%)= 88.60	Dir. Conn.(%)= 88.60

Surface Area (ha)=	22.32	IMPERVIOUS	PERVIOUS (i)
Dep. Storage (mm)=	1.00		2.87
Average Slope (%)=	1.00		5.00
Length (m)=	409.80		2.00
Mannings n =	0.013		40.00
	0.250		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72

0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)= 33.12 17.42
 over (min) 10.00 16.00
 Storage Coeff. (min)= 9.27 (ii) 14.10 (ii)
 Unit Hyd. Tpeak (min)= 10.00 16.00
 Unit Hyd. peak (cms)= 0.12 0.08

TOTALS

PEAK FLOW (cms)=	1.95	0.10	2.042 (iii)
TIME TO PEAK (hrs)=	2.73	2.87	2.77
RUNOFF VOLUME (mm)=	35.00	13.94	32.60
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.39	0.91

(i) CN PROCEDURE SELECTED FOR PERVERIOUS LOSSES:

CN* = 87.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2001)		AREA	QPEAK	TPEAK	R.V.
1 +	2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1200):		25.19	2.042	2.77	32.60
+ ID2= 2 (2000):		2.08	0.066	2.90	13.94

ID = 3 (2001):	27.27	2.098	2.77	31.18
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(1002)		OVERFLOW IS OFF			
IN= 2	--> OUT= 1	OUTFLOW	STORAGE	OUTFLOW	STORAGE
DT= 2.0 min		(cms)	(ha.m.)	(cms)	(ha.m.)
		0.0000	0.0000	0.2130	1.6215
		0.0900	0.8290	0.2480	1.8230
		0.1380	1.1410	0.2810	2.0230
		0.1700	1.3535	0.0000	0.0000

INFLOW : ID= 2 (2001)	27.270	2.098	2.77	31.18
OUTFLOW: ID= 1 (1002)	27.270	0.082	4.93	28.59

PEAK FLOW REDUCTION [Qout/Qin] (%)= 3.91
 TIME SHIFT OF PEAK FLOW (min)= 130.00
 MAXIMUM STORAGE USED (ha.m.)= 0.7557

CALIB STANDHYD (1300)		Area (ha)= 13.18	Total Imp(%)= 83.40	Dir. Conn.()%= 83.40
ID= 1 DT= 2.0 min				

Surface Area	(ha)=	10.99	IMPERVIOUS	PERVIOUS (i)
Dep. Storage	(mm)=	1.00		5.00
Average Slope	(%)=	1.00		2.00
Length	(m)=	296.42		40.00
Mannings n	=	0.013		0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	' TIME hrs	RAIN mm/hr	' TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=	33.12	17.42
over (min)	8.00	14.00
Storage Coeff. (min)=	7.63	(ii) 13.39 (iii)
Unit Hyd. Tpeak (min)=	8.00	14.00
Unit Hyd. peak (cms)=	0.15	0.08

TOTALS

PEAK FLOW (cms)=	0.99	0.08	1.055 (iii)
TIME TO PEAK (hrs)=	2.73	2.87	2.73
RUNOFF VOLUME (mm)=	35.00	13.94	31.50
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.39	0.88

(i) CN PROCEDURE SELECTED FOR PERVERIOUS LOSSES:

CN* = 87.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

IN= 2--> OUT= 1	OUTFLOW	STORAGE	OUTFLOW	STORAGE
DT= 2.0 min	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.1120	0.6810
	0.0470	0.3640	0.1300	0.7605
	0.0720	0.4900	0.1470	0.8395
	0.0890	0.5750	0.0000	0.0000

INFLOW : ID= 2 (1300)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
OUTFLOW: ID= 1 (1001)	13.180	1.055	2.73	31.50

PEAK FLOW REDUCTION [Qout/Qin](%)= 4.45
 TIME SHIFT OF PEAK FLOW (min)=126.00
 MAXIMUM STORAGE USED (ha.m.)= 0.3637

ADD HYD (2002)			AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 +	2 =	3	ID1= 1 (1001):	13.18	0.047	4.83
+ ID2= 2 (1002):				27.27	0.082	4.93
ID = 3 (2002):				40.45	0.129	4.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2003)			AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 +	2 =	3	ID1= 1 (1000):	19.21	0.237	4.03
+ ID2= 2 (2002):				40.45	0.129	4.90
ID = 3 (2003):				59.66	0.362	4.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (2100)	Area (ha)=	3.11	Curve Number (CN)=	87.0
ID= 1 DT= 2.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.14		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	'	TIME hrs	RAIN mm/hr	TIME hrs
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72

1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.132 (i)
 TIME TO PEAK (hrs)= 2.767
 RUNOFF VOLUME (mm)= 13.934
 TOTAL RAINFALL (mm)= 36.000
 RUNOFF COEFFICIENT = 0.387

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0005)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 +	2 = 3				
ID1= 1 (2003):		59.66	0.362	4.10	23.56
+ ID2= 2 (2100):		3.11	0.132	2.77	13.93
<hr/>					
ID = 3 (0005):		62.77	0.381	3.93	23.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (2200)	Area (ha)= 5.59	Curve Number (CN)= 87.0
ID= 1 DT= 2.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.22			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72

1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Unit Hyd Qpeak (cms)= 0.971

PEAK FLOW (cms)= 0.203 (i)
 TIME TO PEAK (hrs)= 2.833
 RUNOFF VOLUME (mm)= 13.936
 TOTAL RAINFALL (mm)= 36.000
 RUNOFF COEFFICIENT = 0.387

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0007)		AREA	QPEAK	TPEAK	R.V.
1	+ 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2200):		5.59	0.203	2.83	13.94
+ ID2= 2 (0005):		62.77	0.381	3.93	23.08
=====	=====	=====	=====	=====	=====
ID = 3 (0007):		68.36	0.458	2.87	22.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (2300)	Area (ha)= 2.11	Curve Number (CN)= 87.0
ID= 1 DT= 2.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.21

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72

1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Unit Hyd Qpeak (cms)= 0.384

PEAK FLOW (cms)= 0.078 (i)
 TIME TO PEAK (hrs)= 2.833
 RUNOFF VOLUME (mm)= 13.936
 TOTAL RAINFALL (mm)= 36.000
 RUNOFF COEFFICIENT = 0.387

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 +	2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2300):		2.11	0.078	2.83	13.94
+ ID2= 2 (0007):		68.36	0.458	2.87	22.33
ID = 3 (0009):		70.47	0.536	2.83	22.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	STANDHYD (3100)	Area	(ha)= 50.50	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00
ID= 1	DT= 2.0 min				

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	45.45	5.05
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	580.23	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME
hrs	mm/hr	hrs	mm/hr	'	hrs	mm/hr	hrs
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72

0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)= 33.12
 over (min) 12.00 16.00
 Storage Coeff. (min)= 11.41 (ii) 15.97 (ii)
 Unit Hyd. Tpeak (min)= 12.00 16.00
 Unit Hyd. peak (cms)= 0.10 0.07

TOTALS

PEAK FLOW (cms)=	3.84	0.16	3.991 (iii)
TIME TO PEAK (hrs)=	2.77	2.90	2.77
RUNOFF VOLUME (mm)=	35.00	13.94	32.89
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.39	0.91

- (i) CN PROCEDURE SELECTED FOR PERVERIOUS LOSSES:
 $CN^* = 87.0$ Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0011)	OVERFLOW IS OFF			
IN= 2--> OUT= 1	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
DT= 5.0 min	0.0000	0.0000	0.6350	2.1027
	0.0000	0.0000	0.7980	2.4682
	0.3380	1.4320	0.9290	2.7417
	0.5150	1.8371	1.0520	3.0129
INFLOW : ID= 2 (3100)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
OUTFLOW: ID= 1 (0011)	50.500	3.991	2.77	32.89
	50.500	0.321	4.47	32.75
PEAK FLOW REDUCTION [Qout/Qin](%)= 8.04				
TIME SHIFT OF PEAK FLOW (min)=102.00				
MAXIMUM STORAGE USED (ha.m.)= 1.3602				

***** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0013)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0011): 50.50	0.321	4.47	32.75
	+ ID2= 2 (0009): 70.47	0.536	2.83	22.08
	ID = 3 (0013): 120.97	0.766	3.83	26.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

APPENDIX

B NATURAL CHANNEL DESIGN



Project	12035 Dixie Road	No.	20M-01429
By	R. J.	Date	2021-03-16
Checked	V. N.	Checked	

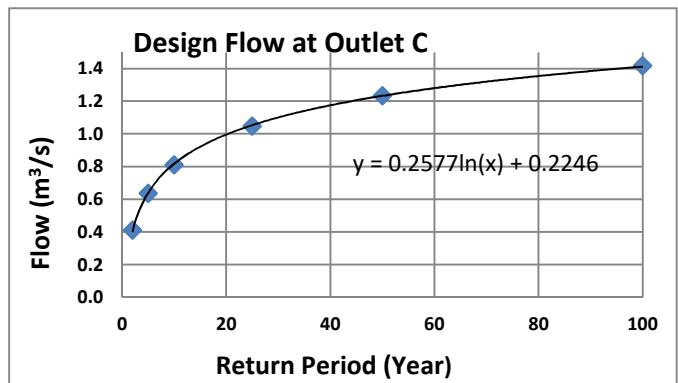
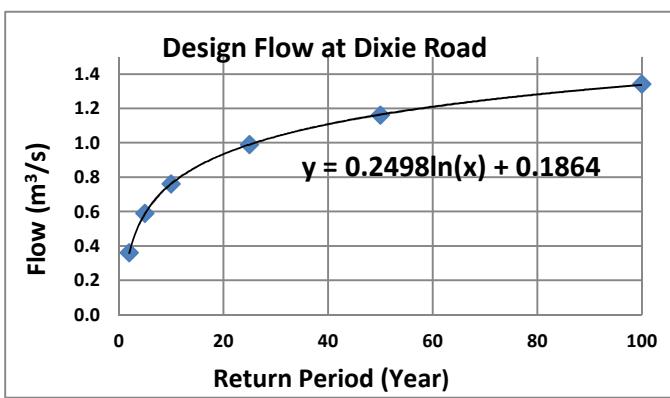
Subject | Natural Channel Design

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Return Period (Years)	Post-development Peak Flow Rates (m³/s)				
	Culvert at Dixie Road	Outlet C	Outlet D	Outlet F	Outlet G (Culvert at Mayfield Road)
25 mm Chicago	0.121	0.128	0.145	0.160	0.306
2	0.36	0.380	0.470	0.510	0.810
5	0.59	0.630	0.760	0.830	1.290
10	0.76	0.810	0.980	1.070	1.660
25	0.99	1.040	1.270	1.390	2.130
50	1.16	1.230	1.490	1.640	2.500
100	1.34	1.410	1.730	1.890	2.870
Regional Flow	3.03	3.28	3.88	4.09	6.69

The 1.5 year flow (bankfull discharge) is estimated using regression method.

o

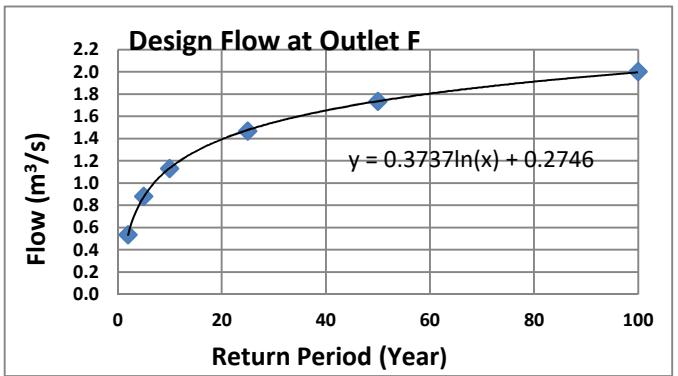
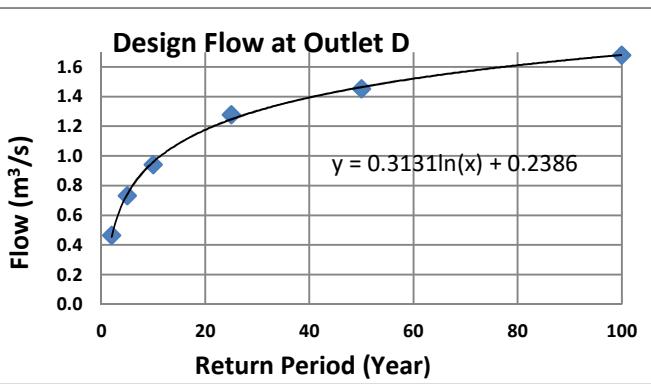


Therefore, the 1.5 year flow (bankfull discharge) is
at Dixie Road crossing

0.30 m³/s

0.33 m³/s

The 1.5 year flow at Outlet C

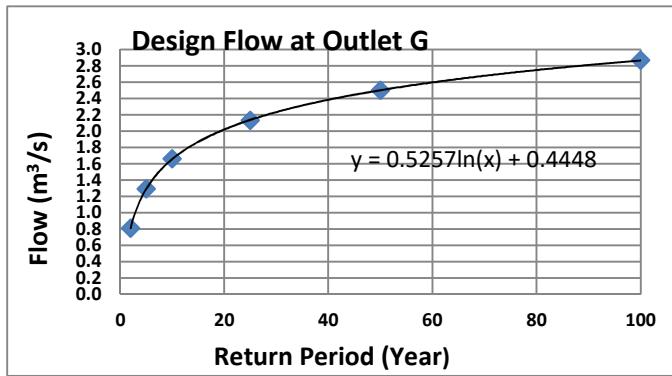


Therefore, the 1.5 year flow (bankfull discharge) is
at Outlet D

0.37 m³/s

0.43 m³/s

The 1.5 year flow at Outlet F



0.67 m³/s The 1.5 year flow at Outlet G



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Checked	V. N.	Checked	

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Natural Channel Design

a) Main Feature of the Channel

1) Corridor Width	25 m
2) Length of Channel	1570 m
3) Upstream Ground elevation	258.69 m
4) Downstream Ground elevation	252.90 m
5) Average Slope of Channel	0.37%
6) Side Slope of Bankfull Channel	2:1
7) Side Slope on Both Sides of Bankfull Channel	3:1

Required Bankfull Width within the Natural Channel for the 1.5 year flow

Bankfull Channel at Dixie Road Culvert

1) Bankfull Discharge (Q_d)	0.30 m ³ /s
2) Bankfull Width (W_b)	2.06 m

$$W_b = 3.71 Q_b^{0.49}$$

Bankfull Channel at Outlet C

1) Bankfull Discharge (Q_d)	0.33 m ³ /s
2) Bankfull Width (W_b)	2.15 m

$$W_b = 3.71 Q_b^{0.49}$$

Bankfull Channel at Outlet D

1) Bankfull Discharge (Q_d)	0.37 m ³ /s
2) Bankfull Width (W_b)	2.27 m

$$W_b = 3.71 Q_b^{0.49}$$

Bankfull Channel at Outlet F

1) Bankfull Discharge (Q_d)	0.43 m ³ /s
2) Bankfull Width (W_b)	2.44 m

$$W_b = 3.71 Q_b^{0.49}$$

Bankfull Channel at MayField Road Culvert (Outlet G)

1) Bankfull Discharge (Q_d)	0.67 m ³ /s
2) Bankfull Width (W_b)	3.05 m

$$W_b = 3.71 Q_b^{0.49}$$



WSP	Project By Checked	12035 Dixie Road R. J. V. N.	No. Date Checked	20M-01429 2021-03-16
Subject	Natural Channel Design			

1.5 year Flow Natural Channel Cross Section at Mayfield Road Crossing Culvert

A typical cross section for the natural channel was selected based on the required bankfull depth at Mayfield Road Crossing.

Table6, <Adaptive Management of Stream Corridors in Ontario, Section G Supporting Information, G.2 Morphologic Relationships of Rural Watercourses in Southern Ontario and Selected Field Methods in Fluvial Geomorphology>, hereafter AMSCO, G.2

Select 3.05 m

1 Bankfull Depth (D)	0.20 m
2) Bottom Width (BW)	2.25 m
3) Area of Cross-section (A)	0.53 m ²
4) Wetted Perimeter (P)	3.14 m
5) Hydraulic Radius (R)	0.17 m
6) Manning's n Value	0.045
7) Flow Capacity (Q)	

$$Q = \frac{1}{n} A R^{\frac{2}{3}} S^{\frac{1}{2}} \quad 0.22 \text{ m}^3/\text{s}$$

The proposed channel typical cross section was selected in away to pass the 1.5 year flow of 0.67 m³/s and the regional flow of 6.31 m³/s through the existing culvert at Mayfield Road crossing culvert. Thus, the Mayfield Road existing culvert information such as upstream and downstream culvert invert elevation, top of culvert elevation, Upstream and downstream high cord and low cord road elevations, Center of road elevation should be considered in the design of natural channel typical section. Since the accurate existing culvert information are not available at this stage, to provide a typical cross section for the natural channel, an invert elevation of 252.9 m for the existing culvert and a road elevation of 255.37 m were assumed from the survey drawing for the proposed development block at #12035 Dixie Road; however, the typical cross section will be updated once we receive the Mayfield Road existing culvert information.

Culvert invert elevation at Mayfield Road: 252.9

Road elevation: 254.3

Existing Box Culvert Dimensions

Soil Cover above the E.X Bos Culvert **254.3m -(252.9 m+1.2 m)=** **0.2** **m**

Total channel depth including low flow channel and a minimum 0.3m of freeboard: 1.2 m + 0.4 m = 1.6 m

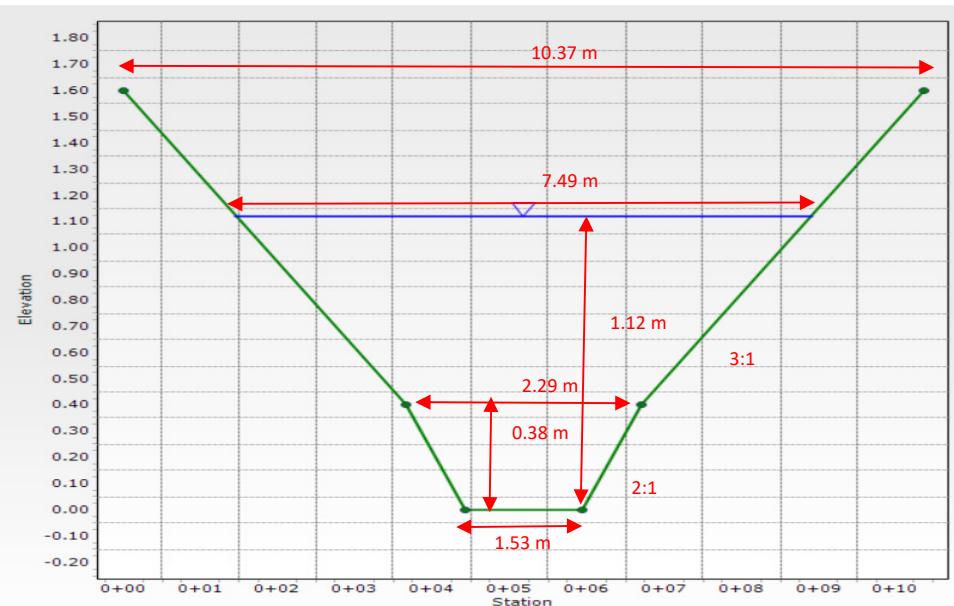


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Checked	V. N.	Checked	

Subject | Natural Channel Design

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FlowMaster was used to estimate a normal depth and a normal velocity within the typical natural channel cross section.



FlowMaster Results:

Worksheet for Irregular Section - 1

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data

Channel Slope	0.004 m/m
Discharge	6,315.00 L/s

Section Definitions

Station (m)	Elevation (m)
0+00	1.60
0+04	0.38
0+04	0.00
0+06	0.00
0+07	0.38
0+10	1.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 1.60)	(0+04, 0.38)	0.035
(0+04, 0.38)	(0+04, 0.00)	0.035
(0+04, 0.00)	(0+06, 0.00)	0.035
(0+06, 0.00)	(0+07, 0.38)	0.035
(0+07, 0.38)	(0+10, 1.60)	0.035

Options

Current Roughness Weighted Method	Pavlovsits Method
Open Channel Weighting Method	Pavlovsits Method
Closed Channel Weighting Method	Pavlovsits Method

Results

Normal Depth	1.120.8 mm
Elevation Range	0.0 to 1.6 m
Flow Area	4.8 m ²
Wetted Perimeter	7.9 m
Hydraulic Radius	503.4 mm
Top Width	7.49 m
Normal Depth	1.120.8 mm
Critical Depth	832.0 mm
Critical Slope	0.016 m/m
Velocity	1.32 m/s
Velocity Head	0.09 m
Specific Energy	1.21 m

Worksheet for Irregular Section - 1

Results	
Froude Number	0.529
Flow Type	Subcritical
GVF Input Data	
Downstream Depth	0.0 mm
Length	0.0 m
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 mm
Profile Description	N/A
Profile Headless	0.00 m
Downstream Velocity	0.00 m/s
Upstream Velocity	0.00 m/s
Normal Depth	1.120.8 mm
Critical Depth	832.0 mm
Channel Slope	0.004 m/m
Critical Slope	0.016 m/m

APPENDIX

C HEC-RAS
OUTPUT

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1648	1.5-Year	0.30	258.48	258.70		258.71	0.003447	0.44	1.06	17.21	0.31
Reach 1	1648	2-Year	0.38	258.48	258.72		258.73	0.003450	0.46	1.34	17.31	0.32
Reach 1	1648	5-Year	0.59	258.48	258.75		258.76	0.003456	0.51	1.93	17.51	0.32
Reach 1	1648	10-Year	0.76	258.48	258.78		258.79	0.003459	0.54	2.34	17.65	0.33
Reach 1	1648	25-Year	0.99	258.48	258.81		258.82	0.003466	0.57	2.82	17.81	0.33
Reach 1	1648	50-Year	1.16	258.48	258.82		258.83	0.003472	0.60	3.15	17.92	0.34
Reach 1	1648	100-Year	1.34	258.48	258.84		258.85	0.003480	0.62	3.47	18.03	0.34
Reach 1	1642.46*	1.5-Year	0.30	258.46	258.69		258.69	0.003478	0.44	1.06	17.21	0.31
Reach 1	1642.46*	2-Year	0.38	258.46	258.70		258.71	0.003480	0.46	1.34	17.30	0.32
Reach 1	1642.46*	5-Year	0.59	258.46	258.74		258.74	0.003482	0.51	1.93	17.51	0.33
Reach 1	1642.46*	10-Year	0.76	258.46	258.76		258.77	0.003485	0.54	2.33	17.64	0.33
Reach 1	1642.46*	25-Year	0.99	258.46	258.79		258.80	0.003490	0.58	2.82	17.81	0.34
Reach 1	1642.46*	50-Year	1.16	258.46	258.80		258.81	0.003498	0.60	3.14	17.92	0.34
Reach 1	1642.46*	100-Year	1.34	258.46	258.82		258.83	0.003508	0.62	3.46	18.03	0.34
Reach 1	1636.92*	1.5-Year	0.30	258.44	258.67		258.67	0.003526	0.44	1.05	17.20	0.32
Reach 1	1636.92*	2-Year	0.38	258.44	258.68		258.69	0.003522	0.46	1.33	17.30	0.32
Reach 1	1636.92*	5-Year	0.59	258.44	258.72		258.73	0.003511	0.51	1.92	17.51	0.33
Reach 1	1636.92*	10-Year	0.76	258.44	258.74		258.75	0.003510	0.54	2.33	17.64	0.33
Reach 1	1636.92*	25-Year	0.99	258.44	258.77		258.78	0.003514	0.58	2.81	17.81	0.34
Reach 1	1636.92*	50-Year	1.16	258.44	258.78		258.80	0.003521	0.60	3.13	17.92	0.34
Reach 1	1636.92*	100-Year	1.34	258.44	258.80		258.81	0.003534	0.62	3.46	18.02	0.34
Reach 1	1631.39*	1.5-Year	0.30	258.42	258.65		258.65	0.003441	0.44	1.06	17.21	0.31
Reach 1	1631.39*	2-Year	0.38	258.42	258.66		258.67	0.003444	0.46	1.34	17.30	0.32
Reach 1	1631.39*	5-Year	0.59	258.42	258.70		258.71	0.003449	0.51	1.94	17.51	0.32
Reach 1	1631.39*	10-Year	0.76	258.42	258.72		258.73	0.003460	0.54	2.34	17.65	0.33
Reach 1	1631.39*	25-Year	0.99	258.42	258.75		258.76	0.003476	0.57	2.82	17.81	0.34
Reach 1	1631.39*	50-Year	1.16	258.42	258.77		258.78	0.003494	0.60	3.14	17.92	0.34
Reach 1	1631.39*	100-Year	1.34	258.42	258.78		258.79	0.003514	0.62	3.46	18.02	0.34
Reach 1	1625.85*	1.5-Year	0.30	258.40	258.63		258.64	0.003435	0.44	1.07	17.21	0.31
Reach 1	1625.85*	2-Year	0.38	258.40	258.64		258.65	0.003438	0.46	1.34	17.31	0.32
Reach 1	1625.85*	5-Year	0.59	258.40	258.68		258.69	0.003451	0.51	1.94	17.51	0.32
Reach 1	1625.85*	10-Year	0.76	258.40	258.70		258.71	0.003467	0.54	2.34	17.65	0.33
Reach 1	1625.85*	25-Year	0.99	258.40	258.73		258.74	0.003491	0.58	2.82	17.81	0.34
Reach 1	1625.85*	50-Year	1.16	258.40	258.75		258.76	0.003515	0.60	3.14	17.92	0.34
Reach 1	1625.85*	100-Year	1.34	258.40	258.76		258.77	0.003542	0.62	3.45	18.02	0.34
Reach 1	1620.31*	1.5-Year	0.30	258.38	258.61		258.62	0.003477	0.44	1.06	17.21	0.31
Reach 1	1620.31*	2-Year	0.38	258.38	258.62		258.63	0.003477	0.46	1.34	17.30	0.32
Reach 1	1620.31*	5-Year	0.59	258.38	258.66		258.67	0.003488	0.51	1.93	17.51	0.33
Reach 1	1620.31*	10-Year	0.76	258.38	258.68		258.69	0.003510	0.54	2.33	17.64	0.33
Reach 1	1620.31*	25-Year	0.99	258.38	258.71		258.72	0.003538	0.58	2.80	17.80	0.34
Reach 1	1620.31*	50-Year	1.16	258.38	258.73		258.74	0.003570	0.60	3.12	17.91	0.34
Reach 1	1620.31*	100-Year	1.34	258.38	258.74		258.75	0.003603	0.63	3.43	18.02	0.35
Reach 1	1614.77*	1.5-Year	0.30	258.36	258.59		258.60	0.003550	0.44	1.05	17.20	0.32
Reach 1	1614.77*	2-Year	0.38	258.36	258.60		258.61	0.003543	0.46	1.33	17.30	0.32
Reach 1	1614.77*	5-Year	0.59	258.36	258.64		258.65	0.003544	0.51	1.92	17.50	0.33
Reach 1	1614.77*	10-Year	0.76	258.36	258.66		258.67	0.003571	0.54	2.31	17.64	0.33
Reach 1	1614.77*	25-Year	0.99	258.36	258.69		258.70	0.003604	0.58	2.78	17.80	0.34
Reach 1	1614.77*	50-Year	1.16	258.36	258.71		258.72	0.003646	0.61	3.10	17.90	0.35
Reach 1	1614.77*	100-Year	1.34	258.36	258.72		258.73	0.003686	0.63	3.41	18.01	0.35
Reach 1	1609.23*	1.5-Year	0.30	258.35	258.57		258.58	0.003472	0.44	1.06	17.21	0.31
Reach 1	1609.23*	2-Year	0.38	258.35	258.59		258.59	0.003463	0.46	1.34	17.30	0.32
Reach 1	1609.23*	5-Year	0.59	258.35	258.62		258.63	0.003488	0.51	1.93	17.51	0.33
Reach 1	1609.23*	10-Year	0.76	258.35	258.64		258.65	0.003543	0.54	2.32	17.64	0.33
Reach 1	1609.23*	25-Year	0.99	258.35	258.67		258.68	0.003597	0.58	2.79	17.80	0.34
Reach 1	1609.23*	50-Year	1.16	258.35	258.69		258.70	0.003661	0.61	3.09	17.90	0.35
Reach 1	1609.23*	100-Year	1.34	258.35	258.70		258.71	0.003719	0.64	3.40	18.00	0.35
Reach 1	1603.69*	1.5-Year	0.30	258.33	258.55		258.56	0.003536	0.44	1.05	17.20	0.32
Reach 1	1603.69*	2-Year	0.38	258.33	258.57		258.57	0.003515	0.46	1.33	17.30	0.32
Reach 1	1603.69*	5-Year	0.59	258.33	258.60		258.61	0.003547	0.51	1.91	17.50	0.33
Reach 1	1603.69*	10-Year	0.76	258.33	258.62		258.63	0.003630	0.55	2.30	17.63	0.34
Reach 1	1603.69*	25-Year	0.99	258.33	258.65		258.66	0.003700	0.59	2.76	17.79	0.35
Reach 1	1603.69*	50-Year	1.16	258.33	258.66		258.68	0.003791	0.62	3.05	17.89	0.35
Reach 1	1603.69*	100-Year	1.34	258.33	258.68		258.69	0.003868	0.65	3.35	17.99	0.36
Reach 1	1598.15*	1.5-Year	0.30	258.31	258.53		258.54	0.003655	0.45	1.03	17.20	0.32
Reach 1	1598.15*	2-Year	0.38	258.31	258.55		258.55	0.003594	0.47	1.32	17.30	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1598.15*	5-Year	0.59	258.31	258.58		258.59	0.003629	0.52	1.90	17.50	0.33
Reach 1	1598.15*	10-Year	0.76	258.31	258.60		258.61	0.003759	0.56	2.27	17.62	0.34
Reach 1	1598.15*	25-Year	0.99	258.31	258.63		258.64	0.003851	0.60	2.72	17.78	0.35
Reach 1	1598.15*	50-Year	1.16	258.31	258.64		258.65	0.003985	0.63	3.00	17.87	0.36
Reach 1	1598.15*	100-Year	1.34	258.31	258.66		258.67	0.004091	0.66	3.29	17.97	0.37
Reach 1	1592.62*	1.5-Year	0.30	258.29	258.51		258.52	0.004071	0.47	0.97	17.18	0.34
Reach 1	1592.62*	2-Year	0.38	258.29	258.53		258.53	0.003840	0.48	1.28	17.28	0.33
Reach 1	1592.62*	5-Year	0.59	258.29	258.56		258.57	0.003834	0.53	1.86	17.48	0.34
Reach 1	1592.62*	10-Year	0.76	258.29	258.58		258.59	0.004043	0.57	2.21	17.60	0.35
Reach 1	1592.62*	25-Year	0.99	258.29	258.60		258.62	0.004155	0.61	2.65	17.75	0.36
Reach 1	1592.62*	50-Year	1.16	258.29	258.62		258.63	0.004362	0.65	2.91	17.84	0.38
Reach 1	1592.62*	100-Year	1.34	258.29	258.63		258.65	0.004512	0.68	3.18	17.93	0.39
Reach 1	1587.08*	1.5-Year	0.30	258.27	258.48	258.39	258.49	0.005316	0.52	0.82	17.12	0.38
Reach 1	1587.08*	2-Year	0.38	258.27	258.50		258.51	0.004199	0.50	1.22	17.26	0.35
Reach 1	1587.08*	5-Year	0.59	258.27	258.54		258.55	0.004052	0.54	1.82	17.47	0.35
Reach 1	1587.08*	10-Year	0.76	258.27	258.55		258.57	0.004453	0.59	2.13	17.58	0.37
Reach 1	1587.08*	25-Year	0.99	258.27	258.58		258.59	0.004594	0.64	2.56	17.72	0.38
Reach 1	1587.08*	50-Year	1.16	258.27	258.59		258.60	0.004968	0.68	2.78	17.80	0.40
Reach 1	1587.08*	100-Year	1.34	258.27	258.60		258.62	0.005217	0.72	3.02	17.88	0.41
Reach 1	1581.54*	1.5-Year	0.30	258.25	258.38	258.37	258.43	0.030648	0.94	0.32	2.64	0.86
Reach 1	1581.54*	2-Year	0.38	258.25	258.40	258.39	258.46	0.035199	1.06	0.36	2.70	0.93
Reach 1	1581.54*	5-Year	0.59	258.25	258.47	258.47	258.51	0.014860	0.89	1.00	17.19	0.65
Reach 1	1581.54*	10-Year	0.76	258.25	258.49	258.49	258.52	0.014209	0.93	1.32	17.30	0.64
Reach 1	1581.54*	25-Year	0.99	258.25	258.50	258.50	258.54	0.017930	1.08	1.51	17.36	0.73
Reach 1	1581.54*	50-Year	1.16	258.25	258.51	258.51	258.56	0.016929	1.09	1.76	17.45	0.71
Reach 1	1581.54*	100-Year	1.34	258.25	258.53	258.53	258.57	0.017341	1.14	1.96	17.52	0.73
Reach 1	1576	1.5-Year	0.00	258.23	258.25		258.25	0.003944	0.11	0.05	2.19	0.23
Reach 1	1576	2-Year	0.01	258.23	258.26		258.26	0.003760	0.14	0.07	2.23	0.24
Reach 1	1576	5-Year	0.02	258.23	258.28		258.28	0.003615	0.18	0.11	2.30	0.26
Reach 1	1576	10-Year	0.04	258.23	258.31		258.31	0.003638	0.23	0.17	2.41	0.27
Reach 1	1576	25-Year	0.05	258.23	258.32		258.32	0.003645	0.25	0.20	2.45	0.28
Reach 1	1576	50-Year	0.06	258.23	258.33		258.33	0.003650	0.27	0.22	2.49	0.28
Reach 1	1576	100-Year	0.06	258.23	258.33		258.34	0.003651	0.27	0.24	2.51	0.29
Reach 1	1570.13*	1.5-Year	0.00	258.21	258.23		258.23	0.004396	0.11	0.05	2.19	0.25
Reach 1	1570.13*	2-Year	0.01	258.21	258.24		258.24	0.003907	0.14	0.07	2.24	0.25
Reach 1	1570.13*	5-Year	0.02	258.21	258.26		258.26	0.003803	0.18	0.11	2.31	0.26
Reach 1	1570.13*	10-Year	0.04	258.21	258.29		258.29	0.003744	0.23	0.17	2.41	0.28
Reach 1	1570.13*	25-Year	0.05	258.21	258.30		258.30	0.003729	0.25	0.20	2.45	0.28
Reach 1	1570.13*	50-Year	0.06	258.21	258.31		258.31	0.003723	0.27	0.22	2.49	0.29
Reach 1	1570.13*	100-Year	0.06	258.21	258.31		258.31	0.003721	0.28	0.24	2.51	0.29
Reach 1	1564.26*	1.5-Year	0.00	258.19	258.21		258.21	0.003776	0.11	0.05	2.20	0.23
Reach 1	1564.26*	2-Year	0.01	258.19	258.22		258.22	0.003752	0.14	0.07	2.24	0.24
Reach 1	1564.26*	5-Year	0.02	258.19	258.24		258.24	0.003620	0.18	0.11	2.31	0.26
Reach 1	1564.26*	10-Year	0.04	258.19	258.26		258.27	0.003621	0.23	0.17	2.42	0.27
Reach 1	1564.26*	25-Year	0.05	258.19	258.27		258.28	0.003619	0.25	0.20	2.46	0.28
Reach 1	1564.26*	50-Year	0.06	258.19	258.28		258.29	0.003623	0.27	0.23	2.50	0.28
Reach 1	1564.26*	100-Year	0.06	258.19	258.29		258.29	0.003626	0.27	0.24	2.52	0.28
Reach 1	1558.39*	1.5-Year	0.00	258.17	258.19		258.19	0.003967	0.11	0.05	2.20	0.23
Reach 1	1558.39*	2-Year	0.01	258.17	258.20		258.20	0.003885	0.14	0.07	2.25	0.25
Reach 1	1558.39*	5-Year	0.02	258.17	258.22		258.22	0.003666	0.18	0.11	2.32	0.26
Reach 1	1558.39*	10-Year	0.04	258.17	258.24		258.25	0.003637	0.23	0.17	2.42	0.27
Reach 1	1558.39*	25-Year	0.05	258.17	258.25		258.26	0.003636	0.25	0.20	2.47	0.28
Reach 1	1558.39*	50-Year	0.06	258.17	258.26		258.27	0.003637	0.27	0.23	2.51	0.28
Reach 1	1558.39*	100-Year	0.06	258.17	258.27		258.27	0.003637	0.27	0.24	2.52	0.28
Reach 1	1552.51*	1.5-Year	0.00	258.14	258.17		258.17	0.004217	0.11	0.05	2.21	0.24
Reach 1	1552.51*	2-Year	0.01	258.14	258.18		258.18	0.003748	0.14	0.07	2.25	0.24
Reach 1	1552.51*	5-Year	0.02	258.14	258.20		258.20	0.003655	0.18	0.11	2.32	0.26
Reach 1	1552.51*	10-Year	0.04	258.14	258.22		258.22	0.003644	0.23	0.17	2.43	0.27
Reach 1	1552.51*	25-Year	0.05	258.14	258.23		258.24	0.003647	0.25	0.20	2.47	0.28
Reach 1	1552.51*	50-Year	0.06	258.14	258.24		258.25	0.003652	0.27	0.23	2.51	0.28
Reach 1	1552.51*	100-Year	0.06	258.14	258.25		258.25	0.003652	0.27	0.24	2.53	0.29
Reach 1	1546.64*	1.5-Year	0.00	258.12	258.15		258.15	0.003637	0.10	0.05	2.21	0.23
Reach 1	1546.64*	2-Year	0.01	258.12	258.16		258.16	0.003874	0.14	0.07	2.26	0.25
Reach 1	1546.64*	5-Year	0.02	258.12	258.17		258.18	0.003752	0.18	0.11	2.33	0.26
Reach 1	1546.64*	10-Year	0.04	258.12	258.20		258.20	0.003742	0.23	0.17	2.43	0.28

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1546.64*	25-Year	0.05	258.12	258.21		258.21	0.003732	0.25	0.20	2.47	0.28
Reach 1	1546.64*	50-Year	0.06	258.12	258.22		258.22	0.003724	0.27	0.22	2.51	0.29
Reach 1	1546.64*	100-Year	0.06	258.12	258.23		258.23	0.003720	0.28	0.24	2.53	0.29
Reach 1	1540.77*	1.5-Year	0.00	258.10	258.12		258.12	0.004117	0.11	0.05	2.22	0.24
Reach 1	1540.77*	2-Year	0.01	258.10	258.14		258.14	0.003741	0.14	0.07	2.26	0.24
Reach 1	1540.77*	5-Year	0.02	258.10	258.15		258.15	0.003711	0.18	0.11	2.33	0.26
Reach 1	1540.77*	10-Year	0.04	258.10	258.18		258.18	0.003640	0.23	0.17	2.44	0.27
Reach 1	1540.77*	25-Year	0.05	258.10	258.19		258.19	0.003632	0.25	0.20	2.48	0.28
Reach 1	1540.77*	50-Year	0.06	258.10	258.20		258.20	0.003630	0.27	0.23	2.52	0.28
Reach 1	1540.77*	100-Year	0.06	258.10	258.20		258.21	0.003632	0.27	0.24	2.54	0.28
Reach 1	1534.90*	1.5-Year	0.00	258.08	258.10		258.10	0.003654	0.10	0.05	2.22	0.23
Reach 1	1534.90*	2-Year	0.01	258.08	258.11		258.11	0.003853	0.14	0.07	2.27	0.25
Reach 1	1534.90*	5-Year	0.02	258.08	258.13		258.13	0.003587	0.18	0.11	2.34	0.25
Reach 1	1534.90*	10-Year	0.04	258.08	258.16		258.16	0.003620	0.23	0.18	2.44	0.27
Reach 1	1534.90*	25-Year	0.05	258.08	258.17		258.17	0.003623	0.25	0.20	2.48	0.28
Reach 1	1534.90*	50-Year	0.06	258.08	258.18		258.18	0.003630	0.27	0.23	2.52	0.28
Reach 1	1534.90*	100-Year	0.06	258.08	258.18		258.19	0.003634	0.27	0.24	2.54	0.28
Reach 1	1529.03*	1.5-Year	0.00	258.06	258.08		258.08	0.004020	0.11	0.05	2.23	0.24
Reach 1	1529.03*	2-Year	0.01	258.06	258.09		258.09	0.003728	0.14	0.07	2.27	0.24
Reach 1	1529.03*	5-Year	0.02	258.06	258.11		258.11	0.003876	0.18	0.11	2.34	0.26
Reach 1	1529.03*	10-Year	0.04	258.06	258.14		258.14	0.003793	0.23	0.17	2.44	0.28
Reach 1	1529.03*	25-Year	0.05	258.06	258.15		258.15	0.003773	0.25	0.20	2.49	0.28
Reach 1	1529.03*	50-Year	0.06	258.06	258.16		258.16	0.003758	0.27	0.22	2.53	0.29
Reach 1	1529.03*	100-Year	0.06	258.06	258.16		258.16	0.003753	0.28	0.24	2.54	0.29
Reach 1	1523.15*	1.5-Year	0.00	258.04	258.06		258.06	0.004156	0.11	0.05	2.23	0.24
Reach 1	1523.15*	2-Year	0.01	258.04	258.07		258.07	0.003839	0.14	0.07	2.28	0.25
Reach 1	1523.15*	5-Year	0.02	258.04	258.09		258.09	0.003615	0.18	0.11	2.35	0.26
Reach 1	1523.15*	10-Year	0.04	258.04	258.11		258.12	0.003617	0.23	0.18	2.45	0.27
Reach 1	1523.15*	25-Year	0.05	258.04	258.13		258.13	0.003611	0.25	0.20	2.49	0.28
Reach 1	1523.15*	50-Year	0.06	258.04	258.13		258.14	0.003616	0.26	0.23	2.53	0.28
Reach 1	1523.15*	100-Year	0.06	258.04	258.14		258.14	0.003612	0.27	0.24	2.55	0.28
Reach 1	1517.28*	1.5-Year	0.00	258.02	258.04		258.04	0.003465	0.10	0.05	2.24	0.22
Reach 1	1517.28*	2-Year	0.01	258.02	258.05		258.05	0.003349	0.13	0.08	2.29	0.23
Reach 1	1517.28*	5-Year	0.02	258.02	258.07		258.07	0.003685	0.18	0.11	2.35	0.26
Reach 1	1517.28*	10-Year	0.04	258.02	258.09		258.10	0.003619	0.23	0.18	2.46	0.27
Reach 1	1517.28*	25-Year	0.05	258.02	258.10		258.11	0.003616	0.25	0.20	2.50	0.28
Reach 1	1517.28*	50-Year	0.06	258.02	258.11		258.12	0.003616	0.26	0.23	2.54	0.28
Reach 1	1517.28*	100-Year	0.06	258.02	258.12		258.12	0.003614	0.27	0.24	2.56	0.28
Reach 1	1511.41*	1.5-Year	0.00	258.00	258.02		258.02	0.004093	0.11	0.05	2.24	0.24
Reach 1	1511.41*	2-Year	0.01	258.00	258.03		258.03	0.003140	0.13	0.08	2.30	0.22
Reach 1	1511.41*	5-Year	0.02	258.00	258.05		258.05	0.003631	0.18	0.11	2.36	0.26
Reach 1	1511.41*	10-Year	0.04	258.00	258.07		258.07	0.003649	0.23	0.18	2.46	0.27
Reach 1	1511.41*	25-Year	0.05	258.00	258.08		258.09	0.003654	0.25	0.20	2.50	0.28
Reach 1	1511.41*	50-Year	0.06	258.00	258.09		258.10	0.003661	0.27	0.23	2.54	0.28
Reach 1	1511.41*	100-Year	0.06	258.00	258.10		258.10	0.003660	0.27	0.24	2.56	0.29
Reach 1	1505.54*	1.5-Year	0.00	257.98	258.00		258.00	0.003966	0.11	0.05	2.25	0.23
Reach 1	1505.54*	2-Year	0.01	257.98	258.01		258.01	0.004436	0.14	0.07	2.29	0.26
Reach 1	1505.54*	5-Year	0.02	257.98	258.02		258.03	0.003860	0.18	0.11	2.36	0.26
Reach 1	1505.54*	10-Year	0.04	257.98	258.05		258.05	0.003797	0.23	0.17	2.46	0.28
Reach 1	1505.54*	25-Year	0.05	257.98	258.06		258.06	0.003772	0.25	0.20	2.50	0.28
Reach 1	1505.54*	50-Year	0.06	257.98	258.07		258.07	0.003758	0.27	0.22	2.54	0.29
Reach 1	1505.54*	100-Year	0.06	257.98	258.08		258.08	0.003752	0.27	0.24	2.56	0.29
Reach 1	1499.67*	1.5-Year	0.00	257.95	257.97		257.98	0.003715	0.10	0.05	2.25	0.23
Reach 1	1499.67*	2-Year	0.01	257.95	257.99		257.99	0.003293	0.13	0.08	2.30	0.23
Reach 1	1499.67*	5-Year	0.02	257.95	258.00		258.00	0.003658	0.18	0.11	2.37	0.26
Reach 1	1499.67*	10-Year	0.04	257.95	258.03		258.03	0.003607	0.23	0.18	2.47	0.27
Reach 1	1499.67*	25-Year	0.05	257.95	258.04		258.04	0.003605	0.25	0.20	2.51	0.28
Reach 1	1499.67*	50-Year	0.06	257.95	258.05		258.05	0.003606	0.26	0.23	2.55	0.28
Reach 1	1499.67*	100-Year	0.06	257.95	258.05		258.06	0.003607	0.27	0.24	2.57	0.28
Reach 1	1493.80*	1.5-Year	0.00	257.93	257.95		257.95	0.003585	0.10	0.05	2.26	0.22
Reach 1	1493.80*	2-Year	0.01	257.93	257.96		257.97	0.004047	0.14	0.07	2.30	0.25
Reach 1	1493.80*	5-Year	0.02	257.93	257.98		257.98	0.003605	0.18	0.11	2.37	0.26
Reach 1	1493.80*	10-Year	0.04	257.93	258.01		258.01	0.003639	0.23	0.18	2.47	0.27
Reach 1	1493.80*	25-Year	0.05	257.93	258.02		258.02	0.003644	0.25	0.20	2.52	0.28
Reach 1	1493.80*	50-Year	0.06	257.93	258.03		258.03	0.003649	0.26	0.23	2.56	0.28

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1493.80*	100-Year	0.06	257.93	258.03		258.04	0.003649	0.27	0.24	2.58	0.28
Reach 1	1487.92*	1.5-Year	0.00	257.91	257.93		257.93	0.004363	0.11	0.05	2.26	0.24
Reach 1	1487.92*	2-Year	0.01	257.91	257.95		257.95	0.003354	0.13	0.08	2.31	0.23
Reach 1	1487.92*	5-Year	0.02	257.91	257.96		257.96	0.003802	0.18	0.11	2.37	0.26
Reach 1	1487.92*	10-Year	0.04	257.91	257.99		257.99	0.003745	0.23	0.17	2.48	0.28
Reach 1	1487.92*	25-Year	0.05	257.91	258.00		258.00	0.003732	0.25	0.20	2.52	0.28
Reach 1	1487.92*	50-Year	0.06	257.91	258.01		258.01	0.003719	0.27	0.23	2.56	0.29
Reach 1	1487.92*	100-Year	0.06	257.91	258.01		258.01	0.003718	0.27	0.24	2.58	0.29
Reach 1	1482.05*	1.5-Year	0.00	257.89	257.91		257.91	0.003492	0.10	0.05	2.27	0.22
Reach 1	1482.05*	2-Year	0.01	257.89	257.92		257.92	0.004049	0.14	0.07	2.31	0.25
Reach 1	1482.05*	5-Year	0.02	257.89	257.94		257.94	0.003608	0.18	0.11	2.38	0.26
Reach 1	1482.05*	10-Year	0.04	257.89	257.96		257.97	0.003618	0.23	0.18	2.48	0.27
Reach 1	1482.05*	25-Year	0.05	257.89	257.98		257.98	0.003621	0.25	0.20	2.53	0.28
Reach 1	1482.05*	50-Year	0.06	257.89	257.99		257.99	0.003619	0.26	0.23	2.57	0.28
Reach 1	1482.05*	100-Year	0.06	257.89	257.99		257.99	0.003623	0.27	0.24	2.59	0.28
Reach 1	1476.18*	1.5-Year	0.00	257.87	257.89		257.89	0.003680	0.10	0.05	2.27	0.23
Reach 1	1476.18*	2-Year	0.01	257.87	257.90		257.90	0.003216	0.13	0.08	2.32	0.23
Reach 1	1476.18*	5-Year	0.02	257.87	257.92		257.92	0.003688	0.18	0.11	2.39	0.26
Reach 1	1476.18*	10-Year	0.04	257.87	257.94		257.95	0.003635	0.23	0.18	2.49	0.27
Reach 1	1476.18*	25-Year	0.05	257.87	257.95		257.96	0.003635	0.25	0.20	2.53	0.28
Reach 1	1476.18*	50-Year	0.06	257.87	257.96		257.97	0.003631	0.26	0.23	2.57	0.28
Reach 1	1476.18*	100-Year	0.06	257.87	257.97		257.97	0.003632	0.27	0.24	2.59	0.28
Reach 1	1470.31*	1.5-Year	0.00	257.85	257.87		257.87	0.003539	0.10	0.05	2.28	0.22
Reach 1	1470.31*	2-Year	0.01	257.85	257.88		257.88	0.004076	0.14	0.07	2.32	0.25
Reach 1	1470.31*	5-Year	0.02	257.85	257.90		257.90	0.003616	0.17	0.11	2.39	0.26
Reach 1	1470.31*	10-Year	0.04	257.85	257.92		257.93	0.003636	0.23	0.18	2.49	0.27
Reach 1	1470.31*	25-Year	0.05	257.85	257.93		257.94	0.003644	0.25	0.20	2.54	0.28
Reach 1	1470.31*	50-Year	0.06	257.85	257.94		257.95	0.003648	0.26	0.23	2.57	0.28
Reach 1	1470.31*	100-Year	0.06	257.85	257.95		257.95	0.003650	0.27	0.24	2.59	0.28
Reach 1	1464.44*	1.5-Year	0.00	257.83	257.85		257.85	0.003092	0.10	0.05	2.29	0.21
Reach 1	1464.44*	2-Year	0.01	257.83	257.86		257.86	0.003312	0.13	0.08	2.33	0.23
Reach 1	1464.44*	5-Year	0.02	257.83	257.88		257.88	0.003796	0.18	0.11	2.39	0.26
Reach 1	1464.44*	10-Year	0.04	257.83	257.90		257.90	0.003747	0.23	0.17	2.50	0.28
Reach 1	1464.44*	25-Year	0.05	257.83	257.91		257.91	0.003734	0.25	0.20	2.54	0.28
Reach 1	1464.44*	50-Year	0.06	257.83	257.92		257.92	0.003722	0.26	0.23	2.58	0.29
Reach 1	1464.44*	100-Year	0.06	257.83	257.93		257.93	0.003720	0.27	0.24	2.60	0.29
Reach 1	1458.56*	1.5-Year	0.00	257.80	257.83		257.83	0.004026	0.11	0.05	2.29	0.24
Reach 1	1458.56*	2-Year	0.01	257.80	257.84		257.84	0.004083	0.14	0.07	2.33	0.25
Reach 1	1458.56*	5-Year	0.02	257.80	257.85		257.86	0.003626	0.17	0.11	2.40	0.26
Reach 1	1458.56*	10-Year	0.04	257.80	257.88		257.88	0.003616	0.23	0.18	2.50	0.27
Reach 1	1458.56*	25-Year	0.05	257.80	257.89		257.89	0.003620	0.25	0.20	2.55	0.28
Reach 1	1458.56*	50-Year	0.06	257.80	257.90		257.90	0.003620	0.26	0.23	2.59	0.28
Reach 1	1458.56*	100-Year	0.06	257.80	257.90		257.91	0.003621	0.27	0.24	2.60	0.28
Reach 1	1452.69*	1.5-Year	0.00	257.78	257.81		257.81	0.003392	0.10	0.05	2.30	0.22
Reach 1	1452.69*	2-Year	0.01	257.78	257.82		257.82	0.003156	0.13	0.08	2.34	0.22
Reach 1	1452.69*	5-Year	0.02	257.78	257.83		257.83	0.003679	0.18	0.11	2.41	0.26
Reach 1	1452.69*	10-Year	0.04	257.78	257.86		257.86	0.003637	0.23	0.18	2.51	0.27
Reach 1	1452.69*	25-Year	0.05	257.78	257.87		257.87	0.003633	0.25	0.20	2.55	0.28
Reach 1	1452.69*	50-Year	0.06	257.78	257.88		257.88	0.003633	0.26	0.23	2.59	0.28
Reach 1	1452.69*	100-Year	0.06	257.78	257.88		257.89	0.003636	0.27	0.24	2.61	0.28
Reach 1	1446.82*	1.5-Year	0.00	257.76	257.78		257.78	0.003543	0.10	0.05	2.30	0.22
Reach 1	1446.82*	2-Year	0.01	257.76	257.79		257.79	0.004110	0.14	0.07	2.34	0.25
Reach 1	1446.82*	5-Year	0.02	257.76	257.81		257.81	0.003648	0.17	0.11	2.41	0.26
Reach 1	1446.82*	10-Year	0.04	257.76	257.84		257.84	0.003638	0.23	0.18	2.51	0.27
Reach 1	1446.82*	25-Year	0.05	257.76	257.85		257.85	0.003646	0.25	0.20	2.55	0.28
Reach 1	1446.82*	50-Year	0.06	257.76	257.86		257.86	0.003650	0.26	0.23	2.59	0.28
Reach 1	1446.82*	100-Year	0.06	257.76	257.86		257.87	0.003651	0.27	0.24	2.61	0.28
Reach 1	1440.95*	1.5-Year	0.00	257.74	257.76		257.76	0.003949	0.10	0.05	2.30	0.23
Reach 1	1440.95*	2-Year	0.01	257.74	257.77		257.78	0.003268	0.13	0.08	2.35	0.23
Reach 1	1440.95*	5-Year	0.02	257.74	257.79		257.79	0.003768	0.18	0.11	2.41	0.26
Reach 1	1440.95*	10-Year	0.04	257.74	257.82		257.82	0.003747	0.23	0.18	2.51	0.28
Reach 1	1440.95*	25-Year	0.05	257.74	257.83		257.83	0.003734	0.25	0.20	2.56	0.28
Reach 1	1440.95*	50-Year	0.06	257.74	257.84		257.84	0.003727	0.26	0.23	2.60	0.29
Reach 1	1440.95*	100-Year	0.06	257.74	257.84		257.84	0.003724	0.27	0.24	2.61	0.29

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1435.08*	1.5-Year	0.00	257.72	257.74		257.74	0.004061	0.11	0.05	2.31	0.24
Reach 1	1435.08*	2-Year	0.01	257.72	257.75		257.75	0.004122	0.14	0.07	2.35	0.25
Reach 1	1435.08*	5-Year	0.02	257.72	257.77		257.77	0.003689	0.18	0.11	2.42	0.26
Reach 1	1435.08*	10-Year	0.04	257.72	257.79		257.80	0.003633	0.23	0.18	2.52	0.27
Reach 1	1435.08*	25-Year	0.05	257.72	257.80		257.81	0.003630	0.25	0.20	2.56	0.28
Reach 1	1435.08*	50-Year	0.06	257.72	257.81		257.82	0.003628	0.26	0.23	2.60	0.28
Reach 1	1435.08*	100-Year	0.06	257.72	257.82		257.82	0.003631	0.27	0.24	2.62	0.28
Reach 1	1429.21*	1.5-Year	0.00	257.70	257.72		257.72	0.003378	0.10	0.05	2.32	0.22
Reach 1	1429.21*	2-Year	0.01	257.70	257.73		257.73	0.003393	0.13	0.08	2.36	0.23
Reach 1	1429.21*	5-Year	0.02	257.70	257.75		257.75	0.003613	0.17	0.12	2.43	0.25
Reach 1	1429.21*	10-Year	0.04	257.70	257.77		257.78	0.003636	0.23	0.18	2.53	0.27
Reach 1	1429.21*	25-Year	0.05	257.70	257.78		257.79	0.003638	0.25	0.20	2.57	0.28
Reach 1	1429.21*	50-Year	0.06	257.70	257.79		257.80	0.003641	0.26	0.23	2.61	0.28
Reach 1	1429.21*	100-Year	0.06	257.70	257.80		257.80	0.003645	0.27	0.24	2.63	0.28
Reach 1	1423.33*	1.5-Year	0.00	257.68	257.70		257.70	0.003470	0.10	0.05	2.32	0.22
Reach 1	1423.33*	2-Year	0.01	257.68	257.71		257.71	0.004103	0.14	0.07	2.36	0.25
Reach 1	1423.33*	5-Year	0.02	257.68	257.73		257.73	0.003800	0.18	0.11	2.43	0.26
Reach 1	1423.33*	10-Year	0.04	257.68	257.75		257.75	0.003742	0.23	0.18	2.53	0.28
Reach 1	1423.33*	25-Year	0.05	257.68	257.76		257.76	0.003729	0.25	0.20	2.57	0.28
Reach 1	1423.33*	50-Year	0.06	257.68	257.77		257.77	0.003716	0.26	0.23	2.61	0.28
Reach 1	1423.33*	100-Year	0.06	257.68	257.78		257.78	0.003709	0.27	0.24	2.63	0.29
Reach 1	1417.46*	1.5-Year	0.00	257.66	257.68		257.68	0.004043	0.11	0.05	2.32	0.24
Reach 1	1417.46*	2-Year	0.01	257.66	257.69		257.69	0.003459	0.13	0.08	2.37	0.23
Reach 1	1417.46*	5-Year	0.02	257.66	257.70		257.71	0.003618	0.17	0.12	2.44	0.26
Reach 1	1417.46*	10-Year	0.04	257.66	257.73		257.73	0.003604	0.22	0.18	2.54	0.27
Reach 1	1417.46*	25-Year	0.05	257.66	257.74		257.74	0.003596	0.24	0.21	2.58	0.28
Reach 1	1417.46*	50-Year	0.06	257.66	257.75		257.75	0.003595	0.26	0.23	2.62	0.28
Reach 1	1417.46*	100-Year	0.06	257.66	257.75		257.76	0.003586	0.27	0.24	2.64	0.28
Reach 1	1411.59*	1.5-Year	0.00	257.63	257.66		257.66	0.003608	0.10	0.05	2.33	0.22
Reach 1	1411.59*	2-Year	0.01	257.63	257.67		257.67	0.004015	0.14	0.07	2.37	0.25
Reach 1	1411.59*	5-Year	0.02	257.63	257.68		257.68	0.003678	0.17	0.11	2.44	0.26
Reach 1	1411.59*	10-Year	0.04	257.63	257.71		257.71	0.003622	0.22	0.18	2.54	0.27
Reach 1	1411.59*	25-Year	0.05	257.63	257.72		257.72	0.003588	0.24	0.21	2.58	0.28
Reach 1	1411.59*	50-Year	0.06	257.63	257.73		257.73	0.003577	0.26	0.23	2.62	0.28
Reach 1	1411.59*	100-Year	0.06	257.63	257.73		257.74	0.003543	0.27	0.24	2.64	0.28
Reach 1	1405.72*	1.5-Year	0.00	257.61	257.63		257.63	0.003752	0.10	0.05	2.33	0.23
Reach 1	1405.72*	2-Year	0.01	257.61	257.65		257.65	0.003504	0.13	0.08	2.38	0.24
Reach 1	1405.72*	5-Year	0.02	257.61	257.66		257.66	0.003629	0.17	0.12	2.45	0.26
Reach 1	1405.72*	10-Year	0.04	257.61	257.69		257.69	0.003594	0.22	0.18	2.55	0.27
Reach 1	1405.72*	25-Year	0.05	257.61	257.70		257.70	0.003559	0.24	0.21	2.59	0.27
Reach 1	1405.72*	50-Year	0.06	257.61	257.71		257.71	0.003518	0.26	0.23	2.63	0.28
Reach 1	1405.72*	100-Year	0.06	257.61	257.71		257.72	0.003427	0.26	0.25	2.65	0.28
Reach 1	1399.85*	1.5-Year	0.00	257.59	257.61		257.61	0.004184	0.11	0.05	2.34	0.24
Reach 1	1399.85*	2-Year	0.01	257.59	257.62		257.62	0.003987	0.14	0.07	2.38	0.25
Reach 1	1399.85*	5-Year	0.02	257.59	257.64		257.64	0.003779	0.18	0.11	2.45	0.26
Reach 1	1399.85*	10-Year	0.04	257.59	257.67		257.67	0.003724	0.23	0.18	2.55	0.28
Reach 1	1399.85*	25-Year	0.05	257.59	257.68		257.68	0.003394	0.24	0.21	2.60	0.27
Reach 1	1399.85*	50-Year	0.06	257.59	257.69		257.69	0.003318	0.25	0.24	2.64	0.27
Reach 1	1399.85*	100-Year	0.06	257.59	257.70		257.70	0.003126	0.26	0.25	2.67	0.26
Reach 1	1393.97*	1.5-Year	0.00	257.57	257.59		257.59	0.003560	0.10	0.05	2.35	0.22
Reach 1	1393.97*	2-Year	0.01	257.57	257.60		257.60	0.003540	0.13	0.08	2.39	0.24
Reach 1	1393.97*	5-Year	0.02	257.57	257.62		257.62	0.003662	0.17	0.12	2.45	0.26
Reach 1	1393.97*	10-Year	0.04	257.57	257.65		257.65	0.003391	0.22	0.18	2.56	0.26
Reach 1	1393.97*	25-Year	0.05	257.57	257.66		257.66	0.002919	0.23	0.22	2.62	0.25
Reach 1	1393.97*	50-Year	0.06	257.57	257.67		257.67	0.002855	0.24	0.25	2.66	0.25
Reach 1	1393.97*	100-Year	0.06	257.57	257.68		257.68	0.002588	0.24	0.27	2.70	0.24
Reach 1	1388.10*	1.5-Year	0.00	257.55	257.57		257.57	0.003882	0.10	0.05	2.35	0.23
Reach 1	1388.10*	2-Year	0.01	257.55	257.58		257.58	0.003627	0.13	0.08	2.39	0.24
Reach 1	1388.10*	5-Year	0.02	257.55	257.60		257.60	0.003409	0.17	0.12	2.46	0.25
Reach 1	1388.10*	10-Year	0.04	257.55	257.63		257.63	0.003036	0.21	0.19	2.58	0.25
Reach 1	1388.10*	25-Year	0.05	257.55	257.65		257.65	0.002308	0.21	0.24	2.65	0.23
Reach 1	1388.10*	50-Year	0.06	257.55	257.66		257.66	0.002297	0.23	0.27	2.69	0.23
Reach 1	1388.10*	100-Year	0.06	257.55	257.67		257.67	0.002010	0.22	0.29	2.73	0.22
Reach 1	1382.23*	1.5-Year	0.00	257.53	257.55		257.55	0.003994	0.10	0.05	2.35	0.23
Reach 1	1382.23*	2-Year	0.01	257.53	257.56		257.56	0.003543	0.13	0.08	2.40	0.24

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1382.23*	5-Year	0.02	257.53	257.58		257.58	0.002808	0.16	0.13	2.48	0.23
Reach 1	1382.23*	10-Year	0.04	257.53	257.61		257.61	0.002376	0.20	0.20	2.60	0.22
Reach 1	1382.23*	25-Year	0.05	257.53	257.63		257.64	0.001624	0.19	0.27	2.70	0.19
Reach 1	1382.23*	50-Year	0.06	257.53	257.65		257.65	0.001682	0.20	0.29	2.74	0.20
Reach 1	1382.23*	100-Year	0.06	257.53	257.66		257.66	0.001449	0.20	0.33	2.79	0.19
Reach 1	1376.36*	1.5-Year	0.00	257.51	257.53		257.53	0.004110	0.11	0.05	2.36	0.24
Reach 1	1376.36*	2-Year	0.01	257.51	257.54		257.54	0.002501	0.12	0.08	2.42	0.20
Reach 1	1376.36*	5-Year	0.02	257.51	257.57		257.57	0.001449	0.13	0.15	2.53	0.17
Reach 1	1376.36*	10-Year	0.04	257.51	257.60		257.60	0.001520	0.17	0.24	2.66	0.18
Reach 1	1376.36*	25-Year	0.05	257.51	257.63		257.63	0.001044	0.16	0.31	2.76	0.16
Reach 1	1376.36*	50-Year	0.06	257.51	257.64		257.64	0.001136	0.18	0.33	2.80	0.17
Reach 1	1376.36*	100-Year	0.06	257.51	257.65		257.65	0.000984	0.18	0.37	2.85	0.16
Reach 1	1370.49*	1.5-Year	0.00	257.49	257.51		257.51	0.003361	0.10	0.05	2.37	0.22
Reach 1	1370.49*	2-Year	0.01	257.49	257.53		257.53	0.000888	0.09	0.12	2.48	0.13
Reach 1	1370.49*	5-Year	0.02	257.49	257.56		257.57	0.000695	0.10	0.19	2.60	0.12
Reach 1	1370.49*	10-Year	0.04	257.49	257.59		257.60	0.000941	0.15	0.27	2.72	0.15
Reach 1	1370.49*	25-Year	0.05	257.49	257.62		257.62	0.000676	0.14	0.35	2.83	0.13
Reach 1	1370.49*	50-Year	0.06	257.49	257.63		257.63	0.000768	0.16	0.38	2.87	0.14
Reach 1	1370.49*	100-Year	0.06	257.49	257.65		257.65	0.000676	0.16	0.42	2.92	0.13
Reach 1	1364.62*	1.5-Year	0.00	257.46	257.49		257.49	0.003678	0.10	0.05	2.37	0.23
Reach 1	1364.62*	2-Year	0.01	257.46	257.53		257.53	0.000304	0.06	0.16	2.55	0.08
Reach 1	1364.62*	5-Year	0.02	257.46	257.56		257.56	0.000343	0.08	0.24	2.68	0.09
Reach 1	1364.62*	10-Year	0.04	257.46	257.59		257.59	0.000574	0.12	0.32	2.79	0.12
Reach 1	1364.62*	25-Year	0.05	257.46	257.62		257.62	0.000442	0.12	0.41	2.91	0.11
Reach 1	1364.62*	50-Year	0.06	257.46	257.63		257.63	0.000521	0.14	0.43	2.95	0.12
Reach 1	1364.62*	100-Year	0.06	257.46	257.64		257.64	0.000468	0.14	0.47	3.00	0.11
Reach 1	1358.74*	1.5-Year	0.00	257.44	257.46		257.47	0.003406	0.10	0.05	2.38	0.22
Reach 1	1358.74*	2-Year	0.01	257.44	257.53		257.53	0.000126	0.05	0.22	2.64	0.05
Reach 1	1358.74*	5-Year	0.02	257.44	257.56		257.56	0.000184	0.07	0.30	2.76	0.07
Reach 1	1358.74*	10-Year	0.04	257.44	257.59		257.59	0.000359	0.11	0.37	2.87	0.09
Reach 1	1358.74*	25-Year	0.05	257.44	257.62		257.62	0.000297	0.11	0.46	2.99	0.09
Reach 1	1358.74*	50-Year	0.06	257.44	257.63		257.63	0.000359	0.12	0.49	3.03	0.10
Reach 1	1358.74*	100-Year	0.06	257.44	257.64		257.64	0.000313	0.12	0.64	17.04	0.09
Reach 1	1352.87*	1.5-Year	0.00	257.42	257.44		257.44	0.004277	0.11	0.05	2.38	0.24
Reach 1	1352.87*	2-Year	0.01	257.42	257.53		257.53	0.000060	0.04	0.27	2.73	0.04
Reach 1	1352.87*	5-Year	0.02	257.42	257.56		257.56	0.000104	0.06	0.36	2.85	0.05
Reach 1	1352.87*	10-Year	0.04	257.42	257.59		257.59	0.000228	0.09	0.44	2.96	0.08
Reach 1	1352.87*	25-Year	0.05	257.42	257.62		257.62	0.000194	0.09	0.61	17.03	0.07
Reach 1	1352.87*	50-Year	0.06	257.42	257.63		257.63	0.000219	0.10	0.76	17.09	0.08
Reach 1	1352.87*	100-Year	0.06	257.42	257.64		257.64	0.000170	0.10	1.00	17.17	0.07
Reach 1	1347	1.5-Year	0.00	257.40	257.42		257.42	0.003486	0.09	0.04	2.37	0.21
Reach 1	1347	2-Year	0.09	257.40	257.52		257.52	0.003725	0.30	0.30	2.77	0.29
Reach 1	1347	5-Year	0.13	257.40	257.55		257.55	0.003720	0.34	0.38	2.88	0.30
Reach 1	1347	10-Year	0.17	257.40	257.57		257.58	0.003715	0.38	0.45	2.98	0.31
Reach 1	1347	25-Year	0.23	257.40	257.60		257.61	0.003734	0.42	0.66	17.05	0.32
Reach 1	1347	50-Year	0.26	257.40	257.61		257.62	0.003736	0.43	0.81	17.11	0.32
Reach 1	1347	100-Year	0.32	257.40	257.62		257.63	0.003739	0.45	1.05	17.19	0.32
Reach 1	1341.17*	1.5-Year	0.00	257.38	257.40		257.40	0.003351	0.09	0.04	2.38	0.21
Reach 1	1341.17*	2-Year	0.09	257.38	257.50		257.50	0.003674	0.30	0.30	2.77	0.29
Reach 1	1341.17*	5-Year	0.13	257.38	257.52		257.53	0.003680	0.34	0.38	2.89	0.30
Reach 1	1341.17*	10-Year	0.17	257.38	257.55		257.56	0.003684	0.38	0.45	2.98	0.31
Reach 1	1341.17*	25-Year	0.23	257.38	257.58		257.59	0.003665	0.41	0.68	17.06	0.32
Reach 1	1341.17*	50-Year	0.26	257.38	257.59		257.60	0.003660	0.43	0.82	17.11	0.32
Reach 1	1341.17*	100-Year	0.32	257.38	257.60		257.61	0.003658	0.45	1.07	17.20	0.32
Reach 1	1335.33*	1.5-Year	0.00	257.36	257.38		257.38	0.003429	0.09	0.04	2.38	0.21
Reach 1	1335.33*	2-Year	0.09	257.36	257.47		257.48	0.003746	0.30	0.30	2.77	0.30
Reach 1	1335.33*	5-Year	0.13	257.36	257.50		257.51	0.003740	0.34	0.38	2.88	0.30
Reach 1	1335.33*	10-Year	0.17	257.36	257.53		257.53	0.003735	0.38	0.45	2.98	0.31
Reach 1	1335.33*	25-Year	0.23	257.36	257.56		257.56	0.003743	0.42	0.66	17.05	0.32
Reach 1	1335.33*	50-Year	0.26	257.36	257.56		257.57	0.003745	0.43	0.81	17.11	0.32
Reach 1	1335.33*	100-Year	0.32	257.36	257.58		257.59	0.003743	0.45	1.05	17.19	0.33
Reach 1	1329.50*	1.5-Year	0.00	257.34	257.35		257.35	0.004596	0.10	0.04	2.37	0.24
Reach 1	1329.50*	2-Year	0.09	257.34	257.45		257.46	0.003730	0.30	0.30	2.77	0.29
Reach 1	1329.50*	5-Year	0.13	257.34	257.48		257.49	0.003722	0.34	0.38	2.88	0.30
Reach 1	1329.50*	10-Year	0.17	257.34	257.51		257.51	0.003720	0.38	0.45	2.98	0.31

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1329.50*	25-Year	0.23	257.34	257.53		257.54	0.003722	0.42	0.67	17.06	0.32
Reach 1	1329.50*	50-Year	0.26	257.34	257.54		257.55	0.003722	0.43	0.81	17.11	0.32
Reach 1	1329.50*	100-Year	0.32	257.34	257.56		257.57	0.003723	0.45	1.06	17.19	0.32
Reach 1	1323.67*	1.5-Year	0.00	257.31	257.33		257.33	0.003509	0.09	0.04	2.37	0.22
Reach 1	1323.67*	2-Year	0.09	257.31	257.43		257.44	0.003682	0.30	0.30	2.77	0.29
Reach 1	1323.67*	5-Year	0.13	257.31	257.46		257.47	0.003685	0.34	0.38	2.89	0.30
Reach 1	1323.67*	10-Year	0.17	257.31	257.48		257.49	0.003689	0.38	0.45	2.98	0.31
Reach 1	1323.67*	25-Year	0.23	257.31	257.51		257.52	0.003665	0.41	0.68	17.06	0.32
Reach 1	1323.67*	50-Year	0.26	257.31	257.52		257.53	0.003660	0.43	0.82	17.11	0.32
Reach 1	1323.67*	100-Year	0.32	257.31	257.54		257.54	0.003658	0.45	1.07	17.20	0.32
Reach 1	1317.83*	1.5-Year	0.00	257.29	257.31		257.31	0.003856	0.09	0.04	2.37	0.22
Reach 1	1317.83*	2-Year	0.09	257.29	257.41		257.41	0.003756	0.30	0.30	2.77	0.30
Reach 1	1317.83*	5-Year	0.13	257.29	257.44		257.44	0.003748	0.35	0.38	2.88	0.30
Reach 1	1317.83*	10-Year	0.17	257.29	257.46		257.47	0.003744	0.38	0.45	2.98	0.31
Reach 1	1317.83*	25-Year	0.23	257.29	257.49		257.50	0.003748	0.42	0.66	17.05	0.32
Reach 1	1317.83*	50-Year	0.26	257.29	257.50		257.51	0.003748	0.43	0.81	17.11	0.32
Reach 1	1317.83*	100-Year	0.32	257.29	257.51		257.52	0.003748	0.45	1.05	17.19	0.33
Reach 1	1312.00*	1.5-Year	0.00	257.27	257.29		257.29	0.004418	0.10	0.04	2.37	0.24
Reach 1	1312.00*	2-Year	0.09	257.27	257.39		257.39	0.003756	0.30	0.30	2.77	0.30
Reach 1	1312.00*	5-Year	0.13	257.27	257.42		257.42	0.003742	0.34	0.38	2.88	0.30
Reach 1	1312.00*	10-Year	0.17	257.27	257.44		257.45	0.003734	0.38	0.45	2.98	0.31
Reach 1	1312.00*	25-Year	0.23	257.27	257.47		257.48	0.003733	0.42	0.67	17.06	0.32
Reach 1	1312.00*	50-Year	0.26	257.27	257.48		257.49	0.003732	0.43	0.81	17.11	0.32
Reach 1	1312.00*	100-Year	0.32	257.27	257.49		257.50	0.003731	0.45	1.05	17.19	0.32
Reach 1	1306.17*	1.5-Year	0.00	257.25	257.27		257.27	0.003628	0.09	0.04	2.37	0.22
Reach 1	1306.17*	2-Year	0.09	257.25	257.37		257.37	0.003665	0.30	0.30	2.77	0.29
Reach 1	1306.17*	5-Year	0.13	257.25	257.39		257.40	0.003672	0.34	0.38	2.88	0.30
Reach 1	1306.17*	10-Year	0.17	257.25	257.42		257.43	0.003677	0.38	0.45	2.98	0.31
Reach 1	1306.17*	25-Year	0.23	257.25	257.45		257.46	0.003655	0.41	0.68	17.06	0.32
Reach 1	1306.17*	50-Year	0.26	257.25	257.46		257.47	0.003650	0.43	0.82	17.11	0.32
Reach 1	1306.17*	100-Year	0.32	257.25	257.47		257.48	0.003651	0.45	1.07	17.20	0.32
Reach 1	1300.33*	1.5-Year	0.00	257.23	257.25		257.25	0.003521	0.09	0.04	2.37	0.22
Reach 1	1300.33*	2-Year	0.09	257.23	257.34		257.35	0.003779	0.30	0.30	2.77	0.30
Reach 1	1300.33*	5-Year	0.13	257.23	257.37		257.38	0.003765	0.35	0.38	2.88	0.31
Reach 1	1300.33*	10-Year	0.17	257.23	257.40		257.40	0.003755	0.38	0.45	2.98	0.31
Reach 1	1300.33*	25-Year	0.23	257.23	257.43		257.43	0.003760	0.42	0.66	17.05	0.32
Reach 1	1300.33*	50-Year	0.26	257.23	257.43		257.44	0.003761	0.43	0.81	17.11	0.32
Reach 1	1300.33*	100-Year	0.32	257.23	257.45		257.46	0.003759	0.45	1.05	17.19	0.33
Reach 1	1294.50*	1.5-Year	0.00	257.20	257.22		257.22	0.004089	0.10	0.04	2.37	0.23
Reach 1	1294.50*	2-Year	0.09	257.20	257.32		257.33	0.003727	0.30	0.30	2.77	0.29
Reach 1	1294.50*	5-Year	0.13	257.20	257.35		257.36	0.003720	0.34	0.38	2.88	0.30
Reach 1	1294.50*	10-Year	0.17	257.20	257.38		257.38	0.003717	0.38	0.45	2.98	0.31
Reach 1	1294.50*	25-Year	0.23	257.20	257.40		257.41	0.003720	0.42	0.67	17.06	0.32
Reach 1	1294.50*	50-Year	0.26	257.20	257.41		257.42	0.003725	0.43	0.81	17.11	0.32
Reach 1	1294.50*	100-Year	0.32	257.20	257.43		257.44	0.003723	0.45	1.05	17.19	0.32
Reach 1	1288.67*	1.5-Year	0.00	257.18	257.20		257.20	0.003100	0.09	0.05	2.38	0.20
Reach 1	1288.67*	2-Year	0.09	257.18	257.30		257.31	0.003675	0.30	0.30	2.77	0.29
Reach 1	1288.67*	5-Year	0.13	257.18	257.33		257.34	0.003680	0.34	0.38	2.88	0.30
Reach 1	1288.67*	10-Year	0.17	257.18	257.35		257.36	0.003684	0.38	0.45	2.98	0.31
Reach 1	1288.67*	25-Year	0.23	257.18	257.38		257.39	0.003669	0.42	0.67	17.06	0.32
Reach 1	1288.67*	50-Year	0.26	257.18	257.39		257.40	0.003665	0.43	0.82	17.11	0.32
Reach 1	1288.67*	100-Year	0.32	257.18	257.41		257.41	0.003666	0.45	1.06	17.19	0.32
Reach 1	1282.83*	1.5-Year	0.00	257.16	257.18		257.18	0.004280	0.10	0.04	2.37	0.24
Reach 1	1282.83*	2-Year	0.09	257.16	257.28		257.28	0.003747	0.30	0.30	2.77	0.30
Reach 1	1282.83*	5-Year	0.13	257.16	257.31		257.31	0.003739	0.34	0.38	2.88	0.30
Reach 1	1282.83*	10-Year	0.17	257.16	257.33		257.34	0.003735	0.38	0.45	2.98	0.31
Reach 1	1282.83*	25-Year	0.23	257.16	257.36		257.37	0.003753	0.42	0.66	17.05	0.32
Reach 1	1282.83*	50-Year	0.26	257.16	257.37		257.38	0.003760	0.43	0.81	17.10	0.32
Reach 1	1282.83*	100-Year	0.32	257.16	257.38		257.39	0.003763	0.45	1.05	17.19	0.33
Reach 1	1277.00*	1.5-Year	0.00	257.14	257.16		257.16	0.003592	0.09	0.04	2.37	0.22
Reach 1	1277.00*	2-Year	0.09	257.14	257.26		257.26	0.003728	0.30	0.30	2.77	0.29
Reach 1	1277.00*	5-Year	0.13	257.14	257.29		257.29	0.003721	0.34	0.38	2.88	0.30
Reach 1	1277.00*	10-Year	0.17	257.14	257.31		257.32	0.003716	0.38	0.45	2.98	0.31
Reach 1	1277.00*	25-Year	0.23	257.14	257.34		257.35	0.003720	0.42	0.67	17.06	0.32
Reach 1	1277.00*	50-Year	0.26	257.14	257.35		257.36	0.003722	0.43	0.81	17.11	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1277.00*	100-Year	0.32	257.14	257.36		257.37	0.003721	0.45	1.06	17.19	0.32
Reach 1	1271.17*	1.5-Year	0.00	257.12	257.14		257.14	0.003817	0.09	0.04	2.37	0.22
Reach 1	1271.17*	2-Year	0.09	257.12	257.24		257.24	0.003674	0.30	0.30	2.77	0.29
Reach 1	1271.17*	5-Year	0.13	257.12	257.26		257.27	0.003680	0.34	0.38	2.89	0.30
Reach 1	1271.17*	10-Year	0.17	257.12	257.29		257.30	0.003683	0.38	0.45	2.98	0.31
Reach 1	1271.17*	25-Year	0.23	257.12	257.32		257.33	0.003663	0.41	0.68	17.06	0.32
Reach 1	1271.17*	50-Year	0.26	257.12	257.33		257.34	0.003658	0.43	0.82	17.11	0.32
Reach 1	1271.17*	100-Year	0.32	257.12	257.34		257.35	0.003656	0.45	1.07	17.20	0.32
Reach 1	1265.33*	1.5-Year	0.00	257.10	257.12		257.12	0.003191	0.09	0.04	2.38	0.21
Reach 1	1265.33*	2-Year	0.09	257.10	257.21		257.22	0.003748	0.30	0.30	2.77	0.30
Reach 1	1265.33*	5-Year	0.13	257.10	257.24		257.25	0.003742	0.34	0.38	2.88	0.30
Reach 1	1265.33*	10-Year	0.17	257.10	257.27		257.27	0.003737	0.38	0.45	2.98	0.31
Reach 1	1265.33*	25-Year	0.23	257.10	257.30		257.30	0.003743	0.42	0.66	17.05	0.32
Reach 1	1265.33*	50-Year	0.26	257.10	257.30		257.31	0.003747	0.43	0.81	17.11	0.32
Reach 1	1265.33*	100-Year	0.32	257.10	257.32		257.33	0.003745	0.45	1.05	17.19	0.33
Reach 1	1259.50*	1.5-Year	0.00	257.08	257.09		257.09	0.004356	0.10	0.04	2.37	0.24
Reach 1	1259.50*	2-Year	0.09	257.08	257.19		257.20	0.003730	0.30	0.30	2.77	0.29
Reach 1	1259.50*	5-Year	0.13	257.08	257.22		257.23	0.003722	0.34	0.38	2.88	0.30
Reach 1	1259.50*	10-Year	0.17	257.08	257.25		257.25	0.003720	0.38	0.45	2.98	0.31
Reach 1	1259.50*	25-Year	0.23	257.08	257.27		257.28	0.003718	0.42	0.67	17.06	0.32
Reach 1	1259.50*	50-Year	0.26	257.08	257.28		257.29	0.003722	0.43	0.81	17.11	0.32
Reach 1	1259.50*	100-Year	0.32	257.08	257.30		257.31	0.003719	0.45	1.06	17.19	0.32
Reach 1	1253.67*	1.5-Year	0.00	257.05	257.07		257.07	0.003498	0.09	0.04	2.37	0.22
Reach 1	1253.67*	2-Year	0.09	257.05	257.17		257.18	0.003680	0.30	0.30	2.77	0.29
Reach 1	1253.67*	5-Year	0.13	257.05	257.20		257.21	0.003685	0.34	0.38	2.89	0.30
Reach 1	1253.67*	10-Year	0.17	257.05	257.22		257.23	0.003689	0.38	0.45	2.98	0.31
Reach 1	1253.67*	25-Year	0.23	257.05	257.25		257.26	0.003666	0.41	0.68	17.06	0.32
Reach 1	1253.67*	50-Year	0.26	257.05	257.26		257.27	0.003661	0.43	0.82	17.11	0.32
Reach 1	1253.67*	100-Year	0.32	257.05	257.28		257.28	0.003659	0.45	1.06	17.20	0.32
Reach 1	1247.83*	1.5-Year	0.00	257.03	257.05		257.05	0.004596	0.10	0.04	2.37	0.24
Reach 1	1247.83*	2-Year	0.09	257.03	257.15		257.15	0.003758	0.30	0.30	2.77	0.30
Reach 1	1247.83*	5-Year	0.13	257.03	257.18		257.18	0.003750	0.35	0.38	2.88	0.30
Reach 1	1247.83*	10-Year	0.17	257.03	257.20		257.21	0.003745	0.38	0.45	2.98	0.31
Reach 1	1247.83*	25-Year	0.23	257.03	257.23		257.24	0.003749	0.42	0.66	17.05	0.32
Reach 1	1247.83*	50-Year	0.26	257.03	257.24		257.25	0.003749	0.43	0.81	17.11	0.32
Reach 1	1247.83*	100-Year	0.32	257.03	257.25		257.26	0.003749	0.45	1.05	17.19	0.33
Reach 1	1242.00*	1.5-Year	0.00	257.01	257.03		257.03	0.003509	0.09	0.04	2.37	0.22
Reach 1	1242.00*	2-Year	0.09	257.01	257.13		257.13	0.003756	0.30	0.30	2.77	0.30
Reach 1	1242.00*	5-Year	0.13	257.01	257.16		257.16	0.003740	0.34	0.38	2.88	0.30
Reach 1	1242.00*	10-Year	0.17	257.01	257.18		257.19	0.003734	0.38	0.45	2.98	0.31
Reach 1	1242.00*	25-Year	0.23	257.01	257.21		257.22	0.003733	0.42	0.67	17.06	0.32
Reach 1	1242.00*	50-Year	0.26	257.01	257.22		257.23	0.003732	0.43	0.81	17.11	0.32
Reach 1	1242.00*	100-Year	0.32	257.01	257.23		257.24	0.003731	0.45	1.05	17.19	0.32
Reach 1	1236.17*	1.5-Year	0.00	256.99	257.01		257.01	0.003373	0.09	0.04	2.38	0.21
Reach 1	1236.17*	2-Year	0.09	256.99	257.11		257.11	0.003665	0.30	0.30	2.77	0.29
Reach 1	1236.17*	5-Year	0.13	256.99	257.13		257.14	0.003670	0.34	0.38	2.88	0.30
Reach 1	1236.17*	10-Year	0.17	256.99	257.16		257.17	0.003677	0.38	0.45	2.98	0.31
Reach 1	1236.17*	25-Year	0.23	256.99	257.19		257.20	0.003656	0.41	0.68	17.06	0.32
Reach 1	1236.17*	50-Year	0.26	256.99	257.20		257.21	0.003651	0.43	0.82	17.11	0.32
Reach 1	1236.17*	100-Year	0.32	256.99	257.21		257.22	0.003650	0.45	1.07	17.20	0.32
Reach 1	1230.33*	1.5-Year	0.00	256.97	256.99		256.99	0.003160	0.09	0.05	2.38	0.21
Reach 1	1230.33*	2-Year	0.09	256.97	257.08		257.09	0.003779	0.30	0.30	2.77	0.30
Reach 1	1230.33*	5-Year	0.13	256.97	257.11		257.12	0.003763	0.35	0.38	2.88	0.31
Reach 1	1230.33*	10-Year	0.17	256.97	257.14		257.14	0.003756	0.38	0.45	2.98	0.31
Reach 1	1230.33*	25-Year	0.23	256.97	257.17		257.17	0.003760	0.42	0.66	17.05	0.32
Reach 1	1230.33*	50-Year	0.26	256.97	257.17		257.18	0.003759	0.43	0.81	17.11	0.32
Reach 1	1230.33*	100-Year	0.32	256.97	257.19		257.20	0.003757	0.45	1.05	17.19	0.33
Reach 1	1224.50*	1.5-Year	0.00	256.94	256.96		256.96	0.004047	0.10	0.04	2.37	0.23
Reach 1	1224.50*	2-Year	0.09	256.94	257.06		257.07	0.003727	0.30	0.30	2.77	0.29
Reach 1	1224.50*	5-Year	0.13	256.94	257.09		257.10	0.003718	0.34	0.38	2.88	0.30
Reach 1	1224.50*	10-Year	0.17	256.94	257.12		257.12	0.003715	0.38	0.45	2.98	0.31
Reach 1	1224.50*	25-Year	0.23	256.94	257.14		257.15	0.003720	0.42	0.67	17.06	0.32
Reach 1	1224.50*	50-Year	0.26	256.94	257.15		257.16	0.003722	0.43	0.81	17.11	0.32
Reach 1	1224.50*	100-Year	0.32	256.94	257.17		257.18	0.003722	0.45	1.05	17.19	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1218.67*	1.5-Year	0.00	256.92	256.94		256.94	0.003191	0.09	0.04	2.38	0.21
Reach 1	1218.67*	2-Year	0.09	256.92	257.04		257.05	0.003673	0.30	0.30	2.77	0.29
Reach 1	1218.67*	5-Year	0.13	256.92	257.07		257.08	0.003676	0.34	0.38	2.88	0.30
Reach 1	1218.67*	10-Year	0.17	256.92	257.09		257.10	0.003681	0.38	0.45	2.98	0.31
Reach 1	1218.67*	25-Year	0.23	256.92	257.12		257.13	0.003665	0.41	0.67	17.06	0.32
Reach 1	1218.67*	50-Year	0.26	256.92	257.13		257.14	0.003659	0.43	0.82	17.11	0.32
Reach 1	1218.67*	100-Year	0.32	256.92	257.15		257.15	0.003658	0.45	1.06	17.19	0.32
Reach 1	1212.83*	1.5-Year	0.00	256.90	256.92		256.92	0.004061	0.10	0.04	2.37	0.23
Reach 1	1212.83*	2-Year	0.09	256.90	257.02		257.02	0.003747	0.30	0.30	2.77	0.30
Reach 1	1212.83*	5-Year	0.13	256.90	257.05		257.05	0.003738	0.34	0.38	2.88	0.30
Reach 1	1212.83*	10-Year	0.17	256.90	257.07		257.08	0.003731	0.38	0.45	2.98	0.31
Reach 1	1212.83*	25-Year	0.23	256.90	257.10		257.11	0.003747	0.42	0.66	17.05	0.32
Reach 1	1212.83*	50-Year	0.26	256.90	257.11		257.12	0.003750	0.43	0.81	17.11	0.32
Reach 1	1212.83*	100-Year	0.32	256.90	257.12		257.13	0.003751	0.45	1.05	17.19	0.33
Reach 1	1207.00*	1.5-Year	0.00	256.88	256.90		256.90	0.003140	0.09	0.05	2.38	0.20
Reach 1	1207.00*	2-Year	0.09	256.88	257.00		257.00	0.003727	0.30	0.30	2.77	0.29
Reach 1	1207.00*	5-Year	0.13	256.88	257.03		257.03	0.003715	0.34	0.38	2.88	0.30
Reach 1	1207.00*	10-Year	0.17	256.88	257.05		257.06	0.003708	0.38	0.45	2.98	0.31
Reach 1	1207.00*	25-Year	0.23	256.88	257.08		257.09	0.003730	0.42	0.66	17.05	0.32
Reach 1	1207.00*	50-Year	0.26	256.88	257.09		257.10	0.003736	0.43	0.81	17.11	0.32
Reach 1	1207.00*	100-Year	0.32	256.88	257.10		257.11	0.003739	0.45	1.05	17.19	0.32
Reach 1	1201.17*	1.5-Year	0.00	256.86	256.88		256.88	0.003991	0.10	0.04	2.37	0.23
Reach 1	1201.17*	2-Year	0.09	256.86	256.98		256.98	0.003672	0.30	0.30	2.77	0.29
Reach 1	1201.17*	5-Year	0.13	256.86	257.00		257.01	0.003672	0.34	0.38	2.89	0.30
Reach 1	1201.17*	10-Year	0.17	256.86	257.03		257.04	0.003670	0.38	0.45	2.99	0.31
Reach 1	1201.17*	25-Year	0.23	256.86	257.06		257.07	0.003663	0.41	0.68	17.06	0.32
Reach 1	1201.17*	50-Year	0.26	256.86	257.07		257.08	0.003660	0.43	0.82	17.11	0.32
Reach 1	1201.17*	100-Year	0.32	256.86	257.08		257.09	0.003656	0.45	1.07	17.20	0.32
Reach 1	1195.33*	1.5-Year	0.00	256.84	256.86		256.86	0.003544	0.09	0.04	2.37	0.22
Reach 1	1195.33*	2-Year	0.09	256.84	256.95		256.96	0.003740	0.30	0.30	2.77	0.30
Reach 1	1195.33*	5-Year	0.13	256.84	256.98		256.99	0.003727	0.34	0.38	2.88	0.30
Reach 1	1195.33*	10-Year	0.17	256.84	257.01		257.01	0.003714	0.38	0.45	2.98	0.31
Reach 1	1195.33*	25-Year	0.23	256.84	257.04		257.04	0.003737	0.42	0.67	17.06	0.32
Reach 1	1195.33*	50-Year	0.26	256.84	257.04		257.05	0.003743	0.43	0.81	17.11	0.32
Reach 1	1195.33*	100-Year	0.32	256.84	257.06		257.07	0.003741	0.45	1.05	17.19	0.33
Reach 1	1189.50*	1.5-Year	0.00	256.82	256.83		256.83	0.004356	0.10	0.04	2.37	0.24
Reach 1	1189.50*	2-Year	0.09	256.82	256.93		256.94	0.003710	0.30	0.30	2.77	0.29
Reach 1	1189.50*	5-Year	0.13	256.82	256.96		256.97	0.003693	0.34	0.38	2.88	0.30
Reach 1	1189.50*	10-Year	0.17	256.82	256.99		256.99	0.003680	0.38	0.45	2.98	0.31
Reach 1	1189.50*	25-Year	0.23	256.82	257.01		257.02	0.003706	0.42	0.67	17.06	0.32
Reach 1	1189.50*	50-Year	0.26	256.82	257.02		257.03	0.003713	0.43	0.82	17.11	0.32
Reach 1	1189.50*	100-Year	0.32	256.82	257.04		257.05	0.003710	0.45	1.06	17.19	0.32
Reach 1	1183.67*	1.5-Year	0.00	256.79	256.81		256.81	0.003580	0.09	0.04	2.37	0.22
Reach 1	1183.67*	2-Year	0.09	256.79	256.91		256.92	0.003635	0.30	0.30	2.77	0.29
Reach 1	1183.67*	5-Year	0.13	256.79	256.94		256.95	0.003630	0.34	0.38	2.89	0.30
Reach 1	1183.67*	10-Year	0.17	256.79	256.96		256.97	0.003624	0.37	0.45	2.99	0.31
Reach 1	1183.67*	25-Year	0.23	256.79	256.99		257.00	0.003633	0.41	0.68	17.06	0.31
Reach 1	1183.67*	50-Year	0.26	256.79	257.00		257.01	0.003634	0.43	0.83	17.11	0.32
Reach 1	1183.67*	100-Year	0.32	256.79	257.02		257.02	0.003632	0.45	1.07	17.20	0.32
Reach 1	1177.83*	1.5-Year	0.00	256.77	256.79		256.79	0.004530	0.10	0.04	2.37	0.24
Reach 1	1177.83*	2-Year	0.09	256.77	256.89		256.89	0.003682	0.30	0.30	2.77	0.29
Reach 1	1177.83*	5-Year	0.13	256.77	256.92		256.92	0.003655	0.34	0.38	2.89	0.30
Reach 1	1177.83*	10-Year	0.17	256.77	256.94		256.95	0.003639	0.37	0.45	2.99	0.31
Reach 1	1177.83*	25-Year	0.23	256.77	256.97		256.98	0.003675	0.42	0.68	17.06	0.32
Reach 1	1177.83*	50-Year	0.26	256.77	256.98		256.99	0.003683	0.43	0.82	17.11	0.32
Reach 1	1177.83*	100-Year	0.32	256.77	256.99		257.00	0.003681	0.45	1.06	17.19	0.32
Reach 1	1172	1.5-Year	0.00	256.75	256.77		256.77	0.003580	0.09	0.04	2.37	0.22
Reach 1	1172	2-Year	0.09	256.75	256.87		256.87	0.003566	0.30	0.30	2.78	0.29
Reach 1	1172	5-Year	0.13	256.75	256.90		256.90	0.003558	0.34	0.38	2.89	0.30
Reach 1	1172	10-Year	0.17	256.75	256.92		256.93	0.003555	0.37	0.46	2.99	0.30
Reach 1	1172	25-Year	0.23	256.75	256.95		256.96	0.003560	0.41	0.69	17.07	0.31
Reach 1	1172	50-Year	0.26	256.75	256.96		256.97	0.003561	0.42	0.84	17.12	0.31
Reach 1	1172	100-Year	0.32	256.75	256.97		256.98	0.003558	0.44	1.08	17.20	0.32
Reach 1	1167.04*	1.5-Year	0.00	256.73	256.75		256.75	0.003991	0.10	0.04	2.37	0.23
Reach 1	1167.04*	2-Year	0.09	256.73	256.85		256.86	0.003514	0.30	0.30	2.78	0.29

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1167.04*	5-Year	0.13	256.73	256.88		256.89	0.003517	0.34	0.38	2.89	0.30
Reach 1	1167.04*	10-Year	0.17	256.73	256.91		256.91	0.003521	0.37	0.46	2.99	0.30
Reach 1	1167.04*	25-Year	0.23	256.73	256.93		256.94	0.003501	0.41	0.70	17.06	0.31
Reach 1	1167.04*	50-Year	0.26	256.73	256.94		256.95	0.003498	0.42	0.85	17.11	0.31
Reach 1	1167.04*	100-Year	0.32	256.73	256.96		256.96	0.003496	0.44	1.09	17.19	0.31
Reach 1	1162.07*	1.5-Year	0.00	256.72	256.73		256.73	0.004075	0.10	0.04	2.37	0.23
Reach 1	1162.07*	2-Year	0.09	256.72	256.83		256.84	0.003574	0.30	0.30	2.78	0.29
Reach 1	1162.07*	5-Year	0.13	256.72	256.86		256.87	0.003567	0.34	0.38	2.89	0.30
Reach 1	1162.07*	10-Year	0.17	256.72	256.89		256.89	0.003564	0.37	0.46	2.99	0.30
Reach 1	1162.07*	25-Year	0.23	256.72	256.92		256.92	0.003566	0.41	0.69	17.04	0.31
Reach 1	1162.07*	50-Year	0.26	256.72	256.92		256.93	0.003566	0.42	0.84	17.09	0.31
Reach 1	1162.07*	100-Year	0.32	256.72	256.94		256.95	0.003566	0.44	1.08	17.18	0.32
Reach 1	1157.11*	1.5-Year	0.00	256.70	256.72		256.72	0.003830	0.09	0.04	2.37	0.22
Reach 1	1157.11*	2-Year	0.09	256.70	256.82		256.82	0.003527	0.30	0.30	2.78	0.29
Reach 1	1157.11*	5-Year	0.13	256.70	256.85		256.85	0.003531	0.34	0.38	2.89	0.30
Reach 1	1157.11*	10-Year	0.17	256.70	256.87		256.88	0.003534	0.37	0.46	2.99	0.30
Reach 1	1157.11*	25-Year	0.23	256.70	256.90		256.91	0.003514	0.41	0.70	17.04	0.31
Reach 1	1157.11*	50-Year	0.26	256.70	256.91		256.92	0.003510	0.42	0.85	17.09	0.31
Reach 1	1157.11*	100-Year	0.32	256.70	256.92		256.93	0.003509	0.44	1.09	17.17	0.32
Reach 1	1152.15*	1.5-Year	0.00	256.68	256.70		256.70	0.003753	0.09	0.04	2.37	0.22
Reach 1	1152.15*	2-Year	0.09	256.68	256.80		256.80	0.003595	0.30	0.30	2.77	0.29
Reach 1	1152.15*	5-Year	0.13	256.68	256.83		256.83	0.003586	0.34	0.38	2.89	0.30
Reach 1	1152.15*	10-Year	0.17	256.68	256.85		256.86	0.003580	0.37	0.46	2.99	0.30
Reach 1	1152.15*	25-Year	0.23	256.68	256.88		256.89	0.003590	0.41	0.69	17.02	0.31
Reach 1	1152.15*	50-Year	0.26	256.68	256.89		256.90	0.003591	0.42	0.83	17.07	0.32
Reach 1	1152.15*	100-Year	0.32	256.68	256.90		256.91	0.003590	0.45	1.08	17.16	0.32
Reach 1	1147.18*	1.5-Year	0.00	256.66	256.68		256.68	0.003556	0.09	0.04	2.37	0.22
Reach 1	1147.18*	2-Year	0.09	256.66	256.78		256.79	0.003572	0.30	0.30	2.78	0.29
Reach 1	1147.18*	5-Year	0.13	256.66	256.81		256.82	0.003565	0.34	0.38	2.89	0.30
Reach 1	1147.18*	10-Year	0.17	256.66	256.83		256.84	0.003560	0.37	0.46	2.99	0.30
Reach 1	1147.18*	25-Year	0.23	256.66	256.86		256.87	0.003563	0.41	0.69	17.01	0.31
Reach 1	1147.18*	50-Year	0.26	256.66	256.87		256.88	0.003563	0.42	0.84	17.06	0.31
Reach 1	1147.18*	100-Year	0.32	256.66	256.89		256.89	0.003563	0.44	1.08	17.15	0.32
Reach 1	1142.22*	1.5-Year	0.00	256.64	256.66		256.66	0.003171	0.09	0.05	2.38	0.21
Reach 1	1142.22*	2-Year	0.09	256.64	256.76		256.77	0.003525	0.30	0.30	2.78	0.29
Reach 1	1142.22*	5-Year	0.13	256.64	256.79		256.80	0.003528	0.34	0.38	2.89	0.30
Reach 1	1142.22*	10-Year	0.17	256.64	256.82		256.82	0.003528	0.37	0.46	2.99	0.30
Reach 1	1142.22*	25-Year	0.23	256.64	256.85		256.85	0.003509	0.41	0.70	17.00	0.31
Reach 1	1142.22*	50-Year	0.26	256.64	256.85		256.86	0.003506	0.42	0.85	17.06	0.31
Reach 1	1142.22*	100-Year	0.32	256.64	256.87		256.88	0.003504	0.44	1.09	17.15	0.32
Reach 1	1137.26*	1.5-Year	0.00	256.63	256.65		256.65	0.003568	0.09	0.04	2.37	0.22
Reach 1	1137.26*	2-Year	0.09	256.63	256.75		256.75	0.003593	0.30	0.30	2.77	0.29
Reach 1	1137.26*	5-Year	0.13	256.63	256.77		256.78	0.003583	0.34	0.38	2.89	0.30
Reach 1	1137.26*	10-Year	0.17	256.63	256.80		256.81	0.003576	0.37	0.46	2.99	0.30
Reach 1	1137.26*	25-Year	0.23	256.63	256.83		256.84	0.003585	0.41	0.69	16.99	0.31
Reach 1	1137.26*	50-Year	0.26	256.63	256.84		256.84	0.003586	0.42	0.83	17.04	0.31
Reach 1	1137.26*	100-Year	0.32	256.63	256.85		256.86	0.003584	0.45	1.08	17.13	0.32
Reach 1	1132.29*	1.5-Year	0.00	256.61	256.63		256.63	0.003110	0.09	0.05	2.38	0.20
Reach 1	1132.29*	2-Year	0.09	256.61	256.73		256.73	0.003564	0.30	0.30	2.78	0.29
Reach 1	1132.29*	5-Year	0.13	256.61	256.76		256.76	0.003557	0.34	0.38	2.89	0.30
Reach 1	1132.29*	10-Year	0.17	256.61	256.78		256.79	0.003552	0.37	0.46	2.99	0.30
Reach 1	1132.29*	25-Year	0.23	256.61	256.81		256.82	0.003552	0.41	0.70	16.98	0.31
Reach 1	1132.29*	50-Year	0.26	256.61	256.82		256.83	0.003551	0.42	0.84	17.03	0.31
Reach 1	1132.29*	100-Year	0.32	256.61	256.83		256.84	0.003548	0.44	1.08	17.12	0.32
Reach 1	1127.33*	1.5-Year	0.00	256.59	256.61		256.61	0.002919	0.09	0.05	2.38	0.20
Reach 1	1127.33*	2-Year	0.09	256.59	256.71		256.72	0.003508	0.30	0.30	2.78	0.29
Reach 1	1127.33*	5-Year	0.13	256.59	256.74		256.75	0.003514	0.34	0.38	2.89	0.30
Reach 1	1127.33*	10-Year	0.17	256.59	256.76		256.77	0.003516	0.37	0.46	2.99	0.30
Reach 1	1127.33*	25-Year	0.23	256.59	256.79		256.80	0.003486	0.41	0.71	16.97	0.31
Reach 1	1127.33*	50-Year	0.26	256.59	256.80		256.81	0.003478	0.42	0.85	17.03	0.31
Reach 1	1127.33*	100-Year	0.32	256.59	256.82		256.82	0.003475	0.44	1.09	17.12	0.31
Reach 1	1122.37*	1.5-Year	0.00	256.57	256.59		256.59	0.003521	0.09	0.04	2.37	0.22
Reach 1	1122.37*	2-Year	0.09	256.57	256.69		256.70	0.003571	0.30	0.30	2.77	0.29
Reach 1	1122.37*	5-Year	0.13	256.57	256.72		256.73	0.003564	0.34	0.38	2.89	0.30
Reach 1	1122.37*	10-Year	0.17	256.57	256.75		256.75	0.003559	0.37	0.46	2.99	0.30

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1122.37*	25-Year	0.23	256.57	256.77		256.78	0.003564	0.41	0.69	16.95	0.31
Reach 1	1122.37*	50-Year	0.26	256.57	256.78		256.79	0.003564	0.42	0.84	17.01	0.31
Reach 1	1122.37*	100-Year	0.32	256.57	256.80		256.81	0.003562	0.44	1.08	17.10	0.32
Reach 1	1117.40*	1.5-Year	0.00	256.56	256.57		256.57	0.004295	0.10	0.04	2.37	0.24
Reach 1	1117.40*	2-Year	0.09	256.56	256.68		256.68	0.003522	0.30	0.30	2.78	0.29
Reach 1	1117.40*	5-Year	0.13	256.56	256.70		256.71	0.003526	0.34	0.38	2.89	0.30
Reach 1	1117.40*	10-Year	0.17	256.56	256.73		256.74	0.003526	0.37	0.46	2.99	0.30
Reach 1	1117.40*	25-Year	0.23	256.56	256.76		256.77	0.003511	0.41	0.70	16.95	0.31
Reach 1	1117.40*	50-Year	0.26	256.56	256.77		256.77	0.003507	0.42	0.85	17.00	0.31
Reach 1	1117.40*	100-Year	0.32	256.56	256.78		256.79	0.003506	0.44	1.09	17.10	0.32
Reach 1	1112.44*	1.5-Year	0.00	256.54	256.56		256.56	0.003051	0.09	0.05	2.38	0.20
Reach 1	1112.44*	2-Year	0.09	256.54	256.66		256.66	0.003590	0.30	0.30	2.77	0.29
Reach 1	1112.44*	5-Year	0.13	256.54	256.69		256.69	0.003579	0.34	0.38	2.89	0.30
Reach 1	1112.44*	10-Year	0.17	256.54	256.71		256.72	0.003572	0.37	0.46	2.99	0.30
Reach 1	1112.44*	25-Year	0.23	256.54	256.74		256.75	0.003587	0.41	0.69	16.93	0.31
Reach 1	1112.44*	50-Year	0.26	256.54	256.75		256.76	0.003586	0.42	0.83	16.99	0.31
Reach 1	1112.44*	100-Year	0.32	256.54	256.76		256.77	0.003587	0.45	1.07	17.08	0.32
Reach 1	1107.48*	1.5-Year	0.00	256.52	256.54		256.54	0.003003	0.09	0.05	2.38	0.20
Reach 1	1107.48*	2-Year	0.09	256.52	256.64		256.64	0.003557	0.30	0.30	2.78	0.29
Reach 1	1107.48*	5-Year	0.13	256.52	256.67		256.67	0.003550	0.34	0.38	2.89	0.30
Reach 1	1107.48*	10-Year	0.17	256.52	256.69		256.70	0.003546	0.37	0.46	2.99	0.30
Reach 1	1107.48*	25-Year	0.23	256.52	256.72		256.73	0.003554	0.41	0.69	16.92	0.31
Reach 1	1107.48*	50-Year	0.26	256.52	256.73		256.74	0.003555	0.42	0.84	16.98	0.31
Reach 1	1107.48*	100-Year	0.32	256.52	256.74		256.75	0.003554	0.44	1.08	17.08	0.32
Reach 1	1102.51*	1.5-Year	0.00	256.50	256.52		256.52	0.003923	0.09	0.04	2.37	0.23
Reach 1	1102.51*	2-Year	0.09	256.50	256.62		256.63	0.003494	0.30	0.30	2.78	0.29
Reach 1	1102.51*	5-Year	0.13	256.50	256.65		256.66	0.003503	0.34	0.39	2.89	0.30
Reach 1	1102.51*	10-Year	0.17	256.50	256.68		256.68	0.003507	0.37	0.46	2.99	0.30
Reach 1	1102.51*	25-Year	0.23	256.50	256.70		256.71	0.003492	0.41	0.70	16.92	0.31
Reach 1	1102.51*	50-Year	0.26	256.50	256.71		256.72	0.003488	0.42	0.85	16.97	0.31
Reach 1	1102.51*	100-Year	0.32	256.50	256.73		256.74	0.003488	0.44	1.09	17.07	0.31
Reach 1	1097.55*	1.5-Year	0.00	256.49	256.51		256.51	0.003110	0.09	0.05	2.38	0.20
Reach 1	1097.55*	2-Year	0.09	256.49	256.60		256.61	0.003589	0.30	0.30	2.77	0.29
Reach 1	1097.55*	5-Year	0.13	256.49	256.63		256.64	0.003577	0.34	0.38	2.89	0.30
Reach 1	1097.55*	10-Year	0.17	256.49	256.66		256.67	0.003571	0.37	0.46	2.99	0.30
Reach 1	1097.55*	25-Year	0.23	256.49	256.69		256.70	0.003574	0.41	0.69	16.90	0.31
Reach 1	1097.55*	50-Year	0.26	256.49	256.70		256.70	0.003572	0.42	0.84	16.96	0.31
Reach 1	1097.55*	100-Year	0.32	256.49	256.71		256.72	0.003569	0.45	1.08	17.06	0.32
Reach 1	1092.59*	1.5-Year	0.00	256.47	256.49		256.49	0.003003	0.09	0.05	2.38	0.20
Reach 1	1092.59*	2-Year	0.09	256.47	256.59		256.59	0.003499	0.30	0.30	2.78	0.29
Reach 1	1092.59*	5-Year	0.13	256.47	256.62		256.62	0.003508	0.34	0.39	2.89	0.30
Reach 1	1092.59*	10-Year	0.17	256.47	256.64		256.65	0.003513	0.37	0.46	2.99	0.30
Reach 1	1092.59*	25-Year	0.23	256.47	256.67		256.68	0.003499	0.41	0.70	16.90	0.31
Reach 1	1092.59*	50-Year	0.26	256.47	256.68		256.69	0.003496	0.42	0.85	16.95	0.31
Reach 1	1092.59*	100-Year	0.32	256.47	256.69		256.70	0.003497	0.44	1.09	17.05	0.31
Reach 1	1087.62*	1.5-Year	0.00	256.45	256.47		256.47	0.003521	0.09	0.04	2.37	0.22
Reach 1	1087.62*	2-Year	0.09	256.45	256.57		256.57	0.003595	0.30	0.30	2.77	0.29
Reach 1	1087.62*	5-Year	0.13	256.45	256.60		256.60	0.003586	0.34	0.38	2.89	0.30
Reach 1	1087.62*	10-Year	0.17	256.45	256.62		256.63	0.003580	0.37	0.46	2.99	0.30
Reach 1	1087.62*	25-Year	0.23	256.45	256.65		256.66	0.003589	0.41	0.69	16.88	0.31
Reach 1	1087.62*	50-Year	0.26	256.45	256.66		256.67	0.003590	0.42	0.83	16.94	0.31
Reach 1	1087.62*	100-Year	0.32	256.45	256.67		256.68	0.003589	0.45	1.07	17.04	0.32
Reach 1	1082.66*	1.5-Year	0.00	256.43	256.45		256.45	0.004295	0.10	0.04	2.37	0.24
Reach 1	1082.66*	2-Year	0.09	256.43	256.55		256.56	0.003570	0.30	0.30	2.78	0.29
Reach 1	1082.66*	5-Year	0.13	256.43	256.58		256.59	0.003563	0.34	0.38	2.89	0.30
Reach 1	1082.66*	10-Year	0.17	256.43	256.61		256.61	0.003559	0.37	0.46	2.99	0.30
Reach 1	1082.66*	25-Year	0.23	256.43	256.63		256.64	0.003564	0.41	0.69	16.87	0.31
Reach 1	1082.66*	50-Year	0.26	256.43	256.64		256.65	0.003564	0.42	0.84	16.93	0.31
Reach 1	1082.66*	100-Year	0.32	256.43	256.66		256.67	0.003563	0.44	1.08	17.03	0.32
Reach 1	1077.70*	1.5-Year	0.00	256.42	256.43		256.43	0.003498	0.09	0.04	2.37	0.22
Reach 1	1077.70*	2-Year	0.09	256.42	256.53		256.54	0.003525	0.30	0.30	2.78	0.29
Reach 1	1077.70*	5-Year	0.13	256.42	256.56		256.57	0.003528	0.34	0.38	2.89	0.30
Reach 1	1077.70*	10-Year	0.17	256.42	256.59		256.60	0.003529	0.37	0.46	2.99	0.30
Reach 1	1077.70*	25-Year	0.23	256.42	256.62		256.62	0.003512	0.41	0.70	16.86	0.31
Reach 1	1077.70*	50-Year	0.26	256.42	256.63		256.63	0.003510	0.42	0.85	16.92	0.31

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	1077.70*	100-Year	0.32	256.42	256.64		256.65	0.003508	0.44	1.09	17.02	0.32
Reach 1	1072.73*	1.5-Year	0.00	256.40	256.42		256.42	0.004176	0.10	0.04	2.37	0.23
Reach 1	1072.73*	2-Year	0.09	256.40	256.52		256.52	0.003591	0.30	0.30	2.77	0.29
Reach 1	1072.73*	5-Year	0.13	256.40	256.55		256.55	0.003582	0.34	0.38	2.89	0.30
Reach 1	1072.73*	10-Year	0.17	256.40	256.57		256.58	0.003576	0.37	0.46	2.99	0.30
Reach 1	1072.73*	25-Year	0.23	256.40	256.60		256.61	0.003586	0.41	0.69	16.85	0.31
Reach 1	1072.73*	50-Year	0.26	256.40	256.61		256.62	0.003587	0.42	0.83	16.91	0.31
Reach 1	1072.73*	100-Year	0.32	256.40	256.62		256.63	0.003587	0.45	1.07	17.01	0.32
Reach 1	1067.77*	1.5-Year	0.00	256.38	256.40		256.40	0.003384	0.09	0.04	2.38	0.21
Reach 1	1067.77*	2-Year	0.09	256.38	256.50		256.50	0.003566	0.30	0.30	2.78	0.29
Reach 1	1067.77*	5-Year	0.13	256.38	256.53		256.53	0.003558	0.34	0.38	2.89	0.30
Reach 1	1067.77*	10-Year	0.17	256.38	256.55		256.56	0.003555	0.37	0.46	2.99	0.30
Reach 1	1067.77*	25-Year	0.23	256.38	256.58		256.59	0.003558	0.41	0.69	16.84	0.31
Reach 1	1067.77*	50-Year	0.26	256.38	256.59		256.60	0.003558	0.42	0.84	16.90	0.31
Reach 1	1067.77*	100-Year	0.32	256.38	256.60		256.61	0.003557	0.44	1.08	17.00	0.32
Reach 1	1062.81*	1.5-Year	0.00	256.36	256.38		256.38	0.003616	0.09	0.04	2.37	0.22
Reach 1	1062.81*	2-Year	0.09	256.36	256.48		256.49	0.003512	0.30	0.30	2.78	0.29
Reach 1	1062.81*	5-Year	0.13	256.36	256.51		256.52	0.003516	0.34	0.38	2.89	0.30
Reach 1	1062.81*	10-Year	0.17	256.36	256.54		256.54	0.003520	0.37	0.46	2.99	0.30
Reach 1	1062.81*	25-Year	0.23	256.36	256.56		256.57	0.003501	0.41	0.70	16.83	0.31
Reach 1	1062.81*	50-Year	0.26	256.36	256.57		256.58	0.003496	0.42	0.85	16.90	0.31
Reach 1	1062.81*	100-Year	0.32	256.36	256.59		256.59	0.003495	0.44	1.09	17.00	0.31
Reach 1	1057.84*	1.5-Year	0.00	256.35	256.36		256.36	0.004033	0.10	0.04	2.37	0.23
Reach 1	1057.84*	2-Year	0.09	256.35	256.46		256.47	0.003570	0.30	0.30	2.78	0.29
Reach 1	1057.84*	5-Year	0.13	256.35	256.49		256.50	0.003563	0.34	0.38	2.89	0.30
Reach 1	1057.84*	10-Year	0.17	256.35	256.52		256.52	0.003560	0.37	0.46	2.99	0.30
Reach 1	1057.84*	25-Year	0.23	256.35	256.55		256.55	0.003563	0.41	0.69	16.82	0.31
Reach 1	1057.84*	50-Year	0.26	256.35	256.55		256.56	0.003564	0.42	0.84	16.88	0.31
Reach 1	1057.84*	100-Year	0.32	256.35	256.57		256.58	0.003564	0.44	1.08	16.99	0.32
Reach 1	1052.88*	1.5-Year	0.00	256.33	256.35		256.35	0.003440	0.09	0.04	2.38	0.21
Reach 1	1052.88*	2-Year	0.09	256.33	256.45		256.45	0.003525	0.30	0.30	2.78	0.29
Reach 1	1052.88*	5-Year	0.13	256.33	256.48		256.48	0.003528	0.34	0.38	2.89	0.30
Reach 1	1052.88*	10-Year	0.17	256.33	256.50		256.51	0.003530	0.37	0.46	2.99	0.30
Reach 1	1052.88*	25-Year	0.23	256.33	256.53		256.54	0.003511	0.41	0.70	16.81	0.31
Reach 1	1052.88*	50-Year	0.26	256.33	256.54		256.55	0.003510	0.42	0.84	16.87	0.31
Reach 1	1052.88*	100-Year	0.32	256.33	256.55		256.56	0.003508	0.44	1.08	16.98	0.32
Reach 1	1047.92*	1.5-Year	0.00	256.31	256.33		256.33	0.002891	0.09	0.05	2.38	0.20
Reach 1	1047.92*	2-Year	0.09	256.31	256.43		256.43	0.003591	0.30	0.30	2.78	0.29
Reach 1	1047.92*	5-Year	0.13	256.31	256.46		256.46	0.003581	0.34	0.38	2.89	0.30
Reach 1	1047.92*	10-Year	0.17	256.31	256.48		256.49	0.003576	0.37	0.46	2.99	0.30
Reach 1	1047.92*	25-Year	0.23	256.31	256.51		256.52	0.003585	0.41	0.69	16.79	0.31
Reach 1	1047.92*	50-Year	0.26	256.31	256.52		256.53	0.003585	0.42	0.83	16.86	0.31
Reach 1	1047.92*	100-Year	0.32	256.31	256.53		256.54	0.003584	0.45	1.07	16.97	0.32
Reach 1	1042.95*	1.5-Year	0.00	256.29	256.31		256.31	0.003977	0.10	0.04	2.37	0.23
Reach 1	1042.95*	2-Year	0.09	256.29	256.41		256.42	0.003564	0.30	0.30	2.78	0.29
Reach 1	1042.95*	5-Year	0.13	256.29	256.44		256.45	0.003558	0.34	0.38	2.89	0.30
Reach 1	1042.95*	10-Year	0.17	256.29	256.46		256.47	0.003553	0.37	0.46	2.99	0.30
Reach 1	1042.95*	25-Year	0.23	256.29	256.49		256.50	0.003554	0.41	0.69	16.78	0.31
Reach 1	1042.95*	50-Year	0.26	256.29	256.50		256.51	0.003553	0.42	0.84	16.85	0.31
Reach 1	1042.95*	100-Year	0.32	256.29	256.52		256.52	0.003550	0.44	1.08	16.96	0.32
Reach 1	1037.99*	1.5-Year	0.00	256.27	256.29		256.29	0.003296	0.09	0.04	2.38	0.21
Reach 1	1037.99*	2-Year	0.09	256.27	256.39		256.40	0.003510	0.30	0.30	2.78	0.29
Reach 1	1037.99*	5-Year	0.13	256.27	256.42		256.43	0.003516	0.34	0.38	2.89	0.30
Reach 1	1037.99*	10-Year	0.17	256.27	256.45		256.45	0.003518	0.37	0.46	2.99	0.30
Reach 1	1037.99*	25-Year	0.23	256.27	256.48		256.48	0.003492	0.41	0.70	16.78	0.31
Reach 1	1037.99*	50-Year	0.26	256.27	256.48		256.49	0.003485	0.42	0.85	16.85	0.31
Reach 1	1037.99*	100-Year	0.32	256.27	256.50		256.51	0.003481	0.44	1.09	16.96	0.31
Reach 1	1033.03*	1.5-Year	0.00	256.26	256.27		256.27	0.004514	0.10	0.04	2.37	0.24
Reach 1	1033.03*	2-Year	0.09	256.26	256.38		256.38	0.003571	0.30	0.30	2.78	0.29
Reach 1	1033.03*	5-Year	0.13	256.26	256.40		256.41	0.003564	0.34	0.38	2.89	0.30
Reach 1	1033.03*	10-Year	0.17	256.26	256.43		256.44	0.003558	0.37	0.46	2.99	0.30
Reach 1	1033.03*	25-Year	0.23	256.26	256.46		256.47	0.003571	0.41	0.69	16.76	0.31
Reach 1	1033.03*	50-Year	0.26	256.26	256.47		256.47	0.003571	0.42	0.83	16.83	0.31
Reach 1	1033.03*	100-Year	0.32	256.26	256.48		256.49	0.003570	0.45	1.07	16.94	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	1028.06*	1.5-Year	0.00	256.24	256.26		256.26	0.003276	0.09	0.04	2.38	0.21
Reach 1	1028.06*	2-Year	0.09	256.24	256.36		256.36	0.003526	0.30	0.30	2.78	0.29
Reach 1	1028.06*	5-Year	0.13	256.24	256.39		256.39	0.003529	0.34	0.38	2.89	0.30
Reach 1	1028.06*	10-Year	0.17	256.24	256.41		256.42	0.003528	0.37	0.46	2.99	0.30
Reach 1	1028.06*	25-Year	0.23	256.24	256.44		256.45	0.003500	0.41	0.70	16.76	0.31
Reach 1	1028.06*	50-Year	0.26	256.24	256.45		256.46	0.003492	0.42	0.85	16.83	0.31
Reach 1	1028.06*	100-Year	0.32	256.24	256.46		256.47	0.003490	0.44	1.09	16.94	0.31
Reach 1	1023.10*	1.5-Year	0.00	256.22	256.24		256.24	0.004033	0.10	0.04	2.37	0.23
Reach 1	1023.10*	2-Year	0.09	256.22	256.34		256.35	0.003592	0.30	0.30	2.77	0.29
Reach 1	1023.10*	5-Year	0.13	256.22	256.37		256.38	0.003582	0.34	0.38	2.89	0.30
Reach 1	1023.10*	10-Year	0.17	256.22	256.39		256.40	0.003576	0.37	0.46	2.99	0.30
Reach 1	1023.10*	25-Year	0.23	256.22	256.42		256.43	0.003588	0.41	0.69	16.74	0.31
Reach 1	1023.10*	50-Year	0.26	256.22	256.43		256.44	0.003589	0.42	0.83	16.81	0.31
Reach 1	1023.10*	100-Year	0.32	256.22	256.45		256.45	0.003589	0.45	1.07	16.92	0.32
Reach 1	1018.14*	1.5-Year	0.00	256.20	256.22		256.22	0.004280	0.10	0.04	2.37	0.24
Reach 1	1018.14*	2-Year	0.09	256.20	256.32		256.33	0.003567	0.30	0.30	2.78	0.29
Reach 1	1018.14*	5-Year	0.13	256.20	256.35		256.36	0.003558	0.34	0.38	2.89	0.30
Reach 1	1018.14*	10-Year	0.17	256.20	256.38		256.38	0.003555	0.37	0.46	2.99	0.30
Reach 1	1018.14*	25-Year	0.23	256.20	256.40		256.41	0.003560	0.41	0.69	16.73	0.31
Reach 1	1018.14*	50-Year	0.26	256.20	256.41		256.42	0.003560	0.42	0.83	16.80	0.31
Reach 1	1018.14*	100-Year	0.32	256.20	256.43		256.44	0.003561	0.45	1.07	16.92	0.32
Reach 1	1013.17*	1.5-Year	0.00	256.19	256.20		256.20	0.003653	0.09	0.04	2.37	0.22
Reach 1	1013.17*	2-Year	0.09	256.19	256.31		256.31	0.003513	0.30	0.30	2.78	0.29
Reach 1	1013.17*	5-Year	0.13	256.19	256.33		256.34	0.003517	0.34	0.38	2.89	0.30
Reach 1	1013.17*	10-Year	0.17	256.19	256.36		256.37	0.003519	0.37	0.46	2.99	0.30
Reach 1	1013.17*	25-Year	0.23	256.19	256.39		256.40	0.003506	0.41	0.70	16.72	0.31
Reach 1	1013.17*	50-Year	0.26	256.19	256.40		256.40	0.003500	0.42	0.84	16.80	0.31
Reach 1	1013.17*	100-Year	0.32	256.19	256.41		256.42	0.003502	0.44	1.08	16.91	0.32
Reach 1	1008.21*	1.5-Year	0.00	256.17	256.19		256.19	0.003856	0.09	0.04	2.37	0.22
Reach 1	1008.21*	2-Year	0.09	256.17	256.29		256.29	0.003620	0.30	0.30	2.77	0.29
Reach 1	1008.21*	5-Year	0.13	256.17	256.32		256.32	0.003601	0.34	0.38	2.89	0.30
Reach 1	1008.21*	10-Year	0.17	256.17	256.34		256.35	0.003591	0.37	0.46	2.99	0.31
Reach 1	1008.21*	25-Year	0.23	256.17	256.37		256.38	0.003601	0.41	0.69	16.71	0.31
Reach 1	1008.21*	50-Year	0.26	256.17	256.38		256.39	0.003599	0.43	0.83	16.78	0.32
Reach 1	1008.21*	100-Year	0.32	256.17	256.39		256.40	0.003598	0.45	1.07	16.90	0.32
Reach 1	1003.25*	1.5-Year	0.00	256.15	256.17		256.17	0.004482	0.10	0.04	2.37	0.24
Reach 1	1003.25*	2-Year	0.09	256.15	256.27		256.27	0.003557	0.30	0.30	2.78	0.29
Reach 1	1003.25*	5-Year	0.13	256.15	256.30		256.30	0.003549	0.34	0.38	2.89	0.30
Reach 1	1003.25*	10-Year	0.17	256.15	256.32		256.33	0.003545	0.37	0.46	2.99	0.30
Reach 1	1003.25*	25-Year	0.23	256.15	256.35		256.36	0.003554	0.41	0.69	16.70	0.31
Reach 1	1003.25*	50-Year	0.26	256.15	256.36		256.37	0.003551	0.42	0.83	16.77	0.31
Reach 1	1003.25*	100-Year	0.32	256.15	256.37		256.38	0.003554	0.44	1.07	16.89	0.32
Reach 1	998.28*	1.5-Year	0.00	256.13	256.15		256.15	0.003275	0.09	0.04	2.38	0.21
Reach 1	998.28*	2-Year	0.09	256.13	256.25		256.26	0.003494	0.30	0.30	2.78	0.29
Reach 1	998.28*	5-Year	0.13	256.13	256.28		256.29	0.003500	0.34	0.39	2.89	0.30
Reach 1	998.28*	10-Year	0.17	256.13	256.31		256.31	0.003506	0.37	0.46	2.99	0.30
Reach 1	998.28*	25-Year	0.23	256.13	256.33		256.34	0.003490	0.41	0.70	16.70	0.31
Reach 1	998.28*	50-Year	0.26	256.13	256.34		256.35	0.003487	0.42	0.84	16.77	0.31
Reach 1	998.28*	100-Year	0.32	256.13	256.36		256.37	0.003489	0.44	1.08	16.89	0.31
Reach 1	993.32*	1.5-Year	0.00	256.12	256.14		256.14	0.003161	0.09	0.05	2.38	0.21
Reach 1	993.32*	2-Year	0.09	256.12	256.23		256.24	0.003590	0.30	0.30	2.77	0.29
Reach 1	993.32*	5-Year	0.13	256.12	256.26		256.27	0.003576	0.34	0.38	2.89	0.30
Reach 1	993.32*	10-Year	0.17	256.12	256.29		256.30	0.003570	0.37	0.46	2.99	0.30
Reach 1	993.32*	25-Year	0.23	256.12	256.32		256.33	0.003575	0.41	0.69	16.68	0.31
Reach 1	993.32*	50-Year	0.26	256.12	256.33		256.33	0.003571	0.42	0.83	16.75	0.31
Reach 1	993.32*	100-Year	0.32	256.12	256.34		256.35	0.003569	0.45	1.07	16.88	0.32
Reach 1	988.36*	1.5-Year	0.00	256.10	256.12		256.12	0.003923	0.09	0.04	2.37	0.23
Reach 1	988.36*	2-Year	0.09	256.10	256.22		256.22	0.003499	0.30	0.30	2.78	0.29
Reach 1	988.36*	5-Year	0.13	256.10	256.25		256.25	0.003506	0.34	0.39	2.89	0.30
Reach 1	988.36*	10-Year	0.17	256.10	256.27		256.28	0.003511	0.37	0.46	2.99	0.30
Reach 1	988.36*	25-Year	0.23	256.10	256.30		256.31	0.003500	0.41	0.70	16.67	0.31
Reach 1	988.36*	50-Year	0.26	256.10	256.31		256.32	0.003496	0.42	0.84	16.75	0.31
Reach 1	988.36*	100-Year	0.32	256.10	256.32		256.33	0.003496	0.44	1.08	16.87	0.31
Reach 1	983.39*	1.5-Year	0.00	256.08	256.10		256.10	0.003110	0.09	0.05	2.38	0.20
Reach 1	983.39*	2-Year	0.09	256.08	256.20		256.20	0.003593	0.30	0.30	2.77	0.29

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	983.39*	5-Year	0.13	256.08	256.23		256.23	0.003583	0.34	0.38	2.89	0.30
Reach 1	983.39*	10-Year	0.17	256.08	256.25		256.26	0.003577	0.37	0.46	2.99	0.30
Reach 1	983.39*	25-Year	0.23	256.08	256.28		256.29	0.003587	0.41	0.69	16.66	0.31
Reach 1	983.39*	50-Year	0.26	256.08	256.29		256.30	0.003587	0.42	0.83	16.73	0.31
Reach 1	983.39*	100-Year	0.32	256.08	256.30		256.31	0.003587	0.45	1.07	16.86	0.32
Reach 1	978.43*	1.5-Year	0.00	256.06	256.08		256.08	0.002919	0.09	0.05	2.38	0.20
Reach 1	978.43*	2-Year	0.09	256.06	256.18		256.19	0.003564	0.30	0.30	2.78	0.29
Reach 1	978.43*	5-Year	0.13	256.06	256.21		256.22	0.003557	0.34	0.38	2.89	0.30
Reach 1	978.43*	10-Year	0.17	256.06	256.24		256.24	0.003555	0.37	0.46	2.99	0.30
Reach 1	978.43*	25-Year	0.23	256.06	256.26		256.27	0.003558	0.41	0.69	16.65	0.31
Reach 1	978.43*	50-Year	0.26	256.06	256.27		256.28	0.003559	0.42	0.83	16.73	0.31
Reach 1	978.43*	100-Year	0.32	256.06	256.29		256.30	0.003555	0.44	1.07	16.86	0.32
Reach 1	973.47*	1.5-Year	0.00	256.05	256.06		256.06	0.003910	0.09	0.04	2.37	0.23
Reach 1	973.47*	2-Year	0.09	256.05	256.16		256.17	0.003514	0.30	0.30	2.78	0.29
Reach 1	973.47*	5-Year	0.13	256.05	256.19		256.20	0.003517	0.34	0.38	2.89	0.30
Reach 1	973.47*	10-Year	0.17	256.05	256.22		256.23	0.003522	0.37	0.46	2.99	0.30
Reach 1	973.47*	25-Year	0.23	256.05	256.25		256.25	0.003501	0.41	0.70	16.64	0.31
Reach 1	973.47*	50-Year	0.26	256.05	256.26		256.26	0.003500	0.42	0.84	16.72	0.31
Reach 1	973.47*	100-Year	0.32	256.05	256.27		256.28	0.003495	0.44	1.08	16.85	0.31
Reach 1	968.50*	1.5-Year	0.00	256.03	256.05		256.05	0.004310	0.10	0.04	2.37	0.24
Reach 1	968.50*	2-Year	0.09	256.03	256.15		256.15	0.003572	0.30	0.30	2.78	0.29
Reach 1	968.50*	5-Year	0.13	256.03	256.18		256.18	0.003566	0.34	0.38	2.89	0.30
Reach 1	968.50*	10-Year	0.17	256.03	256.20		256.21	0.003564	0.37	0.46	2.99	0.30
Reach 1	968.50*	25-Year	0.23	256.03	256.23		256.24	0.003564	0.41	0.69	16.63	0.31
Reach 1	968.50*	50-Year	0.26	256.03	256.24		256.25	0.003565	0.42	0.83	16.71	0.31
Reach 1	968.50*	100-Year	0.32	256.03	256.25		256.26	0.003561	0.45	1.07	16.84	0.32
Reach 1	963.54*	1.5-Year	0.00	256.01	256.03		256.03	0.003498	0.09	0.04	2.37	0.22
Reach 1	963.54*	2-Year	0.09	256.01	256.13		256.13	0.003525	0.30	0.30	2.78	0.29
Reach 1	963.54*	5-Year	0.13	256.01	256.16		256.16	0.003529	0.34	0.38	2.89	0.30
Reach 1	963.54*	10-Year	0.17	256.01	256.18		256.19	0.003531	0.37	0.46	2.99	0.30
Reach 1	963.54*	25-Year	0.23	256.01	256.21		256.22	0.003513	0.41	0.70	16.62	0.31
Reach 1	963.54*	50-Year	0.26	256.01	256.22		256.23	0.003509	0.42	0.84	16.70	0.31
Reach 1	963.54*	100-Year	0.32	256.01	256.23		256.24	0.003506	0.44	1.08	16.84	0.32
Reach 1	958.58*	1.5-Year	0.00	255.99	256.01		256.01	0.004192	0.10	0.04	2.37	0.23
Reach 1	958.58*	2-Year	0.09	255.99	256.11		256.12	0.003596	0.30	0.30	2.77	0.29
Reach 1	958.58*	5-Year	0.13	255.99	256.14		256.15	0.003587	0.34	0.38	2.89	0.30
Reach 1	958.58*	10-Year	0.17	255.99	256.17		256.17	0.003581	0.37	0.46	2.99	0.30
Reach 1	958.58*	25-Year	0.23	255.99	256.19		256.20	0.003587	0.41	0.69	16.61	0.31
Reach 1	958.58*	50-Year	0.26	255.99	256.20		256.21	0.003588	0.42	0.83	16.69	0.31
Reach 1	958.58*	100-Year	0.32	255.99	256.22		256.23	0.003586	0.45	1.07	16.82	0.32
Reach 1	953.61*	1.5-Year	0.00	255.98	255.99		255.99	0.003384	0.09	0.04	2.38	0.21
Reach 1	953.61*	2-Year	0.09	255.98	256.09		256.10	0.003570	0.30	0.30	2.78	0.29
Reach 1	953.61*	5-Year	0.13	255.98	256.12		256.13	0.003563	0.34	0.38	2.89	0.30
Reach 1	953.61*	10-Year	0.17	255.98	256.15		256.15	0.003559	0.37	0.46	2.99	0.30
Reach 1	953.61*	25-Year	0.23	255.98	256.18		256.18	0.003555	0.41	0.69	16.60	0.31
Reach 1	953.61*	50-Year	0.26	255.98	256.18		256.19	0.003553	0.42	0.83	16.68	0.31
Reach 1	953.61*	100-Year	0.32	255.98	256.20		256.21	0.003550	0.44	1.07	16.82	0.32
Reach 1	948.65*	1.5-Year	0.00	255.96	255.98		255.98	0.003451	0.09	0.04	2.38	0.21
Reach 1	948.65*	2-Year	0.09	255.96	256.08		256.08	0.003525	0.30	0.30	2.78	0.29
Reach 1	948.65*	5-Year	0.13	255.96	256.11		256.11	0.003526	0.34	0.38	2.89	0.30
Reach 1	948.65*	10-Year	0.17	255.96	256.13		256.14	0.003528	0.37	0.46	2.99	0.30
Reach 1	948.65*	25-Year	0.23	255.96	256.16		256.17	0.003497	0.41	0.70	16.60	0.31
Reach 1	948.65*	50-Year	0.26	255.96	256.17		256.18	0.003491	0.42	0.84	16.68	0.31
Reach 1	948.65*	100-Year	0.32	255.96	256.18		256.19	0.003485	0.44	1.08	16.82	0.31
Reach 1	943.69*	1.5-Year	0.00	255.94	255.96		255.96	0.004191	0.10	0.04	2.37	0.23
Reach 1	943.69*	2-Year	0.09	255.94	256.06		256.06	0.003592	0.30	0.30	2.77	0.29
Reach 1	943.69*	5-Year	0.13	255.94	256.09		256.09	0.003581	0.34	0.38	2.89	0.30
Reach 1	943.69*	10-Year	0.17	255.94	256.11		256.12	0.003575	0.37	0.46	2.99	0.30
Reach 1	943.69*	25-Year	0.23	255.94	256.14		256.15	0.003582	0.41	0.68	16.58	0.31
Reach 1	943.69*	50-Year	0.26	255.94	256.15		256.16	0.003584	0.42	0.83	16.66	0.31
Reach 1	943.69*	100-Year	0.32	255.94	256.16		256.17	0.003580	0.45	1.07	16.81	0.32
Reach 1	938.72*	1.5-Year	0.00	255.92	255.94		255.94	0.004295	0.10	0.04	2.37	0.24
Reach 1	938.72*	2-Year	0.09	255.92	256.04		256.05	0.003560	0.30	0.30	2.78	0.29
Reach 1	938.72*	5-Year	0.13	255.92	256.07		256.08	0.003554	0.34	0.38	2.89	0.30
Reach 1	938.72*	10-Year	0.17	255.92	256.09		256.10	0.003548	0.37	0.46	2.99	0.30

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	938.72*	25-Year	0.23	255.92	256.12		256.13	0.003523	0.41	0.70	16.57	0.31
Reach 1	938.72*	50-Year	0.26	255.92	256.13		256.14	0.003513	0.42	0.84	16.66	0.31
Reach 1	938.72*	100-Year	0.32	255.92	256.15		256.15	0.003506	0.44	1.08	16.81	0.32
Reach 1	933.76*	1.5-Year	0.00	255.90	255.92		255.92	0.003992	0.10	0.04	2.37	0.23
Reach 1	933.76*	2-Year	0.09	255.90	256.02		256.03	0.003513	0.30	0.30	2.78	0.29
Reach 1	933.76*	5-Year	0.13	255.90	256.05		256.06	0.003516	0.34	0.38	2.89	0.30
Reach 1	933.76*	10-Year	0.17	255.90	256.08		256.08	0.003520	0.37	0.46	2.99	0.30
Reach 1	933.76*	25-Year	0.23	255.90	256.11		256.11	0.003544	0.41	0.69	16.56	0.31
Reach 1	933.76*	50-Year	0.26	255.90	256.11		256.12	0.003549	0.42	0.83	16.64	0.31
Reach 1	933.76*	100-Year	0.32	255.90	256.13		256.14	0.003552	0.45	1.07	16.79	0.32
Reach 1	928.80*	1.5-Year	0.00	255.89	255.90		255.91	0.004075	0.10	0.04	2.37	0.23
Reach 1	928.80*	2-Year	0.09	255.89	256.01		256.01	0.003569	0.30	0.30	2.77	0.29
Reach 1	928.80*	5-Year	0.13	255.89	256.03		256.04	0.003561	0.34	0.38	2.89	0.30
Reach 1	928.80*	10-Year	0.17	255.89	256.06		256.07	0.003556	0.37	0.46	2.99	0.30
Reach 1	928.80*	25-Year	0.23	255.89	256.09		256.10	0.003563	0.41	0.69	16.55	0.31
Reach 1	928.80*	50-Year	0.26	255.89	256.10		256.11	0.003564	0.42	0.83	16.64	0.31
Reach 1	928.80*	100-Year	0.32	255.89	256.11		256.12	0.003561	0.45	1.07	16.79	0.32
Reach 1	923.83*	1.5-Year	0.00	255.87	255.89		255.89	0.003857	0.09	0.04	2.37	0.22
Reach 1	923.83*	2-Year	0.09	255.87	255.99		255.99	0.003522	0.30	0.30	2.78	0.29
Reach 1	923.83*	5-Year	0.13	255.87	256.02		256.02	0.003523	0.34	0.38	2.89	0.30
Reach 1	923.83*	10-Year	0.17	255.87	256.04		256.05	0.003525	0.37	0.46	2.99	0.30
Reach 1	923.83*	25-Year	0.23	255.87	256.07		256.08	0.003513	0.41	0.70	16.54	0.31
Reach 1	923.83*	50-Year	0.26	255.87	256.08		256.09	0.003508	0.42	0.84	16.64	0.31
Reach 1	923.83*	100-Year	0.32	255.87	256.09		256.10	0.003506	0.44	1.08	16.79	0.32
Reach 1	918.87*	1.5-Year	0.00	255.85	255.87		255.87	0.003740	0.09	0.04	2.37	0.22
Reach 1	918.87*	2-Year	0.09	255.85	255.97		255.98	0.003586	0.30	0.30	2.77	0.29
Reach 1	918.87*	5-Year	0.13	255.85	256.00		256.01	0.003575	0.34	0.38	2.89	0.30
Reach 1	918.87*	10-Year	0.17	255.85	256.02		256.03	0.003568	0.37	0.46	2.99	0.30
Reach 1	918.87*	25-Year	0.23	255.85	256.05		256.06	0.003585	0.41	0.68	16.53	0.31
Reach 1	918.87*	50-Year	0.26	255.85	256.06		256.07	0.003586	0.43	0.83	16.62	0.31
Reach 1	918.87*	100-Year	0.32	255.85	256.08		256.08	0.003586	0.45	1.07	16.77	0.32
Reach 1	913.91*	1.5-Year	0.00	255.83	255.85		255.85	0.003568	0.09	0.04	2.37	0.22
Reach 1	913.91*	2-Year	0.09	255.83	255.95		255.96	0.003552	0.30	0.30	2.78	0.29
Reach 1	913.91*	5-Year	0.13	255.83	255.98		255.99	0.003544	0.34	0.38	2.89	0.30
Reach 1	913.91*	10-Year	0.17	255.83	256.01		256.01	0.003540	0.37	0.46	2.99	0.30
Reach 1	913.91*	25-Year	0.23	255.83	256.04		256.04	0.003550	0.41	0.69	16.52	0.31
Reach 1	913.91*	50-Year	0.26	255.83	256.04		256.05	0.003550	0.42	0.83	16.62	0.31
Reach 1	913.91*	100-Year	0.32	255.83	256.06		256.07	0.003551	0.44	1.07	16.77	0.32
Reach 1	908.94*	1.5-Year	0.00	255.82	255.84		255.84	0.003051	0.09	0.05	2.38	0.20
Reach 1	908.94*	2-Year	0.09	255.82	255.94		255.94	0.003487	0.30	0.30	2.78	0.29
Reach 1	908.94*	5-Year	0.13	255.82	255.96		255.97	0.003496	0.34	0.39	2.89	0.30
Reach 1	908.94*	10-Year	0.17	255.82	255.99		256.00	0.003500	0.37	0.46	2.99	0.30
Reach 1	908.94*	25-Year	0.23	255.82	256.02		256.03	0.003486	0.41	0.70	16.52	0.31
Reach 1	908.94*	50-Year	0.26	255.82	256.03		256.03	0.003483	0.42	0.84	16.61	0.31
Reach 1	908.94*	100-Year	0.32	255.82	256.04		256.05	0.003484	0.44	1.08	16.77	0.31
Reach 1	903.98*	1.5-Year	0.00	255.80	255.82		255.82	0.003544	0.09	0.04	2.37	0.22
Reach 1	903.98*	2-Year	0.09	255.80	255.92		255.92	0.003572	0.30	0.30	2.78	0.29
Reach 1	903.98*	5-Year	0.13	255.80	255.95		255.95	0.003564	0.34	0.38	2.89	0.30
Reach 1	903.98*	10-Year	0.17	255.80	255.97		255.98	0.003560	0.37	0.46	2.99	0.30
Reach 1	903.98*	25-Year	0.23	255.80	256.00		256.01	0.003564	0.41	0.69	16.50	0.31
Reach 1	903.98*	50-Year	0.26	255.80	256.01		256.02	0.003565	0.42	0.83	16.60	0.31
Reach 1	903.98*	100-Year	0.32	255.80	256.02		256.03	0.003562	0.45	1.07	16.76	0.32
Reach 1	899.02*	1.5-Year	0.00	255.78	255.80		255.80	0.003160	0.09	0.05	2.38	0.21
Reach 1	899.02*	2-Year	0.09	255.78	255.90		255.91	0.003525	0.30	0.30	2.78	0.29
Reach 1	899.02*	5-Year	0.13	255.78	255.93		255.94	0.003528	0.34	0.38	2.89	0.30
Reach 1	899.02*	10-Year	0.17	255.78	255.95		255.96	0.003529	0.37	0.46	2.99	0.30
Reach 1	899.02*	25-Year	0.23	255.78	255.98		255.99	0.003514	0.41	0.70	16.50	0.31
Reach 1	899.02*	50-Year	0.26	255.78	255.99		256.00	0.003508	0.42	0.84	16.60	0.31
Reach 1	899.02*	100-Year	0.32	255.78	256.01		256.01	0.003508	0.44	1.08	16.76	0.32
Reach 1	894.05*	1.5-Year	0.00	255.76	255.78		255.78	0.003580	0.09	0.04	2.37	0.22
Reach 1	894.05*	2-Year	0.09	255.76	255.88		255.89	0.003591	0.30	0.30	2.77	0.29
Reach 1	894.05*	5-Year	0.13	255.76	255.91		255.92	0.003581	0.34	0.38	2.89	0.30
Reach 1	894.05*	10-Year	0.17	255.76	255.94		255.94	0.003576	0.37	0.46	2.99	0.30
Reach 1	894.05*	25-Year	0.23	255.76	255.96		255.97	0.003588	0.41	0.69	16.48	0.31
Reach 1	894.05*	50-Year	0.26	255.76	255.97		255.98	0.003588	0.42	0.83	16.58	0.31

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	894.05*	100-Year	0.32	255.76	255.99		256.00	0.003587	0.45	1.07	16.75	0.32
Reach 1	889.09*	1.5-Year	0.00	255.75	255.77		255.77	0.003041	0.09	0.05	2.38	0.20
Reach 1	889.09*	2-Year	0.09	255.75	255.87		255.87	0.003566	0.30	0.30	2.78	0.29
Reach 1	889.09*	5-Year	0.13	255.75	255.89		255.90	0.003558	0.34	0.38	2.89	0.30
Reach 1	889.09*	10-Year	0.17	255.75	255.92		255.93	0.003555	0.37	0.46	2.99	0.30
Reach 1	889.09*	25-Year	0.23	255.75	255.95		255.96	0.003560	0.41	0.69	16.48	0.31
Reach 1	889.09*	50-Year	0.26	255.75	255.96		255.96	0.003559	0.42	0.83	16.58	0.31
Reach 1	889.09*	100-Year	0.32	255.75	255.97		255.98	0.003557	0.45	1.07	16.75	0.32
Reach 1	884.13*	1.5-Year	0.00	255.73	255.75		255.75	0.002956	0.09	0.05	2.38	0.20
Reach 1	884.13*	2-Year	0.09	255.73	255.85		255.85	0.003514	0.30	0.30	2.78	0.29
Reach 1	884.13*	5-Year	0.13	255.73	255.88		255.88	0.003517	0.34	0.38	2.89	0.30
Reach 1	884.13*	10-Year	0.17	255.73	255.90		255.91	0.003521	0.37	0.46	2.99	0.30
Reach 1	884.13*	25-Year	0.23	255.73	255.93		255.94	0.003501	0.41	0.70	16.47	0.31
Reach 1	884.13*	50-Year	0.26	255.73	255.94		255.95	0.003496	0.42	0.84	16.58	0.31
Reach 1	884.13*	100-Year	0.32	255.73	255.95		255.96	0.003496	0.44	1.08	16.75	0.31
Reach 1	879.16*	1.5-Year	0.00	255.71	255.73		255.73	0.004403	0.10	0.04	2.37	0.24
Reach 1	879.16*	2-Year	0.09	255.71	255.83		255.83	0.003574	0.30	0.30	2.78	0.29
Reach 1	879.16*	5-Year	0.13	255.71	255.86		255.86	0.003568	0.34	0.38	2.89	0.30
Reach 1	879.16*	10-Year	0.17	255.71	255.88		255.89	0.003564	0.37	0.46	2.99	0.30
Reach 1	879.16*	25-Year	0.23	255.71	255.91		255.92	0.003566	0.41	0.69	16.46	0.31
Reach 1	879.16*	50-Year	0.26	255.71	255.92		255.93	0.003565	0.42	0.83	16.56	0.31
Reach 1	879.16*	100-Year	0.32	255.71	255.93		255.94	0.003564	0.45	1.07	16.74	0.32
Reach 1	874.20*	1.5-Year	0.00	255.69	255.71		255.71	0.003580	0.09	0.04	2.37	0.22
Reach 1	874.20*	2-Year	0.09	255.69	255.81		255.82	0.003527	0.30	0.30	2.78	0.29
Reach 1	874.20*	5-Year	0.13	255.69	255.84		255.85	0.003531	0.34	0.38	2.89	0.30
Reach 1	874.20*	10-Year	0.17	255.69	255.87		255.87	0.003534	0.37	0.46	2.99	0.30
Reach 1	874.20*	25-Year	0.23	255.69	255.89		255.90	0.003515	0.41	0.70	16.45	0.31
Reach 1	874.20*	50-Year	0.26	255.69	255.90		255.91	0.003510	0.42	0.84	16.56	0.31
Reach 1	874.20*	100-Year	0.32	255.69	255.92		255.93	0.003510	0.44	1.08	16.74	0.32
Reach 1	869.24*	1.5-Year	0.00	255.68	255.69		255.69	0.004310	0.10	0.04	2.37	0.24
Reach 1	869.24*	2-Year	0.09	255.68	255.79		255.80	0.003595	0.30	0.30	2.77	0.29
Reach 1	869.24*	5-Year	0.13	255.68	255.82		255.83	0.003586	0.34	0.38	2.89	0.30
Reach 1	869.24*	10-Year	0.17	255.68	255.85		255.86	0.003580	0.37	0.46	2.99	0.30
Reach 1	869.24*	25-Year	0.23	255.68	255.88		255.89	0.003590	0.41	0.68	16.44	0.31
Reach 1	869.24*	50-Year	0.26	255.68	255.89		255.89	0.003590	0.43	0.83	16.55	0.32
Reach 1	869.24*	100-Year	0.32	255.68	255.90		255.91	0.003589	0.45	1.07	16.73	0.32
Reach 1	864.28*	1.5-Year	0.00	255.66	255.68		255.68	0.003856	0.09	0.04	2.37	0.22
Reach 1	864.28*	2-Year	0.09	255.66	255.78		255.78	0.003572	0.30	0.30	2.78	0.29
Reach 1	864.28*	5-Year	0.13	255.66	255.81		255.81	0.003566	0.34	0.38	2.89	0.30
Reach 1	864.28*	10-Year	0.17	255.66	255.83		255.84	0.003560	0.37	0.46	2.99	0.30
Reach 1	864.28*	25-Year	0.23	255.66	255.86		255.87	0.003564	0.41	0.69	16.43	0.31
Reach 1	864.28*	50-Year	0.26	255.66	255.87		255.88	0.003563	0.42	0.83	16.54	0.31
Reach 1	864.28*	100-Year	0.32	255.66	255.88		255.89	0.003563	0.45	1.07	16.73	0.32
Reach 1	859.31*	1.5-Year	0.00	255.64	255.66		255.66	0.004104	0.10	0.04	2.37	0.23
Reach 1	859.31*	2-Year	0.09	255.64	255.76		255.76	0.003525	0.30	0.30	2.78	0.29
Reach 1	859.31*	5-Year	0.13	255.64	255.79		255.79	0.003526	0.34	0.38	2.89	0.30
Reach 1	859.31*	10-Year	0.17	255.64	255.81		255.82	0.003529	0.37	0.46	2.99	0.30
Reach 1	859.31*	25-Year	0.23	255.64	255.84		255.85	0.003511	0.41	0.70	16.43	0.31
Reach 1	859.31*	50-Year	0.26	255.64	255.85		255.86	0.003506	0.42	0.84	16.55	0.31
Reach 1	859.31*	100-Year	0.32	255.64	255.86		255.87	0.003505	0.44	1.08	16.74	0.32
Reach 1	854.35*	1.5-Year	0.00	255.62	255.64		255.64	0.003130	0.09	0.05	2.38	0.20
Reach 1	854.35*	2-Year	0.09	255.62	255.74		255.75	0.003593	0.30	0.30	2.77	0.29
Reach 1	854.35*	5-Year	0.13	255.62	255.77		255.78	0.003583	0.34	0.38	2.89	0.30
Reach 1	854.35*	10-Year	0.17	255.62	255.80		255.80	0.003577	0.37	0.46	2.99	0.30
Reach 1	854.35*	25-Year	0.23	255.62	255.82		255.83	0.003585	0.41	0.69	16.41	0.31
Reach 1	854.35*	50-Year	0.26	255.62	255.83		255.84	0.003587	0.42	0.83	16.53	0.31
Reach 1	854.35*	100-Year	0.32	255.62	255.85		255.86	0.003583	0.45	1.07	16.73	0.32
Reach 1	849.39*	1.5-Year	0.00	255.61	255.62		255.63	0.002873	0.09	0.05	2.38	0.20
Reach 1	849.39*	2-Year	0.09	255.61	255.72		255.73	0.003564	0.30	0.30	2.78	0.29
Reach 1	849.39*	5-Year	0.13	255.61	255.75		255.76	0.003557	0.34	0.38	2.89	0.30
Reach 1	849.39*	10-Year	0.17	255.61	255.78		255.78	0.003554	0.37	0.46	2.99	0.30
Reach 1	849.39*	25-Year	0.23	255.61	255.81		255.81	0.003550	0.41	0.69	16.41	0.31
Reach 1	849.39*	50-Year	0.26	255.61	255.81		255.82	0.003550	0.42	0.83	16.53	0.31
Reach 1	849.39*	100-Year	0.32	255.61	255.83		255.84	0.003546	0.44	1.07	16.73	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	844.42*	1.5-Year	0.00	255.59	255.60		255.61	0.004250	0.10	0.04	2.37	0.23
Reach 1	844.42*	2-Year	0.09	255.59	255.71		255.71	0.003510	0.30	0.30	2.78	0.29
Reach 1	844.42*	5-Year	0.13	255.59	255.74		255.74	0.003514	0.34	0.38	2.89	0.30
Reach 1	844.42*	10-Year	0.17	255.59	255.76		255.77	0.003517	0.37	0.46	2.99	0.30
Reach 1	844.42*	25-Year	0.23	255.59	255.79		255.80	0.003487	0.41	0.70	16.41	0.31
Reach 1	844.42*	50-Year	0.26	255.59	255.80		255.81	0.003481	0.42	0.84	16.53	0.31
Reach 1	844.42*	100-Year	0.32	255.59	255.81		255.82	0.003476	0.44	1.08	16.74	0.31
Reach 1	839.46*	1.5-Year	0.00	255.57	255.59		255.59	0.003071	0.09	0.05	2.38	0.20
Reach 1	839.46*	2-Year	0.09	255.57	255.69		255.69	0.003573	0.30	0.30	2.77	0.29
Reach 1	839.46*	5-Year	0.13	255.57	255.72		255.72	0.003565	0.34	0.38	2.89	0.30
Reach 1	839.46*	10-Year	0.17	255.57	255.74		255.75	0.003561	0.37	0.46	2.99	0.30
Reach 1	839.46*	25-Year	0.23	255.57	255.77		255.78	0.003566	0.41	0.69	16.39	0.31
Reach 1	839.46*	50-Year	0.26	255.57	255.78		255.79	0.003565	0.42	0.83	16.51	0.31
Reach 1	839.46*	100-Year	0.32	255.57	255.79		255.80	0.003563	0.45	1.07	16.73	0.32
Reach 1	834.50*	1.5-Year	0.00	255.55	255.57		255.57	0.003012	0.09	0.05	2.38	0.20
Reach 1	834.50*	2-Year	0.09	255.55	255.67		255.68	0.003524	0.30	0.30	2.78	0.29
Reach 1	834.50*	5-Year	0.13	255.55	255.70		255.71	0.003526	0.34	0.38	2.89	0.30
Reach 1	834.50*	10-Year	0.17	255.55	255.73		255.73	0.003527	0.37	0.46	2.99	0.30
Reach 1	834.50*	25-Year	0.23	255.55	255.75		255.76	0.003515	0.41	0.69	16.39	0.31
Reach 1	834.50*	50-Year	0.26	255.55	255.76		255.77	0.003509	0.42	0.84	16.52	0.31
Reach 1	834.50*	100-Year	0.32	255.55	255.78		255.79	0.003508	0.44	1.08	16.73	0.32
Reach 1	829.53*	1.5-Year	0.00	255.53	255.55		255.55	0.003616	0.09	0.04	2.37	0.22
Reach 1	829.53*	2-Year	0.09	255.53	255.65		255.66	0.003592	0.30	0.30	2.77	0.29
Reach 1	829.53*	5-Year	0.13	255.53	255.68		255.69	0.003581	0.34	0.38	2.89	0.30
Reach 1	829.53*	10-Year	0.17	255.53	255.71		255.71	0.003574	0.37	0.46	2.99	0.30
Reach 1	829.53*	25-Year	0.23	255.53	255.74		255.74	0.003587	0.41	0.68	16.37	0.31
Reach 1	829.53*	50-Year	0.26	255.53	255.74		255.75	0.003589	0.43	0.82	16.50	0.31
Reach 1	829.53*	100-Year	0.32	255.53	255.76		255.77	0.003587	0.45	1.06	16.73	0.32
Reach 1	824.57*	1.5-Year	0.00	255.52	255.53		255.54	0.004295	0.10	0.04	2.37	0.24
Reach 1	824.57*	2-Year	0.09	255.52	255.64		255.64	0.003561	0.30	0.30	2.78	0.29
Reach 1	824.57*	5-Year	0.13	255.52	255.66		255.67	0.003555	0.34	0.38	2.89	0.30
Reach 1	824.57*	10-Year	0.17	255.52	255.69		255.70	0.003549	0.37	0.46	2.99	0.30
Reach 1	824.57*	25-Year	0.23	255.52	255.72		255.73	0.003557	0.41	0.69	16.37	0.31
Reach 1	824.57*	50-Year	0.26	255.52	255.73		255.74	0.003559	0.42	0.83	16.50	0.31
Reach 1	824.57*	100-Year	0.32	255.52	255.74		255.75	0.003557	0.45	1.07	16.73	0.32
Reach 1	819.61*	1.5-Year	0.00	255.50	255.52		255.52	0.003533	0.09	0.04	2.37	0.22
Reach 1	819.61*	2-Year	0.09	255.50	255.62		255.62	0.003501	0.30	0.30	2.78	0.29
Reach 1	819.61*	5-Year	0.13	255.50	255.65		255.65	0.003509	0.34	0.38	2.89	0.30
Reach 1	819.61*	10-Year	0.17	255.50	255.67		255.68	0.003512	0.37	0.46	2.99	0.30
Reach 1	819.61*	25-Year	0.23	255.50	255.70		255.71	0.003499	0.41	0.70	16.37	0.31
Reach 1	819.61*	50-Year	0.26	255.50	255.71		255.72	0.003497	0.42	0.84	16.51	0.31
Reach 1	819.61*	100-Year	0.32	255.50	255.72		255.73	0.003496	0.44	1.08	16.74	0.32
Reach 1	814.64*	1.5-Year	0.00	255.48	255.50		255.50	0.004176	0.10	0.04	2.37	0.23
Reach 1	814.64*	2-Year	0.09	255.48	255.60		255.61	0.003559	0.30	0.30	2.78	0.29
Reach 1	814.64*	5-Year	0.13	255.48	255.63		255.64	0.003553	0.34	0.38	2.89	0.30
Reach 1	814.64*	10-Year	0.17	255.48	255.65		255.66	0.003551	0.37	0.46	2.99	0.30
Reach 1	814.64*	25-Year	0.23	255.48	255.68		255.69	0.003559	0.41	0.69	16.35	0.31
Reach 1	814.64*	50-Year	0.26	255.48	255.69		255.70	0.003559	0.42	0.83	16.50	0.31
Reach 1	814.64*	100-Year	0.32	255.48	255.71		255.71	0.003557	0.45	1.07	16.74	0.32
Reach 1	809.68*	1.5-Year	0.00	255.46	255.48		255.48	0.003950	0.09	0.04	2.37	0.23
Reach 1	809.68*	2-Year	0.09	255.46	255.58		255.59	0.003499	0.30	0.30	2.78	0.29
Reach 1	809.68*	5-Year	0.13	255.46	255.61		255.62	0.003508	0.34	0.39	2.89	0.30
Reach 1	809.68*	10-Year	0.17	255.46	255.64		255.64	0.003513	0.37	0.46	2.99	0.30
Reach 1	809.68*	25-Year	0.23	255.46	255.67		255.67	0.003501	0.41	0.70	16.35	0.31
Reach 1	809.68*	50-Year	0.26	255.46	255.67		255.68	0.003498	0.42	0.84	16.50	0.31
Reach 1	809.68*	100-Year	0.32	255.46	255.69		255.70	0.003499	0.44	1.08	16.74	0.32
Reach 1	804.72*	1.5-Year	0.00	255.45	255.47		255.47	0.003767	0.09	0.04	2.37	0.22
Reach 1	804.72*	2-Year	0.09	255.45	255.57		255.57	0.003596	0.30	0.30	2.77	0.29
Reach 1	804.72*	5-Year	0.13	255.45	255.59		255.60	0.003587	0.34	0.38	2.89	0.30
Reach 1	804.72*	10-Year	0.17	255.45	255.62		255.63	0.003581	0.37	0.46	2.99	0.30
Reach 1	804.72*	25-Year	0.23	255.45	255.65		255.66	0.003591	0.41	0.68	16.34	0.31
Reach 1	804.72*	50-Year	0.26	255.45	255.66		255.67	0.003593	0.43	0.83	16.49	0.32
Reach 1	804.72*	100-Year	0.32	255.45	255.67		255.68	0.003589	0.45	1.06	16.74	0.32
Reach 1	799.75*	1.5-Year	0.00	255.43	255.45		255.45	0.003556	0.09	0.04	2.37	0.22
Reach 1	799.75*	2-Year	0.09	255.43	255.55		255.55	0.003570	0.30	0.30	2.78	0.29

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	799.75*	5-Year	0.13	255.43	255.58		255.58	0.003563	0.34	0.38	2.89	0.30
Reach 1	799.75*	10-Year	0.17	255.43	255.60		255.61	0.003559	0.37	0.46	2.99	0.30
Reach 1	799.75*	25-Year	0.23	255.43	255.63		255.64	0.003563	0.41	0.69	16.33	0.31
Reach 1	799.75*	50-Year	0.26	255.43	255.64		255.65	0.003565	0.42	0.83	16.49	0.31
Reach 1	799.75*	100-Year	0.32	255.43	255.65		255.66	0.003563	0.45	1.07	16.75	0.32
Reach 1	794.79*	1.5-Year	0.00	255.41	255.43		255.43	0.003641	0.09	0.04	2.37	0.22
Reach 1	794.79*	2-Year	0.09	255.41	255.53		255.53	0.003525	0.30	0.30	2.78	0.29
Reach 1	794.79*	5-Year	0.13	255.41	255.56		255.57	0.003528	0.34	0.38	2.89	0.30
Reach 1	794.79*	10-Year	0.17	255.41	255.58		255.59	0.003529	0.37	0.46	2.99	0.30
Reach 1	794.79*	25-Year	0.23	255.41	255.61		255.62	0.003514	0.41	0.70	16.34	0.31
Reach 1	794.79*	50-Year	0.26	255.41	255.62		255.63	0.003513	0.42	0.84	16.50	0.31
Reach 1	794.79*	100-Year	0.32	255.41	255.64		255.64	0.003509	0.44	1.08	16.76	0.32
Reach 1	789.83*	1.5-Year	0.00	255.39	255.41		255.41	0.003533	0.09	0.04	2.37	0.22
Reach 1	789.83*	2-Year	0.09	255.39	255.51		255.52	0.003591	0.30	0.30	2.77	0.29
Reach 1	789.83*	5-Year	0.13	255.39	255.54		255.55	0.003581	0.34	0.38	2.89	0.30
Reach 1	789.83*	10-Year	0.17	255.39	255.57		255.57	0.003576	0.37	0.46	2.99	0.30
Reach 1	789.83*	25-Year	0.23	255.39	255.59		255.60	0.003588	0.41	0.68	16.32	0.31
Reach 1	789.83*	50-Year	0.26	255.39	255.60		255.61	0.003590	0.43	0.83	16.48	0.32
Reach 1	789.83*	100-Year	0.32	255.39	255.62		255.63	0.003588	0.45	1.06	16.76	0.32
Reach 1	784.86*	1.5-Year	0.00	255.38	255.39		255.39	0.004176	0.10	0.04	2.37	0.23
Reach 1	784.86*	2-Year	0.09	255.38	255.50		255.50	0.003566	0.30	0.30	2.78	0.29
Reach 1	784.86*	5-Year	0.13	255.38	255.52		255.53	0.003558	0.34	0.38	2.89	0.30
Reach 1	784.86*	10-Year	0.17	255.38	255.55		255.56	0.003555	0.37	0.46	2.99	0.30
Reach 1	784.86*	25-Year	0.23	255.38	255.58		255.59	0.003560	0.41	0.69	16.32	0.31
Reach 1	784.86*	50-Year	0.26	255.38	255.59		255.59	0.003557	0.42	0.83	16.49	0.31
Reach 1	784.86*	100-Year	0.32	255.38	255.60		255.61	0.003557	0.45	1.07	16.77	0.32
Reach 1	779.90*	1.5-Year	0.00	255.36	255.38		255.38	0.003991	0.10	0.04	2.37	0.23
Reach 1	779.90*	2-Year	0.09	255.36	255.48		255.48	0.003512	0.30	0.30	2.78	0.29
Reach 1	779.90*	5-Year	0.13	255.36	255.51		255.51	0.003516	0.34	0.38	2.89	0.30
Reach 1	779.90*	10-Year	0.17	255.36	255.53		255.54	0.003520	0.37	0.46	2.99	0.30
Reach 1	779.90*	25-Year	0.23	255.36	255.56		255.57	0.003502	0.41	0.70	16.33	0.31
Reach 1	779.90*	50-Year	0.26	255.36	255.57		255.58	0.003499	0.42	0.84	16.50	0.31
Reach 1	779.90*	100-Year	0.32	255.36	255.58		255.59	0.003496	0.44	1.08	16.79	0.32
Reach 1	774.94*	1.5-Year	0.00	255.34	255.36		255.36	0.004161	0.10	0.04	2.37	0.23
Reach 1	774.94*	2-Year	0.09	255.34	255.46		255.46	0.003570	0.30	0.30	2.78	0.29
Reach 1	774.94*	5-Year	0.13	255.34	255.49		255.49	0.003563	0.34	0.38	2.89	0.30
Reach 1	774.94*	10-Year	0.17	255.34	255.51		255.52	0.003560	0.37	0.46	2.99	0.30
Reach 1	774.94*	25-Year	0.23	255.34	255.54		255.55	0.003562	0.41	0.69	16.31	0.31
Reach 1	774.94*	50-Year	0.26	255.34	255.55		255.56	0.003563	0.42	0.83	16.49	0.31
Reach 1	774.94*	100-Year	0.32	255.34	255.57		255.57	0.003563	0.45	1.07	16.80	0.32
Reach 1	769.97*	1.5-Year	0.00	255.32	255.34		255.34	0.003818	0.09	0.04	2.37	0.22
Reach 1	769.97*	2-Year	0.09	255.32	255.44		255.45	0.003526	0.30	0.30	2.78	0.29
Reach 1	769.97*	5-Year	0.13	255.32	255.47		255.48	0.003529	0.34	0.38	2.89	0.30
Reach 1	769.97*	10-Year	0.17	255.32	255.50		255.50	0.003531	0.37	0.46	2.99	0.30
Reach 1	769.97*	25-Year	0.23	255.32	255.52		255.53	0.003512	0.41	0.70	16.32	0.31
Reach 1	769.97*	50-Year	0.26	255.32	255.53		255.54	0.003510	0.42	0.84	16.50	0.31
Reach 1	769.97*	100-Year	0.32	255.32	255.55		255.56	0.003508	0.44	1.08	16.81	0.32
Reach 1	765.01*	1.5-Year	0.00	255.31	255.32		255.32	0.003778	0.09	0.04	2.37	0.22
Reach 1	765.01*	2-Year	0.09	255.31	255.42		255.43	0.003591	0.30	0.30	2.77	0.29
Reach 1	765.01*	5-Year	0.13	255.31	255.45		255.46	0.003581	0.34	0.38	2.89	0.30
Reach 1	765.01*	10-Year	0.17	255.31	255.48		255.49	0.003576	0.37	0.46	2.99	0.30
Reach 1	765.01*	25-Year	0.23	255.31	255.51		255.52	0.003583	0.41	0.68	16.30	0.31
Reach 1	765.01*	50-Year	0.26	255.31	255.52		255.52	0.003584	0.42	0.83	16.49	0.31
Reach 1	765.01*	100-Year	0.32	255.31	255.53		255.54	0.003583	0.45	1.07	16.82	0.32
Reach 1	760.05*	1.5-Year	0.00	255.29	255.31		255.31	0.003545	0.09	0.04	2.37	0.22
Reach 1	760.05*	2-Year	0.09	255.29	255.41		255.41	0.003565	0.30	0.30	2.78	0.29
Reach 1	760.05*	5-Year	0.13	255.29	255.44		255.44	0.003559	0.34	0.38	2.89	0.30
Reach 1	760.05*	10-Year	0.17	255.29	255.46		255.47	0.003554	0.37	0.46	2.99	0.30
Reach 1	760.05*	25-Year	0.23	255.29	255.49		255.50	0.003552	0.41	0.69	16.30	0.31
Reach 1	760.05*	50-Year	0.26	255.29	255.50		255.51	0.003552	0.42	0.83	16.51	0.31
Reach 1	760.05*	100-Year	0.32	255.29	255.51		255.52	0.003549	0.44	1.07	16.84	0.32
Reach 1	755.08*	1.5-Year	0.00	255.27	255.29		255.29	0.003201	0.09	0.04	2.38	0.21
Reach 1	755.08*	2-Year	0.09	255.27	255.39		255.39	0.003510	0.30	0.30	2.78	0.29
Reach 1	755.08*	5-Year	0.13	255.27	255.42		255.42	0.003516	0.34	0.38	2.89	0.30
Reach 1	755.08*	10-Year	0.17	255.27	255.44		255.45	0.003518	0.37	0.46	2.99	0.30

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	755.08*	25-Year	0.23	255.27	255.47		255.48	0.003488	0.41	0.70	16.32	0.31
Reach 1	755.08*	50-Year	0.26	255.27	255.48		255.49	0.003482	0.42	0.84	16.52	0.31
Reach 1	755.08*	100-Year	0.32	255.27	255.49		255.50	0.003478	0.44	1.08	16.87	0.31
Reach 1	750.12*	1.5-Year	0.00	255.25	255.27		255.27	0.003556	0.09	0.04	2.37	0.22
Reach 1	750.12*	2-Year	0.09	255.25	255.37		255.38	0.003571	0.30	0.30	2.78	0.29
Reach 1	750.12*	5-Year	0.13	255.25	255.40		255.41	0.003564	0.34	0.38	2.89	0.30
Reach 1	750.12*	10-Year	0.17	255.25	255.43		255.43	0.003560	0.37	0.46	2.99	0.30
Reach 1	750.12*	25-Year	0.23	255.25	255.45		255.46	0.003565	0.41	0.69	16.30	0.31
Reach 1	750.12*	50-Year	0.26	255.25	255.46		255.47	0.003564	0.42	0.83	16.52	0.31
Reach 1	750.12*	100-Year	0.32	255.25	255.48		255.49	0.003563	0.45	1.07	16.88	0.32
Reach 1	745.16*	1.5-Year	0.00	255.24	255.25		255.25	0.003130	0.09	0.05	2.38	0.20
Reach 1	745.16*	2-Year	0.09	255.24	255.35		255.36	0.003526	0.30	0.30	2.78	0.29
Reach 1	745.16*	5-Year	0.13	255.24	255.38		255.39	0.003529	0.34	0.38	2.89	0.30
Reach 1	745.16*	10-Year	0.17	255.24	255.41		255.42	0.003530	0.37	0.46	2.99	0.30
Reach 1	745.16*	25-Year	0.23	255.24	255.44		255.44	0.003516	0.41	0.69	16.31	0.31
Reach 1	745.16*	50-Year	0.26	255.24	255.45		255.45	0.003513	0.42	0.84	16.54	0.31
Reach 1	745.16*	100-Year	0.32	255.24	255.46		255.47	0.003511	0.44	1.08	16.92	0.32
Reach 1	740.19*	1.5-Year	0.00	255.22	255.24		255.24	0.003592	0.09	0.04	2.37	0.22
Reach 1	740.19*	2-Year	0.09	255.22	255.34		255.34	0.003592	0.30	0.30	2.77	0.29
Reach 1	740.19*	5-Year	0.13	255.22	255.37		255.37	0.003582	0.34	0.38	2.89	0.30
Reach 1	740.19*	10-Year	0.17	255.22	255.39		255.40	0.003576	0.37	0.46	2.99	0.30
Reach 1	740.19*	25-Year	0.23	255.22	255.42		255.43	0.003589	0.41	0.68	16.29	0.31
Reach 1	740.19*	50-Year	0.26	255.22	255.43		255.44	0.003590	0.43	0.82	16.53	0.32
Reach 1	740.19*	100-Year	0.32	255.22	255.44		255.45	0.003589	0.45	1.06	16.94	0.32
Reach 1	735.23*	1.5-Year	0.00	255.20	255.22		255.22	0.003022	0.09	0.05	2.38	0.20
Reach 1	735.23*	2-Year	0.09	255.20	255.32		255.32	0.003565	0.30	0.30	2.78	0.29
Reach 1	735.23*	5-Year	0.13	255.20	255.35		255.35	0.003558	0.34	0.38	2.89	0.30
Reach 1	735.23*	10-Year	0.17	255.20	255.37		255.38	0.003555	0.37	0.46	2.99	0.30
Reach 1	735.23*	25-Year	0.23	255.20	255.40		255.41	0.003561	0.41	0.69	16.30	0.31
Reach 1	735.23*	50-Year	0.26	255.20	255.41		255.42	0.003561	0.42	0.83	16.56	0.31
Reach 1	735.23*	100-Year	0.32	255.20	255.42		255.43	0.003562	0.45	1.07	16.98	0.32
Reach 1	730.27*	1.5-Year	0.00	255.18	255.20		255.20	0.003728	0.09	0.04	2.37	0.22
Reach 1	730.27*	2-Year	0.09	255.18	255.30		255.31	0.003511	0.30	0.30	2.78	0.29
Reach 1	730.27*	5-Year	0.13	255.18	255.33		255.34	0.003517	0.34	0.38	2.89	0.30
Reach 1	730.27*	10-Year	0.17	255.18	255.36		255.36	0.003519	0.37	0.46	2.99	0.30
Reach 1	730.27*	25-Year	0.23	255.18	255.38		255.39	0.003508	0.41	0.69	16.32	0.31
Reach 1	730.27*	50-Year	0.26	255.18	255.39		255.40	0.003502	0.42	0.84	16.58	0.31
Reach 1	730.27*	100-Year	0.32	255.18	255.41		255.42	0.003505	0.44	1.08	17.02	0.32
Reach 1	725.30*	1.5-Year	0.00	255.17	255.18		255.18	0.004434	0.10	0.04	2.37	0.24
Reach 1	725.30*	2-Year	0.09	255.17	255.28		255.29	0.003618	0.30	0.30	2.77	0.29
Reach 1	725.30*	5-Year	0.13	255.17	255.31		255.32	0.003600	0.34	0.38	2.89	0.30
Reach 1	725.30*	10-Year	0.17	255.17	255.34		255.34	0.003591	0.37	0.46	2.99	0.31
Reach 1	725.30*	25-Year	0.23	255.17	255.37		255.37	0.003600	0.41	0.68	16.30	0.31
Reach 1	725.30*	50-Year	0.26	255.17	255.37		255.38	0.003600	0.43	0.82	16.58	0.32
Reach 1	725.30*	100-Year	0.32	255.17	255.39		255.40	0.003598	0.45	1.07	17.04	0.32
Reach 1	720.34*	1.5-Year	0.00	255.15	255.17		255.17	0.003384	0.09	0.04	2.38	0.21
Reach 1	720.34*	2-Year	0.09	255.15	255.27		255.27	0.003554	0.30	0.30	2.78	0.29
Reach 1	720.34*	5-Year	0.13	255.15	255.29		255.30	0.003546	0.34	0.38	2.89	0.30
Reach 1	720.34*	10-Year	0.17	255.15	255.32		255.33	0.003543	0.37	0.46	2.99	0.30
Reach 1	720.34*	25-Year	0.23	255.15	255.35		255.36	0.003551	0.41	0.69	16.32	0.31
Reach 1	720.34*	50-Year	0.26	255.15	255.36		255.37	0.003552	0.42	0.83	16.61	0.31
Reach 1	720.34*	100-Year	0.32	255.15	255.37		255.38	0.003555	0.45	1.07	17.08	0.32
Reach 1	715.38*	1.5-Year	0.00	255.13	255.15		255.15	0.003509	0.09	0.04	2.37	0.22
Reach 1	715.38*	2-Year	0.09	255.13	255.25		255.25	0.003486	0.30	0.30	2.78	0.29
Reach 1	715.38*	5-Year	0.13	255.13	255.28		255.28	0.003496	0.34	0.39	2.89	0.30
Reach 1	715.38*	10-Year	0.17	255.13	255.30		255.31	0.003501	0.37	0.46	2.99	0.30
Reach 1	715.38*	25-Year	0.23	255.13	255.33		255.34	0.003488	0.41	0.70	16.35	0.31
Reach 1	715.38*	50-Year	0.26	255.13	255.34		255.35	0.003485	0.42	0.84	16.65	0.31
Reach 1	715.38*	100-Year	0.32	255.13	255.35		255.36	0.003491	0.44	1.08	17.14	0.31
Reach 1	710.41*	1.5-Year	0.00	255.11	255.13		255.13	0.004132	0.10	0.04	2.37	0.23
Reach 1	710.41*	2-Year	0.09	255.11	255.23		255.24	0.003572	0.30	0.30	2.78	0.29
Reach 1	710.41*	5-Year	0.13	255.11	255.26		255.27	0.003566	0.34	0.38	2.89	0.30
Reach 1	710.41*	10-Year	0.17	255.11	255.28		255.29	0.003562	0.37	0.46	2.99	0.30
Reach 1	710.41*	25-Year	0.23	255.11	255.31		255.32	0.003566	0.41	0.69	16.35	0.31
Reach 1	710.41*	50-Year	0.26	255.11	255.32		255.33	0.003565	0.42	0.83	16.68	0.31

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	710.41*	100-Year	0.32	255.11	255.34		255.34	0.003571	0.45	1.07	17.17	0.32
Reach 1	705.45*	1.5-Year	0.00	255.09	255.11		255.11	0.003830	0.09	0.04	2.37	0.22
Reach 1	705.45*	2-Year	0.09	255.09	255.21		255.22	0.003525	0.30	0.30	2.78	0.29
Reach 1	705.45*	5-Year	0.13	255.09	255.24		255.25	0.003526	0.34	0.38	2.89	0.30
Reach 1	705.45*	10-Year	0.17	255.09	255.27		255.27	0.003530	0.37	0.46	2.99	0.30
Reach 1	705.45*	25-Year	0.23	255.09	255.30		255.30	0.003516	0.41	0.70	16.38	0.31
Reach 1	705.45*	50-Year	0.26	255.09	255.30		255.31	0.003511	0.42	0.84	16.72	0.31
Reach 1	705.45*	100-Year	0.32	255.09	255.32		255.33	0.003519	0.44	1.08	17.20	0.32
Reach 1	700.49*	1.5-Year	0.00	255.08	255.10		255.10	0.003766	0.09	0.04	2.37	0.22
Reach 1	700.49*	2-Year	0.09	255.08	255.20		255.20	0.003593	0.30	0.30	2.77	0.29
Reach 1	700.49*	5-Year	0.13	255.08	255.22		255.23	0.003583	0.34	0.38	2.89	0.30
Reach 1	700.49*	10-Year	0.17	255.08	255.25		255.26	0.003579	0.37	0.46	2.99	0.30
Reach 1	700.49*	25-Year	0.23	255.08	255.28		255.29	0.003588	0.41	0.68	16.38	0.31
Reach 1	700.49*	50-Year	0.26	255.08	255.29		255.30	0.003591	0.43	0.83	16.75	0.32
Reach 1	700.49*	100-Year	0.32	255.08	255.30		255.31	0.003595	0.45	1.07	17.20	0.32
Reach 1	695.52*	1.5-Year	0.00	255.06	255.08		255.08	0.003556	0.09	0.04	2.37	0.22
Reach 1	695.52*	2-Year	0.09	255.06	255.18		255.18	0.003566	0.30	0.30	2.78	0.29
Reach 1	695.52*	5-Year	0.13	255.06	255.21		255.21	0.003559	0.34	0.38	2.89	0.30
Reach 1	695.52*	10-Year	0.17	255.06	255.23		255.24	0.003556	0.37	0.46	2.99	0.30
Reach 1	695.52*	25-Year	0.23	255.06	255.26		255.27	0.003560	0.41	0.69	16.41	0.31
Reach 1	695.52*	50-Year	0.26	255.06	255.27		255.28	0.003561	0.42	0.83	16.81	0.31
Reach 1	695.52*	100-Year	0.32	255.06	255.28		255.29	0.003566	0.45	1.07	17.19	0.32
Reach 1	690.56*	1.5-Year	0.00	255.04	255.06		255.06	0.003201	0.09	0.04	2.38	0.21
Reach 1	690.56*	2-Year	0.09	255.04	255.16		255.17	0.003516	0.30	0.30	2.78	0.29
Reach 1	690.56*	5-Year	0.13	255.04	255.19		255.20	0.003519	0.34	0.38	2.89	0.30
Reach 1	690.56*	10-Year	0.17	255.04	255.21		255.22	0.003524	0.37	0.46	2.99	0.30
Reach 1	690.56*	25-Year	0.23	255.04	255.24		255.25	0.003505	0.41	0.70	16.46	0.31
Reach 1	690.56*	50-Year	0.26	255.04	255.25		255.26	0.003503	0.42	0.84	16.89	0.31
Reach 1	690.56*	100-Year	0.32	255.04	255.27		255.27	0.003507	0.44	1.08	17.19	0.32
Reach 1	685.60*	1.5-Year	0.00	255.02	255.04		255.04	0.003556	0.09	0.04	2.37	0.22
Reach 1	685.60*	2-Year	0.09	255.02	255.14		255.15	0.003574	0.30	0.30	2.78	0.29
Reach 1	685.60*	5-Year	0.13	255.02	255.17		255.18	0.003568	0.34	0.38	2.89	0.30
Reach 1	685.60*	10-Year	0.17	255.02	255.20		255.20	0.003566	0.37	0.46	2.99	0.30
Reach 1	685.60*	25-Year	0.23	255.02	255.22		255.23	0.003566	0.41	0.69	16.48	0.31
Reach 1	685.60*	50-Year	0.26	255.02	255.23		255.24	0.003569	0.42	0.83	16.96	0.31
Reach 1	685.60*	100-Year	0.32	255.02	255.25		255.26	0.003572	0.45	1.07	17.18	0.32
Reach 1	680.63*	1.5-Year	0.00	255.01	255.03		255.03	0.003120	0.09	0.05	2.38	0.20
Reach 1	680.63*	2-Year	0.09	255.01	255.13		255.13	0.003527	0.30	0.30	2.78	0.29
Reach 1	680.63*	5-Year	0.13	255.01	255.15		255.16	0.003532	0.34	0.38	2.89	0.30
Reach 1	680.63*	10-Year	0.17	255.01	255.18		255.19	0.003537	0.37	0.46	2.99	0.30
Reach 1	680.63*	25-Year	0.23	255.01	255.21		255.22	0.003516	0.41	0.70	16.53	0.31
Reach 1	680.63*	50-Year	0.26	255.01	255.22		255.22	0.003516	0.42	0.84	17.04	0.31
Reach 1	680.63*	100-Year	0.32	255.01	255.23		255.24	0.003521	0.44	1.08	17.18	0.32
Reach 1	675.67*	1.5-Year	0.00	254.99	255.01		255.01	0.003592	0.09	0.04	2.37	0.22
Reach 1	675.67*	2-Year	0.09	254.99	255.11		255.11	0.003597	0.30	0.30	2.77	0.29
Reach 1	675.67*	5-Year	0.13	254.99	255.14		255.14	0.003589	0.34	0.38	2.89	0.30
Reach 1	675.67*	10-Year	0.17	254.99	255.16		255.17	0.003587	0.37	0.46	2.99	0.31
Reach 1	675.67*	25-Year	0.23	254.99	255.19		255.20	0.003590	0.41	0.68	16.58	0.31
Reach 1	675.67*	50-Year	0.26	254.99	255.20		255.21	0.003596	0.43	0.83	17.09	0.32
Reach 1	675.67*	100-Year	0.32	254.99	255.21		255.22	0.003597	0.45	1.07	17.18	0.32
Reach 1	670.71*	1.5-Year	0.00	254.97	254.99		254.99	0.003032	0.09	0.05	2.38	0.20
Reach 1	670.71*	2-Year	0.09	254.97	255.09		255.09	0.003574	0.30	0.30	2.78	0.29
Reach 1	670.71*	5-Year	0.13	254.97	255.12		255.12	0.003568	0.34	0.38	2.89	0.30
Reach 1	670.71*	10-Year	0.17	254.97	255.14		255.15	0.003568	0.37	0.46	2.99	0.30
Reach 1	670.71*	25-Year	0.23	254.97	255.17		255.18	0.003561	0.41	0.69	16.66	0.31
Reach 1	670.71*	50-Year	0.26	254.97	255.18		255.19	0.003567	0.42	0.83	17.11	0.31
Reach 1	670.71*	100-Year	0.32	254.97	255.19		255.20	0.003566	0.45	1.08	17.17	0.32
Reach 1	665.74*	1.5-Year	0.00	254.95	254.97		254.97	0.003012	0.09	0.05	2.38	0.20
Reach 1	665.74*	2-Year	0.09	254.95	255.07		255.08	0.003531	0.30	0.30	2.78	0.29
Reach 1	665.74*	5-Year	0.13	254.95	255.10		255.11	0.003536	0.34	0.38	2.89	0.30
Reach 1	665.74*	10-Year	0.17	254.95	255.13		255.13	0.003543	0.37	0.46	2.99	0.30
Reach 1	665.74*	25-Year	0.23	254.95	255.15		255.16	0.003508	0.41	0.70	16.80	0.31
Reach 1	665.74*	50-Year	0.26	254.95	255.16		255.17	0.003505	0.42	0.84	17.11	0.31
Reach 1	665.74*	100-Year	0.32	254.95	255.18		255.19	0.003502	0.44	1.09	17.17	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	660.78*	1.5-Year	0.00	254.94	254.95		254.95	0.004450	0.10	0.04	2.37	0.24
Reach 1	660.78*	2-Year	0.09	254.94	255.05		255.06	0.003599	0.30	0.30	2.77	0.29
Reach 1	660.78*	5-Year	0.13	254.94	255.08		255.09	0.003595	0.34	0.38	2.89	0.30
Reach 1	660.78*	10-Year	0.17	254.94	255.11		255.12	0.003597	0.37	0.46	2.99	0.31
Reach 1	660.78*	25-Year	0.23	254.94	255.14		255.15	0.003599	0.41	0.68	16.89	0.31
Reach 1	660.78*	50-Year	0.26	254.94	255.15		255.15	0.003602	0.43	0.83	17.10	0.32
Reach 1	660.78*	100-Year	0.32	254.94	255.16		255.17	0.003601	0.45	1.07	17.16	0.32
Reach 1	655.82*	1.5-Year	0.00	254.92	254.94		254.94	0.003498	0.09	0.04	2.37	0.22
Reach 1	655.82*	2-Year	0.09	254.92	255.04		255.04	0.003576	0.30	0.30	2.77	0.29
Reach 1	655.82*	5-Year	0.13	254.92	255.07		255.07	0.003578	0.34	0.38	2.89	0.30
Reach 1	655.82*	10-Year	0.17	254.92	255.09		255.10	0.003584	0.37	0.46	2.99	0.30
Reach 1	655.82*	25-Year	0.23	254.92	255.12		255.13	0.003578	0.41	0.69	17.05	0.31
Reach 1	655.82*	50-Year	0.26	254.92	255.13		255.14	0.003577	0.42	0.83	17.10	0.31
Reach 1	655.82*	100-Year	0.32	254.92	255.14		255.15	0.003578	0.45	1.07	17.16	0.32
Reach 1	650.85*	1.5-Year	0.00	254.90	254.92		254.92	0.004341	0.10	0.04	2.37	0.24
Reach 1	650.85*	2-Year	0.09	254.90	255.02		255.02	0.003534	0.30	0.30	2.78	0.29
Reach 1	650.85*	5-Year	0.13	254.90	255.05		255.05	0.003551	0.34	0.38	2.89	0.30
Reach 1	650.85*	10-Year	0.17	254.90	255.07		255.08	0.003566	0.37	0.46	2.99	0.30
Reach 1	650.85*	25-Year	0.23	254.90	255.10		255.11	0.003511	0.41	0.70	17.06	0.31
Reach 1	650.85*	50-Year	0.26	254.90	255.11		255.12	0.003500	0.42	0.85	17.09	0.31
Reach 1	650.85*	100-Year	0.32	254.90	255.12		255.13	0.003499	0.44	1.09	17.15	0.32
Reach 1	645.89*	1.5-Year	0.00	254.88	254.90		254.90	0.003041	0.09	0.05	2.38	0.20
Reach 1	645.89*	2-Year	0.09	254.88	255.00		255.01	0.003611	0.30	0.30	2.77	0.29
Reach 1	645.89*	5-Year	0.13	254.88	255.03		255.04	0.003620	0.34	0.38	2.89	0.30
Reach 1	645.89*	10-Year	0.17	254.88	255.05		255.06	0.003631	0.37	0.45	2.99	0.31
Reach 1	645.89*	25-Year	0.23	254.88	255.08		255.09	0.003600	0.41	0.68	17.05	0.31
Reach 1	645.89*	50-Year	0.26	254.88	255.09		255.10	0.003597	0.43	0.83	17.09	0.32
Reach 1	645.89*	100-Year	0.32	254.88	255.11		255.12	0.003595	0.45	1.07	17.15	0.32
Reach 1	640.93*	1.5-Year	0.00	254.86	254.88		254.89	0.002946	0.09	0.05	2.38	0.20
Reach 1	640.93*	2-Year	0.09	254.86	254.98		254.99	0.003594	0.30	0.30	2.77	0.29
Reach 1	640.93*	5-Year	0.13	254.86	255.01		255.02	0.003616	0.34	0.38	2.89	0.30
Reach 1	640.93*	10-Year	0.17	254.86	255.04		255.04	0.003635	0.37	0.45	2.99	0.31
Reach 1	640.93*	25-Year	0.23	254.86	255.07		255.07	0.003578	0.41	0.69	17.05	0.31
Reach 1	640.93*	50-Year	0.26	254.86	255.07		255.08	0.003563	0.42	0.84	17.08	0.31
Reach 1	640.93*	100-Year	0.32	254.86	255.09		255.10	0.003562	0.44	1.08	17.14	0.32
Reach 1	635.96*	1.5-Year	0.00	254.85	254.87		254.87	0.003604	0.09	0.04	2.37	0.22
Reach 1	635.96*	2-Year	0.09	254.85	254.97		254.97	0.003756	0.30	0.30	2.77	0.30
Reach 1	635.96*	5-Year	0.13	254.85	254.99		255.00	0.003761	0.35	0.38	2.88	0.31
Reach 1	635.96*	10-Year	0.17	254.85	255.02		255.03	0.003766	0.38	0.45	2.98	0.31
Reach 1	635.96*	25-Year	0.23	254.85	255.05		255.06	0.003736	0.42	0.66	17.04	0.32
Reach 1	635.96*	50-Year	0.26	254.85	255.06		255.06	0.003726	0.43	0.81	17.08	0.32
Reach 1	635.96*	100-Year	0.32	254.85	255.07		255.08	0.003722	0.45	1.05	17.13	0.32
Reach 1	631	1.5-Year	0.00	254.83	254.85		254.85	0.003150	0.09	0.05	2.38	0.21
Reach 1	631	2-Year	0.09	254.83	254.95		254.95	0.003820	0.30	0.30	2.77	0.30
Reach 1	631	5-Year	0.13	254.83	254.97		254.98	0.003817	0.35	0.37	2.88	0.31
Reach 1	631	10-Year	0.17	254.83	255.00		255.01	0.003815	0.38	0.45	2.98	0.31
Reach 1	631	25-Year	0.23	254.83	255.03		255.04	0.003818	0.42	0.65	17.03	0.32
Reach 1	631	50-Year	0.26	254.83	255.04		255.05	0.003813	0.43	0.80	17.07	0.32
Reach 1	631	100-Year	0.32	254.83	255.05		255.06	0.003811	0.46	1.04	17.12	0.33
Reach 1	625.04*	1.5-Year	0.00	254.81	254.82		254.83	0.004075	0.10	0.04	2.37	0.23
Reach 1	625.04*	2-Year	0.09	254.81	254.92		254.93	0.003826	0.31	0.29	2.76	0.30
Reach 1	625.04*	5-Year	0.13	254.81	254.95		254.96	0.003824	0.35	0.37	2.88	0.31
Reach 1	625.04*	10-Year	0.17	254.81	254.98		254.98	0.003820	0.38	0.45	2.97	0.31
Reach 1	625.04*	25-Year	0.23	254.81	255.01		255.01	0.003820	0.42	0.65	17.01	0.32
Reach 1	625.04*	50-Year	0.26	254.81	255.01		255.02	0.003807	0.43	0.80	17.09	0.32
Reach 1	625.04*	100-Year	0.32	254.81	255.03		255.04	0.003798	0.46	1.04	17.14	0.33
Reach 1	619.08*	1.5-Year	0.00	254.78	254.80		254.80	0.003433	0.09	0.04	2.37	0.21
Reach 1	619.08*	2-Year	0.09	254.78	254.90		254.91	0.003856	0.31	0.29	2.76	0.30
Reach 1	619.08*	5-Year	0.13	254.78	254.93		254.94	0.003845	0.35	0.37	2.87	0.31
Reach 1	619.08*	10-Year	0.17	254.78	254.95		254.96	0.003841	0.38	0.45	2.97	0.31
Reach 1	619.08*	25-Year	0.23	254.78	254.98		254.99	0.003849	0.42	0.64	16.49	0.32
Reach 1	619.08*	50-Year	0.26	254.78	254.99		255.00	0.003848	0.44	0.79	17.05	0.33
Reach 1	619.08*	100-Year	0.32	254.78	255.01		255.01	0.003831	0.46	1.04	17.16	0.33
Reach 1	613.12*	1.5-Year	0.00	254.76	254.78		254.78	0.004599	0.10	0.04	2.36	0.24
Reach 1	613.12*	2-Year	0.09	254.76	254.88		254.88	0.003835	0.31	0.29	2.75	0.30

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	613.12*	5-Year	0.13	254.76	254.91		254.91	0.003831	0.35	0.37	2.87	0.31
Reach 1	613.12*	10-Year	0.17	254.76	254.93		254.94	0.003829	0.38	0.45	2.97	0.31
Reach 1	613.12*	25-Year	0.23	254.76	254.96		254.97	0.003828	0.42	0.65	16.35	0.32
Reach 1	613.12*	50-Year	0.26	254.76	254.97		254.98	0.003827	0.44	0.79	16.77	0.32
Reach 1	613.12*	100-Year	0.32	254.76	254.98		254.99	0.003816	0.46	1.04	17.18	0.33
Reach 1	607.15*	1.5-Year	0.00	254.74	254.76		254.76	0.003616	0.09	0.04	2.36	0.22
Reach 1	607.15*	2-Year	0.09	254.74	254.85		254.86	0.003874	0.31	0.29	2.75	0.30
Reach 1	607.15*	5-Year	0.13	254.74	254.88		254.89	0.003863	0.35	0.37	2.86	0.31
Reach 1	607.15*	10-Year	0.17	254.74	254.91		254.92	0.003859	0.38	0.44	2.96	0.32
Reach 1	607.15*	25-Year	0.23	254.74	254.94		254.95	0.003864	0.42	0.64	16.28	0.32
Reach 1	607.15*	50-Year	0.26	254.74	254.95		254.95	0.003865	0.44	0.79	16.59	0.33
Reach 1	607.15*	100-Year	0.32	254.74	254.96		254.97	0.003866	0.46	1.03	17.09	0.33
Reach 1	601.19*	1.5-Year	0.00	254.72	254.73		254.73	0.003592	0.09	0.04	2.35	0.22
Reach 1	601.19*	2-Year	0.09	254.72	254.83		254.84	0.003869	0.31	0.29	2.74	0.30
Reach 1	601.19*	5-Year	0.13	254.72	254.86		254.87	0.003865	0.35	0.37	2.86	0.31
Reach 1	601.19*	10-Year	0.17	254.72	254.88		254.89	0.003859	0.38	0.44	2.96	0.32
Reach 1	601.19*	25-Year	0.23	254.72	254.91		254.92	0.003863	0.42	0.65	16.27	0.32
Reach 1	601.19*	50-Year	0.26	254.72	254.92		254.93	0.003863	0.44	0.79	16.53	0.33
Reach 1	601.19*	100-Year	0.32	254.72	254.94		254.95	0.003863	0.46	1.03	16.94	0.33
Reach 1	595.23*	1.5-Year	0.00	254.69	254.71		254.71	0.003549	0.09	0.04	2.35	0.22
Reach 1	595.23*	2-Year	0.09	254.69	254.81		254.81	0.003961	0.31	0.29	2.74	0.30
Reach 1	595.23*	5-Year	0.13	254.69	254.84		254.84	0.003931	0.35	0.37	2.85	0.31
Reach 1	595.23*	10-Year	0.17	254.69	254.86		254.87	0.003909	0.38	0.44	2.95	0.32
Reach 1	595.23*	25-Year	0.23	254.69	254.89		254.90	0.003947	0.43	0.63	16.26	0.33
Reach 1	595.23*	50-Year	0.26	254.69	254.90		254.91	0.003959	0.44	0.78	16.48	0.33
Reach 1	595.23*	100-Year	0.32	254.69	254.91		254.92	0.003961	0.46	1.01	16.82	0.33
Reach 1	589.27*	1.5-Year	0.00	254.67	254.69		254.69	0.003561	0.09	0.04	2.34	0.22
Reach 1	589.27*	2-Year	0.09	254.67	254.79		254.79	0.003845	0.31	0.29	2.74	0.30
Reach 1	589.27*	5-Year	0.13	254.67	254.81		254.82	0.003834	0.35	0.37	2.85	0.31
Reach 1	589.27*	10-Year	0.17	254.67	254.84		254.85	0.003826	0.38	0.44	2.95	0.31
Reach 1	589.27*	25-Year	0.23	254.67	254.87		254.88	0.003834	0.42	0.65	16.31	0.32
Reach 1	589.27*	50-Year	0.26	254.67	254.88		254.89	0.003837	0.44	0.80	16.48	0.33
Reach 1	589.27*	100-Year	0.32	254.67	254.89		254.90	0.003839	0.46	1.03	16.78	0.33
Reach 1	583.31*	1.5-Year	0.00	254.64	254.66		254.66	0.003530	0.09	0.04	2.34	0.22
Reach 1	583.31*	2-Year	0.09	254.64	254.76		254.77	0.003815	0.31	0.29	2.73	0.30
Reach 1	583.31*	5-Year	0.13	254.64	254.79		254.80	0.003811	0.35	0.37	2.85	0.31
Reach 1	583.31*	10-Year	0.17	254.64	254.82		254.82	0.003809	0.38	0.44	2.95	0.31
Reach 1	583.31*	25-Year	0.23	254.64	254.84		254.85	0.003828	0.42	0.65	16.33	0.32
Reach 1	583.31*	50-Year	0.26	254.64	254.85		254.86	0.003835	0.44	0.80	16.49	0.33
Reach 1	583.31*	100-Year	0.32	254.64	254.87		254.88	0.003841	0.46	1.03	16.74	0.33
Reach 1	577.35*	1.5-Year	0.00	254.62	254.64		254.64	0.004109	0.10	0.04	2.33	0.23
Reach 1	577.35*	2-Year	0.09	254.62	254.74		254.74	0.003821	0.31	0.29	2.73	0.30
Reach 1	577.35*	5-Year	0.13	254.62	254.77		254.77	0.003817	0.35	0.37	2.84	0.31
Reach 1	577.35*	10-Year	0.17	254.62	254.79		254.80	0.003814	0.38	0.44	2.94	0.31
Reach 1	577.35*	25-Year	0.23	254.62	254.82		254.83	0.003818	0.42	0.66	16.36	0.32
Reach 1	577.35*	50-Year	0.26	254.62	254.83		254.84	0.003823	0.44	0.80	16.50	0.32
Reach 1	577.35*	100-Year	0.32	254.62	254.84		254.85	0.003829	0.46	1.04	16.73	0.33
Reach 1	571.38*	1.5-Year	0.00	254.60	254.62		254.62	0.003283	0.09	0.04	2.33	0.21
Reach 1	571.38*	2-Year	0.09	254.60	254.72		254.72	0.003850	0.31	0.29	2.72	0.30
Reach 1	571.38*	5-Year	0.13	254.60	254.75		254.75	0.003841	0.35	0.37	2.84	0.31
Reach 1	571.38*	10-Year	0.17	254.60	254.77		254.78	0.003835	0.38	0.44	2.94	0.31
Reach 1	571.38*	25-Year	0.23	254.60	254.80		254.81	0.003847	0.42	0.66	16.40	0.32
Reach 1	571.38*	50-Year	0.26	254.60	254.81		254.82	0.003852	0.44	0.80	16.52	0.33
Reach 1	571.38*	100-Year	0.32	254.60	254.82		254.83	0.003858	0.46	1.03	16.73	0.33
Reach 1	565.42*	1.5-Year	0.00	254.58	254.59		254.59	0.004088	0.10	0.04	2.32	0.23
Reach 1	565.42*	2-Year	0.09	254.58	254.69		254.70	0.003823	0.31	0.29	2.72	0.30
Reach 1	565.42*	5-Year	0.13	254.58	254.72		254.73	0.003820	0.35	0.37	2.84	0.31
Reach 1	565.42*	10-Year	0.17	254.58	254.75		254.75	0.003818	0.38	0.44	2.93	0.31
Reach 1	565.42*	25-Year	0.23	254.58	254.78		254.78	0.003819	0.42	0.66	16.44	0.32
Reach 1	565.42*	50-Year	0.26	254.58	254.78		254.79	0.003823	0.44	0.80	16.55	0.32
Reach 1	565.42*	100-Year	0.32	254.58	254.80		254.81	0.003827	0.46	1.04	16.74	0.33
Reach 1	559.46*	1.5-Year	0.00	254.55	254.57		254.57	0.003309	0.09	0.04	2.32	0.21
Reach 1	559.46*	2-Year	0.09	254.55	254.67		254.68	0.003850	0.31	0.29	2.72	0.30
Reach 1	559.46*	5-Year	0.13	254.55	254.70		254.71	0.003842	0.35	0.37	2.83	0.31
Reach 1	559.46*	10-Year	0.17	254.55	254.72		254.73	0.003838	0.38	0.44	2.93	0.32

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	559.46*	25-Year	0.23	254.55	254.75		254.76	0.003840	0.42	0.66	16.47	0.32
Reach 1	559.46*	50-Year	0.26	254.55	254.76		254.77	0.003841	0.44	0.80	16.57	0.33
Reach 1	559.46*	100-Year	0.32	254.55	254.78		254.78	0.003843	0.46	1.04	16.75	0.33
Reach 1	553.50*	1.5-Year	0.00	254.53	254.55		254.55	0.004079	0.10	0.04	2.31	0.23
Reach 1	553.50*	2-Year	0.09	254.53	254.65		254.65	0.003827	0.31	0.29	2.71	0.30
Reach 1	553.50*	5-Year	0.13	254.53	254.68		254.68	0.003826	0.35	0.37	2.83	0.31
Reach 1	553.50*	10-Year	0.17	254.53	254.70		254.71	0.003825	0.38	0.44	2.93	0.31
Reach 1	553.50*	25-Year	0.23	254.53	254.73		254.74	0.003837	0.42	0.66	16.51	0.32
Reach 1	553.50*	50-Year	0.26	254.53	254.74		254.75	0.003843	0.44	0.80	16.60	0.33
Reach 1	553.50*	100-Year	0.32	254.53	254.75		254.76	0.003848	0.46	1.04	16.77	0.33
Reach 1	547.54*	1.5-Year	0.00	254.51	254.53		254.53	0.003301	0.09	0.04	2.31	0.21
Reach 1	547.54*	2-Year	0.09	254.51	254.63		254.63	0.003850	0.31	0.29	2.71	0.30
Reach 1	547.54*	5-Year	0.13	254.51	254.65		254.66	0.003842	0.35	0.37	2.82	0.31
Reach 1	547.54*	10-Year	0.17	254.51	254.68		254.69	0.003839	0.38	0.44	2.92	0.32
Reach 1	547.54*	25-Year	0.23	254.51	254.71		254.72	0.003837	0.42	0.66	16.55	0.32
Reach 1	547.54*	50-Year	0.26	254.51	254.72		254.72	0.003840	0.44	0.81	16.64	0.33
Reach 1	547.54*	100-Year	0.32	254.51	254.73		254.74	0.003842	0.46	1.04	16.79	0.33
Reach 1	541.58*	1.5-Year	0.00	254.48	254.50		254.50	0.004084	0.10	0.04	2.30	0.23
Reach 1	541.58*	2-Year	0.09	254.48	254.60		254.61	0.003830	0.31	0.29	2.70	0.30
Reach 1	541.58*	5-Year	0.13	254.48	254.63		254.64	0.003830	0.35	0.37	2.82	0.31
Reach 1	541.58*	10-Year	0.17	254.48	254.66		254.66	0.003835	0.38	0.44	2.92	0.32
Reach 1	541.58*	25-Year	0.23	254.48	254.68		254.69	0.003838	0.42	0.66	16.59	0.32
Reach 1	541.58*	50-Year	0.26	254.48	254.69		254.70	0.003844	0.44	0.80	16.67	0.33
Reach 1	541.58*	100-Year	0.32	254.48	254.71		254.72	0.003850	0.46	1.04	16.81	0.33
Reach 1	535.62*	1.5-Year	0.00	254.46	254.48		254.48	0.003381	0.09	0.04	2.30	0.21
Reach 1	535.62*	2-Year	0.09	254.46	254.58		254.58	0.003853	0.31	0.29	2.70	0.30
Reach 1	535.62*	5-Year	0.13	254.46	254.61		254.61	0.003851	0.35	0.37	2.82	0.31
Reach 1	535.62*	10-Year	0.17	254.46	254.63		254.64	0.003857	0.39	0.44	2.91	0.32
Reach 1	535.62*	25-Year	0.23	254.46	254.66		254.67	0.003841	0.42	0.67	16.63	0.32
Reach 1	535.62*	50-Year	0.26	254.46	254.67		254.68	0.003839	0.44	0.81	16.71	0.33
Reach 1	535.62*	100-Year	0.32	254.46	254.68		254.69	0.003844	0.46	1.04	16.84	0.33
Reach 1	529.65*	1.5-Year	0.00	254.44	254.46		254.46	0.004670	0.10	0.04	2.29	0.25
Reach 1	529.65*	2-Year	0.09	254.44	254.56		254.56	0.003857	0.31	0.29	2.69	0.30
Reach 1	529.65*	5-Year	0.13	254.44	254.58		254.59	0.003860	0.35	0.37	2.81	0.31
Reach 1	529.65*	10-Year	0.17	254.44	254.61		254.62	0.003872	0.39	0.44	2.91	0.32
Reach 1	529.65*	25-Year	0.23	254.44	254.64		254.65	0.003855	0.43	0.66	16.67	0.32
Reach 1	529.65*	50-Year	0.26	254.44	254.65		254.66	0.003855	0.44	0.81	16.75	0.33
Reach 1	529.65*	100-Year	0.32	254.44	254.66		254.67	0.003863	0.46	1.04	16.87	0.33
Reach 1	523.69*	1.5-Year	0.00	254.42	254.43		254.43	0.003594	0.09	0.04	2.29	0.22
Reach 1	523.69*	2-Year	0.09	254.42	254.53		254.54	0.003896	0.31	0.29	2.69	0.30
Reach 1	523.69*	5-Year	0.13	254.42	254.56		254.57	0.003902	0.35	0.37	2.80	0.31
Reach 1	523.69*	10-Year	0.17	254.42	254.59		254.59	0.003917	0.39	0.44	2.90	0.32
Reach 1	523.69*	25-Year	0.23	254.42	254.62		254.62	0.003882	0.43	0.66	16.71	0.32
Reach 1	523.69*	50-Year	0.26	254.42	254.62		254.63	0.003874	0.44	0.81	16.78	0.33
Reach 1	523.69*	100-Year	0.32	254.42	254.64		254.65	0.003874	0.46	1.04	16.90	0.33
Reach 1	517.73*	1.5-Year	0.00	254.39	254.41		254.41	0.003587	0.09	0.04	2.29	0.22
Reach 1	517.73*	2-Year	0.09	254.39	254.51		254.51	0.003949	0.31	0.29	2.68	0.30
Reach 1	517.73*	5-Year	0.13	254.39	254.54		254.54	0.003952	0.35	0.37	2.80	0.31
Reach 1	517.73*	10-Year	0.17	254.39	254.56		254.57	0.003971	0.39	0.44	2.90	0.32
Reach 1	517.73*	25-Year	0.23	254.39	254.59		254.60	0.003958	0.43	0.65	16.75	0.33
Reach 1	517.73*	50-Year	0.26	254.39	254.60		254.61	0.003954	0.44	0.80	16.82	0.33
Reach 1	517.73*	100-Year	0.32	254.39	254.61		254.62	0.003957	0.47	1.03	16.93	0.33
Reach 1	511.77*	1.5-Year	0.00	254.37	254.39		254.39	0.003588	0.09	0.04	2.28	0.22
Reach 1	511.77*	2-Year	0.09	254.37	254.49		254.49	0.003916	0.31	0.29	2.68	0.30
Reach 1	511.77*	5-Year	0.13	254.37	254.51		254.52	0.003941	0.35	0.37	2.79	0.31
Reach 1	511.77*	10-Year	0.17	254.37	254.54		254.55	0.003980	0.39	0.44	2.89	0.32
Reach 1	511.77*	25-Year	0.23	254.37	254.57		254.58	0.003902	0.43	0.66	16.80	0.33
Reach 1	511.77*	50-Year	0.26	254.37	254.58		254.59	0.003862	0.44	0.81	16.87	0.33
Reach 1	511.77*	100-Year	0.32	254.37	254.59		254.60	0.003856	0.46	1.05	16.97	0.33
Reach 1	505.81*	1.5-Year	0.00	254.34	254.36		254.36	0.003522	0.09	0.04	2.28	0.22
Reach 1	505.81*	2-Year	0.09	254.34	254.46		254.47	0.003961	0.31	0.29	2.68	0.30
Reach 1	505.81*	5-Year	0.13	254.34	254.49		254.50	0.004005	0.36	0.36	2.79	0.31
Reach 1	505.81*	10-Year	0.17	254.34	254.52		254.52	0.004073	0.39	0.43	2.88	0.32
Reach 1	505.81*	25-Year	0.23	254.34	254.54		254.55	0.003996	0.43	0.65	16.84	0.33
Reach 1	505.81*	50-Year	0.26	254.34	254.55		254.56	0.003906	0.44	0.81	16.90	0.33

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	505.81*	100-Year	0.32	254.34	254.57		254.58	0.003889	0.46	1.04	17.01	0.33
Reach 1	499.85*	1.5-Year	0.00	254.32	254.34		254.34	0.003347	0.09	0.04	2.28	0.21
Reach 1	499.85*	2-Year	0.09	254.32	254.44		254.44	0.004095	0.32	0.28	2.67	0.31
Reach 1	499.85*	5-Year	0.13	254.32	254.47		254.47	0.004152	0.36	0.36	2.78	0.32
Reach 1	499.85*	10-Year	0.17	254.32	254.49		254.50	0.004261	0.40	0.43	2.87	0.33
Reach 1	499.85*	25-Year	0.23	254.32	254.52		254.53	0.004203	0.44	0.62	16.87	0.34
Reach 1	499.85*	50-Year	0.26	254.32	254.53		254.54	0.003998	0.44	0.80	16.94	0.33
Reach 1	499.85*	100-Year	0.32	254.32	254.54		254.55	0.003947	0.46	1.04	17.04	0.33
Reach 1	493.88*	1.5-Year	0.00	254.30	254.32		254.32	0.004071	0.10	0.04	2.27	0.23
Reach 1	493.88*	2-Year	0.09	254.30	254.41		254.42	0.004270	0.32	0.28	2.66	0.31
Reach 1	493.88*	5-Year	0.13	254.30	254.44		254.45	0.004462	0.37	0.35	2.76	0.33
Reach 1	493.88*	10-Year	0.17	254.30	254.46		254.47	0.004631	0.41	0.41	2.85	0.34
Reach 1	493.88*	25-Year	0.23	254.30	254.49		254.50	0.004790	0.46	0.54	16.88	0.36
Reach 1	493.88*	50-Year	0.26	254.30	254.50		254.51	0.004341	0.46	0.75	16.96	0.34
Reach 1	493.88*	100-Year	0.32	254.30	254.52		254.53	0.004129	0.47	1.01	17.07	0.34
Reach 1	487.92*	1.5-Year	0.00	254.28	254.30		254.30	0.003411	0.09	0.04	2.27	0.21
Reach 1	487.92*	2-Year	0.09	254.28	254.39		254.39	0.004878	0.33	0.27	2.64	0.33
Reach 1	487.92*	5-Year	0.13	254.28	254.41		254.42	0.005217	0.39	0.33	2.73	0.36
Reach 1	487.92*	10-Year	0.17	254.28	254.43		254.44	0.005495	0.43	0.39	2.81	0.37
Reach 1	487.92*	25-Year	0.23	254.28	254.46		254.47	0.005841	0.49	0.47	2.92	0.39
Reach 1	487.92*	50-Year	0.26	254.28	254.47		254.49	0.005586	0.50	0.60	16.95	0.39
Reach 1	487.92*	100-Year	0.32	254.28	254.49		254.50	0.004926	0.51	0.92	17.07	0.37
Reach 1	481.96*	1.5-Year	0.00	254.25	254.27		254.27	0.004598	0.10	0.04	2.25	0.24
Reach 1	481.96*	2-Year	0.09	254.25	254.34		254.35	0.010143	0.42	0.21	2.54	0.47
Reach 1	481.96*	5-Year	0.13	254.25	254.37		254.38	0.009654	0.48	0.27	2.64	0.47
Reach 1	481.96*	10-Year	0.17	254.25	254.38		254.40	0.010291	0.53	0.32	2.70	0.50
Reach 1	481.96*	25-Year	0.23	254.25	254.41		254.42	0.011110	0.61	0.38	2.79	0.53
Reach 1	481.96*	50-Year	0.26	254.25	254.42		254.44	0.009837	0.61	0.43	2.86	0.50
Reach 1	481.96*	100-Year	0.32	254.25	254.43		254.46	0.012150	0.70	0.46	2.90	0.56
Reach 1	476	1.5-Year	0.00	254.23	254.24		254.24	0.006426	0.08	0.02	2.22	0.26
Reach 1	476	2-Year	0.04	254.23	254.30		254.31	0.004190	0.24	0.17	2.47	0.29
Reach 1	476	5-Year	0.07	254.23	254.33		254.34	0.004166	0.29	0.24	2.58	0.30
Reach 1	476	10-Year	0.09	254.23	254.35		254.35	0.004156	0.32	0.28	2.65	0.31
Reach 1	476	25-Year	0.12	254.23	254.37		254.38	0.004151	0.35	0.34	2.74	0.32
Reach 1	476	50-Year	0.15	254.23	254.39		254.40	0.004011	0.38	0.40	2.82	0.32
Reach 1	476	100-Year	0.16	254.23	254.40		254.41	0.003709	0.37	0.43	2.86	0.31
Reach 1	470.00*	1.5-Year	0.00	254.21	254.22		254.22	0.002911	0.06	0.03	2.23	0.18
Reach 1	470.00*	2-Year	0.04	254.21	254.28		254.28	0.004087	0.24	0.17	2.47	0.29
Reach 1	470.00*	5-Year	0.07	254.21	254.31		254.31	0.004090	0.29	0.24	2.59	0.30
Reach 1	470.00*	10-Year	0.09	254.21	254.32		254.33	0.004096	0.32	0.28	2.65	0.31
Reach 1	470.00*	25-Year	0.12	254.21	254.34		254.35	0.004096	0.35	0.34	2.74	0.32
Reach 1	470.00*	50-Year	0.15	254.21	254.37		254.37	0.003830	0.37	0.41	2.83	0.31
Reach 1	470.00*	100-Year	0.16	254.21	254.38		254.39	0.003407	0.36	0.44	2.88	0.30
Reach 1	464.00*	1.5-Year	0.00	254.18	254.19		254.19	0.005526	0.07	0.02	2.23	0.24
Reach 1	464.00*	2-Year	0.04	254.18	254.25		254.26	0.004174	0.24	0.17	2.48	0.29
Reach 1	464.00*	5-Year	0.07	254.18	254.28		254.29	0.004178	0.29	0.24	2.59	0.30
Reach 1	464.00*	10-Year	0.09	254.18	254.30		254.30	0.004175	0.32	0.28	2.65	0.31
Reach 1	464.00*	25-Year	0.12	254.18	254.32		254.33	0.004160	0.35	0.34	2.74	0.32
Reach 1	464.00*	50-Year	0.15	254.18	254.34		254.35	0.003650	0.36	0.41	2.84	0.31
Reach 1	464.00*	100-Year	0.16	254.18	254.36		254.37	0.003075	0.35	0.45	2.90	0.28
Reach 1	458.00*	1.5-Year	0.00	254.16	254.17		254.17	0.003321	0.06	0.02	2.24	0.19
Reach 1	458.00*	2-Year	0.04	254.16	254.23		254.23	0.004182	0.24	0.17	2.48	0.29
Reach 1	458.00*	5-Year	0.07	254.16	254.26		254.26	0.004159	0.29	0.24	2.59	0.30
Reach 1	458.00*	10-Year	0.09	254.16	254.27		254.28	0.004157	0.32	0.28	2.65	0.31
Reach 1	458.00*	25-Year	0.12	254.16	254.29		254.30	0.004118	0.35	0.34	2.74	0.32
Reach 1	458.00*	50-Year	0.15	254.16	254.32		254.33	0.003308	0.35	0.43	2.86	0.29
Reach 1	458.00*	100-Year	0.16	254.16	254.34		254.35	0.002599	0.33	0.48	2.93	0.26
Reach 1	452.00*	1.5-Year	0.00	254.13	254.14		254.14	0.004598	0.07	0.02	2.24	0.22
Reach 1	452.00*	2-Year	0.04	254.13	254.20		254.21	0.004087	0.24	0.17	2.48	0.29
Reach 1	452.00*	5-Year	0.07	254.13	254.23		254.24	0.004091	0.29	0.24	2.59	0.30
Reach 1	452.00*	10-Year	0.09	254.13	254.25		254.25	0.004099	0.32	0.28	2.66	0.31
Reach 1	452.00*	25-Year	0.12	254.13	254.27		254.28	0.004023	0.35	0.34	2.74	0.31
Reach 1	452.00*	50-Year	0.15	254.13	254.31		254.31	0.002860	0.34	0.45	2.88	0.27
Reach 1	452.00*	100-Year	0.16	254.13	254.33		254.34	0.002055	0.31	0.58	17.03	0.24

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	446.00*	1.5-Year	0.00	254.11	254.12		254.12	0.003835	0.06	0.02	2.24	0.20
Reach 1	446.00*	2-Year	0.04	254.11	254.18		254.18	0.004169	0.24	0.17	2.48	0.29
Reach 1	446.00*	5-Year	0.07	254.11	254.21		254.21	0.004177	0.29	0.24	2.59	0.30
Reach 1	446.00*	10-Year	0.09	254.11	254.22		254.23	0.004174	0.32	0.28	2.66	0.31
Reach 1	446.00*	25-Year	0.12	254.11	254.25		254.25	0.004012	0.35	0.35	2.75	0.31
Reach 1	446.00*	50-Year	0.15	254.11	254.29		254.30	0.002398	0.32	0.47	2.92	0.25
Reach 1	446.00*	100-Year	0.16	254.11	254.32		254.32	0.001339	0.26	0.84	17.12	0.19
Reach 1	440.00*	1.5-Year	0.00	254.08	254.09		254.09	0.004207	0.07	0.02	2.25	0.21
Reach 1	440.00*	2-Year	0.04	254.08	254.15		254.16	0.004185	0.24	0.17	2.49	0.29
Reach 1	440.00*	5-Year	0.07	254.08	254.18		254.19	0.004155	0.29	0.24	2.60	0.30
Reach 1	440.00*	10-Year	0.09	254.08	254.20		254.20	0.004147	0.32	0.28	2.66	0.31
Reach 1	440.00*	25-Year	0.12	254.08	254.22		254.23	0.003784	0.34	0.35	2.76	0.30
Reach 1	440.00*	50-Year	0.15	254.08	254.28		254.28	0.001886	0.29	0.53	16.94	0.23
Reach 1	440.00*	100-Year	0.16	254.08	254.32		254.32	0.000756	0.21	1.17	17.23	0.15
Reach 1	434.00*	1.5-Year	0.00	254.06	254.07		254.07	0.003283	0.06	0.02	2.25	0.19
Reach 1	434.00*	2-Year	0.04	254.06	254.13		254.13	0.004062	0.23	0.17	2.49	0.29
Reach 1	434.00*	5-Year	0.07	254.06	254.16		254.16	0.004067	0.29	0.24	2.60	0.30
Reach 1	434.00*	10-Year	0.09	254.06	254.17		254.18	0.004071	0.32	0.29	2.66	0.31
Reach 1	434.00*	25-Year	0.12	254.06	254.20		254.21	0.003458	0.33	0.36	2.77	0.29
Reach 1	434.00*	50-Year	0.15	254.06	254.27		254.27	0.001234	0.25	0.79	17.10	0.18
Reach 1	434.00*	100-Year	0.16	254.06	254.31		254.32	0.000428	0.17	1.52	17.36	0.11
Reach 1	428.00*	1.5-Year	0.00	254.03	254.04		254.04	0.003998	0.07	0.02	2.26	0.21
Reach 1	428.00*	2-Year	0.04	254.03	254.10		254.11	0.004175	0.24	0.17	2.49	0.29
Reach 1	428.00*	5-Year	0.07	254.03	254.13		254.14	0.004178	0.29	0.24	2.60	0.30
Reach 1	428.00*	10-Year	0.09	254.03	254.15		254.15	0.004172	0.32	0.28	2.66	0.31
Reach 1	428.00*	25-Year	0.12	254.03	254.18		254.19	0.003100	0.32	0.38	2.79	0.28
Reach 1	428.00*	50-Year	0.15	254.03	254.27		254.27	0.000706	0.20	1.12	17.21	0.14
Reach 1	428.00*	100-Year	0.16	254.03	254.31		254.31	0.000247	0.14	1.92	17.49	0.09
Reach 1	422.00*	1.5-Year	0.00	254.01	254.02		254.02	0.004771	0.07	0.02	2.26	0.23
Reach 1	422.00*	2-Year	0.04	254.01	254.08		254.08	0.004184	0.24	0.17	2.50	0.29
Reach 1	422.00*	5-Year	0.07	254.01	254.11		254.11	0.004162	0.29	0.24	2.60	0.30
Reach 1	422.00*	10-Year	0.09	254.01	254.12		254.13	0.004150	0.32	0.28	2.67	0.31
Reach 1	422.00*	25-Year	0.12	254.01	254.17		254.17	0.002534	0.30	0.40	2.83	0.25
Reach 1	422.00*	50-Year	0.15	254.01	254.26		254.27	0.000387	0.16	1.50	17.34	0.11
Reach 1	422.00*	100-Year	0.16	254.01	254.31		254.31	0.000149	0.11	2.32	17.63	0.07
Reach 1	416.00*	1.5-Year	0.00	253.98	253.99		253.99	0.004060	0.07	0.02	2.27	0.21
Reach 1	416.00*	2-Year	0.04	253.98	254.06		254.06	0.004093	0.23	0.17	2.50	0.29
Reach 1	416.00*	5-Year	0.07	253.98	254.08		254.09	0.004093	0.29	0.24	2.61	0.30
Reach 1	416.00*	10-Year	0.09	253.98	254.10		254.10	0.004085	0.32	0.29	2.67	0.31
Reach 1	416.00*	25-Year	0.12	253.98	254.15		254.16	0.001964	0.27	0.44	2.87	0.23
Reach 1	416.00*	50-Year	0.15	253.98	254.26		254.26	0.000225	0.13	1.88	17.47	0.08
Reach 1	416.00*	100-Year	0.16	253.98	254.31		254.31	0.000096	0.10	2.72	17.76	0.06
Reach 1	410.00*	1.5-Year	0.00	253.96	253.97		253.97	0.004613	0.07	0.02	2.27	0.22
Reach 1	410.00*	2-Year	0.04	253.96	254.03		254.03	0.004168	0.24	0.17	2.50	0.29
Reach 1	410.00*	5-Year	0.07	253.96	254.06		254.06	0.004175	0.29	0.24	2.61	0.30
Reach 1	410.00*	10-Year	0.09	253.96	254.08		254.08	0.004151	0.32	0.28	2.67	0.31
Reach 1	410.00*	25-Year	0.12	253.96	254.14		254.15	0.001485	0.25	0.48	2.93	0.20
Reach 1	410.00*	50-Year	0.15	253.96	254.26		254.26	0.000136	0.11	2.29	17.61	0.07
Reach 1	410.00*	100-Year	0.16	253.96	254.31		254.31	0.000064	0.08	3.15	17.90	0.05
Reach 1	404.00*	1.5-Year	0.00	253.93	253.94		253.94	0.004029	0.07	0.02	2.27	0.21
Reach 1	404.00*	2-Year	0.04	253.93	254.01		254.01	0.004193	0.24	0.17	2.50	0.29
Reach 1	404.00*	5-Year	0.07	253.93	254.03		254.04	0.004163	0.29	0.24	2.61	0.30
Reach 1	404.00*	10-Year	0.09	253.93	254.05		254.06	0.004091	0.32	0.29	2.67	0.31
Reach 1	404.00*	25-Year	0.12	253.93	254.14		254.14	0.001079	0.23	0.54	16.91	0.17
Reach 1	404.00*	50-Year	0.15	253.93	254.26		254.26	0.000087	0.09	2.69	17.75	0.05
Reach 1	404.00*	100-Year	0.16	253.93	254.31		254.31	0.000044	0.07	3.56	18.04	0.04
Reach 1	398.00*	1.5-Year	0.00	253.91	253.92		253.92	0.003866	0.06	0.02	2.28	0.21
Reach 1	398.00*	2-Year	0.04	253.91	253.98		253.98	0.004064	0.23	0.17	2.51	0.29
Reach 1	398.00*	5-Year	0.07	253.91	254.01		254.01	0.004077	0.29	0.24	2.61	0.30
Reach 1	398.00*	10-Year	0.09	253.91	254.03		254.03	0.003880	0.31	0.29	2.68	0.30
Reach 1	398.00*	25-Year	0.12	253.91	254.13		254.13	0.000640	0.19	0.88	17.12	0.13
Reach 1	398.00*	50-Year	0.15	253.91	254.26		254.26	0.000057	0.08	3.11	17.89	0.04
Reach 1	398.00*	100-Year	0.16	253.91	254.31		254.31	0.000032	0.06	4.00	18.18	0.03
Reach 1	392.00*	1.5-Year	0.00	253.89	253.89		253.90	0.004527	0.07	0.02	2.28	0.22
Reach 1	392.00*	2-Year	0.04	253.89	253.96		253.96	0.004186	0.24	0.17	2.51	0.29

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	392.00*	5-Year	0.07	253.89	253.98		253.99	0.004158	0.29	0.24	2.62	0.30
Reach 1	392.00*	10-Year	0.09	253.89	254.01		254.01	0.003617	0.30	0.30	2.69	0.29
Reach 1	392.00*	25-Year	0.12	253.89	254.13		254.13	0.000349	0.15	1.25	17.25	0.10
Reach 1	392.00*	50-Year	0.15	253.89	254.26		254.26	0.000040	0.07	3.54	18.03	0.04
Reach 1	392.00*	100-Year	0.16	253.89	254.31		254.31	0.000023	0.06	4.43	18.32	0.03
Reach 1	386.00*	1.5-Year	0.00	253.86	253.87		253.87	0.003142	0.06	0.02	2.29	0.19
Reach 1	386.00*	2-Year	0.04	253.86	253.93		253.93	0.004092	0.23	0.17	2.51	0.29
Reach 1	386.00*	5-Year	0.07	253.86	253.96		253.96	0.004087	0.29	0.24	2.62	0.30
Reach 1	386.00*	10-Year	0.09	253.86	253.99		253.99	0.003105	0.29	0.31	2.71	0.27
Reach 1	386.00*	25-Year	0.12	253.86	254.13		254.13	0.000196	0.12	1.63	17.38	0.08
Reach 1	386.00*	50-Year	0.15	253.86	254.26		254.26	0.000028	0.06	3.96	18.17	0.03
Reach 1	386.00*	100-Year	0.16	253.86	254.31		254.31	0.000018	0.05	4.86	18.46	0.03
Reach 1	380.00*	1.5-Year	0.00	253.84	253.85		253.85	0.005578	0.07	0.02	2.29	0.24
Reach 1	380.00*	2-Year	0.04	253.84	253.91		253.91	0.004171	0.24	0.17	2.52	0.29
Reach 1	380.00*	5-Year	0.07	253.84	253.94		253.94	0.004169	0.29	0.24	2.62	0.30
Reach 1	380.00*	10-Year	0.09	253.84	253.97		253.97	0.002505	0.27	0.33	2.75	0.25
Reach 1	380.00*	25-Year	0.12	253.84	254.13		254.13	0.000114	0.10	2.04	17.52	0.06
Reach 1	380.00*	50-Year	0.15	253.84	254.26		254.26	0.000021	0.05	4.40	18.31	0.03
Reach 1	380.00*	100-Year	0.16	253.84	254.31		254.31	0.000014	0.05	5.30	18.61	0.02
Reach 1	374.00*	1.5-Year	0.00	253.81	253.82		253.82	0.003359	0.06	0.02	2.30	0.19
Reach 1	374.00*	2-Year	0.04	253.81	253.88		253.88	0.004187	0.24	0.17	2.52	0.29
Reach 1	374.00*	5-Year	0.07	253.81	253.91		253.91	0.004147	0.29	0.24	2.62	0.30
Reach 1	374.00*	10-Year	0.09	253.81	253.96		253.96	0.001836	0.24	0.37	2.80	0.21
Reach 1	374.00*	25-Year	0.12	253.81	254.13		254.13	0.000070	0.08	2.46	17.66	0.05
Reach 1	374.00*	50-Year	0.15	253.81	254.26		254.26	0.000016	0.05	4.84	18.45	0.02
Reach 1	374.00*	100-Year	0.16	253.81	254.31		254.31	0.000011	0.04	5.76	18.75	0.02
Reach 1	368.00*	1.5-Year	0.00	253.79	253.80		253.80	0.004453	0.07	0.02	2.30	0.22
Reach 1	368.00*	2-Year	0.04	253.79	253.86		253.86	0.004092	0.23	0.17	2.52	0.29
Reach 1	368.00*	5-Year	0.07	253.79	253.89		253.89	0.003998	0.29	0.25	2.63	0.30
Reach 1	368.00*	10-Year	0.09	253.79	253.95		253.95	0.001277	0.22	0.42	2.86	0.18
Reach 1	368.00*	25-Year	0.12	253.79	254.13		254.13	0.000046	0.07	2.87	17.80	0.04
Reach 1	368.00*	50-Year	0.15	253.79	254.26		254.26	0.000012	0.04	5.27	18.59	0.02
Reach 1	368.00*	100-Year	0.16	253.79	254.31		254.31	0.000008	0.04	6.19	18.89	0.02
Reach 1	362.00*	1.5-Year	0.00	253.76	253.77		253.77	0.002874	0.06	0.03	2.31	0.18
Reach 1	362.00*	2-Year	0.04	253.76	253.83		253.84	0.004168	0.24	0.17	2.53	0.29
Reach 1	362.00*	5-Year	0.07	253.76	253.86		253.87	0.003905	0.28	0.25	2.63	0.30
Reach 1	362.00*	10-Year	0.09	253.76	253.94		253.94	0.000888	0.19	0.47	2.93	0.15
Reach 1	362.00*	25-Year	0.12	253.76	254.13		254.13	0.000031	0.06	3.30	17.94	0.03
Reach 1	362.00*	50-Year	0.15	253.76	254.26		254.26	0.000009	0.04	5.72	18.73	0.02
Reach 1	362.00*	100-Year	0.16	253.76	254.31		254.31	0.000007	0.04	6.65	19.03	0.02
Reach 1	356.00*	1.5-Year	0.00	253.74	253.75		253.75	0.006815	0.08	0.02	2.30	0.26
Reach 1	356.00*	2-Year	0.04	253.74	253.81		253.81	0.004189	0.24	0.17	2.53	0.29
Reach 1	356.00*	5-Year	0.07	253.74	253.84		253.84	0.003513	0.27	0.26	2.65	0.28
Reach 1	356.00*	10-Year	0.09	253.74	253.94		253.94	0.000608	0.17	0.53	3.00	0.13
Reach 1	356.00*	25-Year	0.12	253.74	254.13		254.13	0.000022	0.05	3.71	18.08	0.03
Reach 1	356.00*	50-Year	0.15	253.74	254.26		254.26	0.000008	0.04	6.15	18.87	0.02
Reach 1	356.00*	100-Year	0.16	253.74	254.31		254.31	0.000006	0.03	7.09	19.17	0.01
Reach 1	350.00*	1.5-Year	0.00	253.71	253.72		253.72	0.002833	0.06	0.03	2.32	0.18
Reach 1	350.00*	2-Year	0.04	253.71	253.78		253.79	0.004060	0.23	0.17	2.53	0.29
Reach 1	350.00*	5-Year	0.07	253.71	253.82		253.83	0.002833	0.26	0.27	2.67	0.25
Reach 1	350.00*	10-Year	0.09	253.71	253.94		253.94	0.000388	0.15	0.77	17.06	0.10
Reach 1	350.00*	25-Year	0.12	253.71	254.13		254.13	0.000016	0.05	4.15	18.22	0.02
Reach 1	350.00*	50-Year	0.15	253.71	254.26		254.26	0.000006	0.03	6.61	19.01	0.02
Reach 1	350.00*	100-Year	0.16	253.71	254.31		254.31	0.000005	0.03	7.56	19.31	0.01
Reach 1	344.00*	1.5-Year	0.00	253.69	253.70		253.70	0.006524	0.08	0.02	2.31	0.26
Reach 1	344.00*	2-Year	0.04	253.69	253.76		253.76	0.004165	0.23	0.17	2.54	0.29
Reach 1	344.00*	5-Year	0.07	253.69	253.81		253.81	0.002112	0.23	0.30	2.71	0.22
Reach 1	344.00*	10-Year	0.09	253.69	253.93		253.94	0.000213	0.12	1.16	17.21	0.08
Reach 1	344.00*	25-Year	0.12	253.69	254.13		254.13	0.000012	0.04	4.59	18.36	0.02
Reach 1	344.00*	50-Year	0.15	253.69	254.26		254.26	0.000005	0.03	7.07	19.16	0.01
Reach 1	344.00*	100-Year	0.16	253.69	254.31		254.31	0.000004	0.03	8.02	19.45	0.01
Reach 1	338.00*	1.5-Year	0.00	253.66	253.67		253.67	0.003008	0.06	0.03	2.33	0.18
Reach 1	338.00*	2-Year	0.04	253.66	253.73		253.74	0.004190	0.24	0.17	2.54	0.29
Reach 1	338.00*	5-Year	0.07	253.66	253.80		253.80	0.001409	0.20	0.34	2.77	0.18
Reach 1	338.00*	10-Year	0.09	253.66	253.93		253.93	0.000118	0.09	1.55	17.34	0.06

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	338.00*	25-Year	0.12	253.66	254.13		254.13	0.000009	0.04	5.02	18.50	0.02
Reach 1	338.00*	50-Year	0.15	253.66	254.26		254.26	0.000004	0.03	7.52	19.30	0.01
Reach 1	338.00*	100-Year	0.16	253.66	254.31		254.31	0.000003	0.03	8.48	19.59	0.01
Reach 1	332.00*	1.5-Year	0.00	253.64	253.65		253.65	0.006421	0.07	0.02	2.32	0.26
Reach 1	332.00*	2-Year	0.04	253.64	253.71		253.71	0.004092	0.23	0.17	2.54	0.29
Reach 1	332.00*	5-Year	0.07	253.64	253.79		253.79	0.000907	0.18	0.40	2.84	0.15
Reach 1	332.00*	10-Year	0.09	253.64	253.93		253.93	0.000068	0.07	1.96	17.48	0.05
Reach 1	332.00*	25-Year	0.12	253.64	254.13		254.13	0.000007	0.03	5.47	18.65	0.02
Reach 1	332.00*	50-Year	0.15	253.64	254.26		254.26	0.000003	0.03	7.99	19.44	0.01
Reach 1	332.00*	100-Year	0.16	253.64	254.31		254.31	0.000003	0.03	8.95	19.74	0.01
Reach 1	326.00*	1.5-Year	0.00	253.61	253.63		253.63	0.002805	0.06	0.03	2.34	0.18
Reach 1	326.00*	2-Year	0.04	253.61	253.68		253.69	0.004173	0.23	0.17	2.55	0.29
Reach 1	326.00*	5-Year	0.07	253.61	253.79		253.79	0.000597	0.15	0.45	2.91	0.12
Reach 1	326.00*	10-Year	0.09	253.61	253.93		253.93	0.000042	0.06	2.38	17.62	0.04
Reach 1	326.00*	25-Year	0.12	253.61	254.13		254.13	0.000005	0.03	5.92	18.79	0.01
Reach 1	326.00*	50-Year	0.15	253.61	254.26		254.26	0.000003	0.03	8.46	19.58	0.01
Reach 1	326.00*	100-Year	0.16	253.61	254.31		254.31	0.000002	0.03	9.43	19.88	0.01
Reach 1	320.00*	1.5-Year	0.00	253.59	253.60		253.60	0.006464	0.07	0.02	2.33	0.26
Reach 1	320.00*	2-Year	0.04	253.59	253.66		253.66	0.004192	0.23	0.17	2.55	0.29
Reach 1	320.00*	5-Year	0.07	253.59	253.79		253.79	0.000395	0.13	0.52	2.99	0.10
Reach 1	320.00*	10-Year	0.09	253.59	253.93		253.93	0.000027	0.05	2.79	17.76	0.03
Reach 1	320.00*	25-Year	0.12	253.59	254.13		254.13	0.000004	0.03	6.35	18.93	0.01
Reach 1	320.00*	50-Year	0.15	253.59	254.26		254.26	0.000002	0.03	8.91	19.72	0.01
Reach 1	320.00*	100-Year	0.16	253.59	254.31		254.31	0.000002	0.02	9.89	20.02	0.01
Reach 1	314.00*	1.5-Year	0.00	253.56	253.57		253.58	0.002992	0.06	0.03	2.34	0.18
Reach 1	314.00*	2-Year	0.04	253.56	253.64		253.64	0.004050	0.23	0.17	2.55	0.29
Reach 1	314.00*	5-Year	0.07	253.56	253.78		253.78	0.000266	0.12	0.62	16.96	0.09
Reach 1	314.00*	10-Year	0.09	253.56	253.93		253.93	0.000018	0.05	3.22	17.91	0.02
Reach 1	314.00*	25-Year	0.12	253.56	254.13		254.13	0.000004	0.03	6.82	19.07	0.01
Reach 1	314.00*	50-Year	0.15	253.56	254.26		254.26	0.000002	0.02	9.39	19.87	0.01
Reach 1	314.00*	100-Year	0.16	253.56	254.31		254.31	0.000002	0.02	10.38	20.16	0.01
Reach 1	308.00*	1.5-Year	0.00	253.54	253.55		253.55	0.004935	0.07	0.02	2.34	0.23
Reach 1	308.00*	2-Year	0.04	253.54	253.61		253.62	0.003696	0.23	0.18	2.56	0.27
Reach 1	308.00*	5-Year	0.07	253.54	253.78		253.78	0.000155	0.10	1.00	17.14	0.07
Reach 1	308.00*	10-Year	0.09	253.54	253.93		253.93	0.000013	0.04	3.63	18.04	0.02
Reach 1	308.00*	25-Year	0.12	253.54	254.13		254.13	0.000003	0.03	7.26	19.21	0.01
Reach 1	308.00*	50-Year	0.15	253.54	254.26		254.26	0.000002	0.02	9.85	20.01	0.01
Reach 1	308.00*	100-Year	0.16	253.54	254.31		254.31	0.000002	0.02	10.85	20.30	0.01
Reach 1	302.00*	1.5-Year	0.00	253.52	253.53		253.53	0.003498	0.06	0.02	2.35	0.20
Reach 1	302.00*	2-Year	0.04	253.52	253.59		253.60	0.002779	0.21	0.19	2.59	0.24
Reach 1	302.00*	5-Year	0.07	253.52	253.78		253.78	0.000084	0.08	1.41	17.28	0.05
Reach 1	302.00*	10-Year	0.09	253.52	253.93		253.93	0.000009	0.04	4.07	18.19	0.02
Reach 1	302.00*	25-Year	0.12	253.52	254.13		254.13	0.000002	0.02	7.72	19.35	0.01
Reach 1	302.00*	50-Year	0.15	253.52	254.26		254.26	0.000002	0.02	10.34	20.15	0.01
Reach 1	302.00*	100-Year	0.16	253.52	254.31		254.31	0.000001	0.02	11.34	20.44	0.01
Reach 1	296.00*	1.5-Year	0.00	253.49	253.50		253.50	0.005025	0.07	0.02	2.35	0.23
Reach 1	296.00*	2-Year	0.04	253.49	253.58		253.58	0.001638	0.17	0.23	2.64	0.19
Reach 1	296.00*	5-Year	0.07	253.49	253.78		253.78	0.000048	0.06	1.82	17.42	0.04
Reach 1	296.00*	10-Year	0.09	253.49	253.93		253.93	0.000007	0.03	4.51	18.33	0.02
Reach 1	296.00*	25-Year	0.12	253.49	254.13		254.13	0.000002	0.02	8.19	19.50	0.01
Reach 1	296.00*	50-Year	0.15	253.49	254.26		254.26	0.000001	0.02	10.83	20.29	0.01
Reach 1	296.00*	100-Year	0.16	253.49	254.31		254.31	0.000001	0.02	11.84	20.59	0.01
Reach 1	290.00*	1.5-Year	0.00	253.47	253.48		253.48	0.003732	0.06	0.02	2.36	0.20
Reach 1	290.00*	2-Year	0.04	253.47	253.58		253.58	0.000921	0.15	0.28	2.70	0.15
Reach 1	290.00*	5-Year	0.07	253.47	253.78		253.78	0.000029	0.05	2.22	17.56	0.03
Reach 1	290.00*	10-Year	0.09	253.47	253.93		253.93	0.000005	0.03	4.94	18.47	0.01
Reach 1	290.00*	25-Year	0.12	253.47	254.13		254.13	0.000002	0.02	8.65	19.64	0.01
Reach 1	290.00*	50-Year	0.15	253.47	254.26		254.26	0.000001	0.02	11.30	20.43	0.01
Reach 1	290.00*	100-Year	0.16	253.47	254.31		254.31	0.000001	0.02	12.31	20.73	0.01
Reach 1	284.00*	1.5-Year	0.00	253.44	253.45		253.45	0.005599	0.07	0.02	2.36	0.24
Reach 1	284.00*	2-Year	0.04	253.44	253.57		253.57	0.000505	0.12	0.33	2.78	0.11
Reach 1	284.00*	5-Year	0.07	253.44	253.78		253.78	0.000018	0.04	2.65	17.71	0.02
Reach 1	284.00*	10-Year	0.09	253.44	253.93		253.93	0.000004	0.03	5.39	18.61	0.01
Reach 1	284.00*	25-Year	0.12	253.44	254.13		254.13	0.000001	0.02	9.12	19.78	0.01
Reach 1	284.00*	50-Year	0.15	253.44	254.26		254.26	0.000001	0.02	11.80	20.57	0.01

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	284.00*	100-Year	0.16	253.44	254.31		254.31	0.000001	0.02	12.82	20.87	0.01
Reach 1	278.00*	1.5-Year	0.00	253.42	253.43		253.43	0.003380	0.06	0.02	2.37	0.19
Reach 1	278.00*	2-Year	0.04	253.42	253.57		253.57	0.000292	0.10	0.40	2.85	0.09
Reach 1	278.00*	5-Year	0.07	253.42	253.78		253.78	0.000012	0.04	3.06	17.85	0.02
Reach 1	278.00*	10-Year	0.09	253.42	253.93		253.93	0.000003	0.02	5.82	18.75	0.01
Reach 1	278.00*	25-Year	0.12	253.42	254.13		254.13	0.000001	0.02	9.59	19.92	0.01
Reach 1	278.00*	50-Year	0.15	253.42	254.26		254.26	0.000001	0.02	12.28	20.71	0.01
Reach 1	278.00*	100-Year	0.16	253.42	254.31		254.31	0.000001	0.02	13.31	21.01	0.01
Reach 1	272.00*	1.5-Year	0.00	253.39	253.40		253.40	0.004048	0.06	0.02	2.37	0.21
Reach 1	272.00*	2-Year	0.04	253.39	253.57		253.57	0.000183	0.09	0.46	2.93	0.07
Reach 1	272.00*	5-Year	0.07	253.39	253.78		253.78	0.000009	0.03	3.49	17.99	0.02
Reach 1	272.00*	10-Year	0.09	253.39	253.93		253.93	0.000003	0.02	6.28	18.89	0.01
Reach 1	272.00*	25-Year	0.12	253.39	254.13		254.13	0.000001	0.02	10.07	20.06	0.01
Reach 1	272.00*	50-Year	0.15	253.39	254.26		254.26	0.000001	0.02	12.78	20.86	0.01
Reach 1	272.00*	100-Year	0.16	253.39	254.31		254.31	0.000001	0.02	13.81	21.15	0.01
Reach 1	266.00*	1.5-Year	0.00	253.37	253.38		253.38	0.003834	0.06	0.02	2.38	0.20
Reach 1	266.00*	2-Year	0.04	253.37	253.57		253.57	0.000117	0.07	0.54	3.02	0.06
Reach 1	266.00*	5-Year	0.07	253.37	253.78		253.78	0.000006	0.03	3.93	18.13	0.01
Reach 1	266.00*	10-Year	0.09	253.37	253.93		253.93	0.000002	0.02	6.74	19.04	0.01
Reach 1	266.00*	25-Year	0.12	253.37	254.13		254.13	0.000001	0.02	10.56	20.21	0.01
Reach 1	266.00*	50-Year	0.15	253.37	254.26		254.26	0.000001	0.02	13.28	21.00	0.01
Reach 1	266.00*	100-Year	0.16	253.37	254.31		254.31	0.000001	0.02	14.33	21.30	0.01
Reach 1	260.00*	1.5-Year	0.00	253.34	253.35		253.35	0.003748	0.06	0.02	2.38	0.20
Reach 1	260.00*	2-Year	0.04	253.34	253.57		253.57	0.000079	0.07	0.61	3.10	0.05
Reach 1	260.00*	5-Year	0.07	253.34	253.78		253.78	0.000005	0.03	4.35	18.27	0.01
Reach 1	260.00*	10-Year	0.09	253.34	253.93		253.93	0.000002	0.02	7.18	19.18	0.01
Reach 1	260.00*	25-Year	0.12	253.34	254.13		254.13	0.000001	0.02	11.03	20.35	0.01
Reach 1	260.00*	50-Year	0.15	253.34	254.26		254.26	0.000001	0.02	13.78	21.14	0.01
Reach 1	260.00*	100-Year	0.16	253.34	254.31		254.31	0.000001	0.02	14.82	21.44	0.01
Reach 1	254.00*	1.5-Year	0.00	253.32	253.33		253.33	0.003535	0.06	0.02	2.39	0.20
Reach 1	254.00*	2-Year	0.04	253.32	253.57		253.57	0.000048	0.05	0.98	17.12	0.04
Reach 1	254.00*	5-Year	0.07	253.32	253.78		253.78	0.000003	0.02	4.79	18.41	0.01
Reach 1	254.00*	10-Year	0.09	253.32	253.93		253.93	0.000001	0.02	7.64	19.32	0.01
Reach 1	254.00*	25-Year	0.12	253.32	254.13		254.13	0.000001	0.02	11.52	20.49	0.01
Reach 1	254.00*	50-Year	0.15	253.32	254.26		254.26	0.000001	0.02	14.28	21.28	0.01
Reach 1	254.00*	100-Year	0.16	253.32	254.31		254.31	0.000001	0.02	15.34	21.58	0.01
Reach 1	248.00*	1.5-Year	0.00	253.29	253.30		253.30	0.004470	0.07	0.02	2.39	0.22
Reach 1	248.00*	2-Year	0.04	253.29	253.57		253.57	0.000026	0.04	1.39	17.27	0.03
Reach 1	248.00*	5-Year	0.07	253.29	253.78		253.78	0.000003	0.02	5.24	18.56	0.01
Reach 1	248.00*	10-Year	0.09	253.29	253.93		253.93	0.000001	0.02	8.11	19.46	0.01
Reach 1	248.00*	25-Year	0.12	253.29	254.13		254.13	0.000001	0.01	12.02	20.63	0.01
Reach 1	248.00*	50-Year	0.15	253.29	254.26		254.26	0.000001	0.01	14.80	21.43	0.00
Reach 1	248.00*	100-Year	0.16	253.29	254.31		254.31	0.000000	0.01	15.87	21.72	0.00
Reach 1	242.00*	1.5-Year	0.00	253.27	253.28		253.28	0.004120	0.06	0.02	2.39	0.21
Reach 1	242.00*	2-Year	0.04	253.27	253.57		253.57	0.000015	0.04	1.79	17.41	0.02
Reach 1	242.00*	5-Year	0.07	253.27	253.78		253.78	0.000002	0.02	5.67	18.70	0.01
Reach 1	242.00*	10-Year	0.09	253.27	253.93		253.93	0.000001	0.02	8.57	19.60	0.01
Reach 1	242.00*	25-Year	0.12	253.27	254.13		254.13	0.000001	0.01	12.50	20.77	0.00
Reach 1	242.00*	50-Year	0.15	253.27	254.26		254.26	0.000000	0.01	15.30	21.56	0.00
Reach 1	242.00*	100-Year	0.16	253.27	254.31		254.31	0.000000	0.01	16.37	21.86	0.00
Reach 1	236.00*	1.5-Year	0.00	253.24	253.25		253.25	0.003156	0.06	0.03	2.40	0.19
Reach 1	236.00*	2-Year	0.04	253.24	253.57		253.57	0.000009	0.03	2.21	17.55	0.02
Reach 1	236.00*	5-Year	0.07	253.24	253.78		253.78	0.000002	0.02	6.13	18.84	0.01
Reach 1	236.00*	10-Year	0.09	253.24	253.93		253.93	0.000001	0.01	9.04	19.75	0.01
Reach 1	236.00*	25-Year	0.12	253.24	254.13		254.13	0.000000	0.01	13.00	20.91	0.00
Reach 1	236.00*	50-Year	0.15	253.24	254.26		254.26	0.000000	0.01	15.82	21.71	0.00
Reach 1	236.00*	100-Year	0.16	253.24	254.31		254.31	0.000000	0.01	16.90	22.00	0.00
Reach 1	230.00*	1.5-Year	0.00	253.22	253.23		253.23	0.004879	0.07	0.02	2.40	0.23
Reach 1	230.00*	2-Year	0.04	253.22	253.57		253.57	0.000006	0.02	2.63	17.69	0.01
Reach 1	230.00*	5-Year	0.07	253.22	253.78		253.78	0.000001	0.02	6.57	18.98	0.01
Reach 1	230.00*	10-Year	0.09	253.22	253.93		253.93	0.000001	0.01	9.51	19.89	0.01
Reach 1	230.00*	25-Year	0.12	253.22	254.13		254.13	0.000000	0.01	13.49	21.05	0.00
Reach 1	230.00*	50-Year	0.15	253.22	254.26		254.26	0.000000	0.01	16.33	21.85	0.00
Reach 1	230.00*	100-Year	0.16	253.22	254.31		254.31	0.000000	0.01	17.42	22.14	0.00

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	224.00*	1.5-Year	0.00	253.19	253.20		253.20	0.003508	0.06	0.02	2.41	0.20
Reach 1	224.00*	2-Year	0.04	253.19	253.57		253.57	0.000004	0.02	3.05	17.83	0.01
Reach 1	224.00*	5-Year	0.07	253.19	253.78		253.78	0.000001	0.02	7.03	19.12	0.01
Reach 1	224.00*	10-Year	0.09	253.19	253.93		253.93	0.000001	0.01	9.99	20.03	0.01
Reach 1	224.00*	25-Year	0.12	253.19	254.13		254.13	0.000000	0.01	14.00	21.20	0.00
Reach 1	224.00*	50-Year	0.15	253.19	254.26		254.26	0.000000	0.01	16.86	21.99	0.00
Reach 1	224.00*	100-Year	0.16	253.19	254.31		254.31	0.000000	0.01	17.95	22.29	0.00
Reach 1	218.00*	1.5-Year	0.00	253.17	253.18		253.18	0.004084	0.06	0.02	2.41	0.21
Reach 1	218.00*	2-Year	0.04	253.17	253.57		253.57	0.000003	0.02	3.49	17.97	0.01
Reach 1	218.00*	5-Year	0.07	253.17	253.78		253.78	0.000001	0.01	7.49	19.26	0.01
Reach 1	218.00*	10-Year	0.09	253.17	253.93		253.93	0.000001	0.01	10.47	20.17	0.00
Reach 1	218.00*	25-Year	0.12	253.17	254.13		254.13	0.000000	0.01	14.51	21.34	0.00
Reach 1	218.00*	50-Year	0.15	253.17	254.26		254.26	0.000000	0.01	17.39	22.13	0.00
Reach 1	218.00*	100-Year	0.16	253.17	254.31		254.31	0.000000	0.01	18.49	22.43	0.00
Reach 1	212.00*	1.5-Year	0.00	253.14	253.16		253.16	0.003656	0.06	0.02	2.42	0.20
Reach 1	212.00*	2-Year	0.04	253.14	253.57		253.57	0.000002	0.02	3.91	18.12	0.01
Reach 1	212.00*	5-Year	0.07	253.14	253.78		253.78	0.000001	0.01	7.95	19.41	0.01
Reach 1	212.00*	10-Year	0.09	253.14	253.93		253.93	0.000000	0.01	10.95	20.31	0.00
Reach 1	212.00*	25-Year	0.12	253.14	254.13		254.13	0.000000	0.01	15.02	21.48	0.00
Reach 1	212.00*	50-Year	0.15	253.14	254.26		254.26	0.000000	0.01	17.91	22.28	0.00
Reach 1	212.00*	100-Year	0.16	253.14	254.31		254.31	0.000000	0.01	19.02	22.57	0.00
Reach 1	206.00*	1.5-Year	0.00	253.12	253.13		253.13	0.005589	0.07	0.02	2.42	0.24
Reach 1	206.00*	2-Year	0.04	253.12	253.57		253.57	0.000001	0.01	4.34	18.26	0.01
Reach 1	206.00*	5-Year	0.07	253.12	253.78		253.78	0.000001	0.01	8.41	19.55	0.01
Reach 1	206.00*	10-Year	0.09	253.12	253.93		253.93	0.000000	0.01	11.43	20.45	0.00
Reach 1	206.00*	25-Year	0.12	253.12	254.13		254.13	0.000000	0.01	15.53	21.62	0.00
Reach 1	206.00*	50-Year	0.15	253.12	254.26		254.26	0.000000	0.01	18.45	22.42	0.00
Reach 1	206.00*	100-Year	0.16	253.12	254.31		254.31	0.000000	0.01	19.56	22.71	0.00
Reach 1	200.00*	1.5-Year	0.00	253.10	253.11		253.11	0.003372	0.06	0.02	2.43	0.19
Reach 1	200.00*	2-Year	0.04	253.10	253.57		253.57	0.000001	0.01	4.79	18.40	0.01
Reach 1	200.00*	5-Year	0.07	253.10	253.78		253.78	0.000001	0.01	8.89	19.69	0.00
Reach 1	200.00*	10-Year	0.09	253.10	253.93		253.93	0.000000	0.01	11.93	20.60	0.00
Reach 1	200.00*	25-Year	0.12	253.10	254.13		254.13	0.000000	0.01	16.05	21.77	0.00
Reach 1	200.00*	50-Year	0.15	253.10	254.26		254.26	0.000000	0.01	18.99	22.56	0.00
Reach 1	200.00*	100-Year	0.16	253.10	254.31		254.31	0.000000	0.01	20.11	22.86	0.00
Reach 1	194.00*	1.5-Year	0.00	253.07	253.08		253.08	0.004519	0.07	0.02	2.43	0.22
Reach 1	194.00*	2-Year	0.04	253.07	253.57		253.57	0.000001	0.01	5.22	18.54	0.01
Reach 1	194.00*	5-Year	0.07	253.07	253.78		253.78	0.000000	0.01	9.35	19.83	0.00
Reach 1	194.00*	10-Year	0.09	253.07	253.93		253.93	0.000000	0.01	12.41	20.74	0.00
Reach 1	194.00*	25-Year	0.12	253.07	254.13		254.13	0.000000	0.01	16.56	21.90	0.00
Reach 1	194.00*	50-Year	0.15	253.07	254.26		254.26	0.000000	0.01	19.52	22.70	0.00
Reach 1	194.00*	100-Year	0.16	253.07	254.31		254.31	0.000000	0.01	20.64	22.99	0.00
Reach 1	188.00*	1.5-Year	0.00	253.05	253.06		253.06	0.002727	0.06	0.03	2.44	0.17
Reach 1	188.00*	2-Year	0.04	253.05	253.57		253.57	0.000001	0.01	5.67	18.68	0.00
Reach 1	188.00*	5-Year	0.07	253.05	253.78		253.78	0.000000	0.01	9.83	19.97	0.00
Reach 1	188.00*	10-Year	0.09	253.05	253.93		253.93	0.000000	0.01	12.91	20.88	0.00
Reach 1	188.00*	25-Year	0.12	253.05	254.13		254.13	0.000000	0.01	17.09	22.05	0.00
Reach 1	188.00*	50-Year	0.15	253.05	254.26		254.26	0.000000	0.01	20.06	22.84	0.00
Reach 1	188.00*	100-Year	0.16	253.05	254.31		254.31	0.000000	0.01	21.20	23.13	0.00
Reach 1	182.00*	1.5-Year	0.00	253.02	253.03		253.03	0.007102	0.08	0.02	2.43	0.27
Reach 1	182.00*	2-Year	0.04	253.02	253.57		253.57	0.000001	0.01	6.11	18.82	0.00
Reach 1	182.00*	5-Year	0.07	253.02	253.78		253.78	0.000000	0.01	10.30	20.11	0.00
Reach 1	182.00*	10-Year	0.09	253.02	253.93		253.93	0.000000	0.01	13.40	21.02	0.00
Reach 1	182.00*	25-Year	0.12	253.02	254.13		254.13	0.000000	0.01	17.61	22.19	0.00
Reach 1	182.00*	50-Year	0.15	253.02	254.26		254.26	0.000000	0.01	20.60	22.98	0.00
Reach 1	182.00*	100-Year	0.16	253.02	254.31		254.31	0.000000	0.01	21.74	23.27	0.00
Reach 1	176.00*	1.5-Year	0.00	253.00	253.01		253.01	0.002767	0.06	0.03	2.45	0.18
Reach 1	176.00*	2-Year	0.04	253.00	253.57		253.57	0.000000	0.01	6.56	18.96	0.00
Reach 1	176.00*	5-Year	0.07	253.00	253.78		253.78	0.000000	0.01	10.78	20.26	0.00
Reach 1	176.00*	10-Year	0.09	253.00	253.93		253.93	0.000000	0.01	13.91	21.16	0.00
Reach 1	176.00*	25-Year	0.12	253.00	254.13		254.13	0.000000	0.01	18.14	22.33	0.00
Reach 1	176.00*	50-Year	0.15	253.00	254.26		254.26	0.000000	0.01	21.15	23.12	0.00
Reach 1	176.00*	100-Year	0.16	253.00	254.31		254.31	0.000000	0.01	22.30	23.40	0.00
Reach 1	170.00*	1.5-Year	0.00	252.97	252.98		252.98	0.006444	0.07	0.02	2.44	0.26
Reach 1	170.00*	2-Year	0.04	252.97	253.57		253.57	0.000000	0.01	7.02	19.11	0.00

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	170.00*	5-Year	0.07	252.97	253.78		253.78	0.000000	0.01	11.27	20.40	0.00
Reach 1	170.00*	10-Year	0.09	252.97	253.93		253.93	0.000000	0.01	14.42	21.31	0.00
Reach 1	170.00*	25-Year	0.12	252.97	254.13		254.13	0.000000	0.01	18.68	22.47	0.00
Reach 1	170.00*	50-Year	0.15	252.97	254.26		254.26	0.000000	0.01	21.71	23.25	0.00
Reach 1	170.00*	100-Year	0.16	252.97	254.31		254.31	0.000000	0.01	22.86	23.53	0.00
Reach 1	164.00*	1.5-Year	0.00	252.95	252.98		252.98	0.000073	0.02	0.08	2.52	0.03
Reach 1	164.00*	2-Year	0.04	252.95	253.57		253.57	0.000000	0.01	7.47	19.25	0.00
Reach 1	164.00*	5-Year	0.07	252.95	253.78		253.78	0.000000	0.01	11.75	20.54	0.00
Reach 1	164.00*	10-Year	0.09	252.95	253.93		253.93	0.000000	0.01	14.92	21.44	0.00
Reach 1	164.00*	25-Year	0.12	252.95	254.13		254.13	0.000000	0.01	19.21	22.61	0.00
Reach 1	164.00*	50-Year	0.15	252.95	254.26		254.26	0.000000	0.01	22.26	23.38	0.00
Reach 1	164.00*	100-Year	0.16	252.95	254.31		254.31	0.000000	0.01	23.42	23.65	0.00
Reach 1	158.00*	1.5-Year	0.00	252.92	252.98		252.98	0.000011	0.01	0.14	2.60	0.01
Reach 1	158.00*	2-Year	0.04	252.92	253.57		253.57	0.000000	0.01	7.93	19.39	0.00
Reach 1	158.00*	5-Year	0.07	252.92	253.78		253.78	0.000000	0.01	12.25	20.68	0.00
Reach 1	158.00*	10-Year	0.09	252.92	253.93		253.93	0.000000	0.01	15.44	21.59	0.00
Reach 1	158.00*	25-Year	0.12	252.92	254.13		254.13	0.000000	0.01	19.75	22.76	0.00
Reach 1	158.00*	50-Year	0.15	252.92	254.26		254.26	0.000000	0.01	22.82	23.50	0.00
Reach 1	158.00*	100-Year	0.16	252.92	254.31		254.31	0.000000	0.01	23.98	23.77	0.00
Reach 1	152.00*	1.5-Year	0.00	252.90	252.98		252.98	0.000003	0.01	0.21	2.68	0.01
Reach 1	152.00*	2-Year	0.04	252.90	253.57		253.57	0.000000	0.01	8.40	19.53	0.00
Reach 1	152.00*	5-Year	0.07	252.90	253.78		253.78	0.000000	0.01	12.75	20.82	0.00
Reach 1	152.00*	10-Year	0.09	252.90	253.93		253.93	0.000000	0.01	15.96	21.73	0.00
Reach 1	152.00*	25-Year	0.12	252.90	254.13		254.13	0.000000	0.01	20.30	22.90	0.00
Reach 1	152.00*	50-Year	0.15	252.90	254.26		254.26	0.000000	0.01	23.39	23.62	0.00
Reach 1	152.00*	100-Year	0.16	252.90	254.31		254.31	0.000000	0.01	24.56	23.88	0.00
Reach 1	146.00*	1.5-Year	0.00	252.87	252.98		252.98	0.000001	0.01	0.28	2.76	0.01
Reach 1	146.00*	2-Year	0.04	252.87	253.57		253.57	0.000000	0.01	8.86	19.67	0.00
Reach 1	146.00*	5-Year	0.07	252.87	253.78		253.78	0.000000	0.01	13.24	20.96	0.00
Reach 1	146.00*	10-Year	0.09	252.87	253.93		253.93	0.000000	0.01	16.47	21.87	0.00
Reach 1	146.00*	25-Year	0.12	252.87	254.13		254.13	0.000000	0.01	20.84	23.03	0.00
Reach 1	146.00*	50-Year	0.15	252.87	254.26		254.26	0.000000	0.01	23.94	23.73	0.00
Reach 1	146.00*	100-Year	0.16	252.87	254.31		254.31	0.000000	0.01	25.12	23.99	0.00
Reach 1	140.00*	1.5-Year	0.00	252.85	252.98		252.98	0.000001	0.00	0.35	2.84	0.00
Reach 1	140.00*	2-Year	0.04	252.85	253.57		253.57	0.000000	0.01	9.34	19.81	0.00
Reach 1	140.00*	5-Year	0.07	252.85	253.78		253.78	0.000000	0.01	13.74	21.11	0.00
Reach 1	140.00*	10-Year	0.09	252.85	253.93		253.93	0.000000	0.01	17.00	22.01	0.00
Reach 1	140.00*	25-Year	0.12	252.85	254.13		254.13	0.000000	0.01	21.40	23.16	0.00
Reach 1	140.00*	50-Year	0.15	252.85	254.26		254.26	0.000000	0.01	24.51	23.84	0.00
Reach 1	140.00*	100-Year	0.16	252.85	254.31		254.31	0.000000	0.01	25.69	24.10	0.00
Reach 1	134.00*	1.5-Year	0.00	252.82	252.98		252.98	0.000000	0.00	0.42	2.92	0.00
Reach 1	134.00*	2-Year	0.04	252.82	253.57		253.57	0.000000	0.01	9.80	19.96	0.00
Reach 1	134.00*	5-Year	0.07	252.82	253.78		253.78	0.000000	0.01	14.24	21.25	0.00
Reach 1	134.00*	10-Year	0.09	252.82	253.93		253.93	0.000000	0.01	17.52	22.15	0.00
Reach 1	134.00*	25-Year	0.12	252.82	254.13		254.13	0.000000	0.01	21.94	23.27	0.00
Reach 1	134.00*	50-Year	0.15	252.82	254.26		254.26	0.000000	0.01	25.07	23.95	0.00
Reach 1	134.00*	100-Year	0.16	252.82	254.31		254.31	0.000000	0.01	26.25	24.20	0.00
Reach 1	128	1.5-Year	0.00	252.80	252.98		252.98	0.000000	0.00	0.49	3.00	0.00
Reach 1	128	2-Year	0.04	252.80	253.57		253.57	0.000000	0.01	10.28	20.10	0.00
Reach 1	128	5-Year	0.07	252.80	253.78		253.78	0.000000	0.01	14.75	21.39	0.00
Reach 1	128	10-Year	0.09	252.80	253.93		253.93	0.000000	0.01	18.05	22.30	0.00
Reach 1	128	25-Year	0.12	252.80	254.13		254.13	0.000000	0.01	22.50	23.39	0.00
Reach 1	128	50-Year	0.15	252.80	254.26		254.26	0.000000	0.01	25.64	24.05	0.00
Reach 1	128	100-Year	0.16	252.80	254.31		254.31	0.000000	0.01	26.83	24.30	0.00
Reach 1	122.43*	1.5-Year	0.00	252.81	252.98		252.98	0.000000	0.00	0.45	3.02	0.00
Reach 1	122.43*	2-Year	0.04	252.81	253.57		253.57	0.000000	0.01	10.45	20.17	0.00
Reach 1	122.43*	5-Year	0.07	252.81	253.78		253.78	0.000000	0.01	14.93	21.46	0.00
Reach 1	122.43*	10-Year	0.09	252.81	253.93		253.93	0.000000	0.01	18.24	22.37	0.00
Reach 1	122.43*	25-Year	0.12	252.81	254.13		254.13	0.000000	0.01	22.71	23.49	0.00
Reach 1	122.43*	50-Year	0.15	252.81	254.26		254.26	0.000000	0.01	25.87	24.18	0.00
Reach 1	122.43*	100-Year	0.16	252.81	254.31		254.31	0.000000	0.01	27.07	24.43	0.00
Reach 1	116.86*	1.5-Year	0.00	252.83	252.98		252.98	0.000000	0.00	0.41	3.04	0.00
Reach 1	116.86*	2-Year	0.04	252.83	253.57		253.57	0.000000	0.01	10.63	20.24	0.00
Reach 1	116.86*	5-Year	0.07	252.83	253.78		253.78	0.000000	0.01	15.12	21.53	0.00
Reach 1	116.86*	10-Year	0.09	252.83	253.93		253.93	0.000000	0.01	18.44	22.44	0.00

HEC-RAS Plan: PlanSteady River: Realignment Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m³/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m²)	Top Width (m)	Froude # Chl
Reach 1	116.86*	25-Year	0.12	252.83	254.13		254.13	0.000000	0.01	22.92	23.60	0.00
Reach 1	116.86*	50-Year	0.15	252.83	254.26		254.26	0.000000	0.01	26.10	24.30	0.00
Reach 1	116.86*	100-Year	0.16	252.83	254.31		254.31	0.000000	0.01	27.30	24.56	0.00
Reach 1	111.29*	1.5-Year	0.00	252.84	252.98		252.98	0.000001	0.00	0.38	3.07	0.00
Reach 1	111.29*	2-Year	0.04	252.84	253.57		253.57	0.000000	0.01	10.80	20.31	0.00
Reach 1	111.29*	5-Year	0.07	252.84	253.78		253.78	0.000000	0.01	15.31	21.60	0.00
Reach 1	111.29*	10-Year	0.09	252.84	253.93		253.93	0.000000	0.01	18.64	22.50	0.00
Reach 1	111.29*	25-Year	0.12	252.84	254.13		254.13	0.000000	0.01	23.14	23.68	0.00
Reach 1	111.29*	50-Year	0.15	252.84	254.26		254.26	0.000000	0.01	26.33	24.41	0.00
Reach 1	111.29*	100-Year	0.16	252.84	254.31		254.31	0.000000	0.01	27.53	24.67	0.00
Reach 1	105.71*	1.5-Year	0.00	252.86	252.98		252.98	0.000001	0.00	0.34	3.11	0.00
Reach 1	105.71*	2-Year	0.04	252.86	253.57		253.57	0.000000	0.01	10.98	20.38	0.00
Reach 1	105.71*	5-Year	0.07	252.86	253.78		253.78	0.000000	0.01	15.50	21.67	0.00
Reach 1	105.71*	10-Year	0.09	252.86	253.93		253.93	0.000000	0.01	18.85	22.57	0.00
Reach 1	105.71*	25-Year	0.12	252.86	254.13		254.13	0.000000	0.01	23.35	23.75	0.00
Reach 1	105.71*	50-Year	0.15	252.86	254.26		254.26	0.000000	0.01	26.55	24.51	0.00
Reach 1	105.71*	100-Year	0.16	252.86	254.31		254.31	0.000000	0.01	27.77	24.78	0.00
Reach 1	100.14*	1.5-Year	0.00	252.87	252.98		252.98	0.000001	0.00	0.31	3.17	0.01
Reach 1	100.14*	2-Year	0.04	252.87	253.57		253.57	0.000000	0.01	11.17	20.46	0.00
Reach 1	100.14*	5-Year	0.07	252.87	253.78		253.78	0.000000	0.01	15.71	21.74	0.00
Reach 1	100.14*	10-Year	0.09	252.87	253.93		253.93	0.000000	0.01	19.06	22.64	0.00
Reach 1	100.14*	25-Year	0.12	252.87	254.13		254.13	0.000000	0.01	23.58	23.82	0.00
Reach 1	100.14*	50-Year	0.15	252.87	254.26		254.26	0.000000	0.01	26.79	24.60	0.00
Reach 1	100.14*	100-Year	0.16	252.87	254.31		254.31	0.000000	0.01	28.01	24.88	0.00
Reach 1	94.57*	1.5-Year	0.00	252.89	252.98		252.98	0.000002	0.01	0.36	16.88	0.01
Reach 1	94.57*	2-Year	0.04	252.89	253.57		253.57	0.000000	0.00	11.37	20.53	0.00
Reach 1	94.57*	5-Year	0.07	252.89	253.78		253.78	0.000000	0.01	15.92	21.81	0.00
Reach 1	94.57*	10-Year	0.09	252.89	253.93		253.93	0.000000	0.01	19.28	22.71	0.00
Reach 1	94.57*	25-Year	0.12	252.89	254.13		254.13	0.000000	0.01	23.82	23.88	0.00
Reach 1	94.57*	50-Year	0.15	252.89	254.26		254.26	0.000000	0.01	27.04	24.68	0.00
Reach 1	94.57*	100-Year	0.16	252.89	254.31		254.31	0.000000	0.01	28.26	24.97	0.00
Reach 1	89	1.5-Year	0.01	252.90	252.98		252.98	0.000128	0.04	0.51	17.12	0.05
Reach 1	89	2-Year	0.93	252.90	253.57		253.57	0.000044	0.11	11.56	20.60	0.04
Reach 1	89	5-Year	1.53	252.90	253.78		253.78	0.000043	0.13	16.13	21.88	0.05
Reach 1	89	10-Year	2.01	252.90	253.93		253.93	0.000042	0.15	19.50	22.77	0.05
Reach 1	89	25-Year	2.66	252.90	254.13		254.13	0.000039	0.16	24.05	23.95	0.05
Reach 1	89	50-Year	3.16	252.90	254.26		254.26	0.000038	0.17	27.27	24.75	0.05
Reach 1	89	100-Year	3.69	252.90	254.31		254.31	0.000046	0.19	28.49	25.05	0.05
Reach 1	82	1.5-Year	0.01	252.90	252.98	252.91	252.98	0.000139	0.05	0.49	17.09	0.05
Reach 1	82	2-Year	0.93	252.90	253.57	253.03	253.57	0.000045	0.11	11.32	19.82	0.04
Reach 1	82	5-Year	1.53	252.90	253.78	253.06	253.78	0.000045	0.14	15.69	20.82	0.05
Reach 1	82	10-Year	2.01	252.90	253.93	253.07	253.93	0.000044	0.15	18.88	21.52	0.05
Reach 1	82	25-Year	2.66	252.90	254.13	253.10	254.13	0.000041	0.16	23.16	22.42	0.05
Reach 1	82	50-Year	3.16	252.90	254.26	253.11	254.26	0.000040	0.17	26.17	23.06	0.05
Reach 1	82	100-Year	3.69	252.90	254.31	253.13	254.31	0.000048	0.19	27.31	23.44	0.05
Reach 1	56	Culvert										
Reach 1	30	1.5-Year	0.01	252.80	252.88		252.88	0.000107	0.04	0.55	17.10	0.05
Reach 1	30	2-Year	0.93	252.80	253.07		253.07	0.001446	0.34	3.79	17.89	0.22
Reach 1	30	5-Year	1.53	252.80	253.13		253.13	0.001794	0.44	4.85	18.15	0.25
Reach 1	30	10-Year	2.01	252.80	253.16		253.17	0.002015	0.50	5.54	18.31	0.27
Reach 1	30	25-Year	2.66	252.80	253.21		253.22	0.002255	0.57	6.37	18.51	0.29
Reach 1	30	50-Year	3.16	252.80	253.24		253.25	0.002409	0.62	6.96	18.64	0.30
Reach 1	30	100-Year	3.69	252.80	253.27		253.29	0.002550	0.67	7.53	18.78	0.31
Reach 1	2	1.5-Year	0.01	252.86	252.87	252.87	252.87	0.004996	0.08	0.18	17.06	0.24
Reach 1	2	2-Year	0.93	252.86	252.99	252.93	253.00	0.005002	0.41	2.30	17.79	0.36
Reach 1	2	5-Year	1.53	252.86	253.04	252.95	253.05	0.005001	0.50	3.13	18.06	0.38
Reach 1	2	10-Year	2.01	252.86	253.07	252.97	253.09	0.005005	0.55	3.69	18.25	0.39
Reach 1	2	25-Year	2.66	252.86	253.11	252.99	253.13	0.005004	0.62	4.39	18.47	0.40
Reach 1	2	50-Year	3.16	252.86	253.13	253.01	253.16	0.005002	0.66	4.89	18.63	0.40
Reach 1	2	100-Year	3.69	252.86	253.16	253.03	253.19	0.005005	0.71	5.37	18.78	0.41