J.F. Sabourin and Associates Inc.
52 Springbrook Drive,
Ottawa, ON K2S 1B9
T 613-836-3884 F 613-836-0332

jfsa.com

Ottawa. ON
Paris. ON
Gatineau. QC
Montréal. QC
Québec. QC

October 25, 2022 Project Number: 2363-22

Kollaard Associates Inc.
210 Prescot Street, Unit 1,
P.O. Box 189
Kemptville, ON
K0G 1J0

Attention: **William Kollaard, P.Eng.**

Subject: **2050 Dunrobin Road, City of Ottawa – Floodplain Analysis**

Overview

J.F. Sabourin and Associates Inc. (JFSA) has been retained by Kollaard Associates Inc. (Kollaard) to investigate the current floodplain extents on a site located at 2050 Dunrobin Road (hereon referred to as "the subject property"), adjacent to Harwood Creek. Based on the current floodplain mapping of Harwood Creek provided by the Mississippi Valley Conservation Authority (MVCA), as well as the information submitted by MVCA on their review of the Application for Zoning By-law Amendment on June 17, 2022, the subject property is partially located within the floodplain and regulation limit of Harwood Creek. Under proposed conditions, the development area of 8 rural residential lots will de raised to ensure there is no floodplain encroachment on any part of the residential envelope. Additionally, the floodplain is considered a backwater area that does not contribute to the effective conveyance of flows on Harwood Creek. **Figure 1** shows the extent of the floodplain within the subject property for the existing conditions. The following memo assesses the potential flooding on these lands and quantifies the impacts of raising the grades in this location to ensure no encroachment on the residential development envelopes.

Hydraulic Analysis

To support this analysis, JFSA has purchased a copy of the hydraulic (HEC-RAS) model of Harwood Creek developed by MVCA as part of the floodplain mapping works recently undertaken on this watercourse. In addition to this, LiDAR has been obtained from the City of Ottawa which was flown in 2020. **Figure 2** provides an overview of both the HEC-RAS model and the LiDAR obtained for this project.

From the topographic mapping underlaid in **Figure 2**, it is seen that the floodplain bulges out on this site as the product of a lateral spill from Harwood Creek located between model cross-sections (XS) **1130** and **1214**. As the flooding potential on these lands would occur due to lateral spill/backwater conditions, this area provides no benefit to flow conveyance and in turn, cannot impact the conveyance of flows along Harwood Creek. This concept is also proven by comparing the results of the pre- and post-development floodplain analysis, which demonstrates that there are no changes to the inundation boundary along Harwood Creek despite the reduction of the inundated area within the subject lands due to the proposed site alteration. **Figure 3** shows the floodplain overview under proposed conditions and **Figure 4** shows a comparison/overlay between the existing and proposed floodplain conditions, identifying the floodplain removal within the subject lands and showing that there are no changes to the existing floodplain limits along Harwood Creek. Note that from **Figure 3,** none of the proposed units are at risk of flooding.

JFSA has updated the HEC-RAS model with the 2020 LiDAR obtained from the City of Ottawa and the inclusion of the proposed development as per the detailed grading design provided by Kollaard, see **Figure 5** for the proposed details grading plan for this site. **Attachment A** provides a full summary of existing and proposed results, which shows that the filling of these lands has no impact and that the peak water level results are identical. Additionally, by comparing the 100-year water surface elevation of **75.48 m** on Harwood Creek at **XS 1214** with the proposed underside of footing elevation (USF) of **75.80 m** at **Unit 8**, it can be concluded that the USF is above the 100-year water level on Harwood Creek, with a freeboard of **0.32 m**.

It should be noted that 1D HEC-RAS models, although capable of simulating lateral spills, are not well suited to capture the complex hydraulic phenomenon under such situations. As a secondary check, the floodplain storage loss caused by filling these lands has been assessed using simple GIS tools and data available.

Floodplain Storage Volume

Based on MVCA's HEC-RAS modelling, the 100-year water surface elevation on Harwood Creek at **XS 1214** is **75.48 m**. Overlaying this water surface elevation onto the City of Ottawa LiDAR within the subject property and summing up the total depth of flooding in each cell (1.0m x 1.0m cell) determined that the total existing floodplain storage volume at this location is approximately **3,008 m³**. By doing the same process for the proposed condition where a portion of the development is filled, the floodplain storage volume within the subject property is approximately **1,877 m³**. As such, filling this land would reduce the total floodplain storage volume to Harwood Creek by approximately **1,131 m³**. To provide some context, based on MVCA's HEC-RAS model, the total floodplain storage volume within the Harwood Creek for the 100-year event is **312,000 m³**, therefore the floodplain storage volume loss due to the filling within the subject property at 2050 Dunrobin Road equates to a **0.36%** reduction in total floodplain storage within Harwood Creek. As such, it is determined that filling these lands will have no impact on the hydraulic operations of this watercourse.

Conclusion

Based on the above, JFSA has assessed the potential impacts of filling the area within 2050 Dunrobin Road, which is currently mapped as a floodplain in MVCA's recent floodplain mapping study. Based on updated HEC-RAS modelling, which assumes these lands are filled, JFSA has demonstrated that there is no increase in peak water level. It was noted that 1D HEC-RAS models are not well suited to assessing/simulating the complexities of lateral spills, and as such the floodplain storage lost due to filling these lands was approximated using 2020 LiDAR obtained from the City of Ottawa and the MVCA's simulated 100-year water surface elevation over these lands. Based on this analysis, it was found that filling the floodplain bulge on these lands will result in an approximate reduction in storage volume by **1,131 m³** or **0.36%** of the Harwood Creek 100-year floodplain. As such JFSA concludes that the proposed filling within the subject property will have no adverse impacts on the existing hydraulic operations of Harwood Creek.

Yours truly,
J.F Sabourin and Associates Inc.

Jonathon Burnet, B.Eng, P.Eng
Water Resource Engineer

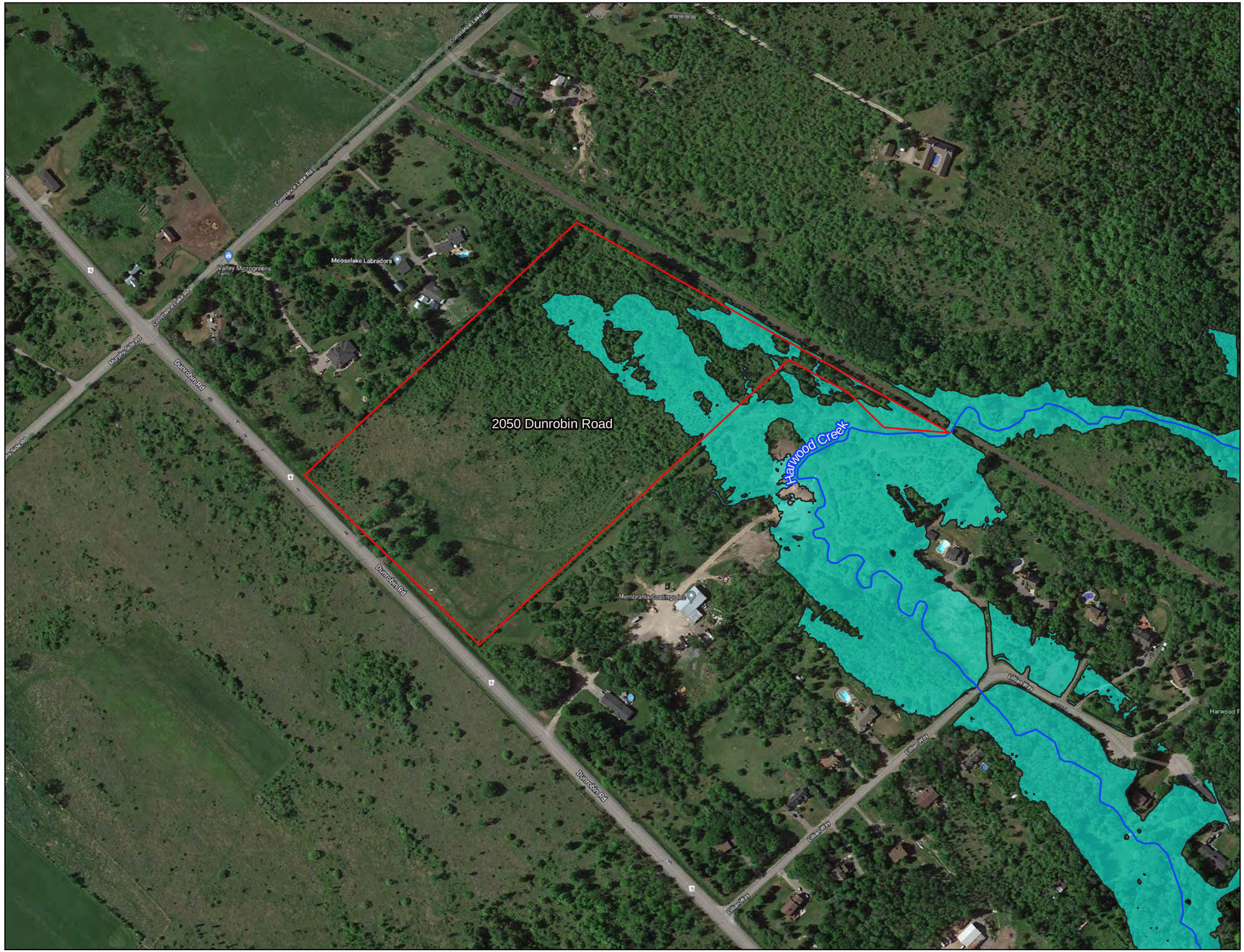
cc: J.F Sabourin, M.Eng, P.Eng
Director of Water Resources Projects

Figures

Figure 1: Existing Conditions 100-Year Floodplain Overview
Figure 2: HEC-RAS Model Overview
Figure 3: Proposed Conditions 100-Year Floodplain Overview
Figure 4: Existing & Proposed Conditions 100-Year Floodplain Comparison
Figure 5: Preliminary Grading Plan for Fill Placement (Kollaard, March 2022)

Attachments

Attachment A: Harwood Creek HEC-RAS Model Results



N

Legend

- Site Boundary
- Watercourse
- Existing Floodplain
  City of Ottawa Lidar (NRCan)

SCALE: 1:3500

0 100 200 m

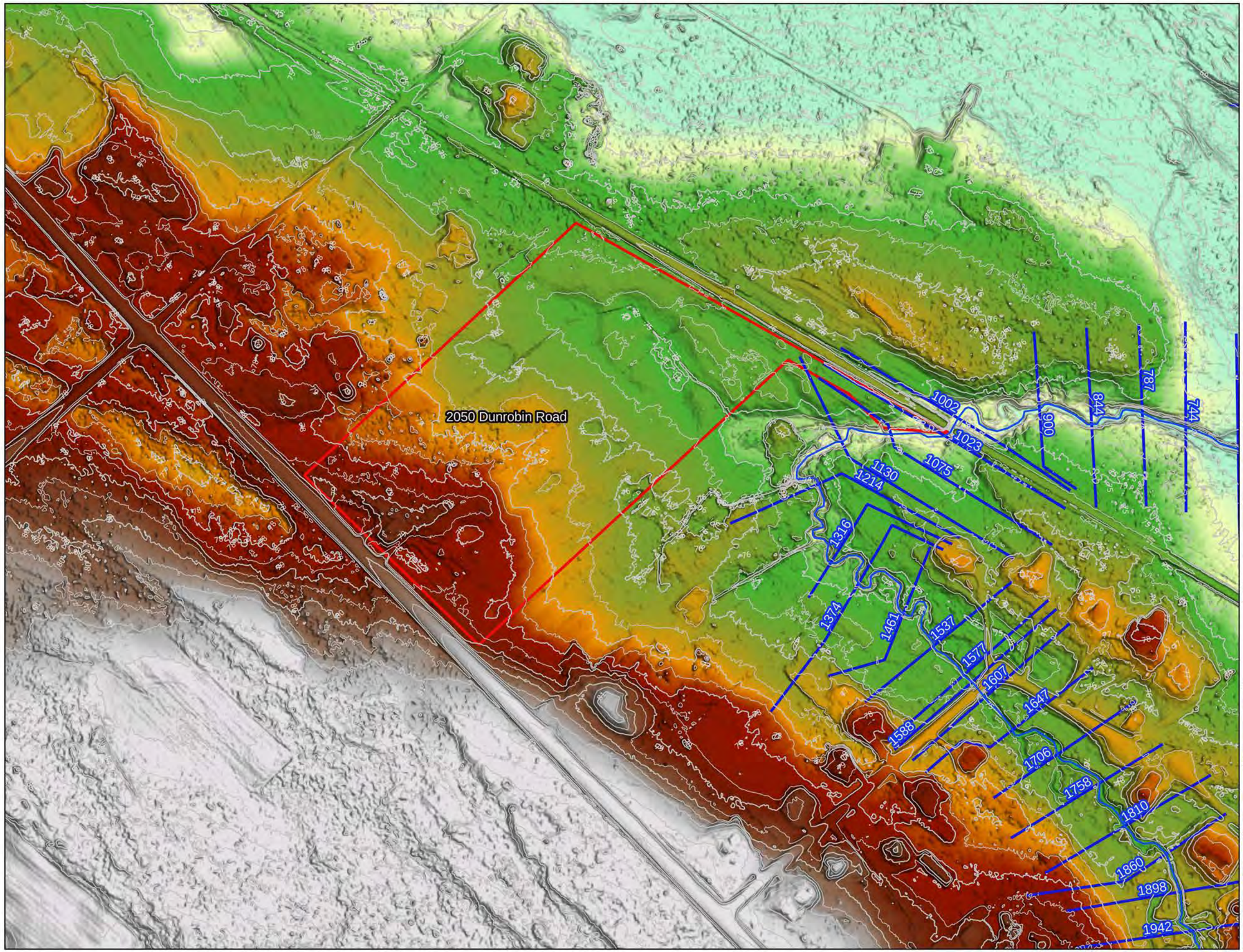
J.F. Sabourin and Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
52 Springbrook Drive
Ottawa, ON, K2S 1B9
(613) 836-3884
www.jfsa.com

Kollaard Associates
Engineers

2050 Dunrobin Road
Harwood Creek
Floodplain Analysis

Figure 1: Existing Conditions
100-Year Floodplain Overview

PROJECT	2363-22
DRAWN	PP
DATE	October 2022



Legend

- Minor Contours (0.5m)
- Major Contours (1.0m)
- HEC-RAS XS
- Site Boundary
- Watercourse

Lidar (m)

- 73
- 74
- 75
- 76
- 77
- 78
- 79
- 80
- 81
- 82

SCALE: 1:3500

0 100 200 m

J.F. Sabourin and Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
52 Springbrook Drive
Ottawa, ON, K2S 1B9
(613) 836-3884
www.jfsa.com

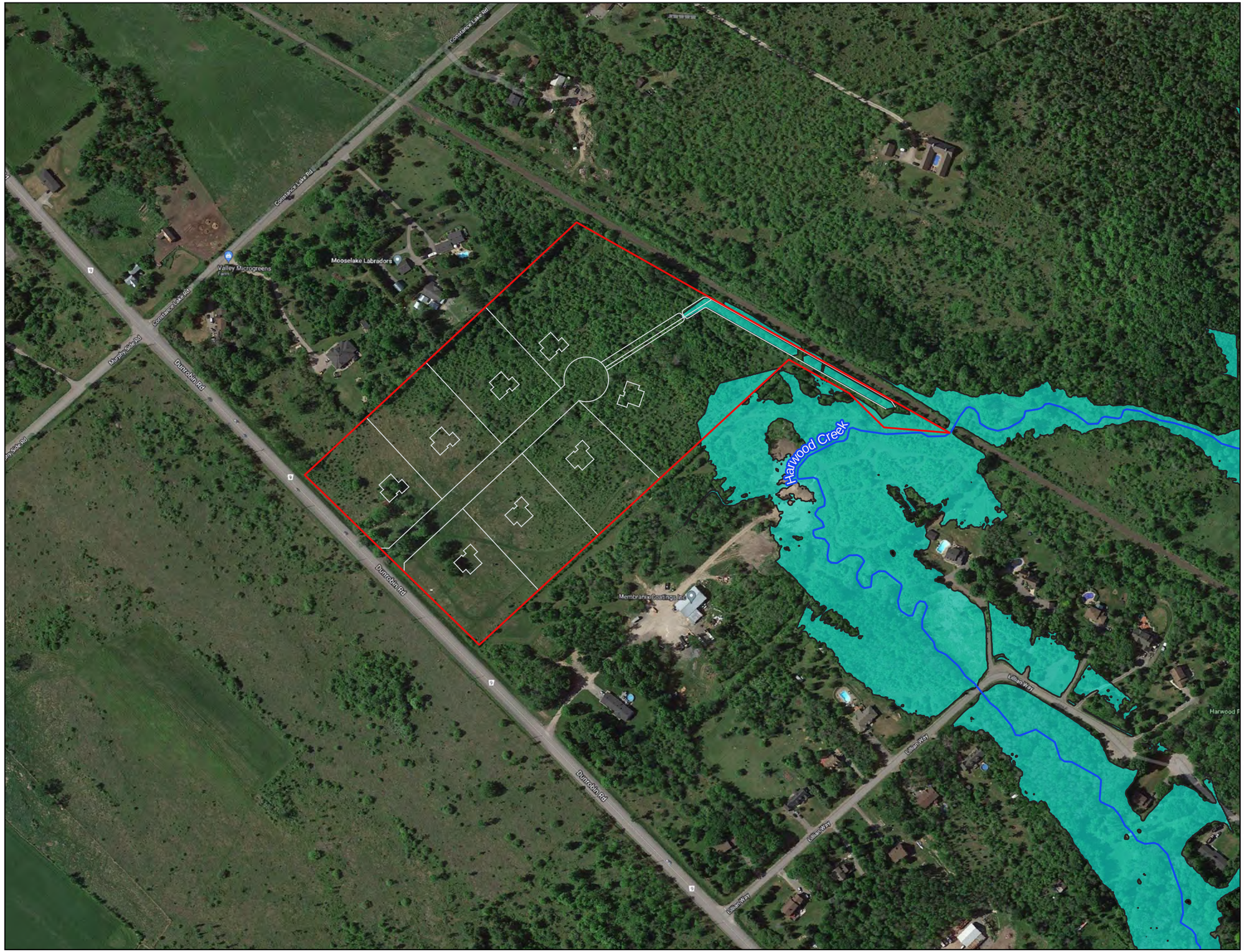
Kollaard Associates
Engineers

2050 Dunrobin Road
Harwood Creek
Floodplain Analysis

Figure 2: HEC-RAS Model Overview

PROJECT	2363-22
DRAWN	PP
DATE	October 2022

C:\OneDrive\J.F. Sabourin and Associates Inc\JFSA-OTTAWA-SERVER - Documents\PROJ\2363-22\Design\GIS\20221018 - Report Figures



N

Legend

- Site Boundary
- SitePlan
- Watercourse
- 100-Year Floodplain

SCALE: 1:3500

0 100 200 m

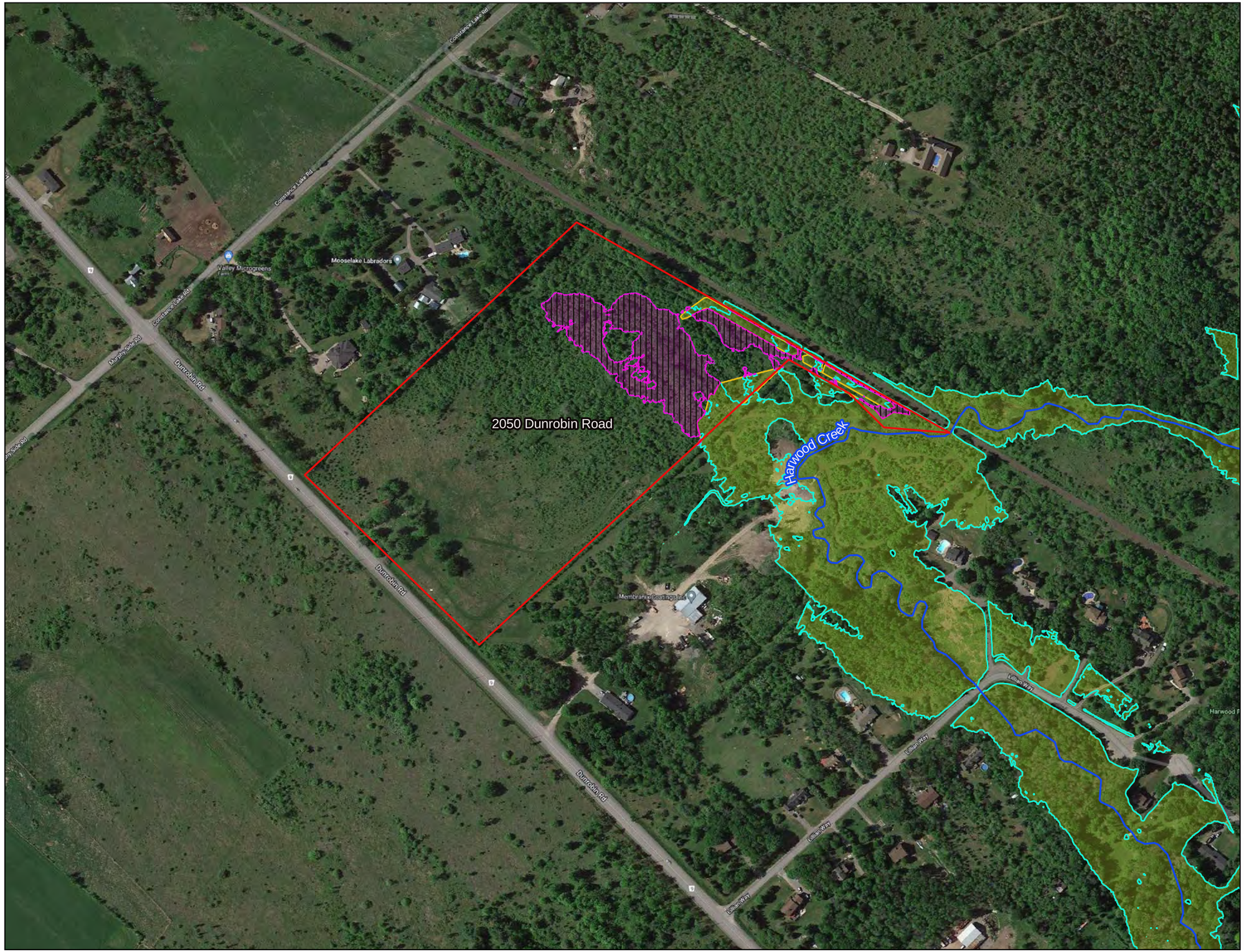
J.F. Sabourin and Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
52 Springbrook Drive
Ottawa, ON, K2S 1B9
(613) 836-3884
www.jfsa.com

Kollaard Associates
Engineers

2050 Dunrobin Road
Harwood Creek
Floodplain Analysis

Figure 3: Proposed Conditions
100-Year Floodplain Overview

PROJECT	2363-22
DRAWN	PP
DATE	October 2022



N

Legend

- Site Boundary
- Watercourse
- Floodplain Removal
- Existing Condition Floodplain
- Proposed Condition Floodplain

SCALE: 1:3500

0 100 200 m

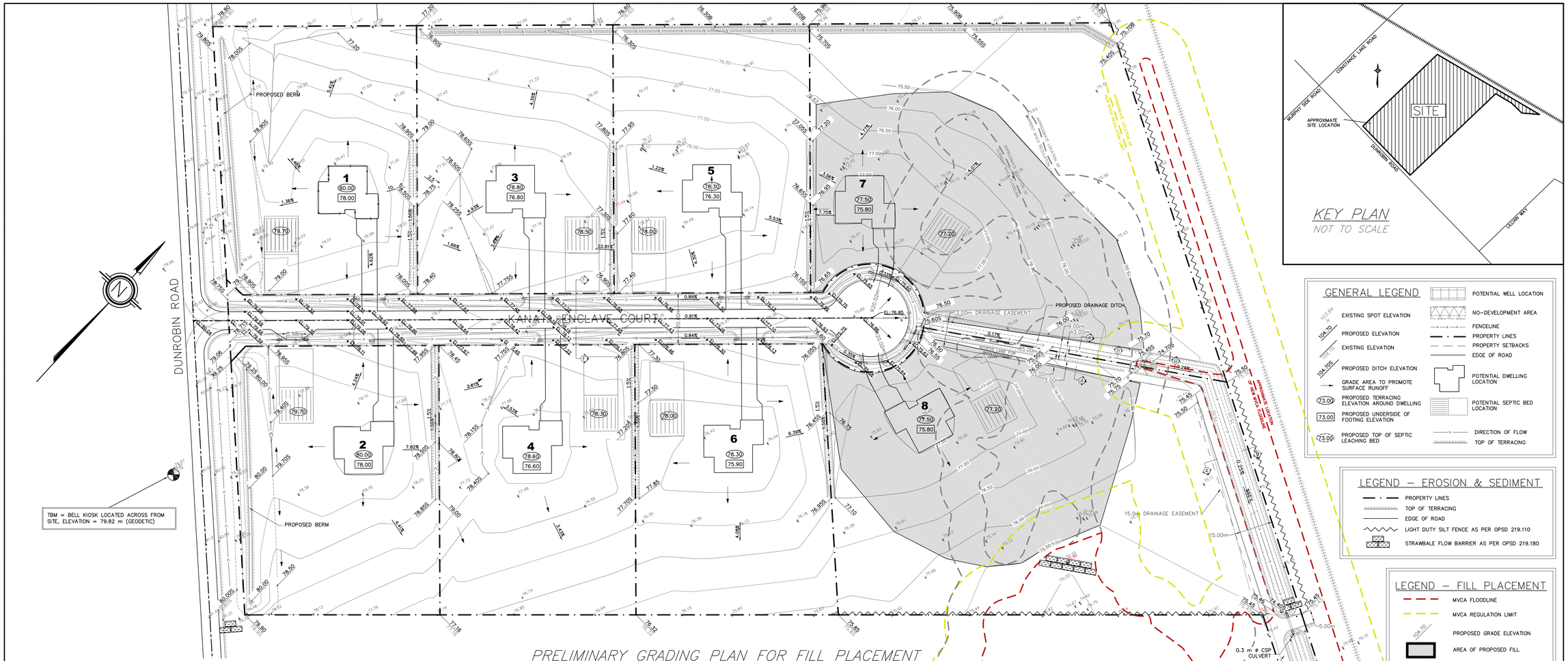
J.F. Sabourin and Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
52 Springbrook Drive
Ottawa, ON, K2S 1B9
(613) 836-3884
www.jfsa.com

Kollaard Associates
Engineers

2050 Dunrobin Road
Harwood Creek
Floodplain Analysis

Figure 4: Existing & Proposed Conditions
100-Year Floodplain Comparison

PROJECT	2363-22
DRAWN	PP
DATE	October 2022



PRELIMINARY GRADING PLAN FOR FILL PLACEMENT

SCALE = 1:750

KEY PLAN

NOT TO SCALE

GENERAL LEGEND

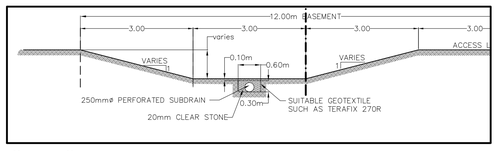
- EXISTING SPOT ELEVATION
- PROPOSED ELEVATION
- EXISTING ELEVATION
- PROPOSED DITCH ELEVATION
- GRADE AREA TO PROMOTE SURFACE RUNOFF
- PROPOSED TERRACING ELEVATION AROUND DWELLING
- PROPOSED UNDERSIDE OF FOOTING ELEVATION
- PROPOSED TOP OF SEPTIC LEACHING BED
- POTENTIAL WELL LOCATION
- NO-DEVELOPMENT AREA
- FENCELINE
- PROPERTY LINES
- PROPERTY SETBACKS
- EDGE OF ROAD
- POTENTIAL DWELLING LOCATION
- POTENTIAL SEPTIC BED LOCATION
- DIRECTION OF FLOW
- TOP OF TERRACING

LEGEND – EROSION & SEDIMENT

- PROPERTY LINES
- TOP OF TERRACING
- EDGE OF ROAD
- LIGHT DUTY SILT FENCE AS PER OPSD 219.110
- STRAWBALE FLOW BARRIER AS PER OPSD 219.180

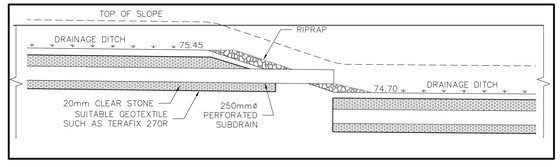
LEGEND – FILL PLACEMENT

- MVCA FLOODLINE
- MVCA REGULATION LIMIT
- PROPOSED GRADE ELEVATION
- AREA OF PROPOSED FILL



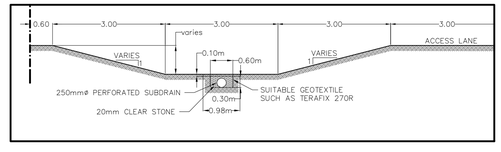
"A–A" PROPOSED DRAINAGE DITCH SECTION

NOT TO SCALE



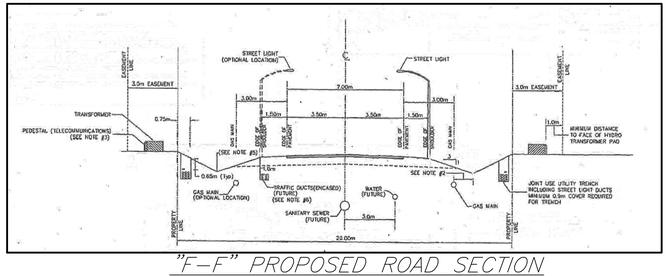
"B–B" PROPOSED DRAINAGE DITCH PROFILE

NOT TO SCALE



"C–C" PROPOSED DRAINAGE DITCH SECTION

NOT TO SCALE



"F–F" PROPOSED ROAD SECTION

NOT TO SCALE

GRADING & DRAINAGE NOTES

1. Finished grade to slope away from proposed and existing buildings at a minimum of 2% grade for the first 5.0 metres from building. Grade elevations are as indicated.
2. All roadside ditches, swales and exposed drainage channels to be treated with 75mm of topsoil and seeded/mulched or hydroseeded as soon as possible. (Unless noted otherwise)
3. All materials and construction methods to be in accordance with the City of Ottawa.
4. All disturbed areas to be reinstated to the satisfaction of the engineer and the City of Ottawa.
5. The owner (and/or Contractor) agrees to prepare and implement an erosion and sediment control plan at least equal to the stated minimum requirements and to the satisfaction of the City of Ottawa and the Mississippi Conservation, appropriate to the site conditions, prior to undertaking any site alterations (filling, grading, removal of vegetaiton, etc…) and during all phases of site preparation and construction in accordance with the current Best Management Practices for Erosion and Sediment Control such as but not limited to installing a light duty silt fence barrier as shown of Kollaard Associates Inc. dwg. No. 070415-3 (Erosion & Sediment Control Plan).
6. Match existing elevations at all exterior property lines. Ensure positive drainage whether indicated or not.
7. All lots to be graded to allow positive drainage away from tile beds and dwellings consistent with the drainage patterns outlined on this plan. All isolated low areas are to be eliminated.
8. Undersides of footing and terrace elevations have been set for grading drainage purposes only. Builders should consult the geotechnical report for the subdivision prior to construction. Builders should obtain a subgrade inspection report from qualified engineer prior to concrete placement.
9. Driveway entrance culverts to will consist of non-perforated 12.00 METRE – 600mm Ø Corragated Steel Pipel.
10. Roadway subgrade shall be inspected by a licensed Geotechnical engineer prior to the placement of granulars.
11. All drainage easements, road side ditches, and property line swales with slopes one percent (1%) or less require a subdrain (see typical detail).
12. Subdrain cover material to consist of a sand/peat mixture capable of supporting vegetative growth.

NOTE:

1. All dimensions are in metres.
2. All elevations are in metres and are based on a geodetic benchmark. TBM = Bell kiosk located sout/westh side of Dunrobin Road, across from proposed lot #2 , elevation = 79.82 m (geodetic)
3. This drawing does not represent a legal survey.
4. Finished grade to slope away from proposed building at a minimum of 2%. Grade elevations are as indicated.
5. All dimensions to be verified on site by contractor prior to construction.
6. All materials and construction methods to be in accordance with City of Ottawa Standards and Ontario Provincial Standards and Specifications.
7. All disturbed areas to be reinstated to the satisfaction of the engineer and the City of Ottawa.
8. The owner (and/or Contractor) agrees to prepare and implement an erosion and sediment control plan at least equal to the stated minimum requirements and to the satisfaction of the City of Ottawa, appropriate to the site conditions, prior to undertaking any site alterations (filling, grading, removal of vegetation, etc.) and during all phases of site preparation and construction in accordance with the current Best Management Practices for Erosion and Sediment Control
9. Any changes made to this plan must be verified and approved by Kollaard Associates Inc.

No.	REVISION	DATE	BY
1	ISSUED FOR MVCA PERMIT	MAY.06.2021	ML
0	ISSUED FOR CITY AND MVCA REVIEW	MAR.09.2021	ML

Kollaard Associates
Engineers

BOX 189
210 PRESCOTT STREET
KEMPTVILLE, ONTARIO
K0G 1J0
FACSIMILE (613) 258–0475

(613) 860–0923

DESIGN	KL/SD/WK
CHECKED	SD
DRAWN	PV/RR/ML
CHECKED	SD
APPROVED	SD

SCALE

1: 750

0 10 30
5 20

PROJECT LOCATION	2050 DUNROBIN ROAD, CITY OF OTTAWA, ONTARIO
CLIENT NAME	ZBIGNIEW HAUDEROWICZ
PROJECT NAME	PROPOSED RESIDENTIAL SUBDIVISION
DRAWING	PRELIMARY GRADING PLAN FOR FILL PLACEMENT
PROJECT No.	200977
DRAWING No.	200977–GRF
DATE	MARCH 09, 2021
SHEET SET	FIGURE 5

Ottawa. ON
Paris. ON
Gatineau. QC
Montréal. QC
Québec. QC

Attachment A

Harwood Creek HEC-RAS Model Results

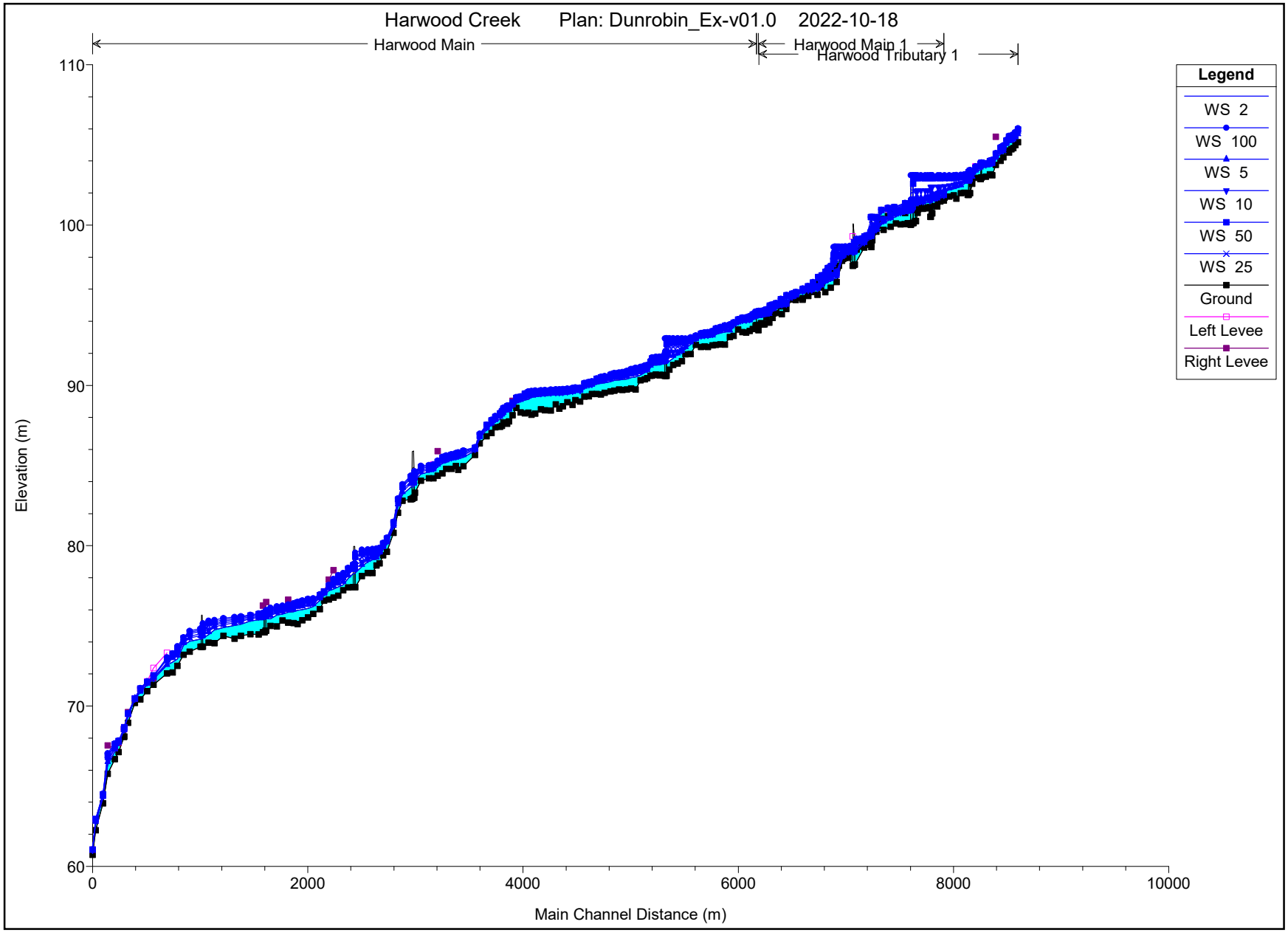

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Main
Harwood Main 1
Harwood Tributary 1
Legend
WS 2
WS 100
WS 5
WS 10
WS 50
WS 25
Ground
Left Levee
Right Levee
Elevation (m)
110
100
90
80
70
60
0
2000
4000
6000
8000
10000
Main Channel Distance (m)

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	1723	2	2.56	101.53	101.76	101.76	101.84	0.017944	1.26	0.5	3.5	0.99
Main 1	1723	5	4.22	101.53	101.83	101.83	101.93	0.014993	1.44	0.76	4.16	0.95
Main 1	1723	10	6.11	101.53	101.88	101.88	102	0.013707	1.59	1	4.69	0.94
Main 1	1723	25	9.75	101.53	101.96	101.96	102.1	0.012434	1.78	1.41	5.49	0.94
Main 1	1723	50	11.86	101.53	102	102	102.15	0.011893	1.86	1.63	5.91	0.93
Main 1	1723	100	13.4	101.53	102.04	102.04	102.2	0.011449	1.93	1.86	6.29	0.93
Main 1	1661	2	2.48	101.16	101.59		101.59	0.000572	0.4	1.9	6.77	0.2
Main 1	1661	5	4.11	101.16	101.68		101.69	0.000719	0.52	2.56	7.93	0.24
Main 1	1661	10	5.98	101.16	101.75		101.76	0.000826	0.61	3.17	9.26	0.26
Main 1	1661	25	9.58	101.16	101.85		101.87	0.000974	0.74	4.26	12.73	0.29
Main 1	1661	50	11.66	101.16	101.9		101.92	0.001031	0.8	4.94	14.99	0.3
Main 1	1661	100	13.17	101.16	101.95		101.98	0.000974	0.81	5.84	17.28	0.3
Main 1	1639	2	2.45	101.19	101.55		101.57	0.002556	0.64	1.03	4.5	0.4
Main 1	1639	5	4.07	101.19	101.63		101.66	0.002862	0.8	1.41	5.09	0.44
Main 1	1639	10	5.93	101.19	101.69		101.73	0.003098	0.93	1.73	5.69	0.47
Main 1	1639	25	9.51	101.19	101.77		101.83	0.003452	1.12	2.25	6.65	0.51
Main 1	1639	50	11.58	101.19	101.81		101.88	0.003615	1.21	2.55	8.9	0.53
Main 1	1639	100	13.07	101.19	101.85		101.93	0.004151	1.35	2.96	11.94	0.58
Main 1	1593	2	2.4	101.12	101.43		101.45	0.002515	0.62	1.14	6.54	0.4
Main 1	1593	5	4	101.12	101.51		101.53	0.002462	0.73	1.69	7.62	0.41
Main 1	1593	10	5.83	101.12	101.57		101.59	0.002532	0.83	2.14	8.33	0.43
Main 1	1593	25	9.39	101.12	101.64		101.68	0.00273	0.97	2.82	9.27	0.46
Main 1	1593	50	11.44	101.12	101.68		101.72	0.002842	1.04	3.17	9.74	0.47
Main 1	1593	100	12.92	101.12	101.71		101.76	0.00295	1.11	3.49	10.17	0.49
Main 1	1528	2	2.29	101.01	101.37		101.37	0.000618	0.35	2.18	9.8	0.2
Main 1	1528	5	3.85	101.01	101.43		101.44	0.000814	0.46	2.85	10.92	0.24
Main 1	1528	10	5.66	101.01	101.48		101.49	0.001024	0.55	3.36	11.67	0.27
Main 1	1528	25	9.17	101.01	101.53		101.55	0.00146	0.71	4.03	15.56	0.33
Main 1	1528	50	11.2	101.01	101.55		101.58	0.001705	0.8	4.41	17.23	0.36
Main 1	1528	100	12.65	101.01	101.58		101.6	0.001911	0.87	4.8	18.55	0.39
Main 1	1483	2	2.2	100.99	101.33		101.34	0.000993	0.44	1.89	14.64	0.26
Main 1	1483	5	3.72	100.99	101.39		101.4	0.001182	0.54	3.23	30.74	0.29
Main 1	1483	10	5.48	100.99	101.43		101.44	0.001243	0.59	4.72	42.85	0.3
Main 1	1483	25	8.92	100.99	101.48		101.49	0.001152	0.61	7.09	52.98	0.3
Main 1	1483	50	10.92	100.99	101.5		101.51	0.001124	0.63	8.36	57.61	0.29
Main 1	1483	100	12.33	100.99	101.52		101.53	0.001148	0.65	9.56	61.59	0.3
Main 1	1430	2	2.12	100.94	101.24		101.26	0.002407	0.62	1.26	17.6	0.39
Main 1	1430	5	3.53	100.94	101.32		101.33	0.001281	0.54	3.59	38.04	0.3
Main 1	1430	10	5.19	100.94	101.37		101.38	0.0009	0.5	5.79	46.5	0.25
Main 1	1430	25	8.5	100.94	101.43		101.43	0.000813	0.52	8.59	56.48	0.25
Main 1	1430	50	10.42	100.94	101.45		101.46	0.000802	0.53	10.04	65.29	0.25
Main 1	1430	100	11.77	100.94	101.47		101.48	0.000808	0.55	11.4	73.19	0.25
Main 1	1363	2	2.01	100.75	101.16		101.17	0.000745	0.44	1.71	6.79	0.23
Main 1	1363	5	3.33	100.75	101.24		101.26	0.000959	0.56	2.33	11.82	0.27
Main 1	1363	10	4.88	100.75	101.3		101.31	0.001111	0.65	3.37	28.26	0.3
Main 1	1363	25	8.03	100.75	101.34		101.36	0.001494	0.8	5.12	50.95	0.35
Main 1	1363	50	9.87	100.75	101.36	101.17	101.38	0.00163	0.86	6.17	58.92	0.37
Main 1	1363	100	11.13	100.75	101.38	101.19	101.4	0.001718	0.9	7.28	68.12	0.38
Main 1	1262	2	1.9	100.77	100.92	100.91	100.97	0.016141	0.94	0.66	6.89	0.88
Main 1	1262	5	3.16	100.77	100.98	100.96	101.03	0.01067	1	1.11	8.74	0.77
Main 1	1262	10	4.63	100.77	101.02	101.02	101.07	0.008784	1.04	1.85	23.53	0.72
Main 1	1262	25	7.6	100.77	101.08		101.11	0.004863	0.93	3.61	30.55	0.56
Main 1	1262	50	9.35	100.77	101.11		101.14	0.004128	0.91	4.47	32.81	0.53
Main 1	1262	100	10.52	100.77	101.13		101.16	0.003687	0.9	5.25	34.04	0.5

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	1723	2	2.56	101.53	101.76	101.76	101.84	0.017944	1.26	0.5	3.5	0.99
Main 1	1723	5	4.22	101.53	101.83	101.83	101.93	0.014993	1.44	0.76	4.16	0.95
Main 1	1723	10	6.11	101.53	101.88	101.88	102	0.013707	1.59	1	4.69	0.94
Main 1	1723	25	9.75	101.53	101.96	101.96	102.1	0.012434	1.78	1.41	5.49	0.94
Main 1	1723	50	11.86	101.53	102	102	102.15	0.011893	1.86	1.63	5.91	0.93
Main 1	1723	100	13.4	101.53	102.04	102.04	102.2	0.011449	1.93	1.86	6.29	0.93
Main 1	1661	2	2.48	101.16	101.59		101.59	0.000572	0.4	1.9	6.77	0.2
Main 1	1661	5	4.11	101.16	101.68		101.69	0.000719	0.52	2.56	7.93	0.24
Main 1	1661	10	5.98	101.16	101.75		101.76	0.000826	0.61	3.17	9.26	0.26
Main 1	1661	25	9.58	101.16	101.85		101.87	0.000974	0.74	4.26	12.73	0.29
Main 1	1661	50	11.66	101.16	101.9		101.92	0.001031	0.8	4.94	14.99	0.3
Main 1	1661	100	13.17	101.16	101.95		101.98	0.000974	0.81	5.84	17.28	0.3
Main 1	1639	2	2.45	101.19	101.55		101.57	0.002556	0.64	1.03	4.5	0.4
Main 1	1639	5	4.07	101.19	101.63		101.66	0.002862	0.8	1.41	5.09	0.44
Main 1	1639	10	5.93	101.19	101.69		101.73	0.003098	0.93	1.73	5.69	0.47
Main 1	1639	25	9.51	101.19	101.77		101.83	0.003452	1.12	2.25	6.65	0.51
Main 1	1639	50	11.58	101.19	101.81		101.88	0.003615	1.21	2.55	8.9	0.53
Main 1	1639	100	13.07	101.19	101.85		101.93	0.004151	1.35	2.96	11.94	0.58
Main 1	1593	2	2.4	101.12	101.43		101.45	0.002515	0.62	1.14	6.54	0.4
Main 1	1593	5	4	101.12	101.51		101.53	0.002462	0.73	1.69	7.62	0.41
Main 1	1593	10	5.83	101.12	101.57		101.59	0.002532	0.83	2.14	8.33	0.43
Main 1	1593	25	9.39	101.12	101.64		101.68	0.00273	0.97	2.82	9.27	0.46
Main 1	1593	50	11.44	101.12	101.68		101.72	0.002842	1.04	3.17	9.74	0.47
Main 1	1593	100	12.92	101.12	101.71		101.76	0.00295	1.11	3.49	10.17	0.49
Main 1	1528	2	2.29	101.01	101.37		101.37	0.000618	0.35	2.18	9.8	0.2
Main 1	1528	5	3.85	101.01	101.43		101.44	0.000814	0.46	2.85	10.92	0.24
Main 1	1528	10	5.66	101.01	101.48		101.49	0.001024	0.55	3.36	11.67	0.27
Main 1	1528	25	9.17	101.01	101.53		101.55	0.00146	0.71	4.03	15.56	0.33
Main 1	1528	50	11.2	101.01	101.55		101.58	0.001705	0.8	4.41	17.23	0.36
Main 1	1528	100	12.65	101.01	101.58		101.6	0.001911	0.87	4.8	18.55	0.39
Main 1	1483	2	2.2	100.99	101.33		101.34	0.000993	0.44	1.89	14.64	0.26
Main 1	1483	5	3.72	100.99	101.39		101.4	0.001182	0.54	3.23	30.74	0.29
Main 1	1483	10	5.48	100.99	101.43		101.44	0.001243	0.59	4.72	42.85	0.3
Main 1	1483	25	8.92	100.99	101.48		101.49	0.001152	0.61	7.09	52.98	0.3
Main 1	1483	50	10.92	100.99	101.5		101.51	0.001124	0.63	8.36	57.61	0.29
Main 1	1483	100	12.33	100.99	101.52		101.53	0.001148	0.65	9.56	61.59	0.3
Main 1	1430	2	2.12	100.94	101.24		101.26	0.002407	0.62	1.26	17.6	0.39
Main 1	1430	5	3.53	100.94	101.32		101.33	0.001281	0.54	3.59	38.04	0.3
Main 1	1430	10	5.19	100.94	101.37		101.38	0.0009	0.5	5.79	46.5	0.25
Main 1	1430	25	8.5	100.94	101.43		101.43	0.000813	0.52	8.59	56.48	0.25
Main 1	1430	50	10.42	100.94	101.45		101.46	0.000802	0.53	10.04	65.29	0.25
Main 1	1430	100	11.77	100.94	101.47		101.48	0.000808	0.55	11.4	73.19	0.25
Main 1	1363	2	2.01	100.75	101.16		101.17	0.000745	0.44	1.71	6.79	0.23
Main 1	1363	5	3.33	100.75	101.24		101.26	0.000959	0.56	2.33	11.82	0.27
Main 1	1363	10	4.88	100.75	101.3		101.31	0.001111	0.65	3.37	28.26	0.3
Main 1	1363	25	8.03	100.75	101.34		101.36	0.001494	0.8	5.12	50.95	0.35
Main 1	1363	50	9.87	100.75	101.36	101.17	101.38	0.00163	0.86	6.17	58.92	0.37
Main 1	1363	100	11.13	100.75	101.38	101.19	101.4	0.001718	0.9	7.28	68.12	0.38
Main 1	1262	2	1.9	100.77	100.92	100.91	100.97	0.016141	0.94	0.66	6.89	0.88
Main 1	1262	5	3.16	100.77	100.98	100.96	101.03	0.01067	1	1.11	8.74	0.77
Main 1	1262	10	4.63	100.77	101.02	101.02	101.07	0.008784	1.04	1.85	23.53	0.72
Main 1	1262	25	7.6	100.77	101.08		101.11	0.004863	0.93	3.61	30.55	0.56
Main 1	1262	50	9.35	100.77	101.11		101.14	0.004128	0.91	4.47	32.81	0.53
Main 1	1262	100	10.52	100.77	101.13		101.16	0.003687	0.9	5.25	34.04	0.5

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	1202	2	1.74	100.55	100.92	100.68	100.92	0.000158	0.19	4.59	23.14	0.1
Main 1	1202	5	2.96	100.55	100.96	100.71	100.97	0.000261	0.27	5.71	26.96	0.14
Main 1	1202	10	4.33	100.55	101	100.74	101	0.000308	0.31	7.96	44.54	0.15
Main 1	1202	25	7.19	100.55	101.04	100.79	101.05	0.000407	0.38	10.15	52.5	0.18
Main 1	1202	50	8.87	100.55	101.06	100.81	101.07	0.000462	0.41	11.33	57.69	0.19
Main 1	1202	100	9.99	100.55	101.08	100.83	101.09	0.000501	0.44	12.56	62.88	0.2
Main 1	1142	2	1.57	100.4	100.85	100.85	100.89	0.006517	1.01	1.23	21.38	0.57
Main 1	1142	5	2.73	100.4	100.88	100.88	100.92	0.007363	1.14	1.93	25.08	0.62
Main 1	1142	10	4.03	100.4	100.9	100.9	100.94	0.009346	1.32	2.36	27.52	0.7
Main 1	1142	25	6.79	100.4	100.93	100.93	100.97	0.010107	1.45	3.21	30.85	0.74
Main 1	1142	50	8.43	100.4	100.94	100.94	100.99	0.010476	1.51	3.66	32.94	0.76
Main 1	1142	100	9.49	100.4	100.95	100.95	101	0.011396	1.6	3.99	34.03	0.79
Main 1	1104	2	1.53	99.95	100.11	100.11	100.15	0.021117	1.25	0.81	10.29	1.05
Main 1	1104	5	2.67	99.95	100.14	100.14	100.19	0.022473	1.48	1.17	12.31	1.12
Main 1	1104	10	3.94	99.95	100.21		100.24	0.009299	1.16	2.06	16.87	0.76
Main 1	1104	25	6.57	99.95	100.46		100.46	0.000488	0.43	8.67	32.15	0.2
Main 1	1104	50	8.16	99.95	100.5		100.51	0.000434	0.43	10.27	34.22	0.19
Main 1	1104	100	9.22	99.95	100.5		100.51	0.000584	0.5	10.27	34.23	0.22
Main 1	1059	2	1.49	99.06	99.67	99.47	99.7	0.002431	0.92	0.78	5.13	0.41
Main 1	1059	5	2.59	99.06	99.87	99.61	99.91	0.001792	0.99	1.22	10.15	0.37
Main 1	1059	10	3.71	99.06	100.05	99.69	100.09	0.001494	1.04	1.61	53.35	0.35
Main 1	1059	25	5.67	99.06	100.37	99.8	100.41	0.001082	1.08	2.3	72.63	0.31
Main 1	1059	50	6.99	99.06	100.5	99.86	100.5	0.000014	0.13	37.94	74.34	0.04
Main 1	1059	100	8.05	99.06	100.5	99.92	100.5	0.000019	0.16	37.94	74.34	0.04
Main 1	1052		Culvert									
Main 1	1040	2	1.48	98.8	99.29	99.18	99.34	0.004741	1.04	0.63	3.88	0.54
Main 1	1040	5	2.57	98.8	99.36	99.29	99.46	0.006845	1.41	0.79	4.71	0.67
Main 1	1040	10	3.67	98.8	99.42	99.37	99.56	0.008637	1.71	0.91	5.35	0.76
Main 1	1040	25	5.54	98.8	99.5	99.48	99.71	0.01142	2.16	1.08	6.19	0.9
Main 1	1040	50	6.78	98.8	99.54	99.54	99.8	0.012739	2.38	1.16	6.56	0.96
Main 1	1040	100	7.84	98.8	99.59	99.59	99.88	0.012483	2.5	1.29	7.07	0.96
Main 1	1006	2	1.45	98.9	99.21		99.22	0.002257	0.54	1.24	7.36	0.37
Main 1	1006	5	2.53	98.9	99.25		99.28	0.003034	0.72	1.63	8.55	0.44
Main 1	1006	10	3.62	98.9	99.28		99.32	0.004048	0.89	1.88	9.23	0.52
Main 1	1006	25	5.48	98.9	99.32		99.38	0.005654	1.14	2.26	11	0.62
Main 1	1006	50	6.71	98.9	99.34		99.41	0.006481	1.26	2.48	12.05	0.67
Main 1	1006	100	7.76	98.9	99.36	99.31	99.44	0.007356	1.39	2.69	13.76	0.72
Main 1	986	2	1.43	98.89	99.09	99.08	99.13	0.010212	0.96	0.82	9.28	0.75
Main 1	986	5	2.5	98.89	99.16	99.13	99.19	0.006658	0.96	1.69	19.46	0.64
Main 1	986	10	3.57	98.89	99.2		99.23	0.004493	0.89	2.76	24.11	0.54
Main 1	986	25	5.41	98.89	99.27		99.29	0.00276	0.81	4.43	25.46	0.44
Main 1	986	50	6.63	98.89	99.29		99.31	0.002759	0.84	5.01	26.44	0.44
Main 1	986	100	7.67	98.89	99.32		99.34	0.002735	0.87	5.58	28.12	0.45
Main 1	957	2	1.4	98.65	98.94		98.96	0.003496	0.73	1.06	6.14	0.47
Main 1	957	5	2.45	98.65	99		99.03	0.004263	0.92	1.44	7.04	0.53
Main 1	957	10	3.5	98.65	99.04		99.09	0.004984	1.09	1.75	8.06	0.59
Main 1	957	25	5.31	98.65	99.1	99.05	99.17	0.006126	1.34	2.53	16.82	0.67
Main 1	957	50	6.51	98.65	99.14		99.2	0.005525	1.35	3.14	18	0.65
Main 1	957	100	7.53	98.65	99.17		99.23	0.004777	1.32	3.82	20.19	0.61
Main 1	914	2	1.33	98.47	98.87		98.88	0.001261	0.5	2.08	17.06	0.29
Main 1	914	5	2.34	98.47	98.94		98.94	0.001089	0.53	3.39	21.27	0.28
Main 1	914	10	3.37	98.47	98.98		98.99	0.001053	0.56	4.47	23.49	0.28
Main 1	914	25	5.11	98.47	99.06		99.07	0.000848	0.57	6.4	24.83	0.26
Main 1	914	50	6.28	98.47	99.1		99.11	0.000812	0.58	7.31	25.35	0.25
Main 1	914	100	7.27	98.47	99.14		99.15	0.000759	0.59	8.29	26.14	0.25

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	1202	2	1.74	100.55	100.92	100.68	100.92	0.000158	0.19	4.59	23.14	0.1
Main 1	1202	5	2.96	100.55	100.96	100.71	100.97	0.000261	0.27	5.71	26.96	0.14
Main 1	1202	10	4.33	100.55	101	100.74	101	0.000308	0.31	7.96	44.54	0.15
Main 1	1202	25	7.19	100.55	101.04	100.79	101.05	0.000407	0.38	10.15	52.5	0.18
Main 1	1202	50	8.87	100.55	101.06	100.81	101.07	0.000462	0.41	11.33	57.69	0.19
Main 1	1202	100	9.99	100.55	101.08	100.83	101.09	0.000501	0.44	12.56	62.88	0.2
Main 1	1142	2	1.57	100.4	100.85	100.85	100.89	0.006517	1.01	1.23	21.38	0.57
Main 1	1142	5	2.73	100.4	100.88	100.88	100.92	0.007363	1.14	1.93	25.08	0.62
Main 1	1142	10	4.03	100.4	100.9	100.9	100.94	0.009346	1.32	2.36	27.52	0.7
Main 1	1142	25	6.79	100.4	100.93	100.93	100.97	0.010107	1.45	3.21	30.85	0.74
Main 1	1142	50	8.43	100.4	100.94	100.94	100.99	0.010476	1.51	3.66	32.94	0.76
Main 1	1142	100	9.49	100.4	100.95	100.95	101	0.011396	1.6	3.99	34.03	0.79
Main 1	1104	2	1.53	99.95	100.11	100.11	100.15	0.021117	1.25	0.81	10.29	1.05
Main 1	1104	5	2.67	99.95	100.14	100.14	100.19	0.022473	1.48	1.17	12.31	1.12
Main 1	1104	10	3.94	99.95	100.21		100.24	0.009299	1.16	2.06	16.87	0.76
Main 1	1104	25	6.57	99.95	100.46		100.46	0.000488	0.43	8.67	32.15	0.2
Main 1	1104	50	8.16	99.95	100.5		100.51	0.000434	0.43	10.27	34.22	0.19
Main 1	1104	100	9.22	99.95	100.5		100.51	0.000584	0.5	10.27	34.23	0.22
Main 1	1059	2	1.49	99.06	99.67	99.47	99.7	0.002431	0.92	0.78	5.13	0.41
Main 1	1059	5	2.59	99.06	99.87	99.61	99.91	0.001792	0.99	1.22	10.15	0.37
Main 1	1059	10	3.71	99.06	100.05	99.69	100.09	0.001494	1.04	1.61	53.35	0.35
Main 1	1059	25	5.67	99.06	100.37	99.8	100.41	0.001082	1.08	2.3	72.63	0.31
Main 1	1059	50	6.99	99.06	100.5	99.86	100.5	0.000014	0.13	37.94	74.34	0.04
Main 1	1059	100	8.05	99.06	100.5	99.92	100.5	0.000019	0.16	37.94	74.34	0.04
Main 1	1052		Culvert									
Main 1	1040	2	1.48	98.8	99.29	99.18	99.34	0.004741	1.04	0.63	3.88	0.54
Main 1	1040	5	2.57	98.8	99.36	99.29	99.46	0.006845	1.41	0.79	4.71	0.67
Main 1	1040	10	3.67	98.8	99.42	99.37	99.56	0.008637	1.71	0.91	5.35	0.76
Main 1	1040	25	5.54	98.8	99.5	99.48	99.71	0.01142	2.16	1.08	6.19	0.9
Main 1	1040	50	6.78	98.8	99.54	99.54	99.8	0.012739	2.38	1.16	6.56	0.96
Main 1	1040	100	7.84	98.8	99.59	99.59	99.88	0.012483	2.5	1.29	7.07	0.96
Main 1	1006	2	1.45	98.9	99.21		99.22	0.002257	0.54	1.24	7.36	0.37
Main 1	1006	5	2.53	98.9	99.25		99.28	0.003034	0.72	1.63	8.55	0.44
Main 1	1006	10	3.62	98.9	99.28		99.32	0.004048	0.89	1.88	9.23	0.52
Main 1	1006	25	5.48	98.9	99.32		99.38	0.005654	1.14	2.26	11	0.62
Main 1	1006	50	6.71	98.9	99.34		99.41	0.006481	1.26	2.48	12.05	0.67
Main 1	1006	100	7.76	98.9	99.36	99.31	99.44	0.007356	1.39	2.69	13.76	0.72
Main 1	986	2	1.43	98.89	99.09	99.08	99.13	0.010212	0.96	0.82	9.28	0.75
Main 1	986	5	2.5	98.89	99.16	99.13	99.19	0.006658	0.96	1.69	19.46	0.64
Main 1	986	10	3.57	98.89	99.2		99.23	0.004493	0.89	2.76	24.11	0.54
Main 1	986	25	5.41	98.89	99.27		99.29	0.00276	0.81	4.43	25.46	0.44
Main 1	986	50	6.63	98.89	99.29		99.31	0.002759	0.84	5.01	26.44	0.44
Main 1	986	100	7.67	98.89	99.32		99.34	0.002735	0.87	5.58	28.12	0.45
Main 1	957	2	1.4	98.65	98.94		98.96	0.003496	0.73	1.06	6.14	0.47
Main 1	957	5	2.45	98.65	99		99.03	0.004263	0.92	1.44	7.04	0.53
Main 1	957	10	3.5	98.65	99.04		99.09	0.004984	1.09	1.75	8.06	0.59
Main 1	957	25	5.31	98.65	99.1	99.05	99.17	0.006126	1.34	2.53	16.82	0.67
Main 1	957	50	6.51	98.65	99.14		99.2	0.005525	1.35	3.14	18	0.65
Main 1	957	100	7.53	98.65	99.17		99.23	0.004777	1.32	3.82	20.19	0.61
Main 1	914	2	1.33	98.47	98.87		98.88	0.001261	0.5	2.08	17.06	0.29
Main 1	914	5	2.34	98.47	98.94		98.94	0.001089	0.53	3.39	21.27	0.28
Main 1	914	10	3.37	98.47	98.98		98.99	0.001053	0.56	4.47	23.49	0.28
Main 1	914	25	5.11	98.47	99.06		99.07	0.000848	0.57	6.4	24.83	0.26
Main 1	914	50	6.28	98.47	99.1		99.11	0.000812	0.58	7.31	25.35	0.25
Main 1	914	100	7.27	98.47	99.14		99.15	0.000759	0.59	8.29	26.14	0.25

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	889	2	1.29	98.53	98.8		98.82	0.003673	0.72	1.03	6.14	0.47
Main 1	889	5	2.28	98.53	98.85	98.78	98.89	0.004729	0.94	1.38	7.22	0.56
Main 1	889	10	3.29	98.53	98.86	98.82	98.93	0.008246	1.26	1.44	7.41	0.74
Main 1	889	25	5	98.53	98.94	98.89	99.02	0.007205	1.38	2.12	9.51	0.72
Main 1	889	50	6.16	98.53	98.92	98.92	99.04	0.012976	1.78	1.91	8.78	0.95
Main 1	889	100	7.14	98.53	98.95	98.95	99.08	0.013423	1.9	2.14	9.6	0.98
Main 1	849	2	1.25	98.39	98.48	98.48	98.51	0.027501	0.76	0.79	13.97	1.02
Main 1	849	5	2.23	98.39	98.51	98.5	98.54	0.021187	0.84	1.19	15.04	0.95
Main 1	849	10	3.23	98.39	98.56		98.58	0.008508	0.7	2	16.63	0.65
Main 1	849	25	4.92	98.39	98.57		98.62	0.014322	0.95	2.22	17.47	0.85
Main 1	849	50	6.05	98.39	98.64		98.67	0.004492	0.7	3.58	19.68	0.51
Main 1	849	100	7	98.39	98.7		98.72	0.00252	0.63	4.75	21.32	0.4
Main 1	809	2	1.22	97.95	98.21		98.22	0.002845	0.53	1.23	8.01	0.4
Main 1	809	5	2.18	97.95	98.26		98.28	0.003091	0.66	1.71	9.1	0.44
Main 1	809	10	3.15	97.95	98.27		98.3	0.005881	0.92	1.73	9.14	0.6
Main 1	809	25	4.8	97.95	98.45		98.47	0.001565	0.7	3.84	13.67	0.34
Main 1	809	50	5.87	97.95	98.6		98.61	0.000662	0.55	6.1	16.7	0.23
Main 1	809	100	6.77	97.95	98.67		98.68	0.000566	0.55	7.27	18.05	0.22
Main 1	778	2	1.18	97.77	98	98	98.04	0.016335	1.02	0.74	8.71	0.9
Main 1	778	5	2.13	97.77	98.04	98.04	98.09	0.014697	1.17	1.17	11.42	0.9
Main 1	778	10	3.08	97.77	98.18		98.2	0.002028	0.65	3.03	14.3	0.37
Main 1	778	25	4.63	97.77	98.44		98.44	0.000367	0.41	7.08	17	0.17
Main 1	778	50	5.62	97.77	98.59		98.6	0.000199	0.35	9.83	18.56	0.13
Main 1	778	100	6.48	97.77	98.66		98.67	0.000189	0.37	11.11	19.39	0.13
Main 1	751	2	1.16	97.47	97.77		97.8	0.003793	0.8	1.08	8.98	0.49
Main 1	751	5	2.06	97.47	98		98.01	0.000417	0.4	4.28	17.31	0.18
Main 1	751	10	2.94	97.47	98.18		98.18	0.000166	0.31	7.63	20.51	0.12
Main 1	751	25	4.35	97.47	98.44		98.44	0.00008	0.27	13.58	26.12	0.09
Main 1	751	50	5.24	97.47	98.59		98.59	0.000057	0.25	18.22	32.74	0.08
Main 1	751	100	6.06	97.47	98.66		98.66	0.000059	0.26	20.54	36.21	0.08
Main 1	732	2	1.14	97.45	97.74		97.75	0.001584	0.51	1.6	9.7	0.32
Main 1	732	5	1.97	97.45	98		98	0.000249	0.32	5.62	26.3	0.14
Main 1	732	10	2.77	97.45	98.18		98.18	0.000087	0.23	10.89	32.38	0.09
Main 1	732	25	4.02	97.45	98.44		98.44	0.000037	0.19	22.62	60.79	0.06
Main 1	732	50	4.77	97.45	98.59		98.59	0.00002	0.15	33.99	76.95	0.05
Main 1	732	100	5.51	97.45	98.66		98.66	0.000018	0.15	39.2	76.95	0.04
Main 1	716	2	1.09	97.07	97.73	97.38	97.74	0.00054	0.49	1.56	14.16	0.21
Main 1	716	5	1.83	97.07	97.97	97.48	97.99	0.00054	0.62	2.28	37.79	0.22
Main 1	716	10	2.53	97.07	98.15	97.54	98.17	0.000534	0.7	2.78	49.02	0.22
Main 1	716	25	3.58	97.07	98.4	97.64	98.43	0.000515	0.8	3.51	68	0.23
Main 1	716	50	4.15	97.07	98.55	97.69	98.58	0.000496	0.85	3.95	70.32	0.23
Main 1	716	100	4.79	97.07	98.66	97.76	98.66	0.000012	0.14	51.22	70.32	0.04
Main 1	705		Culvert									
Main 1	697	2	1.07	97.07	97.38	97.38	97.51	0.01865	1.56	0.45	1.81	1
Main 1	697	5	1.79	97.07	97.51	97.51	97.69	0.017066	1.89	0.69	1.93	1
Main 1	697	10	2.45	97.07	97.6	97.6	97.82	0.01629	2.08	0.87	2.44	1
Main 1	697	25	3.45	97.07	97.73	97.73	98	0.014645	2.33	1.14	18.35	0.99
Main 1	697	50	3.98	97.07	97.8	97.8	98.11	0.013679	2.44	1.31	22.57	0.97
Main 1	697	100	4.59	97.07	97.89	97.89	98.22	0.012677	2.56	1.52	34.07	0.96
Main 1	676	2	1.04	97.08	97.3		97.3	0.002504	0.5	2.31	21.82	0.38
Main 1	676	5	1.75	97.08	97.34		97.35	0.003077	0.64	3.22	22.51	0.43
Main 1	676	10	2.4	97.08	97.37		97.38	0.003368	0.72	3.85	22.93	0.46
Main 1	676	25	3.37	97.08	97.41		97.43	0.003376	0.81	4.87	23.59	0.47
Main 1	676	50	3.89	97.08	97.43		97.45	0.003353	0.85	5.46	23.91	0.48
Main 1	676	100	4.46	97.08	97.46		97.48	0.003387	0.9	6.1	24.29	0.49

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	889	2	1.29	98.53	98.8		98.82	0.003673	0.72	1.03	6.14	0.47
Main 1	889	5	2.28	98.53	98.85	98.78	98.89	0.004729	0.94	1.38	7.22	0.56
Main 1	889	10	3.29	98.53	98.86	98.82	98.93	0.008246	1.26	1.44	7.41	0.74
Main 1	889	25	5	98.53	98.94	98.89	99.02	0.007205	1.38	2.12	9.51	0.72
Main 1	889	50	6.16	98.53	98.92	98.92	99.04	0.012976	1.78	1.91	8.78	0.95
Main 1	889	100	7.14	98.53	98.95	98.95	99.08	0.013423	1.9	2.14	9.6	0.98
Main 1	849	2	1.25	98.39	98.48	98.48	98.51	0.027501	0.76	0.79	13.97	1.02
Main 1	849	5	2.23	98.39	98.51	98.5	98.54	0.021187	0.84	1.19	15.04	0.95
Main 1	849	10	3.23	98.39	98.56		98.58	0.008508	0.7	2	16.63	0.65
Main 1	849	25	4.92	98.39	98.57		98.62	0.014322	0.95	2.22	17.47	0.85
Main 1	849	50	6.05	98.39	98.64		98.67	0.004492	0.7	3.58	19.68	0.51
Main 1	849	100	7	98.39	98.7		98.72	0.00252	0.63	4.75	21.32	0.4
Main 1	809	2	1.22	97.95	98.21		98.22	0.002845	0.53	1.23	8.01	0.4
Main 1	809	5	2.18	97.95	98.26		98.28	0.003091	0.66	1.71	9.1	0.44
Main 1	809	10	3.15	97.95	98.27		98.3	0.005881	0.92	1.73	9.14	0.6
Main 1	809	25	4.8	97.95	98.45		98.47	0.001565	0.7	3.84	13.67	0.34
Main 1	809	50	5.87	97.95	98.6		98.61	0.000662	0.55	6.1	16.7	0.23
Main 1	809	100	6.77	97.95	98.67		98.68	0.000566	0.55	7.27	18.05	0.22
Main 1	778	2	1.18	97.77	98	98	98.04	0.016335	1.02	0.74	8.71	0.9
Main 1	778	5	2.13	97.77	98.04	98.04	98.09	0.014697	1.17	1.17	11.42	0.9
Main 1	778	10	3.08	97.77	98.18		98.2	0.002028	0.65	3.03	14.3	0.37
Main 1	778	25	4.63	97.77	98.44		98.44	0.000367	0.41	7.08	17	0.17
Main 1	778	50	5.62	97.77	98.59		98.6	0.000199	0.35	9.83	18.56	0.13
Main 1	778	100	6.48	97.77	98.66		98.67	0.000189	0.37	11.11	19.39	0.13
Main 1	751	2	1.16	97.47	97.77		97.8	0.003793	0.8	1.08	8.98	0.49
Main 1	751	5	2.06	97.47	98		98.01	0.000417	0.4	4.28	17.31	0.18
Main 1	751	10	2.94	97.47	98.18		98.18	0.000166	0.31	7.63	20.51	0.12
Main 1	751	25	4.35	97.47	98.44		98.44	0.00008	0.27	13.58	26.12	0.09
Main 1	751	50	5.24	97.47	98.59		98.59	0.000057	0.25	18.22	32.74	0.08
Main 1	751	100	6.06	97.47	98.66		98.66	0.000059	0.26	20.54	36.21	0.08
Main 1	732	2	1.14	97.45	97.74		97.75	0.001584	0.51	1.6	9.7	0.32
Main 1	732	5	1.97	97.45	98		98	0.000249	0.32	5.62	26.3	0.14
Main 1	732	10	2.77	97.45	98.18		98.18	0.000087	0.23	10.89	32.38	0.09
Main 1	732	25	4.02	97.45	98.44		98.44	0.000037	0.19	22.62	60.79	0.06
Main 1	732	50	4.77	97.45	98.59		98.59	0.00002	0.15	33.99	76.95	0.05
Main 1	732	100	5.51	97.45	98.66		98.66	0.000018	0.15	39.2	76.95	0.04
Main 1	716	2	1.09	97.07	97.73	97.38	97.74	0.00054	0.49	1.56	14.16	0.21
Main 1	716	5	1.83	97.07	97.97	97.48	97.99	0.00054	0.62	2.28	37.79	0.22
Main 1	716	10	2.53	97.07	98.15	97.54	98.17	0.000534	0.7	2.78	49.02	0.22
Main 1	716	25	3.58	97.07	98.4	97.64	98.43	0.000515	0.8	3.51	68	0.23
Main 1	716	50	4.15	97.07	98.55	97.69	98.58	0.000496	0.85	3.95	70.32	0.23
Main 1	716	100	4.79	97.07	98.66	97.76	98.66	0.000012	0.14	51.22	70.32	0.04
Main 1	705		Culvert									
Main 1	697	2	1.07	97.07	97.38	97.38	97.51	0.01865	1.56	0.45	1.81	1
Main 1	697	5	1.79	97.07	97.51	97.51	97.69	0.017066	1.89	0.69	1.93	1
Main 1	697	10	2.45	97.07	97.6	97.6	97.82	0.01629	2.08	0.87	2.44	1
Main 1	697	25	3.45	97.07	97.73	97.73	98	0.014645	2.33	1.14	18.35	0.99
Main 1	697	50	3.98	97.07	97.8	97.8	98.11	0.013679	2.44	1.31	22.57	0.97
Main 1	697	100	4.59	97.07	97.89	97.89	98.22	0.012677	2.56	1.52	34.07	0.96
Main 1	676	2	1.04	97.08	97.3		97.3	0.002504	0.5	2.31	21.82	0.38
Main 1	676	5	1.75	97.08	97.34		97.35	0.003077	0.64	3.22	22.51	0.43
Main 1	676	10	2.4	97.08	97.37		97.38	0.003368	0.72	3.85	22.93	0.46
Main 1	676	25	3.37	97.08	97.41		97.43	0.003376	0.81	4.87	23.59	0.47
Main 1	676	50	3.89	97.08	97.43		97.45	0.003353	0.85	5.46	23.91	0.48
Main 1	676	100	4.46	97.08	97.46		97.48	0.003387	0.9	6.1	24.29	0.49

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	648	2	1	96.9	97.12	97.12	97.16	0.012522	1.16	1	12.42	0.85
Main 1	648	5	1.67	96.9	97.19	97.17	97.22	0.007104	1.08	2.21	19.53	0.67
Main 1	648	10	2.31	96.9	97.24		97.26	0.005196	1.03	3.18	21.76	0.59
Main 1	648	25	3.24	96.9	97.29		97.32	0.00433	1.05	4.46	24.35	0.55
Main 1	648	50	3.74	96.9	97.32		97.35	0.004138	1.08	5.16	25.72	0.55
Main 1	648	100	4.29	96.9	97.35		97.38	0.003995	1.11	5.94	26.94	0.55
Main 1	624	2	0.97	96.61	96.88		96.92	0.007681	0.92	0.86	5.58	0.66
Main 1	624	5	1.63	96.61	96.93	96.91	97.01	0.011515	1.31	1.16	6.49	0.84
Main 1	624	10	2.25	96.61	96.97	96.97	97.07	0.013034	1.53	1.43	8.2	0.92
Main 1	624	25	3.17	96.61	97.03	97.03	97.15	0.01249	1.7	2	10.52	0.93
Main 1	624	50	3.64	96.61	97.08	97.08	97.19	0.01027	1.7	2.64	14.24	0.86
Main 1	624	100	4.18	96.61	97.12	97.12	97.23	0.009307	1.72	3.28	17.08	0.84
Main 1	589	2	0.92	96.37	96.73		96.74	0.003218	0.62	1.95	23.85	0.43
Main 1	589	5	1.55	96.37	96.78		96.79	0.003217	0.71	3.23	28.62	0.45
Main 1	589	10	2.15	96.37	96.8		96.82	0.003466	0.79	4.04	31	0.47
Main 1	589	25	3.04	96.37	96.84		96.86	0.003915	0.9	5.24	40.98	0.51
Main 1	589	50	3.49	96.37	96.85		96.88	0.004088	0.95	5.93	44.4	0.53
Main 1	589	100	4	96.37	96.87		96.9	0.004243	1	6.72	46.63	0.54
Main 1	558	2	0.85	96.39	96.64	96.59	96.65	0.002714	0.58	2.49	32.71	0.4
Main 1	558	5	1.44	96.39	96.69		96.69	0.003022	0.69	4.25	47.84	0.44
Main 1	558	10	2	96.39	96.71	96.66	96.72	0.002979	0.73	5.66	62.16	0.44
Main 1	558	25	2.84	96.39	96.74	96.68	96.75	0.00293	0.78	7.79	75.08	0.44
Main 1	558	50	3.26	96.39	96.76	96.7	96.77	0.002793	0.79	9.2	82.28	0.44
Main 1	558	100	3.74	96.39	96.77	96.71	96.78	0.00288	0.82	10.43	86.89	0.45
Main 1	509	2	0.76	96.21	96.36	96.36	96.38	0.016687	0.96	1.45	32.6	0.9
Main 1	509	5	1.27	96.21	96.38	96.38	96.4	0.016014	1.08	2.4	39.56	0.91
Main 1	509	10	1.79	96.21	96.39	96.39	96.42	0.017785	1.2	2.88	40.43	0.97
Main 1	509	25	2.56	96.21	96.41	96.41	96.45	0.020258	1.36	3.53	41.73	1.06
Main 1	509	50	2.94	96.21	96.41	96.41	96.46	0.023908	1.51	3.76	42.01	1.15
Main 1	509	100	3.37	96.21	96.43	96.43	96.47	0.021903	1.52	4.35	43.04	1.12
Main 1	463	2	0.7	95.7	95.96		95.98	0.004311	0.69	1.26	10.01	0.5
Main 1	463	5	1.16	95.7	96.06		96.08	0.003022	0.75	2.49	21.02	0.45
Main 1	463	10	1.63	95.7	96.12		96.14	0.00235	0.75	4.5	41.34	0.41
Main 1	463	25	2.33	95.7	96.16		96.18	0.002079	0.77	6.4	43	0.39
Main 1	463	50	2.69	95.7	96.18		96.2	0.002125	0.8	7.25	43.61	0.4
Main 1	463	100	3.09	95.7	96.2		96.22	0.002168	0.84	8.21	44.5	0.4
Main 1	415	2	0.64	95.45	95.8		95.82	0.002808	0.71	1.14	5.64	0.43
Main 1	415	5	1.07	95.45	95.88		95.92	0.003796	0.97	1.62	6.73	0.52
Main 1	415	10	1.49	95.45	95.93		95.99	0.004571	1.16	2.05	12.53	0.58
Main 1	415	25	2.14	95.45	95.99	95.89	96.05	0.004418	1.25	3.69	29.73	0.58
Main 1	415	50	2.47	95.45	96.02	95.91	96.07	0.004153	1.26	4.54	30.67	0.57
Main 1	415	100	2.83	95.45	96.05		96.1	0.003928	1.27	5.48	32.02	0.56
Main 1	352	2	0.55	95.44	95.65		95.66	0.002457	0.52	1.91	16.3	0.38
Main 1	352	5	0.92	95.44	95.71		95.72	0.002445	0.62	3.11	20.84	0.39
Main 1	352	10	1.31	95.44	95.75		95.76	0.002574	0.7	3.93	23.54	0.41
Main 1	352	25	1.87	95.44	95.79		95.81	0.003024	0.83	4.93	26.35	0.46
Main 1	352	50	2.15	95.44	95.81		95.83	0.003268	0.9	5.48	27.67	0.48
Main 1	352	100	2.47	95.44	95.83		95.86	0.003559	0.97	6.07	28.86	0.51
Main 1	315	2	0.48	95.38	95.5		95.51	0.006311	0.48	1.46	17.89	0.53
Main 1	315	5	0.83	95.38	95.52	95.5	95.55	0.012672	0.75	1.76	19.37	0.76
Main 1	315	10	1.19	95.38	95.54	95.52	95.57	0.013218	0.85	2.16	20.75	0.8
Main 1	315	25	1.72	95.38	95.58	95.55	95.62	0.009975	0.9	3.04	23.51	0.73
Main 1	315	50	1.98	95.38	95.6	95.57	95.64	0.008551	0.92	3.62	25.43	0.69
Main 1	315	100	2.27	95.38	95.63	95.58	95.67	0.007298	0.93	4.35	27.45	0.66

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	648	2	1	96.9	97.12	97.12	97.16	0.012522	1.16	1	12.42	0.85
Main 1	648	5	1.67	96.9	97.19	97.17	97.22	0.007104	1.08	2.21	19.53	0.67
Main 1	648	10	2.31	96.9	97.24		97.26	0.005196	1.03	3.18	21.76	0.59
Main 1	648	25	3.24	96.9	97.29		97.32	0.00433	1.05	4.46	24.35	0.55
Main 1	648	50	3.74	96.9	97.32		97.35	0.004138	1.08	5.16	25.72	0.55
Main 1	648	100	4.29	96.9	97.35		97.38	0.003995	1.11	5.94	26.94	0.55
Main 1	624	2	0.97	96.61	96.88		96.92	0.007681	0.92	0.86	5.58	0.66
Main 1	624	5	1.63	96.61	96.93	96.91	97.01	0.011515	1.31	1.16	6.49	0.84
Main 1	624	10	2.25	96.61	96.97	96.97	97.07	0.013034	1.53	1.43	8.2	0.92
Main 1	624	25	3.17	96.61	97.03	97.03	97.15	0.01249	1.7	2	10.52	0.93
Main 1	624	50	3.64	96.61	97.08	97.08	97.19	0.01027	1.7	2.64	14.24	0.86
Main 1	624	100	4.18	96.61	97.12	97.12	97.23	0.009307	1.72	3.28	17.08	0.84
Main 1	589	2	0.92	96.37	96.73		96.74	0.003218	0.62	1.95	23.85	0.43
Main 1	589	5	1.55	96.37	96.78		96.79	0.003217	0.71	3.23	28.62	0.45
Main 1	589	10	2.15	96.37	96.8		96.82	0.003466	0.79	4.04	31	0.47
Main 1	589	25	3.04	96.37	96.84		96.86	0.003915	0.9	5.24	40.98	0.51
Main 1	589	50	3.49	96.37	96.85		96.88	0.004088	0.95	5.93	44.4	0.53
Main 1	589	100	4	96.37	96.87		96.9	0.004243	1	6.72	46.63	0.54
Main 1	558	2	0.85	96.39	96.64	96.59	96.65	0.002714	0.58	2.49	32.71	0.4
Main 1	558	5	1.44	96.39	96.69		96.69	0.003022	0.69	4.25	47.84	0.44
Main 1	558	10	2	96.39	96.71	96.66	96.72	0.002979	0.73	5.66	62.16	0.44
Main 1	558	25	2.84	96.39	96.74	96.68	96.75	0.00293	0.78	7.79	75.08	0.44
Main 1	558	50	3.26	96.39	96.76	96.7	96.77	0.002793	0.79	9.2	82.28	0.44
Main 1	558	100	3.74	96.39	96.77	96.71	96.78	0.00288	0.82	10.43	86.89	0.45
Main 1	509	2	0.76	96.21	96.36	96.36	96.38	0.016687	0.96	1.45	32.6	0.9
Main 1	509	5	1.27	96.21	96.38	96.38	96.4	0.016014	1.08	2.4	39.56	0.91
Main 1	509	10	1.79	96.21	96.39	96.39	96.42	0.017785	1.2	2.88	40.43	0.97
Main 1	509	25	2.56	96.21	96.41	96.41	96.45	0.020258	1.36	3.53	41.73	1.06
Main 1	509	50	2.94	96.21	96.41	96.41	96.46	0.023908	1.51	3.76	42.01	1.15
Main 1	509	100	3.37	96.21	96.43	96.43	96.47	0.021903	1.52	4.35	43.04	1.12
Main 1	463	2	0.7	95.7	95.96		95.98	0.004311	0.69	1.26	10.01	0.5
Main 1	463	5	1.16	95.7	96.06		96.08	0.003022	0.75	2.49	21.02	0.45
Main 1	463	10	1.63	95.7	96.12		96.14	0.00235	0.75	4.5	41.34	0.41
Main 1	463	25	2.33	95.7	96.16		96.18	0.002079	0.77	6.4	43	0.39
Main 1	463	50	2.69	95.7	96.18		96.2	0.002125	0.8	7.25	43.61	0.4
Main 1	463	100	3.09	95.7	96.2		96.22	0.002168	0.84	8.21	44.5	0.4
Main 1	415	2	0.64	95.45	95.8		95.82	0.002808	0.71	1.14	5.64	0.43
Main 1	415	5	1.07	95.45	95.88		95.92	0.003796	0.97	1.62	6.73	0.52
Main 1	415	10	1.49	95.45	95.93		95.99	0.004571	1.16	2.05	12.53	0.58
Main 1	415	25	2.14	95.45	95.99	95.89	96.05	0.004418	1.25	3.69	29.73	0.58
Main 1	415	50	2.47	95.45	96.02	95.91	96.07	0.004153	1.26	4.54	30.67	0.57
Main 1	415	100	2.83	95.45	96.05		96.1	0.003928	1.27	5.48	32.02	0.56
Main 1	352	2	0.55	95.44	95.65		95.66	0.002457	0.52	1.91	16.3	0.38
Main 1	352	5	0.92	95.44	95.71		95.72	0.002445	0.62	3.11	20.84	0.39
Main 1	352	10	1.31	95.44	95.75		95.76	0.002574	0.7	3.93	23.54	0.41
Main 1	352	25	1.87	95.44	95.79		95.81	0.003024	0.83	4.93	26.35	0.46
Main 1	352	50	2.15	95.44	95.81		95.83	0.003268	0.9	5.48	27.67	0.48
Main 1	352	100	2.47	95.44	95.83		95.86	0.003559	0.97	6.07	28.86	0.51
Main 1	315	2	0.48	95.38	95.5		95.51	0.006311	0.48	1.46	17.89	0.53
Main 1	315	5	0.83	95.38	95.52	95.5	95.55	0.012672	0.75	1.76	19.37	0.76
Main 1	315	10	1.19	95.38	95.54	95.52	95.57	0.013218	0.85	2.16	20.75	0.8
Main 1	315	25	1.72	95.38	95.58	95.55	95.62	0.009975	0.9	3.04	23.51	0.73
Main 1	315	50	1.98	95.38	95.6	95.57	95.64	0.008551	0.92	3.62	25.43	0.69
Main 1	315	100	2.27	95.38	95.63	95.58	95.67	0.007298	0.93	4.35	27.45	0.66

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	262	2	0.42	94.77	94.94	94.94	94.99	0.018098	1.11	0.78	7.7	0.96
Main 1	262	5	0.74	94.77	95.05		95.08	0.006599	0.98	1.75	10.76	0.64
Main 1	262	10	1.08	94.77	95.1		95.14	0.005879	1.05	2.35	12.51	0.62
Main 1	262	25	1.56	94.77	95.15		95.2	0.006648	1.24	2.97	14.15	0.68
Main 1	262	50	1.8	94.77	95.17		95.23	0.007414	1.36	3.27	14.89	0.72
Main 1	262	100	2.07	94.77	95.18		95.26	0.008492	1.51	3.57	15.73	0.78
Main 1	220	2	0.36	94.44	94.9		94.9	0.000495	0.34	2.24	8.5	0.19
Main 1	220	5	0.62	94.44	95.01		95.02	0.000576	0.45	4.19	38.12	0.21
Main 1	220	10	0.89	94.44	95.06		95.07	0.000572	0.48	6.64	52.06	0.21
Main 1	220	25	1.3	94.44	95.11		95.12	0.000633	0.54	9.63	66.1	0.23
Main 1	220	50	1.49	94.44	95.14		95.15	0.000631	0.55	11.37	69.1	0.23
Main 1	220	100	1.71	94.44	95.17		95.18	0.000627	0.57	13.31	71.95	0.23
Main 1	143	2	0.25	94.49	94.71	94.71	94.78	0.018531	1.23	0.63	4.55	0.99
Main 1	143	5	0.42	94.49	94.78	94.78	94.88	0.018003	1.48	1	5.8	1.03
Main 1	143	10	0.58	94.49	94.85	94.85	94.94	0.012944	1.5	1.55	12.9	0.91
Main 1	143	25	0.82	94.49	94.94	94.94	95	0.006866	1.33	3.29	23.17	0.7
Main 1	143	50	0.94	94.49	94.96	94.96	95.03	0.007575	1.43	3.66	23.63	0.74
Main 1	143	100	1.08	94.49	94.98	94.98	95.05	0.008192	1.54	4.09	24.21	0.77
Main 1	105	2	0.22	93.91	94.33		94.36	0.00278	0.75	1.02	4.24	0.43
Main 1	105	5	0.37	93.91	94.47		94.51	0.002431	0.9	1.7	5.38	0.43
Main 1	105	10	0.51	93.91	94.56		94.61	0.002372	1	2.23	6.57	0.43
Main 1	105	25	0.7	93.91	94.66		94.72	0.002563	1.16	3.21	12.6	0.46
Main 1	105	50	0.8	93.91	94.71		94.77	0.002609	1.23	3.85	15.22	0.47
Main 1	105	100	0.91	93.91	94.75		94.82	0.002651	1.3	4.65	18.44	0.48
Main 1	60	2	0.15	93.81	94.28		94.29	0.000794	0.5	1.85	6.75	0.24
Main 1	60	5	0.26	93.81	94.43		94.44	0.00083	0.62	2.99	8.97	0.26
Main 1	60	10	0.37	93.81	94.52		94.54	0.00086	0.7	3.89	10.9	0.27
Main 1	60	25	0.51	93.81	94.61		94.63	0.001128	0.87	5.05	15.78	0.32
Main 1	60	50	0.58	93.81	94.65		94.68	0.001229	0.94	5.77	17.89	0.34
Main 1	60	100	0.66	93.81	94.69		94.73	0.001331	1.01	6.59	19.92	0.35
Main 1	27	2	0.1	93.88	94.22		94.24	0.003294	0.71	1.18	6.41	0.45
Main 1	27	5	0.17	93.88	94.38		94.4	0.001703	0.71	2.5	10.33	0.35
Main 1	27	10	0.25	93.88	94.48		94.5	0.001343	0.73	3.67	13.65	0.33
Main 1	27	25	0.34	93.88	94.57		94.59	0.001357	0.82	5	16.51	0.34
Main 1	27	50	0.39	93.88	94.61		94.63	0.001418	0.87	5.68	17.81	0.35
Main 1	27	100	0.44	93.88	94.65		94.68	0.001507	0.93	6.41	18.99	0.36
Main 1	3	2	0.05	93.44	94.22		94.23	0.000186	0.32	2.79	7	0.12
Main 1	3	5	0.09	93.44	94.38		94.39	0.000265	0.44	4.4	13.5	0.15
Main 1	3	10	0.13	93.44	94.48		94.48	0.000298	0.5	5.88	17.42	0.17
Main 1	3	25	0.19	93.44	94.56		94.57	0.000379	0.6	7.52	20.44	0.19
Main 1	3	50	0.22	93.44	94.6		94.61	0.000442	0.66	8.33	22.43	0.21
Main 1	3	100	0.25	93.44	94.64		94.65	0.000513	0.73	9.21	23.99	0.22
Tributary 1	2395	2	5.98	105.17	105.56		105.59	0.003255	0.91	1.4	6.19	0.48
Tributary 1	2395	5	10.19	105.17	105.69		105.72	0.002827	1.04	2.32	8.1	0.47
Tributary 1	2395	10	18.65	105.17	105.78		105.81	0.00253	1.1	3.13	9.6	0.46
Tributary 1	2395	25	52.14	105.17	105.89		105.93	0.002412	1.2	4.58	16.92	0.46
Tributary 1	2395	50	54.71	105.17	105.97		106	0.001985	1.18	6.12	21.22	0.43
Tributary 1	2395	100	72.15	105.17	106.04		106.07	0.001733	1.16	7.82	28.37	0.4
Tributary 1	2371	2	5.96	104.99	105.37		105.46	0.009569	1.44	0.79	3.41	0.8
Tributary 1	2371	5	10.15	104.99	105.49		105.6	0.009127	1.73	1.22	3.98	0.83
Tributary 1	2371	10	18.6	104.99	105.57		105.7	0.008719	1.89	1.57	4.38	0.83
Tributary 1	2371	25	52.06	104.99	105.67	105.61	105.82	0.008304	2.06	2.01	4.84	0.83
Tributary 1	2371	50	54.61	104.99	105.74		105.91	0.008065	2.19	2.37	5.2	0.84
Tributary 1	2371	100	72.02	104.99	105.8	105.73	105.98	0.007886	2.28	2.68	5.48	0.84

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main 1	262	2	0.42	94.77	94.94	94.94	94.99	0.018098	1.11	0.78	7.7	0.96
Main 1	262	5	0.74	94.77	95.05		95.08	0.006599	0.98	1.75	10.76	0.64
Main 1	262	10	1.08	94.77	95.1		95.14	0.005879	1.05	2.35	12.51	0.62
Main 1	262	25	1.56	94.77	95.15		95.2	0.006648	1.24	2.97	14.15	0.68
Main 1	262	50	1.8	94.77	95.17		95.23	0.007414	1.36	3.27	14.89	0.72
Main 1	262	100	2.07	94.77	95.18		95.26	0.008492	1.51	3.57	15.73	0.78
Main 1	220	2	0.36	94.44	94.9		94.9	0.000495	0.34	2.24	8.5	0.19
Main 1	220	5	0.62	94.44	95.01		95.02	0.000576	0.45	4.19	38.12	0.21
Main 1	220	10	0.89	94.44	95.06		95.07	0.000572	0.48	6.64	52.06	0.21
Main 1	220	25	1.3	94.44	95.11		95.12	0.000633	0.54	9.63	66.1	0.23
Main 1	220	50	1.49	94.44	95.14		95.15	0.000631	0.55	11.37	69.1	0.23
Main 1	220	100	1.71	94.44	95.17		95.18	0.000627	0.57	13.31	71.95	0.23
Main 1	143	2	0.25	94.49	94.71	94.71	94.78	0.018531	1.23	0.63	4.55	0.99
Main 1	143	5	0.42	94.49	94.78	94.78	94.88	0.018003	1.48	1	5.8	1.03
Main 1	143	10	0.58	94.49	94.85	94.85	94.94	0.012944	1.5	1.55	12.9	0.91
Main 1	143	25	0.82	94.49	94.94	94.94	95	0.006866	1.33	3.29	23.17	0.7
Main 1	143	50	0.94	94.49	94.96	94.96	95.03	0.007575	1.43	3.66	23.63	0.74
Main 1	143	100	1.08	94.49	94.98	94.98	95.05	0.008192	1.54	4.09	24.21	0.77
Main 1	105	2	0.22	93.91	94.33		94.36	0.00278	0.75	1.02	4.24	0.43
Main 1	105	5	0.37	93.91	94.47		94.51	0.002431	0.9	1.7	5.38	0.43
Main 1	105	10	0.51	93.91	94.56		94.61	0.002372	1	2.23	6.57	0.43
Main 1	105	25	0.7	93.91	94.66		94.72	0.002563	1.16	3.21	12.6	0.46
Main 1	105	50	0.8	93.91	94.71		94.77	0.002609	1.23	3.85	15.22	0.47
Main 1	105	100	0.91	93.91	94.75		94.82	0.002651	1.3	4.65	18.44	0.48
Main 1	60	2	0.15	93.81	94.28		94.29	0.000794	0.5	1.85	6.75	0.24
Main 1	60	5	0.26	93.81	94.43		94.44	0.00083	0.62	2.99	8.97	0.26
Main 1	60	10	0.37	93.81	94.52		94.54	0.00086	0.7	3.89	10.9	0.27
Main 1	60	25	0.51	93.81	94.61		94.63	0.001128	0.87	5.05	15.78	0.32
Main 1	60	50	0.58	93.81	94.65		94.68	0.001229	0.94	5.77	17.89	0.34
Main 1	60	100	0.66	93.81	94.69		94.73	0.001331	1.01	6.59	19.92	0.35
Main 1	27	2	0.1	93.88	94.22		94.24	0.003294	0.71	1.18	6.41	0.45
Main 1	27	5	0.17	93.88	94.38		94.4	0.001703	0.71	2.5	10.33	0.35
Main 1	27	10	0.25	93.88	94.48		94.5	0.001343	0.73	3.67	13.65	0.33
Main 1	27	25	0.34	93.88	94.57		94.59	0.001357	0.82	5	16.51	0.34
Main 1	27	50	0.39	93.88	94.61		94.63	0.001418	0.87	5.68	17.81	0.35
Main 1	27	100	0.44	93.88	94.65		94.68	0.001507	0.93	6.41	18.99	0.36
Main 1	3	2	0.05	93.44	94.22		94.23	0.000186	0.32	2.79	7	0.12
Main 1	3	5	0.09	93.44	94.38		94.39	0.000265	0.44	4.4	13.5	0.15
Main 1	3	10	0.13	93.44	94.48		94.48	0.000298	0.5	5.88	17.42	0.17
Main 1	3	25	0.19	93.44	94.56		94.57	0.000379	0.6	7.52	20.44	0.19
Main 1	3	50	0.22	93.44	94.6		94.61	0.000442	0.66	8.33	22.43	0.21
Main 1	3	100	0.25	93.44	94.64		94.65	0.000513	0.73	9.21	23.99	0.22
Tributary 1	2395	2	5.98	105.17	105.56		105.59	0.003255	0.91	1.4	6.19	0.48
Tributary 1	2395	5	10.19	105.17	105.69		105.72	0.002827	1.04	2.32	8.1	0.47
Tributary 1	2395	10	18.65	105.17	105.78		105.81	0.00253	1.1	3.13	9.6	0.46
Tributary 1	2395	25	52.14	105.17	105.89		105.93	0.002412	1.2	4.58	16.92	0.46
Tributary 1	2395	50	54.71	105.17	105.97		106	0.001985	1.18	6.12	21.22	0.43
Tributary 1	2395	100	72.15	105.17	106.04		106.07	0.001733	1.16	7.82	28.37	0.4
Tributary 1	2371	2	5.96	104.99	105.37		105.46	0.009569	1.44	0.79	3.41	0.8
Tributary 1	2371	5	10.15	104.99	105.49		105.6	0.009127	1.73	1.22	3.98	0.83
Tributary 1	2371	10	18.6	104.99	105.57		105.7	0.008719	1.89	1.57	4.38	0.83
Tributary 1	2371	25	52.06	104.99	105.67	105.61	105.82	0.008304	2.06	2.01	4.84	0.83
Tributary 1	2371	50	54.61	104.99	105.74		105.91	0.008065	2.19	2.37	5.2	0.84
Tributary 1	2371	100	72.02	104.99	105.8	105.73	105.98	0.007886	2.28	2.68	5.48	0.84

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	2352	2	5.94	104.8	105.23		105.29	0.006856	1.17	0.82	3.19	0.67
Tributary 1	2352	5	10.12	104.8	105.36		105.45	0.006225	1.4	1.27	3.75	0.67
Tributary 1	2352	10	18.57	104.8	105.44		105.56	0.006133	1.57	1.61	4.13	0.69
Tributary 1	2352	25	52.02	104.8	105.54		105.68	0.006158	1.75	2.02	4.55	0.71
Tributary 1	2352	50	54.56	104.8	105.61		105.77	0.006247	1.9	2.35	4.86	0.73
Tributary 1	2352	100	71.97	104.8	105.66		105.84	0.006384	2.01	2.61	5.09	0.74
Tributary 1	2335	2	5.93	104.72	105.16		105.2	0.003737	0.97	1	3.37	0.51
Tributary 1	2335	5	10.1	104.72	105.29		105.36	0.00394	1.22	1.49	4	0.55
Tributary 1	2335	10	18.54	104.72	105.37		105.46	0.00421	1.4	1.85	4.4	0.58
Tributary 1	2335	25	51.98	104.72	105.46		105.58	0.004559	1.6	2.27	4.87	0.62
Tributary 1	2335	50	54.52	104.72	105.53		105.66	0.004844	1.76	2.6	5.22	0.65
Tributary 1	2335	100	71.92	104.72	105.58		105.73	0.005093	1.88	2.87	5.48	0.67
Tributary 1	2312	2	5.89	104.52	105.13		105.15	0.001092	0.72	1.92	5.19	0.3
Tributary 1	2312	5	10.05	104.52	105.27		105.29	0.001422	0.94	2.67	5.96	0.35
Tributary 1	2312	10	18.48	104.52	105.35		105.39	0.001676	1.1	3.21	6.56	0.39
Tributary 1	2312	25	51.91	104.52	105.45		105.49	0.00194	1.28	3.86	7.25	0.43
Tributary 1	2312	50	54.44	104.52	105.52		105.57	0.002119	1.4	4.39	7.77	0.45
Tributary 1	2312	100	71.84	104.52	105.57		105.63	0.002259	1.5	4.81	8.17	0.47
Tributary 1	2288	2	5.86	104.65	104.98	104.98	105.08	0.013243	1.59	0.75	3.95	0.93
Tributary 1	2288	5	10.01	104.65	105.08	105.08	105.21	0.012354	1.87	1.2	4.97	0.95
Tributary 1	2288	10	18.42	104.65	105.15	105.15	105.29	0.011673	2.02	1.57	5.59	0.94
Tributary 1	2288	25	51.84	104.65	105.22	105.22	105.39	0.011471	2.21	2	6.2	0.96
Tributary 1	2288	50	54.36	104.65	105.28	105.28	105.46	0.011499	2.35	2.34	6.65	0.98
Tributary 1	2288	100	71.75	104.65	105.32	105.32	105.51	0.011303	2.45	2.65	7.03	0.98
Tributary 1	2260	2	5.83	104.22	104.52		104.54	0.002984	0.71	1.41	6.88	0.44
Tributary 1	2260	5	9.95	104.22	104.64		104.67	0.002278	0.8	2.39	8.82	0.41
Tributary 1	2260	10	18.36	104.22	104.73		104.76	0.001981	0.85	3.23	10.38	0.39
Tributary 1	2260	25	51.75	104.22	104.83		104.87	0.001693	0.89	4.36	11.95	0.37
Tributary 1	2260	50	54.25	104.22	104.91		104.94	0.001554	0.93	5.31	13.08	0.37
Tributary 1	2260	100	71.63	104.22	104.97		105	0.001432	0.95	6.14	13.8	0.36
Tributary 1	2233	2	5.79	104	104.44		104.47	0.002797	0.87	1.34	5.03	0.45
Tributary 1	2233	5	9.9	104	104.56		104.6	0.002861	1.06	2.02	5.91	0.48
Tributary 1	2233	10	18.28	104	104.65		104.7	0.00287	1.18	2.56	6.51	0.49
Tributary 1	2233	25	51.66	104	104.75		104.81	0.002844	1.3	3.24	7.2	0.5
Tributary 1	2233	50	54.14	104	104.82		104.88	0.002906	1.41	3.77	7.73	0.51
Tributary 1	2233	100	71.5	104	104.88		104.95	0.002905	1.48	4.24	8.27	0.52
Tributary 1	2189	2	5.75	103.76	104.1	104.1	104.22	0.015044	1.53	0.63	3.07	0.96
Tributary 1	2189	5	9.83	103.76	104.22	104.22	104.36	0.012131	1.77	1.05	3.98	0.92
Tributary 1	2189	10	18.19	103.76	104.3	104.3	104.46	0.011098	1.92	1.39	4.57	0.91
Tributary 1	2189	25	51.55	103.76	104.38	104.38	104.57	0.010637	2.1	1.79	5.2	0.92
Tributary 1	2189	50	54.01	103.76	104.45	104.45	104.65	0.009903	2.2	2.18	5.73	0.9
Tributary 1	2189	100	71.35	103.76	104.5	104.5	104.72	0.00997	2.32	2.44	6.07	0.92
Tributary 1	2158	2	5.71	103.1	103.67		103.68	0.000714	0.51	2.21	6.05	0.23
Tributary 1	2158	5	9.76	103.1	103.82		103.84	0.000828	0.66	3.18	7.04	0.26
Tributary 1	2158	10	18.11	103.1	103.89		103.91	0.001071	0.8	3.67	7.55	0.31
Tributary 1	2158	25	51.45	103.1	103.97		104	0.001314	0.95	4.31	8.4	0.34
Tributary 1	2158	50	53.9	103.1	104.03		104.07	0.001489	1.07	4.86	9.26	0.37
Tributary 1	2158	100	71.22	103.1	104.08		104.13	0.001589	1.15	5.35	9.94	0.39
Tributary 1	2135	2	5.66	103.17	103.65		103.66	0.001274	0.59	1.76	6.37	0.3
Tributary 1	2135	5	9.69	103.17	103.79		103.82	0.001151	0.69	2.8	7.6	0.3
Tributary 1	2135	10	18.04	103.17	103.85		103.88	0.001444	0.83	3.27	8.07	0.35
Tributary 1	2135	25	51.36	103.17	103.93		103.97	0.001684	0.97	3.89	8.61	0.38
Tributary 1	2135	50	53.79	103.17	103.99		104.03	0.001836	1.08	4.4	9.04	0.4
Tributary 1	2135	100	71.11	103.17	104.03		104.09	0.00191	1.15	4.85	9.41	0.42

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	2352	2	5.94	104.8	105.23		105.29	0.006856	1.17	0.82	3.19	0.67
Tributary 1	2352	5	10.12	104.8	105.36		105.45	0.006225	1.4	1.27	3.75	0.67
Tributary 1	2352	10	18.57	104.8	105.44		105.56	0.006133	1.57	1.61	4.13	0.69
Tributary 1	2352	25	52.02	104.8	105.54		105.68	0.006158	1.75	2.02	4.55	0.71
Tributary 1	2352	50	54.56	104.8	105.61		105.77	0.006247	1.9	2.35	4.86	0.73
Tributary 1	2352	100	71.97	104.8	105.66		105.84	0.006384	2.01	2.61	5.09	0.74
Tributary 1	2335	2	5.93	104.72	105.16		105.2	0.003737	0.97	1	3.37	0.51
Tributary 1	2335	5	10.1	104.72	105.29		105.36	0.00394	1.22	1.49	4	0.55
Tributary 1	2335	10	18.54	104.72	105.37		105.46	0.00421	1.4	1.85	4.4	0.58
Tributary 1	2335	25	51.98	104.72	105.46		105.58	0.004559	1.6	2.27	4.87	0.62
Tributary 1	2335	50	54.52	104.72	105.53		105.66	0.004844	1.76	2.6	5.22	0.65
Tributary 1	2335	100	71.92	104.72	105.58		105.73	0.005093	1.88	2.87	5.48	0.67
Tributary 1	2312	2	5.89	104.52	105.13		105.15	0.001092	0.72	1.92	5.19	0.3
Tributary 1	2312	5	10.05	104.52	105.27		105.29	0.001422	0.94	2.67	5.96	0.35
Tributary 1	2312	10	18.48	104.52	105.35		105.39	0.001676	1.1	3.21	6.56	0.39
Tributary 1	2312	25	51.91	104.52	105.45		105.49	0.00194	1.28	3.86	7.25	0.43
Tributary 1	2312	50	54.44	104.52	105.52		105.57	0.002119	1.4	4.39	7.77	0.45
Tributary 1	2312	100	71.84	104.52	105.57		105.63	0.002259	1.5	4.81	8.17	0.47
Tributary 1	2288	2	5.86	104.65	104.98	104.98	105.08	0.013243	1.59	0.75	3.95	0.93
Tributary 1	2288	5	10.01	104.65	105.08	105.08	105.21	0.012354	1.87	1.2	4.97	0.95
Tributary 1	2288	10	18.42	104.65	105.15	105.15	105.29	0.011673	2.02	1.57	5.59	0.94
Tributary 1	2288	25	51.84	104.65	105.22	105.22	105.39	0.011471	2.21	2	6.2	0.96
Tributary 1	2288	50	54.36	104.65	105.28	105.28	105.46	0.011499	2.35	2.34	6.65	0.98
Tributary 1	2288	100	71.75	104.65	105.32	105.32	105.51	0.011303	2.45	2.65	7.03	0.98
Tributary 1	2260	2	5.83	104.22	104.52		104.54	0.002984	0.71	1.41	6.88	0.44
Tributary 1	2260	5	9.95	104.22	104.64		104.67	0.002278	0.8	2.39	8.82	0.41
Tributary 1	2260	10	18.36	104.22	104.73		104.76	0.001981	0.85	3.23	10.38	0.39
Tributary 1	2260	25	51.75	104.22	104.83		104.87	0.001693	0.89	4.36	11.95	0.37
Tributary 1	2260	50	54.25	104.22	104.91		104.94	0.001554	0.93	5.31	13.08	0.37
Tributary 1	2260	100	71.63	104.22	104.97		105	0.001432	0.95	6.14	13.8	0.36
Tributary 1	2233	2	5.79	104	104.44		104.47	0.002797	0.87	1.34	5.03	0.45
Tributary 1	2233	5	9.9	104	104.56		104.6	0.002861	1.06	2.02	5.91	0.48
Tributary 1	2233	10	18.28	104	104.65		104.7	0.00287	1.18	2.56	6.51	0.49
Tributary 1	2233	25	51.66	104	104.75		104.81	0.002844	1.3	3.24	7.2	0.5
Tributary 1	2233	50	54.14	104	104.82		104.88	0.002906	1.41	3.77	7.73	0.51
Tributary 1	2233	100	71.5	104	104.88		104.95	0.002905	1.48	4.24	8.27	0.52
Tributary 1	2189	2	5.75	103.76	104.1	104.1	104.22	0.015044	1.53	0.63	3.07	0.96
Tributary 1	2189	5	9.83	103.76	104.22	104.22	104.36	0.012131	1.77	1.05	3.98	0.92
Tributary 1	2189	10	18.19	103.76	104.3	104.3	104.46	0.011098	1.92	1.39	4.57	0.91
Tributary 1	2189	25	51.55	103.76	104.38	104.38	104.57	0.010637	2.1	1.79	5.2	0.92
Tributary 1	2189	50	54.01	103.76	104.45	104.45	104.65	0.009903	2.2	2.18	5.73	0.9
Tributary 1	2189	100	71.35	103.76	104.5	104.5	104.72	0.00997	2.32	2.44	6.07	0.92
Tributary 1	2158	2	5.71	103.1	103.67		103.68	0.000714	0.51	2.21	6.05	0.23
Tributary 1	2158	5	9.76	103.1	103.82		103.84	0.000828	0.66	3.18	7.04	0.26
Tributary 1	2158	10	18.11	103.1	103.89		103.91	0.001071	0.8	3.67	7.55	0.31
Tributary 1	2158	25	51.45	103.1	103.97		104	0.001314	0.95	4.31	8.4	0.34
Tributary 1	2158	50	53.9	103.1	104.03		104.07	0.001489	1.07	4.86	9.26	0.37
Tributary 1	2158	100	71.22	103.1	104.08		104.13	0.001589	1.15	5.35	9.94	0.39
Tributary 1	2135	2	5.66	103.17	103.65		103.66	0.001274	0.59	1.76	6.37	0.3
Tributary 1	2135	5	9.69	103.17	103.79		103.82	0.001151	0.69	2.8	7.6	0.3
Tributary 1	2135	10	18.04	103.17	103.85		103.88	0.001444	0.83	3.27	8.07	0.35
Tributary 1	2135	25	51.36	103.17	103.93		103.97	0.001684	0.97	3.89	8.61	0.38
Tributary 1	2135	50	53.79	103.17	103.99		104.03	0.001836	1.08	4.4	9.04	0.4
Tributary 1	2135	100	71.11	103.17	104.03		104.09	0.00191	1.15	4.85	9.41	0.42

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	2098	2	5.59	103.02	103.61		103.62	0.000829	0.59	1.86	4.93	0.26
Tributary 1	2098	5	9.59	103.02	103.75		103.77	0.001069	0.78	2.6	5.68	0.3
Tributary 1	2098	10	17.92	103.02	103.78		103.82	0.001666	1.01	2.8	5.86	0.38
Tributary 1	2098	25	51.23	103.02	103.82		103.89	0.002506	1.28	3.03	6.08	0.47
Tributary 1	2098	50	53.65	103.02	103.84		103.94	0.003386	1.52	3.17	6.19	0.55
Tributary 1	2098	100	70.96	103.02	103.86		103.98	0.004221	1.72	3.27	6.27	0.62
Tributary 1	2058	2	5.36	102.98	103.58	103.22	103.59	0.000578	0.53	2.05	42.53	0.22
Tributary 1	2058	5	9.16	102.98	103.76	103.33	103.76	0.000044	0.17	18.85	64.81	0.06
Tributary 1	2058	10	17.43	102.98	103.8	103.4	103.8	0.000058	0.21	21.57	72.09	0.07
Tributary 1	2058	25	50.66	102.98	103.85	103.48	103.85	0.000071	0.24	25.29	77.83	0.08
Tributary 1	2058	50	53.02	102.98	103.88	103.55	103.88	0.000083	0.26	28.09	84.72	0.09
Tributary 1	2058	100	70.28	102.98	103.91	103.56	103.91	0.000091	0.28	30.45	90.07	0.09
Tributary 1	2054		Culvert									
Tributary 1	2048	2	5.35	102.87	103.45	103.12	103.47	0.000914	0.66	1.54	40.3	0.28
Tributary 1	2048	5	9.12	102.87	103.6	103.24	103.64	0.001354	0.93	2.07	46.28	0.35
Tributary 1	2048	10	17.38	102.87	103.64	103.33	103.64	0.000179	0.35	13.59	48.55	0.13
Tributary 1	2048	25	50.59	102.87	103.73	103.43	103.73	0.000141	0.34	18.51	58.62	0.12
Tributary 1	2048	50	52.93	102.87	103.79	103.51	103.79	0.000132	0.34	22.17	66.61	0.11
Tributary 1	2048	100	70.18	102.87	103.84	103.58	103.85	0.000116	0.33	26.3	75.22	0.11
Tributary 1	2001	2	5.19	102.95	103.3	103.25	103.36	0.00771	1.31	0.96	4.26	0.73
Tributary 1	2001	5	8.8	102.95	103.41	103.35	103.5	0.008047	1.62	1.48	5.79	0.78
Tributary 1	2001	10	17.01	102.95	103.43	103.43	103.57	0.012645	2.08	1.6	6.08	0.98
Tributary 1	2001	25	50.09	102.95	103.51	103.51	103.66	0.011539	2.22	2.17	7.92	0.96
Tributary 1	2001	50	52.32	102.95	103.6	103.58	103.73	0.009256	2.19	2.9	10.06	0.88
Tributary 1	2001	100	69.44	102.95	103.67	103.6	103.79	0.008168	2.21	3.78	13.96	0.85
Tributary 1	1971	2	5.16	102.58	102.92	102.92	103.03	0.016317	1.66	0.68	3.4	1.02
Tributary 1	1971	5	8.76	102.58	103.03	103.03	103.17	0.014369	1.95	1.1	4.14	1.01
Tributary 1	1971	10	16.95	102.58	103.32		103.37	0.002838	1.26	2.55	5.98	0.49
Tributary 1	1971	25	50.02	102.58	103.3		103.4	0.005878	1.78	2.44	5.82	0.71
Tributary 1	1971	50	52.24	102.58	103.32		103.46	0.008081	2.13	2.54	5.97	0.83
Tributary 1	1971	100	69.34	102.58	103.34	103.29	103.52	0.009442	2.36	2.69	6.17	0.9
Tributary 1	1951	2	5.12	101.98	102.72	102.24	102.73	0.000342	0.45	2.05	11.4	0.17
Tributary 1	1951	5	8.64	101.98	103.03	102.34	103.04	0.000319	0.56	2.97	28.76	0.18
Tributary 1	1951	10	16.65	101.98	103.33	102.42	103.34	0.000207	0.53	6.28	66.49	0.15
Tributary 1	1951	25	49.73	101.98	103.32	102.5	103.34	0.000401	0.74	6.07	65.63	0.21
Tributary 1	1951	50	51.9	101.98	103.38	102.58	103.39	0.000062	0.3	27.23	72.41	0.08
Tributary 1	1951	100	68.96	101.98	103.42	102.63	103.43	0.000067	0.32	30.18	76.93	0.09
Tributary 1	1938		Culvert									
Tributary 1	1930	2	5.1	101.88	102.63	102.11	102.64	0.00034	0.43	2.18	28.79	0.16
Tributary 1	1930	5	8.6	101.88	102.79	102.21	102.81	0.000556	0.63	2.71	34.81	0.21
Tributary 1	1930	10	16.59	101.88	102.88	102.29	102.91	0.000748	0.77	3.02	36.48	0.25
Tributary 1	1930	25	49.64	101.88	103.06	102.38	103.07	0.000051	0.23	23.67	54.54	0.07
Tributary 1	1930	50	51.78	101.88	103.12	102.47	103.12	0.000058	0.25	26.83	57.91	0.07
Tributary 1	1930	100	68.82	101.88	103.25	102.54	103.25	0.000046	0.24	34.97	68.07	0.06
Tributary 1	1900	2	4.96	102.02	102.6		102.62	0.001406	0.78	1.57	4.26	0.34
Tributary 1	1900	5	8.39	102.02	102.73		102.77	0.001811	1.03	2.21	5.03	0.4
Tributary 1	1900	10	16.32	102.02	102.81		102.86	0.002206	1.22	2.61	5.47	0.45
Tributary 1	1900	25	49.23	102.02	103		103.05	0.001648	1.22	3.76	6.86	0.4
Tributary 1	1900	50	51.32	102.02	103.03		103.1	0.002164	1.43	4	7.15	0.46
Tributary 1	1900	100	68.22	102.02	103.16		103.23	0.001816	1.42	5.23	12.28	0.43
Tributary 1	1867	2	4.93	101.98	102.39	102.39	102.5	0.015376	1.63	0.7	3.7	0.98
Tributary 1	1867	5	8.33	101.98	102.51	102.51	102.64	0.012804	1.86	1.19	4.93	0.95
Tributary 1	1867	10	16.25	101.98	102.61	102.58	102.72	0.009322	1.85	1.72	5.74	0.84
Tributary 1	1867	25	49.09	101.98	102.95		102.99	0.001736	1.14	4.44	10.72	0.4
Tributary 1	1867	50	51.18	101.98	102.97		103.02	0.002428	1.36	4.6	11	0.47
Tributary 1	1867	100	68.02	101.98	103.13		103.16	0.001436	1.18	6.7	15.31	0.37

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	2098	2	5.59	103.02	103.61		103.62	0.000829	0.59	1.86	4.93	0.26
Tributary 1	2098	5	9.59	103.02	103.75		103.77	0.001069	0.78	2.6	5.68	0.3
Tributary 1	2098	10	17.92	103.02	103.78		103.82	0.001666	1.01	2.8	5.86	0.38
Tributary 1	2098	25	51.23	103.02	103.82		103.89	0.002506	1.28	3.03	6.08	0.47
Tributary 1	2098	50	53.65	103.02	103.84		103.94	0.003386	1.52	3.17	6.19	0.55
Tributary 1	2098	100	70.96	103.02	103.86		103.98	0.004221	1.72	3.27	6.27	0.62
Tributary 1	2058	2	5.36	102.98	103.58	103.22	103.59	0.000578	0.53	2.05	42.53	0.22
Tributary 1	2058	5	9.16	102.98	103.76	103.33	103.76	0.000044	0.17	18.85	64.81	0.06
Tributary 1	2058	10	17.43	102.98	103.8	103.4	103.8	0.000058	0.21	21.57	72.09	0.07
Tributary 1	2058	25	50.66	102.98	103.85	103.48	103.85	0.000071	0.24	25.29	77.83	0.08
Tributary 1	2058	50	53.02	102.98	103.88	103.55	103.88	0.000083	0.26	28.09	84.72	0.09
Tributary 1	2058	100	70.28	102.98	103.91	103.56	103.91	0.000091	0.28	30.45	90.07	0.09
Tributary 1	2054		Culvert									
Tributary 1	2048	2	5.35	102.87	103.45	103.12	103.47	0.000914	0.66	1.54	40.3	0.28
Tributary 1	2048	5	9.12	102.87	103.6	103.24	103.64	0.001354	0.93	2.07	46.28	0.35
Tributary 1	2048	10	17.38	102.87	103.64	103.33	103.64	0.000179	0.35	13.59	48.55	0.13
Tributary 1	2048	25	50.59	102.87	103.73	103.43	103.73	0.000141	0.34	18.51	58.62	0.12
Tributary 1	2048	50	52.93	102.87	103.79	103.51	103.79	0.000132	0.34	22.17	66.61	0.11
Tributary 1	2048	100	70.18	102.87	103.84	103.58	103.85	0.000116	0.33	26.3	75.22	0.11
Tributary 1	2001	2	5.19	102.95	103.3	103.25	103.36	0.00771	1.31	0.96	4.26	0.73
Tributary 1	2001	5	8.8	102.95	103.41	103.35	103.5	0.008047	1.62	1.48	5.79	0.78
Tributary 1	2001	10	17.01	102.95	103.43	103.43	103.57	0.012645	2.08	1.6	6.08	0.98
Tributary 1	2001	25	50.09	102.95	103.51	103.51	103.66	0.011539	2.22	2.17	7.92	0.96
Tributary 1	2001	50	52.32	102.95	103.6	103.58	103.73	0.009256	2.19	2.9	10.06	0.88
Tributary 1	2001	100	69.44	102.95	103.67	103.6	103.79	0.008168	2.21	3.78	13.96	0.85
Tributary 1	1971	2	5.16	102.58	102.92	102.92	103.03	0.016317	1.66	0.68	3.4	1.02
Tributary 1	1971	5	8.76	102.58	103.03	103.03	103.17	0.014369	1.95	1.1	4.14	1.01
Tributary 1	1971	10	16.95	102.58	103.32		103.37	0.002838	1.26	2.55	5.98	0.49
Tributary 1	1971	25	50.02	102.58	103.3		103.4	0.005878	1.78	2.44	5.82	0.71
Tributary 1	1971	50	52.24	102.58	103.32		103.46	0.008081	2.13	2.54	5.97	0.83
Tributary 1	1971	100	69.34	102.58	103.34	103.29	103.52	0.009442	2.36	2.69	6.17	0.9
Tributary 1	1951	2	5.12	101.98	102.72	102.24	102.73	0.000342	0.45	2.05	11.4	0.17
Tributary 1	1951	5	8.64	101.98	103.03	102.34	103.04	0.000319	0.56	2.97	28.76	0.18
Tributary 1	1951	10	16.65	101.98	103.33	102.42	103.34	0.000207	0.53	6.28	66.49	0.15
Tributary 1	1951	25	49.73	101.98	103.32	102.5	103.34	0.000401	0.74	6.07	65.63	0.21
Tributary 1	1951	50	51.9	101.98	103.38	102.58	103.39	0.000062	0.3	27.23	72.41	0.08
Tributary 1	1951	100	68.96	101.98	103.42	102.63	103.43	0.000067	0.32	30.18	76.93	0.09
Tributary 1	1938		Culvert									
Tributary 1	1930	2	5.1	101.88	102.63	102.11	102.64	0.00034	0.43	2.18	28.79	0.16
Tributary 1	1930	5	8.6	101.88	102.79	102.21	102.81	0.000556	0.63	2.71	34.81	0.21
Tributary 1	1930	10	16.59	101.88	102.88	102.29	102.91	0.000748	0.77	3.02	36.48	0.25
Tributary 1	1930	25	49.64	101.88	103.06	102.38	103.07	0.000051	0.23	23.67	54.54	0.07
Tributary 1	1930	50	51.78	101.88	103.12	102.47	103.12	0.000058	0.25	26.83	57.91	0.07
Tributary 1	1930	100	68.82	101.88	103.25	102.54	103.25	0.000046	0.24	34.97	68.07	0.06
Tributary 1	1900	2	4.96	102.02	102.6		102.62	0.001406	0.78	1.57	4.26	0.34
Tributary 1	1900	5	8.39	102.02	102.73		102.77	0.001811	1.03	2.21	5.03	0.4
Tributary 1	1900	10	16.32	102.02	102.81		102.86	0.002206	1.22	2.61	5.47	0.45
Tributary 1	1900	25	49.23	102.02	103		103.05	0.001648	1.22	3.76	6.86	0.4
Tributary 1	1900	50	51.32	102.02	103.03		103.1	0.002164	1.43	4	7.15	0.46
Tributary 1	1900	100	68.22	102.02	103.16		103.23	0.001816	1.42	5.23	12.28	0.43
Tributary 1	1867	2	4.93	101.98	102.39	102.39	102.5	0.015376	1.63	0.7	3.7	0.98
Tributary 1	1867	5	8.33	101.98	102.51	102.51	102.64	0.012804	1.86	1.19	4.93	0.95
Tributary 1	1867	10	16.25	101.98	102.61	102.58	102.72	0.009322	1.85	1.72	5.74	0.84
Tributary 1	1867	25	49.09	101.98	102.95		102.99	0.001736	1.14	4.44	10.72	0.4
Tributary 1	1867	50	51.18	101.98	102.97		103.02	0.002428	1.36	4.6	11	0.47
Tributary 1	1867	100	68.02	101.98	103.13		103.16	0.001436	1.18	6.7	15.31	0.37

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1826	2	4.87	101.65	102.32		102.33	0.000968	0.66	2.03	5.76	0.28
Tributary 1	1826	5	8.25	101.65	102.45		102.47	0.001281	0.87	2.84	6.74	0.33
Tributary 1	1826	10	16.14	101.65	102.56		102.58	0.001291	0.96	3.63	7.7	0.34
Tributary 1	1826	25	48.84	101.65	102.94		102.95	0.000443	0.73	7.56	14	0.21
Tributary 1	1826	50	50.92	101.65	102.94		102.96	0.000653	0.89	7.65	14.11	0.26
Tributary 1	1826	100	67.67	101.65	103.12		103.13	0.000424	0.78	10.31	16.62	0.21
Tributary 1	1801	2	4.83	101.86	102.26		102.29	0.002759	0.79	1.36	5.53	0.44
Tributary 1	1801	5	8.19	101.86	102.38		102.42	0.002748	0.97	2.07	6.55	0.46
Tributary 1	1801	10	16.06	101.86	102.5		102.54	0.00208	0.98	2.92	7.54	0.41
Tributary 1	1801	25	48.65	101.86	102.93		102.94	0.0004	0.62	8.24	20.59	0.2
Tributary 1	1801	50	50.73	101.86	102.93		102.95	0.000605	0.77	8.27	20.64	0.24
Tributary 1	1801	100	67.39	101.86	103.11		103.12	0.00033	0.63	12.71	28.66	0.19
Tributary 1	1760	2	4.76	101.78	102.19		102.2	0.001583	0.67	2.09	8.56	0.34
Tributary 1	1760	5	8.08	101.78	102.32		102.33	0.001555	0.8	3.34	11.45	0.35
Tributary 1	1760	10	15.88	101.78	102.46		102.48	0.001002	0.76	5.53	19.27	0.3
Tributary 1	1760	25	48.07	101.78	102.93		102.93	0.000085	0.31	19.35	37.86	0.09
Tributary 1	1760	50	50.15	101.78	102.93		102.93	0.000128	0.38	19.41	37.92	0.12
Tributary 1	1760	100	66.56	101.78	103.11		103.11	0.000075	0.32	26.86	44.54	0.09
Tributary 1	1717	2	4.67	101.71	102.1		102.12	0.002444	0.81	1.74	7.48	0.42
Tributary 1	1717	5	7.94	101.71	102.23		102.25	0.002115	0.92	2.84	9.4	0.41
Tributary 1	1717	10	15.64	101.71	102.42		102.43	0.00102	0.79	5.39	17.72	0.3
Tributary 1	1717	25	47.15	101.71	102.92		102.92	0.000077	0.31	23.45	63.74	0.09
Tributary 1	1717	50	49.22	101.71	102.92		102.93	0.000117	0.38	23.46	63.75	0.11
Tributary 1	1717	100	65.14	101.71	103.11		103.11	0.000049	0.27	38.93	111.89	0.07
Tributary 1	1678	2	4.62	101.47	101.97	101.83	102.01	0.003224	1.06	1.29	4.8	0.5
Tributary 1	1678	5	7.85	101.47	102.08		102.13	0.004449	1.42	1.86	6.37	0.6
Tributary 1	1678	10	15.37	101.47	102.4		102.4	0.000537	0.67	8.9	40.4	0.23
Tributary 1	1678	25	45.44	101.47	102.92		102.92	0.000012	0.14	65.14	200.95	0.04
Tributary 1	1678	50	47.51	101.47	102.92		102.92	0.000018	0.17	65.15	200.97	0.04
Tributary 1	1678	100	62.27	101.47	103.11		103.11	0.000007	0.11	109.64	282.75	0.03
Tributary 1	1657	2	4.59	101.58	101.78	101.78	101.85	0.025221	1.54	0.81	5.84	1.18
Tributary 1	1657	5	7.8	101.58	102.02		102.04	0.002809	0.93	2.54	8.25	0.46
Tributary 1	1657	10	15.15	101.58	102.39		102.39	0.00032	0.48	9.86	31.8	0.17
Tributary 1	1657	25	43.9	101.58	102.92		102.92	0.000009	0.11	67.54	168.61	0.03
Tributary 1	1657	50	45.97	101.58	102.92		102.92	0.000014	0.14	67.53	168.6	0.04
Tributary 1	1657	100	59.81	101.58	103.11		103.11	0.000006	0.1	101.96	198.15	0.03
Tributary 1	1604	2	4.52	100.74	101.69	101.16	101.7	0.000581	0.56	1.84	9.65	0.19
Tributary 1	1604	5	7.58	100.74	101.98	101.35	102	0.000592	0.68	2.63	71.76	0.2
Tributary 1	1604	10	13.82	100.74	102.39	101.45	102.39	0.000006	0.08	71.61	216.68	0.02
Tributary 1	1604	25	39.27	100.74	102.92	101.55	102.92	0	0.03	229.09	357.98	0.01
Tributary 1	1604	50	41.34	100.74	102.92	101.63	102.92	0.000001	0.03	229.07	357.97	0.01
Tributary 1	1604	100	53.59	100.74	103.11	101.69	103.11	0	0.03	298.64	399.53	0.01
Tributary 1	1594		Culvert									
Tributary 1	1587	2	4.49	100.52	101.62	100.87	101.63	0.000278	0.36	2.5	4.97	0.13
Tributary 1	1587	5	7.54	100.52	101.78	101.01	101.79	0.000504	0.53	3.05	21.11	0.18
Tributary 1	1587	10	13.61	100.52	102.16	101.11	102.16	0.000029	0.16	31.92	117.61	0.05
Tributary 1	1587	25	36.86	100.52	102.92	101.22	102.92	0.000001	0.03	183.43	281.96	0.01
Tributary 1	1587	50	38.93	100.52	102.92	101.31	102.92	0.000001	0.04	183.52	282	0.01
Tributary 1	1587	100	49.86	100.52	103.11	101.38	103.11	0.000001	0.04	239.34	322.92	0.01
Tributary 1	1563	2	4.44	101.1	101.6		101.61	0.001535	0.72	1.94	7.28	0.34
Tributary 1	1563	5	7.44	101.1	101.76		101.77	0.00126	0.8	3.27	9.49	0.33
Tributary 1	1563	10	13.14	101.1	102.15		102.15	0.000237	0.48	8.21	16.04	0.15
Tributary 1	1563	25	34.12	101.1	102.92		102.92	0.000012	0.16	47.74	99.41	0.04
Tributary 1	1563	50	36.2	101.1	102.92		102.92	0.000018	0.19	47.75	99.43	0.05
Tributary 1	1563	100	46.18	101.1	103.11		103.11	0.000012	0.17	72	164.55	0.04

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1826	2	4.87	101.65	102.32		102.33	0.000968	0.66	2.03	5.76	0.28
Tributary 1	1826	5	8.25	101.65	102.45		102.47	0.001281	0.87	2.84	6.74	0.33
Tributary 1	1826	10	16.14	101.65	102.56		102.58	0.001291	0.96	3.63	7.7	0.34
Tributary 1	1826	25	48.84	101.65	102.94		102.95	0.000443	0.73	7.56	14	0.21
Tributary 1	1826	50	50.92	101.65	102.94		102.96	0.000653	0.89	7.65	14.11	0.26
Tributary 1	1826	100	67.67	101.65	103.12		103.13	0.000424	0.78	10.31	16.62	0.21
Tributary 1	1801	2	4.83	101.86	102.26		102.29	0.002759	0.79	1.36	5.53	0.44
Tributary 1	1801	5	8.19	101.86	102.38		102.42	0.002748	0.97	2.07	6.55	0.46
Tributary 1	1801	10	16.06	101.86	102.5		102.54	0.00208	0.98	2.92	7.54	0.41
Tributary 1	1801	25	48.65	101.86	102.93		102.94	0.0004	0.62	8.24	20.59	0.2
Tributary 1	1801	50	50.73	101.86	102.93		102.95	0.000605	0.77	8.27	20.64	0.24
Tributary 1	1801	100	67.39	101.86	103.11		103.12	0.00033	0.63	12.71	28.66	0.19
Tributary 1	1760	2	4.76	101.78	102.19		102.2	0.001583	0.67	2.09	8.56	0.34
Tributary 1	1760	5	8.08	101.78	102.32		102.33	0.001555	0.8	3.34	11.45	0.35
Tributary 1	1760	10	15.88	101.78	102.46		102.48	0.001002	0.76	5.53	19.27	0.3
Tributary 1	1760	25	48.07	101.78	102.93		102.93	0.000085	0.31	19.35	37.86	0.09
Tributary 1	1760	50	50.15	101.78	102.93		102.93	0.000128	0.38	19.41	37.92	0.12
Tributary 1	1760	100	66.56	101.78	103.11		103.11	0.000075	0.32	26.86	44.54	0.09
Tributary 1	1717	2	4.67	101.71	102.1		102.12	0.002444	0.81	1.74	7.48	0.42
Tributary 1	1717	5	7.94	101.71	102.23		102.25	0.002115	0.92	2.84	9.4	0.41
Tributary 1	1717	10	15.64	101.71	102.42		102.43	0.00102	0.79	5.39	17.72	0.3
Tributary 1	1717	25	47.15	101.71	102.92		102.92	0.000077	0.31	23.45	63.74	0.09
Tributary 1	1717	50	49.22	101.71	102.92		102.93	0.000117	0.38	23.46	63.75	0.11
Tributary 1	1717	100	65.14	101.71	103.11		103.11	0.000049	0.27	38.93	111.89	0.07
Tributary 1	1678	2	4.62	101.47	101.97	101.83	102.01	0.003224	1.06	1.29	4.8	0.5
Tributary 1	1678	5	7.85	101.47	102.08		102.13	0.004449	1.42	1.86	6.37	0.6
Tributary 1	1678	10	15.37	101.47	102.4		102.4	0.000537	0.67	8.9	40.4	0.23
Tributary 1	1678	25	45.44	101.47	102.92		102.92	0.000012	0.14	65.14	200.95	0.04
Tributary 1	1678	50	47.51	101.47	102.92		102.92	0.000018	0.17	65.15	200.97	0.04
Tributary 1	1678	100	62.27	101.47	103.11		103.11	0.000007	0.11	109.64	282.75	0.03
Tributary 1	1657	2	4.59	101.58	101.78	101.78	101.85	0.025221	1.54	0.81	5.84	1.18
Tributary 1	1657	5	7.8	101.58	102.02		102.04	0.002809	0.93	2.54	8.25	0.46
Tributary 1	1657	10	15.15	101.58	102.39		102.39	0.00032	0.48	9.86	31.8	0.17
Tributary 1	1657	25	43.9	101.58	102.92		102.92	0.000009	0.11	67.54	168.61	0.03
Tributary 1	1657	50	45.97	101.58	102.92		102.92	0.000014	0.14	67.53	168.6	0.04
Tributary 1	1657	100	59.81	101.58	103.11		103.11	0.000006	0.1	101.96	198.15	0.03
Tributary 1	1604	2	4.52	100.74	101.69	101.16	101.7	0.000581	0.56	1.84	9.65	0.19
Tributary 1	1604	5	7.58	100.74	101.98	101.35	102	0.000592	0.68	2.63	71.76	0.2
Tributary 1	1604	10	13.82	100.74	102.39	101.45	102.39	0.000006	0.08	71.61	216.68	0.02
Tributary 1	1604	25	39.27	100.74	102.92	101.55	102.92	0	0.03	229.09	357.98	0.01
Tributary 1	1604	50	41.34	100.74	102.92	101.63	102.92	0.000001	0.03	229.07	357.97	0.01
Tributary 1	1604	100	53.59	100.74	103.11	101.69	103.11	0	0.03	298.64	399.53	0.01
Tributary 1	1594		Culvert									
Tributary 1	1587	2	4.49	100.52	101.62	100.87	101.63	0.000278	0.36	2.5	4.97	0.13
Tributary 1	1587	5	7.54	100.52	101.78	101.01	101.79	0.000504	0.53	3.05	21.11	0.18
Tributary 1	1587	10	13.61	100.52	102.16	101.11	102.16	0.000029	0.16	31.92	117.61	0.05
Tributary 1	1587	25	36.86	100.52	102.92	101.22	102.92	0.000001	0.03	183.43	281.96	0.01
Tributary 1	1587	50	38.93	100.52	102.92	101.31	102.92	0.000001	0.04	183.52	282	0.01
Tributary 1	1587	100	49.86	100.52	103.11	101.38	103.11	0.000001	0.04	239.34	322.92	0.01
Tributary 1	1563	2	4.44	101.1	101.6		101.61	0.001535	0.72	1.94	7.28	0.34
Tributary 1	1563	5	7.44	101.1	101.76		101.77	0.00126	0.8	3.27	9.49	0.33
Tributary 1	1563	10	13.14	101.1	102.15		102.15	0.000237	0.48	8.21	16.04	0.15
Tributary 1	1563	25	34.12	101.1	102.92		102.92	0.000012	0.16	47.74	99.41	0.04
Tributary 1	1563	50	36.2	101.1	102.92		102.92	0.000018	0.19	47.75	99.43	0.05
Tributary 1	1563	100	46.18	101.1	103.11		103.11	0.000012	0.17	72	164.55	0.04

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1539	2	4.4	101.05	101.55		101.57	0.001507	0.7	1.62	5.94	0.33
Tributary 1	1539	5	7.37	101.05	101.72		101.74	0.001299	0.8	2.76	8.18	0.33
Tributary 1	1539	10	12.94	101.05	102.14		102.15	0.000213	0.46	7.82	15.88	0.14
Tributary 1	1539	25	32.75	101.05	102.92		102.92	0.000006	0.12	64.06	118.35	0.03
Tributary 1	1539	50	34.82	101.05	102.92		102.92	0.00001	0.14	64.07	118.36	0.03
Tributary 1	1539	100	44.22	101.05	103.1		103.11	0.000006	0.12	87.53	133.24	0.03
Tributary 1	1499	2	4.35	101.18	101.36	101.36	101.42	0.02026	1.39	0.96	8.45	1.06
Tributary 1	1499	5	7.19	101.18	101.69		101.7	0.000666	0.51	6.58	36.45	0.23
Tributary 1	1499	10	11.74	101.18	102.14		102.14	0.000011	0.1	53.32	168.05	0.03
Tributary 1	1499	25	26.5	101.18	102.92		102.92	0	0.02	251.43	395	0.01
Tributary 1	1499	50	28.57	101.18	102.92		102.92	0	0.03	251.46	395.03	0.01
Tributary 1	1499	100	36	101.18	103.11		103.11	0	0.03	327.74	432.87	0.01
Tributary 1	1470	2	4.31	100.77	101.24		101.26	0.001538	0.71	1.76	5.75	0.34
Tributary 1	1470	5	7	100.77	101.68		101.69	0.000275	0.48	6.11	28.4	0.16
Tributary 1	1470	10	10.11	100.77	102.14		102.14	0.000009	0.12	56.87	186.49	0.03
Tributary 1	1470	25	18.71	100.77	102.92		102.92	0	0.03	275.13	414.58	0.01
Tributary 1	1470	50	20.78	100.77	102.92		102.92	0	0.04	275.16	414.58	0.01
Tributary 1	1470	100	25.9	100.77	103.11		103.11	0	0.03	353.94	457.08	0.01
Tributary 1	1454	2	4.27	100.25	101.21	100.78	101.23	0.001085	0.69	1.89	4.7	0.27
Tributary 1	1454	5	6.79	100.25	101.65	100.93	101.67	0.000592	0.71	3.37	80.08	0.22
Tributary 1	1454	10	8.93	100.25	102.13	101.03	102.14	0.000218	0.55	8.76	188.66	0.14
Tributary 1	1454	25	14.04	100.25	102.92	101.16	102.92	0.000013	0.18	69.74	373.2	0.04
Tributary 1	1454	50	16.11	100.25	102.92	101.25	102.92	0.000019	0.21	69.7	373.16	0.04
Tributary 1	1454	100	19.98	100.25	103.1	101.34	103.1	0.00001	0.16	107.59	449.75	0.03
Tributary 1	1439		Culvert									
Tributary 1	1429	2	4.24	100.13	101.03	100.66	101.05	0.001124	0.73	1.78	5.94	0.29
Tributary 1	1429	5	6.66	100.13	101.37	100.8	101.41	0.000822	0.84	2.75	20.25	0.27
Tributary 1	1429	10	8.41	100.13	101.65	100.89	101.69	0.000643	0.88	3.54	91.53	0.25
Tributary 1	1429	25	10.91	100.13	102.1	101.02	102.14	0.000447	0.9	4.8	193.6	0.22
Tributary 1	1429	50	12.99	100.13	102.57	101.1	102.61	0.000289	0.85	6.13	351.16	0.18
Tributary 1	1429	100	15.57	100.13	103.1	101.18	103.1	0	0.03	470.18	562.92	0.01
Tributary 1	1416		Culvert									
Tributary 1	1403	2	4.21	100.03	100.76	100.44	100.79	0.001403	0.88	1.72	5.85	0.34
Tributary 1	1403	5	6.61	100.03	100.89	100.58	100.96	0.002247	1.26	2.14	8.89	0.45
Tributary 1	1403	10	8.32	100.03	100.95	100.68	101.06	0.003106	1.56	2.34	10.06	0.54
Tributary 1	1403	25	10.59	100.03	101.02	100.83	101.19	0.00449	1.97	2.56	14.56	0.65
Tributary 1	1403	50	12.26	100.03	101.06	100.91	101.29	0.005682	2.28	2.68	17.66	0.74
Tributary 1	1403	100	14.04	100.03	101.08	100.99	101.38	0.00712	2.59	2.76	19.06	0.83
Tributary 1	1377	2	4.15	100.12	100.73		100.75	0.001101	0.66	2.49	7.55	0.29
Tributary 1	1377	5	6.53	100.12	100.86		100.89	0.001366	0.86	3.61	9.38	0.34
Tributary 1	1377	10	8.22	100.12	100.92		100.97	0.001726	1.03	4.22	10.51	0.39
Tributary 1	1377	25	10.47	100.12	100.99		101.05	0.002355	1.28	5.02	13.24	0.46
Tributary 1	1377	50	12.13	100.12	101.04		101.11	0.002751	1.43	5.76	25.5	0.5
Tributary 1	1377	100	13.89	100.12	101.08	100.85	101.16	0.002995	1.54	6.97	34.39	0.53
Tributary 1	1349	2	4.07	100.06	100.71		100.72	0.000746	0.62	3.21	9.6	0.25
Tributary 1	1349	5	6.41	100.06	100.84		100.86	0.001092	0.85	4.96	18.63	0.31
Tributary 1	1349	10	8.07	100.06	100.89		100.92	0.001295	0.97	6.12	22.02	0.35
Tributary 1	1349	25	10.29	100.06	100.96		100.99	0.001484	1.1	7.78	25.46	0.38
Tributary 1	1349	50	11.92	100.06	101.01		101.04	0.001599	1.18	8.94	27.78	0.39
Tributary 1	1349	100	13.64	100.06	101.05		101.08	0.001671	1.24	10.1	29.81	0.4

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1539	2	4.4	101.05	101.55		101.57	0.001507	0.7	1.62	5.94	0.33
Tributary 1	1539	5	7.37	101.05	101.72		101.74	0.001299	0.8	2.76	8.18	0.33
Tributary 1	1539	10	12.94	101.05	102.14		102.15	0.000213	0.46	7.82	15.88	0.14
Tributary 1	1539	25	32.75	101.05	102.92		102.92	0.000006	0.12	64.06	118.35	0.03
Tributary 1	1539	50	34.82	101.05	102.92		102.92	0.00001	0.14	64.07	118.36	0.03
Tributary 1	1539	100	44.22	101.05	103.1		103.11	0.000006	0.12	87.53	133.24	0.03
Tributary 1	1499	2	4.35	101.18	101.36	101.36	101.42	0.02026	1.39	0.96	8.45	1.06
Tributary 1	1499	5	7.19	101.18	101.69		101.7	0.000666	0.51	6.58	36.45	0.23
Tributary 1	1499	10	11.74	101.18	102.14		102.14	0.000011	0.1	53.32	168.05	0.03
Tributary 1	1499	25	26.5	101.18	102.92		102.92	0	0.02	251.43	395	0.01
Tributary 1	1499	50	28.57	101.18	102.92		102.92	0	0.03	251.46	395.03	0.01
Tributary 1	1499	100	36	101.18	103.11		103.11	0	0.03	327.74	432.87	0.01
Tributary 1	1470	2	4.31	100.77	101.24		101.26	0.001538	0.71	1.76	5.75	0.34
Tributary 1	1470	5	7	100.77	101.68		101.69	0.000275	0.48	6.11	28.4	0.16
Tributary 1	1470	10	10.11	100.77	102.14		102.14	0.000009	0.12	56.87	186.49	0.03
Tributary 1	1470	25	18.71	100.77	102.92		102.92	0	0.03	275.13	414.58	0.01
Tributary 1	1470	50	20.78	100.77	102.92		102.92	0	0.04	275.16	414.58	0.01
Tributary 1	1470	100	25.9	100.77	103.11		103.11	0	0.03	353.94	457.08	0.01
Tributary 1	1454	2	4.27	100.25	101.21	100.78	101.23	0.001085	0.69	1.89	4.7	0.27
Tributary 1	1454	5	6.79	100.25	101.65	100.93	101.67	0.000592	0.71	3.37	80.08	0.22
Tributary 1	1454	10	8.93	100.25	102.13	101.03	102.14	0.000218	0.55	8.76	188.66	0.14
Tributary 1	1454	25	14.04	100.25	102.92	101.16	102.92	0.000013	0.18	69.74	373.2	0.04
Tributary 1	1454	50	16.11	100.25	102.92	101.25	102.92	0.000019	0.21	69.7	373.16	0.04
Tributary 1	1454	100	19.98	100.25	103.1	101.34	103.1	0.00001	0.16	107.59	449.75	0.03
Tributary 1	1439		Culvert									
Tributary 1	1429	2	4.24	100.13	101.03	100.66	101.05	0.001124	0.73	1.78	5.94	0.29
Tributary 1	1429	5	6.66	100.13	101.37	100.8	101.41	0.000822	0.84	2.75	20.25	0.27
Tributary 1	1429	10	8.41	100.13	101.65	100.89	101.69	0.000643	0.88	3.54	91.53	0.25
Tributary 1	1429	25	10.91	100.13	102.1	101.02	102.14	0.000447	0.9	4.8	193.6	0.22
Tributary 1	1429	50	12.99	100.13	102.57	101.1	102.61	0.000289	0.85	6.13	351.16	0.18
Tributary 1	1429	100	15.57	100.13	103.1	101.18	103.1	0	0.03	470.18	562.92	0.01
Tributary 1	1416		Culvert									
Tributary 1	1403	2	4.21	100.03	100.76	100.44	100.79	0.001403	0.88	1.72	5.85	0.34
Tributary 1	1403	5	6.61	100.03	100.89	100.58	100.96	0.002247	1.26	2.14	8.89	0.45
Tributary 1	1403	10	8.32	100.03	100.95	100.68	101.06	0.003106	1.56	2.34	10.06	0.54
Tributary 1	1403	25	10.59	100.03	101.02	100.83	101.19	0.00449	1.97	2.56	14.56	0.65
Tributary 1	1403	50	12.26	100.03	101.06	100.91	101.29	0.005682	2.28	2.68	17.66	0.74
Tributary 1	1403	100	14.04	100.03	101.08	100.99	101.38	0.00712	2.59	2.76	19.06	0.83
Tributary 1	1377	2	4.15	100.12	100.73		100.75	0.001101	0.66	2.49	7.55	0.29
Tributary 1	1377	5	6.53	100.12	100.86		100.89	0.001366	0.86	3.61	9.38	0.34
Tributary 1	1377	10	8.22	100.12	100.92		100.97	0.001726	1.03	4.22	10.51	0.39
Tributary 1	1377	25	10.47	100.12	100.99		101.05	0.002355	1.28	5.02	13.24	0.46
Tributary 1	1377	50	12.13	100.12	101.04		101.11	0.002751	1.43	5.76	25.5	0.5
Tributary 1	1377	100	13.89	100.12	101.08	100.85	101.16	0.002995	1.54	6.97	34.39	0.53
Tributary 1	1349	2	4.07	100.06	100.71		100.72	0.000746	0.62	3.21	9.6	0.25
Tributary 1	1349	5	6.41	100.06	100.84		100.86	0.001092	0.85	4.96	18.63	0.31
Tributary 1	1349	10	8.07	100.06	100.89		100.92	0.001295	0.97	6.12	22.02	0.35
Tributary 1	1349	25	10.29	100.06	100.96		100.99	0.001484	1.1	7.78	25.46	0.38
Tributary 1	1349	50	11.92	100.06	101.01		101.04	0.001599	1.18	8.94	27.78	0.39
Tributary 1	1349	100	13.64	100.06	101.05		101.08	0.001671	1.24	10.1	29.81	0.4

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1311	2	3.97	100.04	100.66		100.68	0.001671	0.89	2.33	11.87	0.37
Tributary 1	1311	5	6.24	100.04	100.76		100.8	0.002348	1.17	3.93	18.45	0.45
Tributary 1	1311	10	7.87	100.04	100.8		100.85	0.002823	1.34	4.74	19.78	0.5
Tributary 1	1311	25	10.03	100.04	100.86		100.91	0.003278	1.52	5.89	21.46	0.55
Tributary 1	1311	50	11.62	100.04	100.89		100.95	0.00357	1.63	6.64	22.43	0.57
Tributary 1	1311	100	13.31	100.04	100.92		100.99	0.003862	1.74	7.35	23.64	0.6
Tributary 1	1269	2	3.88	100.1	100.55		100.58	0.003411	1.02	1.97	9.16	0.5
Tributary 1	1269	5	6.04	100.1	100.67		100.69	0.002311	1	5.4	36.47	0.43
Tributary 1	1269	10	7.6	100.1	100.73		100.75	0.001677	0.91	7.73	39.88	0.37
Tributary 1	1269	25	9.68	100.1	100.8		100.81	0.001441	0.9	10.41	42.97	0.35
Tributary 1	1269	50	11.23	100.1	100.83		100.84	0.001463	0.94	11.89	44.74	0.36
Tributary 1	1269	100	12.87	100.1	100.86		100.88	0.001477	0.97	13.3	46.34	0.36
Tributary 1	1220	2	3.79	99.9	100.34		100.39	0.004097	1.06	1.52	6.17	0.54
Tributary 1	1220	5	5.85	99.9	100.45		100.52	0.00496	1.36	2.29	10.63	0.62
Tributary 1	1220	10	7.33	99.9	100.51	100.44	100.6	0.005516	1.55	3.1	17.09	0.67
Tributary 1	1220	25	9.31	99.9	100.58	100.49	100.68	0.005462	1.68	4.63	23	0.68
Tributary 1	1220	50	10.79	99.9	100.63	100.62	100.72	0.004902	1.67	5.77	24.81	0.65
Tributary 1	1220	100	12.37	99.9	100.68		100.75	0.004215	1.62	7.03	26.43	0.61
Tributary 1	1156	2	3.66	99.7	100.16	100.05	100.17	0.002679	0.75	2.63	13.4	0.42
Tributary 1	1156	5	5.65	99.7	100.24		100.26	0.003063	0.94	3.84	15.83	0.47
Tributary 1	1156	10	7.08	99.7	100.28		100.31	0.003268	1.04	4.58	16.19	0.49
Tributary 1	1156	25	8.99	99.7	100.34		100.38	0.00357	1.18	5.52	16.62	0.53
Tributary 1	1156	50	10.42	99.7	100.36		100.41	0.004367	1.33	5.85	16.78	0.59
Tributary 1	1156	100	11.96	99.7	100.36		100.42	0.006394	1.6	5.73	16.72	0.71
Tributary 1	1087	2	3.51	99.59	99.68	99.68	99.72	0.034453	0.89	1.57	21.99	1.16
Tributary 1	1087	5	5.44	99.59	99.72	99.72	99.77	0.031813	1.07	2.29	22.75	1.18
Tributary 1	1087	10	6.83	99.59	99.74	99.74	99.8	0.029839	1.17	2.81	23.39	1.17
Tributary 1	1087	25	8.67	99.59	99.77	99.77	99.85	0.027082	1.33	3.54	24.03	1.17
Tributary 1	1087	50	10.06	99.59	99.81	99.79	99.88	0.017269	1.28	4.59	26.31	0.98
Tributary 1	1087	100	11.53	99.59	99.88		99.93	0.007828	1.09	6.75	31.74	0.7
Tributary 1	1042	2	3.44	98.62	99.18	98.98	99.2	0.001711	0.77	2.12	7.22	0.36
Tributary 1	1042	5	5.33	98.62	99.28	99.09	99.33	0.002375	1.04	2.95	8.91	0.44
Tributary 1	1042	10	6.7	98.62	99.34	99.16	99.4	0.002932	1.24	3.56	11.24	0.5
Tributary 1	1042	25	8.51	98.62	99.41	99.25	99.49	0.003505	1.46	4.49	14.31	0.55
Tributary 1	1042	50	9.87	98.62	99.43	99.3	99.54	0.004731	1.71	4.66	14.7	0.65
Tributary 1	1042	100	11.31	98.62	99.39	99.39	99.57	0.008565	2.21	4.08	13.09	0.86
Tributary 1	976	2	3.33	98.6	98.85	98.85	98.91	0.03348	1.29	1.35	15.7	1.23
Tributary 1	976	5	5.16	98.6	98.91	98.91	98.97	0.025578	1.44	2.37	23.16	1.15
Tributary 1	976	10	6.49	98.6	98.94	98.94	99	0.022284	1.51	3.11	25.48	1.1
Tributary 1	976	25	8.24	98.6	98.97	98.97	99.04	0.020678	1.61	3.93	26.13	1.09
Tributary 1	976	50	9.55	98.6	99.03		99.08	0.010828	1.36	5.48	27.27	0.82
Tributary 1	976	100	10.92	98.6	99.13		99.16	0.004117	1.03	8.33	29.22	0.53
Tributary 1	888	2	3.14	97.53	98.27	97.78	98.28	0.000392	0.51	2.77	4.27	0.19
Tributary 1	888	5	4.9	97.53	98.4	97.89	98.43	0.000707	0.76	3.34	4.48	0.26
Tributary 1	888	10	6.17	97.53	98.5	97.97	98.54	0.000887	0.91	3.79	4.6	0.3
Tributary 1	888	25	7.85	97.53	98.65	98.08	98.71	0.001037	1.09	4.5	4.79	0.33
Tributary 1	888	50	9.06	97.53	98.77	98.15	98.84	0.001067	1.18	5.18	6.58	0.34
Tributary 1	888	100	10.25	97.53	98.9	98.22	98.97	0.00102	1.23	6.11	8.02	0.34
Tributary 1	880		Culvert									
Tributary 1	869	2	3.1	97.47	98.24	97.76	98.25	0.000496	0.58	2.58	3.98	0.21
Tributary 1	869	5	4.86	97.47	98.32	97.89	98.36	0.001103	0.93	2.9	4.12	0.32
Tributary 1	869	10	6.12	97.47	98.36	97.97	98.43	0.001651	1.18	3.1	4.2	0.4
Tributary 1	869	25	7.8	97.47	98.42	98.09	98.53	0.002568	1.53	3.33	4.3	0.5
Tributary 1	869	50	9	97.47	98.45	98.17	98.6	0.00335	1.79	3.47	4.36	0.58
Tributary 1	869	100	10.19	97.47	98.48	98.24	98.67	0.004234	2.04	3.57	4.41	0.65

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	1311	2	3.97	100.04	100.66		100.68	0.001671	0.89	2.33	11.87	0.37
Tributary 1	1311	5	6.24	100.04	100.76		100.8	0.002348	1.17	3.93	18.45	0.45
Tributary 1	1311	10	7.87	100.04	100.8		100.85	0.002823	1.34	4.74	19.78	0.5
Tributary 1	1311	25	10.03	100.04	100.86		100.91	0.003278	1.52	5.89	21.46	0.55
Tributary 1	1311	50	11.62	100.04	100.89		100.95	0.00357	1.63	6.64	22.43	0.57
Tributary 1	1311	100	13.31	100.04	100.92		100.99	0.003862	1.74	7.35	23.64	0.6
Tributary 1	1269	2	3.88	100.1	100.55		100.58	0.003411	1.02	1.97	9.16	0.5
Tributary 1	1269	5	6.04	100.1	100.67		100.69	0.002311	1	5.4	36.47	0.43
Tributary 1	1269	10	7.6	100.1	100.73		100.75	0.001677	0.91	7.73	39.88	0.37
Tributary 1	1269	25	9.68	100.1	100.8		100.81	0.001441	0.9	10.41	42.97	0.35
Tributary 1	1269	50	11.23	100.1	100.83		100.84	0.001463	0.94	11.89	44.74	0.36
Tributary 1	1269	100	12.87	100.1	100.86		100.88	0.001477	0.97	13.3	46.34	0.36
Tributary 1	1220	2	3.79	99.9	100.34		100.39	0.004097	1.06	1.52	6.17	0.54
Tributary 1	1220	5	5.85	99.9	100.45		100.52	0.00496	1.36	2.29	10.63	0.62
Tributary 1	1220	10	7.33	99.9	100.51	100.44	100.6	0.005516	1.55	3.1	17.09	0.67
Tributary 1	1220	25	9.31	99.9	100.58	100.49	100.68	0.005462	1.68	4.63	23	0.68
Tributary 1	1220	50	10.79	99.9	100.63	100.62	100.72	0.004902	1.67	5.77	24.81	0.65
Tributary 1	1220	100	12.37	99.9	100.68		100.75	0.004215	1.62	7.03	26.43	0.61
Tributary 1	1156	2	3.66	99.7	100.16	100.05	100.17	0.002679	0.75	2.63	13.4	0.42
Tributary 1	1156	5	5.65	99.7	100.24		100.26	0.003063	0.94	3.84	15.83	0.47
Tributary 1	1156	10	7.08	99.7	100.28		100.31	0.003268	1.04	4.58	16.19	0.49
Tributary 1	1156	25	8.99	99.7	100.34		100.38	0.00357	1.18	5.52	16.62	0.53
Tributary 1	1156	50	10.42	99.7	100.36		100.41	0.004367	1.33	5.85	16.78	0.59
Tributary 1	1156	100	11.96	99.7	100.36		100.42	0.006394	1.6	5.73	16.72	0.71
Tributary 1	1087	2	3.51	99.59	99.68	99.68	99.72	0.034453	0.89	1.57	21.99	1.16
Tributary 1	1087	5	5.44	99.59	99.72	99.72	99.77	0.031813	1.07	2.29	22.75	1.18
Tributary 1	1087	10	6.83	99.59	99.74	99.74	99.8	0.029839	1.17	2.81	23.39	1.17
Tributary 1	1087	25	8.67	99.59	99.77	99.77	99.85	0.027082	1.33	3.54	24.03	1.17
Tributary 1	1087	50	10.06	99.59	99.81	99.79	99.88	0.017269	1.28	4.59	26.31	0.98
Tributary 1	1087	100	11.53	99.59	99.88		99.93	0.007828	1.09	6.75	31.74	0.7
Tributary 1	1042	2	3.44	98.62	99.18	98.98	99.2	0.001711	0.77	2.12	7.22	0.36
Tributary 1	1042	5	5.33	98.62	99.28	99.09	99.33	0.002375	1.04	2.95	8.91	0.44
Tributary 1	1042	10	6.7	98.62	99.34	99.16	99.4	0.002932	1.24	3.56	11.24	0.5
Tributary 1	1042	25	8.51	98.62	99.41	99.25	99.49	0.003505	1.46	4.49	14.31	0.55
Tributary 1	1042	50	9.87	98.62	99.43	99.3	99.54	0.004731	1.71	4.66	14.7	0.65
Tributary 1	1042	100	11.31	98.62	99.39	99.39	99.57	0.008565	2.21	4.08	13.09	0.86
Tributary 1	976	2	3.33	98.6	98.85	98.85	98.91	0.03348	1.29	1.35	15.7	1.23
Tributary 1	976	5	5.16	98.6	98.91	98.91	98.97	0.025578	1.44	2.37	23.16	1.15
Tributary 1	976	10	6.49	98.6	98.94	98.94	99	0.022284	1.51	3.11	25.48	1.1
Tributary 1	976	25	8.24	98.6	98.97	98.97	99.04	0.020678	1.61	3.93	26.13	1.09
Tributary 1	976	50	9.55	98.6	99.03		99.08	0.010828	1.36	5.48	27.27	0.82
Tributary 1	976	100	10.92	98.6	99.13		99.16	0.004117	1.03	8.33	29.22	0.53
Tributary 1	888	2	3.14	97.53	98.27	97.78	98.28	0.000392	0.51	2.77	4.27	0.19
Tributary 1	888	5	4.9	97.53	98.4	97.89	98.43	0.000707	0.76	3.34	4.48	0.26
Tributary 1	888	10	6.17	97.53	98.5	97.97	98.54	0.000887	0.91	3.79	4.6	0.3
Tributary 1	888	25	7.85	97.53	98.65	98.08	98.71	0.001037	1.09	4.5	4.79	0.33
Tributary 1	888	50	9.06	97.53	98.77	98.15	98.84	0.001067	1.18	5.18	6.58	0.34
Tributary 1	888	100	10.25	97.53	98.9	98.22	98.97	0.00102	1.23	6.11	8.02	0.34
Tributary 1	880		Culvert									
Tributary 1	869	2	3.1	97.47	98.24	97.76	98.25	0.000496	0.58	2.58	3.98	0.21
Tributary 1	869	5	4.86	97.47	98.32	97.89	98.36	0.001103	0.93	2.9	4.12	0.32
Tributary 1	869	10	6.12	97.47	98.36	97.97	98.43	0.001651	1.18	3.1	4.2	0.4
Tributary 1	869	25	7.8	97.47	98.42	98.09	98.53	0.002568	1.53	3.33	4.3	0.5
Tributary 1	869	50	9	97.47	98.45	98.17	98.6	0.00335	1.79	3.47	4.36	0.58
Tributary 1	869	100	10.19	97.47	98.48	98.24	98.67	0.004234	2.04	3.57	4.41	0.65

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	831	2	2.97	97.97	98.22		98.22	0.000828	0.3	4.3	22.14	0.22
Tributary 1	831	5	4.69	97.97	98.29		98.3	0.000881	0.38	6.02	23.05	0.24
Tributary 1	831	10	5.93	97.97	98.35		98.36	0.000905	0.43	7.21	23.63	0.25
Tributary 1	831	25	7.57	97.97	98.41		98.43	0.000913	0.49	8.82	24.42	0.26
Tributary 1	831	50	8.75	97.97	98.46		98.47	0.000922	0.53	9.9	26.31	0.26
Tributary 1	831	100	9.91	97.97	98.5		98.51	0.000931	0.57	11.1	32.35	0.27
Tributary 1	782	2	2.83	97.89	98.05	98.05	98.11	0.021046	1.05	1.24	11.37	1
Tributary 1	782	5	4.5	97.89	98.1	98.1	98.18	0.018265	1.24	1.88	12.37	0.99
Tributary 1	782	10	5.69	97.89	98.14	98.14	98.23	0.017268	1.36	2.32	12.75	0.99
Tributary 1	782	25	7.29	97.89	98.19	98.19	98.3	0.016186	1.5	2.93	13.28	0.99
Tributary 1	782	50	8.42	97.89	98.22	98.22	98.34	0.015647	1.59	3.35	13.64	1
Tributary 1	782	100	9.55	97.89	98.25	98.25	98.39	0.015024	1.66	3.77	13.97	0.99
Tributary 1	719	2	2.76	96.45	96.74	96.74	96.84	0.015663	1.59	1	5.12	1
Tributary 1	719	5	4.39	96.45	96.84	96.84	96.98	0.013942	1.87	1.58	6.08	0.99
Tributary 1	719	10	5.56	96.45	96.91	96.91	97.07	0.013437	2.05	1.99	6.68	1
Tributary 1	719	25	7.11	96.45	97	97	97.18	0.012322	2.23	2.63	7.61	0.99
Tributary 1	719	50	8.22	96.45	97.05	97.05	97.25	0.01219	2.37	3.05	8.15	1
Tributary 1	719	100	9.32	96.45	97.1	97.1	97.31	0.011689	2.46	3.5	8.72	1
Tributary 1	666	2	2.65	96.09	96.51		96.52	0.001055	0.55	3.25	11.32	0.28
Tributary 1	666	5	4.21	96.09	96.65		96.66	0.001043	0.67	5.01	14.08	0.29
Tributary 1	666	10	5.34	96.09	96.73		96.75	0.001117	0.77	6.33	17.6	0.31
Tributary 1	666	25	6.82	96.09	96.82		96.84	0.001226	0.88	8.26	23.77	0.33
Tributary 1	666	50	7.88	96.09	96.88		96.9	0.001249	0.93	9.79	35.76	0.34
Tributary 1	666	100	8.93	96.09	96.91		96.94	0.001357	1	11.25	42.65	0.35
Tributary 1	614	2	2.52	95.81	96.41	96.19	96.44	0.001759	0.86	1.95	6.15	0.37
Tributary 1	614	5	4.01	95.81	96.5	96.32	96.57	0.003146	1.27	2.71	11.92	0.51
Tributary 1	614	10	5.08	95.81	96.56	96.4	96.64	0.003905	1.5	3.47	16.76	0.58
Tributary 1	614	25	6.49	95.81	96.61	96.6	96.72	0.004903	1.77	4.53	22.65	0.66
Tributary 1	614	50	7.49	95.81	96.64	96.64	96.77	0.005453	1.92	5.36	27.16	0.7
Tributary 1	614	100	8.46	95.81	96.69	96.69	96.8	0.005073	1.92	6.73	33.17	0.68
Tributary 1	575	2	2.43	96.11	96.24	96.24	96.27	0.024121	1.08	2.2	44.67	1.06
Tributary 1	575	5	3.89	96.11	96.27	96.27	96.3	0.020497	1.17	3.62	54.01	1.02
Tributary 1	575	10	4.93	96.11	96.29	96.29	96.32	0.022601	1.3	4.36	61.78	1.09
Tributary 1	575	25	6.29	96.11	96.31	96.31	96.34	0.021697	1.39	5.66	69.59	1.09
Tributary 1	575	50	7.25	96.11	96.32	96.31	96.36	0.022225	1.47	6.49	74.65	1.11
Tributary 1	575	100	8.16	96.11	96.34	96.32	96.37	0.01642	1.37	8.27	84.65	0.98
Tributary 1	543	2	2.33	95.65	95.99		96	0.001917	0.63	4	32.21	0.36
Tributary 1	543	5	3.72	95.65	96.05		96.06	0.002339	0.79	6.43	45.18	0.41
Tributary 1	543	10	4.73	95.65	96.09		96.1	0.002275	0.83	8.08	48.55	0.41
Tributary 1	543	25	6.03	95.65	96.13		96.14	0.002217	0.88	10.48	54.96	0.41
Tributary 1	543	50	6.95	95.65	96.16		96.17	0.002409	0.95	12.24	64.92	0.43
Tributary 1	543	100	7.81	95.65	96.19		96.2	0.002523	1.01	13.9	72.49	0.45
Tributary 1	491	2	2.1	95.83	95.89		95.9	0.001902	0.18	4.99	43.4	0.26
Tributary 1	491	5	3.35	95.83	95.96		95.97	0.00144	0.28	8.32	53.77	0.26
Tributary 1	491	10	4.26	95.83	95.99		96	0.001622	0.35	10.04	60.05	0.29
Tributary 1	491	25	5.44	95.83	96.03		96.04	0.001964	0.45	12.57	74.19	0.33
Tributary 1	491	50	6.27	95.83	96.05		96.06	0.002042	0.49	14.46	81.55	0.35
Tributary 1	491	100	7.03	95.83	96.08		96.08	0.00207	0.53	16.29	87.25	0.35
Tributary 1	458	2	1.95	95.58	95.86		95.87	0.000753	0.34	6.26	40.84	0.22
Tributary 1	458	5	3.1	95.58	95.93		95.93	0.00113	0.48	10.01	81.74	0.28
Tributary 1	458	10	3.96	95.58	95.96		95.96	0.001138	0.52	12.52	89.03	0.28
Tributary 1	458	25	5.06	95.58	95.99		95.99	0.001184	0.56	15.64	95.35	0.29
Tributary 1	458	50	5.83	95.58	96.01		96.02	0.0012	0.59	17.94	100.9	0.3
Tributary 1	458	100	6.54	95.58	96.03		96.04	0.0012	0.61	20.15	105.22	0.3

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	831	2	2.97	97.97	98.22		98.22	0.000828	0.3	4.3	22.14	0.22
Tributary 1	831	5	4.69	97.97	98.29		98.3	0.000881	0.38	6.02	23.05	0.24
Tributary 1	831	10	5.93	97.97	98.35		98.36	0.000905	0.43	7.21	23.63	0.25
Tributary 1	831	25	7.57	97.97	98.41		98.43	0.000913	0.49	8.82	24.42	0.26
Tributary 1	831	50	8.75	97.97	98.46		98.47	0.000922	0.53	9.9	26.31	0.26
Tributary 1	831	100	9.91	97.97	98.5		98.51	0.000931	0.57	11.1	32.35	0.27
Tributary 1	782	2	2.83	97.89	98.05	98.05	98.11	0.021046	1.05	1.24	11.37	1
Tributary 1	782	5	4.5	97.89	98.1	98.1	98.18	0.018265	1.24	1.88	12.37	0.99
Tributary 1	782	10	5.69	97.89	98.14	98.14	98.23	0.017268	1.36	2.32	12.75	0.99
Tributary 1	782	25	7.29	97.89	98.19	98.19	98.3	0.016186	1.5	2.93	13.28	0.99
Tributary 1	782	50	8.42	97.89	98.22	98.22	98.34	0.015647	1.59	3.35	13.64	1
Tributary 1	782	100	9.55	97.89	98.25	98.25	98.39	0.015024	1.66	3.77	13.97	0.99
Tributary 1	719	2	2.76	96.45	96.74	96.74	96.84	0.015663	1.59	1	5.12	1
Tributary 1	719	5	4.39	96.45	96.84	96.84	96.98	0.013942	1.87	1.58	6.08	0.99
Tributary 1	719	10	5.56	96.45	96.91	96.91	97.07	0.013437	2.05	1.99	6.68	1
Tributary 1	719	25	7.11	96.45	97	97	97.18	0.012322	2.23	2.63	7.61	0.99
Tributary 1	719	50	8.22	96.45	97.05	97.05	97.25	0.01219	2.37	3.05	8.15	1
Tributary 1	719	100	9.32	96.45	97.1	97.1	97.31	0.011689	2.46	3.5	8.72	1
Tributary 1	666	2	2.65	96.09	96.51		96.52	0.001055	0.55	3.25	11.32	0.28
Tributary 1	666	5	4.21	96.09	96.65		96.66	0.001043	0.67	5.01	14.08	0.29
Tributary 1	666	10	5.34	96.09	96.73		96.75	0.001117	0.77	6.33	17.6	0.31
Tributary 1	666	25	6.82	96.09	96.82		96.84	0.001226	0.88	8.26	23.77	0.33
Tributary 1	666	50	7.88	96.09	96.88		96.9	0.001249	0.93	9.79	35.76	0.34
Tributary 1	666	100	8.93	96.09	96.91		96.94	0.001357	1	11.25	42.65	0.35
Tributary 1	614	2	2.52	95.81	96.41	96.19	96.44	0.001759	0.86	1.95	6.15	0.37
Tributary 1	614	5	4.01	95.81	96.5	96.32	96.57	0.003146	1.27	2.71	11.92	0.51
Tributary 1	614	10	5.08	95.81	96.56	96.4	96.64	0.003905	1.5	3.47	16.76	0.58
Tributary 1	614	25	6.49	95.81	96.61	96.6	96.72	0.004903	1.77	4.53	22.65	0.66
Tributary 1	614	50	7.49	95.81	96.64	96.64	96.77	0.005453	1.92	5.36	27.16	0.7
Tributary 1	614	100	8.46	95.81	96.69	96.69	96.8	0.005073	1.92	6.73	33.17	0.68
Tributary 1	575	2	2.43	96.11	96.24	96.24	96.27	0.024121	1.08	2.2	44.67	1.06
Tributary 1	575	5	3.89	96.11	96.27	96.27	96.3	0.020497	1.17	3.62	54.01	1.02
Tributary 1	575	10	4.93	96.11	96.29	96.29	96.32	0.022601	1.3	4.36	61.78	1.09
Tributary 1	575	25	6.29	96.11	96.31	96.31	96.34	0.021697	1.39	5.66	69.59	1.09
Tributary 1	575	50	7.25	96.11	96.32	96.31	96.36	0.022225	1.47	6.49	74.65	1.11
Tributary 1	575	100	8.16	96.11	96.34	96.32	96.37	0.01642	1.37	8.27	84.65	0.98
Tributary 1	543	2	2.33	95.65	95.99		96	0.001917	0.63	4	32.21	0.36
Tributary 1	543	5	3.72	95.65	96.05		96.06	0.002339	0.79	6.43	45.18	0.41
Tributary 1	543	10	4.73	95.65	96.09		96.1	0.002275	0.83	8.08	48.55	0.41
Tributary 1	543	25	6.03	95.65	96.13		96.14	0.002217	0.88	10.48	54.96	0.41
Tributary 1	543	50	6.95	95.65	96.16		96.17	0.002409	0.95	12.24	64.92	0.43
Tributary 1	543	100	7.81	95.65	96.19		96.2	0.002523	1.01	13.9	72.49	0.45
Tributary 1	491	2	2.1	95.83	95.89		95.9	0.001902	0.18	4.99	43.4	0.26
Tributary 1	491	5	3.35	95.83	95.96		95.97	0.00144	0.28	8.32	53.77	0.26
Tributary 1	491	10	4.26	95.83	95.99		96	0.001622	0.35	10.04	60.05	0.29
Tributary 1	491	25	5.44	95.83	96.03		96.04	0.001964	0.45	12.57	74.19	0.33
Tributary 1	491	50	6.27	95.83	96.05		96.06	0.002042	0.49	14.46	81.55	0.35
Tributary 1	491	100	7.03	95.83	96.08		96.08	0.00207	0.53	16.29	87.25	0.35
Tributary 1	458	2	1.95	95.58	95.86		95.87	0.000753	0.34	6.26	40.84	0.22
Tributary 1	458	5	3.1	95.58	95.93		95.93	0.00113	0.48	10.01	81.74	0.28
Tributary 1	458	10	3.96	95.58	95.96		95.96	0.001138	0.52	12.52	89.03	0.28
Tributary 1	458	25	5.06	95.58	95.99		95.99	0.001184	0.56	15.64	95.35	0.29
Tributary 1	458	50	5.83	95.58	96.01		96.02	0.0012	0.59	17.94	100.9	0.3
Tributary 1	458	100	6.54	95.58	96.03		96.04	0.0012	0.61	20.15	105.22	0.3

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	407	2	1.74	95.34	95.81	95.74	95.82	0.001439	0.59	4.44	49.5	0.32
Tributary 1	407	5	2.75	95.34	95.87	95.78	95.88	0.001522	0.67	7.7	69.11	0.33
Tributary 1	407	10	3.53	95.34	95.9	95.81	95.9	0.001595	0.72	9.78	74.69	0.34
Tributary 1	407	25	4.52	95.34	95.93	95.84	95.94	0.001813	0.8	12.11	79.93	0.37
Tributary 1	407	50	5.22	95.34	95.95	95.86	95.96	0.001841	0.83	13.99	83.84	0.38
Tributary 1	407	100	5.85	95.34	95.97	95.88	95.98	0.001829	0.85	15.85	87.22	0.38
Tributary 1	343	2	1.54	95.32	95.56	95.55	95.61	0.014749	1.34	1.74	17.79	0.93
Tributary 1	343	5	2.4	95.32	95.62	95.62	95.66	0.012635	1.45	3.31	39.47	0.9
Tributary 1	343	10	3.06	95.32	95.65	95.65	95.69	0.011095	1.47	4.86	49.1	0.86
Tributary 1	343	25	3.91	95.32	95.69		95.72	0.008198	1.38	7	56.19	0.75
Tributary 1	343	50	4.5	95.32	95.72		95.75	0.007488	1.38	8.6	65.19	0.73
Tributary 1	343	100	5.02	95.32	95.74		95.77	0.007775	1.46	10.19	81.34	0.75
Tributary 1	309	2	1.24	95.35	95.57		95.57	0.000201	0.15	15.93	149.36	0.11
Tributary 1	309	5	1.93	95.35	95.62		95.62	0.000172	0.16	24.26	160.28	0.1
Tributary 1	309	10	2.47	95.35	95.65		95.65	0.000172	0.18	29.53	167.34	0.11
Tributary 1	309	25	3.17	95.35	95.69		95.69	0.000182	0.2	35.96	174.25	0.11
Tributary 1	309	50	3.65	95.35	95.72		95.72	0.000191	0.21	40.43	185.38	0.12
Tributary 1	309	100	4.08	95.35	95.74		95.74	0.000195	0.23	44.43	186.44	0.12
Tributary 1	256	2	0.79	95.14	95.49	95.49	95.54	0.007032	1.2	2.05	22.85	0.69
Tributary 1	256	5	1.23	95.14	95.54	95.54	95.59	0.008149	1.42	3.34	31.07	0.76
Tributary 1	256	10	1.62	95.14	95.56	95.56	95.62	0.008854	1.55	4.24	36.82	0.8
Tributary 1	256	25	2.13	95.14	95.6	95.6	95.66	0.009349	1.68	5.56	43.45	0.83
Tributary 1	256	50	2.47	95.14	95.62	95.62	95.68	0.009755	1.77	6.48	48.42	0.86
Tributary 1	256	100	2.78	95.14	95.63	95.62	95.7	0.010704	1.9	7.15	51.27	0.9
Tributary 1	204	2	0.65	94.93	95.19		95.2	0.00314	0.69	3.22	23.18	0.44
Tributary 1	204	5	1.01	94.93	95.26		95.28	0.003012	0.81	5.47	36.34	0.45
Tributary 1	204	10	1.33	94.93	95.3		95.31	0.003094	0.88	6.79	39.9	0.47
Tributary 1	204	25	1.74	94.93	95.36		95.37	0.002668	0.9	9.27	47.04	0.45
Tributary 1	204	50	2.04	94.93	95.38		95.39	0.002941	0.98	10.28	49.11	0.47
Tributary 1	204	100	2.29	94.93	95.4		95.42	0.002945	1.02	11.78	59.38	0.48
Tributary 1	161	2	0.56	94.52	94.84	94.84	94.94	0.013393	1.67	1.09	5.39	0.95
Tributary 1	161	5	0.84	94.52	94.96	94.96	95.06	0.00934	1.74	2.21	14.92	0.84
Tributary 1	161	10	1.11	94.52	95.03	95.03	95.11	0.007591	1.72	3.5	24.69	0.77
Tributary 1	161	25	1.45	94.52	95.06	95.06	95.16	0.009686	2.03	4.34	27.83	0.88
Tributary 1	161	50	1.68	94.52	95.12	95.12	95.2	0.00725	1.88	6.16	33.53	0.78
Tributary 1	161	100	1.89	94.52	95.14	95.14	95.22	0.007832	1.99	6.78	34.27	0.81
Tributary 1	129	2	0.44	94.21	94.86		94.87	0.000309	0.4	6.66	34.19	0.16
Tributary 1	129	5	0.68	94.21	94.92		94.92	0.000546	0.56	8.53	37.07	0.22
Tributary 1	129	10	0.91	94.21	94.96		94.97	0.000663	0.64	10.04	38.93	0.24
Tributary 1	129	25	1.21	94.21	95		95.01	0.000866	0.76	11.77	42.6	0.28
Tributary 1	129	50	1.4	94.21	95.03		95.04	0.001011	0.84	13.01	47.22	0.3
Tributary 1	129	100	1.58	94.21	95.05		95.07	0.001157	0.92	14.12	50.29	0.33
Tributary 1	102	2	0.31	94.61	94.83		94.85	0.00373	0.64	3.23	32.5	0.46
Tributary 1	102	5	0.51	94.61	94.87	94.83	94.89	0.00489	0.82	4.49	42.07	0.55
Tributary 1	102	10	0.69	94.61	94.91		94.93	0.004379	0.85	6.32	54.67	0.53
Tributary 1	102	25	0.94	94.61	94.95		94.97	0.003951	0.89	8.7	63	0.51
Tributary 1	102	50	1.09	94.61	94.98		94.99	0.003526	0.89	10.5	65.17	0.49
Tributary 1	102	100	1.24	94.61	95		95.02	0.003344	0.91	11.92	66.07	0.49
Tributary 1	73	2	0.24	94.22	94.56	94.56	94.65	0.013033	1.63	1.35	15.84	0.93
Tributary 1	73	5	0.39	94.22	94.65	94.65	94.7	0.007985	1.5	3.12	22.42	0.76
Tributary 1	73	10	0.54	94.22	94.67	94.67	94.74	0.009888	1.73	3.62	23.15	0.85
Tributary 1	73	25	0.74	94.22	94.7	94.7	94.78	0.010751	1.91	4.49	24.31	0.9
Tributary 1	73	50	0.85	94.22	94.72	94.72	94.81	0.011967	2.07	4.98	25.04	0.96
Tributary 1	73	100	0.97	94.22	94.75	94.75	94.84	0.011972	2.14	5.59	25.79	0.97

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	407	2	1.74	95.34	95.81	95.74	95.82	0.001439	0.59	4.44	49.5	0.32
Tributary 1	407	5	2.75	95.34	95.87	95.78	95.88	0.001522	0.67	7.7	69.11	0.33
Tributary 1	407	10	3.53	95.34	95.9	95.81	95.9	0.001595	0.72	9.78	74.69	0.34
Tributary 1	407	25	4.52	95.34	95.93	95.84	95.94	0.001813	0.8	12.11	79.93	0.37
Tributary 1	407	50	5.22	95.34	95.95	95.86	95.96	0.001841	0.83	13.99	83.84	0.38
Tributary 1	407	100	5.85	95.34	95.97	95.88	95.98	0.001829	0.85	15.85	87.22	0.38
Tributary 1	343	2	1.54	95.32	95.56	95.55	95.61	0.014749	1.34	1.74	17.79	0.93
Tributary 1	343	5	2.4	95.32	95.62	95.62	95.66	0.012635	1.45	3.31	39.47	0.9
Tributary 1	343	10	3.06	95.32	95.65	95.65	95.69	0.011095	1.47	4.86	49.1	0.86
Tributary 1	343	25	3.91	95.32	95.69		95.72	0.008198	1.38	7	56.19	0.75
Tributary 1	343	50	4.5	95.32	95.72		95.75	0.007488	1.38	8.6	65.19	0.73
Tributary 1	343	100	5.02	95.32	95.74		95.77	0.007775	1.46	10.19	81.34	0.75
Tributary 1	309	2	1.24	95.35	95.57		95.57	0.000201	0.15	15.93	149.36	0.11
Tributary 1	309	5	1.93	95.35	95.62		95.62	0.000172	0.16	24.26	160.28	0.1
Tributary 1	309	10	2.47	95.35	95.65		95.65	0.000172	0.18	29.53	167.34	0.11
Tributary 1	309	25	3.17	95.35	95.69		95.69	0.000182	0.2	35.96	174.25	0.11
Tributary 1	309	50	3.65	95.35	95.72		95.72	0.000191	0.21	40.43	185.38	0.12
Tributary 1	309	100	4.08	95.35	95.74		95.74	0.000195	0.23	44.43	186.44	0.12
Tributary 1	256	2	0.79	95.14	95.49	95.49	95.54	0.007032	1.2	2.05	22.85	0.69
Tributary 1	256	5	1.23	95.14	95.54	95.54	95.59	0.008149	1.42	3.34	31.07	0.76
Tributary 1	256	10	1.62	95.14	95.56	95.56	95.62	0.008854	1.55	4.24	36.82	0.8
Tributary 1	256	25	2.13	95.14	95.6	95.6	95.66	0.009349	1.68	5.56	43.45	0.83
Tributary 1	256	50	2.47	95.14	95.62	95.62	95.68	0.009755	1.77	6.48	48.42	0.86
Tributary 1	256	100	2.78	95.14	95.63	95.62	95.7	0.010704	1.9	7.15	51.27	0.9
Tributary 1	204	2	0.65	94.93	95.19		95.2	0.00314	0.69	3.22	23.18	0.44
Tributary 1	204	5	1.01	94.93	95.26		95.28	0.003012	0.81	5.47	36.34	0.45
Tributary 1	204	10	1.33	94.93	95.3		95.31	0.003094	0.88	6.79	39.9	0.47
Tributary 1	204	25	1.74	94.93	95.36		95.37	0.002668	0.9	9.27	47.04	0.45
Tributary 1	204	50	2.04	94.93	95.38		95.39	0.002941	0.98	10.28	49.11	0.47
Tributary 1	204	100	2.29	94.93	95.4		95.42	0.002945	1.02	11.78	59.38	0.48
Tributary 1	161	2	0.56	94.52	94.84	94.84	94.94	0.013393	1.67	1.09	5.39	0.95
Tributary 1	161	5	0.84	94.52	94.96	94.96	95.06	0.00934	1.74	2.21	14.92	0.84
Tributary 1	161	10	1.11	94.52	95.03	95.03	95.11	0.007591	1.72	3.5	24.69	0.77
Tributary 1	161	25	1.45	94.52	95.06	95.06	95.16	0.009686	2.03	4.34	27.83	0.88
Tributary 1	161	50	1.68	94.52	95.12	95.12	95.2	0.00725	1.88	6.16	33.53	0.78
Tributary 1	161	100	1.89	94.52	95.14	95.14	95.22	0.007832	1.99	6.78	34.27	0.81
Tributary 1	129	2	0.44	94.21	94.86		94.87	0.000309	0.4	6.66	34.19	0.16
Tributary 1	129	5	0.68	94.21	94.92		94.92	0.000546	0.56	8.53	37.07	0.22
Tributary 1	129	10	0.91	94.21	94.96		94.97	0.000663	0.64	10.04	38.93	0.24
Tributary 1	129	25	1.21	94.21	95		95.01	0.000866	0.76	11.77	42.6	0.28
Tributary 1	129	50	1.4	94.21	95.03		95.04	0.001011	0.84	13.01	47.22	0.3
Tributary 1	129	100	1.58	94.21	95.05		95.07	0.001157	0.92	14.12	50.29	0.33
Tributary 1	102	2	0.31	94.61	94.83		94.85	0.00373	0.64	3.23	32.5	0.46
Tributary 1	102	5	0.51	94.61	94.87	94.83	94.89	0.00489	0.82	4.49	42.07	0.55
Tributary 1	102	10	0.69	94.61	94.91		94.93	0.004379	0.85	6.32	54.67	0.53
Tributary 1	102	25	0.94	94.61	94.95		94.97	0.003951	0.89	8.7	63	0.51
Tributary 1	102	50	1.09	94.61	94.98		94.99	0.003526	0.89	10.5	65.17	0.49
Tributary 1	102	100	1.24	94.61	95		95.02	0.003344	0.91	11.92	66.07	0.49
Tributary 1	73	2	0.24	94.22	94.56	94.56	94.65	0.013033	1.63	1.35	15.84	0.93
Tributary 1	73	5	0.39	94.22	94.65	94.65	94.7	0.007985	1.5	3.12	22.42	0.76
Tributary 1	73	10	0.54	94.22	94.67	94.67	94.74	0.009888	1.73	3.62	23.15	0.85
Tributary 1	73	25	0.74	94.22	94.7	94.7	94.78	0.010751	1.91	4.49	24.31	0.9
Tributary 1	73	50	0.85	94.22	94.72	94.72	94.81	0.011967	2.07	4.98	25.04	0.96
Tributary 1	73	100	0.97	94.22	94.75	94.75	94.84	0.011972	2.14	5.59	25.79	0.97

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	43	2	0.16	93.8	94.32		94.32	0.000368	0.38	4.2	11.8	0.17
Tributary 1	43	5	0.26	93.8	94.45		94.46	0.000478	0.5	6.02	16.07	0.2
Tributary 1	43	10	0.39	93.8	94.52		94.54	0.000576	0.59	7.37	21.07	0.23
Tributary 1	43	25	0.55	93.8	94.6		94.62	0.000735	0.72	9.25	30.31	0.26
Tributary 1	43	50	0.64	93.8	94.64		94.66	0.000826	0.79	10.61	34.9	0.28
Tributary 1	43	100	0.73	93.8	94.67		94.7	0.000898	0.84	11.92	37.9	0.29
Tributary 1	2	2	0.06	93.78	94.23		94.28	0.004946	1.19	1.59	8.27	0.6
Tributary 1	2	5	0.1	93.78	94.38		94.42	0.002929	1.14	3.74	25.48	0.49
Tributary 1	2	10	0.18	93.78	94.48		94.51	0.001648	0.95	7.17	40.86	0.38
Tributary 1	2	25	0.28	93.78	94.57		94.59	0.001164	0.87	11.12	53.34	0.32
Tributary 1	2	50	0.33	93.78	94.61		94.63	0.001273	0.94	13.48	66.32	0.34
Tributary 1	2	100	0.39	93.78	94.65		94.67	0.001105	0.91	16.3	69.98	0.32
Main	6134	2	40.25	93.77	94.19		94.21	0.00208	0.79	3.53	12.37	0.39
Main	6134	5	78.96	93.77	94.34		94.37	0.001922	0.94	5.62	16.03	0.4
Main	6134	10	106.39	93.77	94.44		94.47	0.001888	1.03	8.95	49.15	0.4
Main	6134	25	149.79	93.77	94.54		94.56	0.001456	0.99	14.32	61.66	0.36
Main	6134	50	188.4	93.77	94.57		94.6	0.00152	1.05	16.77	67.36	0.37
Main	6134	100	226.45	93.77	94.61		94.63	0.001777	1.16	19.11	72.08	0.41
Main	6127	2	40.23	93.71	94.16		94.19	0.002674	0.91	2.84	9.47	0.45
Main	6127	5	78.92	93.71	94.3		94.35	0.00274	1.12	4.44	15.55	0.47
Main	6127	10	106.33	93.71	94.4		94.45	0.002638	1.22	6.75	33.8	0.48
Main	6127	25	149.69	93.71	94.5		94.54	0.002359	1.26	11.08	51.12	0.46
Main	6127	50	188.28	93.71	94.54		94.58	0.002275	1.29	13.25	54.97	0.46
Main	6127	100	226.32	93.71	94.57		94.62	0.002246	1.32	15.36	58.34	0.46
Main	6099	2	40.15	93.52	94.07		94.11	0.002927	1.05	2.77	11.97	0.48
Main	6099	5	78.78	93.52	94.24		94.28	0.00225	1.12	5.2	16.9	0.44
Main	6099	10	106.14	93.52	94.32		94.37	0.002653	1.32	6.82	25.58	0.49
Main	6099	25	149.41	93.52	94.38		94.46	0.003541	1.61	8.86	40.28	0.57
Main	6099	50	187.95	93.52	94.41		94.49	0.00383	1.71	10.18	42.75	0.6
Main	6099	100	225.93	93.52	94.45		94.53	0.003772	1.75	11.94	45.7	0.6
Main	6071	2	40.08	93.39	93.97		94.02	0.003524	1.26	2.29	6.44	0.54
Main	6071	5	78.66	93.39	94.08	93.96	94.18	0.005615	1.8	3.44	16.02	0.7
Main	6071	10	105.97	93.39	94.15	94.11	94.26	0.006041	1.99	4.84	24.49	0.74
Main	6071	25	149.17	93.39	94.24	94.24	94.33	0.005399	2.03	7.55	33.92	0.71
Main	6071	50	187.68	93.39	94.29		94.37	0.004837	2	9.33	35.67	0.68
Main	6071	100	225.61	93.39	94.32		94.41	0.004923	2.07	10.67	37.19	0.69
Main	6039	2	39.96	93.3	93.95		93.96	0.000774	0.63	4.84	15.13	0.26
Main	6039	5	78.49	93.3	94.05		94.07	0.001394	0.93	7.04	28.62	0.35
Main	6039	10	105.75	93.3	94.1		94.14	0.00168	1.08	8.94	36.35	0.39
Main	6039	25	148.86	93.3	94.17		94.21	0.001939	1.22	11.69	46.04	0.43
Main	6039	50	187.3	93.3	94.21		94.26	0.002198	1.34	13.61	56.29	0.46
Main	6039	100	225.17	93.3	94.25		94.29	0.002133	1.36	15.9	58.75	0.45
Main	6005	2	39.7	93.32	93.94		93.94	0.00041	0.45	9.99	45.75	0.19
Main	6005	5	78.1	93.32	94.04		94.04	0.00048	0.54	15.14	59.03	0.21
Main	6005	10	105.26	93.32	94.1		94.1	0.000492	0.58	18.88	64.69	0.21
Main	6005	25	148.24	93.32	94.16		94.17	0.000518	0.63	23.45	69.33	0.22
Main	6005	50	186.6	93.32	94.2		94.21	0.000545	0.66	26.19	71.2	0.23
Main	6005	100	224.39	93.32	94.24		94.25	0.000564	0.7	28.95	72.3	0.23
Main	5964	2	39.45	93.48	93.84	93.79	93.89	0.006385	1.09	2.22	14.83	0.65
Main	5964	5	77.69	93.48	93.94		93.99	0.005002	1.17	4.59	27.1	0.6
Main	5964	10	104.73	93.48	94.01		94.05	0.003892	1.16	6.68	31	0.55
Main	5964	25	147.57	93.48	94.07		94.12	0.00375	1.24	8.75	33.34	0.55
Main	5964	50	185.86	93.48	94.1		94.16	0.004165	1.35	9.7	34.3	0.58
Main	5964	100	223.56	93.48	94.13		94.19	0.004493	1.45	10.7	35.41	0.61

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Tributary 1	43	2	0.16	93.8	94.32		94.32	0.000368	0.38	4.2	11.8	0.17
Tributary 1	43	5	0.26	93.8	94.45		94.46	0.000478	0.5	6.02	16.07	0.2
Tributary 1	43	10	0.39	93.8	94.52		94.54	0.000576	0.59	7.37	21.07	0.23
Tributary 1	43	25	0.55	93.8	94.6		94.62	0.000735	0.72	9.25	30.31	0.26
Tributary 1	43	50	0.64	93.8	94.64		94.66	0.000826	0.79	10.61	34.9	0.28
Tributary 1	43	100	0.73	93.8	94.67		94.7	0.000898	0.84	11.92	37.9	0.29
Tributary 1	2	2	0.06	93.78	94.23		94.28	0.004946	1.19	1.59	8.27	0.6
Tributary 1	2	5	0.1	93.78	94.38		94.42	0.002929	1.14	3.74	25.48	0.49
Tributary 1	2	10	0.18	93.78	94.48		94.51	0.001648	0.95	7.17	40.86	0.38
Tributary 1	2	25	0.28	93.78	94.57		94.59	0.001164	0.87	11.12	53.34	0.32
Tributary 1	2	50	0.33	93.78	94.61		94.63	0.001273	0.94	13.48	66.32	0.34
Tributary 1	2	100	0.39	93.78	94.65		94.67	0.001105	0.91	16.3	69.98	0.32
Main	6134	2	40.25	93.77	94.19		94.21	0.00208	0.79	3.53	12.37	0.39
Main	6134	5	78.96	93.77	94.34		94.37	0.001922	0.94	5.62	16.03	0.4
Main	6134	10	106.39	93.77	94.44		94.47	0.001888	1.03	8.95	49.15	0.4
Main	6134	25	149.79	93.77	94.54		94.56	0.001456	0.99	14.32	61.66	0.36
Main	6134	50	188.4	93.77	94.57		94.6	0.00152	1.05	16.77	67.36	0.37
Main	6134	100	226.45	93.77	94.61		94.63	0.001777	1.16	19.11	72.08	0.41
Main	6127	2	40.23	93.71	94.16		94.19	0.002674	0.91	2.84	9.47	0.45
Main	6127	5	78.92	93.71	94.3		94.35	0.00274	1.12	4.44	15.55	0.47
Main	6127	10	106.33	93.71	94.4		94.45	0.002638	1.22	6.75	33.8	0.48
Main	6127	25	149.69	93.71	94.5		94.54	0.002359	1.26	11.08	51.12	0.46
Main	6127	50	188.28	93.71	94.54		94.58	0.002275	1.29	13.25	54.97	0.46
Main	6127	100	226.32	93.71	94.57		94.62	0.002246	1.32	15.36	58.34	0.46
Main	6099	2	40.15	93.52	94.07		94.11	0.002927	1.05	2.77	11.97	0.48
Main	6099	5	78.78	93.52	94.24		94.28	0.00225	1.12	5.2	16.9	0.44
Main	6099	10	106.14	93.52	94.32		94.37	0.002653	1.32	6.82	25.58	0.49
Main	6099	25	149.41	93.52	94.38		94.46	0.003541	1.61	8.86	40.28	0.57
Main	6099	50	187.95	93.52	94.41		94.49	0.00383	1.71	10.18	42.75	0.6
Main	6099	100	225.93	93.52	94.45		94.53	0.003772	1.75	11.94	45.7	0.6
Main	6071	2	40.08	93.39	93.97		94.02	0.003524	1.26	2.29	6.44	0.54
Main	6071	5	78.66	93.39	94.08	93.96	94.18	0.005615	1.8	3.44	16.02	0.7
Main	6071	10	105.97	93.39	94.15	94.11	94.26	0.006041	1.99	4.84	24.49	0.74
Main	6071	25	149.17	93.39	94.24	94.24	94.33	0.005399	2.03	7.55	33.92	0.71
Main	6071	50	187.68	93.39	94.29		94.37	0.004837	2	9.33	35.67	0.68
Main	6071	100	225.61	93.39	94.32		94.41	0.004923	2.07	10.67	37.19	0.69
Main	6039	2	39.96	93.3	93.95		93.96	0.000774	0.63	4.84	15.13	0.26
Main	6039	5	78.49	93.3	94.05		94.07	0.001394	0.93	7.04	28.62	0.35
Main	6039	10	105.75	93.3	94.1		94.14	0.00168	1.08	8.94	36.35	0.39
Main	6039	25	148.86	93.3	94.17		94.21	0.001939	1.22	11.69	46.04	0.43
Main	6039	50	187.3	93.3	94.21		94.26	0.002198	1.34	13.61	56.29	0.46
Main	6039	100	225.17	93.3	94.25		94.29	0.002133	1.36	15.9	58.75	0.45
Main	6005	2	39.7	93.32	93.94		93.94	0.00041	0.45	9.99	45.75	0.19
Main	6005	5	78.1	93.32	94.04		94.04	0.00048	0.54	15.14	59.03	0.21
Main	6005	10	105.26	93.32	94.1		94.1	0.000492	0.58	18.88	64.69	0.21
Main	6005	25	148.24	93.32	94.16		94.17	0.000518	0.63	23.45	69.33	0.22
Main	6005	50	186.6	93.32	94.2		94.21	0.000545	0.66	26.19	71.2	0.23
Main	6005	100	224.39	93.32	94.24		94.25	0.000564	0.7	28.95	72.3	0.23
Main	5964	2	39.45	93.48	93.84	93.79	93.89	0.006385	1.09	2.22	14.83	0.65
Main	5964	5	77.69	93.48	93.94		93.99	0.005002	1.17	4.59	27.1	0.6
Main	5964	10	104.73	93.48	94.01		94.05	0.003892	1.16	6.68	31	0.55
Main	5964	25	147.57	93.48	94.07		94.12	0.00375	1.24	8.75	33.34	0.55
Main	5964	50	185.86	93.48	94.1		94.16	0.004165	1.35	9.7	34.3	0.58
Main	5964	100	223.56	93.48	94.13		94.19	0.004493	1.45	10.7	35.41	0.61

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5925	2	39.35	93.09	93.68	93.53	93.72	0.003039	0.91	2.5	12.42	0.47
Main	5925	5	77.47	93.09	93.83	93.64	93.86	0.002073	0.93	6.56	41.09	0.41
Main	5925	10	104.48	93.09	93.81	93.78	93.88	0.004455	1.35	6.04	39.29	0.59
Main	5925	25	147.24	93.09	93.86	93.85	93.94	0.005265	1.54	7.84	43.92	0.65
Main	5925	50	185.47	93.09	93.9	93.88	93.97	0.004828	1.55	9.67	46.2	0.63
Main	5925	100	223.12	93.09	93.94	93.91	94.01	0.004586	1.57	11.46	49.2	0.62
Main	5888	2	39.28	93.01	93.37	93.37	93.49	0.01714	1.7	1.49	7.85	1.05
Main	5888	5	77.31	93.01	93.43	93.43	93.65	0.02586	2.41	2.05	10.15	1.33
Main	5888	10	104.26	93.01	93.59	93.44	93.67	0.00765	1.68	5.17	25.3	0.77
Main	5888	25	146.94	93.01	93.7		93.75	0.004422	1.47	8.24	32.42	0.61
Main	5888	50	185.09	93.01	93.75		93.81	0.003825	1.45	10.24	35.42	0.57
Main	5888	100	222.67	93.01	93.81		93.86	0.003412	1.44	12.06	36.49	0.55
Main	5844	2	39.13	92.54	93.33		93.34	0.000325	0.44	5.23	12.25	0.17
Main	5844	5	77.07	92.54	93.5		93.51	0.000429	0.58	8.5	26.04	0.2
Main	5844	10	103.91	92.54	93.57		93.59	0.000525	0.68	10.68	30.9	0.22
Main	5844	25	146.45	92.54	93.66		93.68	0.00065	0.8	13.63	37.56	0.25
Main	5844	50	184.51	92.54	93.71		93.74	0.000755	0.89	15.7	46.34	0.28
Main	5844	100	222.01	92.54	93.75		93.79	0.000796	0.94	17.97	48.24	0.28
Main	5803	2	38.96	92.56	93.27		93.31	0.002012	0.99	2.71	9.89	0.41
Main	5803	5	76.8	92.56	93.41		93.47	0.002506	1.28	4.68	18.02	0.47
Main	5803	10	103.56	92.56	93.48		93.54	0.002677	1.4	6.23	25.42	0.49
Main	5803	25	146	92.56	93.56		93.63	0.002737	1.51	8.54	30.03	0.51
Main	5803	50	183.99	92.56	93.6		93.68	0.00304	1.63	9.72	32.08	0.54
Main	5803	100	221.41	92.56	93.64		93.72	0.003178	1.72	11.13	34.56	0.55
Main	5760	2	38.85	92.53	93.18		93.22	0.002164	0.93	2.54	12.52	0.41
Main	5760	5	76.56	92.53	93.34	93.11	93.37	0.001738	1	6.22	29.21	0.39
Main	5760	10	103.24	92.53	93.41	93.27	93.45	0.001574	1.02	8.73	35.68	0.38
Main	5760	25	145.55	92.53	93.5		93.54	0.001429	1.05	12.18	39.54	0.36
Main	5760	50	183.49	92.53	93.53		93.57	0.001657	1.15	13.3	39.93	0.39
Main	5760	100	220.84	92.53	93.57		93.61	0.001715	1.21	14.9	40.5	0.4
Main	5729	2	38.78	92.5	93.01	92.95	93.1	0.006659	1.47	1.69	6.78	0.71
Main	5729	5	76.42	92.5	93.14	93.14	93.27	0.007368	1.82	2.87	13.4	0.77
Main	5729	10	103.04	92.5	93.22	93.22	93.35	0.006824	1.92	4.21	20.08	0.76
Main	5729	25	145.26	92.5	93.3	93.3	93.44	0.006924	2.1	6.22	29.82	0.78
Main	5729	50	183.16	92.5	93.37	93.37	93.48	0.005239	1.94	8.56	33.76	0.69
Main	5729	100	220.47	92.5	93.4	93.4	93.52	0.005732	2.08	9.48	35.96	0.73
Main	5687	2	38.63	92.4	93.01		93.02	0.000627	0.51	5.83	18.9	0.22
Main	5687	5	76.2	92.4	93.1		93.12	0.00095	0.7	7.78	21.29	0.28
Main	5687	10	102.76	92.4	93.16		93.19	0.001159	0.82	9.09	22.61	0.32
Main	5687	25	144.91	92.4	93.23		93.26	0.001435	0.97	10.72	24.15	0.36
Main	5687	50	182.73	92.4	93.28		93.31	0.001597	1.07	11.84	25.12	0.38
Main	5687	100	220	92.4	93.32		93.36	0.001768	1.16	12.93	26.07	0.41
Main	5656	2	38.43	92.43	92.99		93	0.000724	0.53	7.02	35.6	0.24
Main	5656	5	75.92	92.43	93.08		93.09	0.000846	0.64	10.89	43.72	0.26
Main	5656	10	102.42	92.43	93.14		93.15	0.00083	0.68	13.57	44.8	0.27
Main	5656	25	144.5	92.43	93.21		93.22	0.000853	0.73	16.77	45.88	0.27
Main	5656	50	182.27	92.43	93.26		93.27	0.000861	0.77	18.94	46.6	0.28
Main	5656	100	219.49	92.43	93.3		93.32	0.000884	0.81	20.97	47.2	0.29
Main	5624	2	38.19	92.39	92.97		92.98	0.000465	0.45	8.2	30.97	0.19
Main	5624	5	75.56	92.39	93.06		93.07	0.000663	0.59	11.02	33.97	0.24
Main	5624	10	101.99	92.39	93.12		93.13	0.00077	0.68	13.05	36.37	0.26
Main	5624	25	143.97	92.39	93.18		93.2	0.000928	0.79	15.57	39.96	0.29
Main	5624	50	181.68	92.39	93.23		93.24	0.001026	0.86	17.39	41.79	0.31
Main	5624	100	218.84	92.39	93.27		93.29	0.001068	0.91	19.16	42.27	0.32

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5925	2	39.35	93.09	93.68	93.53	93.72	0.003039	0.91	2.5	12.42	0.47
Main	5925	5	77.47	93.09	93.83	93.64	93.86	0.002073	0.93	6.56	41.09	0.41
Main	5925	10	104.48	93.09	93.81	93.78	93.88	0.004455	1.35	6.04	39.29	0.59
Main	5925	25	147.24	93.09	93.86	93.85	93.94	0.005265	1.54	7.84	43.92	0.65
Main	5925	50	185.47	93.09	93.9	93.88	93.97	0.004828	1.55	9.67	46.2	0.63
Main	5925	100	223.12	93.09	93.94	93.91	94.01	0.004586	1.57	11.46	49.2	0.62
Main	5888	2	39.28	93.01	93.37	93.37	93.49	0.01714	1.7	1.49	7.85	1.05
Main	5888	5	77.31	93.01	93.43	93.43	93.65	0.02586	2.41	2.05	10.15	1.33
Main	5888	10	104.26	93.01	93.59	93.44	93.67	0.00765	1.68	5.17	25.3	0.77
Main	5888	25	146.94	93.01	93.7		93.75	0.004422	1.47	8.24	32.42	0.61
Main	5888	50	185.09	93.01	93.75		93.81	0.003825	1.45	10.24	35.42	0.57
Main	5888	100	222.67	93.01	93.81		93.86	0.003412	1.44	12.06	36.49	0.55
Main	5844	2	39.13	92.54	93.33		93.34	0.000325	0.44	5.23	12.25	0.17
Main	5844	5	77.07	92.54	93.5		93.51	0.000429	0.58	8.5	26.04	0.2
Main	5844	10	103.91	92.54	93.57		93.59	0.000525	0.68	10.68	30.9	0.22
Main	5844	25	146.45	92.54	93.66		93.68	0.00065	0.8	13.63	37.56	0.25
Main	5844	50	184.51	92.54	93.71		93.74	0.000755	0.89	15.7	46.34	0.28
Main	5844	100	222.01	92.54	93.75		93.79	0.000796	0.94	17.97	48.24	0.28
Main	5803	2	38.96	92.56	93.27		93.31	0.002012	0.99	2.71	9.89	0.41
Main	5803	5	76.8	92.56	93.41		93.47	0.002506	1.28	4.68	18.02	0.47
Main	5803	10	103.56	92.56	93.48		93.54	0.002677	1.4	6.23	25.42	0.49
Main	5803	25	146	92.56	93.56		93.63	0.002737	1.51	8.54	30.03	0.51
Main	5803	50	183.99	92.56	93.6		93.68	0.00304	1.63	9.72	32.08	0.54
Main	5803	100	221.41	92.56	93.64		93.72	0.003178	1.72	11.13	34.56	0.55
Main	5760	2	38.85	92.53	93.18		93.22	0.002164	0.93	2.54	12.52	0.41
Main	5760	5	76.56	92.53	93.34	93.11	93.37	0.001738	1	6.22	29.21	0.39
Main	5760	10	103.24	92.53	93.41	93.27	93.45	0.001574	1.02	8.73	35.68	0.38
Main	5760	25	145.55	92.53	93.5		93.54	0.001429	1.05	12.18	39.54	0.36
Main	5760	50	183.49	92.53	93.53		93.57	0.001657	1.15	13.3	39.93	0.39
Main	5760	100	220.84	92.53	93.57		93.61	0.001715	1.21	14.9	40.5	0.4
Main	5729	2	38.78	92.5	93.01	92.95	93.1	0.006659	1.47	1.69	6.78	0.71
Main	5729	5	76.42	92.5	93.14	93.14	93.27	0.007368	1.82	2.87	13.4	0.77
Main	5729	10	103.04	92.5	93.22	93.22	93.35	0.006824	1.92	4.21	20.08	0.76
Main	5729	25	145.26	92.5	93.3	93.3	93.44	0.006924	2.1	6.22	29.82	0.78
Main	5729	50	183.16	92.5	93.37	93.37	93.48	0.005239	1.94	8.56	33.76	0.69
Main	5729	100	220.47	92.5	93.4	93.4	93.52	0.005732	2.08	9.48	35.96	0.73
Main	5687	2	38.63	92.4	93.01		93.02	0.000627	0.51	5.83	18.9	0.22
Main	5687	5	76.2	92.4	93.1		93.12	0.00095	0.7	7.78	21.29	0.28
Main	5687	10	102.76	92.4	93.16		93.19	0.001159	0.82	9.09	22.61	0.32
Main	5687	25	144.91	92.4	93.23		93.26	0.001435	0.97	10.72	24.15	0.36
Main	5687	50	182.73	92.4	93.28		93.31	0.001597	1.07	11.84	25.12	0.38
Main	5687	100	220	92.4	93.32		93.36	0.001768	1.16	12.93	26.07	0.41
Main	5656	2	38.43	92.43	92.99		93	0.000724	0.53	7.02	35.6	0.24
Main	5656	5	75.92	92.43	93.08		93.09	0.000846	0.64	10.89	43.72	0.26
Main	5656	10	102.42	92.43	93.14		93.15	0.00083	0.68	13.57	44.8	0.27
Main	5656	25	144.5	92.43	93.21		93.22	0.000853	0.73	16.77	45.88	0.27
Main	5656	50	182.27	92.43	93.26		93.27	0.000861	0.77	18.94	46.6	0.28
Main	5656	100	219.49	92.43	93.3		93.32	0.000884	0.81	20.97	47.2	0.29
Main	5624	2	38.19	92.39	92.97		92.98	0.000465	0.45	8.2	30.97	0.19
Main	5624	5	75.56	92.39	93.06		93.07	0.000663	0.59	11.02	33.97	0.24
Main	5624	10	101.99	92.39	93.12		93.13	0.00077	0.68	13.05	36.37	0.26
Main	5624	25	143.97	92.39	93.18		93.2	0.000928	0.79	15.57	39.96	0.29
Main	5624	50	181.68	92.39	93.23		93.24	0.001026	0.86	17.39	41.79	0.31
Main	5624	100	218.84	92.39	93.27		93.29	0.001068	0.91	19.16	42.27	0.32

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5576	2	37.9	92.53	92.84	92.84	92.9	0.010721	1.3	2.38	21.9	0.82
Main	5576	5	75.15	92.53	92.91	92.91	92.97	0.009126	1.42	4.15	26.16	0.79
Main	5576	10	101.5	92.53	92.94	92.94	93.02	0.01047	1.61	4.94	26.78	0.86
Main	5576	25	143.37	92.53	93		93.08	0.008797	1.64	6.65	29.94	0.81
Main	5576	50	180.98	92.53	93.05		93.12	0.007178	1.59	8.2	32.2	0.74
Main	5576	100	218.05	92.53	93.11		93.17	0.005568	1.52	10.14	34.51	0.67
Main	5527	2	37.76	91.96	92.56		92.58	0.001464	0.71	3.35	10.67	0.33
Main	5527	5	74.91	91.96	92.71		92.74	0.001499	0.87	5.83	21.43	0.35
Main	5527	10	101.17	91.96	92.81		92.84	0.001332	0.91	8.56	28.75	0.34
Main	5527	25	142.96	91.96	92.87		92.91	0.001659	1.07	10.26	30.11	0.39
Main	5527	50	180.5	91.96	92.92	92.7	92.96	0.001691	1.13	11.86	31.45	0.4
Main	5527	100	217.45	91.96	93		93.04	0.001487	1.12	14.42	34.8	0.38
Main	5479	2	37.64	91.94	92.29	92.29	92.41	0.015391	1.56	1.41	6.4	0.98
Main	5479	5	74.72	91.94	92.41	92.41	92.56	0.013264	1.84	2.25	8.02	0.97
Main	5479	10	100.9	91.94	92.46	92.46	92.67	0.015359	2.17	2.7	10.26	1.07
Main	5479	25	142.58	91.94	92.63	92.63	92.76	0.006904	1.82	5.75	23.09	0.76
Main	5479	50	180.06	91.94	92.67	92.67	92.81	0.007253	1.95	6.64	24.51	0.78
Main	5479	100	216.79	91.94	92.93		92.97	0.001652	1.17	13.93	32.38	0.4
Main	5446	2	37.58	91.51	92.06		92.11	0.003281	1.12	2.4	10.67	0.51
Main	5446	5	74.61	91.51	92.17		92.24	0.004244	1.45	4.02	19.26	0.6
Main	5446	10	100.78	91.51	92.21	92.2	92.31	0.005854	1.77	4.84	21.12	0.71
Main	5446	25	142.31	91.51	92.41		92.45	0.00217	1.3	10.56	55.47	0.45
Main	5446	50	179.51	91.51	92.67		92.68	0.000404	0.67	27.34	69.57	0.2
Main	5446	100	215.79	91.51	92.94		92.94	0.000116	0.42	47.41	79.02	0.11
Main	5409	2	37.48	91.36	91.95		91.99	0.003105	1.07	3.06	24.51	0.49
Main	5409	5	74.45	91.36	92.01	91.98	92.07	0.004524	1.4	4.79	29.72	0.6
Main	5409	10	100.54	91.36	92.11		92.15	0.002775	1.22	8.03	37.14	0.48
Main	5409	25	141.7	91.36	92.41		92.41	0.000424	0.61	22.24	55.81	0.2
Main	5409	50	178.29	91.36	92.67		92.67	0.000134	0.41	37.26	60.42	0.12
Main	5409	100	213.87	91.36	92.94		92.94	0.00006	0.31	54.58	66.16	0.08
Main	5367	2	37.38	91.27	91.69	91.66	91.78	0.008903	1.51	1.8	11.86	0.79
Main	5367	5	74.22	91.27	91.86		91.9	0.003549	1.23	5.85	35.22	0.53
Main	5367	10	100.05	91.27	92.08		92.09	0.000628	0.65	15.25	48.2	0.24
Main	5367	25	140.53	91.27	92.4		92.4	0.000136	0.38	33.83	64.8	0.12
Main	5367	50	176.43	91.27	92.66		92.66	0.000059	0.29	52.55	79.52	0.08
Main	5367	100	211.1	91.27	92.94		92.94	0.000031	0.24	78.67	114.23	0.06
Main	5332	2	37.29	90.97	91.52		91.56	0.003856	1.05	2.68	15.98	0.53
Main	5332	5	73.83	90.97	91.86		91.86	0.000306	0.45	16.14	56.75	0.16
Main	5332	10	99.17	90.97	92.08		92.08	0.000105	0.31	33.86	105.66	0.1
Main	5332	25	138.53	90.97	92.4		92.4	0.000026	0.19	76.28	163.79	0.05
Main	5332	50	173.25	90.97	92.66		92.66	0.000011	0.13	120.83	172.65	0.03
Main	5332	100	206.55	90.97	92.94		92.94	0.000005	0.11	169.05	177.52	0.03
Main	5304	2	37.14	90.6	91.5	90.95	91.52	0.000491	0.65	4.38	34.94	0.22
Main	5304	5	73.16	90.6	91.81	91.13	91.84	0.000573	0.85	6.16	92.79	0.25
Main	5304	10	97.85	90.6	92.02	91.25	92.06	0.000583	0.95	7.39	144.55	0.26
Main	5304	25	135.72	90.6	92.33	91.38	92.38	0.000538	1.05	9.22	200.28	0.25
Main	5304	50	168.88	90.6	92.59	91.47	92.65	0.000484	1.09	10.71	253.7	0.25
Main	5304	100	199.95	90.6	92.94	91.56	92.94	0.000004	0.11	264.84	317.33	0.02
Main	5298		Culvert									
Main	5286	2	37.1	90.6	91.34	90.95	91.37	0.000997	0.78	3.76	27.84	0.3
Main	5286	5	73.07	90.6	91.5	91.11	91.56	0.001671	1.16	4.85	34.94	0.4
Main	5286	10	97.7	90.6	91.59	91.24	91.68	0.002146	1.4	5.48	37.65	0.46
Main	5286	25	135.44	90.6	91.68	91.36	91.82	0.00295	1.75	6.11	40.18	0.54
Main	5286	50	168.47	90.6	91.74	91.46	91.93	0.003567	1.99	6.53	43.14	0.6
Main	5286	100	199.32	90.6	91.78	91.55	92.03	0.004356	2.26	6.84	43.73	0.67

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5576	2	37.9	92.53	92.84	92.84	92.9	0.010721	1.3	2.38	21.9	0.82
Main	5576	5	75.15	92.53	92.91	92.91	92.97	0.009126	1.42	4.15	26.16	0.79
Main	5576	10	101.5	92.53	92.94	92.94	93.02	0.01047	1.61	4.94	26.78	0.86
Main	5576	25	143.37	92.53	93		93.08	0.008797	1.64	6.65	29.94	0.81
Main	5576	50	180.98	92.53	93.05		93.12	0.007178	1.59	8.2	32.2	0.74
Main	5576	100	218.05	92.53	93.11		93.17	0.005568	1.52	10.14	34.51	0.67
Main	5527	2	37.76	91.96	92.56		92.58	0.001464	0.71	3.35	10.67	0.33
Main	5527	5	74.91	91.96	92.71		92.74	0.001499	0.87	5.83	21.43	0.35
Main	5527	10	101.17	91.96	92.81		92.84	0.001332	0.91	8.56	28.75	0.34
Main	5527	25	142.96	91.96	92.87		92.91	0.001659	1.07	10.26	30.11	0.39
Main	5527	50	180.5	91.96	92.92	92.7	92.96	0.001691	1.13	11.86	31.45	0.4
Main	5527	100	217.45	91.96	93		93.04	0.001487	1.12	14.42	34.8	0.38
Main	5479	2	37.64	91.94	92.29	92.29	92.41	0.015391	1.56	1.41	6.4	0.98
Main	5479	5	74.72	91.94	92.41	92.41	92.56	0.013264	1.84	2.25	8.02	0.97
Main	5479	10	100.9	91.94	92.46	92.46	92.67	0.015359	2.17	2.7	10.26	1.07
Main	5479	25	142.58	91.94	92.63	92.63	92.76	0.006904	1.82	5.75	23.09	0.76
Main	5479	50	180.06	91.94	92.67	92.67	92.81	0.007253	1.95	6.64	24.51	0.78
Main	5479	100	216.79	91.94	92.93		92.97	0.001652	1.17	13.93	32.38	0.4
Main	5446	2	37.58	91.51	92.06		92.11	0.003281	1.12	2.4	10.67	0.51
Main	5446	5	74.61	91.51	92.17		92.24	0.004244	1.45	4.02	19.26	0.6
Main	5446	10	100.78	91.51	92.21	92.2	92.31	0.005854	1.77	4.84	21.12	0.71
Main	5446	25	142.31	91.51	92.41		92.45	0.00217	1.3	10.56	55.47	0.45
Main	5446	50	179.51	91.51	92.67		92.68	0.000404	0.67	27.34	69.57	0.2
Main	5446	100	215.79	91.51	92.94		92.94	0.000116	0.42	47.41	79.02	0.11
Main	5409	2	37.48	91.36	91.95		91.99	0.003105	1.07	3.06	24.51	0.49
Main	5409	5	74.45	91.36	92.01	91.98	92.07	0.004524	1.4	4.79	29.72	0.6
Main	5409	10	100.54	91.36	92.11		92.15	0.002775	1.22	8.03	37.14	0.48
Main	5409	25	141.7	91.36	92.41		92.41	0.000424	0.61	22.24	55.81	0.2
Main	5409	50	178.29	91.36	92.67		92.67	0.000134	0.41	37.26	60.42	0.12
Main	5409	100	213.87	91.36	92.94		92.94	0.00006	0.31	54.58	66.16	0.08
Main	5367	2	37.38	91.27	91.69	91.66	91.78	0.008903	1.51	1.8	11.86	0.79
Main	5367	5	74.22	91.27	91.86		91.9	0.003549	1.23	5.85	35.22	0.53
Main	5367	10	100.05	91.27	92.08		92.09	0.000628	0.65	15.25	48.2	0.24
Main	5367	25	140.53	91.27	92.4		92.4	0.000136	0.38	33.83	64.8	0.12
Main	5367	50	176.43	91.27	92.66		92.66	0.000059	0.29	52.55	79.52	0.08
Main	5367	100	211.1	91.27	92.94		92.94	0.000031	0.24	78.67	114.23	0.06
Main	5332	2	37.29	90.97	91.52		91.56	0.003856	1.05	2.68	15.98	0.53
Main	5332	5	73.83	90.97	91.86		91.86	0.000306	0.45	16.14	56.75	0.16
Main	5332	10	99.17	90.97	92.08		92.08	0.000105	0.31	33.86	105.66	0.1
Main	5332	25	138.53	90.97	92.4		92.4	0.000026	0.19	76.28	163.79	0.05
Main	5332	50	173.25	90.97	92.66		92.66	0.000011	0.13	120.83	172.65	0.03
Main	5332	100	206.55	90.97	92.94		92.94	0.000005	0.11	169.05	177.52	0.03
Main	5304	2	37.14	90.6	91.5	90.95	91.52	0.000491	0.65	4.38	34.94	0.22
Main	5304	5	73.16	90.6	91.81	91.13	91.84	0.000573	0.85	6.16	92.79	0.25
Main	5304	10	97.85	90.6	92.02	91.25	92.06	0.000583	0.95	7.39	144.55	0.26
Main	5304	25	135.72	90.6	92.33	91.38	92.38	0.000538	1.05	9.22	200.28	0.25
Main	5304	50	168.88	90.6	92.59	91.47	92.65	0.000484	1.09	10.71	253.7	0.25
Main	5304	100	199.95	90.6	92.94	91.56	92.94	0.000004	0.11	264.84	317.33	0.02
Main	5298		Culvert									
Main	5286	2	37.1	90.6	91.34	90.95	91.37	0.000997	0.78	3.76	27.84	0.3
Main	5286	5	73.07	90.6	91.5	91.11	91.56	0.001671	1.16	4.85	34.94	0.4
Main	5286	10	97.7	90.6	91.59	91.24	91.68	0.002146	1.4	5.48	37.65	0.46
Main	5286	25	135.44	90.6	91.68	91.36	91.82	0.00295	1.75	6.11	40.18	0.54
Main	5286	50	168.47	90.6	91.74	91.46	91.93	0.003567	1.99	6.53	43.14	0.6
Main	5286	100	199.32	90.6	91.78	91.55	92.03	0.004356	2.26	6.84	43.73	0.67

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5272	2	37	90.65	91.33		91.35	0.000798	0.64	5.64	13.79	0.26
Main	5272	5	72.92	90.65	91.49		91.53	0.001186	0.91	8.44	20.8	0.33
Main	5272	10	97.51	90.65	91.59		91.64	0.0014	1.07	10.58	25.82	0.36
Main	5272	25	135.21	90.65	91.69		91.75	0.001738	1.28	13.69	36.06	0.41
Main	5272	50	168.2	90.65	91.76		91.84	0.001866	1.39	16.51	41.45	0.43
Main	5272	100	199.02	90.65	91.82		91.91	0.002015	1.5	19.21	45.45	0.45
Main	5241	2	36.84	90.65	91.28		91.31	0.002166	0.93	5.1	24.19	0.41
Main	5241	5	72.65	90.65	91.43		91.48	0.002249	1.13	9.31	32.15	0.44
Main	5241	10	97.14	90.65	91.52		91.58	0.002539	1.3	13.1	51.82	0.48
Main	5241	25	134.69	90.65	91.63		91.69	0.002267	1.35	19.31	57.14	0.46
Main	5241	50	167.56	90.65	91.71		91.77	0.002135	1.39	24.09	63.01	0.45
Main	5241	100	198.27	90.65	91.78		91.84	0.002092	1.44	28.44	67.24	0.45
Main	5239	2	36.82	90.62	91.28		91.3	0.001514	0.8	6.16	21.37	0.35
Main	5239	5	72.62	90.62	91.43		91.47	0.001894	1.05	10.44	44.08	0.41
Main	5239	10	97.11	90.62	91.52		91.57	0.002109	1.2	15.14	57.86	0.44
Main	5239	25	134.64	90.62	91.63		91.68	0.001853	1.24	22.37	67.23	0.42
Main	5239	50	167.49	90.62	91.72		91.76	0.001624	1.23	28.08	69.99	0.4
Main	5239	100	198.19	90.62	91.79		91.83	0.001553	1.26	32.89	71.6	0.4
Main	5207	2	36.59	90.65	91.27		91.28	0.000432	0.43	8.51	32.76	0.19
Main	5207	5	72.22	90.65	91.42		91.44	0.00054	0.56	15.32	57.24	0.22
Main	5207	10	96.53	90.65	91.51		91.53	0.000577	0.63	21.57	73.63	0.23
Main	5207	25	133.82	90.65	91.63		91.64	0.000559	0.68	30.1	76.1	0.23
Main	5207	50	166.49	90.65	91.71		91.72	0.000543	0.71	36.31	77.88	0.23
Main	5207	100	197.02	90.65	91.77		91.79	0.000558	0.75	41.52	79.24	0.24
Main	5205	2	36.57	90.66	91.26		91.27	0.000513	0.46	7.48	32.65	0.2
Main	5205	5	72.17	90.66	91.42		91.43	0.000646	0.61	14.47	65.46	0.24
Main	5205	10	96.46	90.66	91.51		91.53	0.000644	0.67	21	72.08	0.24
Main	5205	25	133.72	90.66	91.62		91.64	0.000613	0.71	29.39	74.48	0.24
Main	5205	50	166.37	90.66	91.7		91.72	0.000589	0.74	35.49	75.98	0.24
Main	5205	100	196.89	90.66	91.77		91.79	0.000602	0.78	40.56	77.12	0.25
Main	5171	2	36.27	90.62	91.26		91.26	0.00021	0.32	9.69	23.01	0.13
Main	5171	5	71.68	90.62	91.41		91.42	0.00033	0.47	13.65	31.34	0.17
Main	5171	10	95.8	90.62	91.49		91.51	0.000401	0.56	16.74	39.5	0.19
Main	5171	25	132.82	90.62	91.6		91.62	0.000471	0.66	21.73	50.43	0.21
Main	5171	50	165.29	90.62	91.68		91.7	0.000504	0.71	25.86	55.76	0.22
Main	5171	100	195.65	90.62	91.74		91.77	0.000554	0.78	29.46	59.52	0.24
Main	5155	2	36.17	90.6	91.13	91.13	91.24	0.012814	1.51	2.35	15.46	0.89
Main	5155	5	71.53	90.6	91.25	91.25	91.39	0.011695	1.78	4.46	20.14	0.9
Main	5155	10	95.61	90.6	91.31	91.31	91.47	0.011792	1.97	5.82	22.49	0.92
Main	5155	25	132.57	90.6	91.39	91.39	91.58	0.011917	2.2	7.73	26.51	0.95
Main	5155	50	164.99	90.6	91.45	91.45	91.66	0.011937	2.35	9.33	30.81	0.97
Main	5155	100	195.29	90.6	91.54	91.54	91.73	0.009089	2.26	12.82	41.6	0.87
Main	5126	2	36.09	90.45	90.84		90.89	0.007939	1	3.04	16.57	0.69
Main	5126	5	71.38	90.45	90.98		91.03	0.004919	1.09	5.48	18.95	0.59
Main	5126	10	95.42	90.45	91.06		91.12	0.004393	1.18	7.11	21.13	0.57
Main	5126	25	132.32	90.45	91.16		91.23	0.003996	1.3	9.3	23.02	0.57
Main	5126	50	164.69	90.45	91.22		91.31	0.003872	1.38	10.86	24.03	0.57
Main	5126	100	194.92	90.45	91.28		91.38	0.003935	1.48	12.25	24.9	0.58
Main	5102	2	36	90.37	90.8		90.82	0.001266	0.59	4.81	17.57	0.3
Main	5102	5	71.22	90.37	90.94		90.97	0.001467	0.78	7.79	25.17	0.34
Main	5102	10	95.21	90.37	91.02		91.06	0.001554	0.88	9.99	28.07	0.36
Main	5102	25	132.04	90.37	91.12		91.17	0.001631	1	12.96	30.42	0.38
Main	5102	50	164.36	90.37	91.19		91.24	0.001699	1.08	15.04	31.76	0.39
Main	5102	100	194.55	90.37	91.24		91.31	0.001825	1.18	16.84	32.71	0.41

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5272	2	37	90.65	91.33		91.35	0.000798	0.64	5.64	13.79	0.26
Main	5272	5	72.92	90.65	91.49		91.53	0.001186	0.91	8.44	20.8	0.33
Main	5272	10	97.51	90.65	91.59		91.64	0.0014	1.07	10.58	25.82	0.36
Main	5272	25	135.21	90.65	91.69		91.75	0.001738	1.28	13.69	36.06	0.41
Main	5272	50	168.2	90.65	91.76		91.84	0.001866	1.39	16.51	41.45	0.43
Main	5272	100	199.02	90.65	91.82		91.91	0.002015	1.5	19.21	45.45	0.45
Main	5241	2	36.84	90.65	91.28		91.31	0.002166	0.93	5.1	24.19	0.41
Main	5241	5	72.65	90.65	91.43		91.48	0.002249	1.13	9.31	32.15	0.44
Main	5241	10	97.14	90.65	91.52		91.58	0.002539	1.3	13.1	51.82	0.48
Main	5241	25	134.69	90.65	91.63		91.69	0.002267	1.35	19.31	57.14	0.46
Main	5241	50	167.56	90.65	91.71		91.77	0.002135	1.39	24.09	63.01	0.45
Main	5241	100	198.27	90.65	91.78		91.84	0.002092	1.44	28.44	67.24	0.45
Main	5239	2	36.82	90.62	91.28		91.3	0.001514	0.8	6.16	21.37	0.35
Main	5239	5	72.62	90.62	91.43		91.47	0.001894	1.05	10.44	44.08	0.41
Main	5239	10	97.11	90.62	91.52		91.57	0.002109	1.2	15.14	57.86	0.44
Main	5239	25	134.64	90.62	91.63		91.68	0.001853	1.24	22.37	67.23	0.42
Main	5239	50	167.49	90.62	91.72		91.76	0.001624	1.23	28.08	69.99	0.4
Main	5239	100	198.19	90.62	91.79		91.83	0.001553	1.26	32.89	71.6	0.4
Main	5207	2	36.59	90.65	91.27		91.28	0.000432	0.43	8.51	32.76	0.19
Main	5207	5	72.22	90.65	91.42		91.44	0.00054	0.56	15.32	57.24	0.22
Main	5207	10	96.53	90.65	91.51		91.53	0.000577	0.63	21.57	73.63	0.23
Main	5207	25	133.82	90.65	91.63		91.64	0.000559	0.68	30.1	76.1	0.23
Main	5207	50	166.49	90.65	91.71		91.72	0.000543	0.71	36.31	77.88	0.23
Main	5207	100	197.02	90.65	91.77		91.79	0.000558	0.75	41.52	79.24	0.24
Main	5205	2	36.57	90.66	91.26		91.27	0.000513	0.46	7.48	32.65	0.2
Main	5205	5	72.17	90.66	91.42		91.43	0.000646	0.61	14.47	65.46	0.24
Main	5205	10	96.46	90.66	91.51		91.53	0.000644	0.67	21	72.08	0.24
Main	5205	25	133.72	90.66	91.62		91.64	0.000613	0.71	29.39	74.48	0.24
Main	5205	50	166.37	90.66	91.7		91.72	0.000589	0.74	35.49	75.98	0.24
Main	5205	100	196.89	90.66	91.77		91.79	0.000602	0.78	40.56	77.12	0.25
Main	5171	2	36.27	90.62	91.26		91.26	0.00021	0.32	9.69	23.01	0.13
Main	5171	5	71.68	90.62	91.41		91.42	0.00033	0.47	13.65	31.34	0.17
Main	5171	10	95.8	90.62	91.49		91.51	0.000401	0.56	16.74	39.5	0.19
Main	5171	25	132.82	90.62	91.6		91.62	0.000471	0.66	21.73	50.43	0.21
Main	5171	50	165.29	90.62	91.68		91.7	0.000504	0.71	25.86	55.76	0.22
Main	5171	100	195.65	90.62	91.74		91.77	0.000554	0.78	29.46	59.52	0.24
Main	5155	2	36.17	90.6	91.13	91.13	91.24	0.012814	1.51	2.35	15.46	0.89
Main	5155	5	71.53	90.6	91.25	91.25	91.39	0.011695	1.78	4.46	20.14	0.9
Main	5155	10	95.61	90.6	91.31	91.31	91.47	0.011792	1.97	5.82	22.49	0.92
Main	5155	25	132.57	90.6	91.39	91.39	91.58	0.011917	2.2	7.73	26.51	0.95
Main	5155	50	164.99	90.6	91.45	91.45	91.66	0.011937	2.35	9.33	30.81	0.97
Main	5155	100	195.29	90.6	91.54	91.54	91.73	0.009089	2.26	12.82	41.6	0.87
Main	5126	2	36.09	90.45	90.84		90.89	0.007939	1	3.04	16.57	0.69
Main	5126	5	71.38	90.45	90.98		91.03	0.004919	1.09	5.48	18.95	0.59
Main	5126	10	95.42	90.45	91.06		91.12	0.004393	1.18	7.11	21.13	0.57
Main	5126	25	132.32	90.45	91.16		91.23	0.003996	1.3	9.3	23.02	0.57
Main	5126	50	164.69	90.45	91.22		91.31	0.003872	1.38	10.86	24.03	0.57
Main	5126	100	194.92	90.45	91.28		91.38	0.003935	1.48	12.25	24.9	0.58
Main	5102	2	36	90.37	90.8		90.82	0.001266	0.59	4.81	17.57	0.3
Main	5102	5	71.22	90.37	90.94		90.97	0.001467	0.78	7.79	25.17	0.34
Main	5102	10	95.21	90.37	91.02		91.06	0.001554	0.88	9.99	28.07	0.36
Main	5102	25	132.04	90.37	91.12		91.17	0.001631	1	12.96	30.42	0.38
Main	5102	50	164.36	90.37	91.19		91.24	0.001699	1.08	15.04	31.76	0.39
Main	5102	100	194.55	90.37	91.24		91.31	0.001825	1.18	16.84	32.71	0.41

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5065	2	35.86	90.32	90.64	90.61	90.71	0.009883	1.15	2.51	16.33	0.77
Main	5065	5	70.95	90.32	90.84		90.89	0.00348	0.99	6.87	28.53	0.5
Main	5065	10	94.85	90.32	90.93		90.98	0.00296	1.04	9.65	33.96	0.48
Main	5065	25	131.56	90.32	91.04		91.09	0.002584	1.12	13.86	43.02	0.46
Main	5065	50	163.79	90.32	91.1		91.16	0.002638	1.21	16.86	52.6	0.48
Main	5065	100	193.89	90.32	91.17		91.23	0.00249	1.25	20.24	54.81	0.47
Main	5019	2	35.71	89.75	90.53		90.56	0.00139	0.89	4.14	10.9	0.35
Main	5019	5	70.58	89.75	90.74		90.79	0.001485	1.1	10.74	50.68	0.37
Main	5019	10	94.31	89.75	90.85		90.89	0.001342	1.13	16.63	55.93	0.36
Main	5019	25	130.79	89.75	90.97		91.01	0.00125	1.18	23.75	59.8	0.36
Main	5019	50	162.89	89.75	91.03		91.08	0.00132	1.26	27.64	61.58	0.37
Main	5019	100	192.85	89.75	91.1		91.14	0.00137	1.33	31.58	63.37	0.38
Main	4978	2	35.47	89.8	90.48		90.5	0.00155	0.89	7.75	19.19	0.36
Main	4978	5	70.08	89.8	90.69		90.72	0.001494	1.06	13.18	40.27	0.37
Main	4978	10	93.59	89.8	90.8		90.83	0.001539	1.17	18.35	54.48	0.39
Main	4978	25	129.8	89.8	90.9		90.95	0.002037	1.44	24.7	64.53	0.45
Main	4978	50	161.73	89.8	90.97		91.01	0.002056	1.51	28.89	67.87	0.46
Main	4978	100	191.52	89.8	91.03		91.07	0.002195	1.61	33.09	75.13	0.48
Main	4938	2	35.24	89.75	90.4		90.43	0.001629	0.86	3.43	8.03	0.36
Main	4938	5	69.69	89.75	90.58		90.64	0.002003	1.15	6	27.99	0.42
Main	4938	10	93.01	89.75	90.67	90.37	90.75	0.002277	1.32	9.77	53.17	0.46
Main	4938	25	128.95	89.75	90.78		90.86	0.002156	1.39	16.91	68.01	0.46
Main	4938	50	160.71	89.75	90.85		90.92	0.002101	1.44	21.53	70.86	0.46
Main	4938	100	190.33	89.75	90.91		90.98	0.002055	1.48	26.06	73.51	0.46
Main	4896	2	35.06	89.72	90.36		90.38	0.000875	0.65	5.44	13.58	0.27
Main	4896	5	69.39	89.72	90.54		90.57	0.001155	0.89	8.94	33.4	0.32
Main	4896	10	92.57	89.72	90.62		90.66	0.001421	1.06	12.23	44.64	0.37
Main	4896	25	128.27	89.72	90.72		90.78	0.001528	1.19	17.24	50.91	0.39
Main	4896	50	159.88	89.72	90.78		90.84	0.001688	1.29	20.21	53.86	0.41
Main	4896	100	189.34	89.72	90.83		90.9	0.001812	1.39	23.53	64.33	0.43
Main	4867	2	34.88	89.75	90.34		90.35	0.000824	0.59	6.26	20.13	0.26
Main	4867	5	69.07	89.75	90.51		90.54	0.000938	0.76	12.19	51.95	0.29
Main	4867	10	92.14	89.75	90.59		90.62	0.001014	0.85	16.52	55.17	0.3
Main	4867	25	127.67	89.75	90.7		90.73	0.001038	0.93	22.6	59.9	0.31
Main	4867	50	159.19	89.75	90.76		90.79	0.001144	1.02	25.97	62.43	0.33
Main	4867	100	188.55	89.75	90.81		90.85	0.001234	1.1	29.38	64.99	0.35
Main	4823	2	34.48	89.67	90.32		90.33	0.000351	0.42	14.28	31.15	0.17
Main	4823	5	68.42	89.67	90.5		90.51	0.000474	0.58	21.2	58.28	0.21
Main	4823	10	91.3	89.67	90.58		90.59	0.000577	0.68	26.58	77.99	0.23
Main	4823	25	126.55	89.67	90.67		90.69	0.000834	0.88	35.08	97.48	0.29
Main	4823	50	157.89	89.67	90.72		90.75	0.000881	0.94	40.52	101.5	0.3
Main	4823	100	187.07	89.67	90.78		90.8	0.000912	0.99	46.08	105.15	0.31
Main	4787	2	34.13	89.63	90.24		90.29	0.003315	1.23	4.8	24.19	0.52
Main	4787	5	67.84	89.63	90.39	90.27	90.46	0.003728	1.53	10.6	54.54	0.58
Main	4787	10	90.52	89.63	90.48		90.54	0.003128	1.52	16.09	65.87	0.54
Main	4787	25	125.48	89.63	90.58		90.63	0.002976	1.6	23.39	82.52	0.53
Main	4787	50	156.62	89.63	90.64		90.69	0.00272	1.6	28.74	87.46	0.52
Main	4787	100	185.61	89.63	90.7		90.75	0.002548	1.61	34.08	92.35	0.5
Main	4734	2	33.84	89.54	90.16		90.18	0.001257	0.72	6.09	35.16	0.32
Main	4734	5	67.25	89.54	90.31		90.34	0.001352	0.88	12.27	47.36	0.34
Main	4734	10	89.67	89.54	90.39		90.42	0.001462	0.99	16.53	56.82	0.36
Main	4734	25	124.3	89.54	90.48		90.52	0.001537	1.1	21.88	61	0.38
Main	4734	50	155.22	89.54	90.54		90.58	0.001628	1.18	25.39	63.42	0.4
Main	4734	100	183.97	89.54	90.59		90.64	0.001707	1.25	28.91	66	0.41

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	5065	2	35.86	90.32	90.64	90.61	90.71	0.009883	1.15	2.51	16.33	0.77
Main	5065	5	70.95	90.32	90.84		90.89	0.00348	0.99	6.87	28.53	0.5
Main	5065	10	94.85	90.32	90.93		90.98	0.00296	1.04	9.65	33.96	0.48
Main	5065	25	131.56	90.32	91.04		91.09	0.002584	1.12	13.86	43.02	0.46
Main	5065	50	163.79	90.32	91.1		91.16	0.002638	1.21	16.86	52.6	0.48
Main	5065	100	193.89	90.32	91.17		91.23	0.00249	1.25	20.24	54.81	0.47
Main	5019	2	35.71	89.75	90.53		90.56	0.00139	0.89	4.14	10.9	0.35
Main	5019	5	70.58	89.75	90.74		90.79	0.001485	1.1	10.74	50.68	0.37
Main	5019	10	94.31	89.75	90.85		90.89	0.001342	1.13	16.63	55.93	0.36
Main	5019	25	130.79	89.75	90.97		91.01	0.00125	1.18	23.75	59.8	0.36
Main	5019	50	162.89	89.75	91.03		91.08	0.00132	1.26	27.64	61.58	0.37
Main	5019	100	192.85	89.75	91.1		91.14	0.00137	1.33	31.58	63.37	0.38
Main	4978	2	35.47	89.8	90.48		90.5	0.00155	0.89	7.75	19.19	0.36
Main	4978	5	70.08	89.8	90.69		90.72	0.001494	1.06	13.18	40.27	0.37
Main	4978	10	93.59	89.8	90.8		90.83	0.001539	1.17	18.35	54.48	0.39
Main	4978	25	129.8	89.8	90.9		90.95	0.002037	1.44	24.7	64.53	0.45
Main	4978	50	161.73	89.8	90.97		91.01	0.002056	1.51	28.89	67.87	0.46
Main	4978	100	191.52	89.8	91.03		91.07	0.002195	1.61	33.09	75.13	0.48
Main	4938	2	35.24	89.75	90.4		90.43	0.001629	0.86	3.43	8.03	0.36
Main	4938	5	69.69	89.75	90.58		90.64	0.002003	1.15	6	27.99	0.42
Main	4938	10	93.01	89.75	90.67	90.37	90.75	0.002277	1.32	9.77	53.17	0.46
Main	4938	25	128.95	89.75	90.78		90.86	0.002156	1.39	16.91	68.01	0.46
Main	4938	50	160.71	89.75	90.85		90.92	0.002101	1.44	21.53	70.86	0.46
Main	4938	100	190.33	89.75	90.91		90.98	0.002055	1.48	26.06	73.51	0.46
Main	4896	2	35.06	89.72	90.36		90.38	0.000875	0.65	5.44	13.58	0.27
Main	4896	5	69.39	89.72	90.54		90.57	0.001155	0.89	8.94	33.4	0.32
Main	4896	10	92.57	89.72	90.62		90.66	0.001421	1.06	12.23	44.64	0.37
Main	4896	25	128.27	89.72	90.72		90.78	0.001528	1.19	17.24	50.91	0.39
Main	4896	50	159.88	89.72	90.78		90.84	0.001688	1.29	20.21	53.86	0.41
Main	4896	100	189.34	89.72	90.83		90.9	0.001812	1.39	23.53	64.33	0.43
Main	4867	2	34.88	89.75	90.34		90.35	0.000824	0.59	6.26	20.13	0.26
Main	4867	5	69.07	89.75	90.51		90.54	0.000938	0.76	12.19	51.95	0.29
Main	4867	10	92.14	89.75	90.59		90.62	0.001014	0.85	16.52	55.17	0.3
Main	4867	25	127.67	89.75	90.7		90.73	0.001038	0.93	22.6	59.9	0.31
Main	4867	50	159.19	89.75	90.76		90.79	0.001144	1.02	25.97	62.43	0.33
Main	4867	100	188.55	89.75	90.81		90.85	0.001234	1.1	29.38	64.99	0.35
Main	4823	2	34.48	89.67	90.32		90.33	0.000351	0.42	14.28	31.15	0.17
Main	4823	5	68.42	89.67	90.5		90.51	0.000474	0.58	21.2	58.28	0.21
Main	4823	10	91.3	89.67	90.58		90.59	0.000577	0.68	26.58	77.99	0.23
Main	4823	25	126.55	89.67	90.67		90.69	0.000834	0.88	35.08	97.48	0.29
Main	4823	50	157.89	89.67	90.72		90.75	0.000881	0.94	40.52	101.5	0.3
Main	4823	100	187.07	89.67	90.78		90.8	0.000912	0.99	46.08	105.15	0.31
Main	4787	2	34.13	89.63	90.24		90.29	0.003315	1.23	4.8	24.19	0.52
Main	4787	5	67.84	89.63	90.39	90.27	90.46	0.003728	1.53	10.6	54.54	0.58
Main	4787	10	90.52	89.63	90.48		90.54	0.003128	1.52	16.09	65.87	0.54
Main	4787	25	125.48	89.63	90.58		90.63	0.002976	1.6	23.39	82.52	0.53
Main	4787	50	156.62	89.63	90.64		90.69	0.00272	1.6	28.74	87.46	0.52
Main	4787	100	185.61	89.63	90.7		90.75	0.002548	1.61	34.08	92.35	0.5
Main	4734	2	33.84	89.54	90.16		90.18	0.001257	0.72	6.09	35.16	0.32
Main	4734	5	67.25	89.54	90.31		90.34	0.001352	0.88	12.27	47.36	0.34
Main	4734	10	89.67	89.54	90.39		90.42	0.001462	0.99	16.53	56.82	0.36
Main	4734	25	124.3	89.54	90.48		90.52	0.001537	1.1	21.88	61	0.38
Main	4734	50	155.22	89.54	90.54		90.58	0.001628	1.18	25.39	63.42	0.4
Main	4734	100	183.97	89.54	90.59		90.64	0.001707	1.25	28.91	66	0.41

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	4697	2	33.57	89.44	90.13		90.15	0.000649	0.59	8.19	39.66	0.24
Main	4697	5	66.7	89.44	90.27		90.3	0.000874	0.78	15.59	60.54	0.28
Main	4697	10	88.94	89.44	90.35		90.38	0.000933	0.86	20.57	63.98	0.3
Main	4697	25	123.35	89.44	90.44		90.47	0.001062	0.98	26.27	69.29	0.32
Main	4697	50	154.12	89.44	90.49		90.52	0.001185	1.07	29.93	72.96	0.34
Main	4697	100	182.73	89.44	90.54		90.58	0.001304	1.16	33.66	77.63	0.36
Main	4658	2	33.26	89.46	90.08		90.1	0.001784	0.84	7.15	39.27	0.38
Main	4658	5	66.13	89.46	90.21		90.25	0.001896	1.02	13.04	48.19	0.4
Main	4658	10	88.19	89.46	90.29		90.32	0.002022	1.13	16.87	55.53	0.42
Main	4658	25	122.4	89.46	90.36		90.41	0.002279	1.28	21.39	62.87	0.46
Main	4658	50	153.05	89.46	90.4		90.46	0.00258	1.41	24.03	66.04	0.49
Main	4658	100	181.53	89.46	90.44		90.5	0.002834	1.52	26.78	69.32	0.52
Main	4614	2	33	89.47	89.95		90	0.003581	1.09	4.99	26.87	0.52
Main	4614	5	65.64	89.47	90.05	89.97	90.12	0.004678	1.42	9.28	57.07	0.62
Main	4614	10	87.55	89.47	90.1	90.06	90.18	0.005435	1.63	12.57	74.58	0.67
Main	4614	25	121.54	89.47	90.17	90.09	90.26	0.005489	1.76	18.1	82.61	0.69
Main	4614	50	152.04	89.47	90.22		90.3	0.005073	1.78	22.38	86.84	0.67
Main	4614	100	180.38	89.47	90.26		90.34	0.004987	1.83	26.08	90	0.67
Main	4588	2	32.71	89.31	89.92		89.93	0.001018	0.66	13.35	73.9	0.29
Main	4588	5	65.14	89.31	90.02		90.03	0.001432	0.87	22.06	107.3	0.35
Main	4588	10	86.9	89.31	90.07		90.09	0.00151	0.94	27.97	113.76	0.36
Main	4588	25	120.68	89.31	90.13		90.15	0.00169	1.05	35.4	122.76	0.39
Main	4588	50	151.01	89.31	90.18		90.2	0.001703	1.1	41.36	130.82	0.39
Main	4588	100	179.2	89.31	90.22		90.24	0.001714	1.14	46.73	132.98	0.4
Main	4545	2	32.3	89.3	89.81		89.84	0.009106	1.7	8.83	79.19	0.82
Main	4545	5	64.36	89.3	89.94		89.95	0.003675	1.28	20.76	115.81	0.54
Main	4545	10	85.88	89.3	90		90.01	0.002815	1.2	28.46	130.58	0.48
Main	4545	25	119.36	89.3	90.06		90.07	0.002591	1.23	37.24	147.91	0.47
Main	4545	50	149.46	89.3	90.11		90.12	0.002562	1.28	44.38	153.47	0.47
Main	4545	100	177.43	89.3	90.16		90.16	0.002302	1.26	51.33	156.55	0.45
Main	4505	2	32.01	88.99	89.59	89.4	89.65	0.002808	1.13	4.86	35.73	0.48
Main	4505	5	63.74	88.99	89.67	89.57	89.77	0.004642	1.58	8.45	54.1	0.63
Main	4505	10	85.04	88.99	89.72	89.72	89.83	0.005784	1.84	10.9	61.38	0.71
Main	4505	25	118.2	88.99	89.8	89.8	89.91	0.00522	1.9	17.31	83.79	0.69
Main	4505	50	148.07	88.99	89.84	89.84	89.95	0.005656	2.04	20.34	89.28	0.72
Main	4505	100	175.84	88.99	89.87	89.87	90	0.006509	2.23	22.8	105.88	0.78
Main	4462	2	31.42	89.08	89.57		89.57	0.000837	0.52	23.25	158.01	0.25
Main	4462	5	62.71	89.08	89.67		89.67	0.00084	0.59	40.42	194.74	0.26
Main	4462	10	83.72	89.08	89.72		89.72	0.000797	0.61	51.74	211.48	0.26
Main	4462	25	116.45	89.08	89.79		89.79	0.00074	0.63	65.58	224.06	0.25
Main	4462	50	146.04	89.08	89.83		89.83	0.000717	0.65	75.98	232.28	0.25
Main	4462	100	173.53	89.08	89.88		89.88	0.000719	0.68	86.64	247.68	0.25
Main	4436	2	30.93	88.79	89.52		89.54	0.001516	0.86	13.6	92.04	0.35
Main	4436	5	61.84	88.79	89.62		89.64	0.001721	1.01	24.26	135.85	0.38
Main	4436	10	82.58	88.79	89.67		89.69	0.001765	1.08	32.85	168.22	0.39
Main	4436	25	114.96	88.79	89.74		89.76	0.001542	1.07	45.31	187.55	0.37
Main	4436	50	144.28	88.79	89.79		89.81	0.00138	1.05	54.92	198.75	0.36
Main	4436	100	171.51	88.79	89.84		89.85	0.001283	1.05	64.4	208.84	0.35
Main	4389	2	30.23	88.95	89.45		89.47	0.001706	0.77	16.9	137.14	0.36
Main	4389	5	60.49	88.95	89.57		89.57	0.000959	0.67	35.05	169.36	0.28
Main	4389	10	80.79	88.95	89.63		89.63	0.000846	0.67	45.47	177.64	0.27
Main	4389	25	112.57	88.95	89.7		89.71	0.00078	0.69	59.12	200.95	0.26
Main	4389	50	141.44	88.95	89.75		89.76	0.000756	0.71	69.83	214.92	0.26
Main	4389	100	168.2	88.95	89.8		89.81	0.000711	0.72	80.53	223.07	0.26

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	4697	2	33.57	89.44	90.13		90.15	0.000649	0.59	8.19	39.66	0.24
Main	4697	5	66.7	89.44	90.27		90.3	0.000874	0.78	15.59	60.54	0.28
Main	4697	10	88.94	89.44	90.35		90.38	0.000933	0.86	20.57	63.98	0.3
Main	4697	25	123.35	89.44	90.44		90.47	0.001062	0.98	26.27	69.29	0.32
Main	4697	50	154.12	89.44	90.49		90.52	0.001185	1.07	29.93	72.96	0.34
Main	4697	100	182.73	89.44	90.54		90.58	0.001304	1.16	33.66	77.63	0.36
Main	4658	2	33.26	89.46	90.08		90.1	0.001784	0.84	7.15	39.27	0.38
Main	4658	5	66.13	89.46	90.21		90.25	0.001896	1.02	13.04	48.19	0.4
Main	4658	10	88.19	89.46	90.29		90.32	0.002022	1.13	16.87	55.53	0.42
Main	4658	25	122.4	89.46	90.36		90.41	0.002279	1.28	21.39	62.87	0.46
Main	4658	50	153.05	89.46	90.4		90.46	0.00258	1.41	24.03	66.04	0.49
Main	4658	100	181.53	89.46	90.44		90.5	0.002834	1.52	26.78	69.32	0.52
Main	4614	2	33	89.47	89.95		90	0.003581	1.09	4.99	26.87	0.52
Main	4614	5	65.64	89.47	90.05	89.97	90.12	0.004678	1.42	9.28	57.07	0.62
Main	4614	10	87.55	89.47	90.1	90.06	90.18	0.005435	1.63	12.57	74.58	0.67
Main	4614	25	121.54	89.47	90.17	90.09	90.26	0.005489	1.76	18.1	82.61	0.69
Main	4614	50	152.04	89.47	90.22		90.3	0.005073	1.78	22.38	86.84	0.67
Main	4614	100	180.38	89.47	90.26		90.34	0.004987	1.83	26.08	90	0.67
Main	4588	2	32.71	89.31	89.92		89.93	0.001018	0.66	13.35	73.9	0.29
Main	4588	5	65.14	89.31	90.02		90.03	0.001432	0.87	22.06	107.3	0.35
Main	4588	10	86.9	89.31	90.07		90.09	0.00151	0.94	27.97	113.76	0.36
Main	4588	25	120.68	89.31	90.13		90.15	0.00169	1.05	35.4	122.76	0.39
Main	4588	50	151.01	89.31	90.18		90.2	0.001703	1.1	41.36	130.82	0.39
Main	4588	100	179.2	89.31	90.22		90.24	0.001714	1.14	46.73	132.98	0.4
Main	4545	2	32.3	89.3	89.81		89.84	0.009106	1.7	8.83	79.19	0.82
Main	4545	5	64.36	89.3	89.94		89.95	0.003675	1.28	20.76	115.81	0.54
Main	4545	10	85.88	89.3	90		90.01	0.002815	1.2	28.46	130.58	0.48
Main	4545	25	119.36	89.3	90.06		90.07	0.002591	1.23	37.24	147.91	0.47
Main	4545	50	149.46	89.3	90.11		90.12	0.002562	1.28	44.38	153.47	0.47
Main	4545	100	177.43	89.3	90.16		90.16	0.002302	1.26	51.33	156.55	0.45
Main	4505	2	32.01	88.99	89.59	89.4	89.65	0.002808	1.13	4.86	35.73	0.48
Main	4505	5	63.74	88.99	89.67	89.57	89.77	0.004642	1.58	8.45	54.1	0.63
Main	4505	10	85.04	88.99	89.72	89.72	89.83	0.005784	1.84	10.9	61.38	0.71
Main	4505	25	118.2	88.99	89.8	89.8	89.91	0.00522	1.9	17.31	83.79	0.69
Main	4505	50	148.07	88.99	89.84	89.84	89.95	0.005656	2.04	20.34	89.28	0.72
Main	4505	100	175.84	88.99	89.87	89.87	90	0.006509	2.23	22.8	105.88	0.78
Main	4462	2	31.42	89.08	89.57		89.57	0.000837	0.52	23.25	158.01	0.25
Main	4462	5	62.71	89.08	89.67		89.67	0.00084	0.59	40.42	194.74	0.26
Main	4462	10	83.72	89.08	89.72		89.72	0.000797	0.61	51.74	211.48	0.26
Main	4462	25	116.45	89.08	89.79		89.79	0.00074	0.63	65.58	224.06	0.25
Main	4462	50	146.04	89.08	89.83		89.83	0.000717	0.65	75.98	232.28	0.25
Main	4462	100	173.53	89.08	89.88		89.88	0.000719	0.68	86.64	247.68	0.25
Main	4436	2	30.93	88.79	89.52		89.54	0.001516	0.86	13.6	92.04	0.35
Main	4436	5	61.84	88.79	89.62		89.64	0.001721	1.01	24.26	135.85	0.38
Main	4436	10	82.58	88.79	89.67		89.69	0.001765	1.08	32.85	168.22	0.39
Main	4436	25	114.96	88.79	89.74		89.76	0.001542	1.07	45.31	187.55	0.37
Main	4436	50	144.28	88.79	89.79		89.81	0.00138	1.05	54.92	198.75	0.36
Main	4436	100	171.51	88.79	89.84		89.85	0.001283	1.05	64.4	208.84	0.35
Main	4389	2	30.23	88.95	89.45		89.47	0.001706	0.77	16.9	137.14	0.36
Main	4389	5	60.49	88.95	89.57		89.57	0.000959	0.67	35.05	169.36	0.28
Main	4389	10	80.79	88.95	89.63		89.63	0.000846	0.67	45.47	177.64	0.27
Main	4389	25	112.57	88.95	89.7		89.71	0.00078	0.69	59.12	200.95	0.26
Main	4389	50	141.44	88.95	89.75		89.76	0.000756	0.71	69.83	214.92	0.26
Main	4389	100	168.2	88.95	89.8		89.81	0.000711	0.72	80.53	223.07	0.26

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	4347	2	29.42	88.7	89.42		89.42	0.000603	0.57	20.59	114.28	0.23
Main	4347	5	58.9	88.7	89.54		89.54	0.000624	0.65	38.67	179.54	0.24
Main	4347	10	78.73	88.7	89.6		89.6	0.000578	0.66	50.35	190.44	0.23
Main	4347	25	109.9	88.7	89.67		89.68	0.000548	0.68	64.97	201.1	0.23
Main	4347	50	138.31	88.7	89.73		89.73	0.000536	0.7	75.76	211.61	0.23
Main	4347	100	164.61	88.7	89.77		89.78	0.000528	0.72	86.54	221.57	0.23
Main	4314	2	28.56	88.55	89.41		89.41	0.000257	0.41	31	167.72	0.15
Main	4314	5	57.37	88.55	89.52		89.53	0.000273	0.47	53.39	212.38	0.16
Main	4314	10	76.77	88.55	89.59		89.59	0.0003	0.51	67.72	243.63	0.17
Main	4314	25	107.38	88.55	89.66		89.66	0.000293	0.53	86.9	266.49	0.17
Main	4314	50	135.37	88.55	89.71		89.72	0.000289	0.55	101.26	282.7	0.17
Main	4314	100	161.25	88.55	89.76		89.77	0.000316	0.59	116.22	315.34	0.18
Main	4282	2	27.41	88.81	89.4		89.4	0.000234	0.32	38.84	188.26	0.14
Main	4282	5	55.44	88.81	89.52		89.52	0.000222	0.36	63.12	228.53	0.14
Main	4282	10	74.36	88.81	89.58		89.58	0.000231	0.39	77.78	255.03	0.14
Main	4282	25	104.32	88.81	89.65		89.66	0.000242	0.42	98.21	290	0.15
Main	4282	50	131.8	88.81	89.71		89.71	0.000265	0.46	113.88	312.72	0.16
Main	4282	100	157.18	88.81	89.75		89.76	0.000255	0.47	129.42	321.74	0.16
Main	4238	2	25.99	88.43	89.38		89.39	0.000362	0.51	25.77	168.72	0.18
Main	4238	5	52.95	88.43	89.5		89.51	0.000342	0.55	49.72	224.94	0.18
Main	4238	10	71.21	88.43	89.56		89.57	0.000342	0.57	64.24	251.94	0.18
Main	4238	25	100.28	88.43	89.64		89.64	0.000344	0.6	83.97	270.31	0.18
Main	4238	50	127.1	88.43	89.69		89.69	0.000327	0.6	98.22	277.16	0.18
Main	4238	100	151.82	88.43	89.74		89.74	0.000316	0.61	112.11	283.68	0.18
Main	4182	2	24.82	88.45	89.35		89.36	0.000537	0.62	17.91	137.61	0.22
Main	4182	5	50.61	88.45	89.47		89.48	0.000568	0.7	40.44	208.72	0.23
Main	4182	10	68.17	88.45	89.54		89.55	0.000494	0.68	54.31	215.88	0.22
Main	4182	25	96.31	88.45	89.62		89.62	0.00045	0.69	71.46	230.69	0.21
Main	4182	50	122.46	88.45	89.67		89.67	0.00043	0.69	83.95	238.45	0.21
Main	4182	100	146.52	88.45	89.72		89.72	0.000413	0.7	96.12	244.27	0.21
Main	4144	2	24.04	88.5	89.33		89.34	0.000688	0.67	20.97	152.09	0.25
Main	4144	5	48.93	88.5	89.45		89.46	0.000561	0.67	43.58	216.75	0.23
Main	4144	10	65.91	88.5	89.52		89.53	0.000459	0.64	58.65	221.64	0.21
Main	4144	25	93.35	88.5	89.6		89.6	0.000405	0.63	76.21	228.56	0.2
Main	4144	50	119	88.5	89.65		89.66	0.000382	0.63	88.72	234.51	0.2
Main	4144	100	142.57	88.5	89.71		89.71	0.000369	0.64	100.76	239.35	0.19
Main	4093	2	23.19	88.24	89.29		89.3	0.00071	0.71	13.74	118.52	0.25
Main	4093	5	47.05	88.24	89.42		89.43	0.000618	0.73	32.36	153.41	0.24
Main	4093	10	63.36	88.24	89.49		89.5	0.000563	0.73	44.32	179.11	0.23
Main	4093	25	89.96	88.24	89.57		89.58	0.000535	0.75	60.58	220.96	0.23
Main	4093	50	114.97	88.24	89.63		89.63	0.000545	0.78	73.38	247.81	0.23
Main	4093	100	137.92	88.24	89.68		89.69	0.00051	0.78	86.66	252.76	0.23
Main	4058	2	22.69	88.16	89.26		89.28	0.000606	0.74	13.86	91.39	0.24
Main	4058	5	45.95	88.16	89.38		89.41	0.000738	0.89	28.5	153.39	0.27
Main	4058	10	61.82	88.16	89.46		89.48	0.00063	0.86	41.29	169.65	0.25
Main	4058	25	87.85	88.16	89.55		89.56	0.000616	0.89	56.56	206.36	0.25
Main	4058	50	112.42	88.16	89.6		89.61	0.000605	0.91	68.67	234.19	0.25
Main	4058	100	134.89	88.16	89.66		89.67	0.000553	0.89	82.07	252.46	0.24
Main	4029	2	22.43	88.3	89.13	89.13	89.23	0.007598	1.61	4.24	32.79	0.71
Main	4029	5	45.3	88.3	89.34		89.37	0.002609	1.18	16.83	84.72	0.44
Main	4029	10	60.86	88.3	89.43		89.45	0.001997	1.11	25.11	100.37	0.39
Main	4029	25	86.54	88.3	89.51		89.53	0.001862	1.14	34.24	120.02	0.38
Main	4029	50	110.83	88.3	89.57		89.59	0.001781	1.17	41.23	129.18	0.38
Main	4029	100	132.99	88.3	89.62		89.64	0.001682	1.18	48.83	139.24	0.37

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	4347	2	29.42	88.7	89.42		89.42	0.000603	0.57	20.59	114.28	0.23
Main	4347	5	58.9	88.7	89.54		89.54	0.000624	0.65	38.67	179.54	0.24
Main	4347	10	78.73	88.7	89.6		89.6	0.000578	0.66	50.35	190.44	0.23
Main	4347	25	109.9	88.7	89.67		89.68	0.000548	0.68	64.97	201.1	0.23
Main	4347	50	138.31	88.7	89.73		89.73	0.000536	0.7	75.76	211.61	0.23
Main	4347	100	164.61	88.7	89.77		89.78	0.000528	0.72	86.54	221.57	0.23
Main	4314	2	28.56	88.55	89.41		89.41	0.000257	0.41	31	167.72	0.15
Main	4314	5	57.37	88.55	89.52		89.53	0.000273	0.47	53.39	212.38	0.16
Main	4314	10	76.77	88.55	89.59		89.59	0.0003	0.51	67.72	243.63	0.17
Main	4314	25	107.38	88.55	89.66		89.66	0.000293	0.53	86.9	266.49	0.17
Main	4314	50	135.37	88.55	89.71		89.72	0.000289	0.55	101.26	282.7	0.17
Main	4314	100	161.25	88.55	89.76		89.77	0.000316	0.59	116.22	315.34	0.18
Main	4282	2	27.41	88.81	89.4		89.4	0.000234	0.32	38.84	188.26	0.14
Main	4282	5	55.44	88.81	89.52		89.52	0.000222	0.36	63.12	228.53	0.14
Main	4282	10	74.36	88.81	89.58		89.58	0.000231	0.39	77.78	255.03	0.14
Main	4282	25	104.32	88.81	89.65		89.66	0.000242	0.42	98.21	290	0.15
Main	4282	50	131.8	88.81	89.71		89.71	0.000265	0.46	113.88	312.72	0.16
Main	4282	100	157.18	88.81	89.75		89.76	0.000255	0.47	129.42	321.74	0.16
Main	4238	2	25.99	88.43	89.38		89.39	0.000362	0.51	25.77	168.72	0.18
Main	4238	5	52.95	88.43	89.5		89.51	0.000342	0.55	49.72	224.94	0.18
Main	4238	10	71.21	88.43	89.56		89.57	0.000342	0.57	64.24	251.94	0.18
Main	4238	25	100.28	88.43	89.64		89.64	0.000344	0.6	83.97	270.31	0.18
Main	4238	50	127.1	88.43	89.69		89.69	0.000327	0.6	98.22	277.16	0.18
Main	4238	100	151.82	88.43	89.74		89.74	0.000316	0.61	112.11	283.68	0.18
Main	4182	2	24.82	88.45	89.35		89.36	0.000537	0.62	17.91	137.61	0.22
Main	4182	5	50.61	88.45	89.47		89.48	0.000568	0.7	40.44	208.72	0.23
Main	4182	10	68.17	88.45	89.54		89.55	0.000494	0.68	54.31	215.88	0.22
Main	4182	25	96.31	88.45	89.62		89.62	0.00045	0.69	71.46	230.69	0.21
Main	4182	50	122.46	88.45	89.67		89.67	0.00043	0.69	83.95	238.45	0.21
Main	4182	100	146.52	88.45	89.72		89.72	0.000413	0.7	96.12	244.27	0.21
Main	4144	2	24.04	88.5	89.33		89.34	0.000688	0.67	20.97	152.09	0.25
Main	4144	5	48.93	88.5	89.45		89.46	0.000561	0.67	43.58	216.75	0.23
Main	4144	10	65.91	88.5	89.52		89.53	0.000459	0.64	58.65	221.64	0.21
Main	4144	25	93.35	88.5	89.6		89.6	0.000405	0.63	76.21	228.56	0.2
Main	4144	50	119	88.5	89.65		89.66	0.000382	0.63	88.72	234.51	0.2
Main	4144	100	142.57	88.5	89.71		89.71	0.000369	0.64	100.76	239.35	0.19
Main	4093	2	23.19	88.24	89.29		89.3	0.00071	0.71	13.74	118.52	0.25
Main	4093	5	47.05	88.24	89.42		89.43	0.000618	0.73	32.36	153.41	0.24
Main	4093	10	63.36	88.24	89.49		89.5	0.000563	0.73	44.32	179.11	0.23
Main	4093	25	89.96	88.24	89.57		89.58	0.000535	0.75	60.58	220.96	0.23
Main	4093	50	114.97	88.24	89.63		89.63	0.000545	0.78	73.38	247.81	0.23
Main	4093	100	137.92	88.24	89.68		89.69	0.00051	0.78	86.66	252.76	0.23
Main	4058	2	22.69	88.16	89.26		89.28	0.000606	0.74	13.86	91.39	0.24
Main	4058	5	45.95	88.16	89.38		89.41	0.000738	0.89	28.5	153.39	0.27
Main	4058	10	61.82	88.16	89.46		89.48	0.00063	0.86	41.29	169.65	0.25
Main	4058	25	87.85	88.16	89.55		89.56	0.000616	0.89	56.56	206.36	0.25
Main	4058	50	112.42	88.16	89.6		89.61	0.000605	0.91	68.67	234.19	0.25
Main	4058	100	134.89	88.16	89.66		89.67	0.000553	0.89	82.07	252.46	0.24
Main	4029	2	22.43	88.3	89.13	89.13	89.23	0.007598	1.61	4.24	32.79	0.71
Main	4029	5	45.3	88.3	89.34		89.37	0.002609	1.18	16.83	84.72	0.44
Main	4029	10	60.86	88.3	89.43		89.45	0.001997	1.11	25.11	100.37	0.39
Main	4029	25	86.54	88.3	89.51		89.53	0.001862	1.14	34.24	120.02	0.38
Main	4029	50	110.83	88.3	89.57		89.59	0.001781	1.17	41.23	129.18	0.38
Main	4029	100	132.99	88.3	89.62		89.64	0.001682	1.18	48.83	139.24	0.37

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3996	2	22.24	88.26	89.09		89.12	0.001317	0.96	6.93	27.53	0.35
Main	3996	5	44.78	88.26	89.25		89.3	0.001748	1.25	14.11	58.94	0.41
Main	3996	10	60.1	88.26	89.34		89.38	0.001736	1.32	20.32	75.73	0.42
Main	3996	25	85.51	88.26	89.42		89.47	0.001816	1.42	26.97	86.44	0.43
Main	3996	50	109.61	88.26	89.47		89.52	0.001859	1.49	32.06	95.79	0.44
Main	3996	100	131.58	88.26	89.51		89.57	0.002224	1.67	36.09	105.52	0.48
Main	3956	2	22	88.32	89.01		89.05	0.002228	1.01	4.66	19.51	0.43
Main	3956	5	44.35	88.32	89.11	89	89.19	0.003527	1.42	7	30.26	0.55
Main	3956	10	59.47	88.32	89.18	89.07	89.28	0.004079	1.63	10.44	73.77	0.6
Main	3956	25	84.59	88.32	89.26	89.22	89.36	0.003908	1.71	17.96	96.49	0.6
Main	3956	50	108.54	88.32	89.28	89.28	89.4	0.004949	1.95	19.72	100.94	0.68
Main	3956	100	130.34	88.32	89.32	89.32	89.44	0.004911	2.01	24.2	109.42	0.68
Main	3918	2	21.77	88.6	88.92	88.83	88.94	0.003179	0.77	7.56	40.31	0.46
Main	3918	5	43.99	88.6	89.02	88.9	89.05	0.003369	0.96	11.66	44.42	0.49
Main	3918	10	58.99	88.6	89.08	88.94	89.12	0.003279	1.05	14.66	46.91	0.5
Main	3918	25	83.9	88.6	89.17	88.99	89.21	0.003118	1.16	18.83	50.56	0.5
Main	3918	50	107.53	88.6	89.22	89.02	89.24	0.002266	1.04	33.75	111.74	0.43
Main	3918	100	129.12	88.6	89.28	89.06	89.3	0.001961	1.03	40.56	117.05	0.41
Main	3884	2	21.6	88.14	88.59	88.59	88.74	0.012143	1.85	2.41	13.12	0.94
Main	3884	5	43.66	88.14	88.77	88.77	88.88	0.0068	1.79	7.73	36.42	0.75
Main	3884	10	58.57	88.14	88.83	88.83	88.95	0.007359	1.98	9.82	37.82	0.79
Main	3884	25	83.37	88.14	88.89	88.89	89.03	0.008555	2.26	12.09	40.05	0.87
Main	3884	50	106.72	88.14	88.93	88.93	89.09	0.009081	2.43	13.97	44.93	0.9
Main	3884	100	128.17	88.14	88.95	88.95	89.15	0.011489	2.77	14.65	46.7	1.02
Main	3850	2	21.44	87.75	88.36		88.38	0.001176	0.71	6.48	19.91	0.31
Main	3850	5	43.35	87.75	88.5		88.54	0.001626	0.98	9.98	37.29	0.38
Main	3850	10	58.18	87.75	88.55		88.61	0.002319	1.22	12.04	45.45	0.46
Main	3850	25	82.86	87.75	88.63		88.7	0.002756	1.42	15.94	61.35	0.5
Main	3850	50	106.12	87.75	88.68		88.77	0.003226	1.6	19.28	73.8	0.55
Main	3850	100	127.47	87.75	88.74		88.83	0.003104	1.65	24.31	85.45	0.55
Main	3833	2	21.3	87.61	88.36		88.37	0.000307	0.44	10.12	43.02	0.17
Main	3833	5	43.12	87.61	88.5		88.52	0.000467	0.61	17.03	54.66	0.21
Main	3833	10	57.91	87.61	88.56		88.58	0.00064	0.75	20.04	58.74	0.25
Main	3833	25	82.52	87.61	88.63		88.66	0.000862	0.91	25.18	75.78	0.29
Main	3833	50	105.72	87.61	88.69		88.72	0.000942	0.99	29.45	78.24	0.31
Main	3833	100	126.98	87.61	88.74		88.78	0.001072	1.09	34.34	100.55	0.33
Main	3799	2	21.03	87.7	88.25	88.25	88.33	0.008102	1.77	5.08	28.9	0.8
Main	3799	5	42.7	87.7	88.31	88.31	88.46	0.014668	2.55	6.92	37.78	1.09
Main	3799	10	57.36	87.7	88.4	88.4	88.51	0.010088	2.36	11.13	45.29	0.93
Main	3799	25	81.82	87.7	88.47	88.46	88.58	0.010295	2.55	14.29	48.71	0.96
Main	3799	50	104.87	87.7	88.55		88.64	0.008024	2.42	18.57	54.6	0.86
Main	3799	100	126	87.7	88.61		88.7	0.008121	2.53	21.47	59.91	0.87
Main	3787	2	20.97	87.47	88.1		88.14	0.002269	0.99	4.39	14.87	0.43
Main	3787	5	42.61	87.47	88.2	88.05	88.29	0.003894	1.45	6.75	29.3	0.58
Main	3787	10	57.24	87.47	88.25	88.12	88.37	0.00508	1.74	8.24	32.97	0.67
Main	3787	25	81.66	87.47	88.31	88.28	88.47	0.006466	2.08	10.6	46.71	0.76
Main	3787	50	104.66	87.47	88.37	88.37	88.54	0.006507	2.19	13.52	50.19	0.77
Main	3787	100	125.75	87.47	88.43	88.43	88.6	0.006304	2.26	16.51	53.78	0.77
Main	3769	2	20.91	87.42	87.89	87.89	88.05	0.014375	1.89	2.22	15.59	1.01
Main	3769	5	42.48	87.42	88.07	88.07	88.19	0.008228	1.87	6.97	35.28	0.81
Main	3769	10	57.07	87.42	88.15	88.15	88.26	0.007308	1.92	10.48	51.99	0.78
Main	3769	25	81.43	87.42	88.22	88.22	88.33	0.007253	2.07	14.57	57.7	0.8
Main	3769	50	104.38	87.42	88.25	88.25	88.38	0.007923	2.23	16.54	58.2	0.84
Main	3769	100	125.43	87.42	88.29	88.29	88.42	0.008197	2.35	18.73	58.67	0.86

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3996	2	22.24	88.26	89.09		89.12	0.001317	0.96	6.93	27.53	0.35
Main	3996	5	44.78	88.26	89.25		89.3	0.001748	1.25	14.11	58.94	0.41
Main	3996	10	60.1	88.26	89.34		89.38	0.001736	1.32	20.32	75.73	0.42
Main	3996	25	85.51	88.26	89.42		89.47	0.001816	1.42	26.97	86.44	0.43
Main	3996	50	109.61	88.26	89.47		89.52	0.001859	1.49	32.06	95.79	0.44
Main	3996	100	131.58	88.26	89.51		89.57	0.002224	1.67	36.09	105.52	0.48
Main	3956	2	22	88.32	89.01		89.05	0.002228	1.01	4.66	19.51	0.43
Main	3956	5	44.35	88.32	89.11	89	89.19	0.003527	1.42	7	30.26	0.55
Main	3956	10	59.47	88.32	89.18	89.07	89.28	0.004079	1.63	10.44	73.77	0.6
Main	3956	25	84.59	88.32	89.26	89.22	89.36	0.003908	1.71	17.96	96.49	0.6
Main	3956	50	108.54	88.32	89.28	89.28	89.4	0.004949	1.95	19.72	100.94	0.68
Main	3956	100	130.34	88.32	89.32	89.32	89.44	0.004911	2.01	24.2	109.42	0.68
Main	3918	2	21.77	88.6	88.92	88.83	88.94	0.003179	0.77	7.56	40.31	0.46
Main	3918	5	43.99	88.6	89.02	88.9	89.05	0.003369	0.96	11.66	44.42	0.49
Main	3918	10	58.99	88.6	89.08	88.94	89.12	0.003279	1.05	14.66	46.91	0.5
Main	3918	25	83.9	88.6	89.17	88.99	89.21	0.003118	1.16	18.83	50.56	0.5
Main	3918	50	107.53	88.6	89.22	89.02	89.24	0.002266	1.04	33.75	111.74	0.43
Main	3918	100	129.12	88.6	89.28	89.06	89.3	0.001961	1.03	40.56	117.05	0.41
Main	3884	2	21.6	88.14	88.59	88.59	88.74	0.012143	1.85	2.41	13.12	0.94
Main	3884	5	43.66	88.14	88.77	88.77	88.88	0.0068	1.79	7.73	36.42	0.75
Main	3884	10	58.57	88.14	88.83	88.83	88.95	0.007359	1.98	9.82	37.82	0.79
Main	3884	25	83.37	88.14	88.89	88.89	89.03	0.008555	2.26	12.09	40.05	0.87
Main	3884	50	106.72	88.14	88.93	88.93	89.09	0.009081	2.43	13.97	44.93	0.9
Main	3884	100	128.17	88.14	88.95	88.95	89.15	0.011489	2.77	14.65	46.7	1.02
Main	3850	2	21.44	87.75	88.36		88.38	0.001176	0.71	6.48	19.91	0.31
Main	3850	5	43.35	87.75	88.5		88.54	0.001626	0.98	9.98	37.29	0.38
Main	3850	10	58.18	87.75	88.55		88.61	0.002319	1.22	12.04	45.45	0.46
Main	3850	25	82.86	87.75	88.63		88.7	0.002756	1.42	15.94	61.35	0.5
Main	3850	50	106.12	87.75	88.68		88.77	0.003226	1.6	19.28	73.8	0.55
Main	3850	100	127.47	87.75	88.74		88.83	0.003104	1.65	24.31	85.45	0.55
Main	3833	2	21.3	87.61	88.36		88.37	0.000307	0.44	10.12	43.02	0.17
Main	3833	5	43.12	87.61	88.5		88.52	0.000467	0.61	17.03	54.66	0.21
Main	3833	10	57.91	87.61	88.56		88.58	0.00064	0.75	20.04	58.74	0.25
Main	3833	25	82.52	87.61	88.63		88.66	0.000862	0.91	25.18	75.78	0.29
Main	3833	50	105.72	87.61	88.69		88.72	0.000942	0.99	29.45	78.24	0.31
Main	3833	100	126.98	87.61	88.74		88.78	0.001072	1.09	34.34	100.55	0.33
Main	3799	2	21.03	87.7	88.25	88.25	88.33	0.008102	1.77	5.08	28.9	0.8
Main	3799	5	42.7	87.7	88.31	88.31	88.46	0.014668	2.55	6.92	37.78	1.09
Main	3799	10	57.36	87.7	88.4	88.4	88.51	0.010088	2.36	11.13	45.29	0.93
Main	3799	25	81.82	87.7	88.47	88.46	88.58	0.010295	2.55	14.29	48.71	0.96
Main	3799	50	104.87	87.7	88.55		88.64	0.008024	2.42	18.57	54.6	0.86
Main	3799	100	126	87.7	88.61		88.7	0.008121	2.53	21.47	59.91	0.87
Main	3787	2	20.97	87.47	88.1		88.14	0.002269	0.99	4.39	14.87	0.43
Main	3787	5	42.61	87.47	88.2	88.05	88.29	0.003894	1.45	6.75	29.3	0.58
Main	3787	10	57.24	87.47	88.25	88.12	88.37	0.00508	1.74	8.24	32.97	0.67
Main	3787	25	81.66	87.47	88.31	88.28	88.47	0.006466	2.08	10.6	46.71	0.76
Main	3787	50	104.66	87.47	88.37	88.37	88.54	0.006507	2.19	13.52	50.19	0.77
Main	3787	100	125.75	87.47	88.43	88.43	88.6	0.006304	2.26	16.51	53.78	0.77
Main	3769	2	20.91	87.42	87.89	87.89	88.05	0.014375	1.89	2.22	15.59	1.01
Main	3769	5	42.48	87.42	88.07	88.07	88.19	0.008228	1.87	6.97	35.28	0.81
Main	3769	10	57.07	87.42	88.15	88.15	88.26	0.007308	1.92	10.48	51.99	0.78
Main	3769	25	81.43	87.42	88.22	88.22	88.33	0.007253	2.07	14.57	57.7	0.8
Main	3769	50	104.38	87.42	88.25	88.25	88.38	0.007923	2.23	16.54	58.2	0.84
Main	3769	100	125.43	87.42	88.29	88.29	88.42	0.008197	2.35	18.73	58.67	0.86

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3725	2	20.49	87.39	87.75		87.75	0.001573	0.5	17.11	90.37	0.31
Main	3725	5	41.71	87.39	87.86		87.86	0.001402	0.6	28.37	116.59	0.32
Main	3725	10	56.04	87.39	87.92		87.92	0.001291	0.64	36.26	127.7	0.31
Main	3725	25	80.11	87.39	87.99		88	0.001219	0.69	45.71	134.09	0.31
Main	3725	50	102.87	87.39	88.04		88.05	0.001199	0.73	52.35	138.43	0.31
Main	3725	100	123.72	87.39	88.09		88.09	0.001191	0.76	58.87	142.55	0.32
Main	3689	2	20.1	87.03	87.55	87.55	87.64	0.006666	1.53	4.59	33.48	0.71
Main	3689	5	41.06	87.03	87.64	87.64	87.75	0.007927	1.88	8	39.8	0.8
Main	3689	10	55.21	87.03	87.7	87.7	87.82	0.008452	2.07	10.37	45.71	0.84
Main	3689	25	79.03	87.03	87.78	87.78	87.9	0.007849	2.17	14.53	55.02	0.83
Main	3689	50	101.64	87.03	87.82	87.82	87.94	0.008707	2.35	16.37	56.39	0.88
Main	3689	100	122.34	87.03	87.85	87.85	87.99	0.009243	2.5	18.38	57.92	0.91
Main	3644	2	19.9	86.83	87.24	87.13	87.29	0.004311	1.02	4.23	35.38	0.55
Main	3644	5	40.7	86.83	87.34	87.29	87.41	0.004842	1.27	8.08	41.7	0.61
Main	3644	10	54.74	86.83	87.4	87.34	87.47	0.005154	1.41	10.42	49.09	0.64
Main	3644	25	78.39	86.83	87.47		87.55	0.00529	1.56	14.25	54.02	0.66
Main	3644	50	100.88	86.83	87.53		87.61	0.004652	1.57	17.67	55.12	0.63
Main	3644	100	121.52	86.83	87.54		87.64	0.0059	1.79	18.4	55.25	0.71
Main	3581	2	19.65	86.39	86.69	86.69	86.77	0.019484	1.7	3.69	26.55	1.1
Main	3581	5	40.22	86.39	86.79	86.79	86.88	0.01631	1.94	7.01	40.47	1.06
Main	3581	10	54.12	86.39	86.84	86.84	86.94	0.015363	2.08	9.34	45.8	1.06
Main	3581	25	77.57	86.39	86.89	86.89	87.01	0.015839	2.3	12.03	52.23	1.1
Main	3581	50	99.93	86.39	86.91	86.91	87.06	0.020634	2.67	12.65	53.88	1.26
Main	3581	100	120.39	86.39	86.99	86.99	87.1	0.013714	2.42	17.98	73.54	1.05
Main	3537	2	19.5	85.66	85.91	85.91	85.99	0.01371	1.38	3.36	26.54	0.92
Main	3537	5	39.95	85.66	85.99	85.99	86.1	0.013994	1.7	5.69	31.3	0.97
Main	3537	10	53.76	85.66	86.05	86.05	86.16	0.012953	1.83	7.55	34.8	0.96
Main	3537	25	76.92	85.66	86.07	86.07	86.11	0.006984	1.4	19.07	84.28	0.71
Main	3537	50	99.21	85.66	86.11	86.07	86.15	0.006783	1.46	22.17	89.65	0.71
Main	3537	100	119.47	85.66	86.15	86.07	86.2	0.005763	1.45	26.74	98.09	0.67
Main	3430	2	18.79	84.95	85.52		85.53	0.00145	0.76	10.85	56.54	0.34
Main	3430	5	38.66	84.95	85.66		85.67	0.001364	0.87	20.47	73.66	0.34
Main	3430	10	52.1	84.95	85.73		85.75	0.001288	0.91	26.3	77.07	0.34
Main	3430	25	74.44	84.95	85.83		85.84	0.001247	0.97	33.68	81.23	0.34
Main	3430	50	96.34	84.95	85.89		85.91	0.001237	1.01	38.88	83.98	0.34
Main	3430	100	116.14	84.95	85.95		85.97	0.001232	1.05	44.03	86.46	0.35
Main	3382	2	18.3	84.73	85.45		85.47	0.001146	0.82	9.38	39.04	0.32
Main	3382	5	37.81	84.73	85.57		85.6	0.001592	1.08	14.63	46.3	0.38
Main	3382	10	51.03	84.73	85.64		85.67	0.0018	1.21	17.91	47.93	0.41
Main	3382	25	73.09	84.73	85.72		85.76	0.002042	1.37	22	50.09	0.45
Main	3382	50	94.8	84.73	85.78		85.82	0.002223	1.49	24.83	51.87	0.47
Main	3382	100	114.41	84.73	85.83		85.88	0.002406	1.6	27.61	54.01	0.49
Main	3360	2	18.14	84.97	85.38		85.42	0.004255	1.01	5.53	37.01	0.55
Main	3360	5	37.54	84.97	85.51		85.55	0.003453	1.11	11.12	51.78	0.52
Main	3360	10	50.68	84.97	85.58		85.62	0.003281	1.19	15.1	62.19	0.52
Main	3360	25	72.64	84.97	85.67		85.71	0.002924	1.24	20.92	67.36	0.5
Main	3360	50	94.27	84.97	85.73		85.77	0.002864	1.3	24.82	71.8	0.5
Main	3360	100	113.81	84.97	85.78		85.82	0.002829	1.36	28.74	75.53	0.5
Main	3318	2	17.77	84.79	85.35		85.35	0.000722	0.53	13.09	50.08	0.24
Main	3318	5	36.94	84.79	85.46		85.47	0.001078	0.73	18.94	58.84	0.3
Main	3318	10	49.92	84.79	85.52		85.54	0.001225	0.84	23.01	66.86	0.33
Main	3318	25	71.64	84.79	85.6		85.63	0.001391	0.96	28.98	74.53	0.35
Main	3318	50	93.11	84.79	85.66		85.68	0.001446	1.03	33.14	77.12	0.37
Main	3318	100	112.49	84.79	85.71		85.74	0.001493	1.09	37.21	79.18	0.38

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3725	2	20.49	87.39	87.75		87.75	0.001573	0.5	17.11	90.37	0.31
Main	3725	5	41.71	87.39	87.86		87.86	0.001402	0.6	28.37	116.59	0.32
Main	3725	10	56.04	87.39	87.92		87.92	0.001291	0.64	36.26	127.7	0.31
Main	3725	25	80.11	87.39	87.99		88	0.001219	0.69	45.71	134.09	0.31
Main	3725	50	102.87	87.39	88.04		88.05	0.001199	0.73	52.35	138.43	0.31
Main	3725	100	123.72	87.39	88.09		88.09	0.001191	0.76	58.87	142.55	0.32
Main	3689	2	20.1	87.03	87.55	87.55	87.64	0.006666	1.53	4.59	33.48	0.71
Main	3689	5	41.06	87.03	87.64	87.64	87.75	0.007927	1.88	8	39.8	0.8
Main	3689	10	55.21	87.03	87.7	87.7	87.82	0.008452	2.07	10.37	45.71	0.84
Main	3689	25	79.03	87.03	87.78	87.78	87.9	0.007849	2.17	14.53	55.02	0.83
Main	3689	50	101.64	87.03	87.82	87.82	87.94	0.008707	2.35	16.37	56.39	0.88
Main	3689	100	122.34	87.03	87.85	87.85	87.99	0.009243	2.5	18.38	57.92	0.91
Main	3644	2	19.9	86.83	87.24	87.13	87.29	0.004311	1.02	4.23	35.38	0.55
Main	3644	5	40.7	86.83	87.34	87.29	87.41	0.004842	1.27	8.08	41.7	0.61
Main	3644	10	54.74	86.83	87.4	87.34	87.47	0.005154	1.41	10.42	49.09	0.64
Main	3644	25	78.39	86.83	87.47		87.55	0.00529	1.56	14.25	54.02	0.66
Main	3644	50	100.88	86.83	87.53		87.61	0.004652	1.57	17.67	55.12	0.63
Main	3644	100	121.52	86.83	87.54		87.64	0.0059	1.79	18.4	55.25	0.71
Main	3581	2	19.65	86.39	86.69	86.69	86.77	0.019484	1.7	3.69	26.55	1.1
Main	3581	5	40.22	86.39	86.79	86.79	86.88	0.01631	1.94	7.01	40.47	1.06
Main	3581	10	54.12	86.39	86.84	86.84	86.94	0.015363	2.08	9.34	45.8	1.06
Main	3581	25	77.57	86.39	86.89	86.89	87.01	0.015839	2.3	12.03	52.23	1.1
Main	3581	50	99.93	86.39	86.91	86.91	87.06	0.020634	2.67	12.65	53.88	1.26
Main	3581	100	120.39	86.39	86.99	86.99	87.1	0.013714	2.42	17.98	73.54	1.05
Main	3537	2	19.5	85.66	85.91	85.91	85.99	0.01371	1.38	3.36	26.54	0.92
Main	3537	5	39.95	85.66	85.99	85.99	86.1	0.013994	1.7	5.69	31.3	0.97
Main	3537	10	53.76	85.66	86.05	86.05	86.16	0.012953	1.83	7.55	34.8	0.96
Main	3537	25	76.92	85.66	86.07	86.07	86.11	0.006984	1.4	19.07	84.28	0.71
Main	3537	50	99.21	85.66	86.11	86.07	86.15	0.006783	1.46	22.17	89.65	0.71
Main	3537	100	119.47	85.66	86.15	86.07	86.2	0.005763	1.45	26.74	98.09	0.67
Main	3430	2	18.79	84.95	85.52		85.53	0.00145	0.76	10.85	56.54	0.34
Main	3430	5	38.66	84.95	85.66		85.67	0.001364	0.87	20.47	73.66	0.34
Main	3430	10	52.1	84.95	85.73		85.75	0.001288	0.91	26.3	77.07	0.34
Main	3430	25	74.44	84.95	85.83		85.84	0.001247	0.97	33.68	81.23	0.34
Main	3430	50	96.34	84.95	85.89		85.91	0.001237	1.01	38.88	83.98	0.34
Main	3430	100	116.14	84.95	85.95		85.97	0.001232	1.05	44.03	86.46	0.35
Main	3382	2	18.3	84.73	85.45		85.47	0.001146	0.82	9.38	39.04	0.32
Main	3382	5	37.81	84.73	85.57		85.6	0.001592	1.08	14.63	46.3	0.38
Main	3382	10	51.03	84.73	85.64		85.67	0.0018	1.21	17.91	47.93	0.41
Main	3382	25	73.09	84.73	85.72		85.76	0.002042	1.37	22	50.09	0.45
Main	3382	50	94.8	84.73	85.78		85.82	0.002223	1.49	24.83	51.87	0.47
Main	3382	100	114.41	84.73	85.83		85.88	0.002406	1.6	27.61	54.01	0.49
Main	3360	2	18.14	84.97	85.38		85.42	0.004255	1.01	5.53	37.01	0.55
Main	3360	5	37.54	84.97	85.51		85.55	0.003453	1.11	11.12	51.78	0.52
Main	3360	10	50.68	84.97	85.58		85.62	0.003281	1.19	15.1	62.19	0.52
Main	3360	25	72.64	84.97	85.67		85.71	0.002924	1.24	20.92	67.36	0.5
Main	3360	50	94.27	84.97	85.73		85.77	0.002864	1.3	24.82	71.8	0.5
Main	3360	100	113.81	84.97	85.78		85.82	0.002829	1.36	28.74	75.53	0.5
Main	3318	2	17.77	84.79	85.35		85.35	0.000722	0.53	13.09	50.08	0.24
Main	3318	5	36.94	84.79	85.46		85.47	0.001078	0.73	18.94	58.84	0.3
Main	3318	10	49.92	84.79	85.52		85.54	0.001225	0.84	23.01	66.86	0.33
Main	3318	25	71.64	84.79	85.6		85.63	0.001391	0.96	28.98	74.53	0.35
Main	3318	50	93.11	84.79	85.66		85.68	0.001446	1.03	33.14	77.12	0.37
Main	3318	100	112.49	84.79	85.71		85.74	0.001493	1.09	37.21	79.18	0.38

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3271	2	17.28	84.79	85.19	85.19	85.26	0.008914	1.49	5.76	50.98	0.79
Main	3271	5	36.04	84.79	85.35		85.37	0.003727	1.22	15.63	75.68	0.54
Main	3271	10	48.75	84.79	85.42		85.45	0.002779	1.16	21.94	86.54	0.48
Main	3271	25	70.11	84.79	85.51		85.53	0.002483	1.2	29.87	95.16	0.47
Main	3271	50	91.32	84.79	85.57		85.59	0.002246	1.21	35.6	98.9	0.45
Main	3271	100	110.45	84.79	85.63		85.64	0.002078	1.22	41.16	101.1	0.44
Main	3237	2	17.03	84.51	85.14		85.16	0.00113	0.75	9.11	41.11	0.31
Main	3237	5	35.5	84.51	85.27		85.3	0.00137	0.94	15.79	56.17	0.35
Main	3237	10	48.03	84.51	85.35		85.38	0.001452	1.03	20.22	60.89	0.37
Main	3237	25	69.16	84.51	85.43		85.46	0.001604	1.16	25.23	63.65	0.39
Main	3237	50	90.21	84.51	85.49		85.52	0.001686	1.24	28.84	65.34	0.41
Main	3237	100	109.18	84.51	85.54		85.58	0.001779	1.31	32.28	67.09	0.42
Main	3192	2	16.79	84.37	84.93	84.93	85.04	0.009166	1.65	3.08	19.7	0.82
Main	3192	5	35.04	84.37	85.07	85.07	85.18	0.007577	1.82	7.29	38.62	0.78
Main	3192	10	47.44	84.37	85.12	85.12	85.25	0.008289	2.02	9.57	44.98	0.83
Main	3192	25	68.39	84.37	85.2	85.2	85.33	0.008029	2.15	13.32	52.18	0.83
Main	3192	50	89.32	84.37	85.24	85.24	85.38	0.008405	2.29	15.65	56.34	0.86
Main	3192	100	108.15	84.37	85.3	85.3	85.43	0.007765	2.33	19.27	61.98	0.84
Main	3155	2	16.62	84.21	84.65	84.47	84.67	0.002867	0.86	5.84	20.57	0.45
Main	3155	5	34.74	84.21	84.77	84.58	84.82	0.003435	1.14	8.84	38.11	0.52
Main	3155	10	47.03	84.21	84.84	84.64	84.89	0.003646	1.28	12.14	59.77	0.55
Main	3155	25	67.78	84.21	84.94	84.72	84.99	0.003336	1.36	19.01	82.61	0.54
Main	3155	50	88.56	84.21	85	84.82	85.05	0.002905	1.36	24.96	88.12	0.51
Main	3155	100	107.2	84.21	85.07	84.9	85.12	0.002689	1.38	31.08	92.5	0.5
Main	3112	2	16.32	84.21	84.6		84.61	0.00092	0.45	8.31	33.48	0.25
Main	3112	5	34.25	84.21	84.72		84.73	0.001054	0.6	13.65	57.28	0.28
Main	3112	10	46.37	84.21	84.79		84.81	0.001052	0.66	18.13	66.97	0.29
Main	3112	25	66.8	84.21	84.89		84.91	0.000954	0.7	26.21	94.88	0.28
Main	3112	50	87.29	84.21	84.96		84.98	0.000883	0.73	33.64	106.83	0.28
Main	3112	100	105.62	84.21	85.04		85.05	0.000775	0.73	42.12	120.17	0.27
Main	3038	2	15.66	84.05	84.47		84.49	0.002575	0.79	8.08	58.99	0.42
Main	3038	5	32.95	84.05	84.62		84.64	0.001533	0.77	18.68	83.49	0.35
Main	3038	10	44.57	84.05	84.71		84.72	0.001195	0.75	26.29	91.06	0.31
Main	3038	25	64.19	84.05	84.82		84.83	0.000892	0.73	37.94	108.5	0.28
Main	3038	50	83.99	84.05	84.9		84.91	0.000755	0.73	46.96	111.98	0.26
Main	3038	100	101.59	84.05	84.98		84.99	0.000699	0.75	56.08	116.45	0.26
Main	2985	2	15.39	83.3	84.05	84.05	84.22	0.012141	1.89	2.1	9.05	0.89
Main	2985	5	32.35	83.3	84.22	84.22	84.44	0.011648	2.28	4	13.55	0.92
Main	2985	10	43.72	83.3	84.35	84.35	84.56	0.009782	2.36	5.94	17.39	0.86
Main	2985	25	62.97	83.3	84.47	84.47	84.7	0.009669	2.58	8.19	21.01	0.88
Main	2985	50	82.49	83.3	84.54	84.54	84.79	0.009655	2.73	9.92	23.69	0.89
Main	2985	100	99.8	83.3	84.62	84.62	84.88	0.009398	2.84	11.87	26.45	0.89
Main	2976	2	15.36	83	83.71	83.27	83.73	0.000569	0.6	5.05	7.89	0.23
Main	2976	5	32.3	83	83.99	83.41	84.02	0.000665	0.8	7.17	9.86	0.26
Main	2976	10	43.65	83	84.17	83.5	84.21	0.000713	0.93	8.54	17.66	0.27
Main	2976	25	62.87	83	84.38	83.62	84.44	0.000791	1.09	10.12	36.36	0.3
Main	2976	50	82.36	83	84.51	83.7	84.58	0.000859	1.21	11.13	47.71	0.31
Main	2976	100	99.63	83	84.65	83.8	84.74	0.000911	1.32	12.19	56.23	0.33
Main	2965		Culvert									
Main	2955	2	15.28	82.93	83.68	83.19	83.69	0.000455	0.51	5.29	8.11	0.19
Main	2955	5	32.19	82.93	83.92	83.32	83.95	0.000607	0.72	7.18	11.36	0.24
Main	2955	10	43.52	82.93	84.07	83.41	84.11	0.000701	0.86	8.35	31.08	0.26
Main	2955	25	62.71	82.93	84.23	83.52	84.28	0.000864	1.04	9.56	41.98	0.29
Main	2955	50	82.18	82.93	84.31	83.6	84.38	0.001031	1.18	10.21	44.7	0.32
Main	2955	100	99.43	82.93	84.39	83.69	84.48	0.001232	1.34	10.78	46.83	0.36

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	3271	2	17.28	84.79	85.19	85.19	85.26	0.008914	1.49	5.76	50.98	0.79
Main	3271	5	36.04	84.79	85.35		85.37	0.003727	1.22	15.63	75.68	0.54
Main	3271	10	48.75	84.79	85.42		85.45	0.002779	1.16	21.94	86.54	0.48
Main	3271	25	70.11	84.79	85.51		85.53	0.002483	1.2	29.87	95.16	0.47
Main	3271	50	91.32	84.79	85.57		85.59	0.002246	1.21	35.6	98.9	0.45
Main	3271	100	110.45	84.79	85.63		85.64	0.002078	1.22	41.16	101.1	0.44
Main	3237	2	17.03	84.51	85.14		85.16	0.00113	0.75	9.11	41.11	0.31
Main	3237	5	35.5	84.51	85.27		85.3	0.00137	0.94	15.79	56.17	0.35
Main	3237	10	48.03	84.51	85.35		85.38	0.001452	1.03	20.22	60.89	0.37
Main	3237	25	69.16	84.51	85.43		85.46	0.001604	1.16	25.23	63.65	0.39
Main	3237	50	90.21	84.51	85.49		85.52	0.001686	1.24	28.84	65.34	0.41
Main	3237	100	109.18	84.51	85.54		85.58	0.001779	1.31	32.28	67.09	0.42
Main	3192	2	16.79	84.37	84.93	84.93	85.04	0.009166	1.65	3.08	19.7	0.82
Main	3192	5	35.04	84.37	85.07	85.07	85.18	0.007577	1.82	7.29	38.62	0.78
Main	3192	10	47.44	84.37	85.12	85.12	85.25	0.008289	2.02	9.57	44.98	0.83
Main	3192	25	68.39	84.37	85.2	85.2	85.33	0.008029	2.15	13.32	52.18	0.83
Main	3192	50	89.32	84.37	85.24	85.24	85.38	0.008405	2.29	15.65	56.34	0.86
Main	3192	100	108.15	84.37	85.3	85.3	85.43	0.007765	2.33	19.27	61.98	0.84
Main	3155	2	16.62	84.21	84.65	84.47	84.67	0.002867	0.86	5.84	20.57	0.45
Main	3155	5	34.74	84.21	84.77	84.58	84.82	0.003435	1.14	8.84	38.11	0.52
Main	3155	10	47.03	84.21	84.84	84.64	84.89	0.003646	1.28	12.14	59.77	0.55
Main	3155	25	67.78	84.21	84.94	84.72	84.99	0.003336	1.36	19.01	82.61	0.54
Main	3155	50	88.56	84.21	85	84.82	85.05	0.002905	1.36	24.96	88.12	0.51
Main	3155	100	107.2	84.21	85.07	84.9	85.12	0.002689	1.38	31.08	92.5	0.5
Main	3112	2	16.32	84.21	84.6		84.61	0.00092	0.45	8.31	33.48	0.25
Main	3112	5	34.25	84.21	84.72		84.73	0.001054	0.6	13.65	57.28	0.28
Main	3112	10	46.37	84.21	84.79		84.81	0.001052	0.66	18.13	66.97	0.29
Main	3112	25	66.8	84.21	84.89		84.91	0.000954	0.7	26.21	94.88	0.28
Main	3112	50	87.29	84.21	84.96		84.98	0.000883	0.73	33.64	106.83	0.28
Main	3112	100	105.62	84.21	85.04		85.05	0.000775	0.73	42.12	120.17	0.27
Main	3038	2	15.66	84.05	84.47		84.49	0.002575	0.79	8.08	58.99	0.42
Main	3038	5	32.95	84.05	84.62		84.64	0.001533	0.77	18.68	83.49	0.35
Main	3038	10	44.57	84.05	84.71		84.72	0.001195	0.75	26.29	91.06	0.31
Main	3038	25	64.19	84.05	84.82		84.83	0.000892	0.73	37.94	108.5	0.28
Main	3038	50	83.99	84.05	84.9		84.91	0.000755	0.73	46.96	111.98	0.26
Main	3038	100	101.59	84.05	84.98		84.99	0.000699	0.75	56.08	116.45	0.26
Main	2985	2	15.39	83.3	84.05	84.05	84.22	0.012141	1.89	2.1	9.05	0.89
Main	2985	5	32.35	83.3	84.22	84.22	84.44	0.011648	2.28	4	13.55	0.92
Main	2985	10	43.72	83.3	84.35	84.35	84.56	0.009782	2.36	5.94	17.39	0.86
Main	2985	25	62.97	83.3	84.47	84.47	84.7	0.009669	2.58	8.19	21.01	0.88
Main	2985	50	82.49	83.3	84.54	84.54	84.79	0.009655	2.73	9.92	23.69	0.89
Main	2985	100	99.8	83.3	84.62	84.62	84.88	0.009398	2.84	11.87	26.45	0.89
Main	2976	2	15.36	83	83.71	83.27	83.73	0.000569	0.6	5.05	7.89	0.23
Main	2976	5	32.3	83	83.99	83.41	84.02	0.000665	0.8	7.17	9.86	0.26
Main	2976	10	43.65	83	84.17	83.5	84.21	0.000713	0.93	8.54	17.66	0.27
Main	2976	25	62.87	83	84.38	83.62	84.44	0.000791	1.09	10.12	36.36	0.3
Main	2976	50	82.36	83	84.51	83.7	84.58	0.000859	1.21	11.13	47.71	0.31
Main	2976	100	99.63	83	84.65	83.8	84.74	0.000911	1.32	12.19	56.23	0.33
Main	2965		Culvert									
Main	2955	2	15.28	82.93	83.68	83.19	83.69	0.000455	0.51	5.29	8.11	0.19
Main	2955	5	32.19	82.93	83.92	83.32	83.95	0.000607	0.72	7.18	11.36	0.24
Main	2955	10	43.52	82.93	84.07	83.41	84.11	0.000701	0.86	8.35	31.08	0.26
Main	2955	25	62.71	82.93	84.23	83.52	84.28	0.000864	1.04	9.56	41.98	0.29
Main	2955	50	82.18	82.93	84.31	83.6	84.38	0.001031	1.18	10.21	44.7	0.32
Main	2955	100	99.43	82.93	84.39	83.69	84.48	0.001232	1.34	10.78	46.83	0.36

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2945	2	15.24	82.9	83.64		83.68	0.001917	0.83	3.29	6.57	0.35
Main	2945	5	32.13	82.9	83.87		83.93	0.00213	1.09	5.21	10.4	0.4
Main	2945	10	43.44	82.9	84.01		84.09	0.002195	1.24	6.9	13.39	0.41
Main	2945	25	62.58	82.9	84.17		84.26	0.002268	1.4	11.63	40.07	0.43
Main	2945	50	82.01	82.9	84.27		84.36	0.002147	1.44	15.98	43.26	0.43
Main	2945	100	99.21	82.9	84.37		84.46	0.002059	1.49	20.37	46.34	0.42
Main	2869	2	15.04	82.8	83.19	83.19	83.35	0.014398	1.82	1.98	7.42	1
Main	2869	5	31.8	82.8	83.36	83.36	83.58	0.012808	2.24	3.34	8.93	1
Main	2869	10	43.01	82.8	83.47	83.47	83.74	0.012003	2.47	4.39	10.11	1
Main	2869	25	61.87	82.8	83.67	83.67	83.94	0.008502	2.51	7.13	16.67	0.88
Main	2869	50	81.08	82.8	83.75	83.75	84.05	0.008636	2.69	8.5	17.84	0.91
Main	2869	100	98.06	82.8	83.84	83.84	84.16	0.008381	2.82	10.15	19.12	0.91
Main	2826	2	14.95	82.05	82.44	82.44	82.58	0.013912	1.65	1.93	10.13	0.96
Main	2826	5	31.65	82.05	82.59	82.59	82.77	0.011163	1.94	3.84	13.8	0.92
Main	2826	10	42.81	82.05	82.68	82.68	82.89	0.010924	2.15	5.07	15.09	0.94
Main	2826	25	61.58	82.05	82.77	82.77	83.03	0.011523	2.46	6.56	18.01	0.99
Main	2826	50	80.71	82.05	82.88	82.88	83.13	0.009198	2.44	8.88	23.68	0.91
Main	2826	100	97.61	82.05	82.96	82.96	83.22	0.008873	2.56	10.76	26.36	0.91
Main	2785	2	14.85	80.8	81.14	81.14	81.24	0.011821	1.54	3.24	21.21	0.89
Main	2785	5	31.44	80.8	81.26	81.26	81.38	0.010613	1.82	6.13	27.67	0.89
Main	2785	10	42.54	80.8	81.32	81.32	81.46	0.010691	2.01	8.09	31.24	0.92
Main	2785	25	61.22	80.8	81.4	81.4	81.56	0.010883	2.24	10.63	34.63	0.95
Main	2785	50	80.27	80.8	81.45	81.45	81.63	0.011319	2.41	12.34	36.7	0.98
Main	2785	100	97.09	80.8	81.5	81.5	81.7	0.011234	2.54	14.35	38.7	0.99
Main	2724	2	14.6	79.63	80.11		80.16	0.004185	1.13	4.73	18.1	0.56
Main	2724	5	31.04	79.63	80.23		80.32	0.005913	1.57	6.94	21.2	0.69
Main	2724	10	42.02	79.63	80.3		80.42	0.006601	1.82	8.59	22.87	0.75
Main	2724	25	60.56	79.63	80.39		80.54	0.007255	2.09	10.7	24.26	0.8
Main	2724	50	79.51	79.63	80.45		80.62	0.007813	2.28	12.1	25.03	0.84
Main	2724	100	96.22	79.63	80.5	80.44	80.7	0.00839	2.48	13.51	25.87	0.88
Main	2689	2	14.48	79.4	79.76	79.76	79.9	0.015933	1.79	2.31	11	1.03
Main	2689	5	30.8	79.4	79.93	79.93	80.06	0.009362	1.84	6.53	31.73	0.85
Main	2689	10	41.72	79.4	80	80	80.14	0.009427	2.02	8.81	34.31	0.87
Main	2689	25	60.17	79.4	80.08	80.08	80.24	0.010074	2.27	11.43	36.76	0.92
Main	2689	50	79.06	79.4	80.13	80.13	80.31	0.01027	2.42	13.42	38.75	0.95
Main	2689	100	95.72	79.4	80.18	80.18	80.37	0.010567	2.58	15.4	40.44	0.97
Main	2656	2	14.37	78.9	79.42	79.36	79.49	0.006203	1.32	3.86	22.29	0.67
Main	2656	5	30.54	78.9	79.59	79.52	79.67	0.005411	1.49	9.08	42.84	0.65
Main	2656	10	41.38	78.9	79.64	79.53	79.74	0.006336	1.69	11.45	45.09	0.71
Main	2656	25	59.74	78.9	79.7	79.68	79.82	0.007417	1.92	14.35	47.88	0.78
Main	2656	50	78.57	78.9	79.75	79.72	79.87	0.008079	2.07	16.39	49.41	0.82
Main	2656	100	95.08	78.9	79.87		79.95	0.005112	1.82	22.8	53.88	0.67
Main	2626	2	14.28	78.77	79.15	79.12	79.26	0.010782	1.51	2.24	9.08	0.85
Main	2626	5	30.34	78.77	79.29	79.29	79.45	0.010174	1.87	4.34	22.3	0.88
Main	2626	10	41.08	78.77	79.41	79.41	79.54	0.006907	1.8	9.34	52.47	0.76
Main	2626	25	59.31	78.77	79.51	79.48	79.62	0.005862	1.84	14.94	60.72	0.71
Main	2626	50	77.98	78.77	79.64		79.71	0.003319	1.56	23.42	66.47	0.55
Main	2626	100	94.21	78.77	79.83		79.86	0.001586	1.24	36.35	70.25	0.4
Main	2591	2	14.09	78.3	79.13		79.15	0.000911	0.8	8.55	48.83	0.29
Main	2591	5	29.97	78.3	79.28		79.32	0.001132	1.01	16.52	52.25	0.33
Main	2591	10	40.54	78.3	79.37		79.41	0.001295	1.14	20.9	54.11	0.36
Main	2591	25	58.58	78.3	79.46		79.51	0.001514	1.31	26.1	57.4	0.39
Main	2591	50	76.95	78.3	79.6		79.63	0.001203	1.26	34.26	64.88	0.36
Main	2591	100	92.7	78.3	79.8		79.82	0.000746	1.09	48.6	75.44	0.29

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2945	2	15.24	82.9	83.64		83.68	0.001917	0.83	3.29	6.57	0.35
Main	2945	5	32.13	82.9	83.87		83.93	0.00213	1.09	5.21	10.4	0.4
Main	2945	10	43.44	82.9	84.01		84.09	0.002195	1.24	6.9	13.39	0.41
Main	2945	25	62.58	82.9	84.17		84.26	0.002268	1.4	11.63	40.07	0.43
Main	2945	50	82.01	82.9	84.27		84.36	0.002147	1.44	15.98	43.26	0.43
Main	2945	100	99.21	82.9	84.37		84.46	0.002059	1.49	20.37	46.34	0.42
Main	2869	2	15.04	82.8	83.19	83.19	83.35	0.014398	1.82	1.98	7.42	1
Main	2869	5	31.8	82.8	83.36	83.36	83.58	0.012808	2.24	3.34	8.93	1
Main	2869	10	43.01	82.8	83.47	83.47	83.74	0.012003	2.47	4.39	10.11	1
Main	2869	25	61.87	82.8	83.67	83.67	83.94	0.008502	2.51	7.13	16.67	0.88
Main	2869	50	81.08	82.8	83.75	83.75	84.05	0.008636	2.69	8.5	17.84	0.91
Main	2869	100	98.06	82.8	83.84	83.84	84.16	0.008381	2.82	10.15	19.12	0.91
Main	2826	2	14.95	82.05	82.44	82.44	82.58	0.013912	1.65	1.93	10.13	0.96
Main	2826	5	31.65	82.05	82.59	82.59	82.77	0.011163	1.94	3.84	13.8	0.92
Main	2826	10	42.81	82.05	82.68	82.68	82.89	0.010924	2.15	5.07	15.09	0.94
Main	2826	25	61.58	82.05	82.77	82.77	83.03	0.011523	2.46	6.56	18.01	0.99
Main	2826	50	80.71	82.05	82.88	82.88	83.13	0.009198	2.44	8.88	23.68	0.91
Main	2826	100	97.61	82.05	82.96	82.96	83.22	0.008873	2.56	10.76	26.36	0.91
Main	2785	2	14.85	80.8	81.14	81.14	81.24	0.011821	1.54	3.24	21.21	0.89
Main	2785	5	31.44	80.8	81.26	81.26	81.38	0.010613	1.82	6.13	27.67	0.89
Main	2785	10	42.54	80.8	81.32	81.32	81.46	0.010691	2.01	8.09	31.24	0.92
Main	2785	25	61.22	80.8	81.4	81.4	81.56	0.010883	2.24	10.63	34.63	0.95
Main	2785	50	80.27	80.8	81.45	81.45	81.63	0.011319	2.41	12.34	36.7	0.98
Main	2785	100	97.09	80.8	81.5	81.5	81.7	0.011234	2.54	14.35	38.7	0.99
Main	2724	2	14.6	79.63	80.11		80.16	0.004185	1.13	4.73	18.1	0.56
Main	2724	5	31.04	79.63	80.23		80.32	0.005913	1.57	6.94	21.2	0.69
Main	2724	10	42.02	79.63	80.3		80.42	0.006601	1.82	8.59	22.87	0.75
Main	2724	25	60.56	79.63	80.39		80.54	0.007255	2.09	10.7	24.26	0.8
Main	2724	50	79.51	79.63	80.45		80.62	0.007813	2.28	12.1	25.03	0.84
Main	2724	100	96.22	79.63	80.5	80.44	80.7	0.00839	2.48	13.51	25.87	0.88
Main	2689	2	14.48	79.4	79.76	79.76	79.9	0.015933	1.79	2.31	11	1.03
Main	2689	5	30.8	79.4	79.93	79.93	80.06	0.009362	1.84	6.53	31.73	0.85
Main	2689	10	41.72	79.4	80	80	80.14	0.009427	2.02	8.81	34.31	0.87
Main	2689	25	60.17	79.4	80.08	80.08	80.24	0.010074	2.27	11.43	36.76	0.92
Main	2689	50	79.06	79.4	80.13	80.13	80.31	0.01027	2.42	13.42	38.75	0.95
Main	2689	100	95.72	79.4	80.18	80.18	80.37	0.010567	2.58	15.4	40.44	0.97
Main	2656	2	14.37	78.9	79.42	79.36	79.49	0.006203	1.32	3.86	22.29	0.67
Main	2656	5	30.54	78.9	79.59	79.52	79.67	0.005411	1.49	9.08	42.84	0.65
Main	2656	10	41.38	78.9	79.64	79.53	79.74	0.006336	1.69	11.45	45.09	0.71
Main	2656	25	59.74	78.9	79.7	79.68	79.82	0.007417	1.92	14.35	47.88	0.78
Main	2656	50	78.57	78.9	79.75	79.72	79.87	0.008079	2.07	16.39	49.41	0.82
Main	2656	100	95.08	78.9	79.87		79.95	0.005112	1.82	22.8	53.88	0.67
Main	2626	2	14.28	78.77	79.15	79.12	79.26	0.010782	1.51	2.24	9.08	0.85
Main	2626	5	30.34	78.77	79.29	79.29	79.45	0.010174	1.87	4.34	22.3	0.88
Main	2626	10	41.08	78.77	79.41	79.41	79.54	0.006907	1.8	9.34	52.47	0.76
Main	2626	25	59.31	78.77	79.51	79.48	79.62	0.005862	1.84	14.94	60.72	0.71
Main	2626	50	77.98	78.77	79.64		79.71	0.003319	1.56	23.42	66.47	0.55
Main	2626	100	94.21	78.77	79.83		79.86	0.001586	1.24	36.35	70.25	0.4
Main	2591	2	14.09	78.3	79.13		79.15	0.000911	0.8	8.55	48.83	0.29
Main	2591	5	29.97	78.3	79.28		79.32	0.001132	1.01	16.52	52.25	0.33
Main	2591	10	40.54	78.3	79.37		79.41	0.001295	1.14	20.9	54.11	0.36
Main	2591	25	58.58	78.3	79.46		79.51	0.001514	1.31	26.1	57.4	0.39
Main	2591	50	76.95	78.3	79.6		79.63	0.001203	1.26	34.26	64.88	0.36
Main	2591	100	92.7	78.3	79.8		79.82	0.000746	1.09	48.6	75.44	0.29

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2547	2	13.77	78.29	79.01	78.88	79.08	0.003505	1.37	5.9	34.76	0.54
Main	2547	5	29.34	78.29	79.14	79.09	79.23	0.004032	1.67	11.64	53.14	0.6
Main	2547	10	39.76	78.29	79.18	79.18	79.29	0.005507	2.01	13.73	56.19	0.71
Main	2547	25	57.46	78.29	79.34		79.41	0.003415	1.78	23.45	70.08	0.58
Main	2547	50	75.27	78.29	79.54		79.57	0.001446	1.32	39.82	88.79	0.39
Main	2547	100	90.19	78.29	79.77		79.79	0.000651	1	61.21	95.42	0.27
Main	2493	2	13.5	78.1	78.69	78.69	78.79	0.00866	1.62	4.07	27.83	0.76
Main	2493	5	28.8	78.1	78.82	78.82	78.93	0.00807	1.85	8.61	43.57	0.77
Main	2493	10	38.95	78.1	78.99		79.04	0.003671	1.47	16.87	54.85	0.54
Main	2493	25	55.93	78.1	79.27		79.29	0.00115	1.02	34.63	66.8	0.32
Main	2493	50	72.88	78.1	79.51		79.52	0.000593	0.84	51.06	74.17	0.24
Main	2493	100	86.73	78.1	79.75		79.76	0.00035	0.72	70.26	81.3	0.19
Main	2430	2	13.27	77.42	78.3	77.84	78.33	0.001046	0.84	3.36	5.12	0.3
Main	2430	5	28.36	77.42	78.64	78.04	78.7	0.0011	1.1	5.19	6.77	0.33
Main	2430	10	38.21	77.42	78.81	78.17	78.9	0.001288	1.3	6.17	8.56	0.36
Main	2430	25	54.48	77.42	79.08	78.35	79.19	0.001311	1.48	7.76	30.48	0.37
Main	2430	50	70.65	77.42	79.32	78.46	79.43	0.0012	1.56	9.17	42.12	0.37
Main	2430	100	83.55	77.42	79.56	78.59	79.69	0.001111	1.63	10.63	51.07	0.36
Main	2421		Culvert									
Main	2412	2	13.21	77.41	78.25	77.81	78.29	0.00113	0.89	3.22	4.78	0.31
Main	2412	5	28.29	77.41	78.54	78.01	78.61	0.001416	1.22	4.66	16.83	0.37
Main	2412	10	38.13	77.41	78.63	78.15	78.75	0.002018	1.54	5.13	19.07	0.45
Main	2412	25	54.39	77.41	78.7	78.33	78.9	0.003236	2.01	5.45	20.24	0.57
Main	2412	50	70.53	77.41	78.76	78.45	79.03	0.004038	2.33	5.78	22.07	0.64
Main	2412	100	83.4	77.41	78.82	78.57	79.17	0.004989	2.66	6.06	24.8	0.72
Main	2365	2	13.1	77.4	77.95	77.91	78.12	0.012043	1.82	1.48	3.39	0.88
Main	2365	5	28.1	77.4	78.16	78.16	78.41	0.013803	2.22	2.42	5.82	0.98
Main	2365	10	37.82	77.4	78.35	78.35	78.56	0.007846	2.07	5.51	26.53	0.78
Main	2365	25	53.93	77.4	78.5	78.5	78.68	0.006171	2.09	10.41	37.16	0.71
Main	2365	50	69.99	77.4	78.56	78.56	78.76	0.00643	2.23	12.68	38.26	0.74
Main	2365	100	82.78	77.4	78.62	78.62	78.83	0.0067	2.37	14.92	39.51	0.76
Main	2320	2	12.98	77.22	77.56		77.62	0.009031	1.3	3.83	17.09	0.77
Main	2320	5	27.87	77.22	77.76		77.82	0.004663	1.33	7.63	21.72	0.6
Main	2320	10	37.46	77.22	77.89		77.96	0.003617	1.37	10.59	23.16	0.55
Main	2320	25	53.37	77.22	78.06		78.13	0.00286	1.43	14.69	25.39	0.51
Main	2320	50	69.31	77.22	78.18		78.25	0.00258	1.48	17.7	27.41	0.5
Main	2320	100	81.96	77.22	78.29		78.36	0.002372	1.54	21.37	37.94	0.49
Main	2275	2	12.79	76.88	77.43		77.46	0.001626	0.8	4.53	12.02	0.36
Main	2275	5	27.53	76.88	77.65		77.7	0.001611	1.01	7.38	14.38	0.38
Main	2275	10	37.01	76.88	77.79		77.85	0.00164	1.14	9.43	15.94	0.39
Main	2275	25	52.76	76.88	77.96		78.03	0.001647	1.29	12.29	18.1	0.41
Main	2275	50	68.58	76.88	78.07		78.15	0.001696	1.4	14.38	22.42	0.42
Main	2275	100	81.07	76.88	78.17		78.27	0.001776	1.52	17.64	40.21	0.44
Main	2229	2	12.62	76.77	77.3	77.14	77.36	0.003347	1.07	2.98	8.01	0.5
Main	2229	5	27.25	76.77	77.5	77.29	77.59	0.003497	1.39	4.77	10.33	0.55
Main	2229	10	36.65	76.77	77.61	77.4	77.73	0.003852	1.61	5.98	12.12	0.59
Main	2229	25	52.29	76.77	77.76	77.53	77.91	0.003866	1.82	8.03	14.95	0.61
Main	2229	50	68.03	76.77	77.84	77.62	78.02	0.004191	2.01	9.33	17	0.64
Main	2229	100	80.42	76.77	77.92	77.73	78.14	0.004416	2.18	10.84	19.07	0.67
Main	2187	2	12.46	76.64	77.2	76.96	77.24	0.002352	1.01	4.54	11.11	0.44
Main	2187	5	27	76.64	77.36	77.12	77.44	0.003334	1.44	6.87	18.3	0.54
Main	2187	10	36.34	76.64	77.46	77.22	77.56	0.003809	1.67	8.7	20.08	0.59
Main	2187	25	51.96	76.64	77.4	77.4	77.66	0.009689	2.54	7.62	19.01	0.94
Main	2187	50	67.64	76.64	77.49	77.49	77.76	0.009376	2.69	9.3	20.63	0.94
Main	2187	100	79.96	76.64	77.56	77.56	77.86	0.009646	2.87	10.78	21.7	0.96

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2547	2	13.77	78.29	79.01	78.88	79.08	0.003505	1.37	5.9	34.76	0.54
Main	2547	5	29.34	78.29	79.14	79.09	79.23	0.004032	1.67	11.64	53.14	0.6
Main	2547	10	39.76	78.29	79.18	79.18	79.29	0.005507	2.01	13.73	56.19	0.71
Main	2547	25	57.46	78.29	79.34		79.41	0.003415	1.78	23.45	70.08	0.58
Main	2547	50	75.27	78.29	79.54		79.57	0.001446	1.32	39.82	88.79	0.39
Main	2547	100	90.19	78.29	79.77		79.79	0.000651	1	61.21	95.42	0.27
Main	2493	2	13.5	78.1	78.69	78.69	78.79	0.00866	1.62	4.07	27.83	0.76
Main	2493	5	28.8	78.1	78.82	78.82	78.93	0.00807	1.85	8.61	43.57	0.77
Main	2493	10	38.95	78.1	78.99		79.04	0.003671	1.47	16.87	54.85	0.54
Main	2493	25	55.93	78.1	79.27		79.29	0.00115	1.02	34.63	66.8	0.32
Main	2493	50	72.88	78.1	79.51		79.52	0.000593	0.84	51.06	74.17	0.24
Main	2493	100	86.73	78.1	79.75		79.76	0.00035	0.72	70.26	81.3	0.19
Main	2430	2	13.27	77.42	78.3	77.84	78.33	0.001046	0.84	3.36	5.12	0.3
Main	2430	5	28.36	77.42	78.64	78.04	78.7	0.0011	1.1	5.19	6.77	0.33
Main	2430	10	38.21	77.42	78.81	78.17	78.9	0.001288	1.3	6.17	8.56	0.36
Main	2430	25	54.48	77.42	79.08	78.35	79.19	0.001311	1.48	7.76	30.48	0.37
Main	2430	50	70.65	77.42	79.32	78.46	79.43	0.0012	1.56	9.17	42.12	0.37
Main	2430	100	83.55	77.42	79.56	78.59	79.69	0.001111	1.63	10.63	51.07	0.36
Main	2421		Culvert									
Main	2412	2	13.21	77.41	78.25	77.81	78.29	0.00113	0.89	3.22	4.78	0.31
Main	2412	5	28.29	77.41	78.54	78.01	78.61	0.001416	1.22	4.66	16.83	0.37
Main	2412	10	38.13	77.41	78.63	78.15	78.75	0.002018	1.54	5.13	19.07	0.45
Main	2412	25	54.39	77.41	78.7	78.33	78.9	0.003236	2.01	5.45	20.24	0.57
Main	2412	50	70.53	77.41	78.76	78.45	79.03	0.004038	2.33	5.78	22.07	0.64
Main	2412	100	83.4	77.41	78.82	78.57	79.17	0.004989	2.66	6.06	24.8	0.72
Main	2365	2	13.1	77.4	77.95	77.91	78.12	0.012043	1.82	1.48	3.39	0.88
Main	2365	5	28.1	77.4	78.16	78.16	78.41	0.013803	2.22	2.42	5.82	0.98
Main	2365	10	37.82	77.4	78.35	78.35	78.56	0.007846	2.07	5.51	26.53	0.78
Main	2365	25	53.93	77.4	78.5	78.5	78.68	0.006171	2.09	10.41	37.16	0.71
Main	2365	50	69.99	77.4	78.56	78.56	78.76	0.00643	2.23	12.68	38.26	0.74
Main	2365	100	82.78	77.4	78.62	78.62	78.83	0.0067	2.37	14.92	39.51	0.76
Main	2320	2	12.98	77.22	77.56		77.62	0.009031	1.3	3.83	17.09	0.77
Main	2320	5	27.87	77.22	77.76		77.82	0.004663	1.33	7.63	21.72	0.6
Main	2320	10	37.46	77.22	77.89		77.96	0.003617	1.37	10.59	23.16	0.55
Main	2320	25	53.37	77.22	78.06		78.13	0.00286	1.43	14.69	25.39	0.51
Main	2320	50	69.31	77.22	78.18		78.25	0.00258	1.48	17.7	27.41	0.5
Main	2320	100	81.96	77.22	78.29		78.36	0.002372	1.54	21.37	37.94	0.49
Main	2275	2	12.79	76.88	77.43		77.46	0.001626	0.8	4.53	12.02	0.36
Main	2275	5	27.53	76.88	77.65		77.7	0.001611	1.01	7.38	14.38	0.38
Main	2275	10	37.01	76.88	77.79		77.85	0.00164	1.14	9.43	15.94	0.39
Main	2275	25	52.76	76.88	77.96		78.03	0.001647	1.29	12.29	18.1	0.41
Main	2275	50	68.58	76.88	78.07		78.15	0.001696	1.4	14.38	22.42	0.42
Main	2275	100	81.07	76.88	78.17		78.27	0.001776	1.52	17.64	40.21	0.44
Main	2229	2	12.62	76.77	77.3	77.14	77.36	0.003347	1.07	2.98	8.01	0.5
Main	2229	5	27.25	76.77	77.5	77.29	77.59	0.003497	1.39	4.77	10.33	0.55
Main	2229	10	36.65	76.77	77.61	77.4	77.73	0.003852	1.61	5.98	12.12	0.59
Main	2229	25	52.29	76.77	77.76	77.53	77.91	0.003866	1.82	8.03	14.95	0.61
Main	2229	50	68.03	76.77	77.84	77.62	78.02	0.004191	2.01	9.33	17	0.64
Main	2229	100	80.42	76.77	77.92	77.73	78.14	0.004416	2.18	10.84	19.07	0.67
Main	2187	2	12.46	76.64	77.2	76.96	77.24	0.002352	1.01	4.54	11.11	0.44
Main	2187	5	27	76.64	77.36	77.12	77.44	0.003334	1.44	6.87	18.3	0.54
Main	2187	10	36.34	76.64	77.46	77.22	77.56	0.003809	1.67	8.7	20.08	0.59
Main	2187	25	51.96	76.64	77.4	77.4	77.66	0.009689	2.54	7.62	19.01	0.94
Main	2187	50	67.64	76.64	77.49	77.49	77.76	0.009376	2.69	9.3	20.63	0.94
Main	2187	100	79.96	76.64	77.56	77.56	77.86	0.009646	2.87	10.78	21.7	0.96

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2143	2	12.3	76.57	76.9	76.9	77.02	0.014914	1.65	2.82	15.27	0.99
Main	2143	5	26.74	76.57	77.04	77.04	77.18	0.012446	1.95	5.24	20.37	0.96
Main	2143	10	36	76.57	77.11	77.11	77.28	0.012058	2.15	6.88	22.12	0.97
Main	2143	25	50.62	76.57	77.15	77.15	77.15	0.000773	0.57	52.92	118	0.25
Main	2143	50	66.26	76.57	77.15	77.15	77.16	0.001144	0.69	52.92	118	0.3
Main	2143	100	78.55	76.57	77.15	77.15	77.16	0.001634	0.83	52.92	118	0.36
Main	2104	2	12.07	76.05	76.59		76.61	0.001793	0.79	11.46	65.1	0.37
Main	2104	5	26.31	76.05	76.73		76.75	0.001548	0.87	22.12	87.21	0.36
Main	2104	10	35.46	76.05	76.8		76.81	0.001536	0.93	28.02	88.14	0.36
Main	2104	25	49.32	76.05	76.87		76.89	0.001618	1.02	34.67	89.25	0.38
Main	2104	50	64.91	76.05	76.92		76.94	0.001768	1.11	38.57	90.31	0.4
Main	2104	100	77.13	76.05	76.97		76.99	0.001839	1.18	43.07	91.52	0.41
Main	2043	2	11.65	75.75	76.2	76.2	76.33	0.021334	1.86	2.28	8.58	1.16
Main	2043	5	25.46	75.75	76.37	76.37	76.52	0.014348	1.99	5.17	30.12	1.02
Main	2043	10	34.29	75.75	76.47	76.47	76.61	0.010322	1.98	9.38	49.96	0.9
Main	2043	25	47.74	75.75	76.58	76.58	76.69	0.007682	1.95	16	64.34	0.8
Main	2043	50	63.06	75.75	76.65		76.75	0.006093	1.87	20.63	65.78	0.73
Main	2043	100	75	75.75	76.72		76.8	0.005152	1.83	25.25	67.1	0.68
Main	1994	2	11.45	75.53	76.08		76.09	0.000672	0.49	5.81	13.82	0.23
Main	1994	5	25.1	75.53	76.32		76.34	0.000579	0.59	10.7	35.18	0.23
Main	1994	10	33.75	75.53	76.44		76.46	0.000605	0.68	16.81	67.41	0.24
Main	1994	25	46.93	75.53	76.56		76.59	0.000627	0.75	25.43	78.64	0.25
Main	1994	50	62.07	75.53	76.63		76.66	0.000666	0.81	30.88	81.11	0.26
Main	1994	100	73.83	75.53	76.69		76.72	0.000724	0.88	35.77	83.31	0.27
Main	1942	2	11.16	75.35	76.01		76.04	0.001557	0.89	5.72	15.47	0.36
Main	1942	5	24.59	75.35	76.24		76.29	0.001621	1.13	11.29	37.62	0.39
Main	1942	10	33	75.35	76.36		76.41	0.001673	1.25	16.64	51.84	0.41
Main	1942	25	45.86	75.35	76.47		76.53	0.001886	1.42	23.23	67.7	0.44
Main	1942	50	60.79	75.35	76.53		76.6	0.002059	1.54	27.9	80.36	0.46
Main	1942	100	72.34	75.35	76.59		76.66	0.002064	1.6	32.9	81.65	0.47
Main	1898	2	10.84	75.11	75.98		75.99	0.000715	0.72	9.12	19.66	0.26
Main	1898	5	24.04	75.11	76.2		76.23	0.000909	0.95	14.27	37.03	0.3
Main	1898	10	32.21	75.11	76.31		76.35	0.001121	1.13	20.14	69.24	0.34
Main	1898	25	44.73	75.11	76.42		76.46	0.001294	1.29	29.67	107.42	0.37
Main	1898	50	59.47	75.11	76.45		76.52	0.001777	1.54	33.76	114.79	0.43
Main	1898	100	70.81	75.11	76.5		76.57	0.002097	1.71	38.99	120.39	0.47
Main	1860	2	10.6	75.17	75.88		75.94	0.002708	1.18	3.3	10.12	0.48
Main	1860	5	23.63	75.17	76.05	75.86	76.16	0.003697	1.62	6.66	35.6	0.58
Main	1860	10	31.61	75.17	76.13	76.1	76.26	0.004279	1.85	10.25	57.89	0.63
Main	1860	25	43.75	75.17	76.25	76.25	76.37	0.003768	1.9	19.94	94.32	0.61
Main	1860	50	58.27	75.17	76.32	76.29	76.42	0.003283	1.86	26.63	99.1	0.57
Main	1860	100	69.32	75.17	76.41		76.48	0.002522	1.72	35.75	104.52	0.51
Main	1810	2	10.29	75.2	75.85	75.53	75.86	0.000739	0.61	8.96	27.4	0.25
Main	1810	5	23.08	75.2	76.01	75.65	76.04	0.001143	0.89	15.21	53.63	0.32
Main	1810	10	30.86	75.2	76.09	75.72	76.12	0.001314	1.02	19.45	56.17	0.35
Main	1810	25	42.62	75.2	76.18	75.82	76.22	0.001469	1.15	24.87	59.08	0.38
Main	1810	50	56.87	75.2	76.25	75.89	76.29	0.001516	1.23	29.08	61.37	0.39
Main	1810	100	67.56	75.2	76.33	75.93	76.38	0.001454	1.27	34.32	63.75	0.39
Main	1758	2	9.91	75.34	75.73		75.78	0.004902	1.11	5.88	37.35	0.59
Main	1758	5	22.33	75.34	75.91		75.95	0.003048	1.14	13.84	62.66	0.5
Main	1758	10	29.85	75.34	75.99		76.03	0.002715	1.19	19.63	73.27	0.48
Main	1758	25	41.27	75.34	76.09		76.13	0.00224	1.19	27.53	77.64	0.45
Main	1758	50	55.25	75.34	76.17		76.2	0.001935	1.19	33.71	79.62	0.42
Main	1758	100	65.6	75.34	76.27		76.29	0.001556	1.15	41.64	85.54	0.39

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	2143	2	12.3	76.57	76.9	76.9	77.02	0.014914	1.65	2.82	15.27	0.99
Main	2143	5	26.74	76.57	77.04	77.04	77.18	0.012446	1.95	5.24	20.37	0.96
Main	2143	10	36	76.57	77.11	77.11	77.28	0.012058	2.15	6.88	22.12	0.97
Main	2143	25	50.62	76.57	77.15	77.15	77.15	0.000773	0.57	52.92	118	0.25
Main	2143	50	66.26	76.57	77.15	77.15	77.16	0.001144	0.69	52.92	118	0.3
Main	2143	100	78.55	76.57	77.15	77.15	77.16	0.001634	0.83	52.92	118	0.36
Main	2104	2	12.07	76.05	76.59		76.61	0.001793	0.79	11.46	65.1	0.37
Main	2104	5	26.31	76.05	76.73		76.75	0.001548	0.87	22.12	87.21	0.36
Main	2104	10	35.46	76.05	76.8		76.81	0.001536	0.93	28.02	88.14	0.36
Main	2104	25	49.32	76.05	76.87		76.89	0.001618	1.02	34.67	89.25	0.38
Main	2104	50	64.91	76.05	76.92		76.94	0.001768	1.11	38.57	90.31	0.4
Main	2104	100	77.13	76.05	76.97		76.99	0.001839	1.18	43.07	91.52	0.41
Main	2043	2	11.65	75.75	76.2	76.2	76.33	0.021334	1.86	2.28	8.58	1.16
Main	2043	5	25.46	75.75	76.37	76.37	76.52	0.014348	1.99	5.17	30.12	1.02
Main	2043	10	34.29	75.75	76.47	76.47	76.61	0.010322	1.98	9.38	49.96	0.9
Main	2043	25	47.74	75.75	76.58	76.58	76.69	0.007682	1.95	16	64.34	0.8
Main	2043	50	63.06	75.75	76.65		76.75	0.006093	1.87	20.63	65.78	0.73
Main	2043	100	75	75.75	76.72		76.8	0.005152	1.83	25.25	67.1	0.68
Main	1994	2	11.45	75.53	76.08		76.09	0.000672	0.49	5.81	13.82	0.23
Main	1994	5	25.1	75.53	76.32		76.34	0.000579	0.59	10.7	35.18	0.23
Main	1994	10	33.75	75.53	76.44		76.46	0.000605	0.68	16.81	67.41	0.24
Main	1994	25	46.93	75.53	76.56		76.59	0.000627	0.75	25.43	78.64	0.25
Main	1994	50	62.07	75.53	76.63		76.66	0.000666	0.81	30.88	81.11	0.26
Main	1994	100	73.83	75.53	76.69		76.72	0.000724	0.88	35.77	83.31	0.27
Main	1942	2	11.16	75.35	76.01		76.04	0.001557	0.89	5.72	15.47	0.36
Main	1942	5	24.59	75.35	76.24		76.29	0.001621	1.13	11.29	37.62	0.39
Main	1942	10	33	75.35	76.36		76.41	0.001673	1.25	16.64	51.84	0.41
Main	1942	25	45.86	75.35	76.47		76.53	0.001886	1.42	23.23	67.7	0.44
Main	1942	50	60.79	75.35	76.53		76.6	0.002059	1.54	27.9	80.36	0.46
Main	1942	100	72.34	75.35	76.59		76.66	0.002064	1.6	32.9	81.65	0.47
Main	1898	2	10.84	75.11	75.98		75.99	0.000715	0.72	9.12	19.66	0.26
Main	1898	5	24.04	75.11	76.2		76.23	0.000909	0.95	14.27	37.03	0.3
Main	1898	10	32.21	75.11	76.31		76.35	0.001121	1.13	20.14	69.24	0.34
Main	1898	25	44.73	75.11	76.42		76.46	0.001294	1.29	29.67	107.42	0.37
Main	1898	50	59.47	75.11	76.45		76.52	0.001777	1.54	33.76	114.79	0.43
Main	1898	100	70.81	75.11	76.5		76.57	0.002097	1.71	38.99	120.39	0.47
Main	1860	2	10.6	75.17	75.88		75.94	0.002708	1.18	3.3	10.12	0.48
Main	1860	5	23.63	75.17	76.05	75.86	76.16	0.003697	1.62	6.66	35.6	0.58
Main	1860	10	31.61	75.17	76.13	76.1	76.26	0.004279	1.85	10.25	57.89	0.63
Main	1860	25	43.75	75.17	76.25	76.25	76.37	0.003768	1.9	19.94	94.32	0.61
Main	1860	50	58.27	75.17	76.32	76.29	76.42	0.003283	1.86	26.63	99.1	0.57
Main	1860	100	69.32	75.17	76.41		76.48	0.002522	1.72	35.75	104.52	0.51
Main	1810	2	10.29	75.2	75.85	75.53	75.86	0.000739	0.61	8.96	27.4	0.25
Main	1810	5	23.08	75.2	76.01	75.65	76.04	0.001143	0.89	15.21	53.63	0.32
Main	1810	10	30.86	75.2	76.09	75.72	76.12	0.001314	1.02	19.45	56.17	0.35
Main	1810	25	42.62	75.2	76.18	75.82	76.22	0.001469	1.15	24.87	59.08	0.38
Main	1810	50	56.87	75.2	76.25	75.89	76.29	0.001516	1.23	29.08	61.37	0.39
Main	1810	100	67.56	75.2	76.33	75.93	76.38	0.001454	1.27	34.32	63.75	0.39
Main	1758	2	9.91	75.34	75.73		75.78	0.004902	1.11	5.88	37.35	0.59
Main	1758	5	22.33	75.34	75.91		75.95	0.003048	1.14	13.84	62.66	0.5
Main	1758	10	29.85	75.34	75.99		76.03	0.002715	1.19	19.63	73.27	0.48
Main	1758	25	41.27	75.34	76.09		76.13	0.00224	1.19	27.53	77.64	0.45
Main	1758	50	55.25	75.34	76.17		76.2	0.001935	1.19	33.71	79.62	0.42
Main	1758	100	65.6	75.34	76.27		76.29	0.001556	1.15	41.64	85.54	0.39

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	1706	2	9.51	74.97	75.68		75.69	0.000694	0.62	9.62	48.59	0.24
Main	1706	5	21.43	74.97	75.86		75.87	0.000709	0.73	21.07	69.57	0.26
Main	1706	10	28.67	74.97	75.93		75.95	0.000821	0.84	26.32	71.55	0.28
Main	1706	25	39.69	74.97	76.03		76.05	0.000879	0.93	33.74	74.26	0.3
Main	1706	50	53.35	74.97	76.11		76.14	0.000861	0.97	39.84	76.17	0.3
Main	1706	100	63.29	74.97	76.22		76.24	0.000764	0.97	48.02	80.05	0.28
Main	1647	2	9.17	75	75.43	75.42	75.57	0.012694	1.73	2.12	8.32	0.94
Main	1647	5	20.6	75	75.66	75.66	75.77	0.006145	1.68	7.87	45.22	0.71
Main	1647	10	27.58	75	75.75		75.85	0.005186	1.7	12.03	49.54	0.67
Main	1647	25	38.2	75	75.88		75.96	0.003725	1.63	19	54.67	0.58
Main	1647	50	51.51	75	75.99		76.05	0.002698	1.52	25.6	64.83	0.51
Main	1647	100	60.9	75	76.13		76.17	0.001771	1.35	36.86	92.72	0.42
Main	1607	2	8.98	74.7	75.45	74.95	75.46	0.000388	0.47	5.99	16.72	0.18
Main	1607	5	20.22	74.7	75.61	75.07	75.64	0.000699	0.73	7.52	25.93	0.25
Main	1607	10	27.06	74.7	75.7	75.16	75.74	0.000957	0.91	8.34	27.65	0.29
Main	1607	25	37.45	74.7	75.8	75.27	75.87	0.001301	1.13	9.32	34.02	0.35
Main	1607	50	50.54	74.7	75.88	75.35	75.96	0.001516	1.28	10.06	47.42	0.38
Main	1607	100	59.56	74.7	75.99	75.43	76.09	0.001587	1.39	11.1	56.02	0.39
Main	1597		Culvert									
Main	1588	2	8.87	74.6	75.44	74.83	75.45	0.000257	0.4	6.8	27.54	0.14
Main	1588	5	20.08	74.6	75.59	74.95	75.61	0.000543	0.64	8.22	43.63	0.21
Main	1588	10	26.9	74.6	75.66	75.03	75.69	0.0008	0.81	8.9	67.43	0.26
Main	1588	25	37.27	74.6	75.73	75.14	75.79	0.001215	1.05	9.61	84.29	0.32
Main	1588	50	50.35	74.6	75.77	75.21	75.85	0.001598	1.23	9.98	89.98	0.37
Main	1588	100	59.34	74.6	75.82	75.29	75.92	0.001969	1.41	10.47	98.87	0.42
Main	1577	2	8.78	74.6	75.38	75.28	75.43	0.003372	1.22	6.3	29.55	0.5
Main	1577	5	19.94	74.6	75.53	75.43	75.59	0.003402	1.42	11.75	42.01	0.52
Main	1577	10	26.71	74.6	75.61	75.5	75.67	0.003745	1.59	15.1	47.99	0.55
Main	1577	25	37.04	74.6	75.69	75.58	75.76	0.004398	1.83	19.93	73.69	0.61
Main	1577	50	50.07	74.6	75.75	75.62	75.82	0.004225	1.87	24.55	76.86	0.6
Main	1577	100	59.01	74.6	75.81	75.71	75.87	0.004062	1.91	29.22	79.05	0.6
Main	1537	2	8.34	74.46	75.38		75.39	0.000382	0.53	15.79	62.61	0.19
Main	1537	5	19.12	74.46	75.52		75.53	0.000489	0.67	28.69	104.19	0.22
Main	1537	10	25.68	74.46	75.59		75.61	0.000573	0.77	36.42	112.35	0.24
Main	1537	25	35.72	74.46	75.67		75.69	0.000673	0.87	45.27	115.89	0.26
Main	1537	50	48.53	74.46	75.73		75.74	0.000721	0.93	51.85	120.65	0.27
Main	1537	100	57.25	74.46	75.78		75.8	0.00077	0.99	58.5	124	0.29
Main	1461	2	7.42	74.48	75.3		75.33	0.001339	0.93	9.61	53	0.34
Main	1461	5	17.37	74.48	75.44		75.48	0.001427	1.07	19.68	104.66	0.36
Main	1461	10	23.37	74.48	75.51		75.54	0.001597	1.19	27.03	123.82	0.39
Main	1461	25	32.74	74.48	75.58		75.61	0.00162	1.26	36.56	129.47	0.4
Main	1461	50	45.03	74.48	75.64		75.67	0.001534	1.27	44.23	133.49	0.39
Main	1461	100	53.22	74.48	75.7		75.72	0.001478	1.29	51.8	136.33	0.39
Main	1374	2	6.9	74.37	75.1	74.94	75.17	0.003764	1.51	6.31	39.59	0.58
Main	1374	5	16.16	74.37	75.27		75.33	0.003033	1.58	17.68	90.66	0.54
Main	1374	10	21.62	74.37	75.36		75.4	0.002488	1.52	26.31	112.34	0.49
Main	1374	25	30.24	74.37	75.46		75.48	0.002016	1.46	38.45	130.79	0.45
Main	1374	50	41.91	74.37	75.53		75.55	0.001677	1.39	48.87	144.7	0.42
Main	1374	100	49.49	74.37	75.6		75.62	0.001439	1.34	59	150.68	0.39
Main	1316	2	6.58	74.21	75.02		75.05	0.00108	0.85	6.68	37.37	0.31
Main	1316	5	15.3	74.21	75.19		75.23	0.001146	1	19.73	96.6	0.33
Main	1316	10	20.37	74.21	75.29		75.32	0.001051	1.02	29.46	112.19	0.32
Main	1316	25	28.47	74.21	75.39		75.42	0.000994	1.06	42.12	139.19	0.32
Main	1316	50	39.66	74.21	75.47		75.5	0.000882	1.05	54.39	151.93	0.3
Main	1316	100	46.78	74.21	75.55		75.57	0.000782	1.03	66.18	157.83	0.29

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	1706	2	9.51	74.97	75.68		75.69	0.000694	0.62	9.62	48.59	0.24
Main	1706	5	21.43	74.97	75.86		75.87	0.000709	0.73	21.07	69.57	0.26
Main	1706	10	28.67	74.97	75.93		75.95	0.000821	0.84	26.32	71.55	0.28
Main	1706	25	39.69	74.97	76.03		76.05	0.000879	0.93	33.74	74.26	0.3
Main	1706	50	53.35	74.97	76.11		76.14	0.000861	0.97	39.84	76.17	0.3
Main	1706	100	63.29	74.97	76.22		76.24	0.000764	0.97	48.02	80.05	0.28
Main	1647	2	9.17	75	75.43	75.42	75.57	0.012694	1.73	2.12	8.32	0.94
Main	1647	5	20.6	75	75.66	75.66	75.77	0.006145	1.68	7.87	45.22	0.71
Main	1647	10	27.58	75	75.75		75.85	0.005186	1.7	12.03	49.54	0.67
Main	1647	25	38.2	75	75.88		75.96	0.003725	1.63	19	54.67	0.58
Main	1647	50	51.51	75	75.99		76.05	0.002698	1.52	25.6	64.83	0.51
Main	1647	100	60.9	75	76.13		76.17	0.001771	1.35	36.86	92.72	0.42
Main	1607	2	8.98	74.7	75.45	74.95	75.46	0.000388	0.47	5.99	16.72	0.18
Main	1607	5	20.22	74.7	75.61	75.07	75.64	0.000699	0.73	7.52	25.93	0.25
Main	1607	10	27.06	74.7	75.7	75.16	75.74	0.000957	0.91	8.34	27.65	0.29
Main	1607	25	37.45	74.7	75.8	75.27	75.87	0.001301	1.13	9.32	34.02	0.35
Main	1607	50	50.54	74.7	75.88	75.35	75.96	0.001516	1.28	10.06	47.42	0.38
Main	1607	100	59.56	74.7	75.99	75.43	76.09	0.001587	1.39	11.1	56.02	0.39
Main	1597		Culvert									
Main	1588	2	8.87	74.6	75.44	74.83	75.45	0.000257	0.4	6.8	27.54	0.14
Main	1588	5	20.08	74.6	75.59	74.95	75.61	0.000543	0.64	8.22	43.63	0.21
Main	1588	10	26.9	74.6	75.66	75.03	75.69	0.0008	0.81	8.9	67.43	0.26
Main	1588	25	37.27	74.6	75.73	75.14	75.79	0.001215	1.05	9.61	84.29	0.32
Main	1588	50	50.35	74.6	75.77	75.21	75.85	0.001598	1.23	9.98	89.98	0.37
Main	1588	100	59.34	74.6	75.82	75.29	75.92	0.001969	1.41	10.47	98.87	0.42
Main	1577	2	8.78	74.6	75.38	75.28	75.43	0.003372	1.22	6.3	29.55	0.5
Main	1577	5	19.94	74.6	75.53	75.43	75.59	0.003402	1.42	11.75	42.01	0.52
Main	1577	10	26.71	74.6	75.61	75.5	75.67	0.003745	1.59	15.1	47.99	0.55
Main	1577	25	37.04	74.6	75.69	75.58	75.76	0.004398	1.83	19.93	73.69	0.61
Main	1577	50	50.07	74.6	75.75	75.62	75.82	0.004225	1.87	24.55	76.86	0.6
Main	1577	100	59.01	74.6	75.81	75.71	75.87	0.004062	1.91	29.22	79.05	0.6
Main	1537	2	8.34	74.46	75.38		75.39	0.000382	0.53	15.79	62.61	0.19
Main	1537	5	19.12	74.46	75.52		75.53	0.000489	0.67	28.69	104.19	0.22
Main	1537	10	25.68	74.46	75.59		75.61	0.000573	0.77	36.42	112.35	0.24
Main	1537	25	35.72	74.46	75.67		75.69	0.000673	0.87	45.27	115.89	0.26
Main	1537	50	48.53	74.46	75.73		75.74	0.000721	0.93	51.85	120.65	0.27
Main	1537	100	57.25	74.46	75.78		75.8	0.00077	0.99	58.5	124	0.29
Main	1461	2	7.42	74.48	75.3		75.33	0.001339	0.93	9.61	53	0.34
Main	1461	5	17.37	74.48	75.44		75.48	0.001427	1.07	19.68	104.66	0.36
Main	1461	10	23.37	74.48	75.51		75.54	0.001597	1.19	27.03	123.82	0.39
Main	1461	25	32.74	74.48	75.58		75.61	0.00162	1.26	36.56	129.47	0.4
Main	1461	50	45.03	74.48	75.64		75.67	0.001534	1.27	44.23	133.49	0.39
Main	1461	100	53.22	74.48	75.7		75.72	0.001478	1.29	51.8	136.33	0.39
Main	1374	2	6.9	74.37	75.1	74.94	75.17	0.003764	1.51	6.31	39.59	0.58
Main	1374	5	16.16	74.37	75.27		75.33	0.003033	1.58	17.68	90.66	0.54
Main	1374	10	21.62	74.37	75.36		75.4	0.002488	1.52	26.31	112.34	0.49
Main	1374	25	30.24	74.37	75.46		75.48	0.002016	1.46	38.45	130.79	0.45
Main	1374	50	41.91	74.37	75.53		75.55	0.001677	1.39	48.87	144.7	0.42
Main	1374	100	49.49	74.37	75.6		75.62	0.001439	1.34	59	150.68	0.39
Main	1316	2	6.58	74.21	75.02		75.05	0.00108	0.85	6.68	37.37	0.31
Main	1316	5	15.3	74.21	75.19		75.23	0.001146	1	19.73	96.6	0.33
Main	1316	10	20.37	74.21	75.29		75.32	0.001051	1.02	29.46	112.19	0.32
Main	1316	25	28.47	74.21	75.39		75.42	0.000994	1.06	42.12	139.19	0.32
Main	1316	50	39.66	74.21	75.47		75.5	0.000882	1.05	54.39	151.93	0.3
Main	1316	100	46.78	74.21	75.55		75.57	0.000782	1.03	66.18	157.83	0.29

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	1214	2	5.73	74.37	74.89		74.9	0.002127	0.83	11	40.48	0.4
Main	1214	5	13.46	74.37	75.08		75.09	0.001646	0.92	20.99	66.43	0.37
Main	1214	10	17.77	74.37	75.19		75.2	0.001384	0.94	29.29	91.26	0.35
Main	1214	25	24.9	74.37	75.29		75.3	0.001357	1.02	40.57	120.18	0.36
Main	1214	50	35.06	74.37	75.39		75.4	0.001178	1.02	53.8	146.94	0.34
Main	1214	100	41.13	74.37	75.48		75.49	0.000909	0.96	67.99	159.04	0.3
Main	1130	2	4.89	73.91	74.75		74.77	0.001243	0.95	10.41	28.83	0.34
Main	1130	5	12.01	73.91	74.93		74.96	0.001592	1.23	16.24	35.83	0.4
Main	1130	10	15.87	73.91	75.04		75.07	0.001748	1.39	20.55	45.66	0.42
Main	1130	25	22.48	73.91	75.12		75.17	0.002285	1.66	24.76	56.4	0.49
Main	1130	50	31.96	73.91	75.23		75.28	0.002208	1.73	31.68	68.04	0.49
Main	1130	100	37.24	73.91	75.36		75.4	0.001701	1.62	41.93	91.72	0.44
Main	1075	2	4.53	73.95	74.44	74.44	74.6	0.012793	1.98	2.99	14.8	0.97
Main	1075	5	11.39	73.95	74.63	74.63	74.78	0.008948	2.12	6.74	23.83	0.87
Main	1075	10	15.03	73.95	74.75	74.67	74.89	0.007501	2.18	10.54	44.78	0.82
Main	1075	25	21.01	73.95	75		75.04	0.002281	1.46	30.84	111.56	0.47
Main	1075	50	29.77	73.95	75.17		75.19	0.001115	1.14	52.66	155.45	0.34
Main	1075	100	34.1	73.95	75.33		75.34	0.000626	0.93	79.59	177.64	0.26
Main	1023	2	4.3	73.7	74.23	73.98	74.26	0.001691	0.84	4.01	32.41	0.37
Main	1023	5	10.77	73.7	74.48	74.12	74.53	0.001551	1.04	6.39	54.6	0.38
Main	1023	10	14.07	73.7	74.63	74.21	74.7	0.001522	1.17	7.87	69.22	0.38
Main	1023	25	18.95	73.7	74.85	74.34	74.93	0.001489	1.32	9.92	89.44	0.39
Main	1023	50	26.67	73.7	75	74.43	75.1	0.001465	1.43	11.35	96.37	0.4
Main	1023	100	29.75	73.7	75.15	74.51	75.26	0.001423	1.51	12.79	117.88	0.4
Main	1013		Culvert									
Main	1002	2	4.24	73.7	74.18	73.98	74.22	0.002255	0.91	3.72	31.59	0.42
Main	1002	5	10.65	73.7	74.39	74.12	74.45	0.002284	1.16	5.64	66.11	0.45
Main	1002	10	13.9	73.7	74.5	74.21	74.59	0.002476	1.34	6.69	77.19	0.48
Main	1002	25	18.7	73.7	74.66	74.33	74.78	0.002698	1.58	8.12	91.52	0.51
Main	1002	50	26.35	73.7	74.75	74.41	74.9	0.00298	1.76	8.95	96.17	0.55
Main	1002	100	29.36	73.7	74.83	74.5	75.01	0.00327	1.94	9.7	109	0.58
Main	900	2	3.69	73.39	74.04		74.07	0.001012	0.72	6.12	18.5	0.29
Main	900	5	9.5	73.39	74.24		74.28	0.001211	0.95	11.1	29.66	0.34
Main	900	10	12.3	73.39	74.36		74.4	0.001269	1.06	14.59	31.89	0.35
Main	900	25	16.39	73.39	74.5		74.56	0.001411	1.24	19.97	42.21	0.38
Main	900	50	23.57	73.39	74.6		74.66	0.001435	1.32	24.07	44.88	0.39
Main	900	100	26.11	73.39	74.69		74.75	0.001451	1.39	28.15	47.23	0.39
Main	844	2	3.42	73.2	73.8	73.8	73.93	0.008909	1.85	3.49	15.91	0.83
Main	844	5	9.02	73.2	73.95	73.95	74.12	0.009479	2.28	6.19	19.7	0.9
Main	844	10	11.67	73.2	74.03	74.03	74.23	0.010036	2.54	7.92	21.66	0.94
Main	844	25	15.54	73.2	74.15	74.15	74.38	0.010339	2.84	10.58	24.54	0.98
Main	844	50	22.55	73.2	74.23	74.23	74.47	0.010278	3.01	12.66	26.8	0.99
Main	844	100	24.93	73.2	74.3	74.3	74.56	0.010543	3.19	14.56	28.62	1.02
Main	787	2	3.26	72.5	72.94		73.02	0.007493	1.32	2.31	7.95	0.72
Main	787	5	8.72	72.5	73.17		73.27	0.004557	1.45	4.37	9.66	0.61
Main	787	10	11.29	72.5	73.31		73.43	0.003937	1.56	5.79	10.63	0.59
Main	787	25	15.02	72.5	73.47		73.62	0.00381	1.76	7.67	11.96	0.6
Main	787	50	21.93	72.5	73.6		73.76	0.003621	1.88	9.19	13.03	0.6
Main	787	100	24.21	72.5	73.73		73.9	0.003335	1.95	10.98	14.34	0.59
Main	744	2	3.13	72.09	72.75		72.82	0.003167	1.28	3.65	8.92	0.52
Main	744	5	8.49	72.09	73.01	72.75	73.11	0.003091	1.6	6.33	11.72	0.54
Main	744	10	10.99	72.09	73.14		73.27	0.003384	1.83	7.93	13.1	0.58
Main	744	25	14.67	72.09	73.18	73.04	73.41	0.005669	2.45	8.58	13.61	0.76
Main	744	50	21.53	72.09	73.27	73.16	73.55	0.006376	2.72	9.72	14.46	0.81
Main	744	100	23.76	72.09	73.28	73.27	73.66	0.008532	3.18	9.98	14.64	0.94

Table A-2 - Proposed Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	1214	2	5.73	74.37	74.89		74.9	0.002127	0.83	11	40.48	0.4
Main	1214	5	13.46	74.37	75.08		75.09	0.001646	0.92	20.99	66.43	0.37
Main	1214	10	17.77	74.37	75.19		75.2	0.001384	0.94	29.29	91.26	0.35
Main	1214	25	24.9	74.37	75.29		75.3	0.001357	1.02	40.57	120.18	0.36
Main	1214	50	35.06	74.37	75.39		75.4	0.001178	1.02	53.8	146.94	0.34
Main	1214	100	41.13	74.37	75.48		75.49	0.000909	0.96	67.99	159.04	0.3
Main	1130	2	4.89	73.91	74.75		74.77	0.001243	0.95	10.41	28.83	0.34
Main	1130	5	12.01	73.91	74.93		74.96	0.001592	1.23	16.24	35.83	0.4
Main	1130	10	15.87	73.91	75.04		75.07	0.001748	1.39	20.55	45.66	0.42
Main	1130	25	22.48	73.91	75.12		75.17	0.002285	1.66	24.76	56.4	0.49
Main	1130	50	31.96	73.91	75.23		75.28	0.002208	1.73	31.68	68.04	0.49
Main	1130	100	37.24	73.91	75.36		75.4	0.001701	1.62	41.93	91.72	0.44
Main	1075	2	4.53	73.95	74.44	74.44	74.6	0.012793	1.98	2.99	14.8	0.97
Main	1075	5	11.39	73.95	74.63	74.63	74.78	0.008948	2.12	6.74	23.83	0.87
Main	1075	10	15.03	73.95	74.75	74.67	74.89	0.007501	2.18	10.54	44.78	0.82
Main	1075	25	21.01	73.95	75		75.04	0.002281	1.46	30.84	111.56	0.47
Main	1075	50	29.77	73.95	75.17		75.19	0.001115	1.14	52.66	155.45	0.34
Main	1075	100	34.1	73.95	75.33		75.34	0.000626	0.93	79.59	177.64	0.26
Main	1023	2	4.3	73.7	74.23	73.98	74.26	0.001691	0.84	4.01	32.41	0.37
Main	1023	5	10.77	73.7	74.48	74.12	74.53	0.001551	1.04	6.39	54.6	0.38
Main	1023	10	14.07	73.7	74.63	74.21	74.7	0.001522	1.17	7.87	69.22	0.38
Main	1023	25	18.95	73.7	74.85	74.34	74.93	0.001489	1.32	9.92	89.44	0.39
Main	1023	50	26.67	73.7	75	74.43	75.1	0.001465	1.43	11.35	96.37	0.4
Main	1023	100	29.75	73.7	75.15	74.51	75.26	0.001423	1.51	12.79	117.88	0.4
Main	1013		Culvert									
Main	1002	2	4.24	73.7	74.18	73.98	74.22	0.002255	0.91	3.72	31.59	0.42
Main	1002	5	10.65	73.7	74.39	74.12	74.45	0.002284	1.16	5.64	66.11	0.45
Main	1002	10	13.9	73.7	74.5	74.21	74.59	0.002476	1.34	6.69	77.19	0.48
Main	1002	25	18.7	73.7	74.66	74.33	74.78	0.002698	1.58	8.12	91.52	0.51
Main	1002	50	26.35	73.7	74.75	74.41	74.9	0.00298	1.76	8.95	96.17	0.55
Main	1002	100	29.36	73.7	74.83	74.5	75.01	0.00327	1.94	9.7	109	0.58
Main	900	2	3.69	73.39	74.04		74.07	0.001012	0.72	6.12	18.5	0.29
Main	900	5	9.5	73.39	74.24		74.28	0.001211	0.95	11.1	29.66	0.34
Main	900	10	12.3	73.39	74.36		74.4	0.001269	1.06	14.59	31.89	0.35
Main	900	25	16.39	73.39	74.5		74.56	0.001411	1.24	19.97	42.21	0.38
Main	900	50	23.57	73.39	74.6		74.66	0.001435	1.32	24.07	44.88	0.39
Main	900	100	26.11	73.39	74.69		74.75	0.001451	1.39	28.15	47.23	0.39
Main	844	2	3.42	73.2	73.8	73.8	73.93	0.008909	1.85	3.49	15.91	0.83
Main	844	5	9.02	73.2	73.95	73.95	74.12	0.009479	2.28	6.19	19.7	0.9
Main	844	10	11.67	73.2	74.03	74.03	74.23	0.010036	2.54	7.92	21.66	0.94
Main	844	25	15.54	73.2	74.15	74.15	74.38	0.010339	2.84	10.58	24.54	0.98
Main	844	50	22.55	73.2	74.23	74.23	74.47	0.010278	3.01	12.66	26.8	0.99
Main	844	100	24.93	73.2	74.3	74.3	74.56	0.010543	3.19	14.56	28.62	1.02
Main	787	2	3.26	72.5	72.94		73.02	0.007493	1.32	2.31	7.95	0.72
Main	787	5	8.72	72.5	73.17		73.27	0.004557	1.45	4.37	9.66	0.61
Main	787	10	11.29	72.5	73.31		73.43	0.003937	1.56	5.79	10.63	0.59
Main	787	25	15.02	72.5	73.47		73.62	0.00381	1.76	7.67	11.96	0.6
Main	787	50	21.93	72.5	73.6		73.76	0.003621	1.88	9.19	13.03	0.6
Main	787	100	24.21	72.5	73.73		73.9	0.003335	1.95	10.98	14.34	0.59
Main	744	2	3.13	72.09	72.75		72.82	0.003167	1.28	3.65	8.92	0.52
Main	744	5	8.49	72.09	73.01	72.75	73.11	0.003091	1.6	6.33	11.72	0.54
Main	744	10	10.99	72.09	73.14		73.27	0.003384	1.83	7.93	13.1	0.58
Main	744	25	14.67	72.09	73.18	73.04	73.41	0.005669	2.45	8.58	13.61	0.76
Main	744	50	21.53	72.09	73.27	73.16	73.55	0.006376	2.72	9.72	14.46	0.81
Main	744	100	23.76	72.09	73.28	73.27	73.66	0.008532	3.18	9.98	14.64	0.94

Table A-1 - Existing Conditions HEC-RAS Results

Reach	River Sta	Profile	Volume (1000 m3)	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
Main	690	2	2.94	72.04	72.55	72.41	72.62	0.004094	1.24	3.4	9.62	0.57
Main	690	5	8.22	72.04	72.58	72.58	72.8	0.012544	2.24	3.62	9.93	1
Main	690	10	10.61	72.04	72.72	72.67	72.96	0.009984	2.36	6.03	23.97	0.93
Main	690	25	14.09	72.04	72.9	72.9	73.08	0.006148	2.18	12.77	45.89	0.76
Main	690	50	20.87	72.04	72.94	72.94	73.15	0.007469	2.47	14.39	48.55	0.84
Main	690	100	22.96	72.04	73.03	73.03	73.22	0.006077	2.39	19.41	53.89	0.77
Main	566	2	2.52	71.33	71.68	71.68	71.79	0.012597	1.61	3.16	17.12	0.92
Main	566	5	6.45	71.33	71.82	71.74	71.83	0.002145	0.85	22.62	94.54	0.4
Main	566	10	9.05	71.33	71.76	71.74	71.8	0.007419	1.43	17.23	78.54	0.73
Main	566	25	11.52	71.33	71.85	71.75	71.89	0.005631	1.44	25.51	95.48	0.66
Main	566	50	17.76	71.33	71.92	71.77	71.95	0.004417	1.39	31.87	97.53	0.6
Main	566	100	19.77	71.33	71.88	71.79	71.94	0.009137	1.9	28.03	96.28	0.85
Main	508	2	2.35	70.93	71.32	71.31	71.43	0.011369	1.5	2.88	14.95	0.87
Main	508	5	5.66	70.93	71.45	71.45	71.59	0.010398	1.82	5.97	33.99	0.88
Main	508	10	7.94	70.93	71.49	71.46	71.52	0.003456	1.11	23.69	106.83	0.52
Main	508	25	10.17	70.93	71.5	71.46	71.55	0.00662	1.55	24.1	107.01	0.72
Main	508	50	16.26	70.93	71.49	71.49	71.57	0.011044	1.98	23.15	106.3	0.92
Main	508	100	17.85	70.93	71.56	71.51	71.58	0.004447	1.37	41.76	146.22	0.6
Main	444	2	2.16	70.41	70.85	70.76	70.92	0.005423	1.19	2.96	13.11	0.62
Main	444	5	5.34	70.41	70.92	70.92	71.09	0.011047	1.88	3.92	18.76	0.91
Main	444	10	6.96	70.41	71.03	71.03	71.18	0.008184	1.88	7.46	42.76	0.81
Main	444	25	8.74	70.41	71.07	71.07	71.15	0.00573	1.65	21.32	115.8	0.69
Main	444	50	14.77	70.41	71.09	71.09	71.19	0.006737	1.84	24.06	122.16	0.75
Main	444	100	15.65	70.41	71.12	71.12	71.22	0.007043	1.94	27.99	131.93	0.78
Main	395	2	1.94	70.19	70.43	70.43	70.49	0.016582	1.48	5.9	50.13	1
Main	395	5	4.5	70.19	70.48	70.48	70.48	0.001607	0.52	30.59	141.56	0.32
Main	395	10	6.04	70.19	70.48	70.48	70.49	0.002967	0.71	30.58	141.55	0.44
Main	395	25	7.48	70.19	70.48	70.48	70.49	0.005957	1.01	30.58	141.55	0.62
Main	395	50	13.44	70.19	70.48	70.48	70.5	0.008947	1.23	30.58	141.55	0.76
Main	395	100	14.22	70.19	70.48	70.48	70.5	0.012714	1.47	30.58	141.55	0.9
Main	330	2	1.66	68.96	69.32	69.32	69.47	0.01395	1.76	2.24	9.79	0.98
Main	330	5	3.36	68.96	69.47	69.47	69.68	0.01332	2.2	3.91	13.26	1.02
Main	330	10	4.41	68.96	69.51	69.51	69.56	0.004828	1.4	18.89	85.53	0.62
Main	330	25	5.85	68.96	69.51	69.51	69.6	0.009685	1.98	18.89	85.53	0.88
Main	330	50	11.73	68.96	69.54	69.54	69.64	0.010636	2.15	21.37	88.02	0.93
Main	330	100	12.44	68.96	69.57	69.57	69.68	0.011482	2.31	23.82	91.41	0.97
Main	297	2	1.53	68.1	68.62	68.49	68.67	0.00304	1.05	5.6	19.83	0.49
Main	297	5	3.21	68.1	68.62	68.62	68.77	0.011466	2.02	5.48	19.67	0.94
Main	297	10	3.99	68.1	68.65	68.65	68.88	0.015989	2.5	6.19	23.19	1.12
Main	297	25	5.12	68.1	68.67	68.67	68.72	0.006418	1.62	24.57	105.15	0.72
Main	297	50	10.97	68.1	68.67	68.67	68.74	0.009639	1.99	24.57	105.15	0.88
Main	297	100	11.63	68.1	68.67	68.67	68.78	0.013695	2.37	24.57	105.15	1.05
Main	294	2	1.52	68.08	68.52	68.52	68.64	0.01202	1.85	3.62	19.47	0.94
Main	294	5	3.17	68.08	68.56	68.56	68.57	0.002341	0.88	23.12	92.81	0.42
Main	294	10	3.96	68.08	68.56	68.56	68.58	0.00432	1.19	23.12	92.81	0.57
Main	294	25	5.07	68.08	68.56	68.56	68.6	0.00867	1.69	23.12	92.81	0.81
Main	294	50	10.91	68.08	68.56	68.56	68.61	0.013021	2.07	23.12	92.81	0.99
Main	294	100	11.57	68.08	68.56	68.56	68.64	0.018501	2.46	23.12	92.81	1.18
Main	243	2	1.32	67.13	67.59	67.59	67.69	0.009753	1.69	4.35	29.03	0.85
Main	243	5	2.19	67.13	67.73	67.71	67.79	0.005728	1.59	15.97	112.25	0.68
Main	243	10	2.88	67.13	67.77	67.77	67.83	0.006344	1.74	19.76	112.96	0.73
Main	243	25	3.88	67.13	67.8	67.8	67.88	0.007761	2	23.92	113.45	0.81
Main	243	50	9.66	67.13	67.83	67.83	67.91	0.008728	2.17	26.62	113.85	0.87
Main	243	100	10.25	67.13	67.85	67.85	67.94	0.009453	2.32	29.37	114.21	0.91

Table A-2 - Proposed Conditions HEC-RAS Results

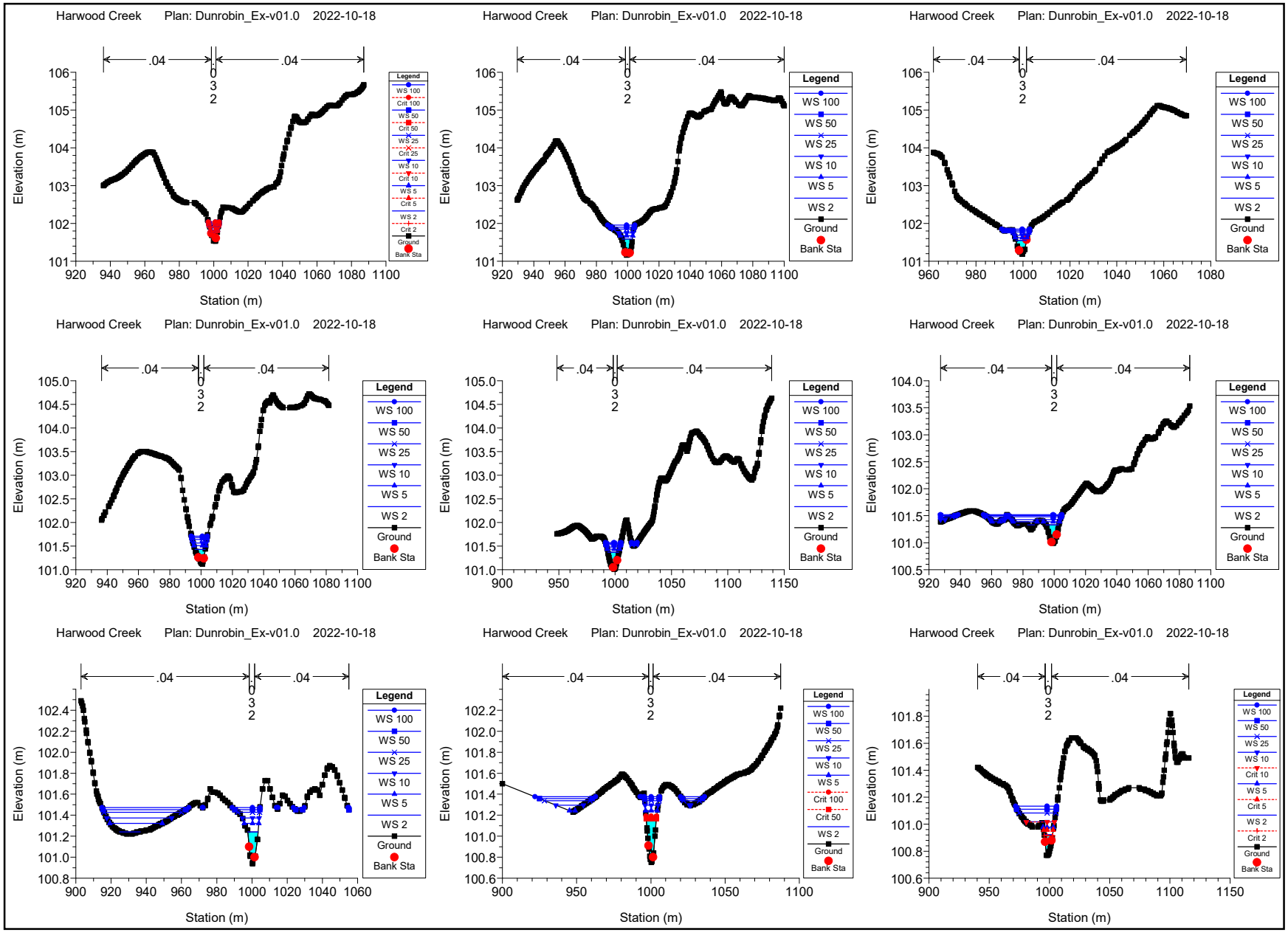
Reach	River Sta	Profile	Volume (1000 m3)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Main	690	2	2.94	72.04	72.55	72.41	72.62	0.004094	1.24	3.4	9.62	0.57
Main	690	5	8.22	72.04	72.58	72.58	72.8	0.012544	2.24	3.62	9.93	1
Main	690	10	10.61	72.04	72.72	72.67	72.96	0.009984	2.36	6.03	23.97	0.93
Main	690	25	14.09	72.04	72.9	72.9	73.08	0.006148	2.18	12.77	45.89	0.76
Main	690	50	20.87	72.04	72.94	72.94	73.15	0.007469	2.47	14.39	48.55	0.84
Main	690	100	22.96	72.04	73.03	73.03	73.22	0.006077	2.39	19.41	53.89	0.77
Main	566	2	2.52	71.33	71.68	71.68	71.79	0.012597	1.61	3.16	17.12	0.92
Main	566	5	6.45	71.33	71.82	71.74	71.83	0.002145	0.85	22.62	94.54	0.4
Main	566	10	9.05	71.33	71.76	71.74	71.8	0.007419	1.43	17.23	78.54	0.73
Main	566	25	11.52	71.33	71.85	71.75	71.89	0.005631	1.44	25.51	95.48	0.66
Main	566	50	17.76	71.33	71.92	71.77	71.95	0.004417	1.39	31.87	97.53	0.6
Main	566	100	19.77	71.33	71.88	71.79	71.94	0.009137	1.9	28.03	96.28	0.85
Main	508	2	2.35	70.93	71.32	71.31	71.43	0.011369	1.5	2.88	14.95	0.87
Main	508	5	5.66	70.93	71.45	71.45	71.59	0.010398	1.82	5.97	33.99	0.88
Main	508	10	7.94	70.93	71.49	71.46	71.52	0.003456	1.11	23.69	106.83	0.52
Main	508	25	10.17	70.93	71.5	71.46	71.55	0.00662	1.55	24.1	107.01	0.72
Main	508	50	16.26	70.93	71.49	71.49	71.57	0.011044	1.98	23.15	106.3	0.92
Main	508	100	17.85	70.93	71.56	71.51	71.58	0.004447	1.37	41.76	146.22	0.6
Main	444	2	2.16	70.41	70.85	70.76	70.92	0.005423	1.19	2.96	13.11	0.62
Main	444	5	5.34	70.41	70.92	70.92	71.09	0.011047	1.88	3.92	18.76	0.91
Main	444	10	6.96	70.41	71.03	71.03	71.18	0.008184	1.88	7.46	42.76	0.81
Main	444	25	8.74	70.41	71.07	71.07	71.15	0.00573	1.65	21.32	115.8	0.69
Main	444	50	14.77	70.41	71.09	71.09	71.19	0.006737	1.84	24.06	122.16	0.75
Main	444	100	15.65	70.41	71.12	71.12	71.22	0.007043	1.94	27.99	131.93	0.78
Main	395	2	1.94	70.19	70.43	70.43	70.49	0.016582	1.48	5.9	50.13	1
Main	395	5	4.5	70.19	70.48	70.48	70.48	0.001607	0.52	30.59	141.56	0.32
Main	395	10	6.04	70.19	70.48	70.48	70.49	0.002967	0.71	30.58	141.55	0.44
Main	395	25	7.48	70.19	70.48	70.48	70.49	0.005957	1.01	30.58	141.55	0.62
Main	395	50	13.44	70.19	70.48	70.48	70.5	0.008947	1.23	30.58	141.55	0.76
Main	395	100	14.22	70.19	70.48	70.48	70.5	0.012714	1.47	30.58	141.55	0.9
Main	330	2	1.66	68.96	69.32	69.32	69.47	0.01395	1.76	2.24	9.79	0.98
Main	330	5	3.36	68.96	69.47	69.47	69.68	0.01332	2.2	3.91	13.26	1.02
Main	330	10	4.41	68.96	69.51	69.51	69.56	0.004828	1.4	18.89	85.53	0.62
Main	330	25	5.85	68.96	69.51	69.51	69.6	0.009685	1.98	18.89	85.53	0.88
Main	330	50	11.73	68.96	69.54	69.54	69.64	0.010636	2.15	21.37	88.02	0.93
Main	330	100	12.44	68.96	69.57	69.57	69.68	0.011482	2.31	23.82	91.41	0.97
Main	297	2	1.53	68.1	68.62	68.49	68.67	0.00304	1.05	5.6	19.83	0.49
Main	297	5	3.21	68.1	68.62	68.62	68.77	0.011466	2.02	5.48	19.67	0.94
Main	297	10	3.99	68.1	68.65	68.65	68.88	0.015989	2.5	6.19	23.19	1.12
Main	297	25	5.12	68.1	68.67	68.67	68.72	0.006418	1.62	24.57	105.15	0.72
Main	297	50	10.97	68.1	68.67	68.67	68.74	0.009639	1.99	24.57	105.15	0.88
Main	297	100	11.63	68.1	68.67	68.67	68.78	0.013695	2.37	24.57	105.15	1.05
Main	294	2	1.52	68.08	68.52	68.52	68.64	0.01202	1.85	3.62	19.47	0.94
Main	294	5	3.17	68.08	68.56	68.56	68.57	0.002341	0.88	23.12	92.81	0.42
Main	294	10	3.96	68.08	68.56	68.56	68.58	0.00432	1.19	23.12	92.81	0.57
Main	294	25	5.07	68.08	68.56	68.56	68.6	0.00867	1.69	23.12	92.81	0.81
Main	294	50	10.91	68.08	68.56	68.56	68.61	0.013021	2.07	23.12	92.81	0.99
Main	294	100	11.57	68.08	68.56	68.56	68.64	0.018501	2.46	23.12	92.81	1.18
Main	243	2	1.32	67.13	67.59	67.59	67.69	0.009753	1.69	4.35	29.03	0.85
Main	243	5	2.19	67.13	67.73	67.71	67.79	0.005728	1.59	15.97	112.25	0.68
Main	243	10	2.88	67.13	67.77	67.77	67.83	0.006344	1.74	19.76	112.96	0.73
Main	243	25	3.88	67.13	67.8	67.8	67.88	0.007761	2	23.92	113.45	0.81
Main	243	50	9.66	67.13	67.83	67.83	67.91	0.008728	2.17	26.62	113.85	0.87
Main	243	100	10.25	67.13	67.85	67.85	67.94	0.009453	2.32	29.37	114.21	0.91

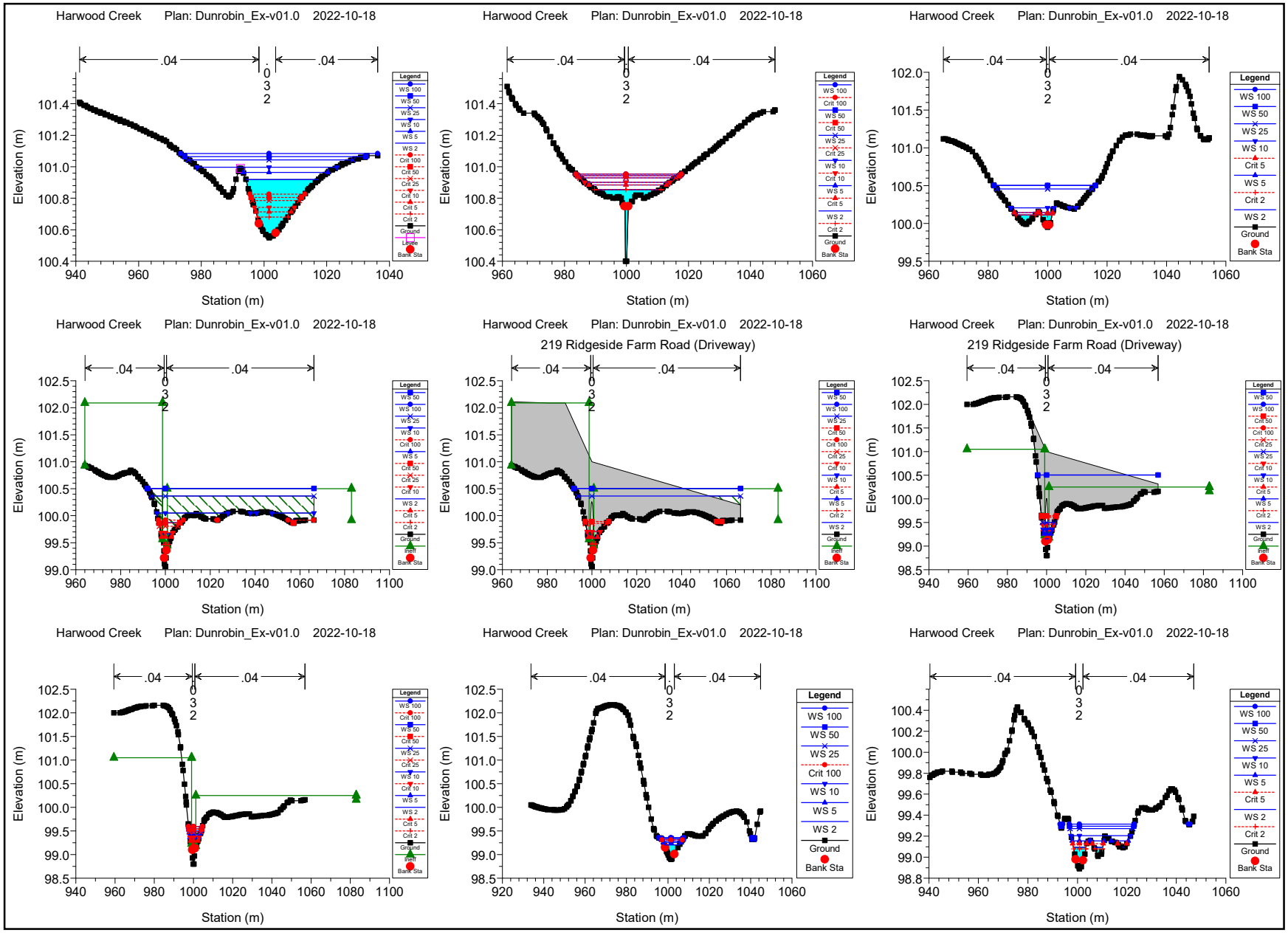
Table A-1 - Existing Conditions HEC-RAS Results

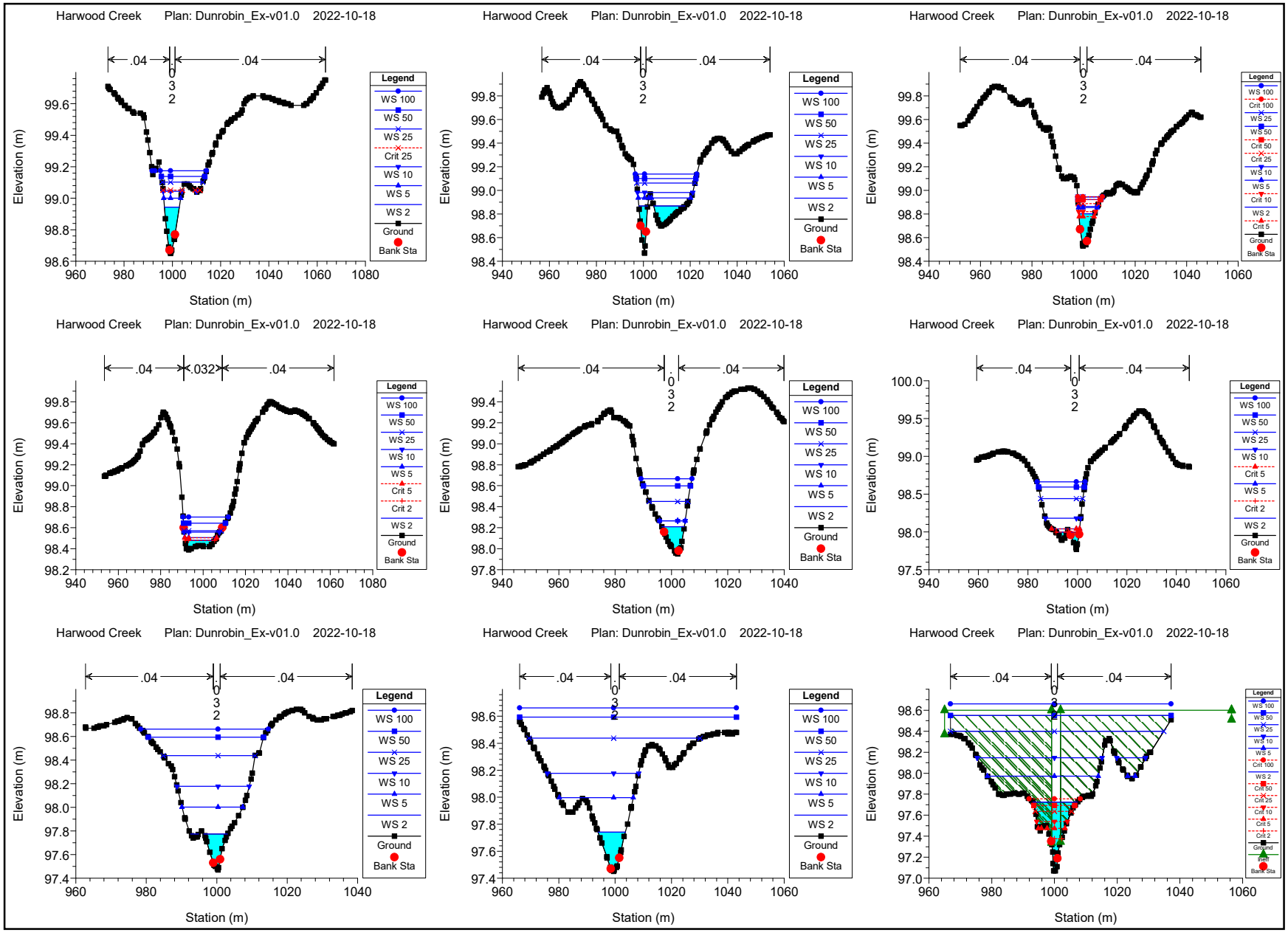
Reach	River Sta	Profile	Volume (1000 m3)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Main	209	2	1.18	66.69	67.15	67.14	67.27	0.012648	1.94	3.73	15.33	0.96
Main	209	5	1.79	66.69	67.32	67.24	67.49	0.012937	2.46	7.47	34.15	1.03
Main	209	10	2.28	66.69	67.41	67.24	67.52	0.008872	2.23	14.99	76.25	0.87
Main	209	25	3.05	66.69	67.52	67.48	67.59	0.005669	1.99	25.04	99.34	0.72
Main	209	50	8.63	66.69	67.61	67.48	67.66	0.004066	1.8	34.04	107.56	0.62
Main	209	100	9.04	66.69	67.68	67.56	67.72	0.003301	1.71	41.66	110.99	0.56
Main	145	2	1.02	65.78	66.32	66.32	66.5	0.012363	2.08	2.23	7.43	0.97
Main	145	5	1.48	65.78	66.53	66.53	66.78	0.010883	2.5	4.1	10.27	0.97
Main	145	10	1.77	65.78	66.66	66.66	66.94	0.010305	2.73	5.55	12.45	0.97
Main	145	25	2.25	65.78	66.83	66.83	67.16	0.00942	2.99	8.17	17.16	0.96
Main	145	50	7.57	65.78	66.93	66.93	67.29	0.009678	3.22	9.93	20.08	0.99
Main	145	100	7.74	65.78	67.06	67.06	67.41	0.00844	3.25	13	26.27	0.94
Main	100	2	0.85	63.94	64.27	64.27	64.34	0.016935	1.78	5.3	33.89	1.05
Main	100	5	1.21	63.94	64.34	64.34	64.44	0.020912	2.29	7.85	37.21	1.22
Main	100	10	1.42	63.94	64.4	64.4	64.51	0.020776	2.51	10	41.23	1.24
Main	100	25	1.78	63.94	64.46	64.46	64.59	0.022265	2.84	12.54	43.7	1.31
Main	100	50	7.03	63.94	64.5	64.5	64.64	0.023541	3.07	14.23	45.18	1.37
Main	100	100	7.09	63.94	64.53	64.53	64.7	0.024836	3.3	15.91	47.23	1.42
Main	33	2	0.53	62.25	62.67	62.67	62.77	0.008626	1.56	4.02	30.73	0.79
Main	33	5	0.61	62.25	62.8	62.8	62.9	0.007427	1.74	9.65	54.4	0.77
Main	33	10	0.65	62.25	62.85	62.85	62.96	0.008439	1.97	12.44	61.12	0.83
Main	33	25	0.73	62.25	62.93	62.93	63.04	0.007698	2.06	17.98	68.69	0.81
Main	33	50	2.25	62.25	62.96	62.96	62.96	0.000076	0.21	122.66	138.85	0.08
Main	33	100	2.25	62.25	62.96	62.96	62.96	0.000108	0.25	122.65	138.85	0.1
Main	4	2		60.72	61.05	61.05	61.05	0.000204	0.2	32.45	76.76	0.12
Main	4	5		60.72	61.05	61.05	61.05	0.000732	0.39	32.44	76.76	0.22
Main	4	10		60.72	61.05	61.05	61.05	0.001352	0.53	32.44	76.76	0.3
Main	4	25		60.72	61.05	61.05	61.06	0.002713	0.75	32.44	76.76	0.43
Main	4	50		60.72	61.05	61.05	61.06	0.004074	0.91	32.44	76.76	0.52
Main	4	100		60.72	61.05	61.05	61.06	0.005786	1.09	32.45	76.76	0.62

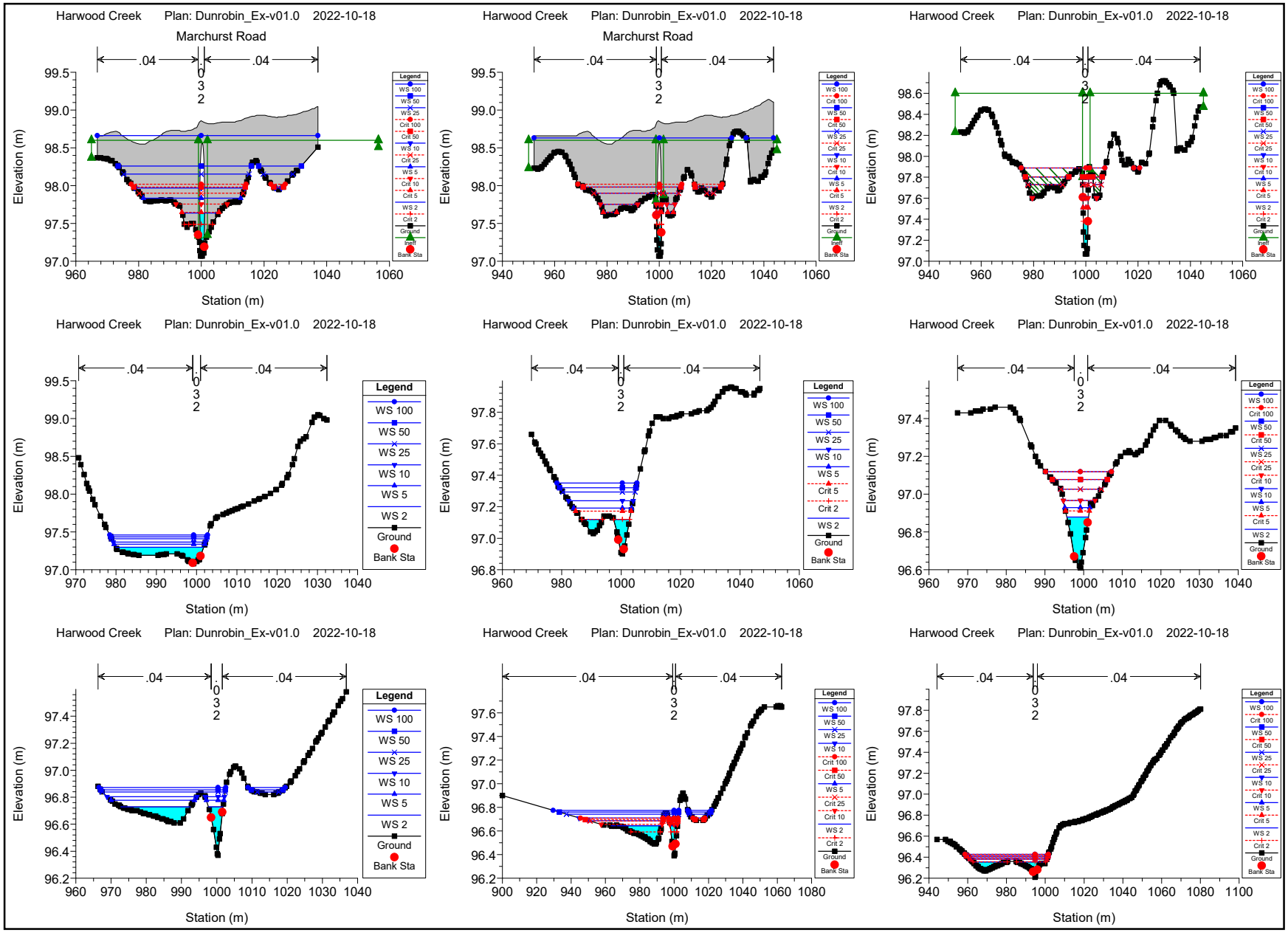
Table A-2 - Proposed Conditions HEC-RAS Results

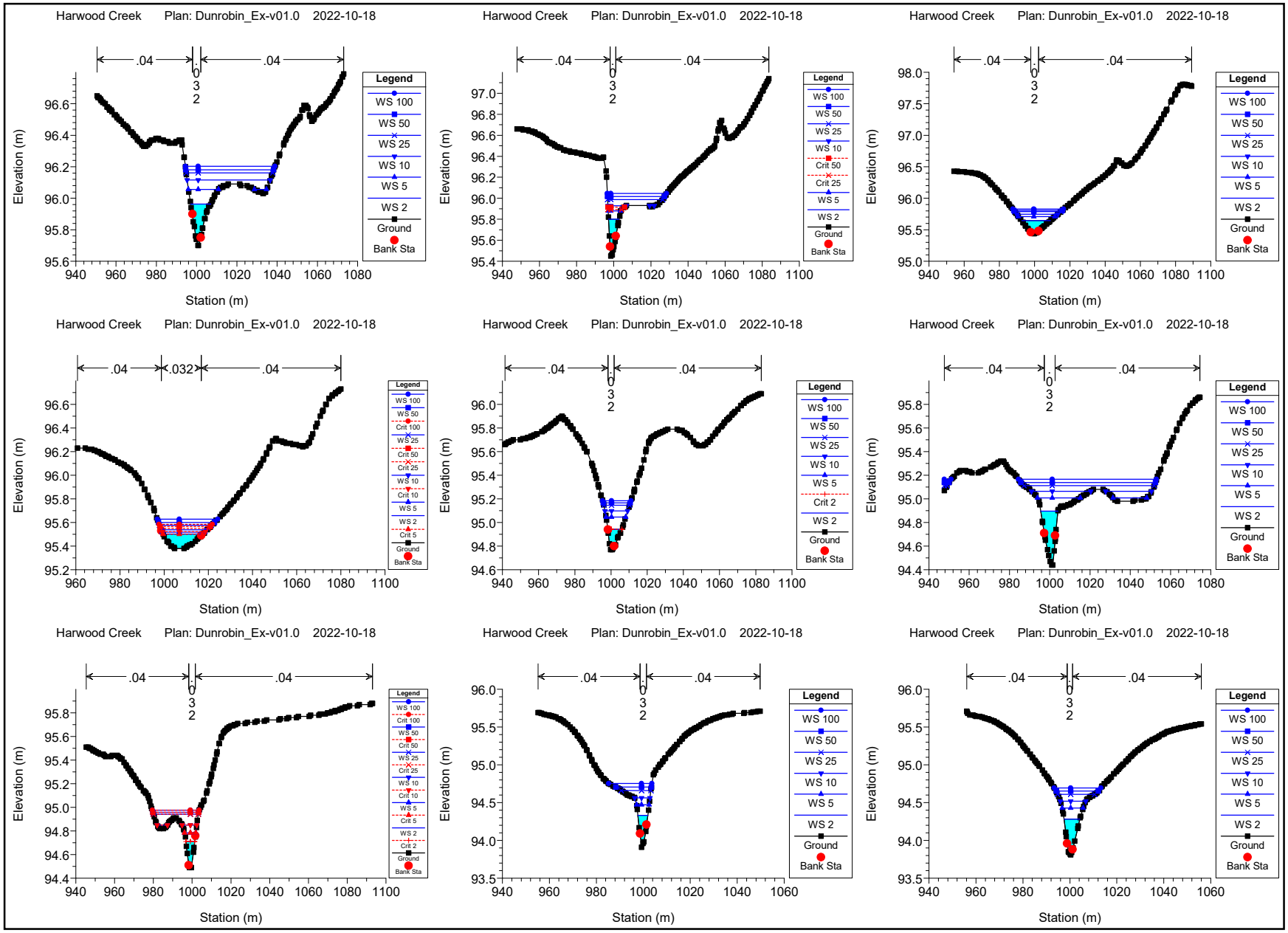
Reach	River Sta	Profile	Volume (1000 m3)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Main	209	2	1.18	66.69	67.15	67.14	67.27	0.012648	1.94	3.73	15.33	0.96
Main	209	5	1.79	66.69	67.32	67.24	67.49	0.012937	2.46	7.47	34.15	1.03
Main	209	10	2.28	66.69	67.41	67.24	67.52	0.008872	2.23	14.99	76.25	0.87
Main	209	25	3.05	66.69	67.52	67.48	67.59	0.005669	1.99	25.04	99.34	0.72
Main	209	50	8.63	66.69	67.61	67.48	67.66	0.004066	1.8	34.04	107.56	0.62
Main	209	100	9.04	66.69	67.68	67.56	67.72	0.003301	1.71	41.66	110.99	0.56
Main	145	2	1.02	65.78	66.32	66.32	66.5	0.012363	2.08	2.23	7.43	0.97
Main	145	5	1.48	65.78	66.53	66.53	66.78	0.010883	2.5	4.1	10.27	0.97
Main	145	10	1.77	65.78	66.66	66.66	66.94	0.010305	2.73	5.55	12.45	0.97
Main	145	25	2.25	65.78	66.83	66.83	67.16	0.00942	2.99	8.17	17.16	0.96
Main	145	50	7.57	65.78	66.93	66.93	67.29	0.009678	3.22	9.93	20.08	0.99
Main	145	100	7.74	65.78	67.06	67.06	67.41	0.00844	3.25	13	26.27	0.94
Main	100	2	0.85	63.94	64.27	64.27	64.34	0.016935	1.78	5.3	33.89	1.05
Main	100	5	1.21	63.94	64.34	64.34	64.44	0.020912	2.29	7.85	37.21	1.22
Main	100	10	1.42	63.94	64.4	64.4	64.51	0.020776	2.51	10	41.23	1.24
Main	100	25	1.78	63.94	64.46	64.46	64.59	0.022265	2.84	12.54	43.7	1.31
Main	100	50	7.03	63.94	64.5	64.5	64.64	0.023541	3.07	14.23	45.18	1.37
Main	100	100	7.09	63.94	64.53	64.53	64.7	0.024836	3.3	15.91	47.23	1.42
Main	33	2	0.53	62.25	62.67	62.67	62.77	0.008626	1.56	4.02	30.73	0.79
Main	33	5	0.61	62.25	62.8	62.8	62.9	0.007427	1.74	9.65	54.4	0.77
Main	33	10	0.65	62.25	62.85	62.85	62.96	0.008439	1.97	12.44	61.12	0.83
Main	33	25	0.73	62.25	62.93	62.93	63.04	0.007698	2.06	17.98	68.69	0.81
Main	33	50	2.25	62.25	62.96	62.96	62.96	0.000076	0.21	122.66	138.85	0.08
Main	33	100	2.25	62.25	62.96	62.96	62.96	0.000108	0.25	122.65	138.85	0.1
Main	4	2		60.72	61.05	61.05	61.05	0.000204	0.2	32.45	76.76	0.12
Main	4	5		60.72	61.05	61.05	61.05	0.000732	0.39	32.44	76.76	0.22
Main	4	10		60.72	61.05	61.05	61.05	0.001352	0.53	32.44	76.76	0.3
Main	4	25		60.72	61.05	61.05	61.06	0.002713	0.75	32.44	76.76	0.43
Main	4	50		60.72	61.05	61.05	61.06	0.004074	0.91	32.44	76.76	0.52
Main	4	100		60.72	61.05	61.05	61.06	0.005786	1.09	32.45	76.76	0.62

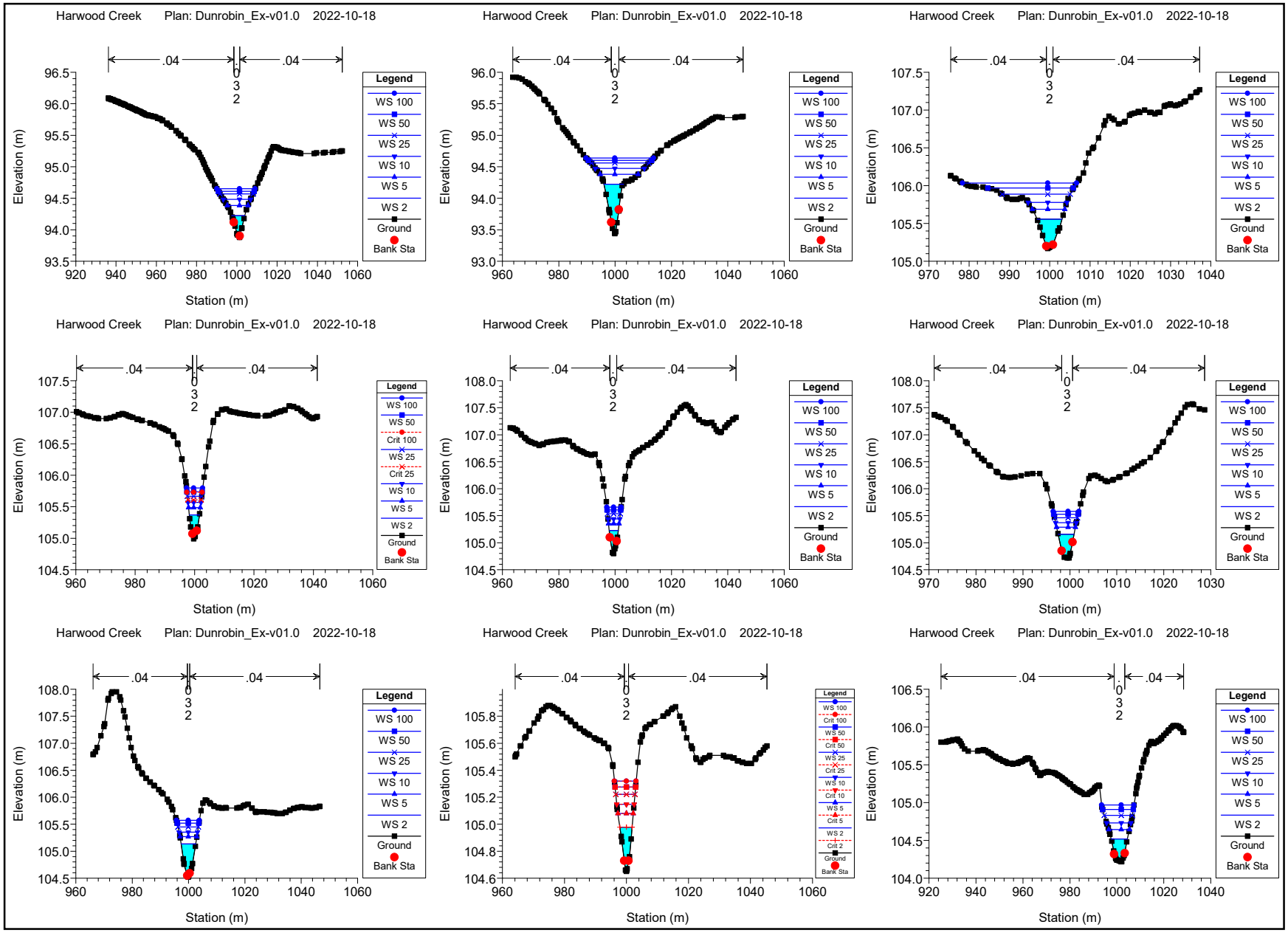

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.04
0.32
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Bank Sta

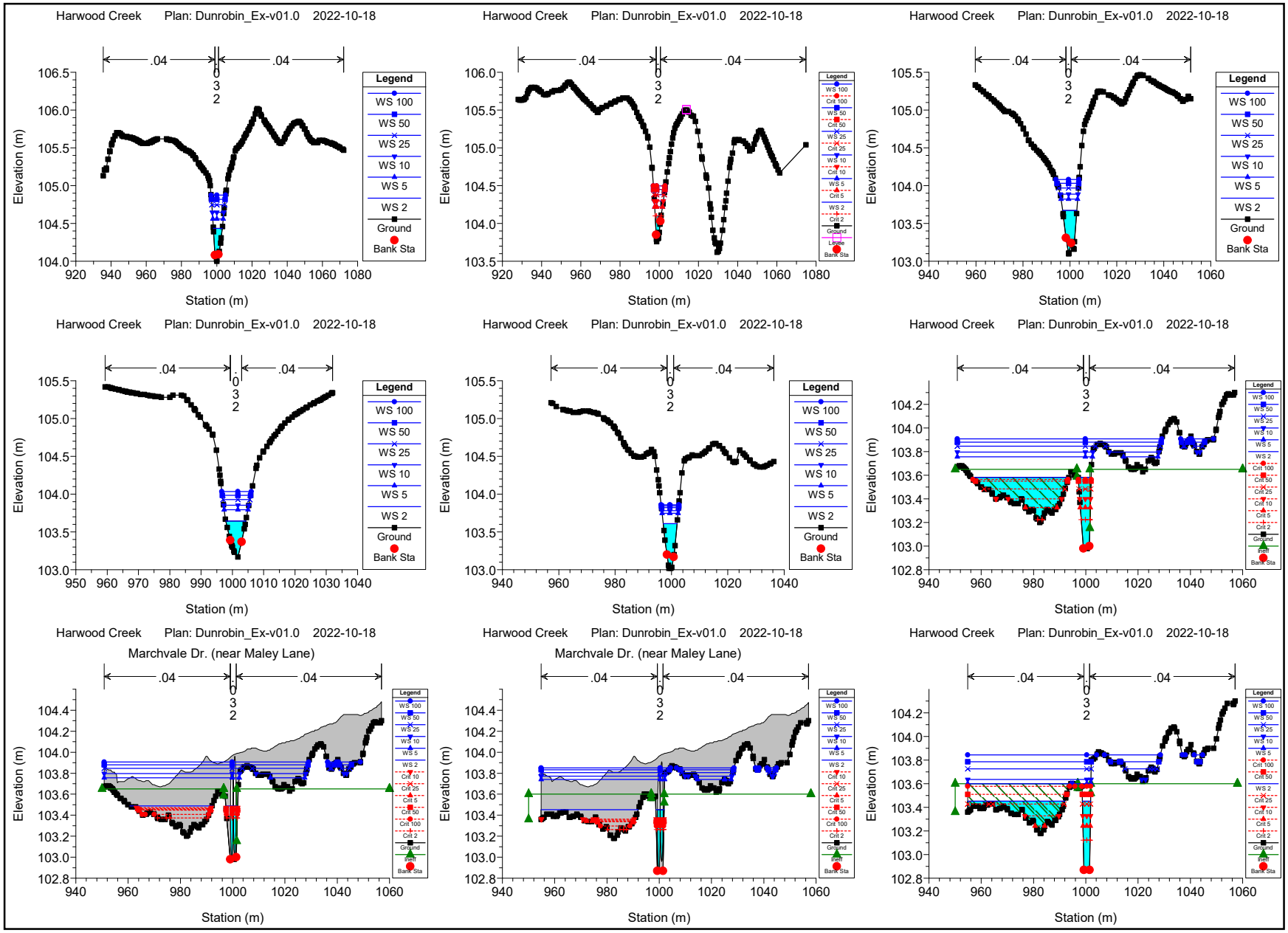

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
219 Ridgeside Farm Road (Driveway)
.04
.032
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Ground
Bank Sta

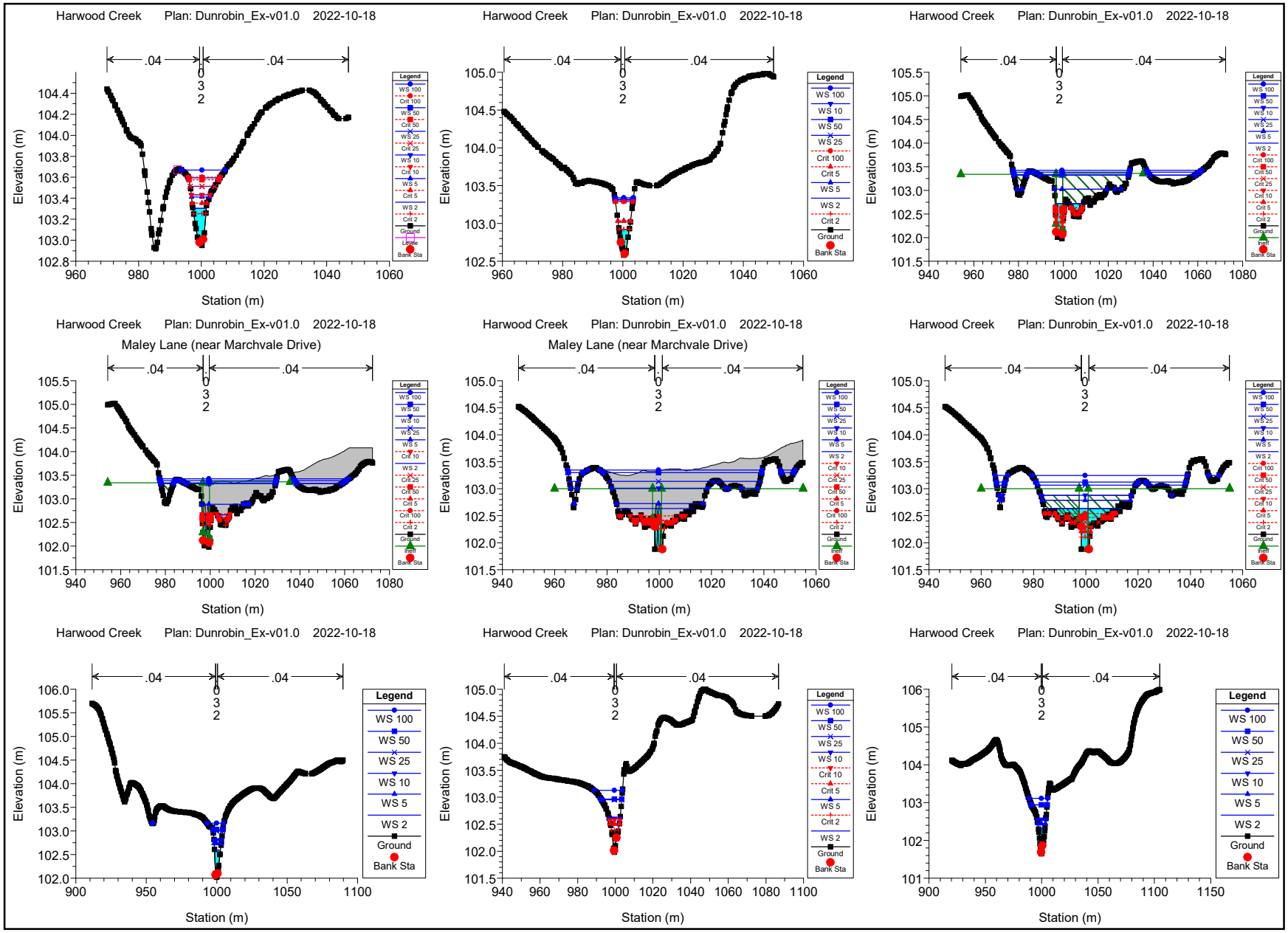

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.032
.03
.02
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Ground
Bank Sta

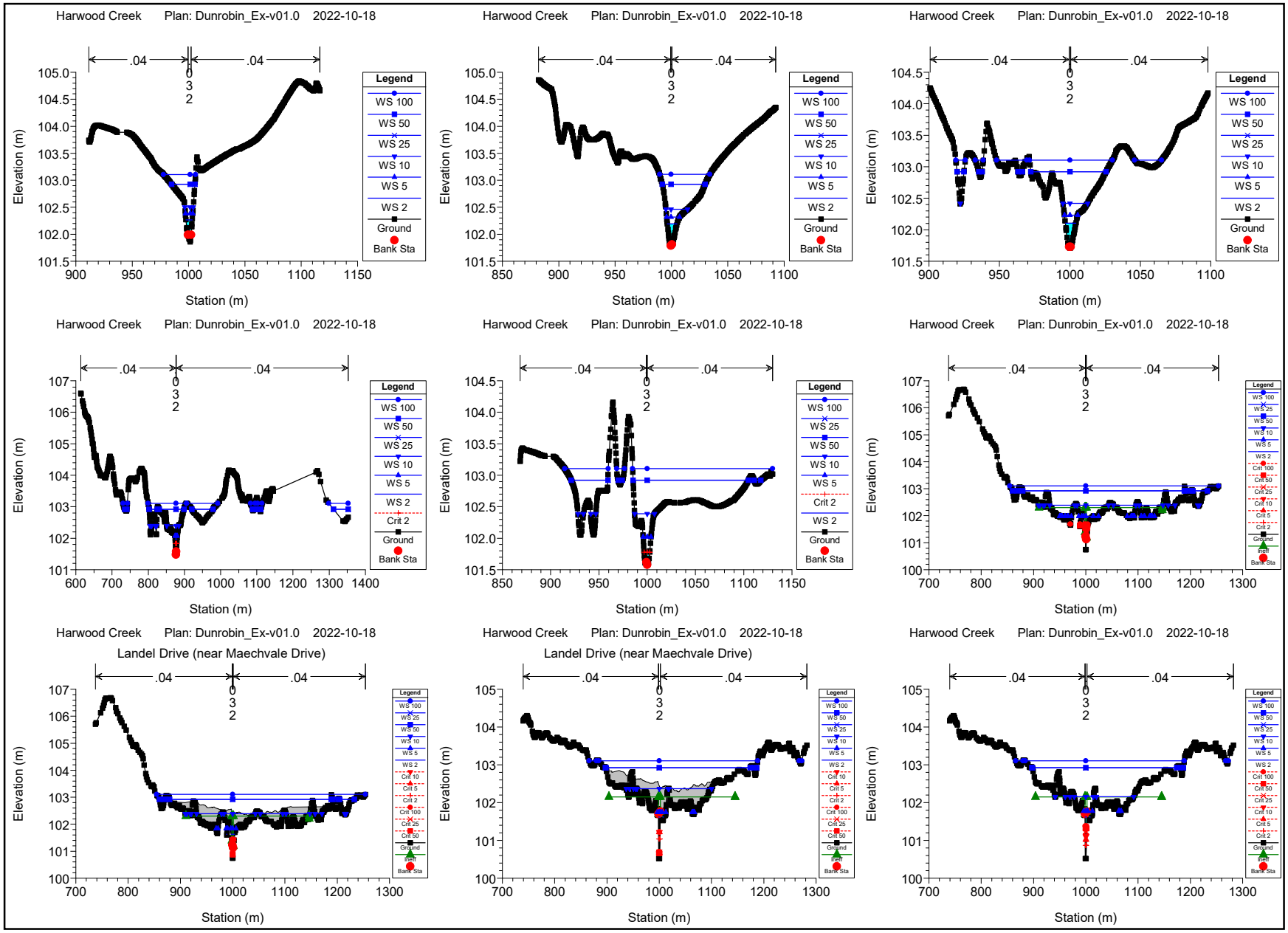

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Marchurst Road
.04
.04
0.32
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Draft

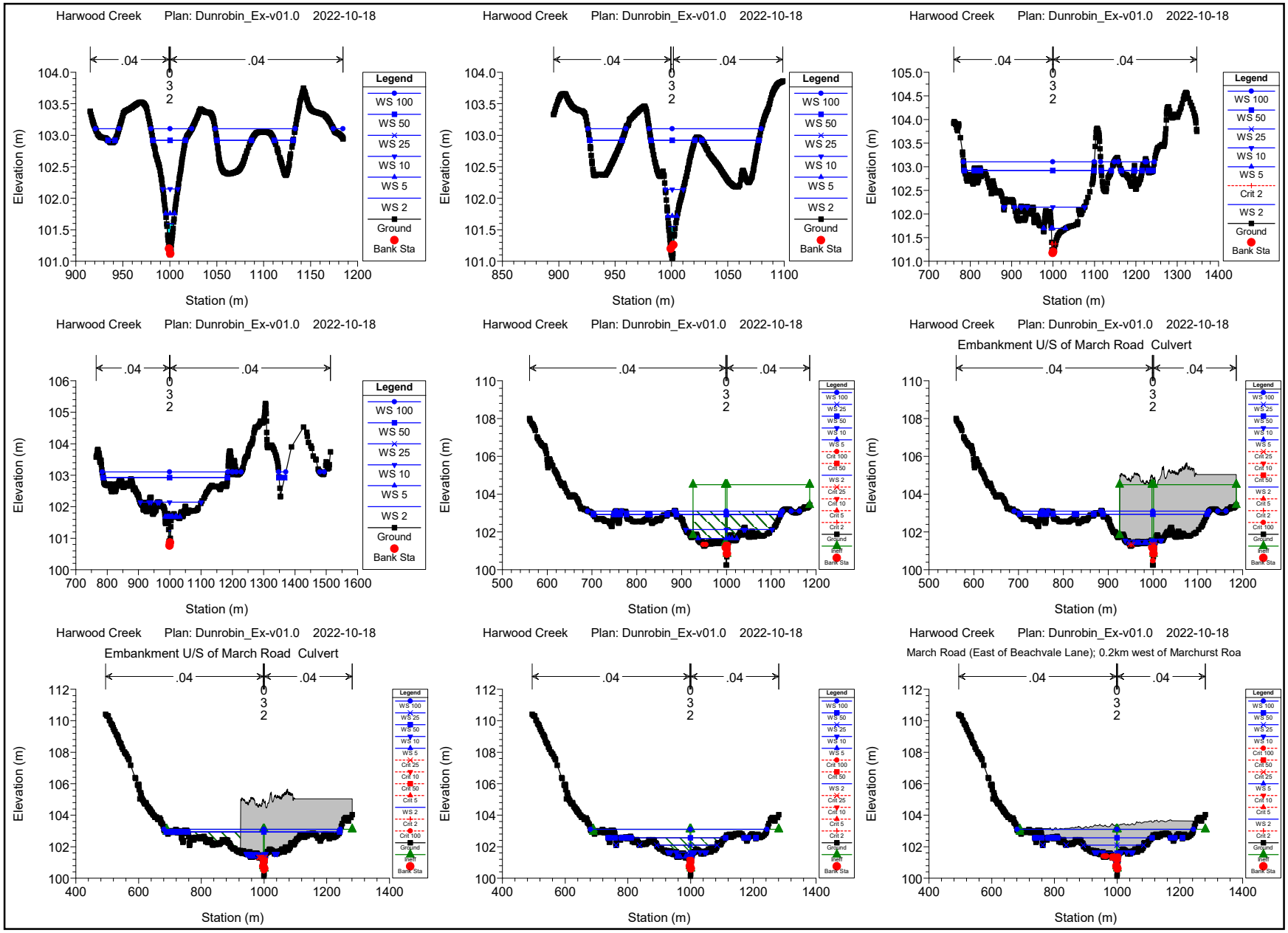

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.032
0.32
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

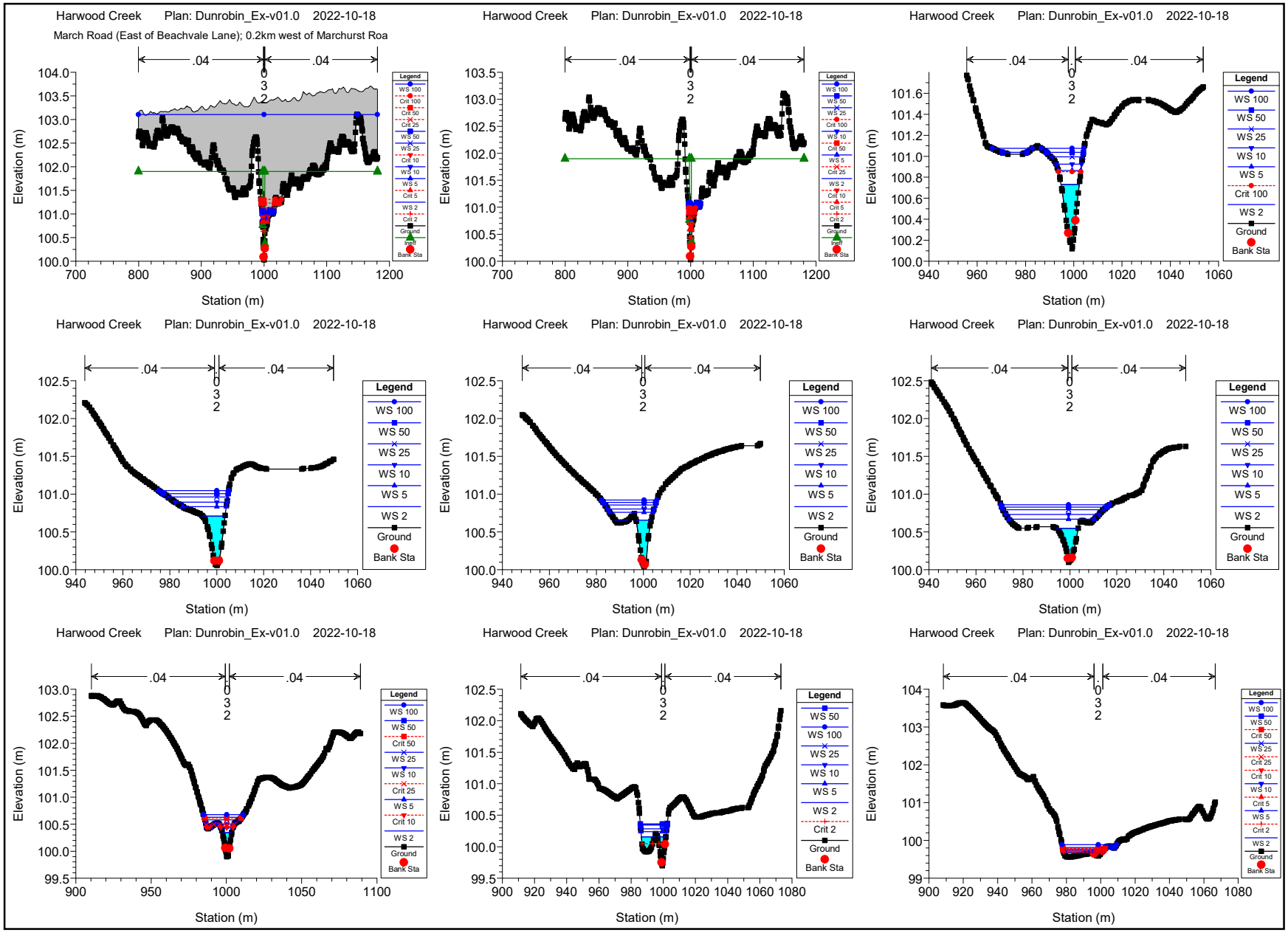

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.032
.04
Elevation (m)
Station (m)
Legend
WS 100
WS 50
Crit 100
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Bank Sta

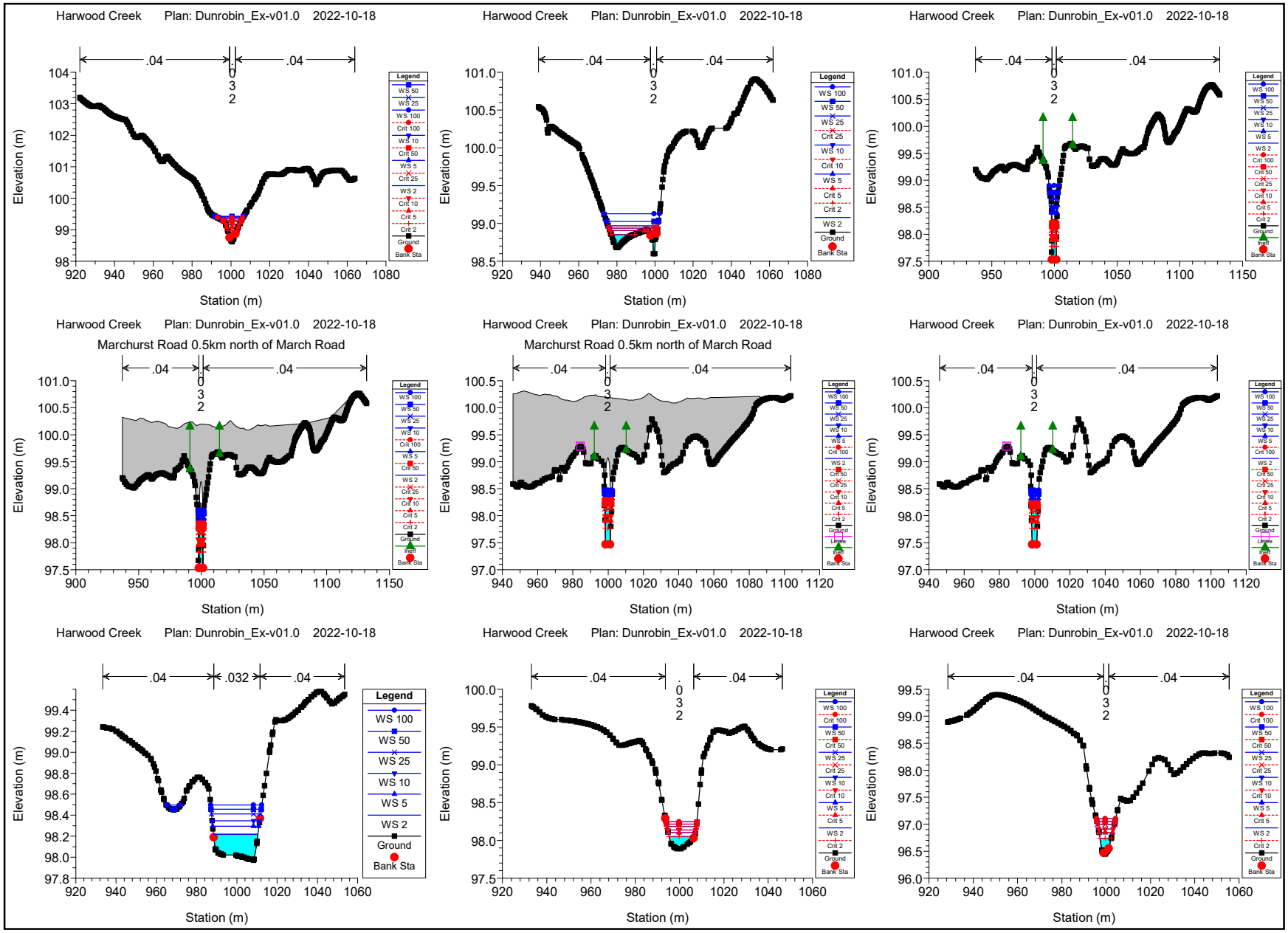

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Marchvale Dr. (near Maley Lane)
.04
.04
0.32
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

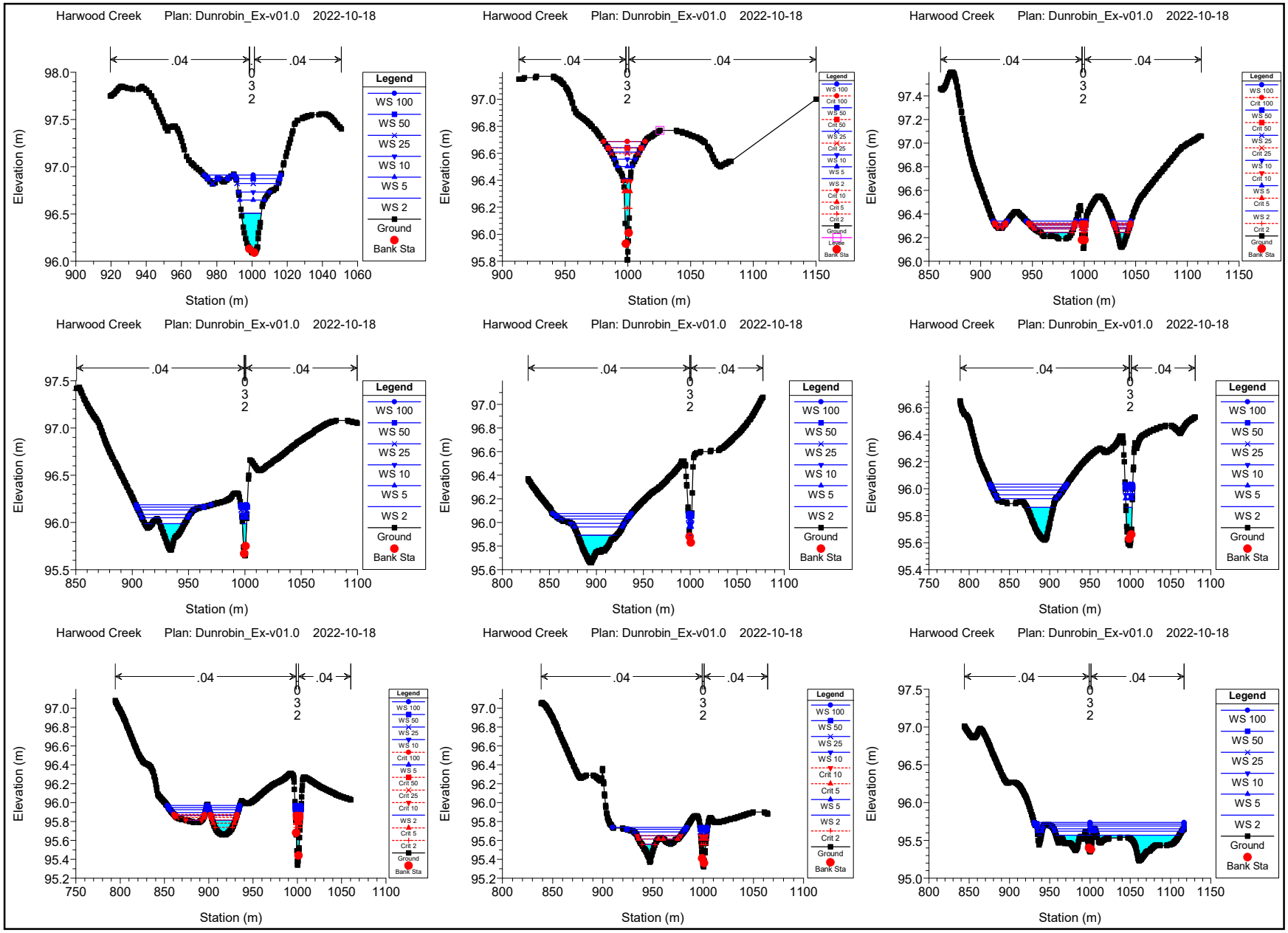

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Maley Lane (near Marchvale Drive)
.04
.04
0
3
2
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

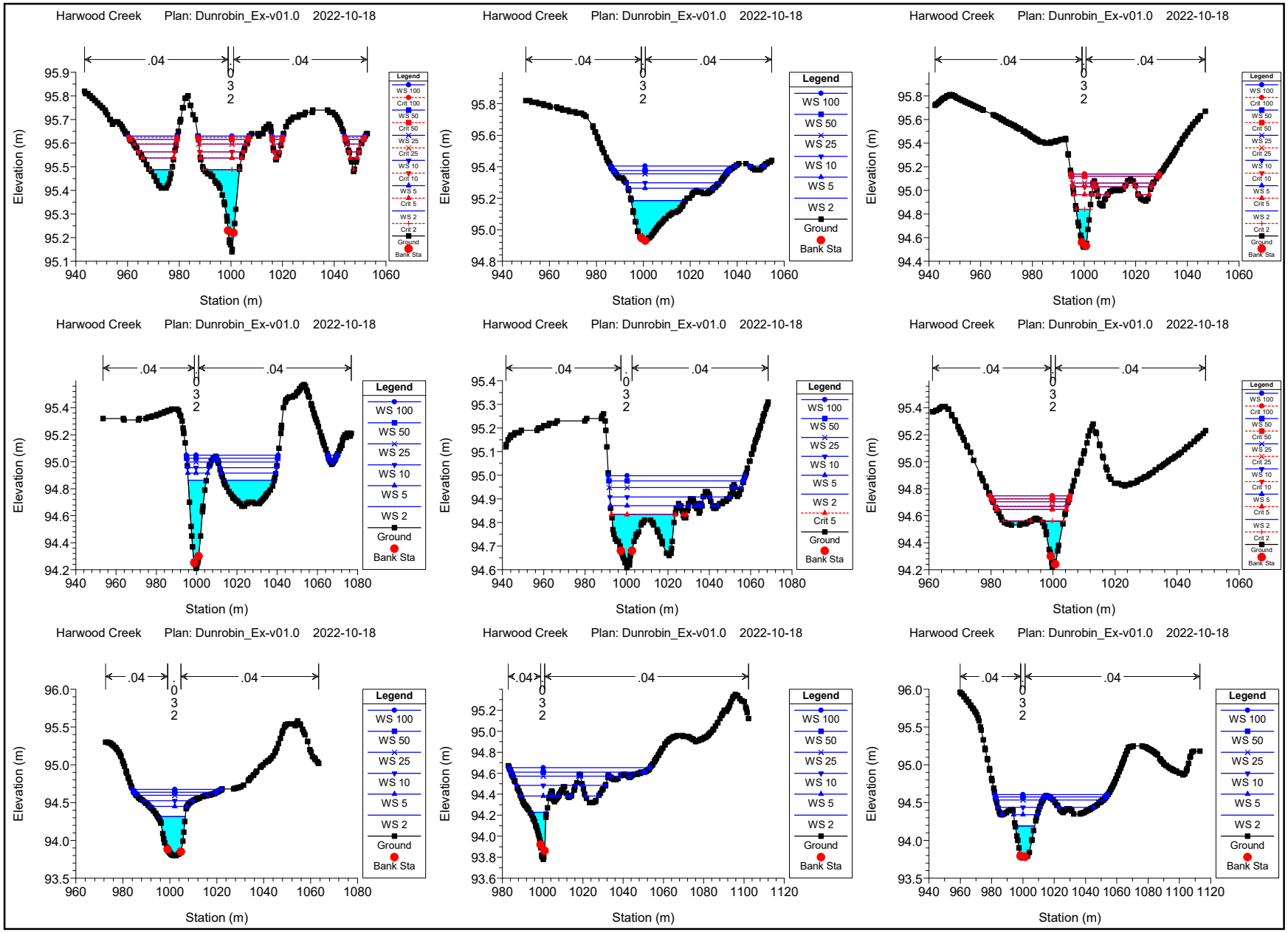

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Landel Drive (near Maechvale Drive)
.04
.04
0
3
2
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Ground
Shelf
Bank Sta

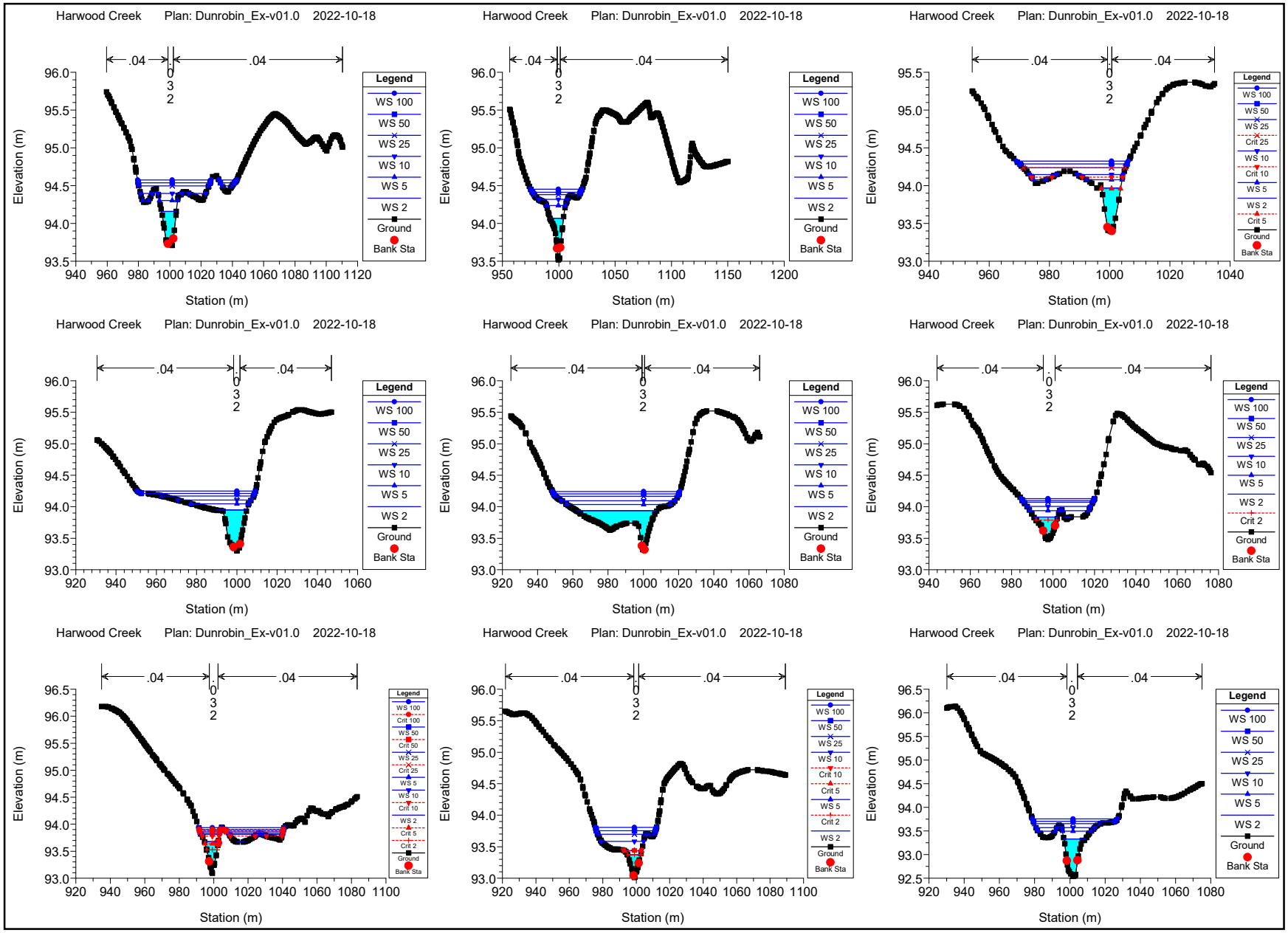

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
Crit 2
WS 2
Ground
Bank Sta
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Embankment U/S of March Road Culvert
Elevation (m)
Station (m)
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Embankment U/S of March Road Culvert
Elevation (m)
Station (m)
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
March Road (East of Beachvale Lane); 0.2km west of Marchurst Roa
Elevation (m)
Station (m)

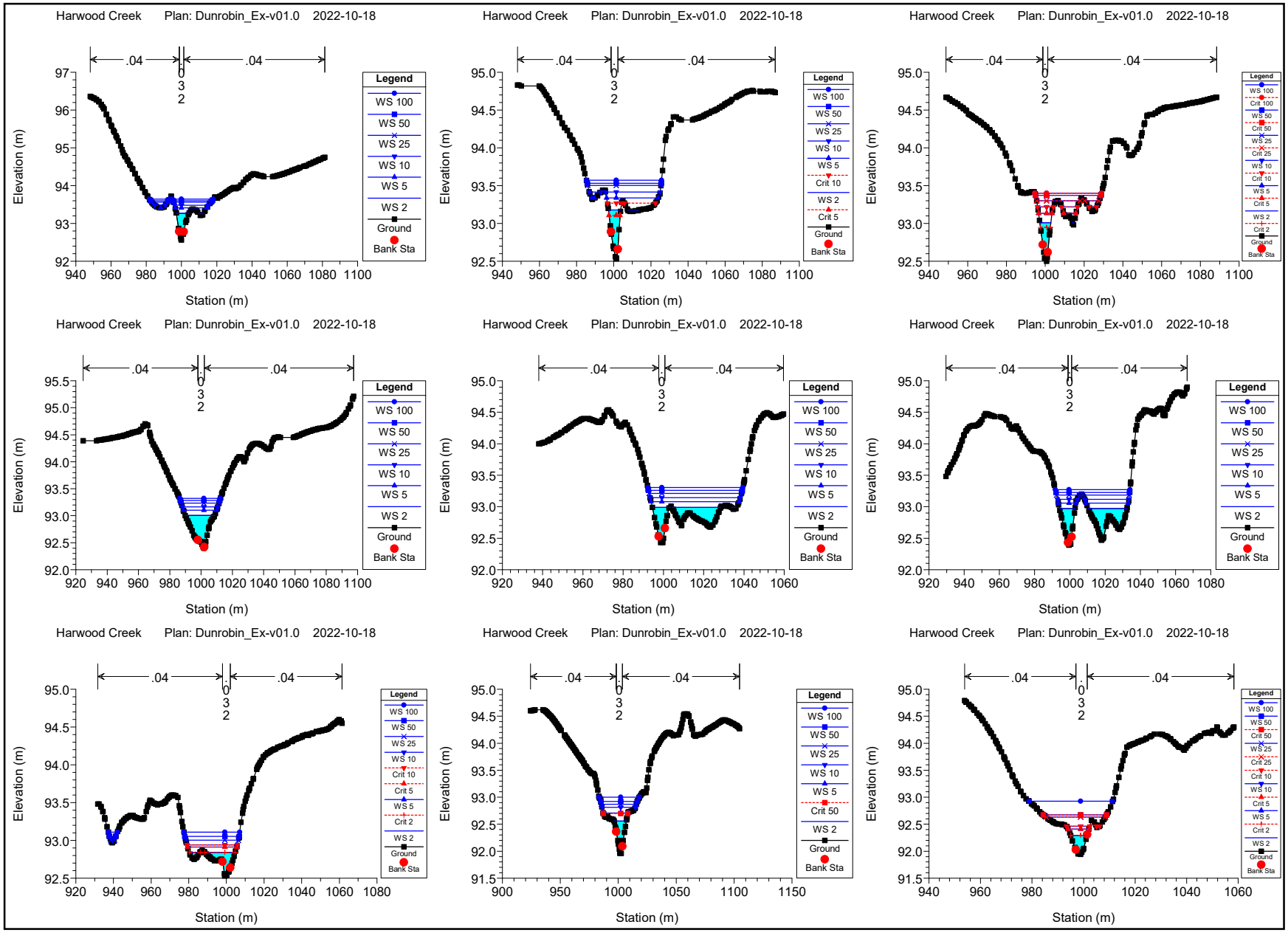

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
March Road (East of Beachvale Lane); 0.2km west of Marchurst Roa
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.032
.04
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

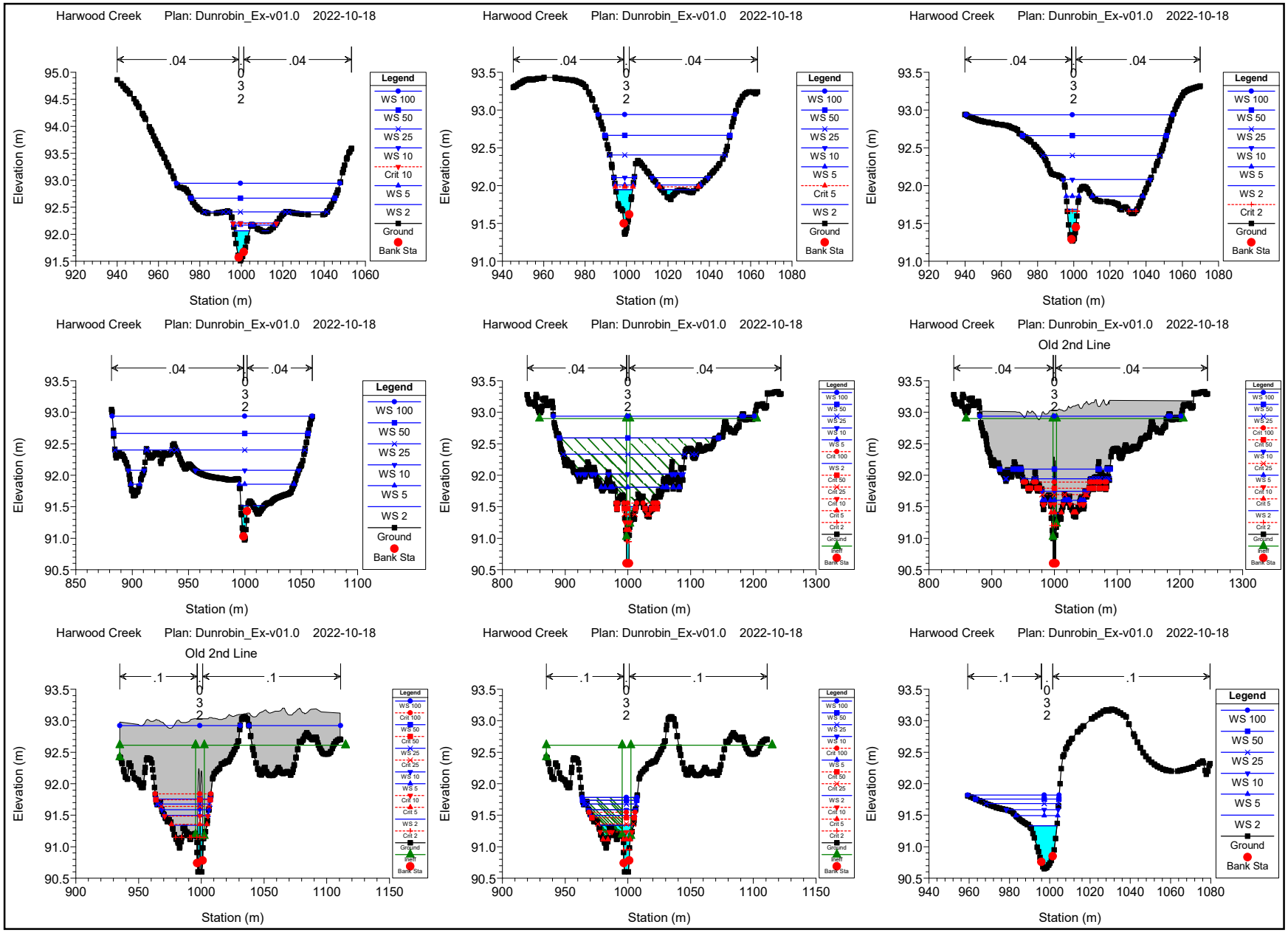

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Marchurst Road 0.5km north of March Road
.04
.032
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

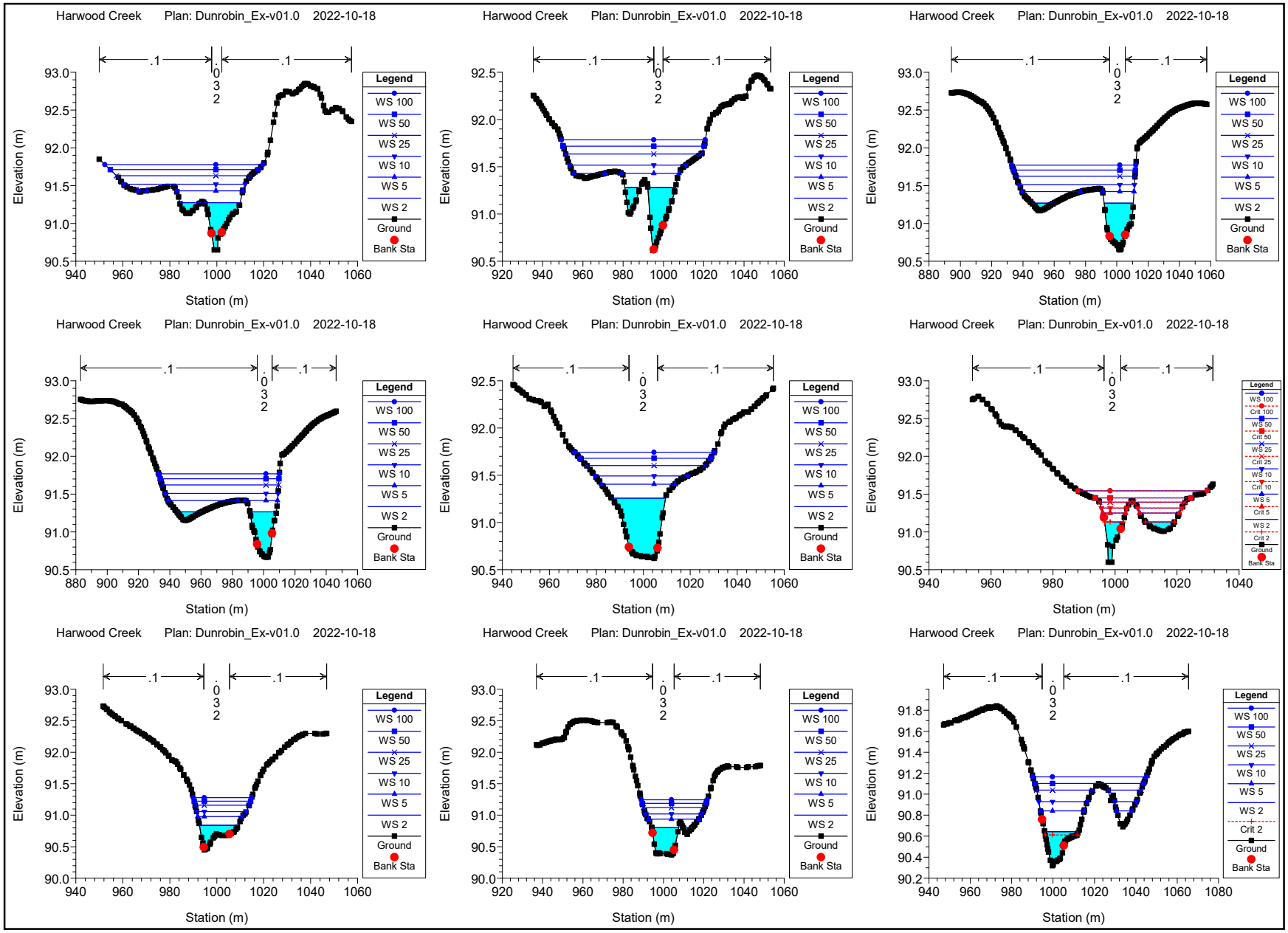

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.04
0
3
2
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

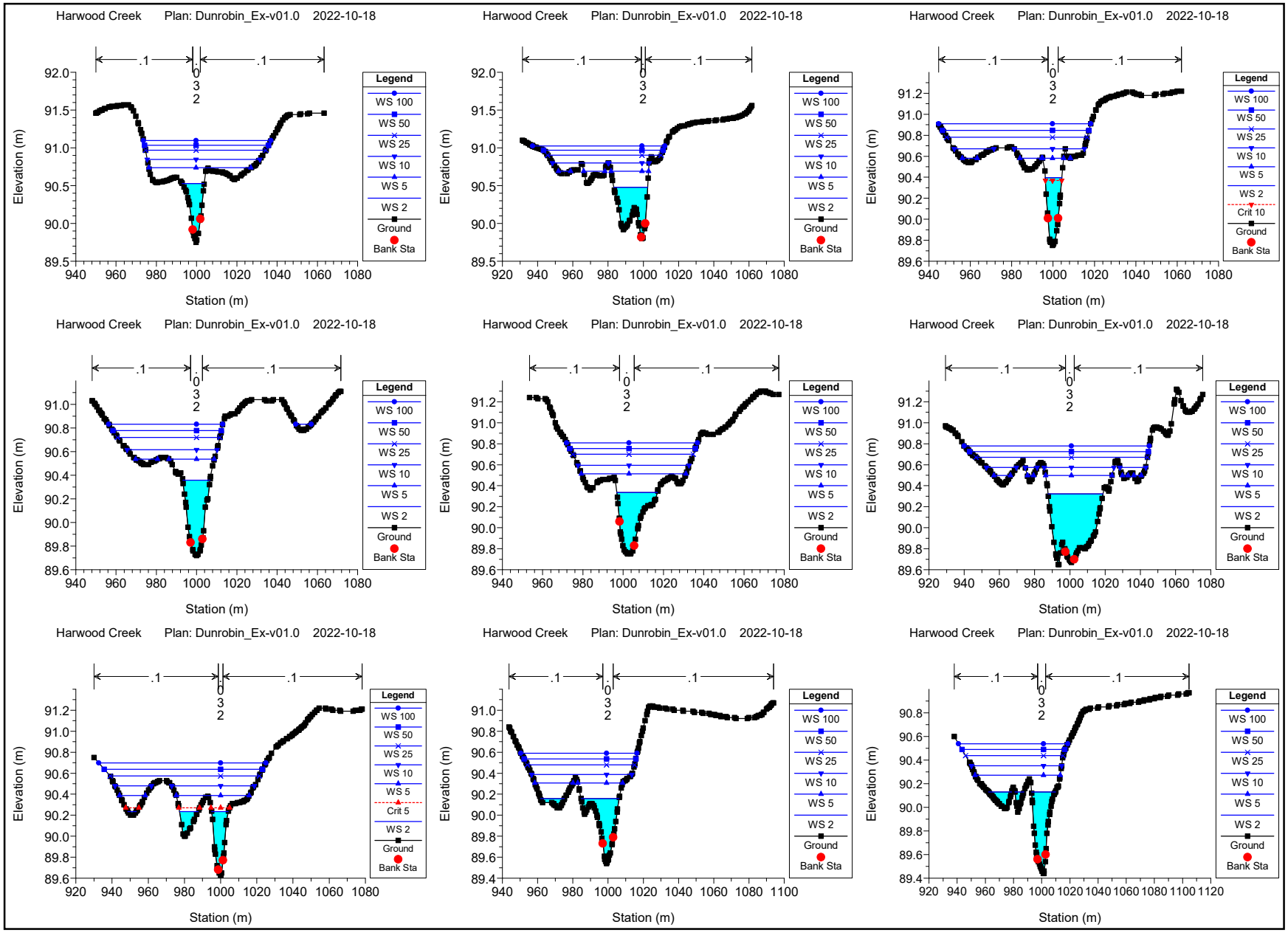

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.032
.04
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Bank Sta

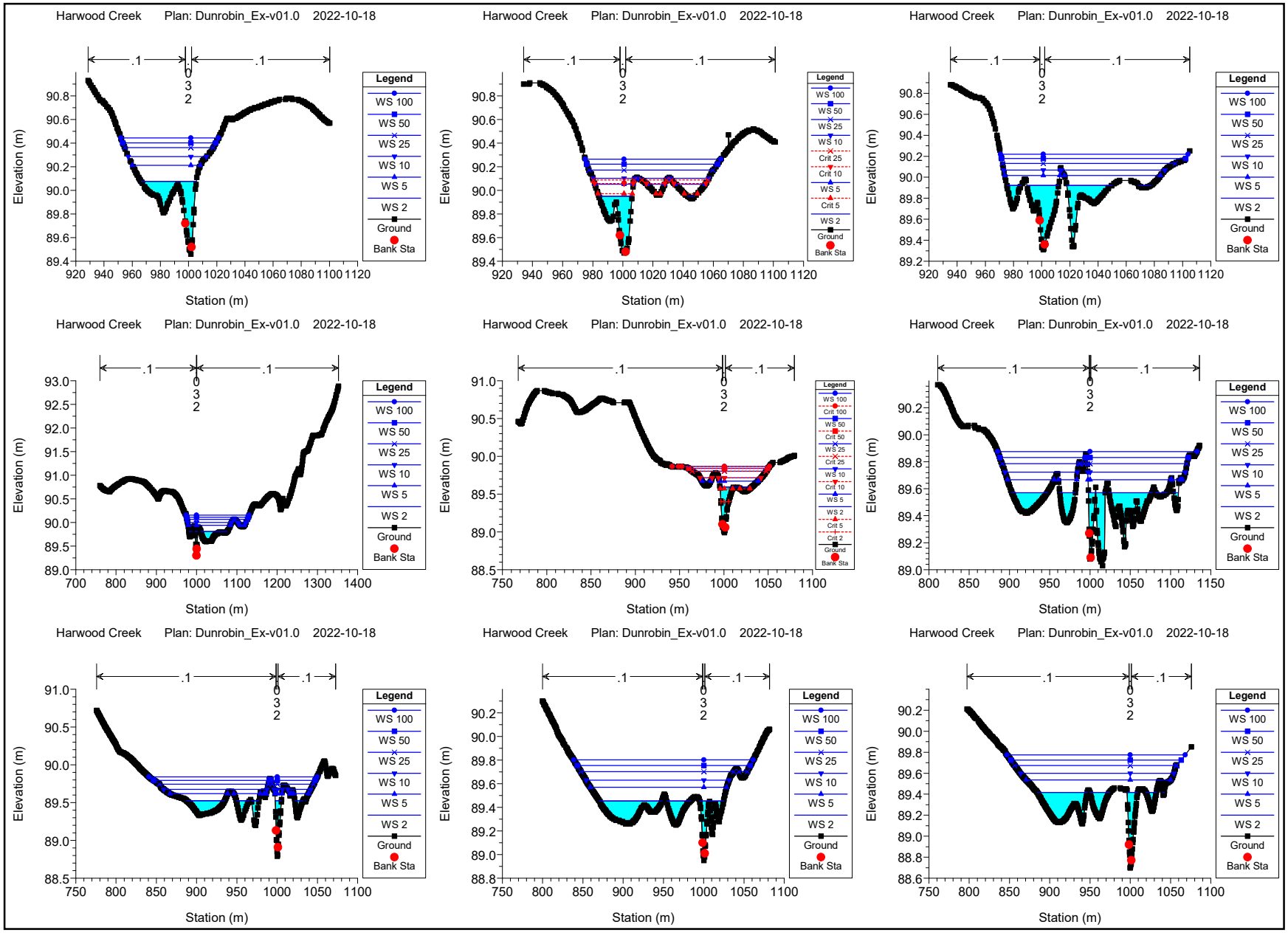

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.04
.032
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

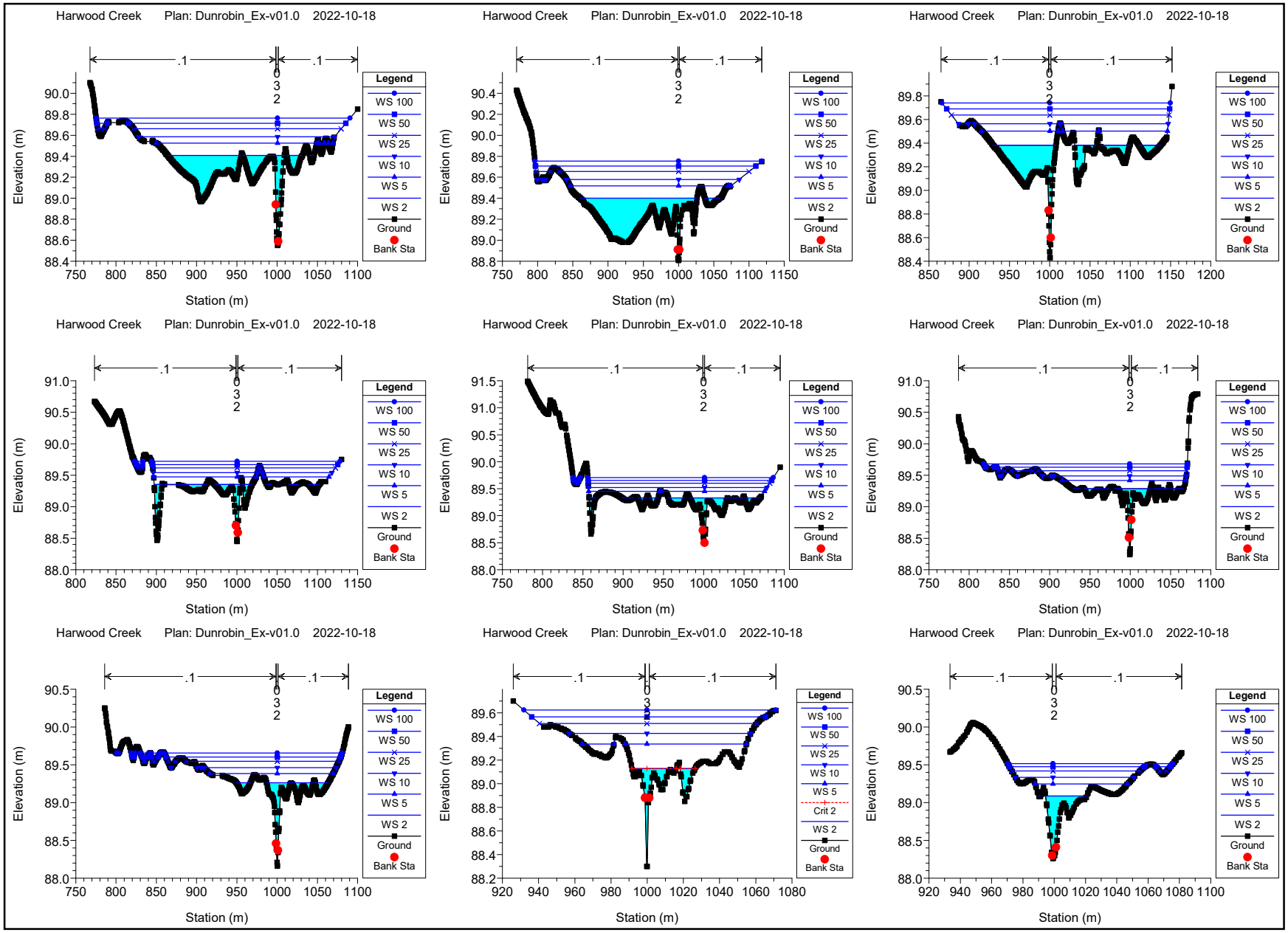

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.04
.03
.04
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

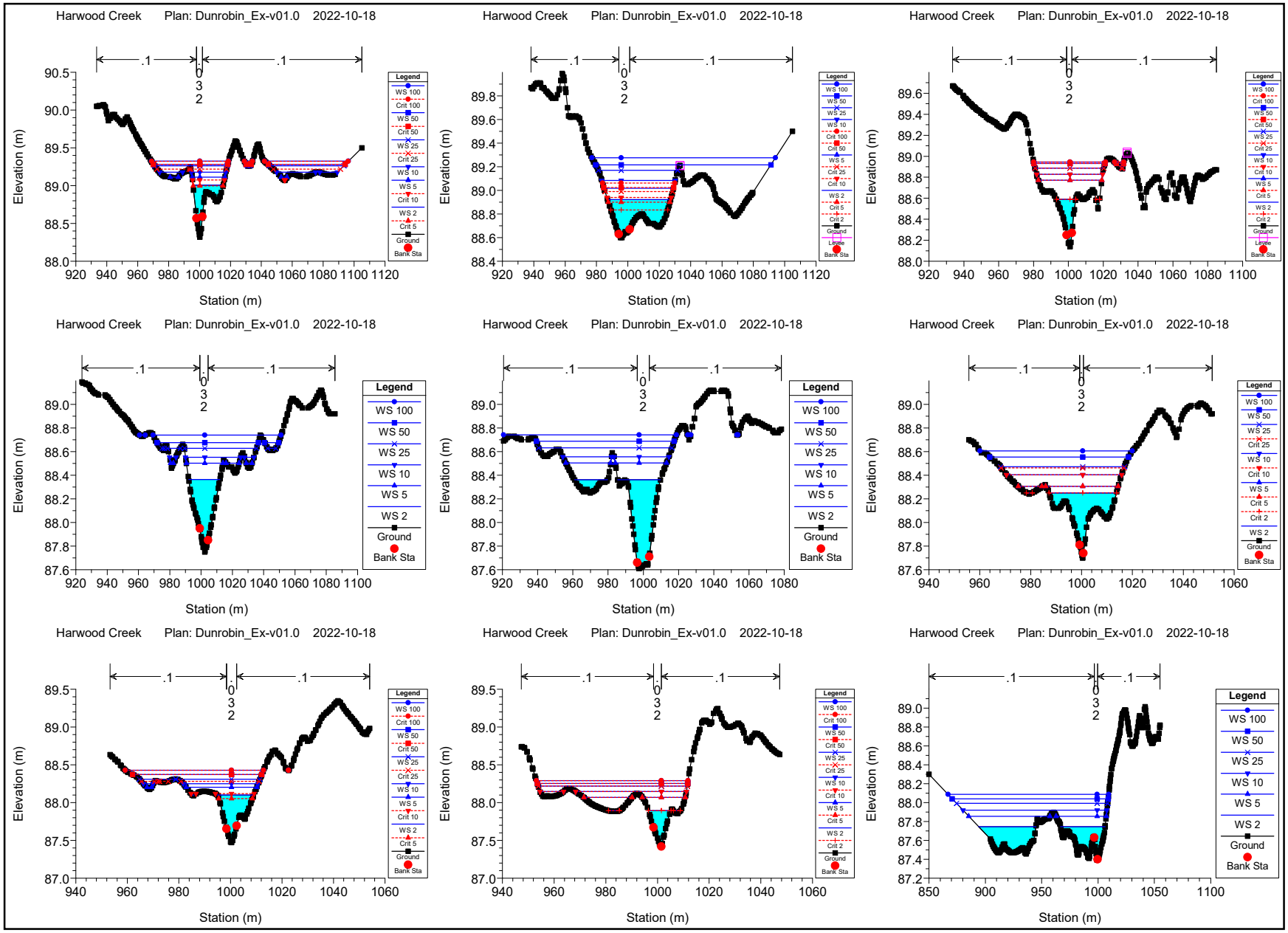

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Old 2nd Line
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Old 2nd Line
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
Crit 10
WS 5
WS 2
Ground
Bank Sta
Crit 5
Crit 2
Crit 100
Crit 50
Crit 25
Ineff

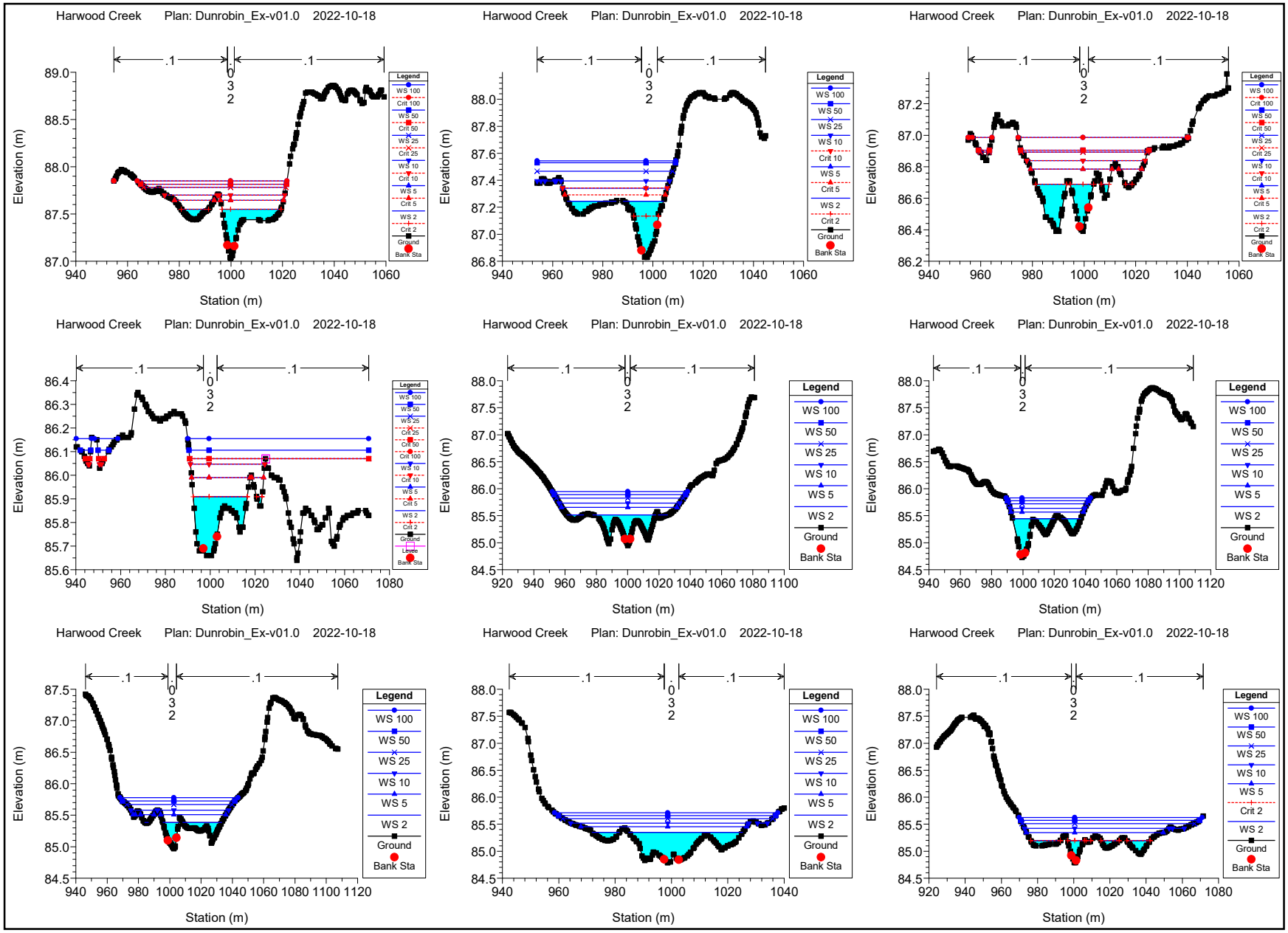

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

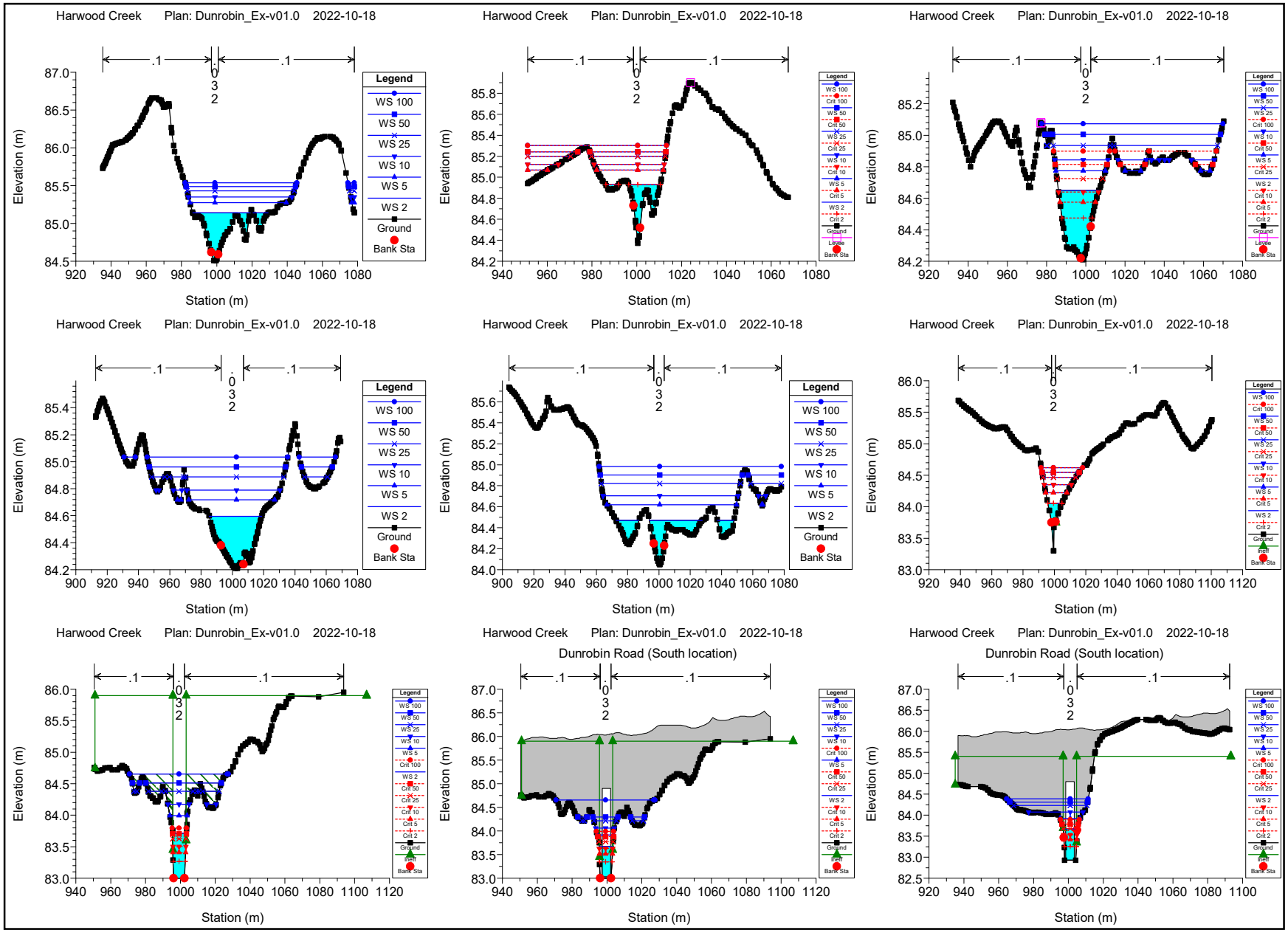

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Crit 10
Crit 5
Ground
Bank Sta

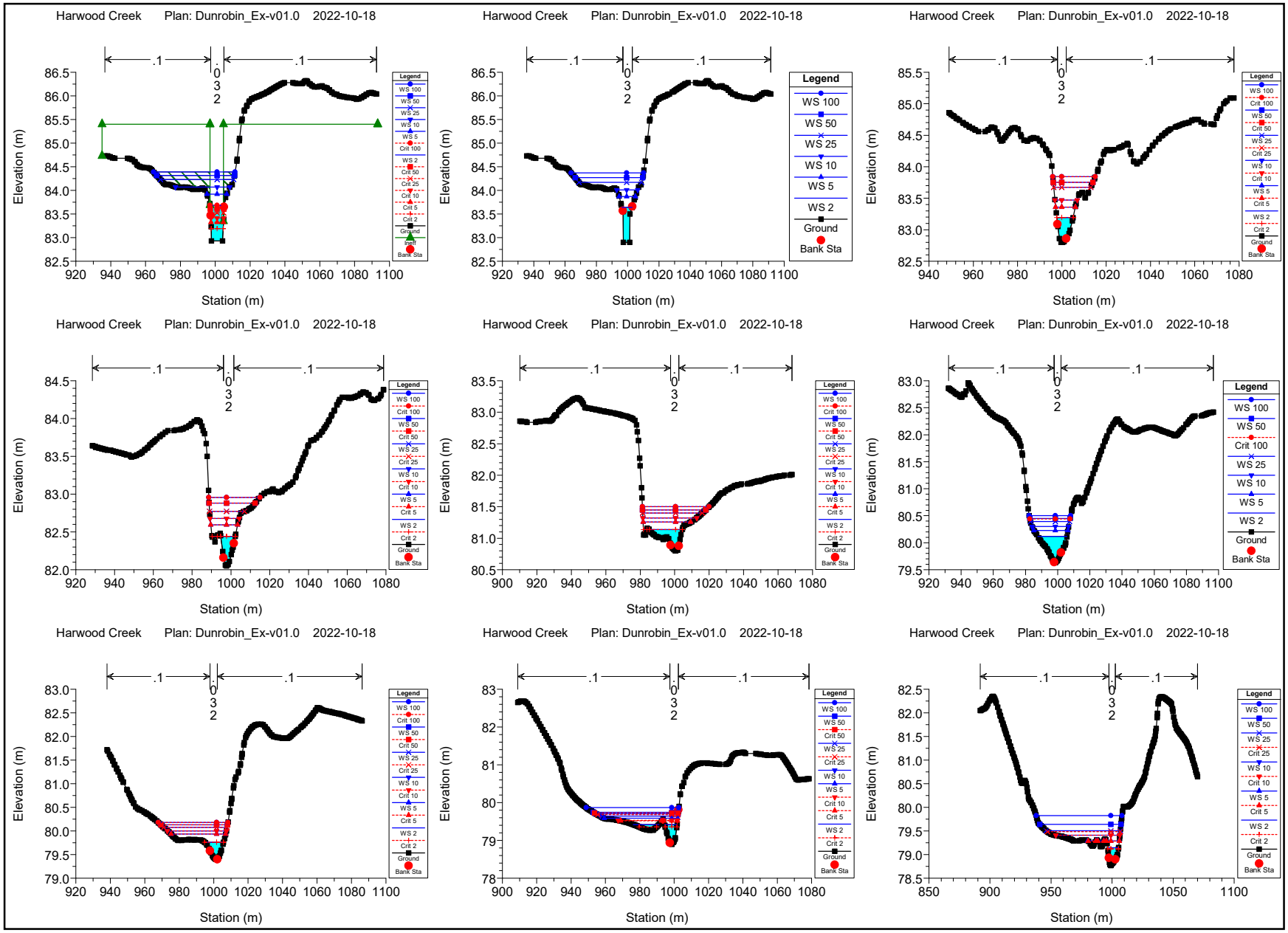

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

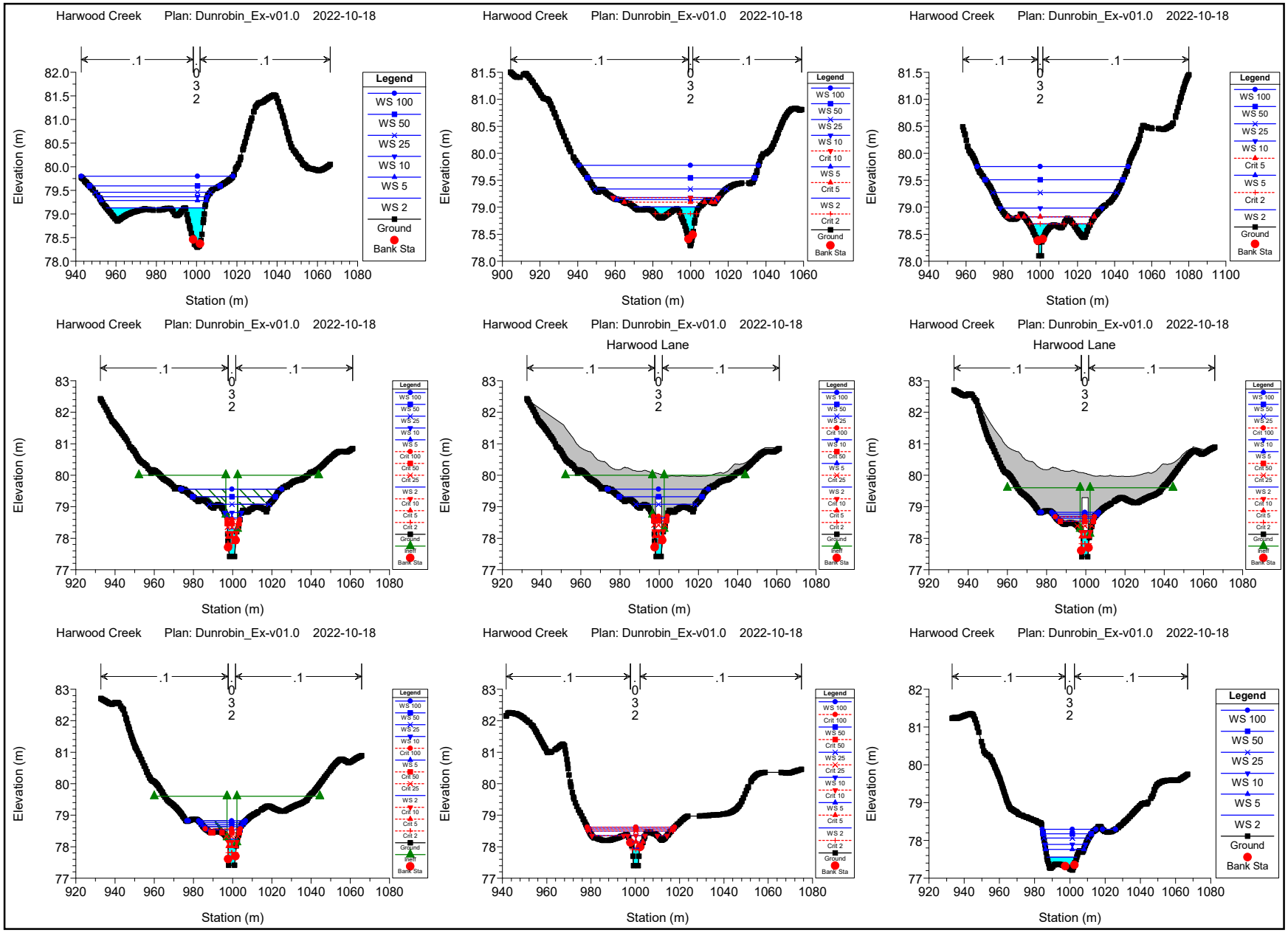

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 2

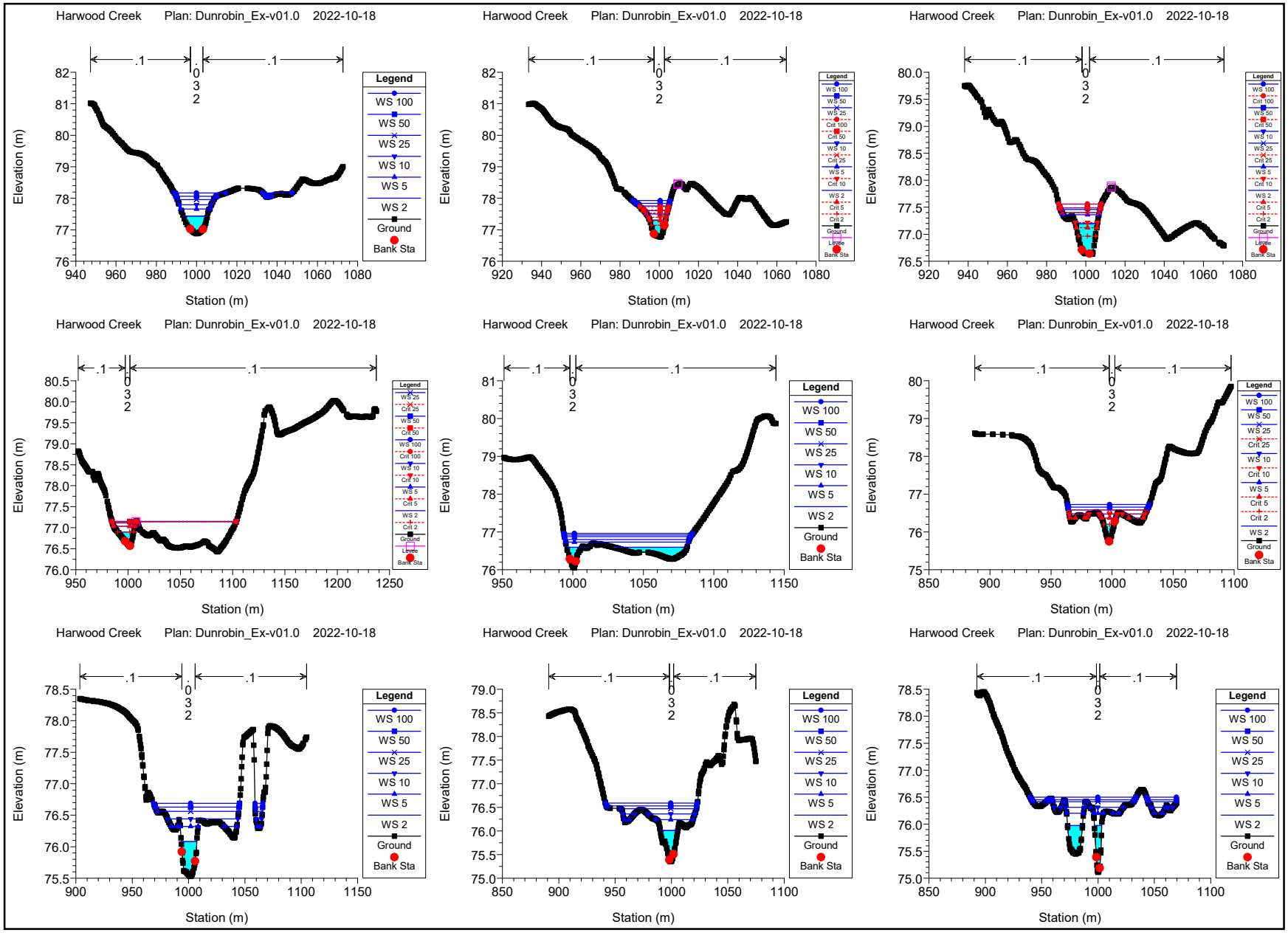

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
WS 5
Crit 10
WS 2
Crit 5
Ground
Bank Sta

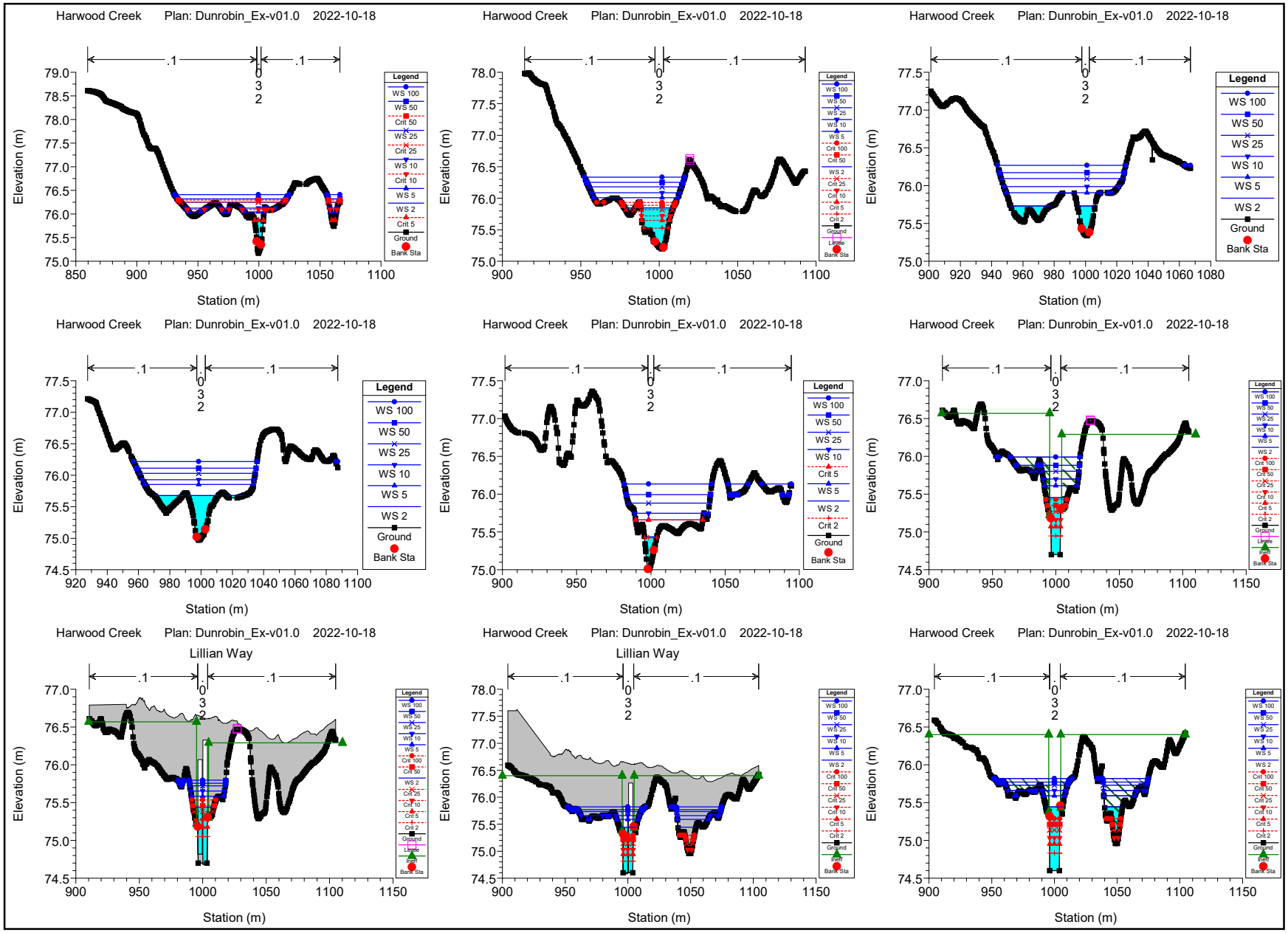

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Levee
Bank Sta

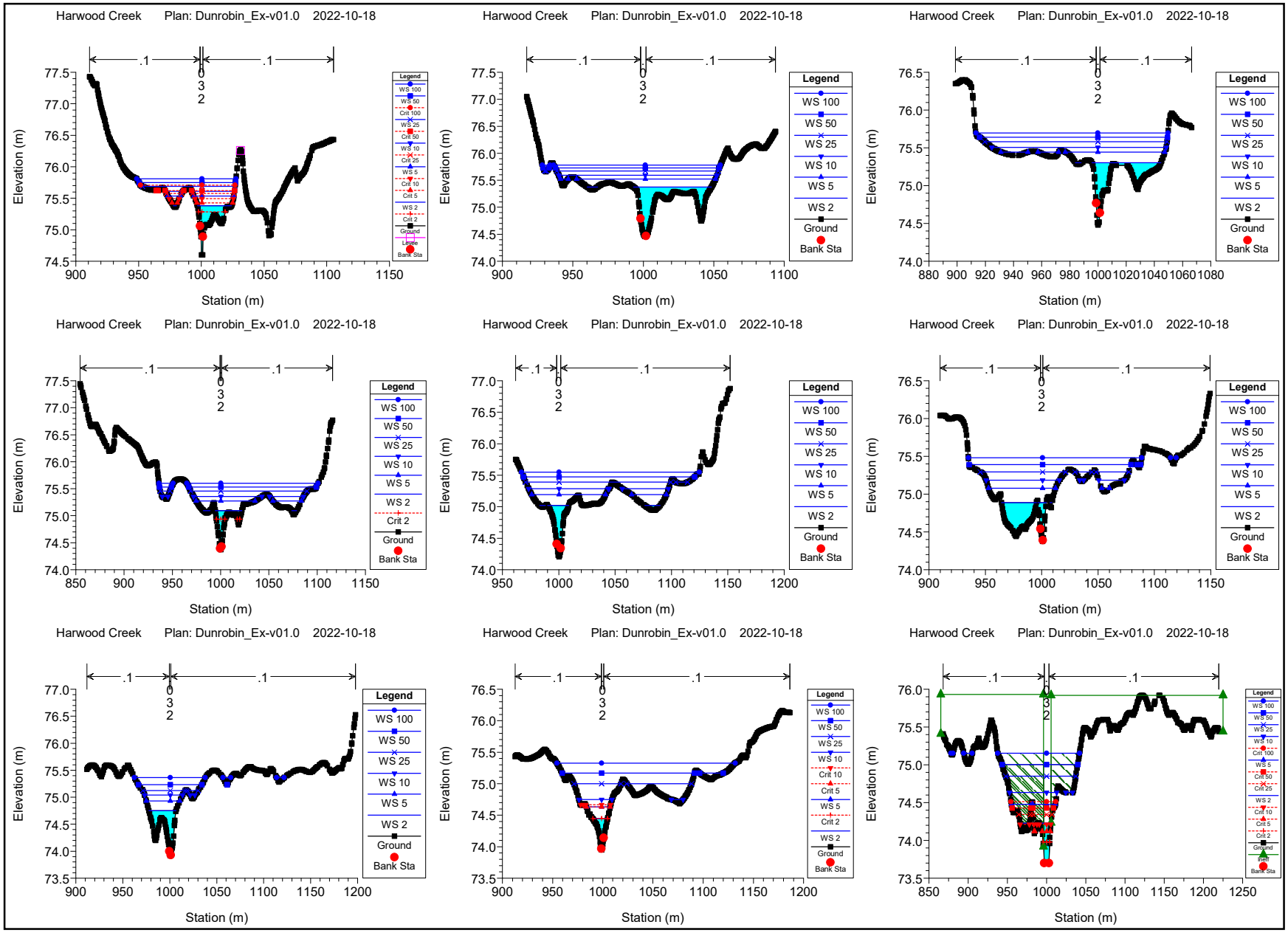

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Dunrobin Road (South location)
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

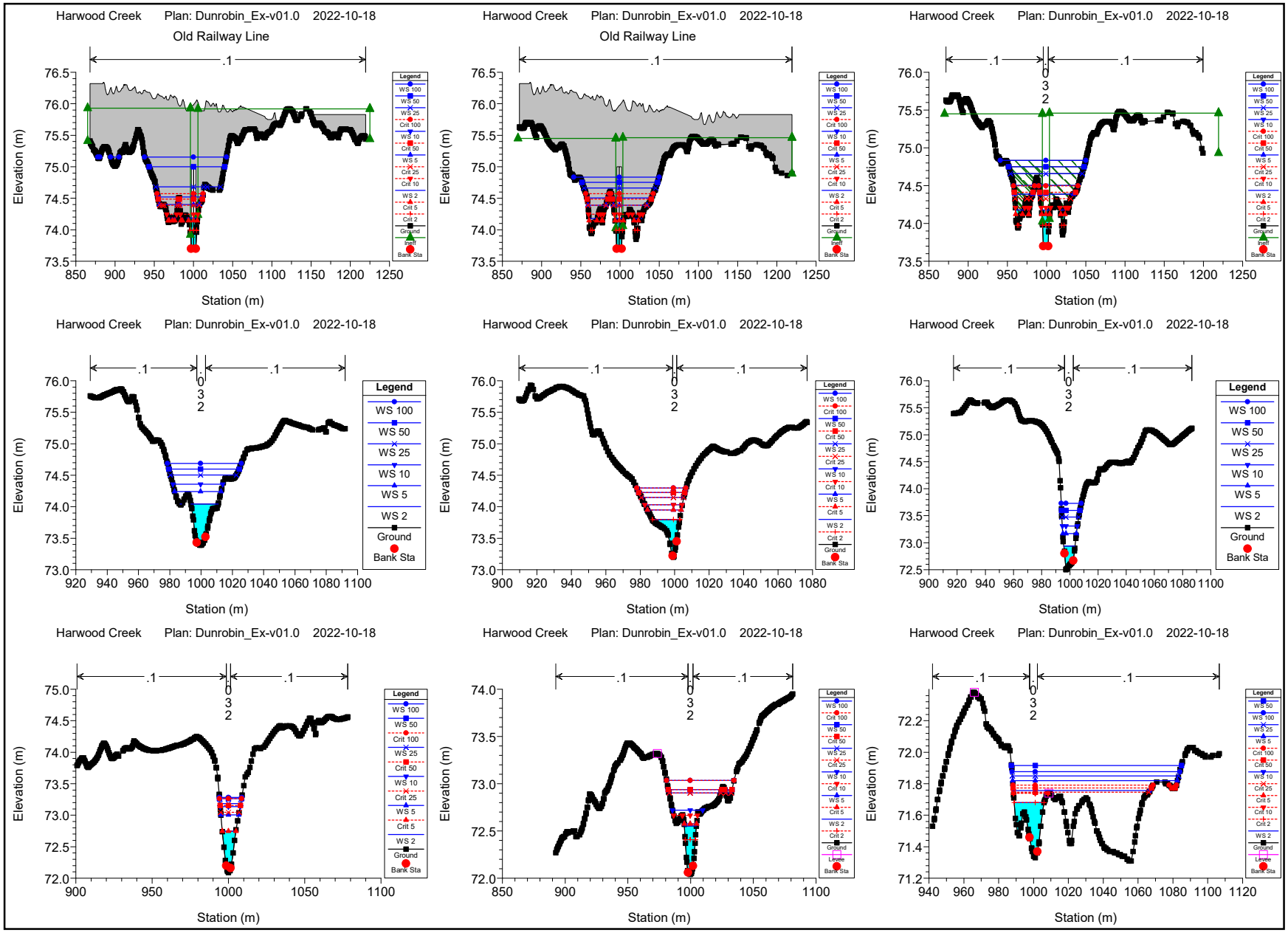

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Path

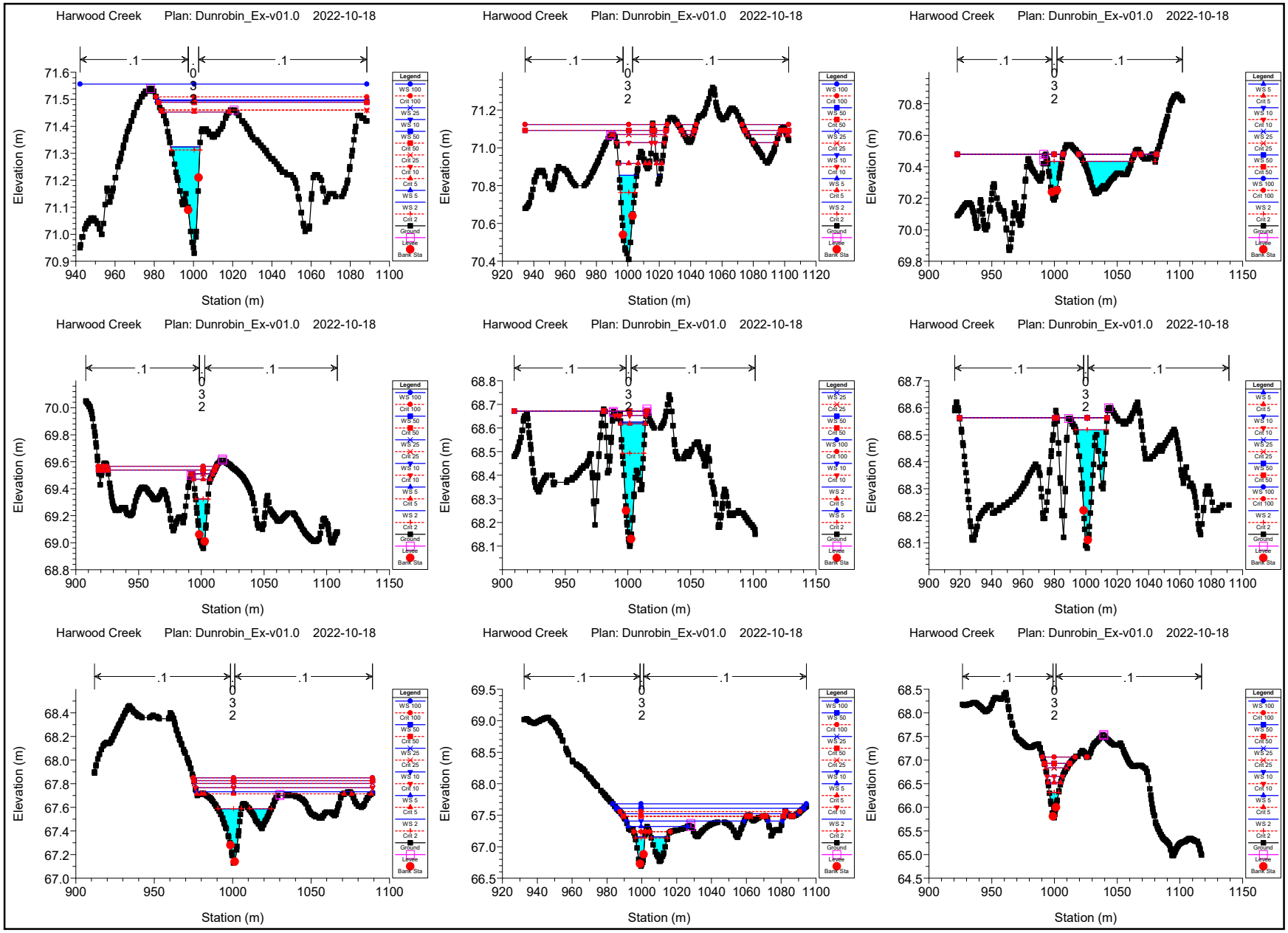

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Harwood Lane
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2

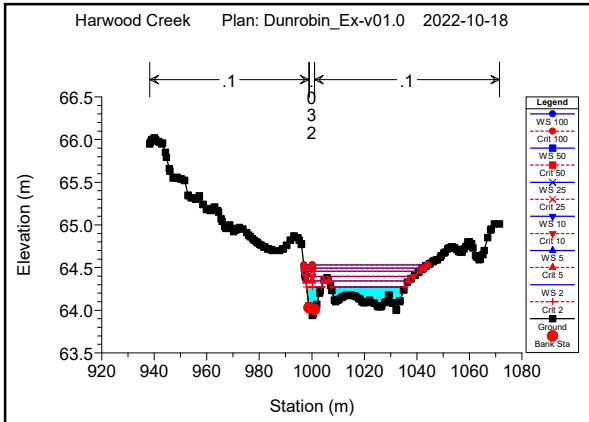

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta

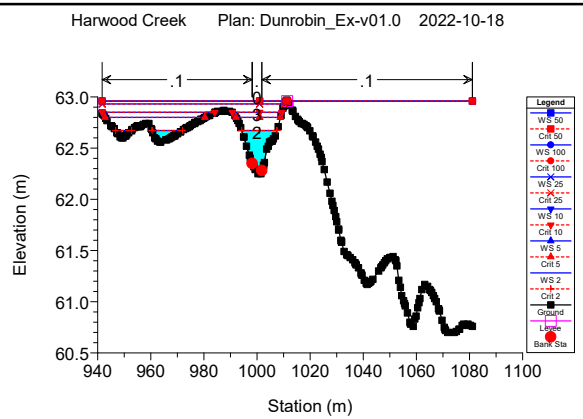

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Lillian Way
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Levee
Inefl

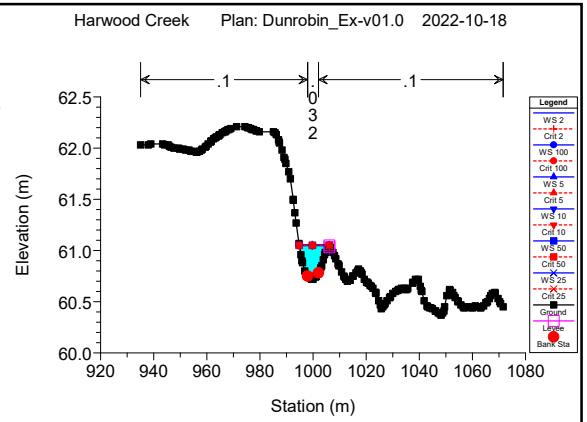

Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta


Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Old Railway Line
Elevation (m)
Station (m)
Legend
WS 100
WS 50
WS 25
WS 10
WS 5
WS 2
Ground
Bank Sta
Crit 100
Crit 50
Crit 25
Crit 10
Crit 5
Crit 2
Levee


Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Levee
Bank Sta


Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 100
Crit 100
WS 50
Crit 50
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Bank Sta


Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 50
Crit 50
WS 100
Crit 100
WS 25
Crit 25
WS 10
Crit 10
WS 5
Crit 5
WS 2
Crit 2
Ground
Levee
Bank Sta


Harwood Creek Plan: Dunrobin_Ex-v01.0 2022-10-18
.1
.032
.1
Elevation (m)
Station (m)
Legend
WS 2
Crit 2
WS 100
Crit 100
WS 5
Crit 5
WS 10
Crit 10
WS 50
Crit 50
WS 25
Crit 25
Ground
Levee
Bank Sta