Annex I

Hydrology, Hydraulic Modelling and Proposed Operating Plan

Contents

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March 5, 2012

Mr. Nava Pokharel, M.Sc., P.Eng.
Senior Project Manager
Xeneca Power Development Inc.
5160 Yonge Street, Suite 520
Toronto, ON, M2N 6L9

Dear Nava:

Re: Ontario South Hydro
HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling
Petawawa River – Big Eddy

1.0 Introduction

As per the proposal dated November 19, 2010 and further requests from Xeneca, Canadian Projects Ltd. (CPL) is pleased to provide this summary letter report together with the flood inundation mapping and environmentally sensitive area modelling for the Big Eddy Project (the Project) on the Petawawa River. This report includes the HEC-RAS (Hydraulic Engineering Centre River Analysis System, Version 4.1.0) river model in electronic format.

Based on the proposal dated November 19, 2010, the scope of this work included:

- Review of the existing hydrologic analyses and reassessment of the flood frequency estimates by Hatch Ltd. to determine the suitability of flood flow estimates at the Project (presented in a separate letter[i]);
- Compilation of bathymetric and LiDAR survey data into a single model for the Project and the development of cross sections suitable for use in one-dimensional hydraulic modelling;
- Creation and calibration of the HEC-RAS hydraulic model along the river reach near the Project; and
- Production of digital and hard-copy flood and headpond inundation mapping for the Project based on the results of the HEC-RAS model for the conditions outlined in Table 1.

A report dated February 25, 2011 was issued to Xeneca Power (Xeneca) which included the results of the above work and the inundation mapping for the Project.

Based on further requests from Xeneca, the scope of work was expanded based on additional information gained from additional bathymetric surveys near the Project in November 2011. The updated scope included the following:

- The addition of cross sections derived from the November 2011 bathymetric surveys;
- The addition of more cross sections throughout the river downstream of the dam and upstream of the tailrace (the bypass channel);
- Re-calibration of the HEC-RAS hydraulic model along the river with the additional cross sections added;
- Production of tables for the Project based on the results of the HEC-RAS model for the conditions outlined in Table 2;
- Production of tables for the Project based on the results of the HEC-RAS model for monthly Q_{10} and Q_{90} flows; and
- The revision of inundation mapping with the new HEC-RAS model results.

This revised report includes the updated results of the original work and detailed results of the defined critical river reaches based on the most recent updated scope.

The results of the HEC-RAS modelling presented within this letter report are intended to provide an estimate of the relative magnitude of difference between water surface elevations pre and post-project. The accuracy of the predicted water surface elevations is discussed in Section 4.0.

In addition to the conditions described in Table 1 and Section 2.3, one unsteady flow condition specified by Xeneca and described in Section 6.0 was tested to confirm the model's ability to handle unsteady flow conditions. The unsteady flow model was not updated with the 2011 bathymetry sections.

The HEC-RAS input and output electronic files have been provided along with digital copies of the flood and headpond inundation maps.

2.0 Input Information

The creation of the HEC-RAS hydraulic model requires various hydrologic, hydraulic and geometric inputs.

2.1 Geometry

LiDAR survey data was provided by Xeneca Power (Xeneca) and was obtained by flight over the Project on June 1, 2009 by Terrapoint[ii]. The LiDAR survey covered a river length approximately 3.2 km upstream and 3.6 km downstream of the proposed structure. The vertical accuracy of the LiDAR data is reported by Terrapoint as ± 0.2 m in flat terrain or on hard surfaces, ± 0.3 m on soft surfaces in rolling terrain and ± 0.6 m on soft surfaces in extremely hilly terrain at the 95% confidence level. The horizontal accuracy is reported as ± 1.0 m at the 95% confidence level.

Bathymetric survey information was provided by Xeneca and was obtained on September 23, 2010 by BPR Engineering[iii] and covers some areas and specific cross sections of a 1.4 km reach near the proposed structure location. The vertical and horizontal accuracies are reported by BPR Engineering as ± 0.1 m and ± 0.2 m respectively.

An additional bathymetric survey was completed on November 17, 2011 by BPR Engineering and includes specific cross sections and a river centreline survey approximately 800 m to 3,000 m upstream of the Project. CPL has not been provided with the summary report of this survey work and thus the accuracies of the provided survey cannot be reported.

The LiDAR and bathymetric survey points were compiled into a single three-dimensional model and a triangulated irregular network (TIN) surface was created from these points. Representative cross sections of the river valley were then extracted from the TIN surface for inclusion in the HEC-RAS model.

Cross sections were selected upstream and downstream within the limits of the LiDAR survey information. Locations of cross sections were selected such that abrupt changes in the river valley geometry or hydraulic properties were minimized between any two sections.

At cross section locations where no bathymetric information was available, the channel bed cross sectional geometry was estimated using available information from Google Earth aerial photography (i.e. relative depth estimates from water colour and surface turbulence) and CPL's engineering judgement based on river planform. Straight reaches were assumed to have symmetrical bed geometry while significant bends were assumed to have a lower bed elevation on the outside of the bend. The bathymetry cross sections surveyed by BPR Engineering showed a highly variable range of bed geometry and therefore provided little guidance for bed geometry estimates upstream and downstream of the bathymetric surveys. Estimated bed geometry was adjusted as part of the model calibration as discussed in Section 3.0.

Channel reach lengths were based on river centreline stationing and meandering characteristics. Station 0+000 represents the approximate location of the proposed structure. For the modelled river reach of approximately 5,220 m, a total of 59 cross sections were obtained of which 20 included surveyed bathymetry.

The locations of the cross sections used for the HEC-RAS hydraulic analysis of the Project are shown on the attached Drawings 01-121 to 01-124.

CPL modelled two proposed options as directed by Xeneca to account for two different dam and spillway structures under consideration. Option One consisted of a weir with a crest elevation of 135.75 m MSL and was modelled using the inline structure editor in HEC-RAS. Figure 1 shows the rating curve calculated by HEC-RAS used to model Option One. Option Two consisted of a weir with a crest elevation of 134.5 m MSL with an obermeyer gate capable of maintaining upstream water levels at (135.75 m MSL). CPL has assumed that the NOL would be maintained up to 200 m^3/s until the obermeyer gate is completely lowered at which time upstream water levels would begin to rise. Figure 1 shows the rating curve developed and used to model the conditions of Option Two.

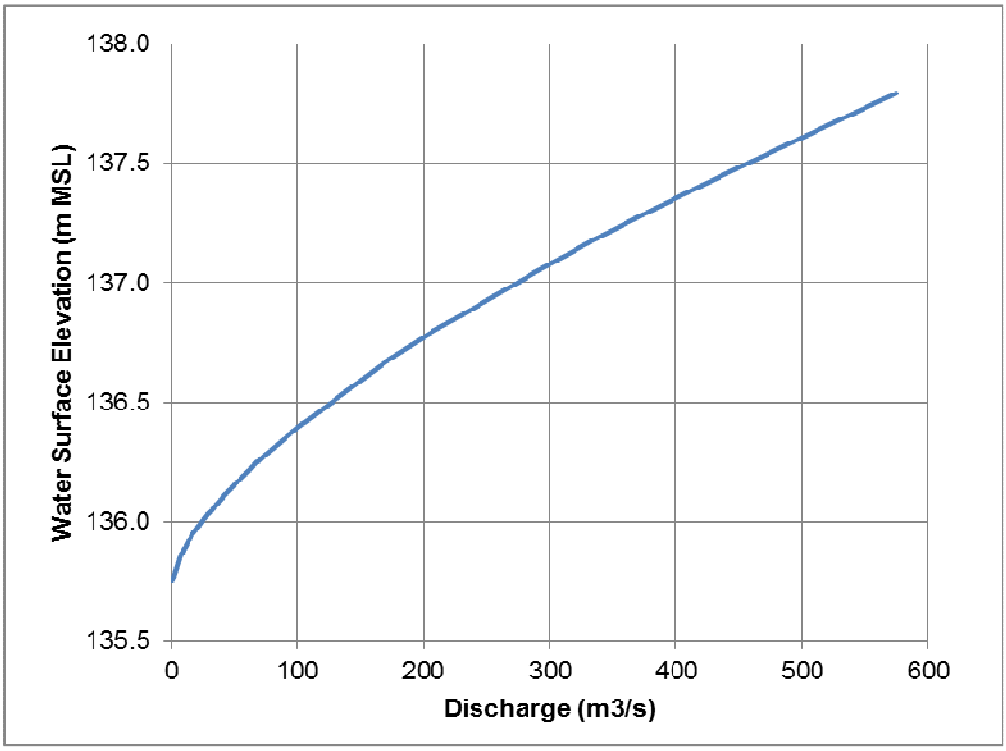


Figure 1: Proposed Structure Weir Crest at 135.75 m MSL - Rating Curve

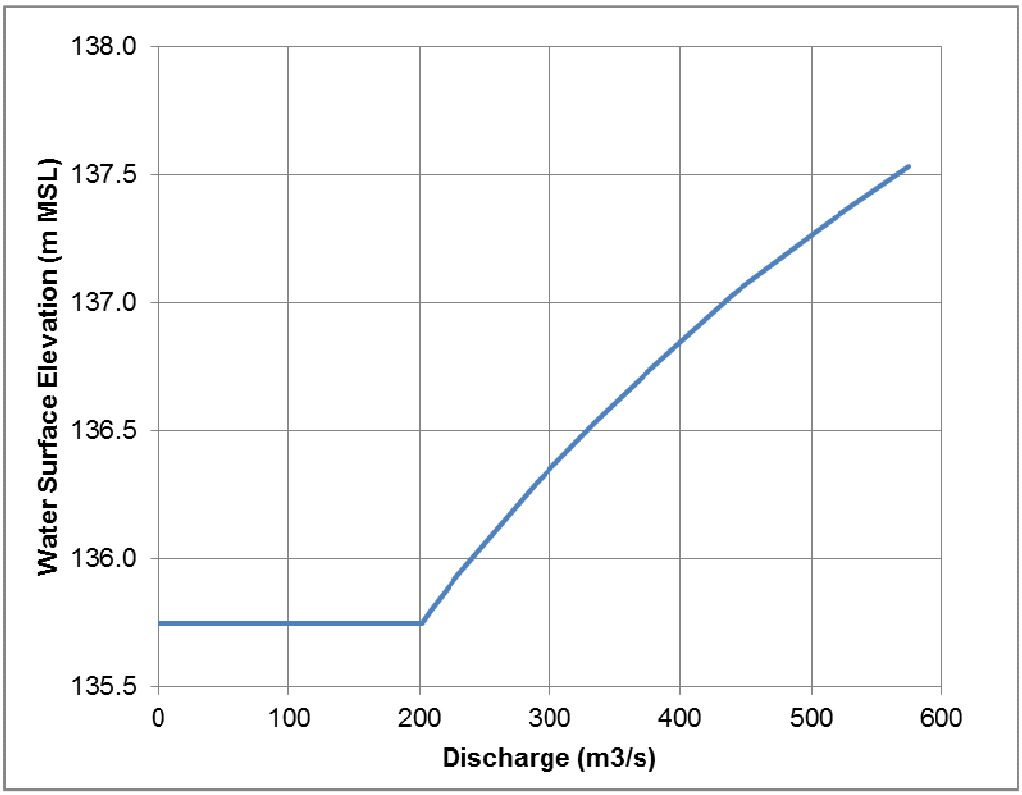


Figure 2: Proposed Structure With Obermeyer Gate - Rating Curve

2.2 Roughness Estimates

The roughness of the main channel was estimated as a Manning's n value of 0.045 which is considered to be representative of clean, winding channels with some pools and shoals and some weeds and stones.

Site photos taken during the CPL site visits in the fall of 2010 and aerial photography from Google Earth were used to estimate the overbank roughness values for pre-project conditions. In general, the overbank area of the river in the vicinity of the Project is densely covered in both tree and bush vegetation. Dense vegetation, especially in deciduous forests, can have highly variable roughness values associated with the summer and winter months. CPL has conservatively chosen roughness values which are representative of summer months. In densely vegetated areas a Manning's n value of 0.100 was used which represents medium to dense brush in summer or heavy stands of timber[iv]. A range of other Manning's n values were used in the model including 0.040 for areas of cultivated land or short grass with few trees or houses, 0.040 for riprap at bridges and 0.070 for swampy areas with significant vegetation.

The effect of the roughness value assumptions was tested as part of the sensitivity analysis discussed in Section 5.0.

2.3 Steady Flow Data

The following flows of interest were modelled at the Project:

- 1:2, 1:5, 1:10, 1:20, 1:50, 1:100, 1:1,000 and 1:10,000 year flood flows as estimated by CPL[i];
- Flow on the date of the LiDAR survey as estimated by CPL;
- Flow corresponding to HWM survey data collected by BPR Engineering[iii];
- Measured flows during both bathymetric surveys from BPR Engineering[iii]; and
- LTAF estimated by Hatch Ltd.[v]

The flow magnitudes associated with these options are included in the HEC-RAS electronic files. Inundation mapping was generated only for the options listed in Table 1.

The complete calibrated model was used to estimate the flow which most appropriately corresponds to the surveyed HWM from BPR Engineering. The estimated HWM flow of 170 m^3/s is between the 1:1 and 1:2 year flood. The water surface elevation predicted by the model was generally within ± 0.3 m of the surveyed HWM.

Table 1: Flow Conditions Presented on Inundation Maps

Flow Description	Flow (m^3/s)	Condition Modelled	
		Pre-Project	Post-Project
Long Term Annual Flow (LTAF)	47.8	X	X
1:2 Year Flood Flow	215.0	X	X
1:100 Year Flood Flow	440.0	X	X

Table 2: Flow Conditions Modelled for Determination of Bypass Channel Hydraulics

Flow Description	Flow (m^3/s)
Reference Flow	0.5
Reference Flow	1.0
Reference Flow	2.0
Reference Flow	3.0
Reference Flow	5.0
Reference Flow	10.0
Reference Flow	12.0
Reference Flow	15.0
Turbine Minimum Flow	20.4
Reference Flow	25.0
Limited Turbine Flow	44.2
LTAF	47.8
Turbine Maximum Flow	68.0

There are no major tributaries entering the river within the reach of interest.

2.4 Boundary Conditions

For the steady flow condition the model was analyzed as a mixed flow system which accounts for sections of both subcritical and supercritical flow. When analyzing a mixed flow condition within HEC-RAS, both upstream and downstream boundary conditions must be imposed on the model.

For the steady flow analysis, the upstream boundary condition was taken as the normal depth based on the estimated channel slope of 0.00287 however as discussed in Section 5.0, this condition did not affect the results of the model.

A critical depth boundary condition was used for the downstream end of the model located at the top of the rapids approximately 2.1 km downstream of the project. This condition did not affect the results of the model in the reach of interest.

3.0 Model Calibration

The model was calibrated using available estimated and observed flow and level conditions.

One source of calibration information was the LiDAR survey information combined with the daily flow estimate at the Project on that day. Although the LiDAR survey is unable to detect a water surface, the riverbank is detected at the edge of the water. The conversion of these riverbank points into a TIN surface across the river width produces a reasonable estimate of the water surface elevation. During the LiDAR survey on June 1, 2009, the estimated flow at the Project was 70.5 m^3/s based on transferring the WSC daily flow data from station 02KB001 "Petawawa River at Petawawa" by the ratio of LTAF between the Project and the WSC station. This was the same method used by Hatch Ltd. for the development of the synthetic flow series for the Project.

A profile plot of this TIN surface along the river centreline was compared to the water surface profile produced by HEC-RAS at the corresponding flow. The comparison is a useful means of determining locations where additional cross sections are needed or where estimated channel geometry needs refinement. Cross sections were added and estimated bed geometry was adjusted to increase the accuracy of the predicted water surface throughout the modelled reach. Manning's n values in the main channel were also adjusted in order to calibrate the model and varied from 0.25 to 0.45.

The flow and water level information gathered as part of the bathymetric surveys on September 23, 2010 and November 17, 2011 was used as another calibration method. This information is likely more accurate than the LiDAR information but is limited in extent due to the relatively short reach surveyed compared to the LiDAR information. The water surface profiles produced by HEC-RAS at the 2010 and 2011 measured flows of 17.1 m^3/s and 22.7 m^3/s respectively were compared to the water surface elevations surveyed. These water levels compared very well at the locations surveyed. Tables 3 and 4 compare the water levels during the bathymetric surveys to those estimated by the HEC-RAS model at the stated flow.

Xeneca provided 15 minute interval water level data from September 23, 2010 to August 10, 2011 gathered by a level logger installed at cross section 0+053 as shown on Drawing 01-123. Flow information was obtained from Water Survey of Canada Station 02KB001, located approximately 3.7 km upstream of the Project, as shown on Drawing 01-122. The model was further calibrated so that the rating curve at section 0+053 fit the concurrent flow and elevation data.

Table 3: Surveyed Water Levels during 2010 Bathymetric Survey

BPR Engineering Section	Approximate Cross Section	Surveyed Water Level (m MSL)	Modelled Water Level (m MSL)
-3	0+724	134.00	133.95
-2	0+607	134.00	133.95
-1	0+334	133.90	133.95
0	0+35	133.90	133.94
1	-0+172	132.33	132.38
2	-0+446	127.01	127.01

Table 4: Surveyed Water Levels during 2011 Bathymetric Survey

BPR Engineering Section	Approximate Cross Section	Surveyed Water Level (m MSL)	Modelled Water Level (m MSL)
101	2+807	137.27	137.25
102	2+674	136.80	136.75
103	2+585	136.22	136.26
104	2+495	136.09	136.05
105	2+379	135.85	135.90
106	2+214	135.15	135.16
107	2+039	135.13	135.11
108	1+907	134.79	134.75
109	1+718	134.65	134.62
110	1+545	134.53	134.57
111	1+236	134.05	134.09
112	1+009	134.05	134.08
113	0+821	134.05	134.08

A comparison of the water surface profile from the LiDAR survey and the complete calibrated HEC-RAS model is shown on Figure 3. Figure 4 shows the bypass channel in more detail. Points shown on the “HEC-RAS Model” series indicate locations of cross sections in the HEC-RAS model.

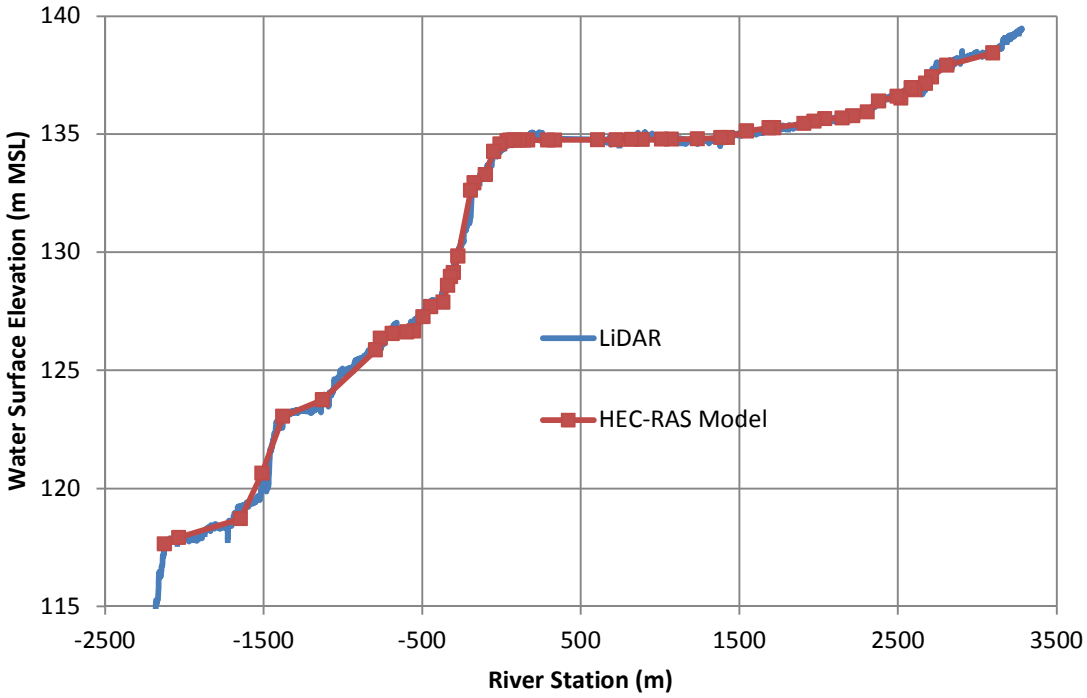


Figure 3: Calibrated HEC-RAS Water Surface Profile

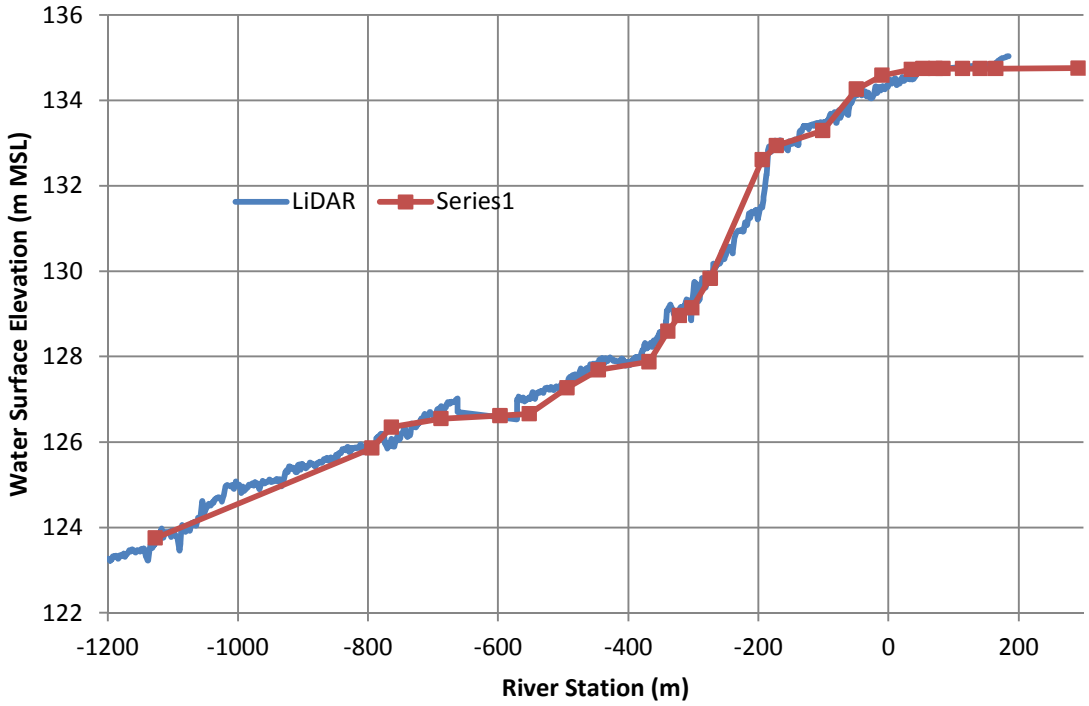


Figure 4: Calibrated HEC-RAS Water Surface Profile – Bypass Channel

The LiDAR water surface profile shows some scatter of elevations due to the conversion of the LiDAR riverbank survey points to the TIN surface.

Figure 5 shows a comparison of HEC-RAS results at section 0+053 and the concurrent flow and elevation data gathered from the level logger and WSC station as discussed above.

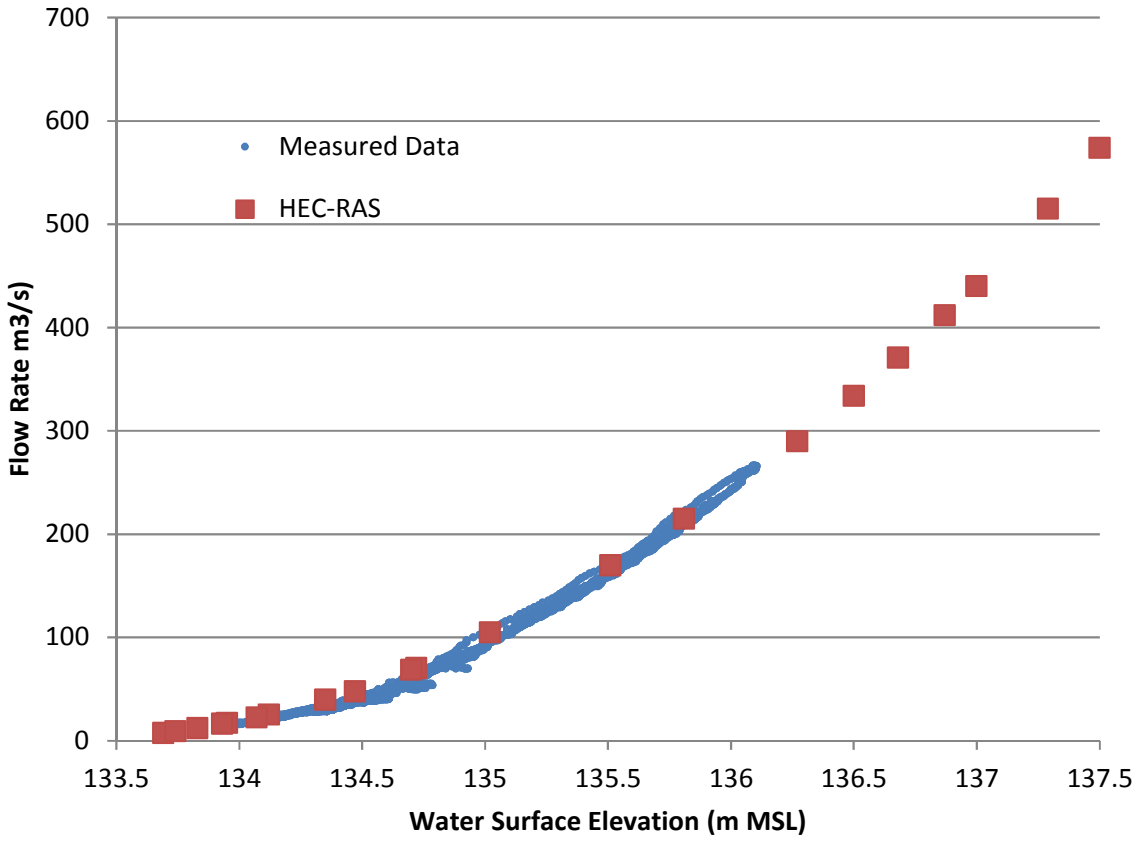


Figure 5: Elevation and Flow Results at Section 0+053

4.0 Modelling

Modelled water surface profiles for the flow conditions in Table 1 are provided in Table A-1 and A-2 and illustrated in Figures A-1 through A-8 in the appendix for pre and post-project conditions including the estimated water level increases. Further details on velocity, flow area, wetted perimeter, average depth and max depth can be found in Table A-3 in the Appendix.

4.1 Option One – Weir Crest at 135.75 m MSL

Table A-1 in the Appendix presents model results of water levels for Option One. Through the range of flows modelled, water levels in the headpond immediately upstream of the proposed structure location will be raised by 1.7 – 0.5 m. The headpond will extend 2.6 km upstream during the LTAF and 2.8 km during the 1:100 year flood. The proposed structure would have no effect on downstream water levels.

The Highway 17 Bridge crosses the Petawawa River approximately 2.9 km upstream of the proposed structure. Based on the information presented in Table A-1, the proposed structure will not affect water levels at this bridge. There is one railway bridge and one roadway bridge downstream of the proposed structure and water levels will not be adversely affected at these locations. In fact, water levels would be somewhat reduced.

The Rating Curve Illustrated on Figure 1 governs the water level increase at the proposed structure.

Figure 6 compares the approximate water levels at the LTAF pre and post-project to those at the 1:100 year flood pre-project.

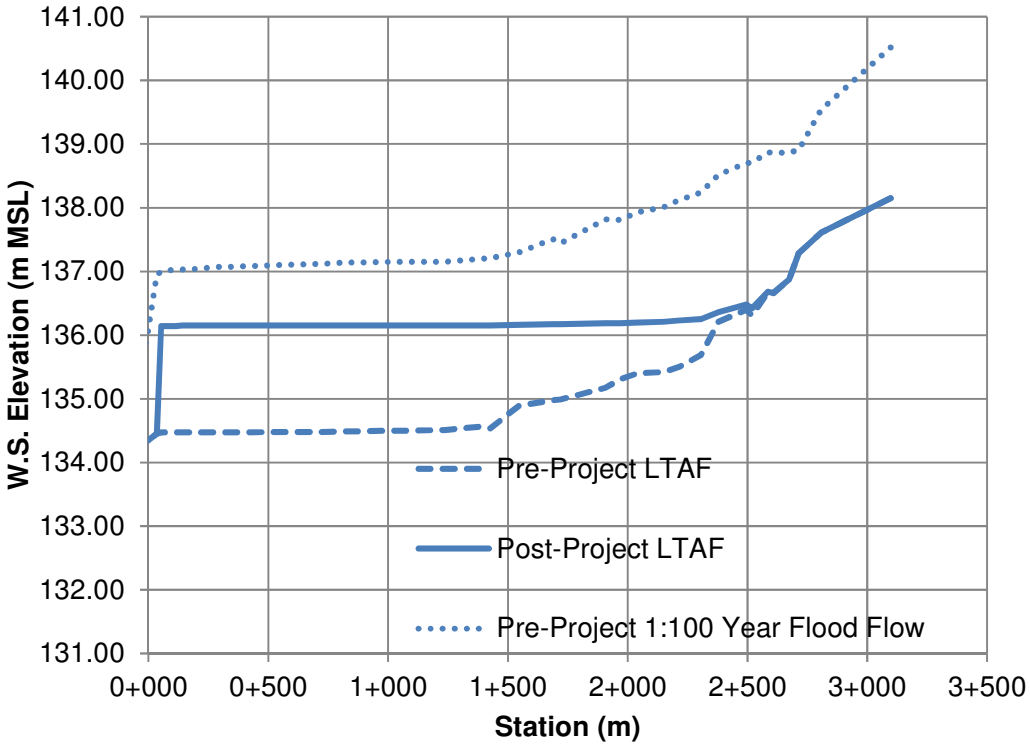


Figure 6: Pre and Post-Project Water Level Comparison

As illustrated by Figure 6, water levels upstream of the proposed structure post-project during the LTAF will be lower than those reached by the 1:100 year flood pre-project.

4.2 Option Two – Weir Crest at 134.5 m MSL and Obermeyer Gate

Table A-2 in the Appendix presents model results for the water levels in Option Two. Through the range of flows modelled, water levels in the headpond immediately upstream of the proposed structure location will rise by 1.3 m. The headpond will extend 2.4 km upstream during the LTAF and 1.7 km during the 1:100 year flood. The proposed structure would have no effect on downstream water levels.

The Highway 17 Bridge crosses the Petawawa River approximately 2.9 km upstream of the proposed structure. Based on the information presented in Table A-2, the proposed structure will not affect water levels at this bridge. There is one railway bridge and one roadway bridge downstream of the proposed structure. Water levels will not be adversely affected at these locations, in fact, water levels would be somewhat reduced.

The rating curve illustrated on Figure 2 governs the water level increase at the proposed structure.

Figure 7 compares the approximate water levels at the LTAF pre and post-project to those at the 1:100 year flood pre-project.

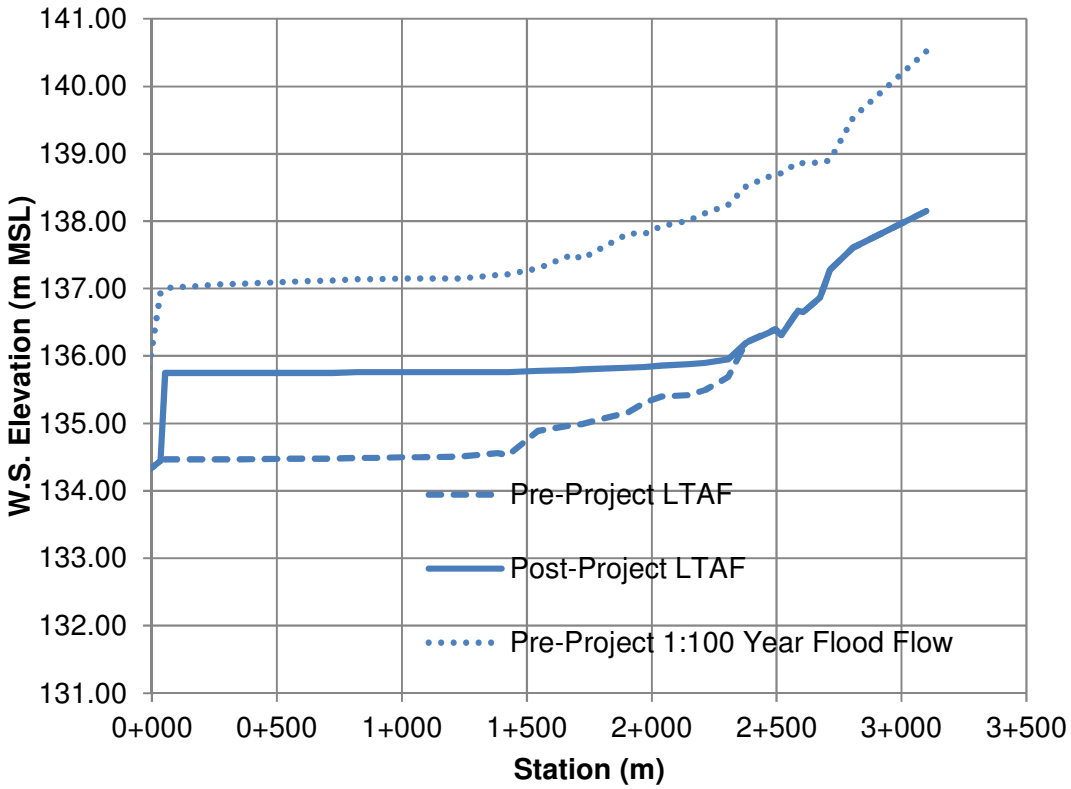


Figure 7: Pre and Post-Project Water Level Comparison

As illustrated by Figure 7, water levels upstream of the proposed structure post-project during the LTAF will be lower than those reached by the 1:100 year flood pre-project.

As stated in Section 1.0, the results of the HEC-RAS model presented within this section are intended to provide an estimate of the relative magnitude of difference between water surface elevations pre and post-project.

HEC-RAS uses Manning's equation to evaluate friction losses along the river which are key to determining the water surface profile for steady flows. A propagation of error analysis was completed using Manning's equation to determine the approximate error associated with the values in Table 7. The absolute error associated with the water surface elevation is expected to be in the range of ± 0.6 m for flood flows, decreasing to ± 0.3 m for flows near the LTAF and possibly increasing above ± 0.3 m for low flows. This error estimate does not apply to levels controlled by the proposed structure or to those within the reach affected by the downstream boundary condition as discussed in Section 5.0.

5.0 Environmentally Sensitive Areas

Modelled water surface profiles for the flow conditions in Table 2 in the bypass channel are illustrated in Figure 8. The channel consists of rapids with high velocity flow and several drops and pools. From 0.5 m^3/s to 68 m^3/s the flow depth increases a maximum of 1.6 m. Further details on water depth flow velocity, flow area and wetted perimeter can be found in Table A-5 in the Appendix.

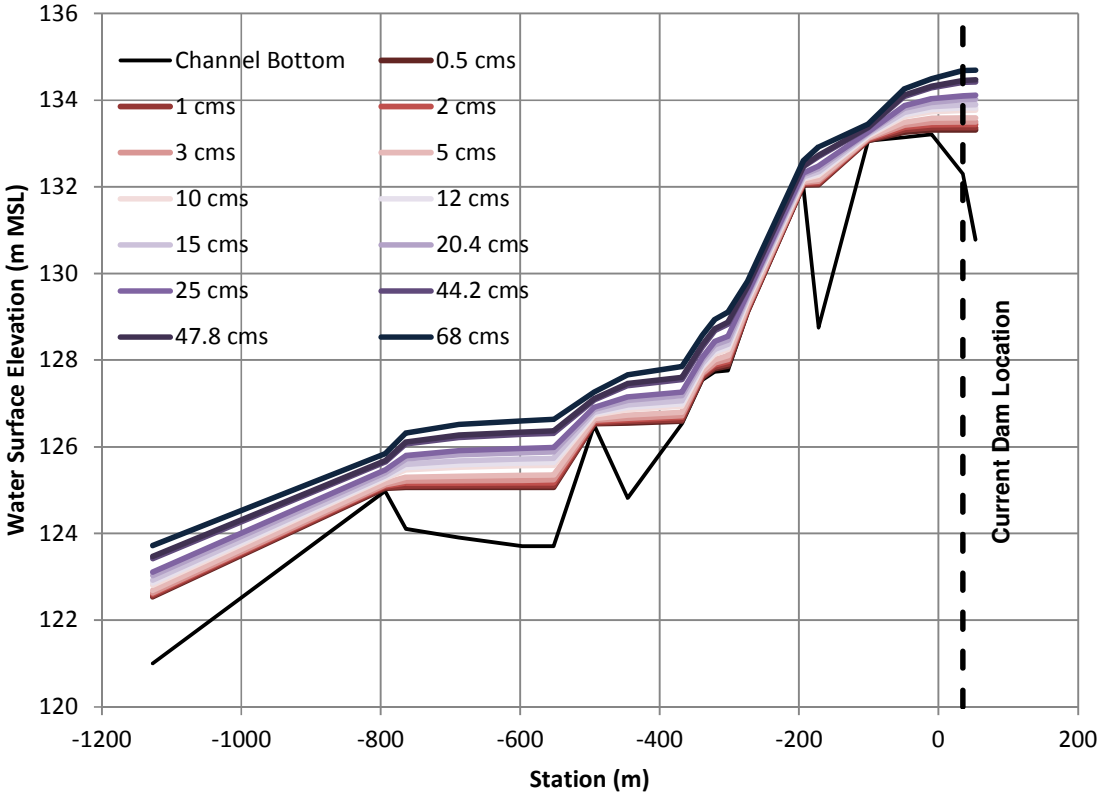


Figure 8: Bypass Channel – Various Flows

6.0 Monthly Minimum and Monthly Maximum Flows

In addition to the results presented above, the model was run with the monthly 90% exceedance flow and 10% exceedance flow provided by CPL[vi]. Results upstream of the dam for pre and both post-project conditions are shown in Tables A-6 through A-8. Results downstream of the dam for pre-project conditions are shown in Table A-9.

7.0 Sensitivity Analysis

A sensitivity analysis was undertaken to determine the effects of varying roughness estimates and boundary conditions on the water surface results of the model. The analysis was undertaken using the river geometry pre-project and the LTAF.

The roughness estimates were varied to ± 20% of the estimated Manning's n value. The increased roughness values resulted in an average water level increase of approximately 0.04 m throughout the modelled river reach while the decreased roughness values resulted in an average water level decrease of 0.04 m throughout the modelled river reach.

The upstream boundary condition was varied to ± 20% of the original channel slope. Neither adjustment had an effect on the water levels in the model.

To evaluate the downstream boundary condition, the elevation of the last cross section in the model (-2+125) was varied to ± 1.0 m of its original elevation. An increase of 1.0 m affected the upstream reach approximately 100 m upstream (approximately 2.0 km downstream of the proposed structure) while a decrease of 1.0 m affected approximately 600 m upstream (approximately 1.5 km downstream of the proposed structure).

The results of the sensitivity analysis confirm that the assumed roughness values and boundary conditions are not significantly affecting the model results.

8.0 Unsteady Flow

For the purpose of future modelling of unsteady flow conditions for both normal operation and dam break analysis the model was checked for its ability to handle these conditions. No sections were added to the unsteady flow model after additional bathymetry was completed in 2011.

The HEC-RAS software has the ability to model unsteady flow conditions consisting of changes of inflow over a standard time step. An unsteady flow analysis allows the user to examine how the entire river system manages varying inflow conditions such as floods or operational procedures at various river stations. Computational instability can be encountered when modelling unsteady flow conditions and can be attributed to distances between consecutive cross sections and computational time steps[iv]. When model instability is encountered in HEC-RAS, unrealistic results are produced due to growing numerical errors at each computational time step.

Of the 59 cross sections used for the steady modelling, 32 of these cross sections were utilized within the unsteady flow model. An additional 75 cross sections were interpolated using HEC-RAS such that the maximum distance between any two sections was 75 m. An unsteady flow analysis was undertaken on the flow series illustrated in Figure 9 which was provided by

Xeneca and is considered to be representative of the operation of a modified run of river hydropower plant. This flow series serves as the upstream boundary condition of the unsteady model.

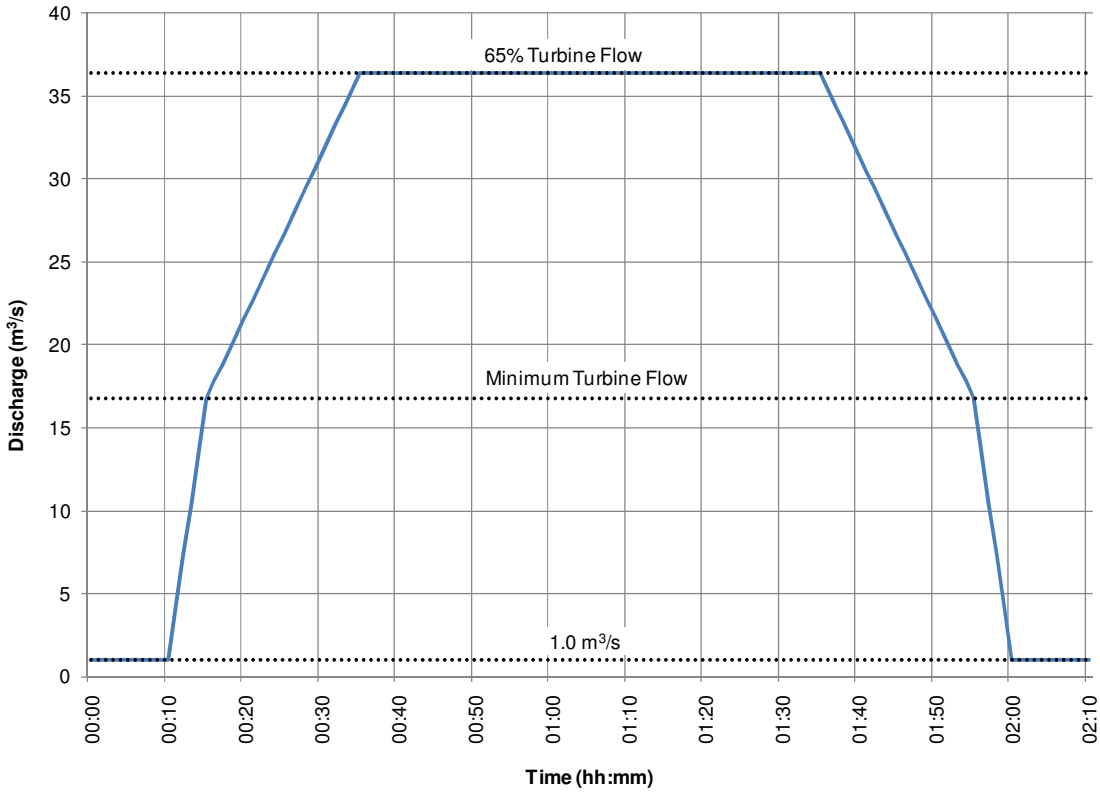


Figure 9: Representative Unsteady Flow Hydrograph

To obtain stability within the model, it was necessary to add a fictitious cross section at the downstream end of the model and use a normal depth boundary condition for this cross section in order to produce reasonable downstream water levels. When tested with the representative hydrograph the model produced stable results. However, numerical instability for other hydrographs cannot be guaranteed.

9.0 Conclusion

The results of the one-dimensional hydraulic modelling using HEC-RAS for the Big Eddy Project on the Petawawa River are presented within this letter report and are supplemented by the inundation maps and electronic modelling files.

The information expressed in this Report represents Canadian Projects Limited's best professional judgement and is based on Canadian Projects Limited's experience as applied to the information provided at the time of preparation within the scope of the assignment. Canadian Projects Limited does not guarantee or warrant the water surface profile or flood inundation maps expressed herein.
We trust that this report meets with your requirements. If you require any clarification, have questions or would like to discuss the information contained within, please contact us.

Sincerely,

CANADIAN PROJECTS LIMITED

David Kushner, E.I.T.
Junior Engineer

Sean Sullivan, M.Sc., P.Eng.
Hydrotechnical Engineer

Reviewed by,

Richard Slopek, P.Eng.
Project Manager

DK/dk

Attachments:
Big Eddy Project – Headpond Inundation Mapping (4 pages)
HEC-RAS Input and Output files on CD

[i] Hydrology Review and Flood Frequency Analyses – DRAFT – Ontario South Hydro. Canadian Projects Limited. February 17, 2011.
[ii] Terrapoint #: 2008-172-C (C1 and C2 Inclusive). Terrapoint. August 5, 2009.
[iii] Hydrological Memo Report, 01 – Big Eddy, Petawawa River. BPR Engineering. November 23, 2010.
[iii] Hydrological Memo Report, 01 – Big Eddy, Petawawa River. BPR Engineering. November 23, 2010.*
[vi] Ontatio OSuth Hydro – Petawawa River at Big Eddy Hydrologic Analyses. Camadian Projects Limited. April 11,2011

Appendix

List of Figures

List of Tables

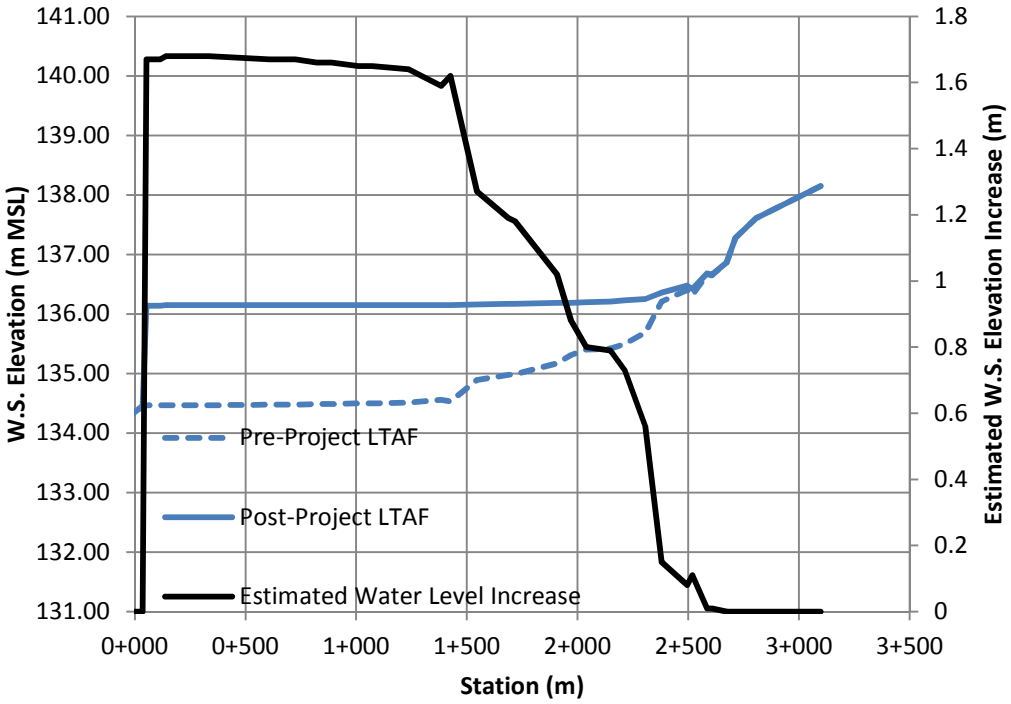


Figure A-1: Option One - LTAF Water Surface Elevation Profile Summary

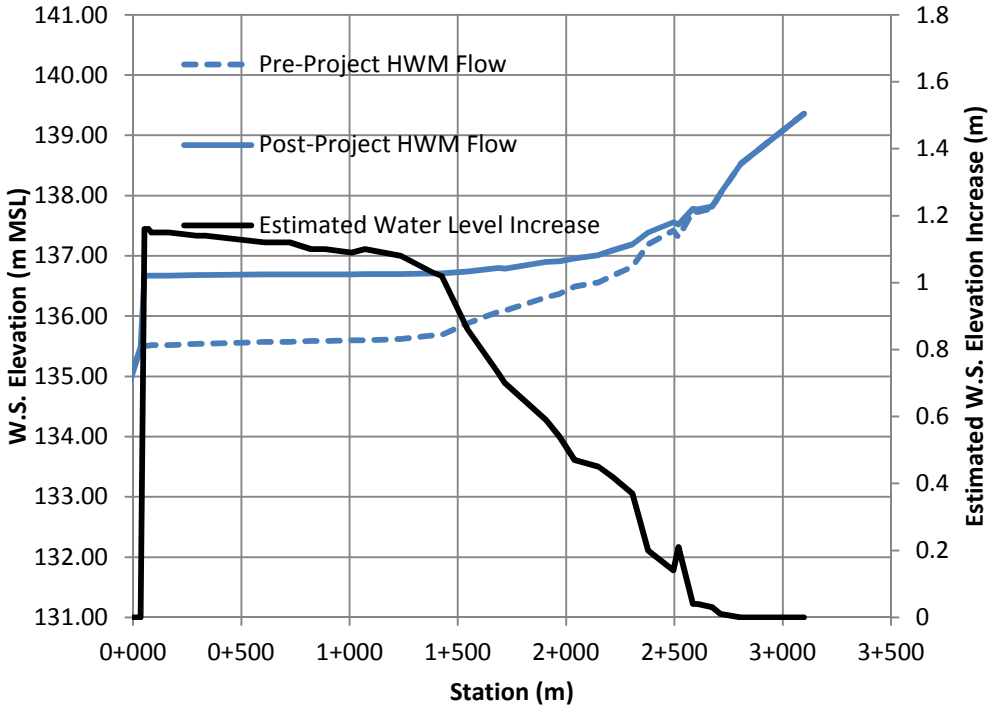


Figure A-2: Option One – HWM Flow Water Surface Elevation Profile Summary

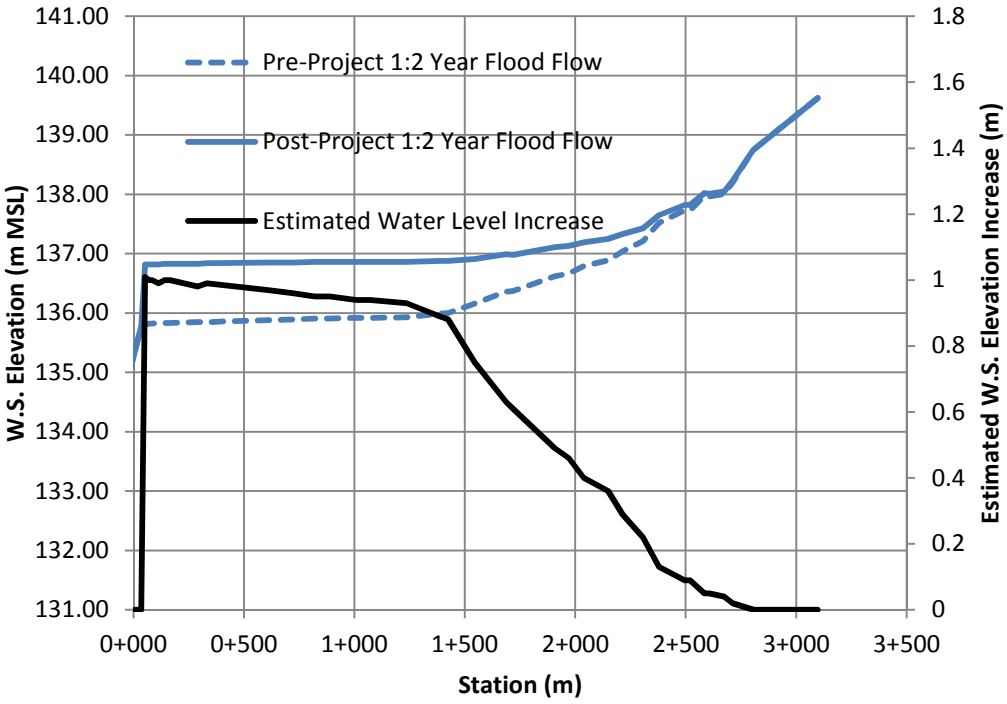


Figure A-3: Option One – 1:2 Year Flood Water Surface Elevation Profile Summary

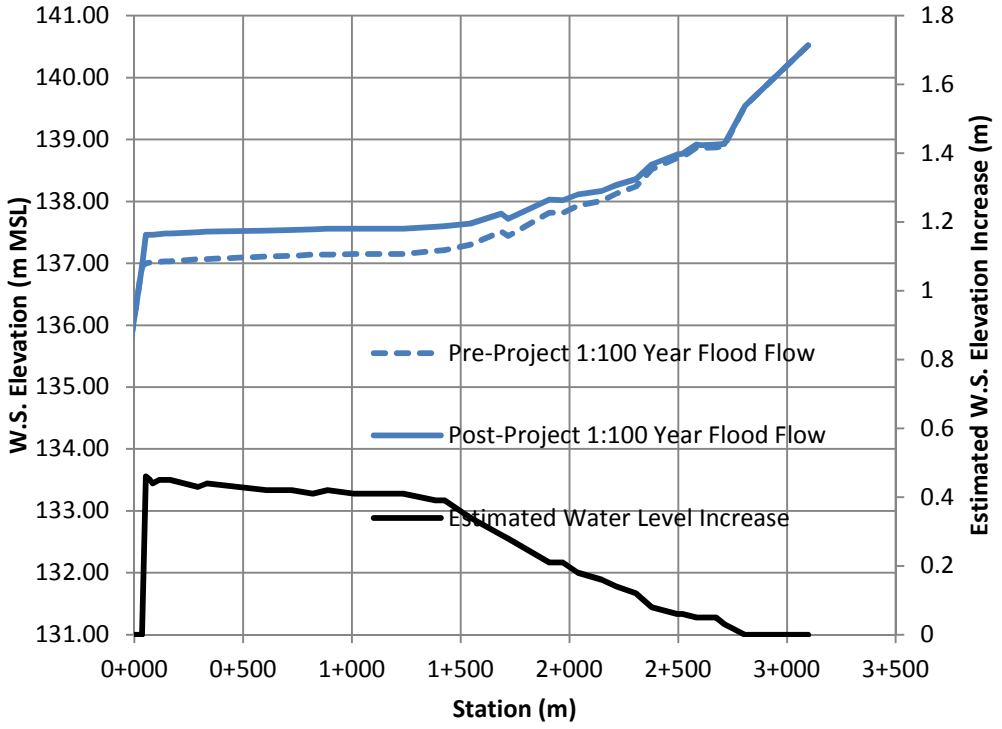


Figure A-4: Option One – 1:100 Year Flood Water Surface Elevation Profile Summary

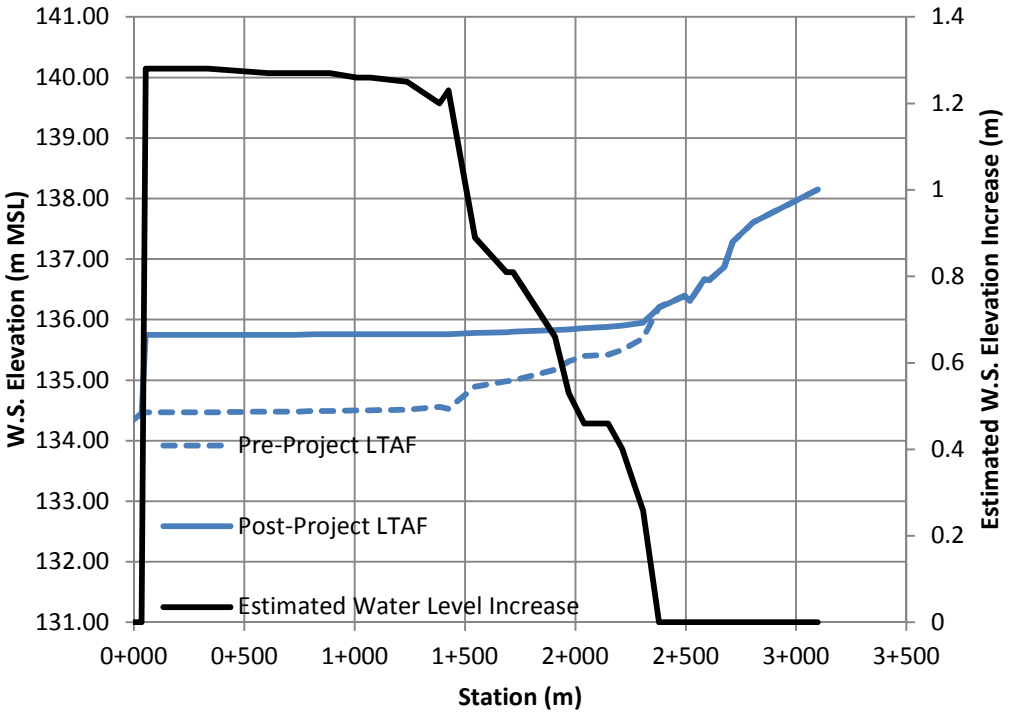


Figure A-5: Option Two - LTAF Water Surface Elevation Profile Summary

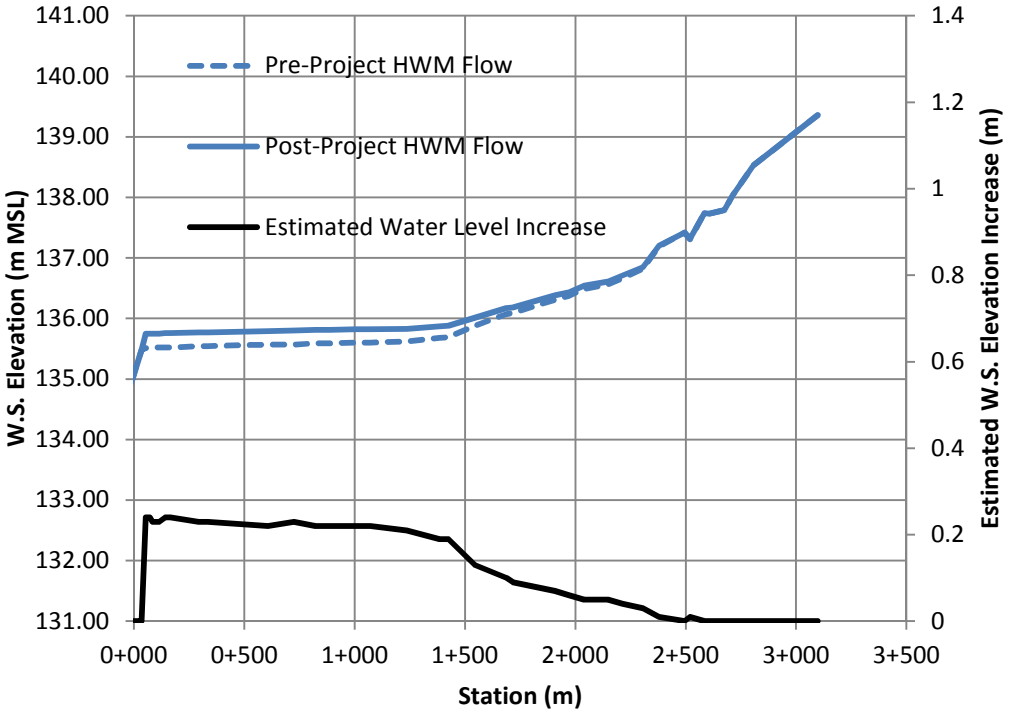


Figure A-6: Option Two – HWM Flow Water Surface Elevation Profile Summary

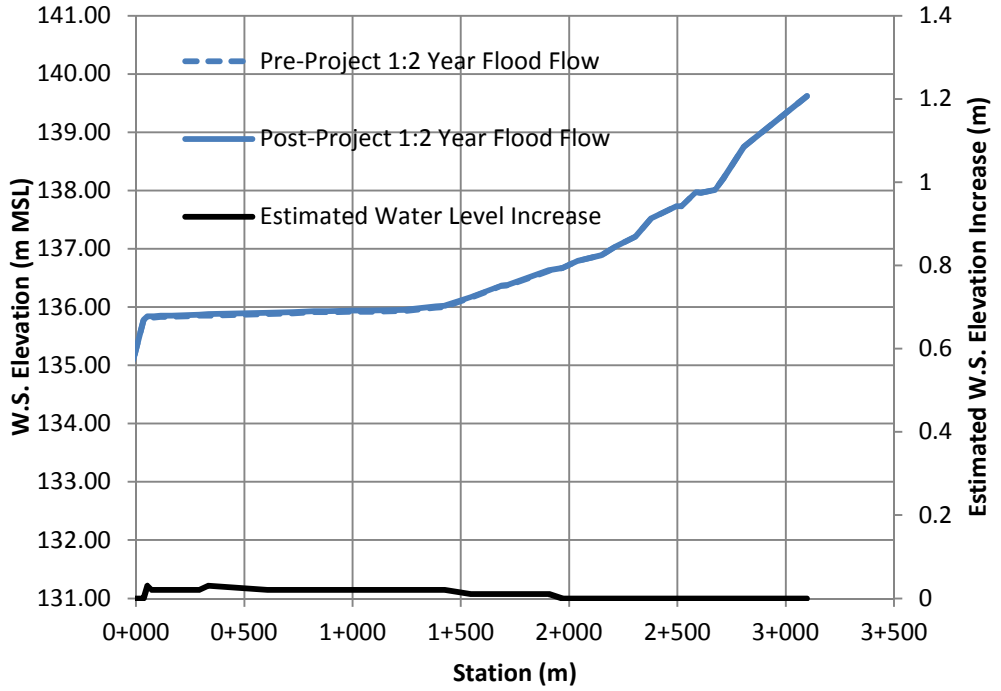


Figure A-7: Option Two – 1:2 Year Flood Water Surface Elevation Profile Summary

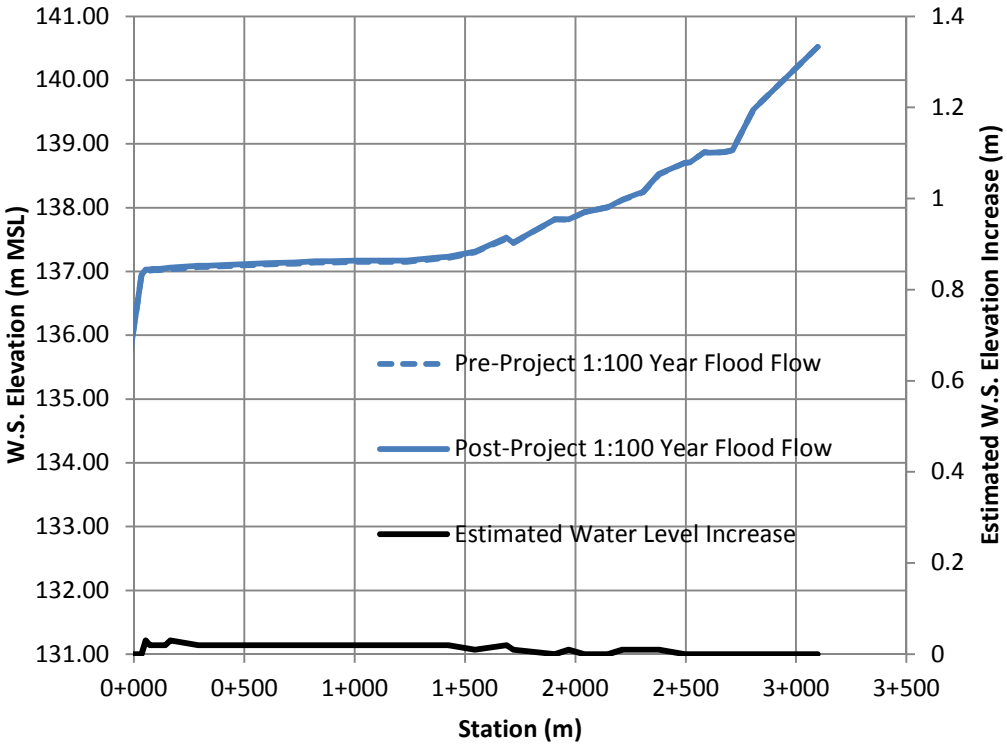


Figure A-8: Option Two – 1:100 Year Flood Water Surface Elevation Profile Summary

Table A-1: HEC-RAS Water Surface Elevation Summary – Option One

Section ID - BPR Engineering	Cross Section Station - CPL	Approximate Water Surface Elevation Pre-Project (m MSL)				Approximate Water Surface Elevation Post-Project (m MSL)				Estimated Water Surface Elevation Increase (m) (m MSL)			
	(m)	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow
	3+098	138.15	139.36	139.62	140.52	138.15	139.36	139.62	140.52	0	0	0	0
101	2+807	137.61	138.53	138.75	139.54	137.61	138.53	138.75	139.54	0	0	0	0
	2+713	137.28	138.03	138.21	138.90	137.28	138.04	138.23	138.93	0	0.01	0.02	0.03
102	2+674	136.87	137.79	138.01	138.87	136.87	137.82	138.05	138.92	0	0.03	0.04	0.05
	2+607	136.65	137.73	137.96	138.86	136.66	137.77	138.01	138.91	0.01	0.04	0.05	0.05
103	2+585	136.67	137.74	137.97	138.87	136.68	137.78	138.02	138.92	0.01	0.04	0.05	0.05
	2+519	136.31	137.31	137.73	138.71	136.42	137.52	137.82	138.77	0.11	0.21	0.09	0.06
104	2+495	136.40	137.42	137.73	138.70	136.48	137.56	137.82	138.76	0.08	0.14	0.09	0.06
105	2+379	136.21	137.19	137.52	138.52	136.36	137.39	137.65	138.60	0.15	0.2	0.13	0.08
	2+306	135.69	136.82	137.21	138.24	136.25	137.19	137.43	138.36	0.56	0.37	0.22	0.12
106	2+214	135.50	136.67	137.04	138.12	136.23	137.09	137.33	138.26	0.73	0.42	0.29	0.14
	2+149	135.42	136.56	136.89	138.01	136.21	137.01	137.25	138.17	0.79	0.45	0.36	0.16
107	2+039	135.40	136.49	136.79	137.93	136.20	136.96	137.19	138.11	0.8	0.47	0.4	0.18
	1+970	135.31	136.37	136.67	137.81	136.19	136.91	137.13	138.02	0.88	0.54	0.46	0.21
108	1+907	135.17	136.31	136.62	137.82	136.19	136.90	137.11	138.03	1.02	0.59	0.49	0.21
109	1+718	134.99	136.09	136.37	137.44	136.17	136.79	136.98	137.72	1.18	0.7	0.61	0.28
	1+687	134.98	136.07	136.36	137.51	136.17	136.80	136.99	137.80	1.19	0.73	0.63	0.29
110	1+545	134.89	135.88	136.16	137.30	136.16	136.74	136.91	137.64	1.27	0.86	0.75	0.34
	1+425	134.53	135.69	136.00	137.21	136.15	136.71	136.88	137.60	1.62	1.02	0.88	0.39
	1+384	134.56	135.68	135.99	137.20	136.15	136.71	136.88	137.59	1.59	1.03	0.89	0.39
111	1+236	134.51	135.62	135.93	137.15	136.15	136.70	136.86	137.56	1.64	1.08	0.93	0.41
	1+071	134.50	135.60	135.92	137.15	136.15	136.70	136.86	137.56	1.65	1.1	0.94	0.41
112	1+009	134.50	135.60	135.92	137.15	136.15	136.69	136.86	137.56	1.65	1.09	0.94	0.41
	0+888	134.49	135.59	135.91	137.14	136.15	136.69	136.86	137.56	1.66	1.1	0.95	0.42
113	0+821	134.49	135.59	135.91	137.14	136.15	136.69	136.86	137.55	1.66	1.1	0.95	0.41
-3	0+724	134.48	135.57	135.89	137.12	136.15	136.69	136.85	137.54	1.67	1.12	0.96	0.42
-2	0+607	134.48	135.57	135.88	137.11	136.15	136.69	136.85	137.53	1.67	1.12	0.97	0.42
-1	0+334	134.47	135.54	135.85	137.07	136.15	136.68	136.84	137.51	1.68	1.14	0.99	0.44
	0+292	134.47	135.54	135.85	137.07	136.15	136.68	136.83	137.50	1.68	1.14	0.98	0.43
	0+165	134.47	135.52	135.83	137.03	136.15	136.67	136.83	137.48	1.68	1.15	1	0.45
	0+141	134.47	135.52	135.83	137.03	136.15	136.67	136.83	137.48	1.68	1.15	1	0.45
	0+114	134.47	135.52	135.83	137.02	136.14	136.67	136.82	137.47	1.67	1.15	0.99	0.45
	0+084	134.47	135.52	135.82	137.02	136.14	136.67	136.82	137.46	1.67	1.15	1	0.44
	0+072	134.47	135.51	135.82	137.01	136.14	136.67	136.82	137.46	1.67	1.16	1	0.45

Section ID - BPR Engineering	Cross Section Station - CPL	Approximate Water Surface Elevation Pre-Project (m MSL)				Approximate Water Surface Elevation Post-Project (m MSL)				Estimated Water Surface Elevation Increase (m) (m MSL)			
	(m)	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow
	0+053	134.47	135.51	135.81	137.00	136.14	136.67	136.82	137.46	1.67	1.16	1.01	0.46
0	0+035	134.45	135.48	135.78	136.95	134.45	135.48	135.78	136.95	0	0	0	0
	-0+010	134.32	134.96	135.12	135.88	134.32	134.96	135.12	135.88	0	0	0	0
	-0+049	134.12	134.64	134.75	134.92	134.12	134.64	134.75	134.92	0	0	0	0
	-0+101	133.37	133.76	133.87	135.14	133.37	133.76	133.87	135.14	0	0	0	0
1	-0+172	132.73	133.63	133.89	134.92	132.73	133.63	133.89	134.92	0	0	0	0
	-0+194	132.48	133.09	133.27	134.03	132.48	133.09	133.27	134.03	0	0	0	0
	-0+274	129.70	130.21	130.34	130.88	129.70	130.21	130.34	130.88	0	0	0	0
	-0+302	128.88	129.93	130.18	131.21	128.88	129.93	130.18	131.21	0	0	0	0
	-0+321	128.72	129.73	129.97	130.94	128.72	129.73	129.97	130.94	0	0	0	0
	-0+339	128.35	129.21	129.42	130.22	128.35	129.21	129.42	130.22	0	0	0	0
	-0+368	127.60	128.71	128.77	129.13	127.60	128.71	128.77	129.13	0	0	0	0
2	-0+446	127.46	128.37	128.60	129.49	127.46	128.37	128.60	129.49	0	0	0	0
	-0+494	127.11	127.78	127.95	128.77	127.11	127.78	127.95	128.77	0	0	0	0
	-0+552	126.37	127.51	127.79	128.89	126.37	127.51	127.79	128.89	0	0	0	0
3	-0+597	126.34	127.47	127.75	128.85	126.34	127.47	127.75	128.85	0	0	0	0
	-0+688	126.27	127.36	127.63	128.71	126.27	127.36	127.63	128.71	0	0	0	0
	-0+764	126.11	127.01	127.23	128.08	126.11	127.01	127.23	128.08	0	0	0	0
	-0+794	125.68	126.41	126.61	127.36	125.68	126.41	126.61	127.36	0	0	0	0
	-1+127	123.47	124.61	124.88	125.87	123.47	124.61	124.88	125.87	0	0	0	0
	-1+379	122.94	123.42	123.57	124.15	122.94	123.42	123.57	124.15	0	0	0	0
	-1+510	120.51	121.08	121.25	121.22	120.51	121.08	121.25	121.22	0	0	0	0
	-1+645	118.55	119.23	119.41	120.16	118.55	119.23	119.41	120.16	0	0	0	0
	-2+034	117.76	118.43	118.61	119.23	117.76	118.43	118.61	119.23	0	0	0	0
	-2+125	117.54	117.98	118.08	118.49	117.54	117.98	118.08	118.49	0	0	0	0
	-2+125	117.54	117.98	118.08	118.49	117.54	117.98	118.08	118.49	0	0	0	0

Table A-2: HEC-RAS Water Surface Elevation Summary – Option Two

Section ID - BPR Engineering	Cross Section Station - CPL	Approximate Water Surface Elevation Pre-Project (m MSL)				Approximate Water Surface Elevation Post-Project (m MSL)				Estimated Water Surface Elevation Increase (m) (m MSL)			
	(m)	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow
	3+098	138.15	139.36	139.62	140.52	138.15	139.36	139.62	140.52	0	0	0	0
101	2+807	137.61	138.53	138.75	139.54	137.61	138.53	138.75	139.54	0	0	0	0
	2+713	137.28	138.03	138.21	138.90	137.28	138.03	138.21	138.90	0	0	0	0
102	2+674	136.87	137.79	138.01	138.87	136.87	137.79	138.01	138.87	0	0	0	0
	2+607	136.65	137.73	137.96	138.86	136.65	137.73	137.96	138.86	0	0	0	0
103	2+585	136.67	137.74	137.97	138.87	136.67	137.74	137.97	138.87	0	0	0	0
	2+519	136.31	137.31	137.73	138.71	136.31	137.32	137.73	138.71	0	0	0	0
104	2+495	136.40	137.42	137.73	138.70	136.39	137.42	137.73	138.70	0	0	0	0
105	2+379	136.21	137.19	137.52	138.52	136.20	137.20	137.52	138.53	0	0.01	0	0
	2+306	135.69	136.82	137.21	138.24	135.95	136.85	137.21	138.25	0.26	0.03	0	0
106	2+214	135.50	136.67	137.04	138.12	135.90	136.71	137.04	138.13	0.4	0.04	0	0
	2+149	135.42	136.56	136.89	138.01	135.88	136.61	136.89	138.01	0.46	0.05	0	0
107	2+039	135.40	136.49	136.79	137.93	135.86	136.54	136.79	137.93	0.46	0.05	0	0
	1+970	135.31	136.37	136.67	137.81	135.84	136.43	136.67	137.82	0.53	0.06	0	0
108	1+907	135.17	136.31	136.62	137.82	135.83	136.38	136.63	137.82	0.66	0.07	0.01	0
109	1+718	134.99	136.09	136.37	137.44	135.80	136.18	136.38	137.45	0.81	0.09	0.01	0.01
	1+687	134.98	136.07	136.36	137.51	135.79	136.17	136.37	137.53	0.81	0.1	0.01	0.02
110	1+545	134.89	135.88	136.16	137.30	135.78	136.01	136.17	137.31	0.89	0.13	0.01	0.01
	1+425	134.53	135.69	136.00	137.21	135.76	135.88	136.02	137.23	1.23	0.19	0.02	0.02
	1+384	134.56	135.68	135.99	137.20	135.76	135.87	136.01	137.22	1.2	0.19	0.02	0.02
111	1+236	134.51	135.62	135.93	137.15	135.76	135.83	135.95	137.17	1.25	0.21	0.02	0.02
	1+071	134.50	135.60	135.92	137.15	135.76	135.82	135.94	137.17	1.26	0.22	0.02	0.02
112	1+009	134.50	135.60	135.92	137.15	135.76	135.82	135.94	137.17	1.26	0.22	0.02	0.02
	0+888	134.49	135.59	135.91	137.14	135.76	135.81	135.93	137.16	1.27	0.22	0.02	0.02
113	0+821	134.49	135.59	135.91	137.14	135.76	135.81	135.93	137.16	1.27	0.22	0.02	0.02
-3	0+724	134.48	135.57	135.89	137.12	135.75	135.80	135.91	137.14	1.27	0.23	0.02	0.02
-2	0+607	134.48	135.57	135.88	137.11	135.75	135.79	135.90	137.13	1.27	0.22	0.02	0.02
-1	0+334	134.47	135.54	135.85	137.07	135.75	135.77	135.88	137.09	1.28	0.23	0.03	0.02
	0+292	134.47	135.54	135.85	137.07	135.75	135.77	135.87	137.09	1.28	0.23	0.02	0.02
	0+165	134.47	135.52	135.83	137.03	135.75	135.76	135.85	137.06	1.28	0.24	0.02	0.03
	0+141	134.47	135.52	135.83	137.03	135.75	135.76	135.85	137.05	1.28	0.24	0.02	0.02
	0+114	134.47	135.52	135.83	137.02	135.75	135.75	135.85	137.04	1.28	0.23	0.02	0.02
	0+084	134.47	135.52	135.82	137.02	135.75	135.75	135.84	137.04	1.28	0.23	0.02	0.02
	0+072	134.47	135.51	135.82	137.01	135.75	135.75	135.84	137.03	1.28	0.24	0.02	0.02

Section ID - BPR Engineering	Cross Section Station - CPL	Approximate Water Surface Elevation Pre-Project (m MSL)				Approximate Water Surface Elevation Post-Project (m MSL)				Estimated Water Surface Elevation Increase (m) (m MSL)			
	(m)	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow	LTAF	HWM Flow	1:2 Year Flood Flow	1:100 Year Flood Flow
	0+053	134.47	135.51	135.81	137.00	135.75	135.75	135.84	137.03	1.28	0.24	0.03	0.03
0	0+035	134.45	135.48	135.78	136.95	134.45	135.48	135.78	136.95	0	0	0	0
	-0+010	134.32	134.96	135.12	135.88	134.32	134.96	135.12	135.88	0	0	0	0
	-0+049	134.12	134.64	134.75	134.92	134.12	134.64	134.75	134.92	0	0	0	0
	-0+101	133.37	133.76	133.87	135.14	133.37	133.76	133.87	135.14	0	0	0	0
1	-0+172	132.73	133.63	133.89	134.92	132.73	133.63	133.89	134.92	0	0	0	0
	-0+194	132.48	133.09	133.27	134.03	132.48	133.09	133.27	134.03	0	0	0	0
	-0+274	129.70	130.21	130.34	130.88	129.70	130.21	130.34	130.88	0	0	0	0
	-0+302	128.88	129.93	130.18	131.21	128.88	129.93	130.18	131.21	0	0	0	0
	-0+321	128.72	129.73	129.97	130.94	128.72	129.73	129.97	130.94	0	0	0	0
	-0+339	128.35	129.21	129.42	130.22	128.35	129.21	129.42	130.22	0	0	0	0
	-0+368	127.60	128.71	128.77	129.13	127.60	128.71	128.77	129.13	0	0	0	0
2	-0+446	127.46	128.37	128.60	129.49	127.46	128.37	128.60	129.49	0	0	0	0
	-0+494	127.11	127.78	127.95	128.77	127.11	127.78	127.95	128.77	0	0	0	0
	-0+552	126.37	127.51	127.79	128.89	126.37	127.51	127.79	128.89	0	0	0	0
3	-0+597	126.34	127.47	127.75	128.85	126.34	127.47	127.75	128.85	0	0	0	0
	-0+688	126.27	127.36	127.63	128.71	126.27	127.36	127.63	128.71	0	0	0	0
	-0+764	126.11	127.01	127.23	128.08	126.11	127.01	127.23	128.08	0	0	0	0
	-0+794	125.68	126.41	126.61	127.36	125.68	126.41	126.61	127.36	0	0	0	0
	-1+127	123.47	124.61	124.88	125.87	123.47	124.61	124.88	125.87	0	0	0	0
	-1+379	122.94	123.42	123.57	124.15	122.94	123.42	123.57	124.15	0	0	0	0
	-1+510	120.51	121.08	121.25	121.22	120.51	121.08	121.25	121.22	0	0	0	0
	-1+645	118.55	119.23	119.41	120.16	118.55	119.23	119.41	120.16	0	0	0	0
	-2+034	117.76	118.43	118.61	119.23	117.76	118.43	118.61	119.23	0	0	0	0
	-2+125	117.54	117.98	118.08	118.49	117.54	117.98	118.08	118.49	0	0	0	0
	-2+125	117.54	117.98	118.08	118.49	117.54	117.98	118.08	118.49	0	0	0	0

Table A-3: HEC-RAS Upstream Inundation Results – Option One

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		3098	LTAF	CPL-EX-ALL_rb	47.8	2.32	20.65	38.28	38.35	137.5	138.15	0.54	0.65
Big Eddy		3098	LTAF	PR-Wier_rb	47.8	2.32	20.65	38.28	38.35	137.5	138.15	0.54	0.65
Big Eddy		3098	1:2	CPL-EX-ALL_rb	215	2.15	100.14	69.47	69.75	137.5	139.62	1.44	2.12
Big Eddy		3098	1:2	PR-Wier_rb	215	2.15	100.14	69.47	69.75	137.5	139.62	1.44	2.12
Big Eddy		3098	1:100	CPL-EX-ALL_rb	440	2.69	183.55	131.72	132.1	137.5	140.52	1.39	3.02
Big Eddy		3098	1:100	PR-Wier_rb	440	2.69	183.54	131.72	132.1	137.5	140.52	1.39	3.02
Big Eddy		3098	HWM Flow	CPL-EX-ALL_rb	170	2.05	82.79	66.45	66.69	137.5	139.36	1.25	1.86
Big Eddy		3098	HWM Flow	PR-Wier_rb	170	2.05	82.79	66.46	66.69	137.5	139.36	1.25	1.86
Big Eddy	101	2807	LTAF	CPL-EX-ALL_rb	47.8	0.97	49.22	34.56	35.73	135.01	137.61	1.42	2.6
Big Eddy	101	2807	LTAF	PR-Wier_rb	47.8	0.97	49.22	34.56	35.73	135.01	137.61	1.42	2.6
Big Eddy	101	2807	1:2	CPL-EX-ALL_rb	215	2.13	100.79	56.72	58.05	135.01	138.75	1.78	3.74
Big Eddy	101	2807	1:2	PR-Wier_rb	215	2.13	100.79	56.72	58.05	135.01	138.75	1.78	3.74
Big Eddy	101	2807	1:100	CPL-EX-ALL_rb	440	3.01	155.53	75.6	77.23	135.01	139.54	2.06	4.53
Big Eddy	101	2807	1:100	PR-Wier_rb	440	3.01	155.52	75.6	77.23	135.01	139.54	2.06	4.53
Big Eddy	101	2807	HWM Flow	CPL-EX-ALL_rb	170	1.91	88.85	51.95	53.26	135.01	138.53	1.71	3.52
Big Eddy	101	2807	HWM Flow	PR-Wier_rb	170	1.91	88.85	51.95	53.26	135.01	138.53	1.71	3.52
Big Eddy		2713	LTAF	CPL-EX-ALL_rb	47.8	1.93	24.75	46.63	46.68	136.6	137.28	0.53	0.68
Big Eddy		2713	LTAF	PR-Wier_rb	47.8	1.93	24.75	46.63	46.68	136.6	137.28	0.53	0.68
Big Eddy		2713	1:2	CPL-EX-ALL_rb	215	2.74	78.88	65.84	66.02	136.6	138.21	1.20	1.61
Big Eddy		2713	1:2	PR-Wier_rb	215	2.74	78.9	65.84	66.03	136.6	138.21	1.20	1.61
Big Eddy		2713	1:100	CPL-EX-ALL_rb	440	3.61	125.81	70.76	71.17	136.6	138.9	1.78	2.3
Big Eddy		2713	1:100	PR-Wier_rb	440	3.6	125.98	70.78	71.18	136.6	138.9	1.78	2.3
Big Eddy		2713	HWM Flow	CPL-EX-ALL_rb	170	2.54	66.95	63.98	64.1	136.6	138.03	1.05	1.43
Big Eddy		2713	HWM Flow	PR-Wier_rb	170	2.54	66.95	63.98	64.1	136.6	138.03	1.05	1.43
Big Eddy	102	2674	LTAF	CPL-EX-ALL_rb	47.8	1	47.93	68.02	68.61	135.66	136.87	0.70	1.21
Big Eddy	102	2674	LTAF	PR-Wier_rb	47.8	1	47.93	68.02	68.61	135.66	136.87	0.70	1.21
Big Eddy	102	2674	1:2	CPL-EX-ALL_rb	215	1.57	136.79	92.66	94.02	135.66	138.01	1.48	2.35
Big Eddy	102	2674	1:2	PR-Wier_rb	215	1.57	136.85	92.68	94.03	135.66	138.01	1.48	2.35
Big Eddy	102	2674	1:100	CPL-EX-ALL_rb	440	1.97	224.89	107.94	109.66	135.66	138.87	2.08	3.21
Big Eddy	102	2674	1:100	PR-Wier_rb	440	1.97	225.23	107.98	109.69	135.66	138.87	2.09	3.21
Big Eddy	102	2674	HWM Flow	CPL-EX-ALL_rb	170	1.46	116.68	87.05	88.29	135.66	137.79	1.34	2.13
Big Eddy	102	2674	HWM Flow	PR-Wier_rb	170	1.46	116.67	87.05	88.29	135.66	137.79	1.34	2.13
Big Eddy		2607	LTAF	CPL-EX-ALL_rb	47.8	0.78	61.51	104.69	104.72	135.94	136.65	0.59	0.71
Big Eddy		2607	LTAF	PR-Wier_rb	47.8	0.78	61.51	104.69	104.72	135.94	136.65	0.59	0.71
Big Eddy		2607	1:2	CPL-EX-ALL_rb	215	0.92	234.42	152.33	152.52	135.94	137.96	1.54	2.02

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2607	1:2	PR-Wier_rb	215	0.92	234.53	152.36	152.54	135.94	137.97	1.54	2.03
Big Eddy		2607	1:100	CPL-EX-ALL_rb	440	1.19	378.73	169.1	169.65	135.94	138.86	2.24	2.92
Big Eddy		2607	1:100	PR-Wier_rb	440	1.19	379.29	169.12	169.68	135.94	138.86	2.24	2.92
Big Eddy		2607	HWM Flow	CPL-EX-ALL_rb	170	0.85	199.45	144.83	144.98	135.94	137.73	1.38	1.79
Big Eddy		2607	HWM Flow	PR-Wier_rb	170	0.85	199.44	144.83	144.97	135.94	137.73	1.38	1.79
Big Eddy	103	2585	LTAF	CPL-EX-ALL_rb	47.8	0.26	186.5	90.09	92.6	132.22	136.67	2.07	4.45
Big Eddy	103	2585	LTAF	PR-Wier_rb	47.8	0.26	186.5	90.09	92.6	132.22	136.67	2.07	4.45
Big Eddy	103	2585	1:2	CPL-EX-ALL_rb	215	0.67	365.8	180.83	183.84	132.22	137.97	2.02	5.75
Big Eddy	103	2585	1:2	PR-Wier_rb	215	0.67	365.92	180.84	183.85	132.22	137.97	2.02	5.75
Big Eddy	103	2585	1:100	CPL-EX-ALL_rb	440	1.02	534.57	196.01	199.49	132.22	138.87	2.73	6.65
Big Eddy	103	2585	1:100	PR-Wier_rb	440	1.02	535.21	196.03	199.51	132.22	138.87	2.73	6.65
Big Eddy	103	2585	HWM Flow	CPL-EX-ALL_rb	170	0.58	323.78	176.76	179.66	132.22	137.74	1.83	5.52
Big Eddy	103	2585	HWM Flow	PR-Wier_rb	170	0.58	323.77	176.76	179.66	132.22	137.74	1.83	5.52
Big Eddy		2519	LTAF	CPL-EX-ALL_rb	47.8	2.5	19.11	29.11	29.26	135.55	136.31	0.66	0.76
Big Eddy		2519	LTAF	PR-Wier_rb	47.8	2.5	19.11	29.11	29.26	135.55	136.31	0.66	0.76
Big Eddy		2519	1:2	CPL-EX-ALL_rb	215	2.28	107.9	117.98	118.76	135.55	137.73	0.91	2.18
Big Eddy		2519	1:2	PR-Wier_rb	215	2.28	108.09	118.06	118.84	135.55	137.73	0.92	2.18
Big Eddy		2519	1:100	CPL-EX-ALL_rb	440	1.97	243.66	153.27	154.69	135.55	138.71	1.59	3.16
Big Eddy		2519	1:100	PR-Wier_rb	440	1.96	244.32	153.3	154.72	135.55	138.71	1.59	3.16
Big Eddy		2519	HWM Flow	CPL-EX-ALL_rb	170	2.88	65.91	82.4	82.9	135.55	137.31	0.80	1.76
Big Eddy		2519	HWM Flow	PR-Wier_rb	170	2.87	66.13	82.64	83.14	135.55	137.31	0.80	1.76
Big Eddy	104	2495	LTAF	CPL-EX-ALL_rb	47.8	1.18	43.4	54.76	55.25	134.55	136.4	0.79	1.85
Big Eddy	104	2495	LTAF	PR-Wier_rb	47.8	1.18	43.4	54.76	55.25	134.55	136.4	0.79	1.85
Big Eddy	104	2495	1:2	CPL-EX-ALL_rb	215	1.66	153.61	121.08	122.51	134.55	137.73	1.27	3.18
Big Eddy	104	2495	1:2	PR-Wier_rb	215	1.66	153.79	121.22	122.65	134.55	137.73	1.27	3.18
Big Eddy	104	2495	1:100	CPL-EX-ALL_rb	440	1.8	291.3	148.88	150.8	134.55	138.7	1.96	4.15
Big Eddy	104	2495	1:100	PR-Wier_rb	440	1.79	291.96	148.92	150.84	134.55	138.7	1.96	4.15
Big Eddy	104	2495	HWM Flow	CPL-EX-ALL_rb	170	1.63	118.76	98.33	99.52	134.55	137.42	1.21	2.87
Big Eddy	104	2495	HWM Flow	PR-Wier_rb	170	1.63	118.9	98.44	99.64	134.55	137.42	1.21	2.87
Big Eddy	105	2379	LTAF	CPL-EX-ALL_rb	47.8	1.01	47.12	63.98	64.31	134.92	136.21	0.74	1.29
Big Eddy	105	2379	LTAF	PR-Wier_rb	47.8	1.01	47.13	63.98	64.31	134.92	136.21	0.74	1.29
Big Eddy	105	2379	1:2	CPL-EX-ALL_rb	215	1.34	160.99	105.35	105.98	134.92	137.52	1.53	2.6
Big Eddy	105	2379	1:2	PR-Wier_rb	215	1.33	161.22	105.37	105.99	134.92	137.53	1.53	2.61
Big Eddy	105	2379	1:100	CPL-EX-ALL_rb	440	1.63	270.78	114.96	116.13	134.92	138.52	2.36	3.6
Big Eddy	105	2379	1:100	PR-Wier_rb	440	1.63	271.42	114.99	116.16	134.92	138.53	2.36	3.61
Big Eddy	105	2379	HWM Flow	CPL-EX-ALL_rb	170	1.33	127.55	96.03	96.58	134.92	137.19	1.33	2.27

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	105	2379	HWM Flow	PR-Wier_rb	170	1.33	127.76	96.11	96.65	134.92	137.19	1.33	2.27
Big Eddy		2306	LTAF	CPL-EX-ALL_rb	47.8	2.2	21.74	44.68	44.8	135.16	135.69	0.49	0.53
Big Eddy		2306	LTAF	PR-Wier_rb	47.8	2.2	21.74	44.68	44.8	135.16	135.69	0.49	0.53
Big Eddy		2306	1:2	CPL-EX-ALL_rb	215	1.89	114.01	78.58	78.99	135.16	137.21	1.45	2.05
Big Eddy		2306	1:2	PR-Wier_rb	215	1.88	114.37	78.66	79.07	135.16	137.22	1.45	2.06
Big Eddy		2306	1:100	CPL-EX-ALL_rb	440	2.18	209.52	113.53	114.16	135.16	138.24	1.85	3.08
Big Eddy		2306	1:100	PR-Wier_rb	440	2.17	210.5	113.68	114.31	135.16	138.25	1.85	3.09
Big Eddy		2306	HWM Flow	CPL-EX-ALL_rb	170	1.99	85.35	68.62	68.95	135.16	136.82	1.24	1.66
Big Eddy		2306	HWM Flow	PR-Wier_rb	170	1.98	85.8	68.68	69.01	135.16	136.83	1.25	1.67
Big Eddy	106	2214	LTAF	CPL-EX-ALL_rb	47.8	1.06	45.19	45.34	45.84	133.31	135.5	1.00	2.19
Big Eddy	106	2214	LTAF	PR-Wier_rb	47.8	1.02	46.77	45.75	46.26	133.31	135.54	1.02	2.23
Big Eddy	106	2214	1:2	CPL-EX-ALL_rb	215	1.66	129.14	79.28	80.16	133.31	137.04	1.63	3.73
Big Eddy	106	2214	1:2	PR-Wier_rb	215	1.66	129.69	79.37	80.26	133.31	137.05	1.63	3.74
Big Eddy	106	2214	1:100	CPL-EX-ALL_rb	440	1.99	223.96	96.45	97.71	133.31	138.12	2.32	4.81
Big Eddy	106	2214	1:100	PR-Wier_rb	440	1.98	224.96	96.59	97.85	133.31	138.13	2.33	4.82
Big Eddy	106	2214	HWM Flow	CPL-EX-ALL_rb	170	1.62	105.24	56.12	56.93	133.31	136.67	1.88	3.36
Big Eddy	106	2214	HWM Flow	PR-Wier_rb	170	1.61	105.73	56.19	57	133.31	136.68	1.88	3.37
Big Eddy		2149	LTAF	CPL-EX-ALL_rb	47.8	1.03	46.19	41.5	41.75	134	135.42	1.11	1.42
Big Eddy		2149	LTAF	PR-Wier_rb	47.8	1	47.99	42.03	42.29	134	135.46	1.14	1.46
Big Eddy		2149	1:2	CPL-EX-ALL_rb	215	1.8	119.12	70.83	71.58	134	136.89	1.68	2.89
Big Eddy		2149	1:2	PR-Wier_rb	215	1.8	119.7	71.7	72.45	134	136.9	1.67	2.9
Big Eddy		2149	1:100	CPL-EX-ALL_rb	440	2.07	217.42	96.22	97.39	134	138.01	2.26	4.01
Big Eddy		2149	1:100	PR-Wier_rb	440	2.06	218.62	96.38	97.55	134	138.02	2.27	4.02
Big Eddy		2149	HWM Flow	CPL-EX-ALL_rb	170	1.69	100.38	51.28	51.87	134	136.56	1.96	2.56
Big Eddy		2149	HWM Flow	PR-Wier_rb	170	1.68	100.92	51.33	51.92	134	136.58	1.97	2.58
Big Eddy	107	2039	LTAF	CPL-EX-ALL_rb	47.8	0.62	76.98	42.86	44.56	132.49	135.4	1.80	2.91
Big Eddy	107	2039	LTAF	PR-Wier_rb	47.8	0.61	78.92	43.28	45	132.49	135.44	1.82	2.95
Big Eddy	107	2039	1:2	CPL-EX-ALL_rb	215	1.36	157.51	156.34	83.71	132.49	136.79	1.01	4.3
Big Eddy	107	2039	1:2	PR-Wier_rb	215	1.36	158.24	156.86	83.88	132.49	136.8	1.01	4.31
Big Eddy	107	2039	1:100	CPL-EX-ALL_rb	440	1.72	257.97	199.72	97.68	132.49	137.93	1.29	5.44
Big Eddy	107	2039	1:100	PR-Wier_rb	440	1.71	259.3	200.52	97.91	132.49	137.94	1.29	5.45
Big Eddy	107	2039	HWM Flow	CPL-EX-ALL_rb	170	1.27	134.02	71.04	73.12	132.49	136.49	1.89	4
Big Eddy	107	2039	HWM Flow	PR-Wier_rb	170	1.26	134.88	71.53	73.62	132.49	136.5	1.89	4.01
Big Eddy		1970	LTAF	CPL-EX-ALL_rb	47.8	1.14	41.8	54.13	54.22	134.34	135.31	0.77	0.97
Big Eddy		1970	LTAF	PR-Wier_rb	47.8	1.06	44.94	55.43	55.52	134.34	135.37	0.81	1.03

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1970	1:2	CPL-EX-ALL_rb	215	1.59	134.88	142.12	78.08	134.34	136.67	0.95	2.33
Big Eddy		1970	1:2	PR-Wier_rb	215	1.58	135.74	142.61	78.15	134.34	136.68	0.95	2.34
Big Eddy		1970	1:100	CPL-EX-ALL_rb	440	1.94	228.63	268.4	86.36	134.34	137.81	0.85	3.47
Big Eddy		1970	1:100	PR-Wier_rb	440	1.93	230	268.7	86.47	134.34	137.83	0.86	3.49
Big Eddy		1970	HWM Flow	CPL-EX-ALL_rb	170	1.52	111.81	75.72	75.97	134.34	136.37	1.48	2.03
Big Eddy		1970	HWM Flow	PR-Wier_rb	170	1.5	112.96	75.84	76.09	134.34	136.38	1.49	2.04
Big Eddy	108	1907	LTAF	CPL-EX-ALL_rb	47.8	1.03	46.52	75.2	75.52	134.18	135.17	0.62	0.99
Big Eddy	108	1907	LTAF	PR-Wier_rb	47.8	0.87	54.64	75.65	76.04	134.18	135.28	0.72	1.1
Big Eddy	108	1907	1:2	CPL-EX-ALL_rb	215	1.32	176.37	222.47	144.62	134.18	136.62	0.79	2.44
Big Eddy	108	1907	1:2	PR-Wier_rb	215	1.31	178.14	223.33	144.87	134.18	136.64	0.80	2.46
Big Eddy	108	1907	1:100	CPL-EX-ALL_rb	440	1.54	394.79	345.64	216.1	134.18	137.82	1.14	3.64
Big Eddy	108	1907	1:100	PR-Wier_rb	440	1.53	398.3	345.98	216.24	134.18	137.83	1.15	3.65
Big Eddy	108	1907	HWM Flow	CPL-EX-ALL_rb	170	1.25	138.8	103.04	103.87	134.18	136.31	1.35	2.13
Big Eddy	108	1907	HWM Flow	PR-Wier_rb	170	1.24	140.57	103.81	104.64	134.18	136.33	1.35	2.15
Big Eddy	109	1718	LTAF	CPL-EX-ALL_rb	47.8	0.8	59.61	45.37	45.92	132.47	134.99	1.31	2.52
Big Eddy	109	1718	LTAF	PR-Wier_rb	47.8	0.71	67.49	46.42	47.03	132.47	135.16	1.45	2.69
Big Eddy	109	1718	1:2	CPL-EX-ALL_rb	215	1.75	129.14	61.65	62.64	132.47	136.37	2.09	3.9
Big Eddy	109	1718	1:2	PR-Wier_rb	215	1.74	130.18	62.12	63.12	132.47	136.38	2.10	3.91
Big Eddy	109	1718	1:100	CPL-EX-ALL_rb	440	2.47	222.99	103.25	104.51	132.47	137.44	2.16	4.97
Big Eddy	109	1718	1:100	PR-Wier_rb	440	2.45	225.42	103.64	104.91	132.47	137.46	2.18	4.99
Big Eddy	109	1718	HWM Flow	CPL-EX-ALL_rb	170	1.55	113.02	53.7	54.62	132.47	136.09	2.10	3.62
Big Eddy	109	1718	HWM Flow	PR-Wier_rb	170	1.53	114.3	54.37	55.31	132.47	136.11	2.10	3.64
Big Eddy		1687	LTAF	CPL-EX-ALL_rb	47.8	0.72	66.31	38.51	39.06	132.5	134.98	1.72	2.48
Big Eddy		1687	LTAF	PR-Wier_rb	47.8	0.65	73.41	43.42	44	132.5	135.15	1.69	2.65
Big Eddy		1687	1:2	CPL-EX-ALL_rb	215	1.52	161.96	136.73	137.68	132.5	136.36	1.18	3.86
Big Eddy		1687	1:2	PR-Wier_rb	215	1.5	164.41	139.61	140.57	132.5	136.38	1.18	3.88
Big Eddy		1687	1:100	CPL-EX-ALL_rb	440	1.8	417.78	299.68	301.21	132.5	137.51	1.39	5.01
Big Eddy		1687	1:100	PR-Wier_rb	440	1.78	424.94	301.86	303.41	132.5	137.54	1.41	5.04
Big Eddy		1687	HWM Flow	CPL-EX-ALL_rb	170	1.38	130.74	91.06	91.89	132.5	136.07	1.44	3.57
Big Eddy		1687	HWM Flow	PR-Wier_rb	170	1.36	133.03	91.99	92.83	132.5	136.1	1.45	3.6
Big Eddy	110	1545	LTAF	CPL-EX-ALL_rb	47.8	0.7	68.68	56.65	57.68	132.76	134.89	1.21	2.13
Big Eddy	110	1545	LTAF	PR-Wier_rb	47.8	0.6	80.16	58.17	59.26	132.76	135.09	1.38	2.33
Big Eddy	110	1545	1:2	CPL-EX-ALL_rb	215	1.46	155.76	91.78	93.09	132.76	136.16	1.70	3.4
Big Eddy	110	1545	1:2	PR-Wier_rb	215	1.45	158.03	92.14	93.45	132.76	136.18	1.72	3.42
Big Eddy	110	1545	1:100	CPL-EX-ALL_rb	440	1.89	313.97	193.57	195.22	132.76	137.3	1.62	4.54
Big Eddy	110	1545	1:100	PR-Wier_rb	440	1.87	320.02	195.27	196.92	132.76	137.33	1.64	4.57

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	110	1545	HWM Flow	CPL-EX-ALL_rb	170	1.33	131.2	79.69	80.95	132.76	135.88	1.65	3.12
Big Eddy	110	1545	HWM Flow	PR-Wier_rb	170	1.3	134.03	81.28	82.54	132.76	135.91	1.65	3.15
Big Eddy		1425	LTAF	CPL-EX-ALL_rb	47.8	1.58	30.24	70.24	70.26	133.97	134.53	0.43	0.56
Big Eddy		1425	LTAF	PR-Wier_rb	47.8	0.7	68.63	96.68	96.72	133.97	134.99	0.71	1.02
Big Eddy		1425	1:2	CPL-EX-ALL_rb	215	1.22	177.41	117.97	118.25	133.97	136	1.50	2.03
Big Eddy		1425	1:2	PR-Wier_rb	215	1.2	181.49	118.91	119.19	133.97	136.04	1.53	2.07
Big Eddy		1425	1:100	CPL-EX-ALL_rb	440	1.39	371.22	223.73	224.3	133.97	137.21	1.66	3.24
Big Eddy		1425	1:100	PR-Wier_rb	440	1.37	379.23	224.08	224.67	133.97	137.25	1.69	3.28
Big Eddy		1425	HWM Flow	CPL-EX-ALL_rb	170	1.2	142.44	108.95	109.16	133.97	135.69	1.31	1.72
Big Eddy		1425	HWM Flow	PR-Wier_rb	170	1.15	148.38	109.66	109.89	133.97	135.74	1.35	1.77
Big Eddy		1384	LTAF	CPL-EX-ALL_rb	47.8	0.5	96.51	85	85.11	132.99	134.56	1.14	1.57
Big Eddy		1384	LTAF	PR-Wier_rb	47.8	0.35	135.69	97.8	97.94	132.99	134.99	1.39	2
Big Eddy		1384	1:2	CPL-EX-ALL_rb	215	0.91	240.27	111.52	111.86	132.99	135.99	2.15	3
Big Eddy		1384	1:2	PR-Wier_rb	215	0.89	244.25	114.54	114.89	132.99	136.02	2.13	3.03
Big Eddy		1384	1:100	CPL-EX-ALL_rb	440	1.19	443.86	243.56	244.05	132.99	137.2	1.82	4.21
Big Eddy		1384	1:100	PR-Wier_rb	440	1.17	452.69	245.05	245.55	132.99	137.24	1.85	4.25
Big Eddy		1384	HWM Flow	CPL-EX-ALL_rb	170	0.83	206.39	106.16	106.45	132.99	135.68	1.94	2.69
Big Eddy		1384	HWM Flow	PR-Wier_rb	170	0.8	212.31	106.94	107.23	132.99	135.73	1.99	2.74
Big Eddy	111	1236	LTAF	CPL-EX-ALL_rb	47.8	0.4	120.49	105.9	106.33	132.3	134.51	1.14	2.21
Big Eddy	111	1236	LTAF	PR-Wier_rb	47.8	0.28	169.83	109.82	110.38	132.3	134.97	1.55	2.67
Big Eddy	111	1236	1:2	CPL-EX-ALL_rb	215	0.77	282.24	123.04	123.76	132.3	135.93	2.29	3.63
Big Eddy	111	1236	1:2	PR-Wier_rb	215	0.75	286.93	123.48	124.21	132.3	135.97	2.32	3.67
Big Eddy	111	1236	1:100	CPL-EX-ALL_rb	440	1.01	527.27	313.49	314.33	132.3	137.15	1.68	4.85
Big Eddy	111	1236	1:100	PR-Wier_rb	440	0.99	539.35	314.03	314.87	132.3	137.19	1.72	4.89
Big Eddy	111	1236	HWM Flow	CPL-EX-ALL_rb	170	0.7	244.22	119.32	119.98	132.3	135.62	2.05	3.32
Big Eddy	111	1236	HWM Flow	PR-Wier_rb	170	0.68	251.54	120.07	120.74	132.3	135.68	2.09	3.38
Big Eddy		1071	LTAF	CPL-EX-ALL_rb	47.8	0.21	225.08	151.51	151.68	132.26	134.5	1.49	2.24
Big Eddy		1071	LTAF	PR-Wier_rb	47.8	0.16	304.58	223.2	223.5	132.26	134.96	1.36	2.7
Big Eddy		1071	1:2	CPL-EX-ALL_rb	215	0.43	594.94	344.77	345.39	132.26	135.92	1.73	3.66
Big Eddy		1071	1:2	PR-Wier_rb	215	0.43	608.58	350.36	351	132.26	135.96	1.74	3.7
Big Eddy		1071	1:100	CPL-EX-ALL_rb	440	0.55	1136.86	546.09	547.3	132.26	137.15	2.08	4.89
Big Eddy		1071	1:100	PR-Wier_rb	440	0.55	1158.14	548.44	549.67	132.26	137.19	2.11	4.93
Big Eddy		1071	HWM Flow	CPL-EX-ALL_rb	170	0.4	491.33	316.73	317.25	132.26	135.6	1.55	3.34
Big Eddy		1071	HWM Flow	PR-Wier_rb	170	0.39	511.51	319.47	320.01	132.26	135.66	1.60	3.4
Big Eddy	112	1009	LTAF	CPL-EX-ALL_rb	47.8	0.17	283.85	206.71	207.63	132.12	134.5	1.37	2.38

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	112	1009	LTAF	PR-Wier_rb	47.8	0.13	381.39	209.97	211.03	132.12	134.96	1.82	2.84
Big Eddy	112	1009	1:2	CPL-EX-ALL_rb	215	0.35	696.01	371.98	373.34	132.12	135.92	1.87	3.8
Big Eddy	112	1009	1:2	PR-Wier_rb	215	0.35	710.7	373.72	375.1	132.12	135.95	1.90	3.83
Big Eddy	112	1009	1:100	CPL-EX-ALL_rb	440	0.46	1285.45	606.88	608.92	132.12	137.15	2.12	5.03
Big Eddy	112	1009	1:100	PR-Wier_rb	440	0.46	1309.13	607.64	609.71	132.12	137.19	2.15	5.07
Big Eddy	112	1009	HWM Flow	CPL-EX-ALL_rb	170	0.32	580.35	357.57	358.82	132.12	135.6	1.62	3.48
Big Eddy	112	1009	HWM Flow	PR-Wier_rb	170	0.31	603.24	360.86	362.13	132.12	135.66	1.67	3.54
Big Eddy		888	LTAF	CPL-EX-ALL_rb	47.8	0.15	318.16	249.53	249.59	132.5	134.49	1.28	1.99
Big Eddy		888	LTAF	PR-Wier_rb	47.8	0.1	466.6	380.17	380.23	132.5	134.96	1.23	2.46
Big Eddy		888	1:2	CPL-EX-ALL_rb	215	0.27	894.44	481.75	481.9	132.5	135.91	1.86	3.41
Big Eddy		888	1:2	PR-Wier_rb	215	0.27	913.59	482.54	482.7	132.5	135.95	1.89	3.45
Big Eddy		888	1:100	CPL-EX-ALL_rb	440	0.35	1531.49	551.93	552.2	132.5	137.14	2.77	4.64
Big Eddy		888	1:100	PR-Wier_rb	440	0.35	1553.15	554.73	555.01	132.5	137.18	2.80	4.68
Big Eddy		888	HWM Flow	CPL-EX-ALL_rb	170	0.25	743.96	465.87	465.98	132.5	135.59	1.60	3.09
Big Eddy		888	HWM Flow	PR-Wier_rb	170	0.24	773.98	467.77	467.89	132.5	135.66	1.65	3.16
Big Eddy	113	821	LTAF	CPL-EX-ALL_rb	47.8	0.1	494.71	369.73	370.4	132.16	134.49	1.34	2.33
Big Eddy	113	821	LTAF	PR-Wier_rb	47.8	0.07	676.58	409.91	410.64	132.16	134.96	1.65	2.8
Big Eddy	113	821	1:2	CPL-EX-ALL_rb	215	0.21	1095.61	470.43	471.33	132.16	135.91	2.33	3.75
Big Eddy	113	821	1:2	PR-Wier_rb	215	0.21	1114.34	471.77	472.69	132.16	135.95	2.36	3.79
Big Eddy	113	821	1:100	CPL-EX-ALL_rb	440	0.29	1712.81	536.33	537.41	132.16	137.14	3.19	4.98
Big Eddy	113	821	1:100	PR-Wier_rb	440	0.29	1733.87	537.9	538.99	132.16	137.18	3.22	5.02
Big Eddy	113	821	HWM Flow	CPL-EX-ALL_rb	170	0.19	948.17	458.13	458.97	132.16	135.59	2.07	3.43
Big Eddy	113	821	HWM Flow	PR-Wier_rb	170	0.18	977.77	460.79	461.64	132.16	135.66	2.12	3.5
Big Eddy	-3	724	LTAF	CPL-EX-ALL_rb	47.8	0.28	172.47	132.21	132.46	132.5	134.48	1.30	1.98
Big Eddy	-3	724	LTAF	PR-Wier_rb	47.8	0.2	237.25	141.54	141.87	132.5	134.96	1.68	2.46
Big Eddy	-3	724	1:2	CPL-EX-ALL_rb	215	0.58	434.33	328.36	328.82	132.5	135.89	1.32	3.39
Big Eddy	-3	724	1:2	PR-Wier_rb	215	0.57	447.78	332.52	332.99	132.5	135.93	1.35	3.43
Big Eddy	-3	724	1:100	CPL-EX-ALL_rb	440	0.71	965.36	513.49	514.06	132.5	137.12	1.88	4.62
Big Eddy	-3	724	1:100	PR-Wier_rb	440	0.7	986.01	514.88	515.46	132.5	137.16	1.92	4.66
Big Eddy	-3	724	HWM Flow	CPL-EX-ALL_rb	170	0.53	337.87	277.88	278.28	132.5	135.57	1.22	3.07
Big Eddy	-3	724	HWM Flow	PR-Wier_rb	170	0.51	356.59	291.92	292.34	132.5	135.64	1.22	3.14
Big Eddy	-2	607	LTAF	CPL-EX-ALL_rb	47.8	0.17	278.12	135.05	136.13	131.48	134.48	2.06	3
Big Eddy	-2	607	LTAF	PR-Wier_rb	47.8	0.14	343.95	140.98	142.14	131.48	134.96	2.44	3.48
Big Eddy	-2	607	1:2	CPL-EX-ALL_rb	215	0.45	536.95	300.07	301.39	131.48	135.88	1.79	4.4
Big Eddy	-2	607	1:2	PR-Wier_rb	215	0.44	549.49	310.23	311.54	131.48	135.92	1.77	4.44
Big Eddy	-2	607	1:100	CPL-EX-ALL_rb	440	0.61	1070.01	520.74	522.12	131.48	137.11	2.05	5.63

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-2	607	1:100	PR-Wier_rb	440	0.6	1091.18	523.1	524.48	131.48	137.15	2.09	5.67
Big Eddy	-2	607	HWM Flow	CPL-EX-ALL_rb	170	0.39	454.88	222.49	223.78	131.48	135.57	2.04	4.09
Big Eddy	-2	607	HWM Flow	PR-Wier_rb	170	0.38	470.18	238.87	240.17	131.48	135.63	1.97	4.15
Big Eddy	-1	334	LTAF	CPL-EX-ALL_rb	47.8	0.18	261.75	119.13	120.11	131.3	134.47	2.20	3.17
Big Eddy	-1	334	LTAF	PR-Wier_rb	47.8	0.15	320.2	125.03	126.11	131.3	134.95	2.56	3.65
Big Eddy	-1	334	1:2	CPL-EX-ALL_rb	215	0.49	516.23	288.47	289.69	131.3	135.85	1.79	4.55
Big Eddy	-1	334	1:2	PR-Wier_rb	215	0.48	528.5	293.3	294.52	131.3	135.9	1.80	4.6
Big Eddy	-1	334	1:100	CPL-EX-ALL_rb	440	0.67	970.08	399.02	400.42	131.3	137.07	2.43	5.77
Big Eddy	-1	334	1:100	PR-Wier_rb	440	0.66	986.74	399.73	401.14	131.3	137.11	2.47	5.81
Big Eddy	-1	334	HWM Flow	CPL-EX-ALL_rb	170	0.43	432.05	252.83	254.04	131.3	135.54	1.71	4.24
Big Eddy	-1	334	HWM Flow	PR-Wier_rb	170	0.42	449.49	260.62	261.83	131.3	135.61	1.72	4.31
Big Eddy		292	LTAF	CPL-EX-ALL_rb	47.8	0.18	259.4	111.77	112.34	131.08	134.47	2.32	3.39
Big Eddy		292	LTAF	PR-Wier_rb	47.8	0.15	314.27	116.8	117.46	131.08	134.95	2.69	3.87
Big Eddy		292	1:2	CPL-EX-ALL_rb	215	0.49	501.75	244	244.82	131.08	135.85	2.06	4.77
Big Eddy		292	1:2	PR-Wier_rb	215	0.49	512.12	245.23	246.05	131.08	135.89	2.09	4.81
Big Eddy		292	1:100	CPL-EX-ALL_rb	440	0.69	863.81	323.04	324.54	131.08	137.07	2.67	5.99
Big Eddy		292	1:100	PR-Wier_rb	440	0.68	877.35	323.11	324.67	131.08	137.11	2.72	6.03
Big Eddy		292	HWM Flow	CPL-EX-ALL_rb	170	0.44	427.49	234.24	235.03	131.08	135.54	1.83	4.46
Big Eddy		292	HWM Flow	PR-Wier_rb	170	0.42	443.55	236.47	237.27	131.08	135.61	1.88	4.53
Big Eddy		165	LTAF	CPL-EX-ALL_rb	47.8	0.21	225.78	112.84	113.16	130.98	134.47	2.00	3.49
Big Eddy		165	LTAF	PR-Wier_rb	47.8	0.17	282.59	121.06	121.45	130.98	134.95	2.33	3.97
Big Eddy		165	1:2	CPL-EX-ALL_rb	215	0.55	394.43	134.72	135.25	130.98	135.83	2.93	4.85
Big Eddy		165	1:2	PR-Wier_rb	215	0.54	400.25	135.77	136.29	130.98	135.87	2.95	4.89
Big Eddy		165	1:100	CPL-EX-ALL_rb	440	0.81	596.46	229.53	230.24	130.98	137.03	2.60	6.05
Big Eddy		165	1:100	PR-Wier_rb	440	0.8	606.28	231.65	232.36	130.98	137.08	2.62	6.1
Big Eddy		165	HWM Flow	CPL-EX-ALL_rb	170	0.48	354.01	128.7	129.18	130.98	135.52	2.75	4.54
Big Eddy		165	HWM Flow	PR-Wier_rb	170	0.47	362.96	129.83	130.32	130.98	135.59	2.80	4.61
Big Eddy		141	LTAF	CPL-EX-ALL_rb	47.8	0.18	270.86	106.33	109.3	130.49	134.47	2.55	3.98
Big Eddy		141	LTAF	PR-Wier_rb	47.8	0.15	322.81	109.21	112.35	130.49	134.95	2.96	4.46
Big Eddy		141	1:2	CPL-EX-ALL_rb	215	0.51	427.65	130.21	133.59	130.49	135.83	3.28	5.34
Big Eddy		141	1:2	PR-Wier_rb	215	0.51	433.29	131.57	134.96	130.49	135.87	3.29	5.38
Big Eddy		141	1:100	CPL-EX-ALL_rb	440	0.78	637.07	217.31	220.94	130.49	137.03	2.93	6.54
Big Eddy		141	1:100	PR-Wier_rb	440	0.77	646.36	217.8	221.44	130.49	137.08	2.97	6.59
Big Eddy		141	HWM Flow	CPL-EX-ALL_rb	170	0.44	389.13	120.33	123.63	130.49	135.52	3.23	5.03
Big Eddy		141	HWM Flow	PR-Wier_rb	170	0.43	397.55	122.7	126.01	130.49	135.59	3.24	5.1

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		114	LTAF	CPL-EX-ALL_rb	47.8	0.19	249.97	102.12	104.96	131.22	134.47	2.45	3.25
Big Eddy		114	LTAF	PR-Wier_rb	47.8	0.16	299.37	102.65	106.14	131.22	134.95	2.92	3.73
Big Eddy		114	1:2	CPL-EX-ALL_rb	215	0.55	393.47	110.84	114.8	131.22	135.83	3.55	4.61
Big Eddy		114	1:2	PR-Wier_rb	215	0.54	398.27	111.36	115.33	131.22	135.87	3.58	4.65
Big Eddy		114	1:100	CPL-EX-ALL_rb	440	0.85	564.43	207.93	212.28	131.22	137.02	2.71	5.8
Big Eddy		114	1:100	PR-Wier_rb	440	0.84	573.36	208.2	212.56	131.22	137.06	2.75	5.84
Big Eddy		114	HWM Flow	CPL-EX-ALL_rb	170	0.47	359.95	108.32	112.14	131.22	135.52	3.32	4.3
Big Eddy		114	HWM Flow	PR-Wier_rb	170	0.46	367.5	108.8	112.66	131.22	135.59	3.38	4.37
Big Eddy		84	LTAF	CPL-EX-ALL_rb	47.8	0.19	254.14	97.55	101.63	129.81	134.47	2.61	4.66
Big Eddy		84	LTAF	PR-Wier_rb	47.8	0.16	302.23	100.43	105.08	129.81	134.95	3.01	5.14
Big Eddy		84	1:2	CPL-EX-ALL_rb	215	0.55	395.43	114.83	119.78	129.81	135.82	3.44	6.01
Big Eddy		84	1:2	PR-Wier_rb	215	0.54	400.41	115.43	120.4	129.81	135.87	3.47	6.06
Big Eddy		84	1:100	CPL-EX-ALL_rb	440	0.86	551.36	202.23	207.68	129.81	137.02	2.73	7.21
Big Eddy		84	1:100	PR-Wier_rb	440	0.85	560.08	202.43	207.9	129.81	137.06	2.77	7.25
Big Eddy		84	HWM Flow	CPL-EX-ALL_rb	170	0.47	361.01	109.6	114.42	129.81	135.52	3.29	5.71
Big Eddy		84	HWM Flow	PR-Wier_rb	170	0.46	368.72	111.41	116.26	129.81	135.59	3.31	5.78
Big Eddy		72	LTAF	CPL-EX-ALL_rb	47.8	0.2	237.43	98.91	100.47	130.48	134.47	2.40	3.99
Big Eddy		72	LTAF	PR-Wier_rb	47.8	0.17	286.43	104.03	105.73	130.48	134.95	2.75	4.47
Big Eddy		72	1:2	CPL-EX-ALL_rb	215	0.57	384.62	118.08	120.05	130.48	135.82	3.26	5.34
Big Eddy		72	1:2	PR-Wier_rb	215	0.56	389.76	118.65	120.63	130.48	135.86	3.28	5.38
Big Eddy		72	1:100	CPL-EX-ALL_rb	440	0.86	560.62	201.07	203.46	130.48	137.01	2.79	6.53
Big Eddy		72	1:100	PR-Wier_rb	440	0.85	569.33	201.27	203.67	130.48	137.06	2.83	6.58
Big Eddy		72	HWM Flow	CPL-EX-ALL_rb	170	0.49	349.17	114.12	115.98	130.48	135.51	3.06	5.03
Big Eddy		72	HWM Flow	PR-Wier_rb	170	0.48	357.17	115.03	116.92	130.48	135.58	3.11	5.1
Big Eddy		53	LTAF	CPL-EX-ALL_rb	47.8	0.23	208.03	95.58	97.08	130.78	134.47	2.18	3.69
Big Eddy		53	LTAF	PR-Wier_rb	47.8	0.18	272.66	115.78	114.09	130.78	134.95	2.35	4.17
Big Eddy		53	1:2	CPL-EX-ALL_rb	215	0.62	346.61	110.44	112.34	130.78	135.81	3.14	5.03
Big Eddy		53	1:2	PR-Wier_rb	215	0.57	375.46	117.93	114.09	130.78	135.86	3.18	5.08
Big Eddy		53	1:100	CPL-EX-ALL_rb	440	0.94	512.38	193.9	196.15	130.78	137	2.64	6.22
Big Eddy		53	1:100	PR-Wier_rb	440	0.86	509.71	194.14	114.09	130.78	137.05	2.63	6.27
Big Eddy		53	HWM Flow	CPL-EX-ALL_rb	170	0.54	313.63	106.36	108.17	130.78	135.51	2.95	4.73
Big Eddy		53	HWM Flow	PR-Wier_rb	170	0.49	344.05	117.43	114.09	130.78	135.58	2.93	4.8
Big Eddy	0	35	LTAF	CPL-EX-ALL_rb	47.8	0.49	98.36	86.57	86.79	132.3	134.45	1.14	2.15
Big Eddy	0	35	LTAF	PR-Wier_rb	47.8	0.49	98.36	86.57	86.79	132.3	134.45	1.14	2.15
Big Eddy	0	35	1:2	CPL-EX-ALL_rb	215	0.98	223.27	103.89	104.41	132.3	135.78	2.15	3.48
Big Eddy	0	35	1:2	PR-Wier_rb	215	0.98	223.27	103.89	104.41	132.3	135.78	2.15	3.48

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	1:100	CPL-EX-ALL_rb	440	1.31	358.78	129.31	130.07	132.3	136.95	2.77	4.65
Big Eddy	0	35	1:100	PR-Wier_rb	440	1.31	358.78	129.31	130.07	132.3	136.95	2.77	4.65
Big Eddy	0	35	HWM Flow	CPL-EX-ALL_rb	170	0.89	192.86	99.1	99.56	132.3	135.48	1.95	3.18
Big Eddy	0	35	HWM Flow	PR-Wier_rb	170	0.89	192.86	99.1	99.56	132.3	135.48	1.95	3.18
Big Eddy		-10	LTAF	CPL-EX-ALL_rb	47.8	1.37	34.92	34.31	34.73	133.21	134.32	1.02	1.11
Big Eddy		-10	LTAF	PR-Wier_rb	47.8	1.37	34.92	34.31	34.73	133.21	134.32	1.02	1.11
Big Eddy		-10	1:2	CPL-EX-ALL_rb	215	3.36	64.04	41.79	42.56	133.21	135.12	1.53	1.91
Big Eddy		-10	1:2	PR-Wier_rb	215	3.36	64.04	41.79	42.56	133.21	135.12	1.53	1.91
Big Eddy		-10	1:100	CPL-EX-ALL_rb	440	4.47	113.04	83.92	84.88	133.21	135.88	1.35	2.67
Big Eddy		-10	1:100	PR-Wier_rb	440	4.47	113.04	83.92	84.88	133.21	135.88	1.35	2.67
Big Eddy		-10	HWM Flow	CPL-EX-ALL_rb	170	2.94	57.76	37.72	38.48	133.21	134.96	1.53	1.75
Big Eddy		-10	HWM Flow	PR-Wier_rb	170	2.94	57.76	37.72	38.48	133.21	134.96	1.53	1.75
Big Eddy		-49	LTAF	CPL-EX-ALL_rb	47.8	1.38	34.52	55.89	55.99	133.14	134.12	0.62	0.98
Big Eddy		-49	LTAF	PR-Wier_rb	47.8	1.38	34.52	55.89	55.99	133.14	134.12	0.62	0.98
Big Eddy		-49	1:2	CPL-EX-ALL_rb	215	2.73	83.91	90.9	91.1	133.14	134.75	0.92	1.61
Big Eddy		-49	1:2	PR-Wier_rb	215	2.73	83.91	90.9	91.1	133.14	134.75	0.92	1.61
Big Eddy		-49	1:100	CPL-EX-ALL_rb	440	4.78	100.95	109	109.26	133.14	134.92	0.93	1.78
Big Eddy		-49	1:100	PR-Wier_rb	440	4.78	100.95	109	109.26	133.14	134.92	0.93	1.78
Big Eddy		-49	HWM Flow	CPL-EX-ALL_rb	170	2.41	74.07	90.3	90.45	133.14	134.64	0.82	1.5
Big Eddy		-49	HWM Flow	PR-Wier_rb	170	2.41	74.07	90.3	90.45	133.14	134.64	0.82	1.5
Big Eddy		-101	LTAF	CPL-EX-ALL_rb	47.8	1.7	28.11	96.43	96.44	133.06	133.37	0.29	0.31
Big Eddy		-101	LTAF	PR-Wier_rb	47.8	1.7	28.11	96.43	96.44	133.06	133.37	0.29	0.31
Big Eddy		-101	1:2	CPL-EX-ALL_rb	215	2.66	80.97	112.83	112.9	133.06	133.87	0.72	0.81
Big Eddy		-101	1:2	PR-Wier_rb	215	2.66	80.97	112.83	112.9	133.06	133.87	0.72	0.81
Big Eddy		-101	1:100	CPL-EX-ALL_rb	440	1.93	230.94	125.17	125.58	133.06	135.14	1.85	2.08
Big Eddy		-101	1:100	PR-Wier_rb	440	1.93	230.94	125.17	125.58	133.06	135.14	1.85	2.08
Big Eddy		-101	HWM Flow	CPL-EX-ALL_rb	170	2.48	68.62	111.28	111.32	133.06	133.76	0.62	0.7
Big Eddy		-101	HWM Flow	PR-Wier_rb	170	2.48	68.62	111.28	111.32	133.06	133.76	0.62	0.7
Big Eddy	1	-172	LTAF	CPL-EX-ALL_rb	47.8	0.45	106.32	39.71	42.94	128.75	132.73	2.68	3.98
Big Eddy	1	-172	LTAF	PR-Wier_rb	47.8	0.45	106.32	39.71	42.94	128.75	132.73	2.68	3.98
Big Eddy	1	-172	1:2	CPL-EX-ALL_rb	215	1.4	153.43	41.23	46.12	128.75	133.89	3.72	5.14
Big Eddy	1	-172	1:2	PR-Wier_rb	215	1.4	153.43	41.23	46.12	128.75	133.89	3.72	5.14
Big Eddy	1	-172	1:100	CPL-EX-ALL_rb	440	2.25	196.19	42.06	48.55	128.75	134.92	4.66	6.17
Big Eddy	1	-172	1:100	PR-Wier_rb	440	2.25	196.19	42.06	48.55	128.75	134.92	4.66	6.17
Big Eddy	1	-172	HWM Flow	CPL-EX-ALL_rb	170	1.19	142.9	41.06	45.38	128.75	133.63	3.48	4.88
Big Eddy	1	-172	HWM Flow	PR-Wier_rb	170	1.19	142.9	41.06	45.38	128.75	133.63	3.48	4.88

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-194	LTAF	CPL-EX-ALL_rb	47.8	2.13	22.42	48.98	49.26	131.99	132.48	0.46	0.49
Big Eddy		-194	LTAF	PR-Wier_rb	47.8	2.13	22.42	48.98	49.26	131.99	132.48	0.46	0.49
Big Eddy		-194	1:2	CPL-EX-ALL_rb	215	3.49	61.71	50.46	51.45	131.99	133.27	1.22	1.28
Big Eddy		-194	1:2	PR-Wier_rb	215	3.49	61.71	50.46	51.45	131.99	133.27	1.22	1.28
Big Eddy		-194	1:100	CPL-EX-ALL_rb	440	4.42	100.56	51.81	53.49	131.99	134.03	1.94	2.04
Big Eddy		-194	1:100	PR-Wier_rb	440	4.42	100.56	51.81	53.49	131.99	134.03	1.94	2.04
Big Eddy		-194	HWM Flow	CPL-EX-ALL_rb	170	3.24	52.59	50.16	50.97	131.99	133.09	1.05	1.1
Big Eddy		-194	HWM Flow	PR-Wier_rb	170	3.24	52.59	50.16	50.97	131.99	133.09	1.05	1.1
Big Eddy		-274	LTAF	CPL-EX-ALL_rb	47.8	2.76	17.3	36.06	36.1	129.09	129.7	0.48	0.61
Big Eddy		-274	LTAF	PR-Wier_rb	47.8	2.76	17.3	36.06	36.1	129.09	129.7	0.48	0.61
Big Eddy		-274	1:2	CPL-EX-ALL_rb	215	4.81	44.71	46.73	46.9	129.09	130.34	0.96	1.25
Big Eddy		-274	1:2	PR-Wier_rb	215	4.81	44.71	46.73	46.9	129.09	130.34	0.96	1.25
Big Eddy		-274	1:100	CPL-EX-ALL_rb	440	6.27	71.15	51.49	51.85	129.09	130.88	1.38	1.79
Big Eddy		-274	1:100	PR-Wier_rb	440	6.27	71.15	51.49	51.85	129.09	130.88	1.38	1.79
Big Eddy		-274	HWM Flow	CPL-EX-ALL_rb	170	4.39	38.75	45.87	45.99	129.09	130.21	0.84	1.12
Big Eddy		-274	HWM Flow	PR-Wier_rb	170	4.39	38.75	45.87	45.99	129.09	130.21	0.84	1.12
Big Eddy		-302	LTAF	CPL-EX-ALL_rb	47.8	1.25	38.17	44.07	44.2	127.76	128.88	0.87	1.12
Big Eddy		-302	LTAF	PR-Wier_rb	47.8	1.25	38.17	44.07	44.2	127.76	128.88	0.87	1.12
Big Eddy		-302	1:2	CPL-EX-ALL_rb	215	1.97	112.66	70.1	70.42	127.76	130.18	1.61	2.42
Big Eddy		-302	1:2	PR-Wier_rb	215	1.97	112.66	70.1	70.42	127.76	130.18	1.61	2.42
Big Eddy		-302	1:100	CPL-EX-ALL_rb	440	2.54	189.97	82.19	82.83	127.76	131.21	2.31	3.45
Big Eddy		-302	1:100	PR-Wier_rb	440	2.54	189.97	82.19	82.83	127.76	131.21	2.31	3.45
Big Eddy		-302	HWM Flow	CPL-EX-ALL_rb	170	1.81	95.18	67.02	67.28	127.76	129.93	1.42	2.17
Big Eddy		-302	HWM Flow	PR-Wier_rb	170	1.81	95.18	67.02	67.28	127.76	129.93	1.42	2.17
Big Eddy		-321	LTAF	CPL-EX-ALL_rb	47.8	1.62	29.47	35.9	36.06	127.73	128.72	0.82	0.99
Big Eddy		-321	LTAF	PR-Wier_rb	47.8	1.62	29.47	35.9	36.06	127.73	128.72	0.82	0.99
Big Eddy		-321	1:2	CPL-EX-ALL_rb	215	2.46	87.38	54.63	55.02	127.73	129.97	1.60	2.24
Big Eddy		-321	1:2	PR-Wier_rb	215	2.46	87.38	54.63	55.02	127.73	129.97	1.60	2.24
Big Eddy		-321	1:100	CPL-EX-ALL_rb	440	3.11	149.57	75.77	76.49	127.73	130.94	1.97	3.21
Big Eddy		-321	1:100	PR-Wier_rb	440	3.11	149.57	75.77	76.49	127.73	130.94	1.97	3.21
Big Eddy		-321	HWM Flow	CPL-EX-ALL_rb	170	2.28	74.53	52.27	52.6	127.73	129.73	1.43	2
Big Eddy		-321	HWM Flow	PR-Wier_rb	170	2.28	74.53	52.27	52.6	127.73	129.73	1.43	2
Big Eddy		-339	LTAF	CPL-EX-ALL_rb	47.8	2.41	19.83	29.59	29.72	127.54	128.35	0.67	0.81
Big Eddy		-339	LTAF	PR-Wier_rb	47.8	2.41	19.83	29.59	29.72	127.54	128.35	0.67	0.81
Big Eddy		-339	1:2	CPL-EX-ALL_rb	215	3.56	60.4	46.77	47.07	127.54	129.42	1.29	1.88

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-339	1:2	PR-Wier_rb	215	3.56	60.4	46.77	47.07	127.54	129.42	1.29	1.88
Big Eddy		-339	1:100	CPL-EX-ALL_rb	440	4.46	100.58	53.33	53.82	127.54	130.22	1.89	2.68
Big Eddy		-339	1:100	PR-Wier_rb	440	4.46	100.58	53.33	53.82	127.54	130.22	1.89	2.68
Big Eddy		-339	HWM Flow	CPL-EX-ALL_rb	170	3.35	50.79	43.93	44.18	127.54	129.21	1.16	1.67
Big Eddy		-339	HWM Flow	PR-Wier_rb	170	3.35	50.79	43.93	44.18	127.54	129.21	1.16	1.67
Big Eddy		-368	LTAF	CPL-EX-ALL_rb	47.8	2.87	16.66	20.14	20.4	126.53	127.6	0.83	1.07
Big Eddy		-368	LTAF	PR-Wier_rb	47.8	2.87	16.66	20.14	20.4	126.53	127.6	0.83	1.07
Big Eddy		-368	1:2	CPL-EX-ALL_rb	215	3.56	60.98	68.52	68.95	126.53	128.77	0.89	2.24
Big Eddy		-368	1:2	PR-Wier_rb	215	3.56	60.98	68.52	68.95	126.53	128.77	0.89	2.24
Big Eddy		-368	1:100	CPL-EX-ALL_rb	440	5.24	87.21	74.96	75.45	126.53	129.13	1.16	2.6
Big Eddy		-368	1:100	PR-Wier_rb	440	5.24	87.21	74.96	75.45	126.53	129.13	1.16	2.6
Big Eddy		-368	HWM Flow	CPL-EX-ALL_rb	170	2.99	57.28	67.28	67.71	126.53	128.71	0.85	2.18
Big Eddy		-368	HWM Flow	PR-Wier_rb	170	2.99	57.28	67.28	67.71	126.53	128.71	0.85	2.18
Big Eddy	2	-446	LTAF	CPL-EX-ALL_rb	47.8	0.65	73.87	58.24	59	124.82	127.46	1.27	2.64
Big Eddy	2	-446	LTAF	PR-Wier_rb	47.8	0.65	73.87	58.24	59	124.82	127.46	1.27	2.64
Big Eddy	2	-446	1:2	CPL-EX-ALL_rb	215	1.46	149.72	73.23	74.36	124.82	128.6	2.04	3.78
Big Eddy	2	-446	1:2	PR-Wier_rb	215	1.46	149.72	73.23	74.36	124.82	128.6	2.04	3.78
Big Eddy	2	-446	1:100	CPL-EX-ALL_rb	440	2.12	219.44	82.42	83.79	124.82	129.49	2.66	4.67
Big Eddy	2	-446	1:100	PR-Wier_rb	440	2.12	219.44	82.42	83.79	124.82	129.49	2.66	4.67
Big Eddy	2	-446	HWM Flow	CPL-EX-ALL_rb	170	1.29	133.1	71.09	72.07	124.82	128.37	1.87	3.55
Big Eddy	2	-446	HWM Flow	PR-Wier_rb	170	1.29	133.1	71.09	72.07	124.82	128.37	1.87	3.55
Big Eddy		-494	LTAF	CPL-EX-ALL_rb	47.8	2.21	21.59	43.05	43.1	126.5	127.11	0.50	0.61
Big Eddy		-494	LTAF	PR-Wier_rb	47.8	2.21	21.59	43.05	43.1	126.5	127.11	0.50	0.61
Big Eddy		-494	1:2	CPL-EX-ALL_rb	215	3.25	66.22	61.88	62.01	126.5	127.95	1.07	1.45
Big Eddy		-494	1:2	PR-Wier_rb	215	3.25	66.22	61.88	62.01	126.5	127.95	1.07	1.45
Big Eddy		-494	1:100	CPL-EX-ALL_rb	440	3.73	121.57	72.69	72.95	126.5	128.77	1.67	2.27
Big Eddy		-494	1:100	PR-Wier_rb	440	3.73	121.57	72.69	72.95	126.5	128.77	1.67	2.27
Big Eddy		-494	HWM Flow	CPL-EX-ALL_rb	170	3.04	55.93	59.04	59.15	126.5	127.78	0.95	1.28
Big Eddy		-494	HWM Flow	PR-Wier_rb	170	3.04	55.93	59.04	59.15	126.5	127.78	0.95	1.28
Big Eddy		-552	LTAF	CPL-EX-ALL_rb	47.8	0.67	71.12	49.51	51.82	123.71	126.37	1.44	2.66
Big Eddy		-552	LTAF	PR-Wier_rb	47.8	0.67	71.12	49.51	51.82	123.71	126.37	1.44	2.66
Big Eddy		-552	1:2	CPL-EX-ALL_rb	215	1.48	145.5	55.22	58.43	123.71	127.79	2.63	4.08
Big Eddy		-552	1:2	PR-Wier_rb	215	1.48	145.5	55.22	58.43	123.71	127.79	2.63	4.08
Big Eddy		-552	1:100	CPL-EX-ALL_rb	440	2.15	210.43	62.36	65.93	123.71	128.89	3.37	5.18
Big Eddy		-552	1:100	PR-Wier_rb	440	2.15	210.43	62.36	65.93	123.71	128.89	3.37	5.18
Big Eddy		-552	HWM Flow	CPL-EX-ALL_rb	170	1.3	130.32	53.15	56.28	123.71	127.51	2.45	3.8

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-552	HWM Flow	PR-Wier_rb	170	1.3	130.32	53.15	56.28	123.71	127.51	2.45	3.8
Big Eddy	3	-597	LTAF	CPL-EX-ALL_rb	47.8	0.68	70.81	51.46	53.5	123.71	126.34	1.38	2.63
Big Eddy	3	-597	LTAF	PR-Wier_rb	47.8	0.68	70.81	51.46	53.5	123.71	126.34	1.38	2.63
Big Eddy	3	-597	1:2	CPL-EX-ALL_rb	215	1.42	157.26	72.9	75.68	123.71	127.75	2.16	4.04
Big Eddy	3	-597	1:2	PR-Wier_rb	215	1.42	157.26	72.9	75.68	123.71	127.75	2.16	4.04
Big Eddy	3	-597	1:100	CPL-EX-ALL_rb	440	1.99	240.89	79.6	83.15	123.71	128.85	3.03	5.14
Big Eddy	3	-597	1:100	PR-Wier_rb	440	1.99	240.89	79.6	83.15	123.71	128.85	3.03	5.14
Big Eddy	3	-597	HWM Flow	CPL-EX-ALL_rb	170	1.26	137.17	70.46	73.09	123.71	127.47	1.95	3.76
Big Eddy	3	-597	HWM Flow	PR-Wier_rb	170	1.26	137.17	70.46	73.09	123.71	127.47	1.95	3.76
Big Eddy		-688	LTAF	CPL-EX-ALL_rb	47.8	0.69	68.84	54.73	57.71	123.91	126.27	1.26	2.36
Big Eddy		-688	LTAF	PR-Wier_rb	47.8	0.69	68.84	54.73	57.71	123.91	126.27	1.26	2.36
Big Eddy		-688	1:2	CPL-EX-ALL_rb	215	1.42	151.94	67.95	71.31	123.91	127.63	2.24	3.72
Big Eddy		-688	1:2	PR-Wier_rb	215	1.42	151.94	67.95	71.31	123.91	127.63	2.24	3.72
Big Eddy		-688	1:100	CPL-EX-ALL_rb	440	1.98	234.45	86.28	90.11	123.91	128.71	2.72	4.8
Big Eddy		-688	1:100	PR-Wier_rb	440	1.98	234.45	86.28	90.11	123.91	128.71	2.72	4.8
Big Eddy		-688	HWM Flow	CPL-EX-ALL_rb	170	1.27	133.77	66.21	69.46	123.91	127.36	2.02	3.45
Big Eddy		-688	HWM Flow	PR-Wier_rb	170	1.27	133.77	66.21	69.46	123.91	127.36	2.02	3.45
Big Eddy		-764	LTAF	CPL-EX-ALL_rb	47.8	1.21	39.56	38.97	41.55	124.11	126.11	1.02	2
Big Eddy		-764	LTAF	PR-Wier_rb	47.8	1.21	39.56	38.97	41.55	124.11	126.11	1.02	2
Big Eddy		-764	1:2	CPL-EX-ALL_rb	215	2.39	89.93	48.9	51.81	124.11	127.23	1.84	3.12
Big Eddy		-764	1:2	PR-Wier_rb	215	2.39	89.93	48.9	51.81	124.11	127.23	1.84	3.12
Big Eddy		-764	1:100	CPL-EX-ALL_rb	440	3.35	133.12	52.99	56.25	124.11	128.08	2.51	3.97
Big Eddy		-764	1:100	PR-Wier_rb	440	3.35	133.12	52.99	56.25	124.11	128.08	2.51	3.97
Big Eddy		-764	HWM Flow	CPL-EX-ALL_rb	170	2.14	79.34	47.95	50.77	124.11	127.01	1.65	2.9
Big Eddy		-764	HWM Flow	PR-Wier_rb	170	2.14	79.34	47.95	50.77	124.11	127.01	1.65	2.9
Big Eddy		-794	LTAF	CPL-EX-ALL_rb	47.8	2.35	20.37	36.83	36.9	124.98	125.68	0.55	0.7
Big Eddy		-794	LTAF	PR-Wier_rb	47.8	2.35	20.37	36.83	36.9	124.98	125.68	0.55	0.7
Big Eddy		-794	1:2	CPL-EX-ALL_rb	215	3.46	62.07	50.8	51.06	124.98	126.61	1.22	1.63
Big Eddy		-794	1:2	PR-Wier_rb	215	3.46	62.07	50.8	51.06	124.98	126.61	1.22	1.63
Big Eddy		-794	1:100	CPL-EX-ALL_rb	440	4.35	102.41	55.73	56.22	124.98	127.36	1.84	2.38
Big Eddy		-794	1:100	PR-Wier_rb	440	4.35	102.41	55.73	56.22	124.98	127.36	1.84	2.38
Big Eddy		-794	HWM Flow	CPL-EX-ALL_rb	170	3.25	52.31	48.66	48.87	124.98	126.41	1.08	1.43
Big Eddy		-794	HWM Flow	PR-Wier_rb	170	3.25	52.31	48.66	48.87	124.98	126.41	1.08	1.43
Big Eddy		-1127	LTAF	CPL-EX-ALL_rb	47.8	0.73	65.59	33.17	34.08	121	123.47	1.98	2.47
Big Eddy		-1127	LTAF	PR-Wier_rb	47.8	0.73	65.59	33.17	34.08	121	123.47	1.98	2.47

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-1127	1:2	CPL-EX-ALL_rb	215	1.59	134.81	64.51	65.96	121	124.88	2.09	3.88
Big Eddy		-1127	1:2	PR-Wier_rb	215	1.59	134.81	64.51	65.96	121	124.88	2.09	3.88
Big Eddy		-1127	1:100	CPL-EX-ALL_rb	440	2.22	200.82	68.89	70.85	121	125.87	2.92	4.87
Big Eddy		-1127	1:100	PR-Wier_rb	440	2.22	200.82	68.89	70.85	121	125.87	2.92	4.87
Big Eddy		-1127	HWM Flow	CPL-EX-ALL_rb	170	1.45	117.51	62.13	63.5	121	124.61	1.89	3.61
Big Eddy		-1127	HWM Flow	PR-Wier_rb	170	1.45	117.51	62.13	63.5	121	124.61	1.89	3.61
Big Eddy		-1379	LTAF	CPL-EX-ALL_rb	47.8	1.88	25.45	70.25	70.28	122.5	122.94	0.36	0.44
Big Eddy		-1379	LTAF	PR-Wier_rb	47.8	1.88	25.45	70.25	70.28	122.5	122.94	0.36	0.44
Big Eddy		-1379	1:2	CPL-EX-ALL_rb	215	3.05	70.5	74.36	74.58	122.5	123.57	0.95	1.07
Big Eddy		-1379	1:2	PR-Wier_rb	215	3.05	70.5	74.36	74.58	122.5	123.57	0.95	1.07
Big Eddy		-1379	1:100	CPL-EX-ALL_rb	440	3.86	115.11	77.93	78.35	122.5	124.15	1.48	1.65
Big Eddy		-1379	1:100	PR-Wier_rb	440	3.86	115.11	77.93	78.35	122.5	124.15	1.48	1.65
Big Eddy		-1379	HWM Flow	CPL-EX-ALL_rb	170	2.83	60.01	73.4	73.57	122.5	123.42	0.82	0.92
Big Eddy		-1379	HWM Flow	PR-Wier_rb	170	2.83	60.01	73.4	73.57	122.5	123.42	0.82	0.92
Big Eddy		-1510	LTAF	CPL-EX-ALL_rb	47.8	1.17	40.97	90.06	90.09	120	120.51	0.45	0.51
Big Eddy		-1510	LTAF	PR-Wier_rb	47.8	1.17	40.97	90.06	90.09	120	120.51	0.45	0.51
Big Eddy		-1510	1:2	CPL-EX-ALL_rb	215	1.91	112.29	101.43	101.58	120	121.25	1.11	1.25
Big Eddy		-1510	1:2	PR-Wier_rb	215	1.91	112.29	101.43	101.58	120	121.25	1.11	1.25
Big Eddy		-1510	1:100	CPL-EX-ALL_rb	440	4	110.1	101.21	101.35	120	121.22	1.09	1.22
Big Eddy		-1510	1:100	PR-Wier_rb	440	4	110.1	101.21	101.35	120	121.22	1.09	1.22
Big Eddy		-1510	HWM Flow	CPL-EX-ALL_rb	170	1.78	95.34	99.81	99.92	120	121.08	0.96	1.08
Big Eddy		-1510	HWM Flow	PR-Wier_rb	170	1.78	95.34	99.81	99.92	120	121.08	0.96	1.08
Big Eddy		-1645	LTAF	CPL-EX-ALL_rb	47.8	2.23	21.42	115.87	42.88	118	118.55	0.18	0.55
Big Eddy		-1645	LTAF	PR-Wier_rb	47.8	2.23	21.42	115.87	42.88	118	118.55	0.18	0.55
Big Eddy		-1645	1:2	CPL-EX-ALL_rb	215	3.38	63.7	234.15	55.24	118	119.41	0.27	1.41
Big Eddy		-1645	1:2	PR-Wier_rb	215	3.38	63.7	234.15	55.24	118	119.41	0.27	1.41
Big Eddy		-1645	1:100	CPL-EX-ALL_rb	440	1.22	393.77	266.91	267.7	118	120.16	1.48	2.16
Big Eddy		-1645	1:100	PR-Wier_rb	440	1.22	393.77	266.91	267.7	118	120.16	1.48	2.16
Big Eddy		-1645	HWM Flow	CPL-EX-ALL_rb	170	3.17	53.67	215	52.57	118	119.23	0.25	1.23
Big Eddy		-1645	HWM Flow	PR-Wier_rb	170	3.17	53.67	215	52.57	118	119.23	0.25	1.23
Big Eddy		-2034	LTAF	CPL-EX-ALL_rb	47.8	0.44	107.85	48.24	49.06	115	117.76	2.24	2.76
Big Eddy		-2034	LTAF	PR-Wier_rb	47.8	0.44	107.85	48.24	49.06	115	117.76	2.24	2.76
Big Eddy		-2034	1:2	CPL-EX-ALL_rb	215	1.41	152.33	56.78	57.79	115	118.61	2.68	3.61
Big Eddy		-2034	1:2	PR-Wier_rb	215	1.41	152.33	56.78	57.79	115	118.61	2.68	3.61
Big Eddy		-2034	1:100	CPL-EX-ALL_rb	440	2.32	189.83	63.18	64.32	115	119.23	3.00	4.23
Big Eddy		-2034	1:100	PR-Wier_rb	440	2.32	189.83	63.18	64.32	115	119.23	3.00	4.23

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-2034	HWM Flow	CPL-EX-ALL_rb	170	1.19	142.62	54.76	55.74	115	118.43	2.60	3.43
Big Eddy		-2034	HWM Flow	PR-Wier_rb	170	1.19	142.62	54.76	55.74	115	118.43	2.60	3.43
Big Eddy		-2125	LTAF	CPL-EX-ALL_rb	47.8	1.83	26.14	77.46	77.47	117	117.54	0.34	0.54
Big Eddy		-2125	LTAF	PR-Wier_rb	47.8	1.83	26.14	77.46	77.47	117	117.54	0.34	0.54
Big Eddy		-2125	1:2	CPL-EX-ALL_rb	215	2.55	84.35	129.93	129.96	117	118.08	0.65	1.08
Big Eddy		-2125	1:2	PR-Wier_rb	215	2.55	84.35	129.93	129.96	117	118.08	0.65	1.08
Big Eddy		-2125	1:100	CPL-EX-ALL_rb	440	3.16	139.51	138.81	138.93	117	118.49	1.01	1.49
Big Eddy		-2125	1:100	PR-Wier_rb	440	3.16	139.51	138.81	138.93	117	118.49	1.01	1.49
Big Eddy		-2125	HWM Flow	CPL-EX-ALL_rb	170	2.39	71.07	124.55	124.57	117	117.98	0.57	0.98
Big Eddy		-2125	HWM Flow	PR-Wier_rb	170	2.39	71.07	124.55	124.57	117	117.98	0.57	0.98

Table A-4: HEC-RAS Upstream Inundation Results – Option Two

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		3098	LTAF	CPL-EX-ALL_rb	47.8	2.32	20.65	38.28	38.35	137.5	138.15	0.54	0.65
Big Eddy		3098	LTAF	PR-Wier_rb	47.8	2.32	20.65	38.28	38.35	137.5	138.15	0.54	0.65
Big Eddy		3098	1:2	CPL-EX-ALL_rb	215	2.15	100.14	69.47	69.75	137.5	139.62	1.44	2.12
Big Eddy		3098	1:2	PR-Wier_rb	215	2.15	100.14	69.47	69.75	137.5	139.62	1.44	2.12
Big Eddy		3098	1:100	CPL-EX-ALL_rb	440	2.69	183.55	131.72	132.1	137.5	140.52	1.39	3.02
Big Eddy		3098	1:100	PR-Wier_rb	440	2.69	183.54	131.72	132.1	137.5	140.52	1.39	3.02
Big Eddy		3098	HWM Flow	CPL-EX-ALL_rb	170	2.05	82.79	66.45	66.69	137.5	139.36	1.25	1.86
Big Eddy		3098	HWM Flow	PR-Wier_rb	170	2.05	82.79	66.46	66.69	137.5	139.36	1.25	1.86
Big Eddy	101	2807	LTAF	CPL-EX-ALL_rb	47.8	0.97	49.22	34.56	35.73	135.01	137.61	1.42	2.6
Big Eddy	101	2807	LTAF	PR-Wier_rb	47.8	0.97	49.22	34.56	35.73	135.01	137.61	1.42	2.6
Big Eddy	101	2807	1:2	CPL-EX-ALL_rb	215	2.13	100.79	56.72	58.05	135.01	138.75	1.78	3.74
Big Eddy	101	2807	1:2	PR-Wier_rb	215	2.13	100.79	56.72	58.05	135.01	138.75	1.78	3.74
Big Eddy	101	2807	1:100	CPL-EX-ALL_rb	440	3.01	155.53	75.6	77.23	135.01	139.54	2.06	4.53
Big Eddy	101	2807	1:100	PR-Wier_rb	440	3.01	155.53	75.6	77.23	135.01	139.54	2.06	4.53
Big Eddy	101	2807	HWM Flow	CPL-EX-ALL_rb	170	1.91	88.85	51.95	53.26	135.01	138.53	1.71	3.52
Big Eddy	101	2807	HWM Flow	PR-Wier_rb	170	1.91	88.85	51.95	53.26	135.01	138.53	1.71	3.52
Big Eddy		2713	LTAF	CPL-EX-ALL_rb	47.8	1.93	24.75	46.63	46.68	136.6	137.28	0.53	0.68
Big Eddy		2713	LTAF	PR-Wier_rb	47.8	1.93	24.75	46.63	46.68	136.6	137.28	0.53	0.68
Big Eddy		2713	1:2	CPL-EX-ALL_rb	215	2.74	78.88	65.84	66.02	136.6	138.21	1.20	1.61
Big Eddy		2713	1:2	PR-Wier_rb	215	2.74	78.89	65.84	66.02	136.6	138.21	1.20	1.61
Big Eddy		2713	1:100	CPL-EX-ALL_rb	440	3.61	125.81	70.76	71.17	136.6	138.9	1.78	2.3
Big Eddy		2713	1:100	PR-Wier_rb	440	3.61	125.9	70.77	71.18	136.6	138.9	1.78	2.3
Big Eddy		2713	HWM Flow	CPL-EX-ALL_rb	170	2.54	66.95	63.98	64.1	136.6	138.03	1.05	1.43
Big Eddy		2713	HWM Flow	PR-Wier_rb	170	2.54	66.95	63.98	64.1	136.6	138.03	1.05	1.43
Big Eddy	102	2674	LTAF	CPL-EX-ALL_rb	47.8	1	47.93	68.02	68.61	135.66	136.87	0.70	1.21
Big Eddy	102	2674	LTAF	PR-Wier_rb	47.8	1	47.93	68.02	68.61	135.66	136.87	0.70	1.21
Big Eddy	102	2674	1:2	CPL-EX-ALL_rb	215	1.57	136.79	92.66	94.02	135.66	138.01	1.48	2.35
Big Eddy	102	2674	1:2	PR-Wier_rb	215	1.57	136.82	92.67	94.03	135.66	138.01	1.48	2.35
Big Eddy	102	2674	1:100	CPL-EX-ALL_rb	440	1.97	224.89	107.94	109.66	135.66	138.87	2.08	3.21
Big Eddy	102	2674	1:100	PR-Wier_rb	440	1.97	225.06	107.96	109.67	135.66	138.87	2.08	3.21
Big Eddy	102	2674	HWM Flow	CPL-EX-ALL_rb	170	1.46	116.68	87.05	88.29	135.66	137.79	1.34	2.13
Big Eddy	102	2674	HWM Flow	PR-Wier_rb	170	1.46	116.67	87.05	88.29	135.66	137.79	1.34	2.13
Big Eddy		2607	LTAF	CPL-EX-ALL_rb	47.8	0.78	61.51	104.69	104.72	135.94	136.65	0.59	0.71
Big Eddy		2607	LTAF	PR-Wier_rb	47.8	0.78	61.55	104.71	104.74	135.94	136.65	0.59	0.71
Big Eddy		2607	1:2	CPL-EX-ALL_rb	215	0.92	234.42	152.33	152.52	135.94	137.96	1.54	2.02

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2607	1:2	PR-Wier_rb	215	0.92	234.48	152.35	152.53	135.94	137.96	1.54	2.02
Big Eddy		2607	1:100	CPL-EX-ALL_rb	440	1.19	378.73	169.1	169.65	135.94	138.86	2.24	2.92
Big Eddy		2607	1:100	PR-Wier_rb	440	1.19	379.01	169.11	169.67	135.94	138.86	2.24	2.92
Big Eddy		2607	HWM Flow	CPL-EX-ALL_rb	170	0.85	199.45	144.83	144.98	135.94	137.73	1.38	1.79
Big Eddy		2607	HWM Flow	PR-Wier_rb	170	0.85	199.44	144.83	144.97	135.94	137.73	1.38	1.79
Big Eddy	103	2585	LTAF	CPL-EX-ALL_rb	47.8	0.26	186.5	90.09	92.6	132.22	136.67	2.07	4.45
Big Eddy	103	2585	LTAF	PR-Wier_rb	47.8	0.26	186.54	90.1	92.6	132.22	136.67	2.07	4.45
Big Eddy	103	2585	1:2	CPL-EX-ALL_rb	215	0.67	365.8	180.83	183.84	132.22	137.97	2.02	5.75
Big Eddy	103	2585	1:2	PR-Wier_rb	215	0.67	365.86	180.83	183.84	132.22	137.97	2.02	5.75
Big Eddy	103	2585	1:100	CPL-EX-ALL_rb	440	1.02	534.57	196.01	199.49	132.22	138.87	2.73	6.65
Big Eddy	103	2585	1:100	PR-Wier_rb	440	1.02	534.89	196.02	199.5	132.22	138.87	2.73	6.65
Big Eddy	103	2585	HWM Flow	CPL-EX-ALL_rb	170	0.58	323.78	176.76	179.66	132.22	137.74	1.83	5.52
Big Eddy	103	2585	HWM Flow	PR-Wier_rb	170	0.58	323.76	176.76	179.66	132.22	137.74	1.83	5.52
Big Eddy		2519	LTAF	CPL-EX-ALL_rb	47.8	2.5	19.11	29.11	29.26	135.55	136.31	0.66	0.76
Big Eddy		2519	LTAF	PR-Wier_rb	47.8	2.52	18.96	29.06	29.21	135.55	136.31	0.65	0.76
Big Eddy		2519	1:2	CPL-EX-ALL_rb	215	2.28	107.9	117.98	118.76	135.55	137.73	0.91	2.18
Big Eddy		2519	1:2	PR-Wier_rb	215	2.28	108	118.02	118.8	135.55	137.73	0.92	2.18
Big Eddy		2519	1:100	CPL-EX-ALL_rb	440	1.97	243.66	153.27	154.69	135.55	138.71	1.59	3.16
Big Eddy		2519	1:100	PR-Wier_rb	440	1.96	243.99	153.29	154.71	135.55	138.71	1.59	3.16
Big Eddy		2519	HWM Flow	CPL-EX-ALL_rb	170	2.88	65.91	82.4	82.9	135.55	137.31	0.80	1.76
Big Eddy		2519	HWM Flow	PR-Wier_rb	170	2.84	67.04	83.59	84.1	135.55	137.32	0.80	1.77
Big Eddy	104	2495	LTAF	CPL-EX-ALL_rb	47.8	1.18	43.4	54.76	55.25	134.55	136.4	0.79	1.85
Big Eddy	104	2495	LTAF	PR-Wier_rb	47.8	1.18	43.22	54.48	54.97	134.55	136.39	0.79	1.84
Big Eddy	104	2495	1:2	CPL-EX-ALL_rb	215	1.66	153.61	121.08	122.51	134.55	137.73	1.27	3.18
Big Eddy	104	2495	1:2	PR-Wier_rb	215	1.66	153.71	121.15	122.58	134.55	137.73	1.27	3.18
Big Eddy	104	2495	1:100	CPL-EX-ALL_rb	440	1.8	291.3	148.88	150.8	134.55	138.7	1.96	4.15
Big Eddy	104	2495	1:100	PR-Wier_rb	440	1.8	291.63	148.9	150.82	134.55	138.7	1.96	4.15
Big Eddy	104	2495	HWM Flow	CPL-EX-ALL_rb	170	1.63	118.76	98.33	99.52	134.55	137.42	1.21	2.87
Big Eddy	104	2495	HWM Flow	PR-Wier_rb	170	1.62	119.5	98.9	100.09	134.55	137.42	1.21	2.87
Big Eddy	105	2379	LTAF	CPL-EX-ALL_rb	47.8	1.01	47.12	63.98	64.31	134.92	136.21	0.74	1.29
Big Eddy	105	2379	LTAF	PR-Wier_rb	47.8	1.03	46.62	63.67	64	134.92	136.2	0.73	1.28
Big Eddy	105	2379	1:2	CPL-EX-ALL_rb	215	1.34	160.99	105.35	105.98	134.92	137.52	1.53	2.6
Big Eddy	105	2379	1:2	PR-Wier_rb	215	1.33	161.11	105.36	105.99	134.92	137.52	1.53	2.6
Big Eddy	105	2379	1:100	CPL-EX-ALL_rb	440	1.63	270.78	114.96	116.13	134.92	138.52	2.36	3.6
Big Eddy	105	2379	1:100	PR-Wier_rb	440	1.63	271.1	114.98	116.14	134.92	138.53	2.36	3.61
Big Eddy	105	2379	HWM Flow	CPL-EX-ALL_rb	170	1.33	127.55	96.03	96.58	134.92	137.19	1.33	2.27

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	105	2379	HWM Flow	PR-Wier_rb	170	1.32	128.62	96.4	96.94	134.92	137.2	1.33	2.28
Big Eddy		2306	LTAF	CPL-EX-ALL_rb	47.8	2.2	21.74	44.68	44.8	135.16	135.69	0.49	0.53
Big Eddy		2306	LTAF	PR-Wier_rb	47.8	1.42	33.71	46.84	47.03	135.16	135.95	0.72	0.79
Big Eddy		2306	1:2	CPL-EX-ALL_rb	215	1.89	114.01	78.58	78.99	135.16	137.21	1.45	2.05
Big Eddy		2306	1:2	PR-Wier_rb	215	1.88	114.2	78.62	79.03	135.16	137.21	1.45	2.05
Big Eddy		2306	1:100	CPL-EX-ALL_rb	440	2.18	209.52	113.53	114.16	135.16	138.24	1.85	3.08
Big Eddy		2306	1:100	PR-Wier_rb	440	2.18	210.01	113.61	114.23	135.16	138.25	1.85	3.09
Big Eddy		2306	HWM Flow	CPL-EX-ALL_rb	170	1.99	85.35	68.62	68.95	135.16	136.82	1.24	1.66
Big Eddy		2306	HWM Flow	PR-Wier_rb	170	1.94	87.49	68.89	69.23	135.16	136.85	1.27	1.69
Big Eddy	106	2214	LTAF	CPL-EX-ALL_rb	47.8	1.06	45.19	45.34	45.84	133.31	135.5	1.00	2.19
Big Eddy	106	2214	LTAF	PR-Wier_rb	47.8	0.74	64.36	49.82	50.41	133.31	135.9	1.29	2.59
Big Eddy	106	2214	1:2	CPL-EX-ALL_rb	215	1.66	129.14	79.28	80.16	133.31	137.04	1.63	3.73
Big Eddy	106	2214	1:2	PR-Wier_rb	215	1.66	129.43	79.33	80.22	133.31	137.04	1.63	3.73
Big Eddy	106	2214	1:100	CPL-EX-ALL_rb	440	1.99	223.96	96.45	97.71	133.31	138.12	2.32	4.81
Big Eddy	106	2214	1:100	PR-Wier_rb	440	1.99	224.46	96.52	97.78	133.31	138.13	2.33	4.82
Big Eddy	106	2214	HWM Flow	CPL-EX-ALL_rb	170	1.62	105.24	56.12	56.93	133.31	136.67	1.88	3.36
Big Eddy	106	2214	HWM Flow	PR-Wier_rb	170	1.58	107.58	56.45	57.27	133.31	136.71	1.91	3.4
Big Eddy		2149	LTAF	CPL-EX-ALL_rb	47.8	1.03	46.19	41.5	41.75	134	135.42	1.11	1.42
Big Eddy		2149	LTAF	PR-Wier_rb	47.8	0.72	66.34	46.72	47.06	134	135.88	1.42	1.88
Big Eddy		2149	1:2	CPL-EX-ALL_rb	215	1.8	119.12	70.83	71.58	134	136.89	1.68	2.89
Big Eddy		2149	1:2	PR-Wier_rb	215	1.8	119.42	71.37	72.11	134	136.89	1.67	2.89
Big Eddy		2149	1:100	CPL-EX-ALL_rb	440	2.07	217.42	96.22	97.39	134	138.01	2.26	4.01
Big Eddy		2149	1:100	PR-Wier_rb	440	2.07	218.03	96.3	97.47	134	138.01	2.26	4.01
Big Eddy		2149	HWM Flow	CPL-EX-ALL_rb	170	1.69	100.38	51.28	51.87	134	136.56	1.96	2.56
Big Eddy		2149	HWM Flow	PR-Wier_rb	170	1.65	102.93	51.49	52.1	134	136.61	2.00	2.61
Big Eddy	107	2039	LTAF	CPL-EX-ALL_rb	47.8	0.62	76.98	42.86	44.56	132.49	135.4	1.80	2.91
Big Eddy	107	2039	LTAF	PR-Wier_rb	47.8	0.49	97.9	46.62	48.47	132.49	135.86	2.10	3.37
Big Eddy	107	2039	1:2	CPL-EX-ALL_rb	215	1.36	157.51	156.34	83.71	132.49	136.79	1.01	4.3
Big Eddy	107	2039	1:2	PR-Wier_rb	215	1.36	157.88	156.6	83.79	132.49	136.79	1.01	4.3
Big Eddy	107	2039	1:100	CPL-EX-ALL_rb	440	1.72	257.97	199.72	97.68	132.49	137.93	1.29	5.44
Big Eddy	107	2039	1:100	PR-Wier_rb	440	1.72	258.64	200.13	97.79	132.49	137.93	1.29	5.44
Big Eddy	107	2039	HWM Flow	CPL-EX-ALL_rb	170	1.27	134.02	71.04	73.12	132.49	136.49	1.89	4
Big Eddy	107	2039	HWM Flow	PR-Wier_rb	170	1.23	137.8	141.71	78.94	132.49	136.54	0.97	4.05
Big Eddy		1970	LTAF	CPL-EX-ALL_rb	47.8	1.14	41.8	54.13	54.22	134.34	135.31	0.77	0.97
Big Eddy		1970	LTAF	PR-Wier_rb	47.8	0.65	73.74	66.18	66.31	134.34	135.84	1.11	1.5

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1970	1:2	CPL-EX-ALL_rb	215	1.59	134.88	142.12	78.08	134.34	136.67	0.95	2.33
Big Eddy		1970	1:2	PR-Wier_rb	215	1.59	135.31	142.37	78.12	134.34	136.67	0.95	2.33
Big Eddy		1970	1:100	CPL-EX-ALL_rb	440	1.94	228.63	268.4	86.36	134.34	137.81	0.85	3.47
Big Eddy		1970	1:100	PR-Wier_rb	440	1.93	229.32	268.55	86.42	134.34	137.82	0.85	3.48
Big Eddy		1970	HWM Flow	CPL-EX-ALL_rb	170	1.52	111.81	75.72	75.97	134.34	136.37	1.48	2.03
Big Eddy		1970	HWM Flow	PR-Wier_rb	170	1.46	116.38	76.2	76.47	134.34	136.43	1.53	2.09
Big Eddy	108	1907	LTAF	CPL-EX-ALL_rb	47.8	1.03	46.52	75.2	75.52	134.18	135.17	0.62	0.99
Big Eddy	108	1907	LTAF	PR-Wier_rb	47.8	0.49	96.97	78.54	79.2	134.18	135.83	1.23	1.65
Big Eddy	108	1907	1:2	CPL-EX-ALL_rb	215	1.32	176.37	222.47	144.62	134.18	136.62	0.79	2.44
Big Eddy	108	1907	1:2	PR-Wier_rb	215	1.32	177.26	222.9	144.74	134.18	136.63	0.80	2.45
Big Eddy	108	1907	1:100	CPL-EX-ALL_rb	440	1.54	394.79	345.64	216.1	134.18	137.82	1.14	3.64
Big Eddy	108	1907	1:100	PR-Wier_rb	440	1.53	396.52	345.84	216.2	134.18	137.82	1.15	3.64
Big Eddy	108	1907	HWM Flow	CPL-EX-ALL_rb	170	1.25	138.8	103.04	103.87	134.18	136.31	1.35	2.13
Big Eddy	108	1907	HWM Flow	PR-Wier_rb	170	1.2	145.88	106.59	107.45	134.18	136.38	1.37	2.2
Big Eddy	109	1718	LTAF	CPL-EX-ALL_rb	47.8	0.8	59.61	45.37	45.92	132.47	134.99	1.31	2.52
Big Eddy	109	1718	LTAF	PR-Wier_rb	47.8	0.49	98.15	50.08	50.91	132.47	135.8	1.96	3.33
Big Eddy	109	1718	1:2	CPL-EX-ALL_rb	215	1.75	129.14	61.65	62.64	132.47	136.37	2.09	3.9
Big Eddy	109	1718	1:2	PR-Wier_rb	215	1.74	129.66	61.89	62.88	132.47	136.38	2.10	3.91
Big Eddy	109	1718	1:100	CPL-EX-ALL_rb	440	2.47	222.99	103.25	104.51	132.47	137.44	2.16	4.97
Big Eddy	109	1718	1:100	PR-Wier_rb	440	2.46	224.21	103.45	104.71	132.47	137.45	2.17	4.98
Big Eddy	109	1718	HWM Flow	CPL-EX-ALL_rb	170	1.55	113.02	53.7	54.62	132.47	136.09	2.10	3.62
Big Eddy	109	1718	HWM Flow	PR-Wier_rb	170	1.49	118.08	56.31	57.26	132.47	136.18	2.10	3.71
Big Eddy		1687	LTAF	CPL-EX-ALL_rb	47.8	0.72	66.31	38.51	39.06	132.5	134.98	1.72	2.48
Big Eddy		1687	LTAF	PR-Wier_rb	47.8	0.45	108.32	67.34	68.06	132.5	135.79	1.61	3.29
Big Eddy		1687	1:2	CPL-EX-ALL_rb	215	1.52	161.96	136.73	137.68	132.5	136.36	1.18	3.86
Big Eddy		1687	1:2	PR-Wier_rb	215	1.51	163.18	138.08	139.03	132.5	136.37	1.18	3.87
Big Eddy		1687	1:100	CPL-EX-ALL_rb	440	1.8	417.78	299.68	301.21	132.5	137.51	1.39	5.01
Big Eddy		1687	1:100	PR-Wier_rb	440	1.79	421.33	300.82	302.36	132.5	137.53	1.40	5.03
Big Eddy		1687	HWM Flow	CPL-EX-ALL_rb	170	1.38	130.74	91.06	91.89	132.5	136.07	1.44	3.57
Big Eddy		1687	HWM Flow	PR-Wier_rb	170	1.31	139.86	99.13	100	132.5	136.17	1.41	3.67
Big Eddy	110	1545	LTAF	CPL-EX-ALL_rb	47.8	0.7	68.68	56.65	57.68	132.76	134.89	1.21	2.13
Big Eddy	110	1545	LTAF	PR-Wier_rb	47.8	0.39	123.42	74.92	76.16	132.76	135.78	1.65	3.02
Big Eddy	110	1545	1:2	CPL-EX-ALL_rb	215	1.46	155.76	91.78	93.09	132.76	136.16	1.70	3.4
Big Eddy	110	1545	1:2	PR-Wier_rb	215	1.46	156.92	91.96	93.27	132.76	136.17	1.71	3.41
Big Eddy	110	1545	1:100	CPL-EX-ALL_rb	440	1.89	313.97	193.57	195.22	132.76	137.3	1.62	4.54
Big Eddy	110	1545	1:100	PR-Wier_rb	440	1.88	316.97	194.41	196.07	132.76	137.31	1.63	4.55

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	110	1545	HWM Flow	CPL-EX-ALL_rb	170	1.33	131.2	79.69	80.95	132.76	135.88	1.65	3.12
Big Eddy	110	1545	HWM Flow	PR-Wier_rb	170	1.24	142.09	89.58	90.86	132.76	136.01	1.59	3.25
Big Eddy		1425	LTAF	CPL-EX-ALL_rb	47.8	1.58	30.24	70.24	70.26	133.97	134.53	0.43	0.56
Big Eddy		1425	LTAF	PR-Wier_rb	47.8	0.32	150.28	110.27	110.5	133.97	135.76	1.36	1.79
Big Eddy		1425	1:2	CPL-EX-ALL_rb	215	1.22	177.41	117.97	118.25	133.97	136	1.50	2.03
Big Eddy		1425	1:2	PR-Wier_rb	215	1.21	179.5	118.45	118.73	133.97	136.02	1.52	2.05
Big Eddy		1425	1:100	CPL-EX-ALL_rb	440	1.39	371.22	223.73	224.3	133.97	137.21	1.66	3.24
Big Eddy		1425	1:100	PR-Wier_rb	440	1.38	375.21	223.9	224.48	133.97	137.23	1.68	3.26
Big Eddy		1425	HWM Flow	CPL-EX-ALL_rb	170	1.2	142.44	108.95	109.16	133.97	135.69	1.31	1.72
Big Eddy		1425	HWM Flow	PR-Wier_rb	170	1.05	163.52	113.22	113.47	133.97	135.88	1.44	1.91
Big Eddy		1384	LTAF	CPL-EX-ALL_rb	47.8	0.5	96.51	85	85.11	132.99	134.56	1.14	1.57
Big Eddy		1384	LTAF	PR-Wier_rb	47.8	0.22	215.21	107.31	107.61	132.99	135.76	2.01	2.77
Big Eddy		1384	1:2	CPL-EX-ALL_rb	215	0.91	240.27	111.52	111.86	132.99	135.99	2.15	3
Big Eddy		1384	1:2	PR-Wier_rb	215	0.9	242.3	114.28	114.63	132.99	136.01	2.12	3.02
Big Eddy		1384	1:100	CPL-EX-ALL_rb	440	1.19	443.86	243.56	244.05	132.99	137.2	1.82	4.21
Big Eddy		1384	1:100	PR-Wier_rb	440	1.18	448.26	244.31	244.81	132.99	137.22	1.83	4.23
Big Eddy		1384	HWM Flow	CPL-EX-ALL_rb	170	0.83	206.39	106.16	106.45	132.99	135.68	1.94	2.69
Big Eddy		1384	HWM Flow	PR-Wier_rb	170	0.75	227.23	109.08	109.41	132.99	135.87	2.08	2.88
Big Eddy	111	1236	LTAF	CPL-EX-ALL_rb	47.8	0.4	120.49	105.9	106.33	132.3	134.51	1.14	2.21
Big Eddy	111	1236	LTAF	PR-Wier_rb	47.8	0.18	260.75	121	121.69	132.3	135.76	2.15	3.46
Big Eddy	111	1236	1:2	CPL-EX-ALL_rb	215	0.77	282.24	123.04	123.76	132.3	135.93	2.29	3.63
Big Eddy	111	1236	1:2	PR-Wier_rb	215	0.76	284.65	123.27	123.99	132.3	135.95	2.31	3.65
Big Eddy	111	1236	1:100	CPL-EX-ALL_rb	440	1.01	527.27	313.49	314.33	132.3	137.15	1.68	4.85
Big Eddy	111	1236	1:100	PR-Wier_rb	440	1	533.29	313.76	314.6	132.3	137.17	1.70	4.87
Big Eddy	111	1236	HWM Flow	CPL-EX-ALL_rb	170	0.7	244.22	119.32	119.98	132.3	135.62	2.05	3.32
Big Eddy	111	1236	HWM Flow	PR-Wier_rb	170	0.63	269.6	121.86	122.57	132.3	135.83	2.21	3.53
Big Eddy		1071	LTAF	CPL-EX-ALL_rb	47.8	0.21	225.08	151.51	151.68	132.26	134.5	1.49	2.24
Big Eddy		1071	LTAF	PR-Wier_rb	47.8	0.1	540.63	323.07	323.65	132.26	135.76	1.67	3.5
Big Eddy		1071	1:2	CPL-EX-ALL_rb	215	0.43	594.94	344.77	345.39	132.26	135.92	1.73	3.66
Big Eddy		1071	1:2	PR-Wier_rb	215	0.43	601.92	347.63	348.27	132.26	135.94	1.73	3.68
Big Eddy		1071	1:100	CPL-EX-ALL_rb	440	0.55	1136.86	546.09	547.3	132.26	137.15	2.08	4.89
Big Eddy		1071	1:100	PR-Wier_rb	440	0.55	1147.47	547.06	548.27	132.26	137.17	2.10	4.91
Big Eddy		1071	HWM Flow	CPL-EX-ALL_rb	170	0.4	491.33	316.73	317.25	132.26	135.6	1.55	3.34
Big Eddy		1071	HWM Flow	PR-Wier_rb	170	0.36	561.29	332.54	333.13	132.26	135.82	1.69	3.56
Big Eddy	112	1009	LTAF	CPL-EX-ALL_rb	47.8	0.17	283.85	206.71	207.63	132.12	134.5	1.37	2.38

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	112	1009	LTAF	PR-Wier_rb	47.8	0.08	637.12	364.98	366.28	132.12	135.76	1.75	3.64
Big Eddy	112	1009	1:2	CPL-EX-ALL_rb	215	0.35	696.01	371.98	373.34	132.12	135.92	1.87	3.8
Big Eddy	112	1009	1:2	PR-Wier_rb	215	0.35	703.56	372.87	374.24	132.12	135.94	1.89	3.82
Big Eddy	112	1009	1:100	CPL-EX-ALL_rb	440	0.46	1285.45	606.88	608.92	132.12	137.15	2.12	5.03
Big Eddy	112	1009	1:100	PR-Wier_rb	440	0.46	1297.27	607.24	609.3	132.12	137.17	2.14	5.05
Big Eddy	112	1009	HWM Flow	CPL-EX-ALL_rb	170	0.32	580.35	357.57	358.82	132.12	135.6	1.62	3.48
Big Eddy	112	1009	HWM Flow	PR-Wier_rb	170	0.29	659.37	367.63	368.96	132.12	135.82	1.79	3.7
Big Eddy		888	LTAF	CPL-EX-ALL_rb	47.8	0.15	318.16	249.53	249.59	132.5	134.49	1.28	1.99
Big Eddy		888	LTAF	PR-Wier_rb	47.8	0.07	820.02	475.6	475.73	132.5	135.76	1.72	3.26
Big Eddy		888	1:2	CPL-EX-ALL_rb	215	0.27	894.44	481.75	481.9	132.5	135.91	1.86	3.41
Big Eddy		888	1:2	PR-Wier_rb	215	0.27	904.29	482.18	482.33	132.5	135.93	1.88	3.43
Big Eddy		888	1:100	CPL-EX-ALL_rb	440	0.35	1531.49	551.93	552.2	132.5	137.14	2.77	4.64
Big Eddy		888	1:100	PR-Wier_rb	440	0.35	1542.28	553.38	553.66	132.5	137.16	2.79	4.66
Big Eddy		888	HWM Flow	CPL-EX-ALL_rb	170	0.25	743.96	465.87	465.98	132.5	135.59	1.60	3.09
Big Eddy		888	HWM Flow	PR-Wier_rb	170	0.23	847.44	478.66	478.79	132.5	135.81	1.77	3.31
Big Eddy	113	821	LTAF	CPL-EX-ALL_rb	47.8	0.1	494.71	369.73	370.4	132.16	134.49	1.34	2.33
Big Eddy	113	821	LTAF	PR-Wier_rb	47.8	0.05	1023.45	464.87	465.74	132.16	135.76	2.20	3.6
Big Eddy	113	821	1:2	CPL-EX-ALL_rb	215	0.21	1095.61	470.43	471.33	132.16	135.91	2.33	3.75
Big Eddy	113	821	1:2	PR-Wier_rb	215	0.21	1105.23	471.12	472.03	132.16	135.93	2.35	3.77
Big Eddy	113	821	1:100	CPL-EX-ALL_rb	440	0.29	1712.81	536.33	537.41	132.16	137.14	3.19	4.98
Big Eddy	113	821	1:100	PR-Wier_rb	440	0.29	1723.31	537.44	538.53	132.16	137.16	3.21	5
Big Eddy	113	821	HWM Flow	CPL-EX-ALL_rb	170	0.19	948.17	458.13	458.97	132.16	135.59	2.07	3.43
Big Eddy	113	821	HWM Flow	PR-Wier_rb	170	0.17	1049.89	467.12	468.01	132.16	135.81	2.25	3.65
Big Eddy	-3	724	LTAF	CPL-EX-ALL_rb	47.8	0.28	172.47	132.21	132.46	132.5	134.48	1.30	1.98
Big Eddy	-3	724	LTAF	PR-Wier_rb	47.8	0.14	391.11	314.13	314.57	132.5	135.75	1.25	3.25
Big Eddy	-3	724	1:2	CPL-EX-ALL_rb	215	0.58	434.33	328.36	328.82	132.5	135.89	1.32	3.39
Big Eddy	-3	724	1:2	PR-Wier_rb	215	0.57	441.22	330.95	331.42	132.5	135.91	1.33	3.41
Big Eddy	-3	724	1:100	CPL-EX-ALL_rb	440	0.71	965.36	513.49	514.06	132.5	137.12	1.88	4.62
Big Eddy	-3	724	1:100	PR-Wier_rb	440	0.71	975.65	514.19	514.76	132.5	137.14	1.90	4.64
Big Eddy	-3	724	HWM Flow	CPL-EX-ALL_rb	170	0.53	337.87	277.88	278.28	132.5	135.57	1.22	3.07
Big Eddy	-3	724	HWM Flow	PR-Wier_rb	170	0.48	404.9	318.67	319.11	132.5	135.8	1.27	3.3
Big Eddy	-2	607	LTAF	CPL-EX-ALL_rb	47.8	0.17	278.12	135.05	136.13	131.48	134.48	2.06	3
Big Eddy	-2	607	LTAF	PR-Wier_rb	47.8	0.1	501.06	268.92	270.22	131.48	135.75	1.86	4.27
Big Eddy	-2	607	1:2	CPL-EX-ALL_rb	215	0.45	536.95	300.07	301.39	131.48	135.88	1.79	4.4
Big Eddy	-2	607	1:2	PR-Wier_rb	215	0.44	543.34	305.29	306.61	131.48	135.9	1.78	4.42
Big Eddy	-2	607	1:100	CPL-EX-ALL_rb	440	0.61	1070.01	520.74	522.12	131.48	137.11	2.05	5.63

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-2	607	1:100	PR-Wier_rb	440	0.6	1080.56	521.92	523.29	131.48	137.13	2.07	5.65
Big Eddy	-2	607	HWM Flow	CPL-EX-ALL_rb	170	0.39	454.88	222.49	223.78	131.48	135.57	2.04	4.09
Big Eddy	-2	607	HWM Flow	PR-Wier_rb	170	0.36	511.41	278.26	279.57	131.48	135.79	1.84	4.31
Big Eddy	-1	334	LTAF	CPL-EX-ALL_rb	47.8	0.18	261.75	119.13	120.11	131.3	134.47	2.20	3.17
Big Eddy	-1	334	LTAF	PR-Wier_rb	47.8	0.11	487.38	276.77	277.99	131.3	135.75	1.76	4.45
Big Eddy	-1	334	1:2	CPL-EX-ALL_rb	215	0.49	516.23	288.47	289.69	131.3	135.85	1.79	4.55
Big Eddy	-1	334	1:2	PR-Wier_rb	215	0.48	522.52	290.95	292.17	131.3	135.88	1.80	4.58
Big Eddy	-1	334	1:100	CPL-EX-ALL_rb	440	0.67	970.08	399.02	400.42	131.3	137.07	2.43	5.77
Big Eddy	-1	334	1:100	PR-Wier_rb	440	0.66	978.39	399.38	400.78	131.3	137.09	2.45	5.79
Big Eddy	-1	334	HWM Flow	CPL-EX-ALL_rb	170	0.43	432.05	252.83	254.04	131.3	135.54	1.71	4.24
Big Eddy	-1	334	HWM Flow	PR-Wier_rb	170	0.4	493.45	279.28	280.49	131.3	135.77	1.77	4.47
Big Eddy		292	LTAF	CPL-EX-ALL_rb	47.8	0.18	259.4	111.77	112.34	131.08	134.47	2.32	3.39
Big Eddy		292	LTAF	PR-Wier_rb	47.8	0.11	477.98	240.98	241.79	131.08	135.75	1.98	4.67
Big Eddy		292	1:2	CPL-EX-ALL_rb	215	0.49	501.75	244	244.82	131.08	135.85	2.06	4.77
Big Eddy		292	1:2	PR-Wier_rb	215	0.49	507.08	244.68	245.5	131.08	135.87	2.07	4.79
Big Eddy		292	1:100	CPL-EX-ALL_rb	440	0.69	863.81	323.04	324.54	131.08	137.07	2.67	5.99
Big Eddy		292	1:100	PR-Wier_rb	440	0.69	870.56	323.07	324.6	131.08	137.09	2.69	6.01
Big Eddy		292	HWM Flow	CPL-EX-ALL_rb	170	0.44	427.49	234.24	235.03	131.08	135.54	1.83	4.46
Big Eddy		292	HWM Flow	PR-Wier_rb	170	0.4	482.61	241.54	242.35	131.08	135.77	2.00	4.69
Big Eddy		165	LTAF	CPL-EX-ALL_rb	47.8	0.21	225.78	112.84	113.16	130.98	134.47	2.00	3.49
Big Eddy		165	LTAF	PR-Wier_rb	47.8	0.13	383.59	132.76	133.27	130.98	135.75	2.89	4.77
Big Eddy		165	1:2	CPL-EX-ALL_rb	215	0.55	394.43	134.72	135.25	130.98	135.83	2.93	4.85
Big Eddy		165	1:2	PR-Wier_rb	215	0.55	397.42	135.26	135.78	130.98	135.85	2.94	4.87
Big Eddy		165	1:100	CPL-EX-ALL_rb	440	0.81	596.46	229.53	230.24	130.98	137.03	2.60	6.05
Big Eddy		165	1:100	PR-Wier_rb	440	0.81	601.32	231.28	231.99	130.98	137.06	2.60	6.08
Big Eddy		165	HWM Flow	CPL-EX-ALL_rb	170	0.48	354.01	128.7	129.18	130.98	135.52	2.75	4.54
Big Eddy		165	HWM Flow	PR-Wier_rb	170	0.45	384.68	132.94	133.46	130.98	135.76	2.89	4.78
Big Eddy		141	LTAF	CPL-EX-ALL_rb	47.8	0.18	270.86	106.33	109.3	130.49	134.47	2.55	3.98
Big Eddy		141	LTAF	PR-Wier_rb	47.8	0.12	417.33	127.67	131.04	130.49	135.75	3.27	5.26
Big Eddy		141	1:2	CPL-EX-ALL_rb	215	0.51	427.65	130.21	133.59	130.49	135.83	3.28	5.34
Big Eddy		141	1:2	PR-Wier_rb	215	0.51	430.55	130.91	134.3	130.49	135.85	3.29	5.36
Big Eddy		141	1:100	CPL-EX-ALL_rb	440	0.78	637.07	217.31	220.94	130.49	137.03	2.93	6.54
Big Eddy		141	1:100	PR-Wier_rb	440	0.78	641.69	217.56	221.19	130.49	137.05	2.95	6.56
Big Eddy		141	HWM Flow	CPL-EX-ALL_rb	170	0.44	389.13	120.33	123.63	130.49	135.52	3.23	5.03
Big Eddy		141	HWM Flow	PR-Wier_rb	170	0.41	418.29	127.91	131.28	130.49	135.76	3.27	5.27

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		114	LTAF	CPL-EX-ALL_rb	47.8	0.19	249.97	102.12	104.96	131.22	134.47	2.45	3.25
Big Eddy		114	LTAF	PR-Wier_rb	47.8	0.12	385.15	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	1:2	CPL-EX-ALL_rb	215	0.55	393.47	110.84	114.8	131.22	135.83	3.55	4.61
Big Eddy		114	1:2	PR-Wier_rb	215	0.55	395.93	111.11	115.07	131.22	135.85	3.56	4.63
Big Eddy		114	1:100	CPL-EX-ALL_rb	440	0.85	564.43	207.93	212.28	131.22	137.02	2.71	5.8
Big Eddy		114	1:100	PR-Wier_rb	440	0.84	568.87	208.06	212.42	131.22	137.04	2.73	5.82
Big Eddy		114	HWM Flow	CPL-EX-ALL_rb	170	0.47	359.95	108.32	112.14	131.22	135.52	3.32	4.3
Big Eddy		114	HWM Flow	PR-Wier_rb	170	0.44	385.65	109.96	113.88	131.22	135.75	3.51	4.53
Big Eddy		84	LTAF	CPL-EX-ALL_rb	47.8	0.19	254.14	97.55	101.63	129.81	134.47	2.61	4.66
Big Eddy		84	LTAF	PR-Wier_rb	47.8	0.12	387.17	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	1:2	CPL-EX-ALL_rb	215	0.55	395.43	114.83	119.78	129.81	135.82	3.44	6.01
Big Eddy		84	1:2	PR-Wier_rb	215	0.55	397.99	115.14	120.1	129.81	135.84	3.46	6.03
Big Eddy		84	1:100	CPL-EX-ALL_rb	440	0.86	551.36	202.23	207.68	129.81	137.02	2.73	7.21
Big Eddy		84	1:100	PR-Wier_rb	440	0.85	555.69	202.33	207.78	129.81	137.04	2.75	7.23
Big Eddy		84	HWM Flow	CPL-EX-ALL_rb	170	0.47	361.01	109.6	114.42	129.81	135.52	3.29	5.71
Big Eddy		84	HWM Flow	PR-Wier_rb	170	0.44	387.45	113.85	118.77	129.81	135.75	3.40	5.94
Big Eddy		72	LTAF	CPL-EX-ALL_rb	47.8	0.2	237.43	98.91	100.47	130.48	134.47	2.40	3.99
Big Eddy		72	LTAF	PR-Wier_rb	47.8	0.13	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	1:2	CPL-EX-ALL_rb	215	0.57	384.62	118.08	120.05	130.48	135.82	3.26	5.34
Big Eddy		72	1:2	PR-Wier_rb	215	0.56	387.27	118.37	120.35	130.48	135.84	3.27	5.36
Big Eddy		72	1:100	CPL-EX-ALL_rb	440	0.86	560.62	201.07	203.46	130.48	137.01	2.79	6.53
Big Eddy		72	1:100	PR-Wier_rb	440	0.86	564.96	201.17	203.56	130.48	137.03	2.81	6.55
Big Eddy		72	HWM Flow	CPL-EX-ALL_rb	170	0.49	349.17	114.12	115.98	130.48	135.51	3.06	5.03
Big Eddy		72	HWM Flow	PR-Wier_rb	170	0.46	376.52	117.19	119.14	130.48	135.75	3.21	5.27
Big Eddy		53	LTAF	CPL-EX-ALL_rb	47.8	0.23	208.03	95.58	97.08	130.78	134.47	2.18	3.69
Big Eddy		53	LTAF	PR-Wier_rb	47.8	0.13	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	1:2	CPL-EX-ALL_rb	215	0.62	346.61	110.44	112.34	130.78	135.81	3.14	5.03
Big Eddy		53	1:2	PR-Wier_rb	215	0.57	378.76	117.9	121.46	130.78	135.84	3.21	5.06
Big Eddy		53	1:100	CPL-EX-ALL_rb	440	0.94	512.38	193.9	196.15	130.78	137	2.64	6.22
Big Eddy		53	1:100	PR-Wier_rb	440	0.84	549.89	194.05	198.56	130.78	137.03	2.83	6.25
Big Eddy		53	HWM Flow	CPL-EX-ALL_rb	170	0.54	313.63	106.36	108.17	130.78	135.51	2.95	4.73
Big Eddy		53	HWM Flow	PR-Wier_rb	170	0.46	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy	0	35	LTAF	CPL-EX-ALL_rb	47.8	0.49	98.36	86.57	86.79	132.3	134.45	1.14	2.15
Big Eddy	0	35	LTAF	PR-Wier_rb	47.8	0.49	98.36	86.57	86.79	132.3	134.45	1.14	2.15
Big Eddy	0	35	1:2	CPL-EX-ALL_rb	215	0.98	223.27	103.89	104.41	132.3	135.78	2.15	3.48
Big Eddy	0	35	1:2	PR-Wier_rb	215	0.98	223.27	103.89	104.41	132.3	135.78	2.15	3.48

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	1:100	CPL-EX-ALL_rb	440	1.31	358.78	129.31	130.07	132.3	136.95	2.77	4.65
Big Eddy	0	35	1:100	PR-Wier_rb	440	1.31	358.78	129.31	130.07	132.3	136.95	2.77	4.65
Big Eddy	0	35	HWM Flow	CPL-EX-ALL_rb	170	0.89	192.86	99.1	99.56	132.3	135.48	1.95	3.18
Big Eddy	0	35	HWM Flow	PR-Wier_rb	170	0.89	192.86	99.1	99.56	132.3	135.48	1.95	3.18
Big Eddy		-10	LTAF	CPL-EX-ALL_rb	47.8	1.37	34.92	34.31	34.73	133.21	134.32	1.02	1.11
Big Eddy		-10	LTAF	PR-Wier_rb	47.8	1.37	34.92	34.31	34.73	133.21	134.32	1.02	1.11
Big Eddy		-10	1:2	CPL-EX-ALL_rb	215	3.36	64.04	41.79	42.56	133.21	135.12	1.53	1.91
Big Eddy		-10	1:2	PR-Wier_rb	215	3.36	64.04	41.79	42.56	133.21	135.12	1.53	1.91
Big Eddy		-10	1:100	CPL-EX-ALL_rb	440	4.47	113.04	83.92	84.88	133.21	135.88	1.35	2.67
Big Eddy		-10	1:100	PR-Wier_rb	440	4.47	113.04	83.92	84.88	133.21	135.88	1.35	2.67
Big Eddy		-10	HWM Flow	CPL-EX-ALL_rb	170	2.94	57.76	37.72	38.48	133.21	134.96	1.53	1.75
Big Eddy		-10	HWM Flow	PR-Wier_rb	170	2.94	57.76	37.72	38.48	133.21	134.96	1.53	1.75
Big Eddy		-49	LTAF	CPL-EX-ALL_rb	47.8	1.38	34.52	55.89	55.99	133.14	134.12	0.62	0.98
Big Eddy		-49	LTAF	PR-Wier_rb	47.8	1.38	34.52	55.89	55.99	133.14	134.12	0.62	0.98
Big Eddy		-49	1:2	CPL-EX-ALL_rb	215	2.73	83.91	90.9	91.1	133.14	134.75	0.92	1.61
Big Eddy		-49	1:2	PR-Wier_rb	215	2.73	83.91	90.9	91.1	133.14	134.75	0.92	1.61
Big Eddy		-49	1:100	CPL-EX-ALL_rb	440	4.78	100.95	109	109.26	133.14	134.92	0.93	1.78
Big Eddy		-49	1:100	PR-Wier_rb	440	4.78	100.95	109	109.26	133.14	134.92	0.93	1.78
Big Eddy		-49	HWM Flow	CPL-EX-ALL_rb	170	2.41	74.07	90.3	90.45	133.14	134.64	0.82	1.5
Big Eddy		-49	HWM Flow	PR-Wier_rb	170	2.41	74.07	90.3	90.45	133.14	134.64	0.82	1.5
Big Eddy		-101	LTAF	CPL-EX-ALL_rb	47.8	1.7	28.11	96.43	96.44	133.06	133.37	0.29	0.31
Big Eddy		-101	LTAF	PR-Wier_rb	47.8	1.7	28.11	96.43	96.44	133.06	133.37	0.29	0.31
Big Eddy		-101	1:2	CPL-EX-ALL_rb	215	2.66	80.97	112.83	112.9	133.06	133.87	0.72	0.81
Big Eddy		-101	1:2	PR-Wier_rb	215	2.66	80.97	112.83	112.9	133.06	133.87	0.72	0.81
Big Eddy		-101	1:100	CPL-EX-ALL_rb	440	1.93	230.94	125.17	125.58	133.06	135.14	1.85	2.08
Big Eddy		-101	1:100	PR-Wier_rb	440	1.93	230.94	125.17	125.58	133.06	135.14	1.85	2.08
Big Eddy		-101	HWM Flow	CPL-EX-ALL_rb	170	2.48	68.62	111.28	111.32	133.06	133.76	0.62	0.7
Big Eddy		-101	HWM Flow	PR-Wier_rb	170	2.48	68.62	111.28	111.32	133.06	133.76	0.62	0.7
Big Eddy	1	-172	LTAF	CPL-EX-ALL_rb	47.8	0.45	106.32	39.71	42.94	128.75	132.73	2.68	3.98
Big Eddy	1	-172	LTAF	PR-Wier_rb	47.8	0.45	106.32	39.71	42.94	128.75	132.73	2.68	3.98
Big Eddy	1	-172	1:2	CPL-EX-ALL_rb	215	1.4	153.43	41.23	46.12	128.75	133.89	3.72	5.14
Big Eddy	1	-172	1:2	PR-Wier_rb	215	1.4	153.43	41.23	46.12	128.75	133.89	3.72	5.14
Big Eddy	1	-172	1:100	CPL-EX-ALL_rb	440	2.25	196.19	42.06	48.55	128.75	134.92	4.66	6.17
Big Eddy	1	-172	1:100	PR-Wier_rb	440	2.25	196.19	42.06	48.55	128.75	134.92	4.66	6.17
Big Eddy	1	-172	HWM Flow	CPL-EX-ALL_rb	170	1.19	142.9	41.06	45.38	128.75	133.63	3.48	4.88
Big Eddy	1	-172	HWM Flow	PR-Wier_rb	170	1.19	142.9	41.06	45.38	128.75	133.63	3.48	4.88

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-194	LTAF	CPL-EX-ALL_rb	47.8	2.13	22.42	48.98	49.26	131.99	132.48	0.46	0.49
Big Eddy		-194	LTAF	PR-Wier_rb	47.8	2.13	22.42	48.98	49.26	131.99	132.48	0.46	0.49
Big Eddy		-194	1:2	CPL-EX-ALL_rb	215	3.49	61.71	50.46	51.45	131.99	133.27	1.22	1.28
Big Eddy		-194	1:2	PR-Wier_rb	215	3.49	61.71	50.46	51.45	131.99	133.27	1.22	1.28
Big Eddy		-194	1:100	CPL-EX-ALL_rb	440	4.42	100.56	51.81	53.49	131.99	134.03	1.94	2.04
Big Eddy		-194	1:100	PR-Wier_rb	440	4.42	100.56	51.81	53.49	131.99	134.03	1.94	2.04
Big Eddy		-194	HWM Flow	CPL-EX-ALL_rb	170	3.24	52.59	50.16	50.97	131.99	133.09	1.05	1.1
Big Eddy		-194	HWM Flow	PR-Wier_rb	170	3.24	52.59	50.16	50.97	131.99	133.09	1.05	1.1
Big Eddy		-274	LTAF	CPL-EX-ALL_rb	47.8	2.76	17.3	36.06	36.1	129.09	129.7	0.48	0.61
Big Eddy		-274	LTAF	PR-Wier_rb	47.8	2.76	17.3	36.06	36.1	129.09	129.7	0.48	0.61
Big Eddy		-274	1:2	CPL-EX-ALL_rb	215	4.81	44.71	46.73	46.9	129.09	130.34	0.96	1.25
Big Eddy		-274	1:2	PR-Wier_rb	215	4.81	44.71	46.73	46.9	129.09	130.34	0.96	1.25
Big Eddy		-274	1:100	CPL-EX-ALL_rb	440	6.27	71.15	51.49	51.85	129.09	130.88	1.38	1.79
Big Eddy		-274	1:100	PR-Wier_rb	440	6.27	71.15	51.49	51.85	129.09	130.88	1.38	1.79
Big Eddy		-274	HWM Flow	CPL-EX-ALL_rb	170	4.39	38.75	45.87	45.99	129.09	130.21	0.84	1.12
Big Eddy		-274	HWM Flow	PR-Wier_rb	170	4.39	38.75	45.87	45.99	129.09	130.21	0.84	1.12
Big Eddy		-302	LTAF	CPL-EX-ALL_rb	47.8	1.25	38.17	44.07	44.2	127.76	128.88	0.87	1.12
Big Eddy		-302	LTAF	PR-Wier_rb	47.8	1.25	38.17	44.07	44.2	127.76	128.88	0.87	1.12
Big Eddy		-302	1:2	CPL-EX-ALL_rb	215	1.97	112.66	70.1	70.42	127.76	130.18	1.61	2.42
Big Eddy		-302	1:2	PR-Wier_rb	215	1.97	112.66	70.1	70.42	127.76	130.18	1.61	2.42
Big Eddy		-302	1:100	CPL-EX-ALL_rb	440	2.54	189.97	82.19	82.83	127.76	131.21	2.31	3.45
Big Eddy		-302	1:100	PR-Wier_rb	440	2.54	189.97	82.19	82.83	127.76	131.21	2.31	3.45
Big Eddy		-302	HWM Flow	CPL-EX-ALL_rb	170	1.81	95.18	67.02	67.28	127.76	129.93	1.42	2.17
Big Eddy		-302	HWM Flow	PR-Wier_rb	170	1.81	95.18	67.02	67.28	127.76	129.93	1.42	2.17
Big Eddy		-321	LTAF	CPL-EX-ALL_rb	47.8	1.62	29.47	35.9	36.06	127.73	128.72	0.82	0.99
Big Eddy		-321	LTAF	PR-Wier_rb	47.8	1.62	29.47	35.9	36.06	127.73	128.72	0.82	0.99
Big Eddy		-321	1:2	CPL-EX-ALL_rb	215	2.46	87.38	54.63	55.02	127.73	129.97	1.60	2.24
Big Eddy		-321	1:2	PR-Wier_rb	215	2.46	87.38	54.63	55.02	127.73	129.97	1.60	2.24
Big Eddy		-321	1:100	CPL-EX-ALL_rb	440	3.11	149.57	75.77	76.49	127.73	130.94	1.97	3.21
Big Eddy		-321	1:100	PR-Wier_rb	440	3.11	149.57	75.77	76.49	127.73	130.94	1.97	3.21
Big Eddy		-321	HWM Flow	CPL-EX-ALL_rb	170	2.28	74.53	52.27	52.6	127.73	129.73	1.43	2
Big Eddy		-321	HWM Flow	PR-Wier_rb	170	2.28	74.53	52.27	52.6	127.73	129.73	1.43	2
Big Eddy		-339	LTAF	CPL-EX-ALL_rb	47.8	2.41	19.83	29.59	29.72	127.54	128.35	0.67	0.81
Big Eddy		-339	LTAF	PR-Wier_rb	47.8	2.41	19.83	29.59	29.72	127.54	128.35	0.67	0.81
Big Eddy		-339	1:2	CPL-EX-ALL_rb	215	3.56	60.4	46.77	47.07	127.54	129.42	1.29	1.88

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-339	1:2	PR-Wier_rb	215	3.56	60.4	46.77	47.07	127.54	129.42	1.29	1.88
Big Eddy		-339	1:100	CPL-EX-ALL_rb	440	4.46	100.58	53.33	53.82	127.54	130.22	1.89	2.68
Big Eddy		-339	1:100	PR-Wier_rb	440	4.46	100.58	53.33	53.82	127.54	130.22	1.89	2.68
Big Eddy		-339	HWM Flow	CPL-EX-ALL_rb	170	3.35	50.79	43.93	44.18	127.54	129.21	1.16	1.67
Big Eddy		-339	HWM Flow	PR-Wier_rb	170	3.35	50.79	43.93	44.18	127.54	129.21	1.16	1.67
Big Eddy		-368	LTAF	CPL-EX-ALL_rb	47.8	2.87	16.66	20.14	20.4	126.53	127.6	0.83	1.07
Big Eddy		-368	LTAF	PR-Wier_rb	47.8	2.87	16.66	20.14	20.4	126.53	127.6	0.83	1.07
Big Eddy		-368	1:2	CPL-EX-ALL_rb	215	3.56	60.98	68.52	68.95	126.53	128.77	0.89	2.24
Big Eddy		-368	1:2	PR-Wier_rb	215	3.56	60.98	68.52	68.95	126.53	128.77	0.89	2.24
Big Eddy		-368	1:100	CPL-EX-ALL_rb	440	5.24	87.21	74.96	75.45	126.53	129.13	1.16	2.6
Big Eddy		-368	1:100	PR-Wier_rb	440	5.24	87.21	74.96	75.45	126.53	129.13	1.16	2.6
Big Eddy		-368	HWM Flow	CPL-EX-ALL_rb	170	2.99	57.28	67.28	67.71	126.53	128.71	0.85	2.18
Big Eddy		-368	HWM Flow	PR-Wier_rb	170	2.99	57.28	67.28	67.71	126.53	128.71	0.85	2.18
Big Eddy	2	-446	LTAF	CPL-EX-ALL_rb	47.8	0.65	73.87	58.24	59	124.82	127.46	1.27	2.64
Big Eddy	2	-446	LTAF	PR-Wier_rb	47.8	0.65	73.87	58.24	59	124.82	127.46	1.27	2.64
Big Eddy	2	-446	1:2	CPL-EX-ALL_rb	215	1.46	149.72	73.23	74.36	124.82	128.6	2.04	3.78
Big Eddy	2	-446	1:2	PR-Wier_rb	215	1.46	149.72	73.23	74.36	124.82	128.6	2.04	3.78
Big Eddy	2	-446	1:100	CPL-EX-ALL_rb	440	2.12	219.44	82.42	83.79	124.82	129.49	2.66	4.67
Big Eddy	2	-446	1:100	PR-Wier_rb	440	2.12	219.44	82.42	83.79	124.82	129.49	2.66	4.67
Big Eddy	2	-446	HWM Flow	CPL-EX-ALL_rb	170	1.29	133.1	71.09	72.07	124.82	128.37	1.87	3.55
Big Eddy	2	-446	HWM Flow	PR-Wier_rb	170	1.29	133.1	71.09	72.07	124.82	128.37	1.87	3.55
Big Eddy		-494	LTAF	CPL-EX-ALL_rb	47.8	2.21	21.59	43.05	43.1	126.5	127.11	0.50	0.61
Big Eddy		-494	LTAF	PR-Wier_rb	47.8	2.21	21.59	43.05	43.1	126.5	127.11	0.50	0.61
Big Eddy		-494	1:2	CPL-EX-ALL_rb	215	3.25	66.22	61.88	62.01	126.5	127.95	1.07	1.45
Big Eddy		-494	1:2	PR-Wier_rb	215	3.25	66.22	61.88	62.01	126.5	127.95	1.07	1.45
Big Eddy		-494	1:100	CPL-EX-ALL_rb	440	3.73	121.57	72.69	72.95	126.5	128.77	1.67	2.27
Big Eddy		-494	1:100	PR-Wier_rb	440	3.73	121.57	72.69	72.95	126.5	128.77	1.67	2.27
Big Eddy		-494	HWM Flow	CPL-EX-ALL_rb	170	3.04	55.93	59.04	59.15	126.5	127.78	0.95	1.28
Big Eddy		-494	HWM Flow	PR-Wier_rb	170	3.04	55.93	59.04	59.15	126.5	127.78	0.95	1.28
Big Eddy		-552	LTAF	CPL-EX-ALL_rb	47.8	0.67	71.12	49.51	51.82	123.71	126.37	1.44	2.66
Big Eddy		-552	LTAF	PR-Wier_rb	47.8	0.67	71.12	49.51	51.82	123.71	126.37	1.44	2.66
Big Eddy		-552	1:2	CPL-EX-ALL_rb	215	1.48	145.5	55.22	58.43	123.71	127.79	2.63	4.08
Big Eddy		-552	1:2	PR-Wier_rb	215	1.48	145.5	55.22	58.43	123.71	127.79	2.63	4.08
Big Eddy		-552	1:100	CPL-EX-ALL_rb	440	2.15	210.43	62.36	65.93	123.71	128.89	3.37	5.18
Big Eddy		-552	1:100	PR-Wier_rb	440	2.15	210.43	62.36	65.93	123.71	128.89	3.37	5.18
Big Eddy		-552	HWM Flow	CPL-EX-ALL_rb	170	1.3	130.32	53.15	56.28	123.71	127.51	2.45	3.8

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-552	HWM Flow	PR-Wier_rb	170	1.3	130.32	53.15	56.28	123.71	127.51	2.45	3.8
Big Eddy	3	-597	LTAF	CPL-EX-ALL_rb	47.8	0.68	70.81	51.46	53.5	123.71	126.34	1.38	2.63
Big Eddy	3	-597	LTAF	PR-Wier_rb	47.8	0.68	70.81	51.46	53.5	123.71	126.34	1.38	2.63
Big Eddy	3	-597	1:2	CPL-EX-ALL_rb	215	1.42	157.26	72.9	75.68	123.71	127.75	2.16	4.04
Big Eddy	3	-597	1:2	PR-Wier_rb	215	1.42	157.26	72.9	75.68	123.71	127.75	2.16	4.04
Big Eddy	3	-597	1:100	CPL-EX-ALL_rb	440	1.99	240.89	79.6	83.15	123.71	128.85	3.03	5.14
Big Eddy	3	-597	1:100	PR-Wier_rb	440	1.99	240.89	79.6	83.15	123.71	128.85	3.03	5.14
Big Eddy	3	-597	HWM Flow	CPL-EX-ALL_rb	170	1.26	137.17	70.46	73.09	123.71	127.47	1.95	3.76
Big Eddy	3	-597	HWM Flow	PR-Wier_rb	170	1.26	137.17	70.46	73.09	123.71	127.47	1.95	3.76
Big Eddy		-688	LTAF	CPL-EX-ALL_rb	47.8	0.69	68.84	54.73	57.71	123.91	126.27	1.26	2.36
Big Eddy		-688	LTAF	PR-Wier_rb	47.8	0.69	68.84	54.73	57.71	123.91	126.27	1.26	2.36
Big Eddy		-688	1:2	CPL-EX-ALL_rb	215	1.42	151.94	67.95	71.31	123.91	127.63	2.24	3.72
Big Eddy		-688	1:2	PR-Wier_rb	215	1.42	151.94	67.95	71.31	123.91	127.63	2.24	3.72
Big Eddy		-688	1:100	CPL-EX-ALL_rb	440	1.98	234.45	86.28	90.11	123.91	128.71	2.72	4.8
Big Eddy		-688	1:100	PR-Wier_rb	440	1.98	234.45	86.28	90.11	123.91	128.71	2.72	4.8
Big Eddy		-688	HWM Flow	CPL-EX-ALL_rb	170	1.27	133.77	66.21	69.46	123.91	127.36	2.02	3.45
Big Eddy		-688	HWM Flow	PR-Wier_rb	170	1.27	133.77	66.21	69.46	123.91	127.36	2.02	3.45
Big Eddy		-764	LTAF	CPL-EX-ALL_rb	47.8	1.21	39.56	38.97	41.55	124.11	126.11	1.02	2
Big Eddy		-764	LTAF	PR-Wier_rb	47.8	1.21	39.56	38.97	41.55	124.11	126.11	1.02	2
Big Eddy		-764	1:2	CPL-EX-ALL_rb	215	2.39	89.93	48.9	51.81	124.11	127.23	1.84	3.12
Big Eddy		-764	1:2	PR-Wier_rb	215	2.39	89.93	48.9	51.81	124.11	127.23	1.84	3.12
Big Eddy		-764	1:100	CPL-EX-ALL_rb	440	3.35	133.12	52.99	56.25	124.11	128.08	2.51	3.97
Big Eddy		-764	1:100	PR-Wier_rb	440	3.35	133.12	52.99	56.25	124.11	128.08	2.51	3.97
Big Eddy		-764	HWM Flow	CPL-EX-ALL_rb	170	2.14	79.34	47.95	50.77	124.11	127.01	1.65	2.9
Big Eddy		-764	HWM Flow	PR-Wier_rb	170	2.14	79.34	47.95	50.77	124.11	127.01	1.65	2.9
Big Eddy		-794	LTAF	CPL-EX-ALL_rb	47.8	2.35	20.37	36.83	36.9	124.98	125.68	0.55	0.7
Big Eddy		-794	LTAF	PR-Wier_rb	47.8	2.35	20.37	36.83	36.9	124.98	125.68	0.55	0.7
Big Eddy		-794	1:2	CPL-EX-ALL_rb	215	3.46	62.07	50.8	51.06	124.98	126.61	1.22	1.63
Big Eddy		-794	1:2	PR-Wier_rb	215	3.46	62.07	50.8	51.06	124.98	126.61	1.22	1.63
Big Eddy		-794	1:100	CPL-EX-ALL_rb	440	4.35	102.41	55.73	56.22	124.98	127.36	1.84	2.38
Big Eddy		-794	1:100	PR-Wier_rb	440	4.35	102.41	55.73	56.22	124.98	127.36	1.84	2.38
Big Eddy		-794	HWM Flow	CPL-EX-ALL_rb	170	3.25	52.31	48.66	48.87	124.98	126.41	1.08	1.43
Big Eddy		-794	HWM Flow	PR-Wier_rb	170	3.25	52.31	48.66	48.87	124.98	126.41	1.08	1.43
Big Eddy		-1127	LTAF	CPL-EX-ALL_rb	47.8	0.73	65.59	33.17	34.08	121	123.47	1.98	2.47
Big Eddy		-1127	LTAF	PR-Wier_rb	47.8	0.73	65.59	33.17	34.08	121	123.47	1.98	2.47

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-1127	1:2	CPL-EX-ALL_rb	215	1.59	134.81	64.51	65.96	121	124.88	2.09	3.88
Big Eddy		-1127	1:2	PR-Wier_rb	215	1.59	134.81	64.51	65.96	121	124.88	2.09	3.88
Big Eddy		-1127	1:100	CPL-EX-ALL_rb	440	2.22	200.82	68.89	70.85	121	125.87	2.92	4.87
Big Eddy		-1127	1:100	PR-Wier_rb	440	2.22	200.82	68.89	70.85	121	125.87	2.92	4.87
Big Eddy		-1127	HWM Flow	CPL-EX-ALL_rb	170	1.45	117.51	62.13	63.5	121	124.61	1.89	3.61
Big Eddy		-1127	HWM Flow	PR-Wier_rb	170	1.45	117.51	62.13	63.5	121	124.61	1.89	3.61
Big Eddy		-1379	LTAF	CPL-EX-ALL_rb	47.8	1.88	25.45	70.25	70.28	122.5	122.94	0.36	0.44
Big Eddy		-1379	LTAF	PR-Wier_rb	47.8	1.88	25.45	70.25	70.28	122.5	122.94	0.36	0.44
Big Eddy		-1379	1:2	CPL-EX-ALL_rb	215	3.05	70.5	74.36	74.58	122.5	123.57	0.95	1.07
Big Eddy		-1379	1:2	PR-Wier_rb	215	3.05	70.5	74.36	74.58	122.5	123.57	0.95	1.07
Big Eddy		-1379	1:100	CPL-EX-ALL_rb	440	3.86	115.11	77.93	78.35	122.5	124.15	1.48	1.65
Big Eddy		-1379	1:100	PR-Wier_rb	440	3.86	115.11	77.93	78.35	122.5	124.15	1.48	1.65
Big Eddy		-1379	HWM Flow	CPL-EX-ALL_rb	170	2.83	60.01	73.4	73.57	122.5	123.42	0.82	0.92
Big Eddy		-1379	HWM Flow	PR-Wier_rb	170	2.83	60.01	73.4	73.57	122.5	123.42	0.82	0.92
Big Eddy		-1510	LTAF	CPL-EX-ALL_rb	47.8	1.17	40.97	90.06	90.09	120	120.51	0.45	0.51
Big Eddy		-1510	LTAF	PR-Wier_rb	47.8	1.17	40.97	90.06	90.09	120	120.51	0.45	0.51
Big Eddy		-1510	1:2	CPL-EX-ALL_rb	215	1.91	112.29	101.43	101.58	120	121.25	1.11	1.25
Big Eddy		-1510	1:2	PR-Wier_rb	215	1.91	112.29	101.43	101.58	120	121.25	1.11	1.25
Big Eddy		-1510	1:100	CPL-EX-ALL_rb	440	4	110.1	101.21	101.35	120	121.22	1.09	1.22
Big Eddy		-1510	1:100	PR-Wier_rb	440	4	110.1	101.21	101.35	120	121.22	1.09	1.22
Big Eddy		-1510	HWM Flow	CPL-EX-ALL_rb	170	1.78	95.34	99.81	99.92	120	121.08	0.96	1.08
Big Eddy		-1510	HWM Flow	PR-Wier_rb	170	1.78	95.34	99.81	99.92	120	121.08	0.96	1.08
Big Eddy		-1645	LTAF	CPL-EX-ALL_rb	47.8	2.23	21.42	115.87	42.88	118	118.55	0.18	0.55
Big Eddy		-1645	LTAF	PR-Wier_rb	47.8	2.23	21.42	115.87	42.88	118	118.55	0.18	0.55
Big Eddy		-1645	1:2	CPL-EX-ALL_rb	215	3.38	63.7	234.15	55.24	118	119.41	0.27	1.41
Big Eddy		-1645	1:2	PR-Wier_rb	215	3.38	63.7	234.15	55.24	118	119.41	0.27	1.41
Big Eddy		-1645	1:100	CPL-EX-ALL_rb	440	1.22	393.77	266.91	267.7	118	120.16	1.48	2.16
Big Eddy		-1645	1:100	PR-Wier_rb	440	1.22	393.77	266.91	267.7	118	120.16	1.48	2.16
Big Eddy		-1645	HWM Flow	CPL-EX-ALL_rb	170	3.17	53.67	215	52.57	118	119.23	0.25	1.23
Big Eddy		-1645	HWM Flow	PR-Wier_rb	170	3.17	53.67	215	52.57	118	119.23	0.25	1.23
Big Eddy		-2034	LTAF	CPL-EX-ALL_rb	47.8	0.44	107.85	48.24	49.06	115	117.76	2.24	2.76
Big Eddy		-2034	LTAF	PR-Wier_rb	47.8	0.44	107.85	48.24	49.06	115	117.76	2.24	2.76
Big Eddy		-2034	1:2	CPL-EX-ALL_rb	215	1.41	152.33	56.78	57.79	115	118.61	2.68	3.61
Big Eddy		-2034	1:2	PR-Wier_rb	215	1.41	152.33	56.78	57.79	115	118.61	2.68	3.61
Big Eddy		-2034	1:100	CPL-EX-ALL_rb	440	2.32	189.83	63.18	64.32	115	119.23	3.00	4.23
Big Eddy		-2034	1:100	PR-Wier_rb	440	2.32	189.83	63.18	64.32	115	119.23	3.00	4.23

Reach	BPR Sta	River Sta	Profile	Plan	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
					(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-2034	HWM Flow	CPL-EX-ALL_rb	170	1.19	142.62	54.76	55.74	115	118.43	2.60	3.43
Big Eddy		-2034	HWM Flow	PR-Wier_rb	170	1.19	142.62	54.76	55.74	115	118.43	2.60	3.43
Big Eddy		-2125	LTAF	CPL-EX-ALL_rb	47.8	1.83	26.14	77.46	77.47	117	117.54	0.34	0.54
Big Eddy		-2125	LTAF	PR-Wier_rb	47.8	1.83	26.14	77.46	77.47	117	117.54	0.34	0.54
Big Eddy		-2125	1:2	CPL-EX-ALL_rb	215	2.55	84.35	129.93	129.96	117	118.08	0.65	1.08
Big Eddy		-2125	1:2	PR-Wier_rb	215	2.55	84.35	129.93	129.96	117	118.08	0.65	1.08
Big Eddy		-2125	1:100	CPL-EX-ALL_rb	440	3.16	139.51	138.81	138.93	117	118.49	1.01	1.49
Big Eddy		-2125	1:100	PR-Wier_rb	440	3.16	139.51	138.81	138.93	117	118.49	1.01	1.49
Big Eddy		-2125	HWM Flow	CPL-EX-ALL_rb	170	2.39	71.07	124.55	124.57	117	117.98	0.57	0.98
Big Eddy		-2125	HWM Flow	PR-Wier_rb	170	2.39	71.07	124.55	124.57	117	117.98	0.57	0.98

Table A-5: HEC-RAS Results Bypass Channel – Low Flows

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		53	0.5 cms	0.5	0	115.69	71.23	72.24	130.78	133.31	1.62	2.53
Big Eddy		53	1.0 cms	1	0.01	119.54	71.81	72.87	130.78	133.36	1.66	2.58
Big Eddy		53	2.0 cms	2	0.02	125.13	72.65	73.77	130.78	133.44	1.72	2.66
Big Eddy		53	3.0 cms	3	0.02	129.46	73.29	74.46	130.78	133.5	1.77	2.72
Big Eddy		53	5.0 cms	5	0.04	136.38	74.3	75.55	130.78	133.59	1.84	2.81
Big Eddy		53	10.0 cms	10	0.07	149.33	76.43	77.74	130.78	133.77	1.95	2.99
Big Eddy		53	12.0 cms	12	0.08	153.59	77.13	78.45	130.78	133.82	1.99	3.04
Big Eddy		53	15.0 cms	15	0.09	159.45	78.08	79.42	130.78	133.9	2.04	3.12
Big Eddy		53	TQmin	20.4	0.12	169.09	79.62	80.99	130.78	134.02	2.12	3.24
Big Eddy		53	25.0 cms	25	0.14	176.29	80.74	82.14	130.78	134.11	2.18	3.33
Big Eddy		53	TQL	44.2	0.22	203.55	95.06	96.54	130.78	134.42	2.14	3.64
Big Eddy		53	LTAF	47.8	0.23	208.03	95.58	97.08	130.78	134.47	2.18	3.69
Big Eddy		53	TQmax	68	0.3	230.1	98.12	99.69	130.78	134.69	2.35	3.91
Big Eddy	0	35	0.5 cms	0.5	0.02	30.06	41.26	41.36	132.3	133.31	0.73	1.01
Big Eddy	0	35	1.0 cms	1	0.03	32.33	43.04	43.15	132.3	133.36	0.75	1.06
Big Eddy	0	35	2.0 cms	2	0.06	35.75	45.6	45.71	132.3	133.44	0.78	1.14
Big Eddy	0	35	3.0 cms	3	0.08	38.51	47.56	47.67	132.3	133.5	0.81	1.2
Big Eddy	0	35	5.0 cms	5	0.12	43.1	50.65	50.77	132.3	133.59	0.85	1.29
Big Eddy	0	35	10.0 cms	10	0.19	52.14	54.93	55.06	132.3	133.76	0.95	1.46
Big Eddy	0	35	12.0 cms	12	0.22	55.19	56.06	56.2	132.3	133.82	0.98	1.52
Big Eddy	0	35	15.0 cms	15	0.25	59.44	57.6	57.75	132.3	133.89	1.03	1.59
Big Eddy	0	35	TQmin	20.4	0.31	66.57	60.83	61	132.3	134.01	1.09	1.71
Big Eddy	0	35	25.0 cms	25	0.35	72.05	63.21	63.37	132.3	134.1	1.14	1.8
Big Eddy	0	35	TQL	44.2	0.47	94.37	85.94	86.14	132.3	134.41	1.10	2.11
Big Eddy	0	35	LTAF	47.8	0.49	98.36	86.57	86.79	132.3	134.45	1.14	2.15
Big Eddy	0	35	TQmax	68	0.58	117.93	88.41	88.68	132.3	134.68	1.33	2.38
Big Eddy		-10	0.5 cms	0.5	0.18	2.74	28.44	28.47	133.21	133.31	0.10	0.1
Big Eddy		-10	1.0 cms	1	0.24	4.24	28.81	28.86	133.21	133.36	0.15	0.15
Big Eddy		-10	2.0 cms	2	0.31	6.39	29.33	29.4	133.21	133.43	0.22	0.22
Big Eddy		-10	3.0 cms	3	0.37	8.04	29.73	29.82	133.21	133.49	0.27	0.28
Big Eddy		-10	5.0 cms	5	0.47	10.66	30.35	30.46	133.21	133.58	0.35	0.37
Big Eddy		-10	10.0 cms	10	0.65	15.45	31.44	31.61	133.21	133.73	0.49	0.52
Big Eddy		-10	12.0 cms	12	0.71	17.01	31.79	31.97	133.21	133.78	0.54	0.57
Big Eddy		-10	15.0 cms	15	0.78	19.13	32.26	32.46	133.21	133.85	0.59	0.64
Big Eddy		-10	TQmin	20.4	0.9	22.61	32.91	33.15	133.21	133.95	0.69	0.74
Big Eddy		-10	25.0 cms	25	0.99	25.14	33.22	33.49	133.21	134.03	0.76	0.82
Big Eddy		-10	TQL	44.2	1.31	33.63	34.17	34.57	133.21	134.28	0.98	1.07

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-10	LTAF	47.8	1.37	34.92	34.31	34.73	133.21	134.32	1.02	1.11
Big Eddy		-10	TQmax	68	1.66	40.88	34.82	35.35	133.21	134.49	1.17	1.28
Big Eddy		-49	0.5 cms	0.5	0.16	3.06	27.21	27.23	133.14	133.26	0.11	0.12
Big Eddy		-49	1.0 cms	1	0.23	4.35	27.95	27.97	133.14	133.31	0.16	0.17
Big Eddy		-49	2.0 cms	2	0.32	6.16	28.96	28.99	133.14	133.37	0.21	0.23
Big Eddy		-49	3.0 cms	3	0.4	7.57	29.71	29.75	133.14	133.42	0.25	0.28
Big Eddy		-49	5.0 cms	5	0.51	9.8	30.88	30.92	133.14	133.49	0.32	0.35
Big Eddy		-49	10.0 cms	10	0.72	13.93	32.92	32.98	133.14	133.62	0.42	0.48
Big Eddy		-49	12.0 cms	12	0.79	15.26	33.55	33.62	133.14	133.66	0.45	0.52
Big Eddy		-49	15.0 cms	15	0.88	17.09	34.55	34.62	133.14	133.72	0.49	0.58
Big Eddy		-49	TQmin	20.4	1	20.31	37.86	37.94	133.14	133.81	0.54	0.67
Big Eddy		-49	25.0 cms	25	1.1	22.79	40.23	40.32	133.14	133.87	0.57	0.73
Big Eddy		-49	TQL	44.2	1.35	32.71	53.25	53.35	133.14	134.08	0.61	0.94
Big Eddy		-49	LTAF	47.8	1.38	34.52	55.89	55.99	133.14	134.12	0.62	0.98
Big Eddy		-49	TQmax	68	1.56	43.51	66.62	66.72	133.14	134.26	0.65	1.12
Big Eddy		-101	0.5 cms	0.5	0.46	1.09	84.08	84.08	133.06	133.07	0.01	0.01
Big Eddy		-101	1.0 cms	1	0.53	1.9	84.47	84.47	133.06	133.08	0.02	0.02
Big Eddy		-101	2.0 cms	2	0.62	3.22	85.11	85.12	133.06	133.1	0.04	0.04
Big Eddy		-101	3.0 cms	3	0.7	4.28	85.63	85.63	133.06	133.11	0.05	0.05
Big Eddy		-101	5.0 cms	5	0.83	6.03	86.47	86.47	133.06	133.13	0.07	0.07
Big Eddy		-101	10.0 cms	10	1.04	9.61	88.16	88.16	133.06	133.17	0.11	0.11
Big Eddy		-101	12.0 cms	12	1.1	10.89	88.76	88.76	133.06	133.19	0.12	0.13
Big Eddy		-101	15.0 cms	15	1.18	12.71	89.6	89.6	133.06	133.21	0.14	0.15
Big Eddy		-101	TQmin	20.4	1.3	15.67	90.95	90.96	133.06	133.24	0.17	0.18
Big Eddy		-101	25.0 cms	25	1.39	17.96	91.98	91.99	133.06	133.26	0.20	0.2
Big Eddy		-101	TQL	44.2	1.66	26.61	95.78	95.8	133.06	133.36	0.28	0.3
Big Eddy		-101	LTAF	47.8	1.7	28.11	96.43	96.44	133.06	133.37	0.29	0.31
Big Eddy		-101	TQmax	68	1.89	35.96	99.73	99.75	133.06	133.45	0.36	0.39
Big Eddy	1	-172	0.5 cms	0.5	0.01	79.76	37.85	40.45	128.75	132.05	2.11	3.3
Big Eddy	1	-172	1.0 cms	1	0.01	80.52	38.29	40.91	128.75	132.07	2.10	3.32
Big Eddy	1	-172	2.0 cms	2	0.02	81.74	38.37	41.01	128.75	132.1	2.13	3.35
Big Eddy	1	-172	3.0 cms	3	0.04	82.76	38.44	41.1	128.75	132.13	2.15	3.38
Big Eddy	1	-172	5.0 cms	5	0.06	84.51	38.55	41.26	128.75	132.18	2.19	3.43
Big Eddy	1	-172	10.0 cms	10	0.11	88.16	38.79	41.57	128.75	132.27	2.27	3.52
Big Eddy	1	-172	12.0 cms	12	0.13	89.44	38.87	41.68	128.75	132.3	2.30	3.55
Big Eddy	1	-172	15.0 cms	15	0.16	91.23	38.99	41.84	128.75	132.35	2.34	3.6
Big Eddy	1	-172	TQmin	20.4	0.22	94.18	39.17	42.09	128.75	132.42	2.40	3.67

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	1	-172	25.0 cms	25	0.26	96.49	39.32	42.29	128.75	132.48	2.45	3.73
Big Eddy	1	-172	TQL	44.2	0.42	104.89	39.66	42.85	128.75	132.7	2.64	3.95
Big Eddy	1	-172	LTAF	47.8	0.45	106.32	39.71	42.94	128.75	132.73	2.68	3.98
Big Eddy	1	-172	TQmax	68	0.6	113.69	39.99	43.41	128.75	132.92	2.84	4.17
Big Eddy		-194	0.5 cms	0.5	0.34	1.47	47.46	47.48	131.99	132.04	0.03	0.05
Big Eddy		-194	1.0 cms	1	0.46	2.15	47.52	47.55	131.99	132.06	0.05	0.07
Big Eddy		-194	2.0 cms	2	0.63	3.19	47.61	47.65	131.99	132.08	0.07	0.09
Big Eddy		-194	3.0 cms	3	0.75	3.99	47.68	47.73	131.99	132.1	0.08	0.11
Big Eddy		-194	5.0 cms	5	0.94	5.31	47.79	47.86	131.99	132.13	0.11	0.14
Big Eddy		-194	10.0 cms	10	1.28	7.83	48.01	48.1	131.99	132.18	0.16	0.19
Big Eddy		-194	12.0 cms	12	1.35	8.87	48.09	48.2	131.99	132.2	0.18	0.21
Big Eddy		-194	15.0 cms	15	1.46	10.31	48.21	48.33	131.99	132.23	0.21	0.24
Big Eddy		-194	TQmin	20.4	1.61	12.67	48.41	48.56	131.99	132.28	0.26	0.29
Big Eddy		-194	25.0 cms	25	1.72	14.52	48.57	48.73	131.99	132.32	0.30	0.33
Big Eddy		-194	TQL	44.2	2.08	21.3	48.93	49.19	131.99	132.46	0.44	0.47
Big Eddy		-194	LTAF	47.8	2.13	22.42	48.98	49.26	131.99	132.48	0.46	0.49
Big Eddy		-194	TQmax	68	2.39	28.42	49.25	49.63	131.99	132.6	0.58	0.61
Big Eddy		-274	0.5 cms	0.5	0.61	0.81	21.35	21.35	129.09	129.13	0.04	0.04
Big Eddy		-274	1.0 cms	1	0.76	1.31	21.94	21.94	129.09	129.15	0.06	0.06
Big Eddy		-274	2.0 cms	2	0.95	2.09	22.83	22.84	129.09	129.19	0.09	0.1
Big Eddy		-274	3.0 cms	3	1.08	2.78	23.59	23.6	129.09	129.22	0.12	0.13
Big Eddy		-274	5.0 cms	5	1.26	3.97	24.85	24.86	129.09	129.27	0.16	0.18
Big Eddy		-274	10.0 cms	10	1.55	6.46	27.3	27.32	129.09	129.36	0.24	0.27
Big Eddy		-274	12.0 cms	12	1.65	7.26	28.03	28.06	129.09	129.39	0.26	0.3
Big Eddy		-274	15.0 cms	15	1.8	8.31	28.98	29.01	129.09	129.43	0.29	0.34
Big Eddy		-274	TQmin	20.4	2.02	10.08	30.5	30.53	129.09	129.49	0.33	0.4
Big Eddy		-274	25.0 cms	25	2.19	11.4	31.59	31.62	129.09	129.53	0.36	0.44
Big Eddy		-274	TQL	44.2	2.69	16.43	35.43	35.48	129.09	129.68	0.46	0.59
Big Eddy		-274	LTAF	47.8	2.76	17.3	36.06	36.1	129.09	129.7	0.48	0.61
Big Eddy		-274	TQmax	68	3.13	21.72	39.07	39.13	129.09	129.82	0.56	0.73
Big Eddy		-302	0.5 cms	0.5	0.2	2.47	26.15	26.16	127.76	127.86	0.09	0.1
Big Eddy		-302	1.0 cms	1	0.28	3.62	26.92	26.93	127.76	127.91	0.13	0.15
Big Eddy		-302	2.0 cms	2	0.37	5.37	28.04	28.06	127.76	127.97	0.19	0.21
Big Eddy		-302	3.0 cms	3	0.44	6.78	28.91	28.94	127.76	128.02	0.23	0.26
Big Eddy		-302	5.0 cms	5	0.55	9.12	30.31	30.34	127.76	128.1	0.30	0.34
Big Eddy		-302	10.0 cms	10	0.72	13.88	32.95	33.01	127.76	128.25	0.42	0.49
Big Eddy		-302	12.0 cms	12	0.77	15.53	33.83	33.89	127.76	128.3	0.46	0.54

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-302	15.0 cms	15	0.84	17.84	35.01	35.08	127.76	128.37	0.51	0.61
Big Eddy		-302	TQmin	20.4	0.94	21.72	36.91	36.99	127.76	128.47	0.59	0.71
Big Eddy		-302	25.0 cms	25	1.01	24.79	38.35	38.44	127.76	128.55	0.65	0.79
Big Eddy		-302	TQL	44.2	1.22	36.19	43.27	43.4	127.76	128.83	0.84	1.07
Big Eddy		-302	LTAF	47.8	1.25	38.17	44.07	44.2	127.76	128.88	0.87	1.12
Big Eddy		-302	TQmax	68	1.39	48.83	48.15	48.3	127.76	129.11	1.01	1.35
Big Eddy		-321	0.5 cms	0.5	0.3	1.67	24.32	24.33	127.73	127.8	0.07	0.07
Big Eddy		-321	1.0 cms	1	0.39	2.56	24.77	24.79	127.73	127.84	0.10	0.11
Big Eddy		-321	2.0 cms	2	0.51	3.94	25.46	25.49	127.73	127.89	0.15	0.16
Big Eddy		-321	3.0 cms	3	0.6	5.04	26	26.03	127.73	127.93	0.19	0.2
Big Eddy		-321	5.0 cms	5	0.72	6.93	26.89	26.94	127.73	128.01	0.26	0.28
Big Eddy		-321	10.0 cms	10	0.93	10.71	28.6	28.67	127.73	128.14	0.37	0.41
Big Eddy		-321	12.0 cms	12	1	12.04	29.18	29.25	127.73	128.19	0.41	0.46
Big Eddy		-321	15.0 cms	15	1.08	13.87	29.96	30.04	127.73	128.25	0.46	0.52
Big Eddy		-321	TQmin	20.4	1.2	16.94	31.21	31.31	127.73	128.35	0.54	0.62
Big Eddy		-321	25.0 cms	25	1.29	19.33	32.16	32.27	127.73	128.43	0.60	0.7
Big Eddy		-321	TQL	44.2	1.58	27.99	35.38	35.53	127.73	128.68	0.79	0.95
Big Eddy		-321	LTAF	47.8	1.62	29.47	35.9	36.06	127.73	128.72	0.82	0.99
Big Eddy		-321	TQmax	68	1.82	37.46	39.34	39.53	127.73	128.94	0.95	1.21
Big Eddy		-339	0.5 cms	0.5	0.48	1.05	20.25	20.26	127.54	127.59	0.05	0.05
Big Eddy		-339	1.0 cms	1	0.64	1.56	20.56	20.58	127.54	127.62	0.08	0.08
Big Eddy		-339	2.0 cms	2	0.85	2.34	21.03	21.05	127.54	127.66	0.11	0.12
Big Eddy		-339	3.0 cms	3	1.01	2.97	21.4	21.42	127.54	127.69	0.14	0.15
Big Eddy		-339	5.0 cms	5	1.23	4.07	22.02	22.06	127.54	127.74	0.18	0.2
Big Eddy		-339	10.0 cms	10	1.58	6.32	23.26	23.3	127.54	127.84	0.27	0.3
Big Eddy		-339	12.0 cms	12	1.68	7.14	23.69	23.74	127.54	127.87	0.30	0.33
Big Eddy		-339	15.0 cms	15	1.81	8.3	24.29	24.35	127.54	127.92	0.34	0.38
Big Eddy		-339	TQmin	20.4	1.98	10.3	25.29	25.36	127.54	128	0.41	0.46
Big Eddy		-339	25.0 cms	25	2.1	11.93	26.07	26.16	127.54	128.06	0.46	0.52
Big Eddy		-339	TQL	44.2	2.38	18.59	29.07	29.19	127.54	128.3	0.64	0.76
Big Eddy		-339	LTAF	47.8	2.41	19.83	29.59	29.72	127.54	128.35	0.67	0.81
Big Eddy		-339	TQmax	68	2.55	26.72	32.35	32.51	127.54	128.57	0.83	1.03
Big Eddy		-368	0.5 cms	0.5	0.75	0.66	11.45	11.46	126.53	126.59	0.06	0.06
Big Eddy		-368	1.0 cms	1	0.94	1.06	11.74	11.76	126.53	126.62	0.09	0.09
Big Eddy		-368	2.0 cms	2	1.18	1.7	12.2	12.24	126.53	126.68	0.14	0.15
Big Eddy		-368	3.0 cms	3	1.33	2.26	12.59	12.63	126.53	126.72	0.18	0.19
Big Eddy		-368	5.0 cms	5	1.55	3.22	13.22	13.29	126.53	126.8	0.24	0.27

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-368	10.0 cms	10	1.9	5.27	14.49	14.59	126.53	126.94	0.36	0.41
Big Eddy		-368	12.0 cms	12	2	6	14.92	15.03	126.53	126.99	0.40	0.46
Big Eddy		-368	15.0 cms	15	2.12	7.06	15.52	15.65	126.53	127.06	0.45	0.53
Big Eddy		-368	TQmin	20.4	2.31	8.84	16.47	16.63	126.53	127.18	0.54	0.65
Big Eddy		-368	25.0 cms	25	2.44	10.26	17.2	17.37	126.53	127.26	0.60	0.73
Big Eddy		-368	TQL	44.2	2.81	15.71	19.73	19.98	126.53	127.55	0.80	1.02
Big Eddy		-368	LTAF	47.8	2.87	16.66	20.14	20.4	126.53	127.6	0.83	1.07
Big Eddy		-368	TQmax	68	3.12	21.82	22.23	22.54	126.53	127.85	0.98	1.32
Big Eddy	2	-446	0.5 cms	0.5	0.02	32.01	32.8	33.37	124.82	126.55	0.98	1.73
Big Eddy	2	-446	1.0 cms	1	0.03	32.96	33.22	33.79	124.82	126.58	0.99	1.76
Big Eddy	2	-446	2.0 cms	2	0.06	34.51	33.88	34.45	124.82	126.62	1.02	1.8
Big Eddy	2	-446	3.0 cms	3	0.08	35.81	34.42	35.01	124.82	126.66	1.04	1.84
Big Eddy	2	-446	5.0 cms	5	0.13	38.08	35.42	36.01	124.82	126.73	1.08	1.91
Big Eddy	2	-446	10.0 cms	10	0.23	43	40.53	41.14	124.82	126.86	1.06	2.04
Big Eddy	2	-446	12.0 cms	12	0.27	44.91	42.7	43.32	124.82	126.91	1.05	2.09
Big Eddy	2	-446	15.0 cms	15	0.31	47.75	45.74	46.37	124.82	126.97	1.04	2.15
Big Eddy	2	-446	TQmin	20.4	0.39	52.69	49.97	50.63	124.82	127.07	1.05	2.25
Big Eddy	2	-446	25.0 cms	25	0.44	56.8	53.84	54.52	124.82	127.15	1.05	2.33
Big Eddy	2	-446	TQL	44.2	0.62	71.47	57.84	58.58	124.82	127.41	1.24	2.59
Big Eddy	2	-446	LTAF	47.8	0.65	73.87	58.24	59	124.82	127.46	1.27	2.64
Big Eddy	2	-446	TQmax	68	0.79	86.47	62.12	62.9	124.82	127.66	1.39	2.84
Big Eddy		-494	0.5 cms	0.5	0.55	0.91	28.08	28.08	126.5	126.53	0.03	0.03
Big Eddy		-494	1.0 cms	1	0.69	1.45	28.57	28.58	126.5	126.55	0.05	0.05
Big Eddy		-494	2.0 cms	2	0.88	2.27	29.3	29.31	126.5	126.58	0.08	0.08
Big Eddy		-494	3.0 cms	3	1	3.01	29.94	29.95	126.5	126.61	0.10	0.11
Big Eddy		-494	5.0 cms	5	1.16	4.32	31.05	31.06	126.5	126.65	0.14	0.15
Big Eddy		-494	10.0 cms	10	1.43	6.99	33.19	33.21	126.5	126.73	0.21	0.23
Big Eddy		-494	12.0 cms	12	1.51	7.95	33.93	33.95	126.5	126.76	0.23	0.26
Big Eddy		-494	15.0 cms	15	1.62	9.28	34.93	34.95	126.5	126.8	0.27	0.3
Big Eddy		-494	TQmin	20.4	1.77	11.54	36.55	36.58	126.5	126.86	0.32	0.36
Big Eddy		-494	25.0 cms	25	1.86	13.41	37.85	37.88	126.5	126.91	0.35	0.41
Big Eddy		-494	TQL	44.2	2.17	20.32	42.29	42.34	126.5	127.08	0.48	0.58
Big Eddy		-494	LTAF	47.8	2.21	21.59	43.05	43.1	126.5	127.11	0.50	0.61
Big Eddy		-494	TQmax	68	2.42	28.11	46.79	46.85	126.5	127.26	0.60	0.76
Big Eddy		-552	0.5 cms	0.5	0.04	14.22	29.76	31.34	123.71	125.06	0.48	1.35
Big Eddy		-552	1.0 cms	1	0.06	15.46	30.96	32.57	123.71	125.1	0.50	1.39
Big Eddy		-552	2.0 cms	2	0.11	17.8	33.59	35.24	123.71	125.17	0.53	1.46

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-552	3.0 cms	3	0.15	20.11	37.25	38.94	123.71	125.24	0.54	1.53
Big Eddy		-552	5.0 cms	5	0.2	24.52	40.88	42.62	123.71	125.35	0.60	1.64
Big Eddy		-552	10.0 cms	10	0.3	33.83	44.34	46.22	123.71	125.57	0.76	1.86
Big Eddy		-552	12.0 cms	12	0.33	36.84	44.9	46.82	123.71	125.64	0.82	1.93
Big Eddy		-552	15.0 cms	15	0.37	41.07	45.31	47.29	123.71	125.73	0.91	2.02
Big Eddy		-552	TQmin	20.4	0.43	47.66	46.24	48.29	123.71	125.88	1.03	2.17
Big Eddy		-552	25.0 cms	25	0.48	52.4	46.92	49.02	123.71	125.98	1.12	2.27
Big Eddy		-552	TQL	44.2	0.65	68.5	49.16	51.44	123.71	126.31	1.39	2.6
Big Eddy		-552	LTAF	47.8	0.67	71.12	49.51	51.82	123.71	126.37	1.44	2.66
Big Eddy		-552	TQmax	68	0.81	84.34	50.95	53.41	123.71	126.63	1.66	2.92
Big Eddy	3	-597	0.5 cms	0.5	0.04	14.21	29.75	31.33	123.71	125.06	0.48	1.35
Big Eddy	3	-597	1.0 cms	1	0.06	15.43	30.93	32.54	123.71	125.1	0.50	1.39
Big Eddy	3	-597	2.0 cms	2	0.11	17.7	33.48	35.14	123.71	125.17	0.53	1.46
Big Eddy	3	-597	3.0 cms	3	0.15	19.93	36.9	38.58	123.71	125.23	0.54	1.52
Big Eddy	3	-597	5.0 cms	5	0.21	24.19	40.69	42.42	123.71	125.34	0.59	1.63
Big Eddy	3	-597	10.0 cms	10	0.3	33.3	44.4	46.23	123.71	125.56	0.75	1.85
Big Eddy	3	-597	12.0 cms	12	0.33	36.27	45.36	47.22	123.71	125.63	0.80	1.92
Big Eddy	3	-597	15.0 cms	15	0.37	40.49	46.04	47.93	123.71	125.72	0.88	2.01
Big Eddy	3	-597	TQmin	20.4	0.43	47.09	47.33	49.24	123.71	125.86	0.99	2.15
Big Eddy	3	-597	25.0 cms	25	0.48	51.85	48.28	50.22	123.71	125.96	1.07	2.25
Big Eddy	3	-597	TQL	44.2	0.65	68.15	51.03	53.05	123.71	126.29	1.34	2.58
Big Eddy	3	-597	LTAF	47.8	0.68	70.81	51.46	53.5	123.71	126.34	1.38	2.63
Big Eddy	3	-597	TQmax	68	0.81	84.33	53.8	55.92	123.71	126.6	1.57	2.89
Big Eddy		-688	0.5 cms	0.5	0.04	14.01	26.68	29.11	123.91	125.06	0.53	1.15
Big Eddy		-688	1.0 cms	1	0.07	15.05	27.78	30.24	123.91	125.1	0.54	1.19
Big Eddy		-688	2.0 cms	2	0.12	17	29.51	32.01	123.91	125.16	0.58	1.25
Big Eddy		-688	3.0 cms	3	0.16	18.81	32	34.55	123.91	125.22	0.59	1.31
Big Eddy		-688	5.0 cms	5	0.22	22.39	37.18	39.81	123.91	125.32	0.60	1.41
Big Eddy		-688	10.0 cms	10	0.32	30.88	45.84	48.57	123.91	125.53	0.67	1.62
Big Eddy		-688	12.0 cms	12	0.36	33.79	46.68	49.44	123.91	125.59	0.72	1.68
Big Eddy		-688	15.0 cms	15	0.4	37.97	47.89	50.69	123.91	125.68	0.79	1.77
Big Eddy		-688	TQmin	20.4	0.46	44.7	50.79	53.66	123.91	125.82	0.88	1.91
Big Eddy		-688	25.0 cms	25	0.5	49.57	51.49	54.38	123.91	125.91	0.96	2
Big Eddy		-688	TQL	44.2	0.67	66.14	54.33	57.29	123.91	126.22	1.22	2.31
Big Eddy		-688	LTAF	47.8	0.69	68.84	54.73	57.71	123.91	126.27	1.26	2.36
Big Eddy		-688	TQmax	68	0.82	82.55	56.75	59.79	123.91	126.52	1.45	2.61
Big Eddy		-764	0.5 cms	0.5	0.06	9.09	17.1	19.34	124.11	125.06	0.53	0.95

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-764	1.0 cms	1	0.1	9.73	18.72	20.99	124.11	125.09	0.52	0.98
Big Eddy		-764	2.0 cms	2	0.18	10.92	20.14	22.45	124.11	125.16	0.54	1.05
Big Eddy		-764	3.0 cms	3	0.25	12	20.99	23.33	124.11	125.21	0.57	1.1
Big Eddy		-764	5.0 cms	5	0.36	13.88	21.84	24.24	124.11	125.3	0.64	1.19
Big Eddy		-764	10.0 cms	10	0.56	17.87	26.03	28.5	124.11	125.47	0.69	1.36
Big Eddy		-764	12.0 cms	12	0.62	19.3	26.8	29.28	124.11	125.52	0.72	1.41
Big Eddy		-764	15.0 cms	15	0.7	21.48	29.35	31.84	124.11	125.6	0.73	1.49
Big Eddy		-764	TQmin	20.4	0.81	25.17	33.21	35.72	124.11	125.72	0.76	1.61
Big Eddy		-764	25.0 cms	25	0.89	28.02	34.97	37.49	124.11	125.8	0.80	1.69
Big Eddy		-764	TQL	44.2	1.17	37.92	38.42	41	124.11	126.07	0.99	1.96
Big Eddy		-764	LTAF	47.8	1.21	39.56	38.97	41.55	124.11	126.11	1.02	2
Big Eddy		-764	TQmax	68	1.42	48.03	42.01	44.62	124.11	126.32	1.14	2.21
Big Eddy		-794	0.5 cms	0.5	0.59	0.85	23.72	23.73	124.98	125.04	0.04	0.06
Big Eddy		-794	1.0 cms	1	0.74	1.35	24.15	24.16	124.98	125.06	0.06	0.08
Big Eddy		-794	2.0 cms	2	0.92	2.17	24.83	24.84	124.98	125.09	0.09	0.11
Big Eddy		-794	3.0 cms	3	1.06	2.84	25.37	25.38	124.98	125.12	0.11	0.14
Big Eddy		-794	5.0 cms	5	1.24	4.04	26.32	26.33	124.98	125.16	0.15	0.18
Big Eddy		-794	10.0 cms	10	1.52	6.57	28.2	28.22	124.98	125.26	0.23	0.28
Big Eddy		-794	12.0 cms	12	1.6	7.48	28.85	28.88	124.98	125.29	0.26	0.31
Big Eddy		-794	15.0 cms	15	1.71	8.77	29.74	29.77	124.98	125.33	0.29	0.35
Big Eddy		-794	TQmin	20.4	1.87	10.92	31.18	31.22	124.98	125.4	0.35	0.42
Big Eddy		-794	25.0 cms	25	1.97	12.69	32.31	32.36	124.98	125.46	0.39	0.48
Big Eddy		-794	TQL	44.2	2.3	19.22	36.19	36.25	124.98	125.65	0.53	0.67
Big Eddy		-794	LTAF	47.8	2.35	20.37	36.83	36.9	124.98	125.68	0.55	0.7
Big Eddy		-794	TQmax	68	2.57	26.5	40.07	40.15	124.98	125.84	0.66	0.86
Big Eddy		-1127	0.5 cms	0.5	0.01	37.09	28.21	28.78	121	122.54	1.31	1.54
Big Eddy		-1127	1.0 cms	1	0.03	37.73	28.33	28.91	121	122.56	1.33	1.56
Big Eddy		-1127	2.0 cms	2	0.05	38.76	28.53	29.12	121	122.6	1.36	1.6
Big Eddy		-1127	3.0 cms	3	0.08	39.67	28.69	29.3	121	122.63	1.38	1.63
Big Eddy		-1127	5.0 cms	5	0.12	41.3	29	29.62	121	122.69	1.42	1.69
Big Eddy		-1127	10.0 cms	10	0.22	44.93	29.66	30.33	121	122.81	1.51	1.81
Big Eddy		-1127	12.0 cms	12	0.26	46.29	29.9	30.59	121	122.86	1.55	1.86
Big Eddy		-1127	15.0 cms	15	0.31	48.24	30.25	30.95	121	122.92	1.59	1.92
Big Eddy		-1127	TQmin	20.4	0.4	51.56	30.83	31.58	121	123.03	1.67	2.03
Big Eddy		-1127	25.0 cms	25	0.46	54.2	31.28	32.06	121	123.11	1.73	2.11
Big Eddy		-1127	TQL	44.2	0.69	63.92	32.9	33.79	121	123.42	1.94	2.42
Big Eddy		-1127	LTAF	47.8	0.73	65.59	33.17	34.08	121	123.47	1.98	2.47
Big Eddy		-1127	TQmax	68	0.92	74.2	35.05	36.06	121	123.72	2.12	2.72

Table A-6: Upstream HEC-RAS Results for Monthly Q10 and Q90 Flows – Existing Conditions

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		3098	Jan 10%	51.39	2.36	21.78	38.88	38.95	137.5	138.18	0.56	0.68
Big Eddy		3098	Feb 10%	41.11	2.22	18.48	37.11	37.17	137.5	138.09	0.50	0.59
Big Eddy		3098	Mar 10%	51.06	2.36	21.68	38.83	38.89	137.5	138.18	0.56	0.68
Big Eddy		3098	Apr 10%	228.74	2.19	104.59	70.36	70.66	137.5	139.68	1.49	2.18
Big Eddy		3098	May 10%	208.59	2.13	97.89	69.03	69.31	137.5	139.58	1.42	2.08
Big Eddy		3098	Jun 10%	102.78	2.05	50.12	51.63	51.76	137.5	138.81	0.97	1.31
Big Eddy		3098	Jul 10%	73.86	2.14	34.48	45.04	45.14	137.5	138.48	0.77	0.98
Big Eddy		3098	Aug 10%	48.47	2.32	20.86	38.4	38.46	137.5	138.16	0.54	0.66
Big Eddy		3098	Sep 10%	31.64	2.07	15.26	35.3	35.35	137.5	138.01	0.43	0.51
Big Eddy		3098	Oct 10%	46.25	2.3	20.15	38.02	38.08	137.5	138.14	0.53	0.64
Big Eddy		3098	Nov 10%	71.17	2.17	32.86	44.31	44.4	137.5	138.45	0.74	0.95
Big Eddy		3098	Dec 10%	67.48	2.21	30.58	43.24	43.33	137.5	138.4	0.71	0.9
Big Eddy		3098	Jan 90%	15.22	1.69	9.02	31.5	31.53	137.5	137.82	0.29	0.32
Big Eddy		3098	Feb 90%	13.4	1.62	8.26	31	31.03	137.5	137.79	0.27	0.29
Big Eddy		3098	Mar 90%	13.91	1.64	8.47	31.14	31.17	137.5	137.8	0.27	0.3
Big Eddy		3098	Apr 90%	28.82	2.02	14.26	34.72	34.77	137.5	137.98	0.41	0.48
Big Eddy		3098	May 90%	61.67	2.3	26.76	41.41	41.49	137.5	138.31	0.65	0.81
Big Eddy		3098	Jun 90%	33.96	2.11	16.07	35.77	35.82	137.5	138.03	0.45	0.53
Big Eddy		3098	Jul 90%	16.63	1.73	9.64	31.9	31.93	137.5	137.84	0.30	0.34
Big Eddy		3098	Aug 90%	9.06	1.44	6.28	29.68	29.7	137.5	137.73	0.21	0.23
Big Eddy		3098	Sep 90%	7.63	1.37	5.57	29.19	29.21	137.5	137.71	0.19	0.21
Big Eddy		3098	Oct 90%	8.15	1.4	5.81	29.36	29.38	137.5	137.71	0.20	0.21
Big Eddy		3098	Nov 90%	9.99	1.49	6.7	29.97	29.99	137.5	137.74	0.22	0.24
Big Eddy		3098	Dec 90%	14.71	1.67	8.81	31.36	31.39	137.5	137.81	0.28	0.31
Big Eddy	101	2807	Jan 10%	51.39	1.01	50.71	35.36	36.54	135.01	137.66	1.43	2.65
Big Eddy	101	2807	Feb 10%	41.11	0.89	46.35	33.04	34.2	135.01	137.53	1.40	2.52
Big Eddy	101	2807	Mar 10%	51.06	1.01	50.57	35.29	36.46	135.01	137.65	1.43	2.64
Big Eddy	101	2807	Apr 10%	228.74	2.2	104.05	57.71	59.06	135.01	138.81	1.80	3.8
Big Eddy	101	2807	May 10%	208.59	2.1	99.21	56.13	57.45	135.01	138.72	1.77	3.71
Big Eddy	101	2807	Jun 10%	102.78	1.48	69.24	43.86	45.11	135.01	138.12	1.58	3.11
Big Eddy	101	2807	Jul 10%	73.86	1.24	59.42	39.71	40.92	135.01	137.89	1.50	2.88
Big Eddy	101	2807	Aug 10%	48.47	0.98	49.5	34.71	35.88	135.01	137.62	1.43	2.61
Big Eddy	101	2807	Sep 10%	31.64	0.75	42.1	31.24	32.38	135.01	137.4	1.35	2.39
Big Eddy	101	2807	Oct 10%	46.25	0.95	48.56	34.2	35.37	135.01	137.59	1.42	2.58
Big Eddy	101	2807	Nov 10%	71.17	1.22	58.43	39.24	40.45	135.01	137.86	1.49	2.85
Big Eddy	101	2807	Dec 10%	67.48	1.18	57.04	38.57	39.78	135.01	137.83	1.48	2.82

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	101	2807	Jan 90%	15.22	0.45	33.65	26.87	27.96	135.01	137.1	1.25	2.09
Big Eddy	101	2807	Feb 90%	13.4	0.41	32.58	26.44	27.52	135.01	137.06	1.23	2.05
Big Eddy	101	2807	Mar 90%	13.91	0.42	32.88	26.56	27.64	135.01	137.07	1.24	2.06
Big Eddy	101	2807	Apr 90%	28.82	0.71	40.72	30.36	31.49	135.01	137.35	1.34	2.34
Big Eddy	101	2807	May 90%	61.67	1.12	54.82	37.47	38.67	135.01	137.77	1.46	2.76
Big Eddy	101	2807	Jun 90%	33.96	0.79	43.18	31.79	32.93	135.01	137.43	1.36	2.42
Big Eddy	101	2807	Jul 90%	16.63	0.48	34.45	27.2	28.29	135.01	137.13	1.27	2.12
Big Eddy	101	2807	Aug 90%	9.06	0.3	29.85	25.35	26.41	135.01	136.96	1.18	1.95
Big Eddy	101	2807	Sep 90%	7.63	0.26	28.88	25.11	26.15	135.01	136.92	1.15	1.91
Big Eddy	101	2807	Oct 90%	8.15	0.28	29.23	25.2	26.25	135.01	136.93	1.16	1.92
Big Eddy	101	2807	Nov 90%	9.99	0.33	30.46	25.55	26.61	135.01	136.98	1.19	1.97
Big Eddy	101	2807	Dec 90%	14.71	0.44	33.35	26.75	27.84	135.01	137.09	1.25	2.08
Big Eddy		2713	Jan 10%	51.39	1.97	26.09	47.49	47.54	136.6	137.31	0.55	0.71
Big Eddy		2713	Feb 10%	41.11	1.86	22.08	44.88	44.92	136.6	137.22	0.49	0.62
Big Eddy		2713	Mar 10%	51.06	1.97	25.97	47.42	47.46	136.6	137.31	0.55	0.71
Big Eddy		2713	Apr 10%	228.74	2.81	82.2	66.18	66.38	136.6	138.26	1.24	1.66
Big Eddy		2713	May 10%	208.59	2.71	77.3	65.68	65.86	136.6	138.18	1.18	1.58
Big Eddy		2713	Jun 10%	102.78	2.28	45.04	58.19	58.26	136.6	137.67	0.77	1.07
Big Eddy		2713	Jul 10%	73.86	2.16	34.22	52.39	52.45	136.6	137.47	0.65	0.87
Big Eddy		2713	Aug 10%	48.47	1.94	25.01	46.8	46.85	136.6	137.29	0.53	0.69
Big Eddy		2713	Sep 10%	31.64	1.76	17.96	42.03	42.06	136.6	137.13	0.43	0.53
Big Eddy		2713	Oct 10%	46.25	1.92	24.14	46.24	46.28	136.6	137.27	0.52	0.67
Big Eddy		2713	Nov 10%	71.17	2.14	33.25	51.83	51.89	136.6	137.45	0.64	0.85
Big Eddy		2713	Dec 10%	67.48	2.11	31.93	51.06	51.11	136.6	137.43	0.63	0.83
Big Eddy		2713	Jan 90%	15.22	1.62	9.39	35.35	35.37	136.6	136.91	0.27	0.31
Big Eddy		2713	Feb 90%	13.4	1.57	8.56	34.64	34.66	136.6	136.88	0.25	0.28
Big Eddy		2713	Mar 90%	13.91	1.58	8.79	34.84	34.86	136.6	136.89	0.25	0.29
Big Eddy		2713	Apr 90%	28.82	1.74	16.6	41.04	41.07	136.6	137.09	0.40	0.49
Big Eddy		2713	May 90%	61.67	2.07	29.83	49.81	49.86	136.6	137.39	0.60	0.79
Big Eddy		2713	Jun 90%	33.96	1.78	19.04	42.79	42.83	136.6	137.15	0.44	0.55
Big Eddy		2713	Jul 90%	16.63	1.66	10	35.88	35.9	136.6	136.92	0.28	0.32
Big Eddy		2713	Aug 90%	9.06	1.39	6.5	32.8	32.82	136.6	136.82	0.20	0.22
Big Eddy		2713	Sep 90%	7.63	1.33	5.73	32.09	32.1	136.6	136.8	0.18	0.2
Big Eddy		2713	Oct 90%	8.15	1.36	6.01	32.35	32.36	136.6	136.81	0.19	0.21
Big Eddy		2713	Nov 90%	9.99	1.44	6.94	33.2	33.22	136.6	136.83	0.21	0.23
Big Eddy		2713	Dec 90%	14.71	1.61	9.16	35.16	35.18	136.6	136.9	0.26	0.3
Big Eddy	102	2674	Jan 10%	51.39	1.03	50.04	68.56	69.18	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Feb 10%	41.11	0.93	44.37	66.85	67.41	135.66	136.82	0.66	1.16

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	102	2674	Mar 10%	51.06	1.02	49.84	68.52	69.13	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Apr 10%	228.74	1.6	142.67	94.21	95.6	135.66	138.07	1.51	2.41
Big Eddy	102	2674	May 10%	208.59	1.56	134	91.92	93.26	135.66	137.98	1.46	2.32
Big Eddy	102	2674	Jun 10%	102.78	1.24	83.04	75.25	76.22	135.66	137.36	1.10	1.7
Big Eddy	102	2674	Jul 10%	73.86	1.14	64.66	71.55	72.36	135.66	137.11	0.90	1.45
Big Eddy	102	2674	Aug 10%	48.47	1	48.32	68.15	68.74	135.66	136.88	0.71	1.22
Big Eddy	102	2674	Sep 10%	31.64	0.78	40.8	65.75	66.27	135.66	136.76	0.62	1.1
Big Eddy	102	2674	Oct 10%	46.25	0.98	47.06	67.73	68.32	135.66	136.86	0.69	1.2
Big Eddy	102	2674	Nov 10%	71.17	1.13	62.83	71.3	72.08	135.66	137.08	0.88	1.42
Big Eddy	102	2674	Dec 10%	67.48	1.12	60.36	70.89	71.64	135.66	137.05	0.85	1.39
Big Eddy	102	2674	Jan 90%	15.22	0.42	36.03	64.11	64.6	135.66	136.69	0.56	1.03
Big Eddy	102	2674	Feb 90%	13.4	0.4	33.64	63.24	63.71	135.66	136.65	0.53	0.99
Big Eddy	102	2674	Mar 90%	13.91	0.41	34.34	63.51	63.98	135.66	136.66	0.54	1
Big Eddy	102	2674	Apr 90%	28.82	0.72	40.29	65.57	66.09	135.66	136.76	0.61	1.1
Big Eddy	102	2674	May 90%	61.67	1.09	56.52	70.04	70.73	135.66	137	0.81	1.34
Big Eddy	102	2674	Jun 90%	33.96	0.82	41.43	65.96	66.49	135.66	136.77	0.63	1.11
Big Eddy	102	2674	Jul 90%	16.63	0.44	37.8	64.72	65.22	135.66	136.72	0.58	1.06
Big Eddy	102	2674	Aug 90%	9.06	0.33	27.14	59.05	59.48	135.66	136.55	0.46	0.89
Big Eddy	102	2674	Sep 90%	7.63	0.31	24.75	56.99	57.39	135.66	136.51	0.43	0.85
Big Eddy	102	2674	Oct 90%	8.15	0.32	25.64	57.76	58.17	135.66	136.52	0.44	0.86
Big Eddy	102	2674	Nov 90%	9.99	0.35	28.68	60.34	60.77	135.66	136.57	0.48	0.91
Big Eddy	102	2674	Dec 90%	14.71	0.42	35.37	63.88	64.36	135.66	136.68	0.55	1.02
Big Eddy		2607	Jan 10%	51.39	0.77	66.89	107.25	107.28	135.94	136.7	0.62	0.76
Big Eddy		2607	Feb 10%	41.11	0.8	51.33	99.68	99.7	135.94	136.55	0.51	0.61
Big Eddy		2607	Mar 10%	51.06	0.77	66.39	107.01	107.04	135.94	136.69	0.62	0.75
Big Eddy		2607	Apr 10%	228.74	0.94	244.63	153.84	154.04	135.94	138.03	1.59	2.09
Big Eddy		2607	May 10%	208.59	0.91	229.52	151.34	151.52	135.94	137.93	1.52	1.99
Big Eddy		2607	Jun 10%	102.78	0.75	136.85	132.45	132.52	135.94	137.28	1.03	1.34
Big Eddy		2607	Jul 10%	73.86	0.74	99.33	121.68	121.72	135.94	136.98	0.82	1.04
Big Eddy		2607	Aug 10%	48.47	0.78	62.51	105.17	105.2	135.94	136.66	0.59	0.72
Big Eddy		2607	Sep 10%	31.64	0.87	36.49	91.87	91.89	135.94	136.39	0.40	0.45
Big Eddy		2607	Oct 10%	46.25	0.78	59.17	103.56	103.59	135.94	136.63	0.57	0.69
Big Eddy		2607	Nov 10%	71.17	0.75	95.5	119.93	119.97	135.94	136.95	0.80	1.01
Big Eddy		2607	Dec 10%	67.48	0.75	90.27	117.71	117.75	135.94	136.91	0.77	0.97
Big Eddy		2607	Jan 90%	15.22	1.25	12.2	77.43	77.43	135.94	136.11	0.16	0.17
Big Eddy		2607	Feb 90%	13.4	1.2	11.16	76.75	76.75	135.94	136.09	0.15	0.15
Big Eddy		2607	Mar 90%	13.91	1.21	11.45	76.94	76.94	135.94	136.1	0.15	0.16
Big Eddy		2607	Apr 90%	28.82	0.9	31.9	89.32	89.34	135.94	136.34	0.36	0.4
Big Eddy		2607	May 90%	61.67	0.75	81.98	114.11	114.15	135.94	136.84	0.72	0.9

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2607	Jun 90%	33.96	0.84	40.22	93.89	93.91	135.94	136.43	0.43	0.49
Big Eddy		2607	Jul 90%	16.63	1.28	12.95	77.91	77.92	135.94	136.12	0.17	0.18
Big Eddy		2607	Aug 90%	9.06	1.06	8.57	75.03	75.04	135.94	136.06	0.11	0.12
Big Eddy		2607	Sep 90%	7.63	1.01	7.59	74.37	74.37	135.94	136.05	0.10	0.11
Big Eddy		2607	Oct 90%	8.15	1.02	7.95	74.62	74.62	135.94	136.05	0.11	0.11
Big Eddy		2607	Nov 90%	9.99	1.1	9.12	75.4	75.4	135.94	136.07	0.12	0.13
Big Eddy		2607	Dec 90%	14.71	1.23	11.92	77.25	77.25	135.94	136.1	0.15	0.16
Big Eddy	103	2585	Jan 10%	51.39	0.27	191.01	90.57	93.09	132.22	136.72	2.11	4.5
Big Eddy	103	2585	Feb 10%	41.11	0.23	177.84	87.05	89.53	132.22	136.57	2.04	4.35
Big Eddy	103	2585	Mar 10%	51.06	0.27	190.6	90.53	93.04	132.22	136.71	2.11	4.49
Big Eddy	103	2585	Apr 10%	228.74	0.7	377.89	181.92	184.96	132.22	138.04	2.08	5.82
Big Eddy	103	2585	May 10%	208.59	0.66	359.98	180.28	183.28	132.22	137.94	2.00	5.72
Big Eddy	103	2585	Jun 10%	102.78	0.42	250.93	135.63	138.31	132.22	137.29	1.85	5.07
Big Eddy	103	2585	Jul 10%	73.86	0.34	217.02	96.78	99.37	132.22	137	2.24	4.78
Big Eddy	103	2585	Aug 10%	48.47	0.26	187.35	90.18	92.69	132.22	136.67	2.08	4.45
Big Eddy	103	2585	Sep 10%	31.64	0.19	165.3	80.5	82.95	132.22	136.42	2.05	4.2
Big Eddy	103	2585	Oct 10%	46.25	0.25	184.52	89.72	92.22	132.22	136.64	2.06	4.42
Big Eddy	103	2585	Nov 10%	71.17	0.33	214	95.72	98.3	132.22	136.96	2.24	4.74
Big Eddy	103	2585	Dec 10%	67.48	0.32	209.86	94.24	96.81	132.22	136.92	2.23	4.7
Big Eddy	103	2585	Jan 90%	15.22	0.11	140.46	76.19	78.6	132.22	136.1	1.84	3.88
Big Eddy	103	2585	Feb 90%	13.4	0.1	137.23	75.76	78.15	132.22	136.06	1.81	3.84
Big Eddy	103	2585	Mar 90%	13.91	0.1	138.15	75.88	78.28	132.22	136.07	1.82	3.85
Big Eddy	103	2585	Apr 90%	28.82	0.18	161.42	79.73	82.18	132.22	136.37	2.02	4.15
Big Eddy	103	2585	May 90%	61.67	0.3	203.27	91.86	94.4	132.22	136.85	2.21	4.63
Big Eddy	103	2585	Jun 90%	33.96	0.2	168.4	81.89	84.35	132.22	136.46	2.06	4.24
Big Eddy	103	2585	Jul 90%	16.63	0.12	142.88	76.51	78.92	132.22	136.13	1.87	3.91
Big Eddy	103	2585	Aug 90%	9.06	0.07	128.81	74.53	76.9	132.22	135.95	1.73	3.73
Big Eddy	103	2585	Sep 90%	7.63	0.06	125.74	73.91	76.28	132.22	135.9	1.70	3.68
Big Eddy	103	2585	Oct 90%	8.15	0.06	126.87	74.14	76.51	132.22	135.92	1.71	3.7
Big Eddy	103	2585	Nov 90%	9.99	0.08	130.71	74.86	77.24	132.22	135.97	1.75	3.75
Big Eddy	103	2585	Dec 90%	14.71	0.11	139.57	76.07	78.47	132.22	136.09	1.83	3.87
Big Eddy		2519	Jan 10%	51.39	2.57	19.99	29.43	29.58	135.55	136.34	0.68	0.79
Big Eddy		2519	Feb 10%	41.11	2.38	17.26	28.44	28.58	135.55	136.25	0.61	0.7
Big Eddy		2519	Mar 10%	51.06	2.56	19.93	29.4	29.56	135.55	136.34	0.68	0.79
Big Eddy		2519	Apr 10%	228.74	2.23	117.59	122.62	123.44	135.55	137.81	0.96	2.26
Big Eddy		2519	May 10%	208.59	2.32	102.81	115.9	116.66	135.55	137.68	0.89	2.13
Big Eddy		2519	Jun 10%	102.78	3	35.03	42.01	42.27	135.55	136.78	0.83	1.23
Big Eddy		2519	Jul 10%	73.86	2.85	25.9	32.43	32.63	135.55	136.53	0.80	0.98

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2519	Aug 10%	48.47	2.51	19.28	29.17	29.33	135.55	136.32	0.66	0.77
Big Eddy		2519	Sep 10%	31.64	2.26	14.02	27.22	27.33	135.55	136.13	0.52	0.58
Big Eddy		2519	Oct 10%	46.25	2.47	18.7	28.96	29.11	135.55	136.3	0.65	0.75
Big Eddy		2519	Nov 10%	71.17	2.82	25.28	31.67	31.86	135.55	136.51	0.80	0.96
Big Eddy		2519	Dec 10%	67.48	2.78	24.29	30.92	31.1	135.55	136.48	0.79	0.93
Big Eddy		2519	Jan 90%	15.22	1.82	8.37	24.95	25.02	135.55	135.91	0.34	0.36
Big Eddy		2519	Feb 90%	13.4	1.75	7.64	24.64	24.71	135.55	135.88	0.31	0.33
Big Eddy		2519	Mar 90%	13.91	1.77	7.84	24.73	24.8	135.55	135.89	0.32	0.34
Big Eddy		2519	Apr 90%	28.82	2.2	13.1	26.86	26.97	135.55	136.1	0.49	0.55
Big Eddy		2519	May 90%	61.67	2.72	22.67	30.36	30.54	135.55	136.43	0.75	0.88
Big Eddy		2519	Jun 90%	33.96	2.29	14.84	27.53	27.65	135.55	136.16	0.54	0.61
Big Eddy		2519	Jul 90%	16.63	1.87	8.88	25.17	25.24	135.55	135.93	0.35	0.38
Big Eddy		2519	Aug 90%	9.06	1.56	5.82	23.86	23.91	135.55	135.81	0.24	0.26
Big Eddy		2519	Sep 90%	7.63	1.47	5.17	23.57	23.62	135.55	135.78	0.22	0.23
Big Eddy		2519	Oct 90%	8.15	1.5	5.42	23.68	23.73	135.55	135.79	0.23	0.24
Big Eddy		2519	Nov 90%	9.99	1.6	6.23	24.04	24.09	135.55	135.83	0.26	0.28
Big Eddy		2519	Dec 90%	14.71	1.8	8.15	24.86	24.93	135.55	135.9	0.33	0.35
Big Eddy	104	2495	Jan 10%	51.39	1.21	45.55	57.95	58.46	134.55	136.44	0.79	1.89
Big Eddy	104	2495	Feb 10%	41.11	1.11	39.37	50.73	51.18	134.55	136.32	0.78	1.77
Big Eddy	104	2495	Mar 10%	51.06	1.21	45.37	57.69	58.2	134.55	136.43	0.79	1.88
Big Eddy	104	2495	Apr 10%	228.74	1.66	162.96	128.26	129.74	134.55	137.81	1.27	3.26
Big Eddy	104	2495	May 10%	208.59	1.66	149.03	117.78	119.18	134.55	137.69	1.27	3.14
Big Eddy	104	2495	Jun 10%	102.78	1.49	76.3	73	73.81	134.55	136.91	1.05	2.36
Big Eddy	104	2495	Jul 10%	73.86	1.39	58.12	64.41	65.05	134.55	136.64	0.90	2.09
Big Eddy	104	2495	Aug 10%	48.47	1.19	43.81	55.37	55.86	134.55	136.41	0.79	1.86
Big Eddy	104	2495	Sep 10%	31.64	1	33.24	44.82	45.2	134.55	136.19	0.74	1.64
Big Eddy	104	2495	Oct 10%	46.25	1.16	42.47	53.31	53.79	134.55	136.38	0.80	1.83
Big Eddy	104	2495	Nov 10%	71.17	1.37	56.65	63.72	64.34	134.55	136.62	0.89	2.07
Big Eddy	104	2495	Dec 10%	67.48	1.35	54.61	62.76	63.37	134.55	136.59	0.87	2.04
Big Eddy	104	2495	Jan 90%	15.22	0.72	21.29	32.12	32.4	134.55	135.88	0.66	1.33
Big Eddy	104	2495	Feb 90%	13.4	0.67	20.02	26.1	26.36	134.55	135.83	0.77	1.28
Big Eddy	104	2495	Mar 90%	13.91	0.68	20.35	26.29	26.56	134.55	135.84	0.77	1.29
Big Eddy	104	2495	Apr 90%	28.82	0.96	31.33	42.32	42.68	134.55	136.15	0.74	1.6
Big Eddy	104	2495	May 90%	61.67	1.3	51.35	61.16	61.73	134.55	136.53	0.84	1.98
Big Eddy	104	2495	Jun 90%	33.96	1.03	34.78	46.59	46.99	134.55	136.23	0.75	1.68
Big Eddy	104	2495	Jul 90%	16.63	0.75	22.32	33.14	33.42	134.55	135.91	0.67	1.36
Big Eddy	104	2495	Aug 90%	9.06	0.53	17.02	24.71	24.96	134.55	135.71	0.69	1.16
Big Eddy	104	2495	Sep 90%	7.63	0.48	15.88	24.24	24.48	134.55	135.67	0.66	1.12
Big Eddy	104	2495	Oct 90%	8.15	0.5	16.3	24.41	24.65	134.55	135.68	0.67	1.13

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	104	2495	Nov 90%	9.99	0.56	17.7	24.99	25.24	134.55	135.74	0.71	1.19
Big Eddy	104	2495	Dec 90%	14.71	0.71	20.92	31.74	32.01	134.55	135.86	0.66	1.31
Big Eddy	105	2379	Jan 10%	51.39	1.04	49.37	65.33	65.67	134.92	136.24	0.76	1.32
Big Eddy	105	2379	Feb 10%	41.11	0.96	42.68	61.22	61.54	134.92	136.13	0.70	1.21
Big Eddy	105	2379	Mar 10%	51.06	1.04	49.21	65.23	65.57	134.92	136.24	0.75	1.32
Big Eddy	105	2379	Apr 10%	228.74	1.35	168.98	105.97	106.63	134.92	137.6	1.59	2.68
Big Eddy	105	2379	May 10%	208.59	1.33	156.88	104.72	105.33	134.92	137.48	1.50	2.56
Big Eddy	105	2379	Jun 10%	102.78	1.24	82.72	81.97	82.41	134.92	136.69	1.01	1.77
Big Eddy	105	2379	Jul 10%	73.86	1.19	62.11	73.58	73.97	134.92	136.42	0.84	1.5
Big Eddy	105	2379	Aug 10%	48.47	1.02	47.55	64.24	64.57	134.92	136.21	0.74	1.29
Big Eddy	105	2379	Sep 10%	31.64	0.88	36.06	56.87	57.16	134.92	136.02	0.63	1.1
Big Eddy	105	2379	Oct 10%	46.25	1	46.1	63.35	63.68	134.92	136.19	0.73	1.27
Big Eddy	105	2379	Nov 10%	71.17	1.18	60.5	72.56	72.94	134.92	136.4	0.83	1.48
Big Eddy	105	2379	Dec 10%	67.48	1.16	58.32	71.17	71.54	134.92	136.37	0.82	1.45
Big Eddy	105	2379	Jan 90%	15.22	0.67	22.61	41.42	41.66	134.92	135.76	0.55	0.84
Big Eddy	105	2379	Feb 90%	13.4	0.63	21.19	40.98	41.22	134.92	135.72	0.52	0.8
Big Eddy	105	2379	Mar 90%	13.91	0.64	21.6	41.11	41.34	134.92	135.73	0.53	0.81
Big Eddy	105	2379	Apr 90%	28.82	0.85	34.02	55.46	55.74	134.92	135.99	0.61	1.07
Big Eddy	105	2379	May 90%	61.67	1.12	54.99	68.97	69.33	134.92	136.32	0.80	1.4
Big Eddy	105	2379	Jun 90%	33.96	0.9	37.73	58	58.29	134.92	136.05	0.65	1.13
Big Eddy	105	2379	Jul 90%	16.63	0.7	23.67	41.74	41.99	134.92	135.78	0.57	0.86
Big Eddy	105	2379	Aug 90%	9.06	0.52	17.37	39.42	39.64	134.92	135.63	0.44	0.71
Big Eddy	105	2379	Sep 90%	7.63	0.48	15.88	38.78	39	134.92	135.59	0.41	0.67
Big Eddy	105	2379	Oct 90%	8.15	0.5	16.41	39.01	39.23	134.92	135.6	0.42	0.68
Big Eddy	105	2379	Nov 90%	9.99	0.55	18.24	39.78	40	134.92	135.65	0.46	0.73
Big Eddy	105	2379	Dec 90%	14.71	0.66	22.23	41.3	41.54	134.92	135.75	0.54	0.83
Big Eddy		2306	Jan 10%	51.39	2.23	23	44.87	44.99	135.16	135.71	0.51	0.55
Big Eddy		2306	Feb 10%	41.11	2.1	19.6	44.35	44.46	135.16	135.64	0.44	0.48
Big Eddy		2306	Mar 10%	51.06	2.24	22.81	44.84	44.96	135.16	135.71	0.51	0.55
Big Eddy		2306	Apr 10%	228.74	1.9	120.46	79.97	80.39	135.16	137.29	1.51	2.13
Big Eddy		2306	May 10%	208.59	1.89	110.53	77.86	78.27	135.16	137.17	1.42	2.01
Big Eddy		2306	Jun 10%	102.78	2.09	49.23	54.96	55.18	135.16	136.26	0.90	1.1
Big Eddy		2306	Jul 10%	73.86	2.13	34.74	47.09	47.27	135.16	135.97	0.74	0.81
Big Eddy		2306	Aug 10%	48.47	2.21	21.95	44.71	44.83	135.16	135.69	0.49	0.53
Big Eddy		2306	Sep 10%	31.64	1.93	16.43	43.86	43.95	135.16	135.57	0.37	0.41
Big Eddy		2306	Oct 10%	46.25	2.18	21.26	44.6	44.72	135.16	135.68	0.48	0.52
Big Eddy		2306	Nov 10%	71.17	2.13	33.42	46.78	46.96	135.16	135.94	0.71	0.78
Big Eddy		2306	Dec 10%	67.48	2.14	31.57	46.39	46.56	135.16	135.9	0.68	0.74

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2306	Jan 90%	15.22	1.52	10.04	42.85	42.89	135.16	135.42	0.23	0.26
Big Eddy		2306	Feb 90%	13.4	1.46	9.16	42.49	42.53	135.16	135.4	0.22	0.24
Big Eddy		2306	Mar 90%	13.91	1.48	9.4	42.59	42.63	135.16	135.4	0.22	0.24
Big Eddy		2306	Apr 90%	28.82	1.87	15.4	43.7	43.78	135.16	135.54	0.35	0.38
Big Eddy		2306	May 90%	61.67	2.16	28.6	45.85	46.01	135.16	135.84	0.62	0.68
Big Eddy		2306	Jun 90%	33.96	1.97	17.22	43.99	44.07	135.16	135.58	0.39	0.42
Big Eddy		2306	Jul 90%	16.63	1.56	10.63	42.96	43	135.16	135.43	0.25	0.27
Big Eddy		2306	Aug 90%	9.06	1.29	7	41.59	41.62	135.16	135.35	0.17	0.19
Big Eddy		2306	Sep 90%	7.63	1.23	6.23	41.26	41.29	135.16	135.33	0.15	0.17
Big Eddy		2306	Oct 90%	8.15	1.25	6.52	41.39	41.41	135.16	135.34	0.16	0.18
Big Eddy		2306	Nov 90%	9.99	1.33	7.5	41.8	41.83	135.16	135.36	0.18	0.2
Big Eddy		2306	Dec 90%	14.71	1.51	9.77	42.74	42.78	135.16	135.41	0.23	0.25
Big Eddy	106	2214	Jan 10%	51.39	1.09	47.28	45.88	46.39	133.31	135.55	1.03	2.24
Big Eddy	106	2214	Feb 10%	41.11	1	41.23	44.3	44.79	133.31	135.41	0.93	2.1
Big Eddy	106	2214	Mar 10%	51.06	1.08	47.09	45.83	46.34	133.31	135.54	1.03	2.23
Big Eddy	106	2214	Apr 10%	228.74	1.68	136.17	80.54	81.46	133.31	137.13	1.69	3.82
Big Eddy	106	2214	May 10%	208.59	1.66	125.32	77.72	78.59	133.31	136.99	1.61	3.68
Big Eddy	106	2214	Jun 10%	102.78	1.38	74.56	51.76	52.41	133.31	136.1	1.44	2.79
Big Eddy	106	2214	Jul 10%	73.86	1.23	59.87	48.93	49.49	133.31	135.81	1.22	2.5
Big Eddy	106	2214	Aug 10%	48.47	1.06	45.58	45.44	45.95	133.31	135.51	1.00	2.2
Big Eddy	106	2214	Sep 10%	31.64	0.89	35.51	42.65	43.12	133.31	135.28	0.83	1.97
Big Eddy	106	2214	Oct 10%	46.25	1.04	44.28	45.1	45.6	133.31	135.48	0.98	2.17
Big Eddy	106	2214	Nov 10%	71.17	1.22	58.4	48.63	49.19	133.31	135.78	1.20	2.47
Big Eddy	106	2214	Dec 10%	67.48	1.2	56.38	48.16	48.71	133.31	135.74	1.17	2.43
Big Eddy	106	2214	Jan 90%	15.22	0.6	25.17	36.97	37.4	133.31	135.02	0.68	1.71
Big Eddy	106	2214	Feb 90%	13.4	0.56	23.75	36.33	36.76	133.31	134.98	0.65	1.67
Big Eddy	106	2214	Mar 90%	13.91	0.58	24.16	36.52	36.95	133.31	134.99	0.66	1.68
Big Eddy	106	2214	Apr 90%	28.82	0.85	33.8	42.1	42.57	133.31	135.24	0.80	1.93
Big Eddy	106	2214	May 90%	61.67	1.16	53.14	47.36	47.9	133.31	135.67	1.12	2.36
Big Eddy	106	2214	Jun 90%	33.96	0.92	36.9	43.1	43.57	133.31	135.31	0.86	2
Big Eddy	106	2214	Jul 90%	16.63	0.63	26.22	37.44	37.87	133.31	135.05	0.70	1.74
Big Eddy	106	2214	Aug 90%	9.06	0.45	20.05	34.03	34.44	133.31	134.88	0.59	1.57
Big Eddy	106	2214	Sep 90%	7.63	0.41	18.73	33.01	33.42	133.31	134.84	0.57	1.53
Big Eddy	106	2214	Oct 90%	8.15	0.42	19.22	33.39	33.8	133.31	134.85	0.58	1.54
Big Eddy	106	2214	Nov 90%	9.99	0.48	20.89	34.64	35.06	133.31	134.9	0.60	1.59
Big Eddy	106	2214	Dec 90%	14.71	0.59	24.76	36.79	37.22	133.31	135.01	0.67	1.7
Big Eddy		2149	Jan 10%	51.39	1.07	48.01	42.04	42.3	134	135.46	1.14	1.46
Big Eddy		2149	Feb 10%	41.11	0.96	42.79	40.47	40.7	134	135.34	1.06	1.34

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2149	Mar 10%	51.06	1.07	47.84	41.99	42.25	134	135.46	1.14	1.46
Big Eddy		2149	Apr 10%	228.74	1.82	125.53	75.65	76.43	134	136.98	1.66	2.98
Big Eddy		2149	May 10%	208.59	1.8	116.06	66.69	67.41	134	136.84	1.74	2.84
Big Eddy		2149	Jun 10%	102.78	1.42	72.38	47.69	48.07	134	136	1.52	2
Big Eddy		2149	Jul 10%	73.86	1.25	59.14	45.2	45.51	134	135.72	1.31	1.72
Big Eddy		2149	Aug 10%	48.47	1.04	46.52	41.6	41.85	134	135.43	1.12	1.43
Big Eddy		2149	Sep 10%	31.64	0.83	37.98	38.96	39.18	134	135.22	0.97	1.22
Big Eddy		2149	Oct 10%	46.25	1.02	45.4	41.26	41.51	134	135.4	1.10	1.4
Big Eddy		2149	Nov 10%	71.17	1.23	57.83	44.84	45.14	134	135.69	1.29	1.69
Big Eddy		2149	Dec 10%	67.48	1.2	56.03	44.34	44.63	134	135.65	1.26	1.65
Big Eddy		2149	Jan 90%	15.22	0.52	29.42	36.14	36.31	134	134.99	0.81	0.99
Big Eddy		2149	Feb 90%	13.4	0.48	28.16	35.7	35.87	134	134.95	0.79	0.95
Big Eddy		2149	Mar 90%	13.91	0.49	28.53	35.83	36	134	134.96	0.80	0.96
Big Eddy		2149	Apr 90%	28.82	0.79	36.58	38.52	38.73	134	135.18	0.95	1.18
Big Eddy		2149	May 90%	61.67	1.16	53.16	43.53	43.81	134	135.58	1.22	1.58
Big Eddy		2149	Jun 90%	33.96	0.87	39.12	39.33	39.55	134	135.25	0.99	1.25
Big Eddy		2149	Jul 90%	16.63	0.55	30.35	36.46	36.64	134	135.01	0.83	1.01
Big Eddy		2149	Aug 90%	9.06	0.37	24.8	34.52	34.67	134	134.86	0.72	0.86
Big Eddy		2149	Sep 90%	7.63	0.32	23.56	34.07	34.21	134	134.82	0.69	0.82
Big Eddy		2149	Oct 90%	8.15	0.34	24.02	34.23	34.38	134	134.83	0.70	0.83
Big Eddy		2149	Nov 90%	9.99	0.39	25.57	34.79	34.95	134	134.88	0.73	0.88
Big Eddy		2149	Dec 90%	14.71	0.51	29.06	36.01	36.19	134	134.98	0.81	0.98
Big Eddy	107	2039	Jan 10%	51.39	0.65	78.77	43.25	44.97	132.49	135.44	1.82	2.95
Big Eddy	107	2039	Feb 10%	41.11	0.56	73.62	42.13	43.82	132.49	135.32	1.75	2.83
Big Eddy	107	2039	Mar 10%	51.06	0.65	78.61	43.22	44.93	132.49	135.43	1.82	2.94
Big Eddy	107	2039	Apr 10%	228.74	1.39	164.45	161.27	85.31	132.49	136.87	1.02	4.38
Big Eddy	107	2039	May 10%	208.59	1.35	154.2	153.94	82.92	132.49	136.75	1.00	4.26
Big Eddy	107	2039	Jun 10%	102.78	1.01	102.22	47.34	49.23	132.49	135.96	2.16	3.47
Big Eddy	107	2039	Jul 10%	73.86	0.82	89.57	45.18	46.98	132.49	135.68	1.98	3.19
Big Eddy	107	2039	Aug 10%	48.47	0.63	77.31	42.93	44.64	132.49	135.4	1.80	2.91
Big Eddy	107	2039	Sep 10%	31.64	0.46	68.81	41.22	42.88	132.49	135.2	1.67	2.71
Big Eddy	107	2039	Oct 10%	46.25	0.61	76.21	42.69	44.39	132.49	135.38	1.79	2.89
Big Eddy	107	2039	Nov 10%	71.17	0.81	88.32	44.96	46.75	132.49	135.65	1.96	3.16
Big Eddy	107	2039	Dec 10%	67.48	0.78	86.58	44.66	46.43	132.49	135.62	1.94	3.13
Big Eddy	107	2039	Jan 90%	15.22	0.25	60.04	38.98	40.59	132.49	134.98	1.54	2.49
Big Eddy	107	2039	Feb 90%	13.4	0.23	58.71	38.5	40.11	132.49	134.95	1.52	2.46
Big Eddy	107	2039	Mar 90%	13.91	0.24	59.11	38.65	40.25	132.49	134.96	1.53	2.47
Big Eddy	107	2039	Apr 90%	28.82	0.43	67.4	40.95	42.6	132.49	135.17	1.65	2.68
Big Eddy	107	2039	May 90%	61.67	0.74	83.81	44.17	45.92	132.49	135.55	1.90	3.06

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	107	2039	Jun 90%	33.96	0.49	69.96	41.44	43.1	132.49	135.23	1.69	2.74
Big Eddy	107	2039	Jul 90%	16.63	0.27	61.02	39.28	40.9	132.49	135.01	1.55	2.52
Big Eddy	107	2039	Aug 90%	9.06	0.16	55.16	37.17	38.76	132.49	134.86	1.48	2.37
Big Eddy	107	2039	Sep 90%	7.63	0.14	53.84	36.67	38.25	132.49	134.82	1.47	2.33
Big Eddy	107	2039	Oct 90%	8.15	0.15	54.33	36.85	38.44	132.49	134.83	1.47	2.34
Big Eddy	107	2039	Nov 90%	9.99	0.18	55.98	37.48	39.08	132.49	134.88	1.49	2.39
Big Eddy	107	2039	Dec 90%	14.71	0.25	59.66	38.85	40.46	132.49	134.97	1.54	2.48
Big Eddy		1970	Jan 10%	51.39	1.17	43.87	54.99	55.08	134.34	135.35	0.80	1.01
Big Eddy		1970	Feb 10%	41.11	1.08	38.03	52.53	52.61	134.34	135.24	0.72	0.9
Big Eddy		1970	Mar 10%	51.06	1.17	43.68	54.91	55	134.34	135.34	0.80	1
Big Eddy		1970	Apr 10%	228.74	1.62	141.51	145.85	78.64	134.34	136.75	0.97	2.41
Big Eddy		1970	May 10%	208.59	1.58	131.66	140.3	77.8	134.34	136.63	0.94	2.29
Big Eddy		1970	Jun 10%	102.78	1.39	74.15	66.32	66.45	134.34	135.85	1.12	1.51
Big Eddy		1970	Jul 10%	73.86	1.29	57.17	60.23	60.34	134.34	135.58	0.95	1.24
Big Eddy		1970	Aug 10%	48.47	1.15	42.18	54.29	54.38	134.34	135.32	0.78	0.98
Big Eddy		1970	Sep 10%	31.64	0.96	32.9	50.26	50.33	134.34	135.14	0.65	0.8
Big Eddy		1970	Oct 10%	46.25	1.13	40.92	53.76	53.85	134.34	135.29	0.76	0.95
Big Eddy		1970	Nov 10%	71.17	1.28	55.56	59.62	59.73	134.34	135.55	0.93	1.21
Big Eddy		1970	Dec 10%	67.48	1.26	53.36	58.78	58.88	134.34	135.51	0.91	1.17
Big Eddy		1970	Jan 90%	15.22	0.63	24.13	46.14	46.19	134.34	134.96	0.52	0.62
Big Eddy		1970	Feb 90%	13.4	0.59	22.73	45.44	45.49	134.34	134.93	0.50	0.59
Big Eddy		1970	Mar 90%	13.91	0.6	23.14	45.65	45.7	134.34	134.94	0.51	0.6
Big Eddy		1970	Apr 90%	28.82	0.92	31.47	49.61	49.68	134.34	135.11	0.63	0.77
Big Eddy		1970	May 90%	61.67	1.24	49.91	57.43	57.53	134.34	135.45	0.87	1.11
Big Eddy		1970	Jun 90%	33.96	1	34.08	50.79	50.87	134.34	135.16	0.67	0.82
Big Eddy		1970	Jul 90%	16.63	0.66	25.16	46.64	46.7	134.34	134.98	0.54	0.64
Big Eddy		1970	Aug 90%	9.06	0.48	18.93	43.5	43.55	134.34	134.84	0.44	0.5
Big Eddy		1970	Sep 90%	7.63	0.44	17.5	42.75	42.8	134.34	134.81	0.41	0.47
Big Eddy		1970	Oct 90%	8.15	0.45	18.03	43.03	43.08	134.34	134.82	0.42	0.48
Big Eddy		1970	Nov 90%	9.99	0.5	19.81	43.96	44.01	134.34	134.86	0.45	0.52
Big Eddy		1970	Dec 90%	14.71	0.62	23.72	45.94	45.99	134.34	134.95	0.52	0.61
Big Eddy	108	1907	Jan 10%	51.39	1.03	50.05	75.4	75.75	134.18	135.22	0.66	1.04
Big Eddy	108	1907	Feb 10%	41.11	1.03	39.93	74.59	74.85	134.18	135.08	0.54	0.9
Big Eddy	108	1907	Mar 10%	51.06	1.03	49.72	75.38	75.73	134.18	135.21	0.66	1.03
Big Eddy	108	1907	Apr 10%	228.74	1.34	189.16	230.29	148.08	134.18	136.71	0.82	2.53
Big Eddy	108	1907	May 10%	208.59	1.31	170.24	219.47	143.75	134.18	136.58	0.78	2.4
Big Eddy	108	1907	Jun 10%	102.78	1.11	92.82	78.2	78.84	134.18	135.77	1.19	1.59
Big Eddy	108	1907	Jul 10%	73.86	1.05	70.4	76.51	77.03	134.18	135.48	0.92	1.3

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	108	1907	Aug 10%	48.47	1.03	47.17	75.24	75.57	134.18	135.18	0.63	1
Big Eddy	108	1907	Sep 10%	31.64	1.09	29.03	73.36	73.54	134.18	134.93	0.40	0.75
Big Eddy	108	1907	Oct 10%	46.25	1.03	44.99	75.12	75.43	134.18	135.15	0.60	0.97
Big Eddy	108	1907	Nov 10%	71.17	1.04	68.11	76.38	76.89	134.18	135.45	0.89	1.27
Big Eddy	108	1907	Dec 10%	67.48	1.04	64.9	76.21	76.69	134.18	135.41	0.85	1.23
Big Eddy	108	1907	Jan 90%	15.22	1.33	11.46	64.15	64.23	134.18	134.69	0.18	0.51
Big Eddy	108	1907	Feb 90%	13.4	1.28	10.44	62.57	62.65	134.18	134.67	0.17	0.49
Big Eddy	108	1907	Mar 90%	13.91	1.3	10.67	62.94	63.01	134.18	134.67	0.17	0.49
Big Eddy	108	1907	Apr 90%	28.82	1.14	25.36	73.07	73.22	134.18	134.88	0.35	0.7
Big Eddy	108	1907	May 90%	61.67	1.03	59.71	75.92	76.36	134.18	135.34	0.79	1.16
Big Eddy	108	1907	Jun 90%	33.96	1.07	31.85	73.67	73.87	134.18	134.97	0.43	0.79
Big Eddy	108	1907	Jul 90%	16.63	1.36	12.25	65.35	65.43	134.18	134.7	0.19	0.52
Big Eddy	108	1907	Aug 90%	9.06	1.15	7.86	58.31	58.38	134.18	134.63	0.13	0.45
Big Eddy	108	1907	Sep 90%	7.63	1.12	6.83	54.51	54.58	134.18	134.61	0.13	0.43
Big Eddy	108	1907	Oct 90%	8.15	1.14	7.17	55.81	55.87	134.18	134.62	0.13	0.44
Big Eddy	108	1907	Nov 90%	9.99	1.18	8.48	59.46	59.53	134.18	134.64	0.14	0.46
Big Eddy	108	1907	Dec 90%	14.71	1.31	11.26	63.84	63.92	134.18	134.68	0.18	0.5
Big Eddy	109	1718	Jan 10%	51.39	0.83	61.7	45.68	46.25	132.47	135.04	1.35	2.57
Big Eddy	109	1718	Feb 10%	41.11	0.73	55.98	44.7	45.23	132.47	134.91	1.25	2.44
Big Eddy	109	1718	Mar 10%	51.06	0.83	61.51	45.65	46.22	132.47	135.03	1.35	2.56
Big Eddy	109	1718	Apr 10%	228.74	1.8	134.15	63.91	64.92	132.47	136.45	2.10	3.98
Big Eddy	109	1718	May 10%	208.59	1.72	126.79	60.55	61.53	132.47	136.33	2.09	3.86
Big Eddy	109	1718	Jun 10%	102.78	1.18	87.84	48.88	49.64	132.47	135.59	1.80	3.12
Big Eddy	109	1718	Jul 10%	73.86	1	74.36	47.26	47.92	132.47	135.31	1.57	2.84
Big Eddy	109	1718	Aug 10%	48.47	0.81	59.99	45.43	45.98	132.47	135	1.32	2.53
Big Eddy	109	1718	Sep 10%	31.64	0.63	49.88	43.54	44.04	132.47	134.77	1.15	2.3
Big Eddy	109	1718	Oct 10%	46.25	0.79	58.73	45.21	45.76	132.47	134.97	1.30	2.5
Big Eddy	109	1718	Nov 10%	71.17	0.98	72.94	47.09	47.74	132.47	135.28	1.55	2.81
Big Eddy	109	1718	Dec 10%	67.48	0.95	70.94	46.84	47.48	132.47	135.24	1.51	2.77
Big Eddy	109	1718	Jan 90%	15.22	0.41	37.07	38.55	38.99	132.47	134.46	0.96	1.99
Big Eddy	109	1718	Feb 90%	13.4	0.38	35.47	37.53	37.97	132.47	134.42	0.95	1.95
Big Eddy	109	1718	Mar 90%	13.91	0.39	35.92	37.82	38.26	132.47	134.43	0.95	1.96
Big Eddy	109	1718	Apr 90%	28.82	0.6	47.9	43.16	43.64	132.47	134.73	1.11	2.26
Big Eddy	109	1718	May 90%	61.67	0.91	67.69	46.44	47.05	132.47	135.17	1.46	2.7
Big Eddy	109	1718	Jun 90%	33.96	0.66	51.42	43.84	44.34	132.47	134.81	1.17	2.34
Big Eddy	109	1718	Jul 90%	16.63	0.43	38.29	39.3	39.75	132.47	134.5	0.97	2.03
Big Eddy	109	1718	Aug 90%	9.06	0.29	31.46	34.02	34.45	132.47	134.31	0.92	1.84
Big Eddy	109	1718	Sep 90%	7.63	0.25	30.04	33.03	33.45	132.47	134.27	0.91	1.8
Big Eddy	109	1718	Oct 90%	8.15	0.27	30.57	33.28	33.71	132.47	134.28	0.92	1.81

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	109	1718	Nov 90%	9.99	0.31	32.32	34.82	35.26	132.47	134.33	0.93	1.86
Big Eddy	109	1718	Dec 90%	14.71	0.4	36.63	38.27	38.71	132.47	134.45	0.96	1.98
Big Eddy		1687	Jan 10%	51.39	0.76	68.06	39.44	40	132.5	135.02	1.73	2.52
Big Eddy		1687	Feb 10%	41.11	0.65	63.31	37.76	38.3	132.5	134.9	1.68	2.4
Big Eddy		1687	Mar 10%	51.06	0.75	67.89	39.31	39.87	132.5	135.02	1.73	2.52
Big Eddy		1687	Apr 10%	228.74	1.55	173.9	148.92	149.91	132.5	136.44	1.17	3.94
Big Eddy		1687	May 10%	208.59	1.5	156.74	130.2	131.14	132.5	136.32	1.20	3.82
Big Eddy		1687	Jun 10%	102.78	1.09	94.18	54.25	54.88	132.5	135.57	1.74	3.07
Big Eddy		1687	Jul 10%	73.86	0.93	79.73	48.39	48.98	132.5	135.29	1.65	2.79
Big Eddy		1687	Aug 10%	48.47	0.73	66.63	38.58	39.14	132.5	134.99	1.73	2.49
Big Eddy		1687	Sep 10%	31.64	0.54	58.28	36.47	36.98	132.5	134.76	1.60	2.26
Big Eddy		1687	Oct 10%	46.25	0.71	65.58	38.33	38.88	132.5	134.96	1.71	2.46
Big Eddy		1687	Nov 10%	71.17	0.91	78.31	47.26	47.86	132.5	135.26	1.66	2.76
Big Eddy		1687	Dec 10%	67.48	0.88	76.37	45.69	46.28	132.5	135.22	1.67	2.72
Big Eddy		1687	Jan 90%	15.22	0.32	47.66	33.6	34.04	132.5	134.46	1.42	1.96
Big Eddy		1687	Feb 90%	13.4	0.29	46.26	33.2	33.63	132.5	134.42	1.39	1.92
Big Eddy		1687	Mar 90%	13.91	0.3	46.66	33.32	33.75	132.5	134.43	1.40	1.93
Big Eddy		1687	Apr 90%	28.82	0.51	56.64	36.05	36.54	132.5	134.72	1.57	2.22
Big Eddy		1687	May 90%	61.67	0.84	73.33	43.36	43.94	132.5	135.15	1.69	2.65
Big Eddy		1687	Jun 90%	33.96	0.57	59.54	36.8	37.32	132.5	134.8	1.62	2.3
Big Eddy		1687	Jul 90%	16.63	0.34	48.7	33.89	34.34	132.5	134.49	1.44	1.99
Big Eddy		1687	Aug 90%	9.06	0.21	42.64	32.15	32.56	132.5	134.31	1.33	1.81
Big Eddy		1687	Sep 90%	7.63	0.18	41.29	31.75	32.15	132.5	134.27	1.30	1.77
Big Eddy		1687	Oct 90%	8.15	0.19	41.8	31.9	32.3	132.5	134.28	1.31	1.78
Big Eddy		1687	Nov 90%	9.99	0.23	43.44	32.39	32.8	132.5	134.33	1.34	1.83
Big Eddy		1687	Dec 90%	14.71	0.31	47.27	33.49	33.93	132.5	134.45	1.41	1.95
Big Eddy	110	1545	Jan 10%	51.39	0.72	70.89	56.94	57.99	132.76	134.93	1.24	2.17
Big Eddy	110	1545	Feb 10%	41.11	0.63	64.93	56.14	57.15	132.76	134.82	1.16	2.06
Big Eddy	110	1545	Mar 10%	51.06	0.72	70.69	56.92	57.96	132.76	134.93	1.24	2.17
Big Eddy	110	1545	Apr 10%	228.74	1.5	163.44	92.96	94.28	132.76	136.24	1.76	3.48
Big Eddy	110	1545	May 10%	208.59	1.45	152.21	91.22	92.52	132.76	136.12	1.67	3.36
Big Eddy	110	1545	Jun 10%	102.78	1.04	98.94	60.59	61.76	132.76	135.41	1.63	2.65
Big Eddy	110	1545	Jul 10%	73.86	0.88	84.2	58.7	59.8	132.76	135.16	1.43	2.4
Big Eddy	110	1545	Aug 10%	48.47	0.7	69.09	56.7	57.74	132.76	134.9	1.22	2.14
Big Eddy	110	1545	Sep 10%	31.64	0.54	58.32	54.73	55.71	132.76	134.7	1.07	1.94
Big Eddy	110	1545	Oct 10%	46.25	0.68	67.75	56.52	57.55	132.76	134.87	1.20	2.11
Big Eddy	110	1545	Nov 10%	71.17	0.86	82.7	58.51	59.6	132.76	135.13	1.41	2.37
Big Eddy	110	1545	Dec 10%	67.48	0.84	80.61	58.23	59.32	132.76	135.1	1.38	2.34

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	110	1545	Jan 90%	15.22	0.35	43.99	50.17	51.09	132.76	134.43	0.88	1.67
Big Eddy	110	1545	Feb 90%	13.4	0.32	42.1	49.41	50.33	132.76	134.4	0.85	1.64
Big Eddy	110	1545	Mar 90%	13.91	0.33	42.64	49.63	50.55	132.76	134.41	0.86	1.65
Big Eddy	110	1545	Apr 90%	28.82	0.51	56.14	54.2	55.17	132.76	134.66	1.04	1.9
Big Eddy	110	1545	May 90%	61.67	0.8	77.18	57.78	58.85	132.76	135.04	1.34	2.28
Big Eddy	110	1545	Jun 90%	33.96	0.57	59.98	55.12	56.12	132.76	134.74	1.09	1.98
Big Eddy	110	1545	Jul 90%	16.63	0.37	45.41	50.73	51.66	132.76	134.46	0.90	1.7
Big Eddy	110	1545	Aug 90%	9.06	0.24	37.19	47.39	48.29	132.76	134.29	0.78	1.53
Big Eddy	110	1545	Sep 90%	7.63	0.22	35.38	45.19	46.09	132.76	134.25	0.78	1.49
Big Eddy	110	1545	Oct 90%	8.15	0.23	36.05	46.19	47.09	132.76	134.27	0.78	1.51
Big Eddy	110	1545	Nov 90%	9.99	0.26	38.27	47.84	48.74	132.76	134.32	0.80	1.56
Big Eddy	110	1545	Dec 90%	14.71	0.34	43.47	49.96	50.88	132.76	134.42	0.87	1.66
Big Eddy		1425	Jan 10%	51.39	1.5	34.36	73.54	73.56	133.97	134.59	0.47	0.62
Big Eddy		1425	Feb 10%	41.11	1.86	22.07	63.2	63.22	133.97	134.41	0.35	0.44
Big Eddy		1425	Mar 10%	51.06	1.5	33.99	73.25	73.27	133.97	134.58	0.46	0.61
Big Eddy		1425	Apr 10%	228.74	1.23	188.24	120.44	120.74	133.97	136.09	1.56	2.12
Big Eddy		1425	May 10%	208.59	1.22	172.51	115.17	115.44	133.97	135.96	1.50	1.99
Big Eddy		1425	Jun 10%	102.78	1.2	85.84	103.13	103.2	133.97	135.16	0.83	1.19
Big Eddy		1425	Jul 10%	73.86	1.28	57.71	89.95	89.99	133.97	134.87	0.64	0.9
Big Eddy		1425	Aug 10%	48.47	1.56	31.03	70.89	70.91	133.97	134.54	0.44	0.57
Big Eddy		1425	Sep 10%	31.64	1.74	18.17	59.56	59.57	133.97	134.34	0.31	0.37
Big Eddy		1425	Oct 10%	46.25	1.63	28.39	68.71	68.73	133.97	134.5	0.41	0.53
Big Eddy		1425	Nov 10%	71.17	1.29	55.02	88.22	88.25	133.97	134.84	0.62	0.87
Big Eddy		1425	Dec 10%	67.48	1.31	51.32	85.78	85.81	133.97	134.8	0.60	0.83
Big Eddy		1425	Jan 90%	15.22	1.42	10.68	51.83	51.83	133.97	134.21	0.21	0.24
Big Eddy		1425	Feb 90%	13.4	1.38	9.72	50.74	50.75	133.97	134.19	0.19	0.22
Big Eddy		1425	Mar 90%	13.91	1.39	10.01	51.07	51.08	133.97	134.19	0.20	0.22
Big Eddy		1425	Apr 90%	28.82	1.7	16.97	58.39	58.4	133.97	134.32	0.29	0.35
Big Eddy		1425	May 90%	61.67	1.36	45.43	81.73	81.76	133.97	134.73	0.56	0.76
Big Eddy		1425	Jun 90%	33.96	1.77	19.16	60.5	60.51	133.97	134.36	0.32	0.39
Big Eddy		1425	Jul 90%	16.63	1.46	11.4	52.61	52.62	133.97	134.22	0.22	0.25
Big Eddy		1425	Aug 90%	9.06	1.23	7.35	47.99	47.99	133.97	134.14	0.15	0.17
Big Eddy		1425	Sep 90%	7.63	1.17	6.51	46.97	46.98	133.97	134.12	0.14	0.15
Big Eddy		1425	Oct 90%	8.15	1.2	6.81	47.34	47.35	133.97	134.13	0.14	0.16
Big Eddy		1425	Nov 90%	9.99	1.27	7.89	48.62	48.63	133.97	134.15	0.16	0.18
Big Eddy		1425	Dec 90%	14.71	1.41	10.43	51.54	51.55	133.97	134.2	0.20	0.23
Big Eddy		1384	Jan 10%	51.39	0.51	100.66	86.44	86.55	132.99	134.61	1.16	1.62
Big Eddy		1384	Feb 10%	41.11	0.46	88.41	82.1	82.2	132.99	134.46	1.08	1.47

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1384	Mar 10%	51.06	0.51	100.28	86.31	86.42	132.99	134.6	1.16	1.61
Big Eddy		1384	Apr 10%	228.74	0.93	250.69	115.39	115.76	132.99	136.08	2.17	3.09
Big Eddy		1384	May 10%	208.59	0.89	235.56	110.53	110.86	132.99	135.95	2.13	2.96
Big Eddy		1384	Jun 10%	102.78	0.68	151.59	100.23	100.4	132.99	135.15	1.51	2.16
Big Eddy		1384	Jul 10%	73.86	0.59	124.38	94.28	94.41	132.99	134.87	1.32	1.88
Big Eddy		1384	Aug 10%	48.47	0.5	97.3	85.27	85.38	132.99	134.57	1.14	1.58
Big Eddy		1384	Sep 10%	31.64	0.42	75.87	77.4	77.5	132.99	134.3	0.98	1.31
Big Eddy		1384	Oct 10%	46.25	0.49	94.69	84.35	84.46	132.99	134.54	1.12	1.55
Big Eddy		1384	Nov 10%	71.17	0.58	121.69	93.42	93.55	132.99	134.84	1.30	1.85
Big Eddy		1384	Dec 10%	67.48	0.57	117.96	92.23	92.35	132.99	134.8	1.28	1.81
Big Eddy		1384	Jan 90%	15.22	0.3	50.97	67.11	67.18	132.99	133.96	0.76	0.97
Big Eddy		1384	Feb 90%	13.4	0.28	47.68	65.63	65.7	132.99	133.91	0.73	0.92
Big Eddy		1384	Mar 90%	13.91	0.29	48.67	66.08	66.15	132.99	133.92	0.74	0.93
Big Eddy		1384	Apr 90%	28.82	0.4	71.88	75.85	75.94	132.99	134.25	0.95	1.26
Big Eddy		1384	May 90%	61.67	0.55	111.96	90.26	90.38	132.99	134.73	1.24	1.74
Big Eddy		1384	Jun 90%	33.96	0.43	79.1	78.64	78.74	132.99	134.34	1.01	1.35
Big Eddy		1384	Jul 90%	16.63	0.31	53.42	68.2	68.27	132.99	133.99	0.78	1
Big Eddy		1384	Aug 90%	9.06	0.23	39.3	61.7	61.76	132.99	133.78	0.64	0.79
Big Eddy		1384	Sep 90%	7.63	0.21	36.25	60.21	60.26	132.99	133.73	0.60	0.74
Big Eddy		1384	Oct 90%	8.15	0.22	37.37	60.76	60.82	132.99	133.75	0.62	0.76
Big Eddy		1384	Nov 90%	9.99	0.24	41.19	62.61	62.67	132.99	133.81	0.66	0.82
Big Eddy		1384	Dec 90%	14.71	0.29	50.09	66.72	66.79	132.99	133.94	0.75	0.95
Big Eddy	111	1236	Jan 10%	51.39	0.41	125.54	106.2	106.65	132.3	134.56	1.18	2.26
Big Eddy	111	1236	Feb 10%	41.11	0.37	110.39	105.29	105.69	132.3	134.41	1.05	2.11
Big Eddy	111	1236	Mar 10%	51.06	0.41	125.08	106.18	106.62	132.3	134.55	1.18	2.25
Big Eddy	111	1236	Apr 10%	228.74	0.78	293.93	140.49	141.22	132.3	136.02	2.09	3.72
Big Eddy	111	1236	May 10%	208.59	0.76	277	122.56	123.27	132.3	135.89	2.26	3.59
Big Eddy	111	1236	Jun 10%	102.78	0.56	183.04	111.29	111.87	132.3	135.09	1.64	2.79
Big Eddy	111	1236	Jul 10%	73.86	0.48	153.12	107.94	108.47	132.3	134.82	1.42	2.52
Big Eddy	111	1236	Aug 10%	48.47	0.4	121.45	105.96	106.39	132.3	134.52	1.15	2.22
Big Eddy	111	1236	Sep 10%	31.64	0.34	94.07	104.3	104.65	132.3	134.26	0.90	1.96
Big Eddy	111	1236	Oct 10%	46.25	0.39	118.25	105.77	106.19	132.3	134.49	1.12	2.19
Big Eddy	111	1236	Nov 10%	71.17	0.47	150.1	107.66	108.19	132.3	134.79	1.39	2.49
Big Eddy	111	1236	Dec 10%	67.48	0.46	145.86	107.41	107.92	132.3	134.75	1.36	2.45
Big Eddy	111	1236	Jan 90%	15.22	0.26	59.13	100.06	100.32	132.3	133.92	0.59	1.62
Big Eddy	111	1236	Feb 90%	13.4	0.25	54.48	93.01	93.27	132.3	133.87	0.59	1.57
Big Eddy	111	1236	Mar 90%	13.91	0.25	55.77	99.44	99.7	132.3	133.89	0.56	1.59
Big Eddy	111	1236	Apr 90%	28.82	0.32	88.69	103.97	104.3	132.3	134.21	0.85	1.91
Big Eddy	111	1236	May 90%	61.67	0.44	138.95	107	107.49	132.3	134.68	1.30	2.38

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	111	1236	Jun 90%	33.96	0.35	98.37	104.56	104.92	132.3	134.3	0.94	2
Big Eddy	111	1236	Jul 90%	16.63	0.27	62.72	100.82	101.09	132.3	133.96	0.62	1.66
Big Eddy	111	1236	Aug 90%	9.06	0.21	43.6	82.68	82.91	132.3	133.75	0.53	1.45
Big Eddy	111	1236	Sep 90%	7.63	0.19	39.77	79.39	79.62	132.3	133.7	0.50	1.4
Big Eddy	111	1236	Oct 90%	8.15	0.2	41.17	80.61	80.84	132.3	133.72	0.51	1.42
Big Eddy	111	1236	Nov 90%	9.99	0.22	46.02	84.67	84.91	132.3	133.78	0.54	1.48
Big Eddy	111	1236	Dec 90%	14.71	0.25	57.85	99.8	100.06	132.3	133.91	0.58	1.61
Big Eddy		1071	Jan 10%	51.39	0.22	232.25	153.52	153.69	132.26	134.54	1.51	2.28
Big Eddy		1071	Feb 10%	41.11	0.19	210.94	147.47	147.63	132.26	134.4	1.43	2.14
Big Eddy		1071	Mar 10%	51.06	0.22	231.6	153.34	153.51	132.26	134.54	1.51	2.28
Big Eddy		1071	Apr 10%	228.74	0.44	627.35	353.22	353.89	132.26	136.01	1.78	3.75
Big Eddy		1071	May 10%	208.59	0.43	580.27	336.73	337.33	132.26	135.88	1.72	3.62
Big Eddy		1071	Jun 10%	102.78	0.32	330.5	263.89	264.25	132.26	135.07	1.25	2.81
Big Eddy		1071	Jul 10%	73.86	0.27	273.14	171.19	171.4	132.26	134.8	1.60	2.54
Big Eddy		1071	Aug 10%	48.47	0.21	226.44	151.89	152.06	132.26	134.51	1.49	2.25
Big Eddy		1071	Sep 10%	31.64	0.17	188.72	140.87	141.02	132.26	134.25	1.34	1.99
Big Eddy		1071	Oct 10%	46.25	0.21	221.92	150.62	150.78	132.26	134.48	1.47	2.22
Big Eddy		1071	Nov 10%	71.17	0.27	268.42	168.86	169.06	132.26	134.77	1.59	2.51
Big Eddy		1071	Dec 10%	67.48	0.26	261.93	163.74	163.93	132.26	134.73	1.60	2.47
Big Eddy		1071	Jan 90%	15.22	0.11	143.86	126.52	126.64	132.26	133.91	1.14	1.65
Big Eddy		1071	Feb 90%	13.4	0.1	138.07	124.54	124.66	132.26	133.87	1.11	1.61
Big Eddy		1071	Mar 90%	13.91	0.1	139.68	125.1	125.22	132.26	133.88	1.12	1.62
Big Eddy		1071	Apr 90%	28.82	0.16	181.57	138.68	138.83	132.26	134.2	1.31	1.94
Big Eddy		1071	May 90%	61.67	0.25	251.68	158.85	159.03	132.26	134.67	1.58	2.41
Big Eddy		1071	Jun 90%	33.96	0.17	194.5	142.61	142.77	132.26	134.29	1.36	2.03
Big Eddy		1071	Jul 90%	16.63	0.11	148.35	128.03	128.15	132.26	133.95	1.16	1.69
Big Eddy		1071	Aug 90%	9.06	0.07	123.04	119.27	119.38	132.26	133.74	1.03	1.48
Big Eddy		1071	Sep 90%	7.63	0.06	117.52	117.28	117.38	132.26	133.7	1.00	1.44
Big Eddy		1071	Oct 90%	8.15	0.07	119.56	118.02	118.13	132.26	133.71	1.01	1.45
Big Eddy		1071	Nov 90%	9.99	0.08	126.47	120.49	120.61	132.26	133.77	1.05	1.51
Big Eddy		1071	Dec 90%	14.71	0.1	142.26	125.98	126.1	132.26	133.9	1.13	1.64
Big Eddy	112	1009	Jan 10%	51.39	0.18	293.56	207.04	207.97	132.12	134.54	1.42	2.42
Big Eddy	112	1009	Feb 10%	41.11	0.16	264.36	206.06	206.95	132.12	134.4	1.28	2.28
Big Eddy	112	1009	Mar 10%	51.06	0.17	292.68	207.01	207.94	132.12	134.54	1.41	2.42
Big Eddy	112	1009	Apr 10%	228.74	0.36	731.04	425.18	426.57	132.12	136.01	1.72	3.89
Big Eddy	112	1009	May 10%	208.59	0.35	680.02	370.09	371.44	132.12	135.87	1.84	3.75
Big Eddy	112	1009	Jun 10%	102.78	0.25	408.9	297.88	298.98	132.12	135.07	1.37	2.95
Big Eddy	112	1009	Jul 10%	73.86	0.21	346.48	208.81	209.82	132.12	134.8	1.66	2.68

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	112	1009	Aug 10%	48.47	0.17	285.7	206.78	207.7	132.12	134.5	1.38	2.38
Big Eddy	112	1009	Sep 10%	31.64	0.14	232.72	204.99	205.83	132.12	134.25	1.14	2.13
Big Eddy	112	1009	Oct 10%	46.25	0.17	279.53	206.57	207.48	132.12	134.47	1.35	2.35
Big Eddy	112	1009	Nov 10%	71.17	0.21	340.7	208.62	209.62	132.12	134.77	1.63	2.65
Big Eddy	112	1009	Dec 10%	67.48	0.2	332.59	208.35	209.34	132.12	134.73	1.60	2.61
Big Eddy	112	1009	Jan 90%	15.22	0.09	164.47	202.66	203.41	132.12	133.91	0.81	1.79
Big Eddy	112	1009	Feb 90%	13.4	0.09	155.17	200.58	201.31	132.12	133.87	0.77	1.75
Big Eddy	112	1009	Mar 90%	13.91	0.09	157.76	201.34	202.08	132.12	133.88	0.78	1.76
Big Eddy	112	1009	Apr 90%	28.82	0.13	222.27	204.63	205.46	132.12	134.2	1.09	2.08
Big Eddy	112	1009	May 90%	61.67	0.19	319.34	207.9	208.87	132.12	134.67	1.54	2.55
Big Eddy	112	1009	Jun 90%	33.96	0.14	241.07	205.27	206.13	132.12	134.29	1.17	2.17
Big Eddy	112	1009	Jul 90%	16.63	0.1	171.61	202.91	203.66	132.12	133.95	0.85	1.83
Big Eddy	112	1009	Aug 90%	9.06	0.07	130.96	193.87	194.56	132.12	133.74	0.68	1.62
Big Eddy	112	1009	Sep 90%	7.63	0.06	121.96	192.63	193.31	132.12	133.7	0.63	1.58
Big Eddy	112	1009	Oct 90%	8.15	0.07	125.29	193.09	193.78	132.12	133.71	0.65	1.59
Big Eddy	112	1009	Nov 90%	9.99	0.07	136.49	195.01	195.71	132.12	133.77	0.70	1.65
Big Eddy	112	1009	Dec 90%	14.71	0.09	161.91	202.55	203.3	132.12	133.9	0.80	1.78
Big Eddy		888	Jan 10%	51.39	0.16	330.06	261.48	261.54	132.5	134.54	1.26	2.04
Big Eddy		888	Feb 10%	41.11	0.14	295.07	241.05	241.1	132.5	134.4	1.22	1.9
Big Eddy		888	Mar 10%	51.06	0.16	328.95	260.24	260.3	132.5	134.53	1.26	2.03
Big Eddy		888	Apr 10%	228.74	0.28	939.23	483.55	483.71	132.5	136	1.94	3.5
Big Eddy		888	May 10%	208.59	0.27	873.67	480.64	480.78	132.5	135.87	1.82	3.37
Big Eddy		888	Jun 10%	102.78	0.21	505.85	407.17	407.24	132.5	135.06	1.24	2.56
Big Eddy		888	Jul 10%	73.86	0.18	405.7	333.99	334.05	132.5	134.79	1.21	2.29
Big Eddy		888	Aug 10%	48.47	0.15	320.39	250.38	250.44	132.5	134.5	1.28	2
Big Eddy		888	Sep 10%	31.64	0.12	259.14	227.21	227.26	132.5	134.24	1.14	1.74
Big Eddy		888	Oct 10%	46.25	0.15	312.98	247.65	247.71	132.5	134.47	1.26	1.97
Big Eddy		888	Nov 10%	71.17	0.18	396.56	326.53	326.59	132.5	134.76	1.21	2.26
Big Eddy		888	Dec 10%	67.48	0.18	384.09	316.07	316.13	132.5	134.73	1.22	2.23
Big Eddy		888	Jan 90%	15.22	0.08	188.35	197.13	197.17	132.5	133.91	0.96	1.41
Big Eddy		888	Feb 90%	13.4	0.07	179.4	193	193.03	132.5	133.86	0.93	1.36
Big Eddy		888	Mar 90%	13.91	0.08	181.89	194.15	194.19	132.5	133.88	0.94	1.38
Big Eddy		888	Apr 90%	28.82	0.12	247.7	222.62	222.67	132.5	134.19	1.11	1.69
Big Eddy		888	May 90%	61.67	0.17	364.62	297.8	297.86	132.5	134.66	1.22	2.16
Big Eddy		888	Jun 90%	33.96	0.13	268.44	230.87	230.92	132.5	134.28	1.16	1.78
Big Eddy		888	Jul 90%	16.63	0.09	195.32	200.29	200.33	132.5	133.95	0.98	1.45
Big Eddy		888	Aug 90%	9.06	0.06	156.46	181.96	182	132.5	133.74	0.86	1.24
Big Eddy		888	Sep 90%	7.63	0.05	148.12	177.78	177.82	132.5	133.7	0.83	1.2
Big Eddy		888	Oct 90%	8.15	0.05	151.2	179.34	179.37	132.5	133.71	0.84	1.21

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		888	Nov 90%	9.99	0.06	161.66	184.52	184.56	132.5	133.77	0.88	1.27
Big Eddy		888	Dec 90%	14.71	0.08	185.88	196	196.03	132.5	133.9	0.95	1.4
Big Eddy	113	821	Jan 10%	51.39	0.1	512.02	372.42	373.1	132.16	134.54	1.37	2.38
Big Eddy	113	821	Feb 10%	41.11	0.09	460.17	364.43	365.1	132.16	134.4	1.26	2.24
Big Eddy	113	821	Mar 10%	51.06	0.1	510.45	372.17	372.85	132.16	134.53	1.37	2.37
Big Eddy	113	821	Apr 10%	228.74	0.21	1139.41	481.73	482.65	132.16	136	2.37	3.84
Big Eddy	113	821	May 10%	208.59	0.21	1075.33	468.96	469.86	132.16	135.87	2.29	3.71
Big Eddy	113	821	Jun 10%	102.78	0.15	717.53	417.72	418.47	132.16	135.06	1.72	2.9
Big Eddy	113	821	Jul 10%	73.86	0.12	608.21	387.04	387.74	132.16	134.79	1.57	2.63
Big Eddy	113	821	Aug 10%	48.47	0.1	498	370.24	370.92	132.16	134.5	1.35	2.34
Big Eddy	113	821	Sep 10%	31.64	0.08	404.82	357.38	358.04	132.16	134.24	1.13	2.08
Big Eddy	113	821	Oct 10%	46.25	0.09	487.02	368.52	369.2	132.16	134.47	1.32	2.31
Big Eddy	113	821	Nov 10%	71.17	0.12	597.52	385.45	386.14	132.16	134.76	1.55	2.6
Big Eddy	113	821	Dec 10%	67.48	0.12	582.61	383.21	383.9	132.16	134.72	1.52	2.56
Big Eddy	113	821	Jan 90%	15.22	0.05	290.71	332.96	333.57	132.16	133.91	0.87	1.75
Big Eddy	113	821	Feb 90%	13.4	0.05	275.51	330.26	330.86	132.16	133.86	0.83	1.7
Big Eddy	113	821	Mar 90%	13.91	0.05	279.74	331.11	331.71	132.16	133.88	0.84	1.72
Big Eddy	113	821	Apr 90%	28.82	0.07	386.92	349.3	349.95	132.16	134.19	1.11	2.03
Big Eddy	113	821	May 90%	61.67	0.11	558.45	379.55	380.24	132.16	134.66	1.47	2.5
Big Eddy	113	821	Jun 90%	33.96	0.08	419.35	359.17	359.83	132.16	134.28	1.17	2.12
Big Eddy	113	821	Jul 90%	16.63	0.05	302.4	334.09	334.7	132.16	133.94	0.91	1.78
Big Eddy	113	821	Aug 90%	9.06	0.04	235.33	327.03	327.63	132.16	133.74	0.72	1.58
Big Eddy	113	821	Sep 90%	7.63	0.03	220.21	325.78	326.37	132.16	133.7	0.68	1.54
Big Eddy	113	821	Oct 90%	8.15	0.04	225.82	326.24	326.83	132.16	133.71	0.69	1.55
Big Eddy	113	821	Nov 90%	9.99	0.04	244.61	327.8	328.4	132.16	133.77	0.75	1.61
Big Eddy	113	821	Dec 90%	14.71	0.05	286.52	332.46	333.07	132.16	133.9	0.86	1.74
Big Eddy	-3	724	Jan 10%	51.39	0.29	178.61	132.84	133.1	132.5	134.53	1.34	2.03
Big Eddy	-3	724	Feb 10%	41.11	0.26	160.16	131.42	131.65	132.5	134.39	1.22	1.89
Big Eddy	-3	724	Mar 10%	51.06	0.29	178.05	132.78	133.04	132.5	134.53	1.34	2.03
Big Eddy	-3	724	Apr 10%	228.74	0.59	465.04	336.61	337.08	132.5	135.98	1.38	3.48
Big Eddy	-3	724	May 10%	208.59	0.57	420.37	323.23	323.69	132.5	135.85	1.30	3.35
Big Eddy	-3	724	Jun 10%	102.78	0.41	250.03	143.75	144.1	132.5	135.05	1.74	2.55
Big Eddy	-3	724	Jul 10%	73.86	0.35	212.46	137.61	137.91	132.5	134.78	1.54	2.28
Big Eddy	-3	724	Aug 10%	48.47	0.28	173.64	132.32	132.57	132.5	134.49	1.31	1.99
Big Eddy	-3	724	Sep 10%	31.64	0.23	140.24	130.14	130.33	132.5	134.24	1.08	1.74
Big Eddy	-3	724	Oct 10%	46.25	0.27	169.75	132.03	132.28	132.5	134.46	1.29	1.96
Big Eddy	-3	724	Nov 10%	71.17	0.34	208.7	137	137.3	132.5	134.75	1.52	2.25
Big Eddy	-3	724	Dec 10%	67.48	0.33	203.46	136.09	136.37	132.5	134.72	1.50	2.22

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-3	724	Jan 90%	15.22	0.16	97.87	124.83	124.97	132.5	133.91	0.78	1.41
Big Eddy	-3	724	Feb 90%	13.4	0.15	92.21	123.96	124.1	132.5	133.86	0.74	1.36
Big Eddy	-3	724	Mar 90%	13.91	0.15	93.78	124.21	124.35	132.5	133.87	0.76	1.37
Big Eddy	-3	724	Apr 90%	28.82	0.22	133.67	129.71	129.89	132.5	134.19	1.03	1.69
Big Eddy	-3	724	May 90%	61.67	0.32	194.97	134.57	134.85	132.5	134.65	1.45	2.15
Big Eddy	-3	724	Jun 90%	33.96	0.23	145.49	130.48	130.68	132.5	134.28	1.12	1.78
Big Eddy	-3	724	Jul 90%	16.63	0.16	102.24	125.49	125.64	132.5	133.94	0.81	1.44
Big Eddy	-3	724	Aug 90%	9.06	0.12	77.29	121.15	121.27	132.5	133.74	0.64	1.24
Big Eddy	-3	724	Sep 90%	7.63	0.11	71.74	119.89	120.01	132.5	133.69	0.60	1.19
Big Eddy	-3	724	Oct 90%	8.15	0.11	73.79	120.36	120.48	132.5	133.71	0.61	1.21
Big Eddy	-3	724	Nov 90%	9.99	0.12	80.72	121.92	122.05	132.5	133.77	0.66	1.27
Big Eddy	-3	724	Dec 90%	14.71	0.15	96.31	124.59	124.73	132.5	133.89	0.77	1.39
Big Eddy	-2	607	Jan 10%	51.39	0.18	284.36	135.63	136.72	131.48	134.53	2.10	3.05
Big Eddy	-2	607	Feb 10%	41.11	0.15	265.62	133.88	134.94	131.48	134.39	1.98	2.91
Big Eddy	-2	607	Mar 10%	51.06	0.18	283.79	135.58	136.66	131.48	134.52	2.09	3.04
Big Eddy	-2	607	Apr 10%	228.74	0.46	565.62	322.82	324.14	131.48	135.97	1.75	4.49
Big Eddy	-2	607	May 10%	208.59	0.44	524.34	289.51	290.82	131.48	135.84	1.81	4.36
Big Eddy	-2	607	Jun 10%	102.78	0.29	356.66	161.04	162.22	131.48	135.04	2.21	3.56
Big Eddy	-2	607	Jul 10%	73.86	0.23	318.61	138.92	140.04	131.48	134.78	2.29	3.3
Big Eddy	-2	607	Aug 10%	48.47	0.17	279.31	135.16	136.24	131.48	134.49	2.07	3.01
Big Eddy	-2	607	Sep 10%	31.64	0.13	245.45	131.96	133	131.48	134.24	1.86	2.76
Big Eddy	-2	607	Oct 10%	46.25	0.17	275.35	134.79	135.87	131.48	134.46	2.04	2.98
Big Eddy	-2	607	Nov 10%	71.17	0.23	314.83	138.56	139.68	131.48	134.75	2.27	3.27
Big Eddy	-2	607	Dec 10%	67.48	0.22	309.55	138.05	139.17	131.48	134.71	2.24	3.23
Big Eddy	-2	607	Jan 90%	15.22	0.08	202.52	128.07	129.03	131.48	133.91	1.58	2.43
Big Eddy	-2	607	Feb 90%	13.4	0.07	196.72	127.44	128.39	131.48	133.86	1.54	2.38
Big Eddy	-2	607	Mar 90%	13.91	0.07	198.34	127.61	128.57	131.48	133.87	1.55	2.39
Big Eddy	-2	607	Apr 90%	28.82	0.12	238.83	131.47	132.5	131.48	134.19	1.82	2.71
Big Eddy	-2	607	May 90%	61.67	0.2	300.96	137.23	138.33	131.48	134.65	2.19	3.17
Big Eddy	-2	607	Jun 90%	33.96	0.14	250.76	132.47	133.51	131.48	134.28	1.89	2.8
Big Eddy	-2	607	Jul 90%	16.63	0.08	206.98	128.48	129.45	131.48	133.94	1.61	2.46
Big Eddy	-2	607	Aug 90%	9.06	0.05	181.38	125.64	126.56	131.48	133.74	1.44	2.26
Big Eddy	-2	607	Sep 90%	7.63	0.04	175.62	124.92	125.83	131.48	133.69	1.41	2.21
Big Eddy	-2	607	Oct 90%	8.15	0.05	177.76	125.18	126.1	131.48	133.71	1.42	2.23
Big Eddy	-2	607	Nov 90%	9.99	0.05	184.92	126.08	127.01	131.48	133.77	1.47	2.29
Big Eddy	-2	607	Dec 90%	14.71	0.07	200.93	127.9	128.86	131.48	133.89	1.57	2.41
Big Eddy	-1	334	Jan 10%	51.39	0.19	267.18	119.59	120.58	131.3	134.52	2.23	3.22
Big Eddy	-1	334	Feb 10%	41.11	0.16	250.84	118.15	119.11	131.3	134.38	2.12	3.08

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-1	334	Mar 10%	51.06	0.19	266.68	119.55	120.54	131.3	134.52	2.23	3.22
Big Eddy	-1	334	Apr 10%	228.74	0.5	543.07	298.94	300.16	131.3	135.95	1.82	4.65
Big Eddy	-1	334	May 10%	208.59	0.48	504.1	283.61	284.83	131.3	135.81	1.78	4.51
Big Eddy	-1	334	Jun 10%	102.78	0.31	330.83	178.54	179.65	131.3	135.03	1.85	3.73
Big Eddy	-1	334	Jul 10%	73.86	0.25	296.94	122.47	123.51	131.3	134.77	2.42	3.47
Big Eddy	-1	334	Aug 10%	48.47	0.18	262.78	119.22	120.2	131.3	134.48	2.20	3.18
Big Eddy	-1	334	Sep 10%	31.64	0.14	233.21	116.52	117.46	131.3	134.23	2.00	2.93
Big Eddy	-1	334	Oct 10%	46.25	0.18	259.33	118.93	119.9	131.3	134.45	2.18	3.15
Big Eddy	-1	334	Nov 10%	71.17	0.24	293.66	122.15	123.19	131.3	134.74	2.40	3.44
Big Eddy	-1	334	Dec 10%	67.48	0.23	289.07	121.69	122.72	131.3	134.7	2.38	3.4
Big Eddy	-1	334	Jan 90%	15.22	0.08	195.51	113.87	114.71	131.3	133.9	1.72	2.6
Big Eddy	-1	334	Feb 90%	13.4	0.07	190.4	111.9	112.73	131.3	133.86	1.70	2.56
Big Eddy	-1	334	Mar 90%	13.91	0.07	191.81	112.8	113.63	131.3	133.87	1.70	2.57
Big Eddy	-1	334	Apr 90%	28.82	0.13	227.41	116.06	116.98	131.3	134.18	1.96	2.88
Big Eddy	-1	334	May 90%	61.67	0.22	281.62	120.88	121.9	131.3	134.64	2.33	3.34
Big Eddy	-1	334	Jun 90%	33.96	0.14	237.86	116.9	117.84	131.3	134.27	2.03	2.97
Big Eddy	-1	334	Jul 90%	16.63	0.08	199.45	114.1	114.95	131.3	133.94	1.75	2.64
Big Eddy	-1	334	Aug 90%	9.06	0.05	177	110.37	111.18	131.3	133.74	1.60	2.44
Big Eddy	-1	334	Sep 90%	7.63	0.04	171.96	109.8	110.59	131.3	133.69	1.57	2.39
Big Eddy	-1	334	Oct 90%	8.15	0.05	173.82	110.01	110.81	131.3	133.71	1.58	2.41
Big Eddy	-1	334	Nov 90%	9.99	0.06	180.09	110.73	111.54	131.3	133.77	1.63	2.47
Big Eddy	-1	334	Dec 90%	14.71	0.08	194.1	113.79	114.63	131.3	133.89	1.71	2.59
Big Eddy		292	Jan 10%	51.39	0.19	264.49	112.25	112.83	131.08	134.52	2.36	3.44
Big Eddy		292	Feb 10%	41.11	0.16	249.19	110.81	111.36	131.08	134.38	2.25	3.3
Big Eddy		292	Mar 10%	51.06	0.19	264.02	112.2	112.78	131.08	134.51	2.35	3.43
Big Eddy		292	Apr 10%	228.74	0.51	524.14	246.7	247.52	131.08	135.94	2.12	4.86
Big Eddy		292	May 10%	208.59	0.49	491.46	242.66	243.47	131.08	135.81	2.03	4.73
Big Eddy		292	Jun 10%	102.78	0.32	324.34	186.64	187.32	131.08	135.02	1.74	3.94
Big Eddy		292	Jul 10%	73.86	0.25	292.35	114.82	115.45	131.08	134.76	2.55	3.68
Big Eddy		292	Aug 10%	48.47	0.19	260.37	111.86	112.44	131.08	134.48	2.33	3.4
Big Eddy		292	Sep 10%	31.64	0.14	232.67	109.24	109.76	131.08	134.23	2.13	3.15
Big Eddy		292	Oct 10%	46.25	0.18	257.14	111.56	112.13	131.08	134.45	2.30	3.37
Big Eddy		292	Nov 10%	71.17	0.25	289.28	114.53	115.16	131.08	134.74	2.53	3.66
Big Eddy		292	Dec 10%	67.48	0.24	284.99	114.14	114.76	131.08	134.7	2.50	3.62
Big Eddy		292	Jan 90%	15.22	0.08	197.49	105.81	106.27	131.08	133.9	1.87	2.82
Big Eddy		292	Feb 90%	13.4	0.07	192.73	105.34	105.79	131.08	133.86	1.83	2.78
Big Eddy		292	Mar 90%	13.91	0.07	194.06	105.47	105.93	131.08	133.87	1.84	2.79
Big Eddy		292	Apr 90%	28.82	0.13	227.24	108.72	109.23	131.08	134.18	2.09	3.1
Big Eddy		292	May 90%	61.67	0.22	278.01	113.5	114.11	131.08	134.64	2.45	3.56

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		292	Jun 90%	33.96	0.14	237.03	109.65	110.19	131.08	134.27	2.16	3.19
Big Eddy		292	Jul 90%	16.63	0.08	201.15	106.17	106.64	131.08	133.94	1.89	2.86
Big Eddy		292	Aug 90%	9.06	0.05	180.11	104.08	104.51	131.08	133.74	1.73	2.66
Big Eddy		292	Sep 90%	7.63	0.04	175.36	103.6	104.02	131.08	133.69	1.69	2.61
Big Eddy		292	Oct 90%	8.15	0.05	177.12	103.78	104.2	131.08	133.71	1.71	2.63
Big Eddy		292	Nov 90%	9.99	0.05	183.03	104.37	104.8	131.08	133.77	1.75	2.69
Big Eddy		292	Dec 90%	14.71	0.07	196.18	105.68	106.14	131.08	133.89	1.86	2.81
Big Eddy		165	Jan 10%	51.39	0.22	230.89	114.3	114.62	130.98	134.51	2.02	3.53
Big Eddy		165	Feb 10%	41.11	0.19	215.64	109.88	110.19	130.98	134.38	1.96	3.4
Big Eddy		165	Mar 10%	51.06	0.22	230.43	114.17	114.49	130.98	134.51	2.02	3.53
Big Eddy		165	Apr 10%	228.74	0.57	406.71	136.92	137.45	130.98	135.92	2.97	4.94
Big Eddy		165	May 10%	208.59	0.54	388.81	133.64	134.16	130.98	135.79	2.91	4.81
Big Eddy		165	Jun 10%	102.78	0.35	290.37	121.77	122.17	130.98	135.01	2.38	4.03
Big Eddy		165	Jul 10%	73.86	0.28	259.34	118.75	119.1	130.98	134.76	2.18	3.78
Big Eddy		165	Aug 10%	48.47	0.21	226.75	113.12	113.44	130.98	134.48	2.00	3.5
Big Eddy		165	Sep 10%	31.64	0.16	199.61	105.02	105.32	130.98	134.23	1.90	3.25
Big Eddy		165	Oct 10%	46.25	0.21	223.52	112.18	112.5	130.98	134.45	1.99	3.47
Big Eddy		165	Nov 10%	71.17	0.28	256.2	118.39	118.75	130.98	134.73	2.16	3.75
Big Eddy		165	Dec 10%	67.48	0.27	251.81	117.9	118.24	130.98	134.69	2.14	3.71
Big Eddy		165	Jan 90%	15.22	0.09	167.14	94.43	94.71	130.98	133.9	1.77	2.92
Big Eddy		165	Feb 90%	13.4	0.08	162.93	92.97	93.24	130.98	133.86	1.75	2.88
Big Eddy		165	Mar 90%	13.91	0.08	164.1	93.38	93.65	130.98	133.87	1.76	2.89
Big Eddy		165	Apr 90%	28.82	0.15	194.45	103.41	103.71	130.98	134.18	1.88	3.2
Big Eddy		165	May 90%	61.67	0.25	244.67	117.08	117.42	130.98	134.63	2.09	3.65
Big Eddy		165	Jun 90%	33.96	0.17	203.79	106.31	106.61	130.98	134.27	1.92	3.29
Big Eddy		165	Jul 90%	16.63	0.1	170.41	95.55	95.83	130.98	133.94	1.78	2.96
Big Eddy		165	Aug 90%	9.06	0.06	151.99	89.06	89.32	130.98	133.74	1.71	2.76
Big Eddy		165	Sep 90%	7.63	0.05	147.96	87.58	87.84	130.98	133.69	1.69	2.71
Big Eddy		165	Oct 90%	8.15	0.05	149.45	88.13	88.39	130.98	133.71	1.70	2.73
Big Eddy		165	Nov 90%	9.99	0.06	154.49	89.97	90.23	130.98	133.77	1.72	2.79
Big Eddy		165	Dec 90%	14.71	0.09	165.98	94.03	94.3	130.98	133.89	1.77	2.91
Big Eddy		141	Jan 10%	51.39	0.19	275.65	106.6	109.58	130.49	134.51	2.59	4.02
Big Eddy		141	Feb 10%	41.11	0.16	261.2	105.78	108.72	130.49	134.38	2.47	3.89
Big Eddy		141	Mar 10%	51.06	0.19	275.22	106.57	109.56	130.49	134.51	2.58	4.02
Big Eddy		141	Apr 10%	228.74	0.53	439.54	133.06	136.47	130.49	135.92	3.30	5.43
Big Eddy		141	May 10%	208.59	0.5	422.23	128.88	132.25	130.49	135.79	3.28	5.3
Big Eddy		141	Jun 10%	102.78	0.31	329.83	112.79	115.95	130.49	135.01	2.92	4.52
Big Eddy		141	Jul 10%	73.86	0.24	301.73	108.05	111.12	130.49	134.76	2.79	4.27

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		141	Aug 10%	48.47	0.18	271.77	106.38	109.35	130.49	134.48	2.55	3.99
Big Eddy		141	Sep 10%	31.64	0.13	245.5	104.89	107.78	130.49	134.23	2.34	3.74
Big Eddy		141	Oct 10%	46.25	0.17	268.72	106.21	109.17	130.49	134.45	2.53	3.96
Big Eddy		141	Nov 10%	71.17	0.24	298.88	107.89	110.95	130.49	134.73	2.77	4.24
Big Eddy		141	Dec 10%	67.48	0.23	294.87	107.67	110.72	130.49	134.69	2.74	4.2
Big Eddy		141	Jan 90%	15.22	0.07	211.66	102.94	105.71	130.49	133.9	2.06	3.41
Big Eddy		141	Feb 90%	13.4	0.06	207.05	102.67	105.43	130.49	133.86	2.02	3.37
Big Eddy		141	Mar 90%	13.91	0.07	208.33	102.75	105.51	130.49	133.87	2.03	3.38
Big Eddy		141	Apr 90%	28.82	0.12	240.31	104.59	107.46	130.49	134.18	2.30	3.69
Big Eddy		141	May 90%	61.67	0.21	288.35	107.31	110.33	130.49	134.63	2.69	4.14
Big Eddy		141	Jun 90%	33.96	0.14	249.65	105.13	108.03	130.49	134.27	2.37	3.78
Big Eddy		141	Jul 90%	16.63	0.08	215.21	103.15	105.93	130.49	133.94	2.09	3.45
Big Eddy		141	Aug 90%	9.06	0.05	194.75	101.95	104.67	130.49	133.74	1.91	3.25
Big Eddy		141	Sep 90%	7.63	0.04	190.11	101.68	104.38	130.49	133.69	1.87	3.2
Big Eddy		141	Oct 90%	8.15	0.04	191.83	101.78	104.49	130.49	133.71	1.88	3.22
Big Eddy		141	Nov 90%	9.99	0.05	197.6	102.12	104.85	130.49	133.77	1.93	3.28
Big Eddy		141	Dec 90%	14.71	0.07	210.39	102.87	105.64	130.49	133.89	2.05	3.4
Big Eddy		114	Jan 10%	51.39	0.2	254.56	102.17	105.07	131.22	134.51	2.49	3.29
Big Eddy		114	Feb 10%	41.11	0.17	240.69	102.02	104.74	131.22	134.38	2.36	3.16
Big Eddy		114	Mar 10%	51.06	0.2	254.15	102.17	105.06	131.22	134.51	2.49	3.29
Big Eddy		114	Apr 10%	228.74	0.57	403.5	112.45	116.43	131.22	135.92	3.59	4.7
Big Eddy		114	May 10%	208.59	0.54	388.85	110.35	114.28	131.22	135.78	3.52	4.56
Big Eddy		114	Jun 10%	102.78	0.34	305.76	105.37	108.93	131.22	135.01	2.90	3.79
Big Eddy		114	Jul 10%	73.86	0.26	279.37	102.44	105.66	131.22	134.76	2.73	3.54
Big Eddy		114	Aug 10%	48.47	0.19	250.85	102.13	104.98	131.22	134.48	2.46	3.26
Big Eddy		114	Sep 10%	31.64	0.14	225.52	101.86	104.37	131.22	134.23	2.21	3.01
Big Eddy		114	Oct 10%	46.25	0.19	247.92	102.1	104.91	131.22	134.45	2.43	3.23
Big Eddy		114	Nov 10%	71.17	0.26	276.66	102.41	105.6	131.22	134.73	2.70	3.51
Big Eddy		114	Dec 10%	67.48	0.25	272.87	102.37	105.51	131.22	134.69	2.67	3.47
Big Eddy		114	Jan 90%	15.22	0.08	192.66	99.52	101.67	131.22	133.9	1.94	2.68
Big Eddy		114	Feb 90%	13.4	0.07	188.2	99.27	101.36	131.22	133.86	1.90	2.64
Big Eddy		114	Mar 90%	13.91	0.07	189.44	99.28	101.39	131.22	133.87	1.91	2.65
Big Eddy		114	Apr 90%	28.82	0.13	220.48	101.8	104.25	131.22	134.18	2.17	2.96
Big Eddy		114	May 90%	61.67	0.23	266.68	102.3	105.36	131.22	134.63	2.61	3.41
Big Eddy		114	Jun 90%	33.96	0.15	229.54	101.9	104.47	131.22	134.27	2.25	3.05
Big Eddy		114	Jul 90%	16.63	0.08	196.09	99.87	102.06	131.22	133.94	1.96	2.72
Big Eddy		114	Aug 90%	9.06	0.05	176.32	98.33	100.26	131.22	133.74	1.79	2.52
Big Eddy		114	Sep 90%	7.63	0.04	171.84	97.73	99.62	131.22	133.69	1.76	2.47
Big Eddy		114	Oct 90%	8.15	0.05	173.5	97.98	99.89	131.22	133.71	1.77	2.49

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		114	Nov 90%	9.99	0.06	179.06	98.61	100.57	131.22	133.77	1.82	2.55
Big Eddy		114	Dec 90%	14.71	0.08	191.43	99.4	101.53	131.22	133.89	1.93	2.67
Big Eddy		84	Jan 10%	51.39	0.2	258.53	98.23	102.35	129.81	134.51	2.63	4.7
Big Eddy		84	Feb 10%	41.11	0.17	245.35	96.19	100.18	129.81	134.38	2.55	4.57
Big Eddy		84	Mar 10%	51.06	0.2	258.13	98.17	102.29	129.81	134.51	2.63	4.7
Big Eddy		84	Apr 10%	228.74	0.57	405.8	116.08	121.07	129.81	135.91	3.50	6.1
Big Eddy		84	May 10%	208.59	0.54	390.66	114.25	119.18	129.81	135.78	3.42	5.97
Big Eddy		84	Jun 10%	102.78	0.33	308.34	101.29	106.01	129.81	135.01	3.04	5.2
Big Eddy		84	Jul 10%	73.86	0.26	282.6	100.18	104.57	129.81	134.75	2.82	4.94
Big Eddy		84	Aug 10%	48.47	0.19	254.98	97.68	101.77	129.81	134.48	2.61	4.67
Big Eddy		84	Sep 10%	31.64	0.14	231.21	93.95	97.79	129.81	134.23	2.46	4.42
Big Eddy		84	Oct 10%	46.25	0.18	252.19	97.25	101.31	129.81	134.45	2.59	4.64
Big Eddy		84	Nov 10%	71.17	0.25	279.96	100.15	104.51	129.81	134.73	2.80	4.92
Big Eddy		84	Dec 10%	67.48	0.24	276.26	99.94	104.26	129.81	134.69	2.76	4.88
Big Eddy		84	Jan 90%	15.22	0.08	201.48	88.78	92.3	129.81	133.9	2.27	4.09
Big Eddy		84	Feb 90%	13.4	0.07	197.52	88.27	91.75	129.81	133.86	2.24	4.05
Big Eddy		84	Mar 90%	13.91	0.07	198.62	88.41	91.9	129.81	133.87	2.25	4.06
Big Eddy		84	Apr 90%	28.82	0.13	226.58	93.21	97	129.81	134.18	2.43	4.37
Big Eddy		84	May 90%	61.67	0.23	270.23	99.36	103.62	129.81	134.63	2.72	4.82
Big Eddy		84	Jun 90%	33.96	0.14	234.92	94.54	98.43	129.81	134.27	2.48	4.46
Big Eddy		84	Jul 90%	16.63	0.08	204.54	89.17	92.72	129.81	133.94	2.29	4.13
Big Eddy		84	Aug 90%	9.06	0.05	187	86.91	90.27	129.81	133.74	2.15	3.93
Big Eddy		84	Sep 90%	7.63	0.04	183.05	86.4	89.71	129.81	133.69	2.12	3.88
Big Eddy		84	Oct 90%	8.15	0.04	184.51	86.59	89.92	129.81	133.71	2.13	3.9
Big Eddy		84	Nov 90%	9.99	0.05	189.43	87.23	90.61	129.81	133.77	2.17	3.96
Big Eddy		84	Dec 90%	14.71	0.07	200.39	88.64	92.15	129.81	133.89	2.26	4.08
Big Eddy		72	Jan 10%	51.39	0.21	241.87	99.38	100.96	130.48	134.51	2.43	4.03
Big Eddy		72	Feb 10%	41.11	0.18	228.5	97.94	99.48	130.48	134.38	2.33	3.9
Big Eddy		72	Mar 10%	51.06	0.21	241.47	99.34	100.91	130.48	134.51	2.43	4.03
Big Eddy		72	Apr 10%	228.74	0.59	395.28	119.25	121.25	130.48	135.91	3.31	5.43
Big Eddy		72	May 10%	208.59	0.56	379.72	117.55	119.5	130.48	135.78	3.23	5.3
Big Eddy		72	Jun 10%	102.78	0.35	292.67	106.32	108.03	130.48	135.01	2.75	4.53
Big Eddy		72	Jul 10%	73.86	0.28	266.2	101.95	103.59	130.48	134.75	2.61	4.27
Big Eddy		72	Aug 10%	48.47	0.2	238.27	99	100.56	130.48	134.48	2.41	4
Big Eddy		72	Sep 10%	31.64	0.15	214.06	96.37	97.86	130.48	134.23	2.22	3.75
Big Eddy		72	Oct 10%	46.25	0.2	235.45	98.69	100.25	130.48	134.45	2.39	3.97
Big Eddy		72	Nov 10%	71.17	0.27	263.53	101.67	103.3	130.48	134.73	2.59	4.25
Big Eddy		72	Dec 10%	67.48	0.26	259.78	101.28	102.9	130.48	134.69	2.56	4.21

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		72	Jan 90%	15.22	0.08	183.97	83.83	85.25	130.48	133.9	2.19	3.42
Big Eddy		72	Feb 90%	13.4	0.07	180.28	81.49	82.89	130.48	133.86	2.21	3.38
Big Eddy		72	Mar 90%	13.91	0.08	181.3	81.65	83.05	130.48	133.87	2.22	3.39
Big Eddy		72	Apr 90%	28.82	0.14	209.31	95.84	97.33	130.48	134.18	2.18	3.7
Big Eddy		72	May 90%	61.67	0.24	253.69	100.64	102.24	130.48	134.63	2.52	4.15
Big Eddy		72	Jun 90%	33.96	0.16	217.87	96.78	98.29	130.48	134.27	2.25	3.79
Big Eddy		72	Jul 90%	16.63	0.09	186.9	86.54	87.97	130.48	133.94	2.16	3.46
Big Eddy		72	Aug 90%	9.06	0.05	170.59	79.95	81.32	130.48	133.74	2.13	3.26
Big Eddy		72	Sep 90%	7.63	0.05	166.96	79.37	80.73	130.48	133.69	2.10	3.21
Big Eddy		72	Oct 90%	8.15	0.05	168.31	79.59	80.95	130.48	133.71	2.11	3.23
Big Eddy		72	Nov 90%	9.99	0.06	172.83	80.31	81.69	130.48	133.77	2.15	3.29
Big Eddy		72	Dec 90%	14.71	0.08	182.94	82.71	84.12	130.48	133.89	2.21	3.41
Big Eddy		53	Jan 10%	51.39	0.24	212.31	96.08	97.59	130.78	134.51	2.21	3.73
Big Eddy		53	Feb 10%	41.11	0.21	199.43	94.57	96.04	130.78	134.37	2.11	3.59
Big Eddy		53	Mar 10%	51.06	0.24	211.92	96.03	97.54	130.78	134.51	2.21	3.73
Big Eddy		53	Apr 10%	228.74	0.65	356.54	111.62	113.54	130.78	135.9	3.19	5.12
Big Eddy		53	May 10%	208.59	0.61	342.05	109.9	111.78	130.78	135.77	3.11	4.99
Big Eddy		53	Jun 10%	102.78	0.39	261.33	101.59	103.25	130.78	135.01	2.57	4.23
Big Eddy		53	Jul 10%	73.86	0.31	235.78	98.77	100.35	130.78	134.75	2.39	3.97
Big Eddy		53	Aug 10%	48.47	0.23	208.84	95.67	97.18	130.78	134.47	2.18	3.69
Big Eddy		53	Sep 10%	31.64	0.17	185.96	85.63	87.06	130.78	134.23	2.17	3.45
Big Eddy		53	Oct 10%	46.25	0.22	206.12	95.36	96.85	130.78	134.45	2.16	3.67
Big Eddy		53	Nov 10%	71.17	0.31	233.2	98.48	100.05	130.78	134.72	2.37	3.94
Big Eddy		53	Dec 10%	67.48	0.29	229.58	98.06	99.63	130.78	134.69	2.34	3.91
Big Eddy		53	Jan 90%	15.22	0.1	159.88	78.15	79.49	130.78	133.9	2.05	3.12
Big Eddy		53	Feb 90%	13.4	0.09	156.39	77.58	78.91	130.78	133.86	2.02	3.08
Big Eddy		53	Mar 90%	13.91	0.09	157.36	77.74	79.07	130.78	133.87	2.02	3.09
Big Eddy		53	Apr 90%	28.82	0.16	181.84	81.6	83.02	130.78	134.18	2.23	3.4
Big Eddy		53	May 90%	61.67	0.28	223.71	97.39	98.94	130.78	134.63	2.30	3.85
Big Eddy		53	Jun 90%	33.96	0.18	189.39	88.58	90.02	130.78	134.27	2.14	3.49
Big Eddy		53	Jul 90%	16.63	0.1	162.57	78.58	79.93	130.78	133.94	2.07	3.16
Big Eddy		53	Aug 90%	9.06	0.06	147.18	76.08	77.37	130.78	133.74	1.93	2.96
Big Eddy		53	Sep 90%	7.63	0.05	143.72	75.51	76.79	130.78	133.69	1.90	2.91
Big Eddy		53	Oct 90%	8.15	0.06	145	75.72	77.01	130.78	133.71	1.91	2.93
Big Eddy		53	Nov 90%	9.99	0.07	149.3	76.43	77.73	130.78	133.77	1.95	2.99
Big Eddy		53	Dec 90%	14.71	0.09	158.92	77.99	79.33	130.78	133.89	2.04	3.11
Big Eddy	0	35	Jan 10%	51.39	0.5	102.17	86.93	87.15	132.3	134.5	1.18	2.2
Big Eddy	0	35	Feb 10%	41.11	0.45	90.75	82.74	82.94	132.3	134.36	1.10	2.06

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	Mar 10%	51.06	0.5	101.82	86.89	87.12	132.3	134.49	1.17	2.19
Big Eddy	0	35	Apr 10%	228.74	1	232.5	105.31	105.84	132.3	135.87	2.21	3.57
Big Eddy	0	35	May 10%	208.59	0.96	219.04	103.24	103.75	132.3	135.74	2.12	3.44
Big Eddy	0	35	Jun 10%	102.78	0.71	145.67	92.71	93.05	132.3	134.98	1.57	2.68
Big Eddy	0	35	Jul 10%	73.86	0.6	122.96	89.2	89.49	132.3	134.73	1.38	2.43
Big Eddy	0	35	Aug 10%	48.47	0.49	99.09	86.64	86.86	132.3	134.46	1.14	2.16
Big Eddy	0	35	Sep 10%	31.64	0.4	79.57	69.14	69.32	132.3	134.22	1.15	1.92
Big Eddy	0	35	Oct 10%	46.25	0.48	96.66	86.41	86.62	132.3	134.43	1.12	2.13
Big Eddy	0	35	Nov 10%	71.17	0.59	120.67	88.84	89.12	132.3	134.71	1.36	2.41
Big Eddy	0	35	Dec 10%	67.48	0.57	117.48	88.33	88.61	132.3	134.67	1.33	2.37
Big Eddy	0	35	Jan 90%	15.22	0.25	59.75	57.72	57.87	132.3	133.9	1.04	1.6
Big Eddy	0	35	Feb 90%	13.4	0.23	57.21	56.8	56.95	132.3	133.85	1.01	1.55
Big Eddy	0	35	Mar 90%	13.91	0.24	57.91	57.06	57.2	132.3	133.87	1.01	1.57
Big Eddy	0	35	Apr 90%	28.82	0.38	76.37	65.01	65.18	132.3	134.17	1.17	1.87
Big Eddy	0	35	May 90%	61.67	0.55	112.29	87.86	88.12	132.3	134.61	1.28	2.31
Big Eddy	0	35	Jun 90%	33.96	0.41	82.36	73.74	73.92	132.3	134.26	1.12	1.96
Big Eddy	0	35	Jul 90%	16.63	0.27	61.72	58.42	58.57	132.3	133.93	1.06	1.63
Big Eddy	0	35	Aug 90%	9.06	0.18	50.61	54.35	54.48	132.3	133.74	0.93	1.44
Big Eddy	0	35	Sep 90%	7.63	0.16	48.18	53.42	53.55	132.3	133.69	0.90	1.39
Big Eddy	0	35	Oct 90%	8.15	0.17	49.08	53.77	53.89	132.3	133.71	0.91	1.41
Big Eddy	0	35	Nov 90%	9.99	0.19	52.12	54.92	55.06	132.3	133.76	0.95	1.46
Big Eddy	0	35	Dec 90%	14.71	0.25	59.05	57.46	57.61	132.3	133.89	1.03	1.59

Table A-7: Upstream HEC-RAS Results for Monthly Q10 and Q90 Flows – Option One

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		3098	Jan 10%	51.39	2.36	21.78	38.88	38.95	137.5	138.18	0.56	0.68
Big Eddy		3098	Feb 10%	41.11	2.22	18.48	37.11	37.17	137.5	138.09	0.50	0.59
Big Eddy		3098	Mar 10%	51.06	2.36	21.67	38.83	38.89	137.5	138.18	0.56	0.68
Big Eddy		3098	Apr 10%	228.74	2.19	104.6	70.36	70.66	137.5	139.68	1.49	2.18
Big Eddy		3098	May 10%	208.59	2.13	97.89	69.03	69.31	137.5	139.58	1.42	2.08
Big Eddy		3098	Jun 10%	102.78	2.05	50.12	51.63	51.76	137.5	138.81	0.97	1.31
Big Eddy		3098	Jul 10%	73.86	2.14	34.48	45.04	45.14	137.5	138.48	0.77	0.98
Big Eddy		3098	Aug 10%	48.47	2.32	20.86	38.4	38.46	137.5	138.16	0.54	0.66
Big Eddy		3098	Sep 10%	31.64	2.07	15.26	35.3	35.35	137.5	138.01	0.43	0.51
Big Eddy		3098	Oct 10%	46.25	2.3	20.15	38.02	38.08	137.5	138.14	0.53	0.64
Big Eddy		3098	Nov 10%	71.17	2.17	32.86	44.31	44.4	137.5	138.45	0.74	0.95
Big Eddy		3098	Dec 10%	67.48	2.21	30.58	43.24	43.33	137.5	138.4	0.71	0.9
Big Eddy		3098	Jan 90%	15.22	1.69	9.02	31.5	31.53	137.5	137.82	0.29	0.32
Big Eddy		3098	Feb 90%	13.4	1.62	8.26	31	31.03	137.5	137.79	0.27	0.29
Big Eddy		3098	Mar 90%	13.91	1.64	8.47	31.14	31.17	137.5	137.8	0.27	0.3
Big Eddy		3098	Apr 90%	28.82	2.02	14.26	34.72	34.77	137.5	137.98	0.41	0.48
Big Eddy		3098	May 90%	61.67	2.3	26.76	41.41	41.49	137.5	138.31	0.65	0.81
Big Eddy		3098	Jun 90%	33.96	2.11	16.07	35.77	35.82	137.5	138.03	0.45	0.53
Big Eddy		3098	Jul 90%	16.63	1.73	9.64	31.9	31.93	137.5	137.84	0.30	0.34
Big Eddy		3098	Aug 90%	9.06	1.44	6.28	29.68	29.7	137.5	137.73	0.21	0.23
Big Eddy		3098	Sep 90%	7.63	1.37	5.57	29.19	29.21	137.5	137.71	0.19	0.21
Big Eddy		3098	Oct 90%	8.15	1.4	5.81	29.36	29.38	137.5	137.71	0.20	0.21
Big Eddy		3098	Nov 90%	9.99	1.49	6.7	29.97	29.99	137.5	137.74	0.22	0.24
Big Eddy		3098	Dec 90%	14.71	1.67	8.81	31.36	31.39	137.5	137.81	0.28	0.31
Big Eddy	101	2807	Jan 10%	51.39	1.01	50.71	35.36	36.54	135.01	137.66	1.43	2.65
Big Eddy	101	2807	Feb 10%	41.11	0.89	46.37	33.05	34.21	135.01	137.53	1.40	2.52
Big Eddy	101	2807	Mar 10%	51.06	1.01	50.57	35.29	36.46	135.01	137.65	1.43	2.64
Big Eddy	101	2807	Apr 10%	228.74	2.2	103.99	57.7	59.04	135.01	138.81	1.80	3.8
Big Eddy	101	2807	May 10%	208.59	2.1	99.15	56.11	57.43	135.01	138.72	1.77	3.71
Big Eddy	101	2807	Jun 10%	102.78	1.48	69.23	43.86	45.11	135.01	138.12	1.58	3.11
Big Eddy	101	2807	Jul 10%	73.86	1.24	59.42	39.71	40.92	135.01	137.89	1.50	2.88
Big Eddy	101	2807	Aug 10%	48.47	0.98	49.5	34.71	35.88	135.01	137.62	1.43	2.61
Big Eddy	101	2807	Sep 10%	31.64	0.75	42.1	31.25	32.38	135.01	137.4	1.35	2.39
Big Eddy	101	2807	Oct 10%	46.25	0.95	48.56	34.2	35.37	135.01	137.59	1.42	2.58
Big Eddy	101	2807	Nov 10%	71.17	1.22	58.43	39.24	40.45	135.01	137.86	1.49	2.85
Big Eddy	101	2807	Dec 10%	67.48	1.18	57.04	38.57	39.78	135.01	137.83	1.48	2.82
Big Eddy	101	2807	Jan 90%	15.22	0.45	33.65	26.87	27.96	135.01	137.1	1.25	2.09
Big Eddy	101	2807	Feb 90%	13.4	0.41	32.58	26.44	27.52	135.01	137.06	1.23	2.05

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	101	2807	Mar 90%	13.91	0.42	32.88	26.56	27.64	135.01	137.07	1.24	2.06
Big Eddy	101	2807	Apr 90%	28.82	0.71	40.72	30.36	31.49	135.01	137.35	1.34	2.34
Big Eddy	101	2807	May 90%	61.67	1.12	54.82	37.47	38.67	135.01	137.77	1.46	2.76
Big Eddy	101	2807	Jun 90%	33.96	0.79	43.18	31.79	32.93	135.01	137.43	1.36	2.42
Big Eddy	101	2807	Jul 90%	16.63	0.48	34.45	27.2	28.29	135.01	137.13	1.27	2.12
Big Eddy	101	2807	Aug 90%	9.06	0.3	29.85	25.35	26.41	135.01	136.96	1.18	1.95
Big Eddy	101	2807	Sep 90%	7.63	0.26	28.88	25.11	26.15	135.01	136.92	1.15	1.91
Big Eddy	101	2807	Oct 90%	8.15	0.28	29.23	25.2	26.25	135.01	136.93	1.16	1.92
Big Eddy	101	2807	Nov 90%	9.99	0.33	30.46	25.55	26.61	135.01	136.98	1.19	1.97
Big Eddy	101	2807	Dec 90%	14.71	0.44	33.35	26.75	27.84	135.01	137.09	1.25	2.08
Big Eddy		2713	Jan 10%	51.39	1.97	26.09	47.49	47.54	136.6	137.31	0.55	0.71
Big Eddy		2713	Feb 10%	41.11	1.86	22.08	44.88	44.92	136.6	137.22	0.49	0.62
Big Eddy		2713	Mar 10%	51.06	1.97	25.97	47.42	47.46	136.6	137.31	0.55	0.71
Big Eddy		2713	Apr 10%	228.74	2.76	83.66	66.32	66.53	136.6	138.28	1.26	1.68
Big Eddy		2713	May 10%	208.59	2.67	78.53	65.81	65.99	136.6	138.2	1.19	1.6
Big Eddy		2713	Jun 10%	102.78	2.28	45.12	58.22	58.29	136.6	137.67	0.77	1.07
Big Eddy		2713	Jul 10%	73.86	2.16	34.24	52.41	52.46	136.6	137.47	0.65	0.87
Big Eddy		2713	Aug 10%	48.47	1.94	25.01	46.8	46.85	136.6	137.29	0.53	0.69
Big Eddy		2713	Sep 10%	31.64	1.76	18	42.06	42.09	136.6	137.13	0.43	0.53
Big Eddy		2713	Oct 10%	46.25	1.92	24.14	46.24	46.28	136.6	137.27	0.52	0.67
Big Eddy		2713	Nov 10%	71.17	2.14	33.27	51.84	51.9	136.6	137.45	0.64	0.85
Big Eddy		2713	Dec 10%	67.48	2.11	31.94	51.07	51.12	136.6	137.43	0.63	0.83
Big Eddy		2713	Jan 90%	15.22	1.62	9.39	35.35	35.37	136.6	136.91	0.27	0.31
Big Eddy		2713	Feb 90%	13.4	1.57	8.56	34.64	34.66	136.6	136.88	0.25	0.28
Big Eddy		2713	Mar 90%	13.91	1.58	8.79	34.84	34.86	136.6	136.89	0.25	0.29
Big Eddy		2713	Apr 90%	28.82	1.73	16.64	41.07	41.11	136.6	137.1	0.41	0.5
Big Eddy		2713	May 90%	61.67	2.07	29.84	49.81	49.87	136.6	137.39	0.60	0.79
Big Eddy		2713	Jun 90%	33.96	1.78	19.04	42.79	42.83	136.6	137.15	0.44	0.55
Big Eddy		2713	Jul 90%	16.63	1.66	10	35.88	35.9	136.6	136.92	0.28	0.32
Big Eddy		2713	Aug 90%	9.06	1.39	6.5	32.8	32.82	136.6	136.82	0.20	0.22
Big Eddy		2713	Sep 90%	7.63	1.33	5.73	32.09	32.1	136.6	136.8	0.18	0.2
Big Eddy		2713	Oct 90%	8.15	1.36	6.01	32.35	32.36	136.6	136.81	0.19	0.21
Big Eddy		2713	Nov 90%	9.99	1.44	6.94	33.2	33.22	136.6	136.83	0.21	0.23
Big Eddy		2713	Dec 90%	14.71	1.61	9.16	35.16	35.18	136.6	136.9	0.26	0.3
Big Eddy	102	2674	Jan 10%	51.39	1.02	50.17	68.59	69.21	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Feb 10%	41.11	0.93	44.14	66.77	67.33	135.66	136.81	0.66	1.15
Big Eddy	102	2674	Mar 10%	51.06	1.02	49.96	68.55	69.16	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Apr 10%	228.74	1.56	146.77	95.28	96.69	135.66	138.12	1.54	2.46

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	102	2674	May 10%	208.59	1.52	137.69	92.9	94.26	135.66	138.02	1.48	2.36
Big Eddy	102	2674	Jun 10%	102.78	1.23	83.38	75.32	76.29	135.66	137.37	1.11	1.71
Big Eddy	102	2674	Jul 10%	73.86	1.14	64.98	71.6	72.4	135.66	137.11	0.91	1.45
Big Eddy	102	2674	Aug 10%	48.47	1	48.38	68.17	68.76	135.66	136.88	0.71	1.22
Big Eddy	102	2674	Sep 10%	31.64	0.79	39.9	65.44	65.95	135.66	136.75	0.61	1.09
Big Eddy	102	2674	Oct 10%	46.25	0.98	47.05	67.73	68.32	135.66	136.86	0.69	1.2
Big Eddy	102	2674	Nov 10%	71.17	1.13	63.14	71.34	72.12	135.66	137.09	0.89	1.43
Big Eddy	102	2674	Dec 10%	67.48	1.11	60.66	70.96	71.71	135.66	137.05	0.85	1.39
Big Eddy	102	2674	Jan 90%	15.22	0.42	36.04	64.12	64.6	135.66	136.69	0.56	1.03
Big Eddy	102	2674	Feb 90%	13.4	0.4	33.64	63.24	63.71	135.66	136.65	0.53	0.99
Big Eddy	102	2674	Mar 90%	13.91	0.41	34.33	63.51	63.98	135.66	136.66	0.54	1
Big Eddy	102	2674	Apr 90%	28.82	0.74	39.15	65.18	65.69	135.66	136.74	0.60	1.08
Big Eddy	102	2674	May 90%	61.67	1.09	56.76	70.09	70.79	135.66	137	0.81	1.34
Big Eddy	102	2674	Jun 90%	33.96	0.83	40.76	65.73	66.25	135.66	136.76	0.62	1.1
Big Eddy	102	2674	Jul 90%	16.63	0.44	37.8	64.72	65.22	135.66	136.72	0.58	1.06
Big Eddy	102	2674	Aug 90%	9.06	0.33	27.14	59.05	59.47	135.66	136.55	0.46	0.89
Big Eddy	102	2674	Sep 90%	7.63	0.31	24.82	57.05	57.45	135.66	136.51	0.44	0.85
Big Eddy	102	2674	Oct 90%	8.15	0.32	25.66	57.78	58.19	135.66	136.52	0.44	0.86
Big Eddy	102	2674	Nov 90%	9.99	0.35	28.66	60.33	60.76	135.66	136.57	0.48	0.91
Big Eddy	102	2674	Dec 90%	14.71	0.42	35.39	63.89	64.37	135.66	136.68	0.55	1.02
Big Eddy		2607	Jan 10%	51.39	0.75	68.38	107.95	107.98	135.94	136.71	0.63	0.77
Big Eddy		2607	Feb 10%	41.11	0.77	53.2	100.62	100.64	135.94	136.57	0.53	0.63
Big Eddy		2607	Mar 10%	51.06	0.75	67.9	107.72	107.75	135.94	136.71	0.63	0.77
Big Eddy		2607	Apr 10%	228.74	0.91	252.34	155.26	155.46	135.94	138.08	1.63	2.14
Big Eddy		2607	May 10%	208.59	0.88	236.67	152.63	152.82	135.94	137.98	1.55	2.04
Big Eddy		2607	Jun 10%	102.78	0.75	137.69	132.58	132.65	135.94	137.28	1.04	1.34
Big Eddy		2607	Jul 10%	73.86	0.74	100.33	122.19	122.23	135.94	136.99	0.82	1.05
Big Eddy		2607	Aug 10%	48.47	0.76	64.13	105.95	105.97	135.94	136.67	0.61	0.73
Big Eddy		2607	Sep 10%	31.64	0.82	38.44	92.94	92.96	135.94	136.41	0.41	0.47
Big Eddy		2607	Oct 10%	46.25	0.76	60.86	104.38	104.41	135.94	136.64	0.58	0.7
Big Eddy		2607	Nov 10%	71.17	0.74	96.57	120.38	120.42	135.94	136.96	0.80	1.02
Big Eddy		2607	Dec 10%	67.48	0.74	91.38	118.19	118.23	135.94	136.92	0.77	0.98
Big Eddy		2607	Jan 90%	15.22	1.25	12.19	77.42	77.43	135.94	136.11	0.16	0.17
Big Eddy		2607	Feb 90%	13.4	1.2	11.16	76.75	76.75	135.94	136.09	0.15	0.15
Big Eddy		2607	Mar 90%	13.91	1.21	11.46	76.94	76.95	135.94	136.1	0.15	0.16
Big Eddy		2607	Apr 90%	28.82	0.85	33.82	90.4	90.42	135.94	136.36	0.37	0.42
Big Eddy		2607	May 90%	61.67	0.74	83.07	114.59	114.63	135.94	136.84	0.72	0.9
Big Eddy		2607	Jun 90%	33.96	0.81	42.14	94.92	94.94	135.94	136.45	0.44	0.51
Big Eddy		2607	Jul 90%	16.63	1.28	12.95	77.92	77.92	135.94	136.12	0.17	0.18

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2607	Aug 90%	9.06	1.06	8.57	75.03	75.04	135.94	136.06	0.11	0.12
Big Eddy		2607	Sep 90%	7.63	1.02	7.51	74.31	74.32	135.94	136.04	0.10	0.1
Big Eddy		2607	Oct 90%	8.15	1.03	7.93	74.6	74.6	135.94	136.05	0.11	0.11
Big Eddy		2607	Nov 90%	9.99	1.09	9.13	75.41	75.41	135.94	136.07	0.12	0.13
Big Eddy		2607	Dec 90%	14.71	1.24	11.9	77.23	77.24	135.94	136.1	0.15	0.16
Big Eddy	103	2585	Jan 10%	51.39	0.27	192.2	90.69	93.22	132.22	136.73	2.12	4.51
Big Eddy	103	2585	Feb 10%	41.11	0.23	179.34	87.79	90.27	132.22	136.58	2.04	4.36
Big Eddy	103	2585	Mar 10%	51.06	0.27	191.8	90.65	93.17	132.22	136.72	2.12	4.5
Big Eddy	103	2585	Apr 10%	228.74	0.68	386.81	182.75	185.82	132.22	138.09	2.12	5.87
Big Eddy	103	2585	May 10%	208.59	0.65	368.31	181.06	184.08	132.22	137.99	2.03	5.77
Big Eddy	103	2585	Jun 10%	102.78	0.42	251.77	136.72	139.41	132.22	137.29	1.84	5.07
Big Eddy	103	2585	Jul 10%	73.86	0.34	217.78	97.05	99.64	132.22	137	2.24	4.78
Big Eddy	103	2585	Aug 10%	48.47	0.26	188.64	90.32	92.83	132.22	136.69	2.09	4.47
Big Eddy	103	2585	Sep 10%	31.64	0.19	166.8	80.98	83.43	132.22	136.44	2.06	4.22
Big Eddy	103	2585	Oct 10%	46.25	0.25	185.88	90.03	92.53	132.22	136.66	2.06	4.44
Big Eddy	103	2585	Nov 10%	71.17	0.33	214.81	96.01	98.59	132.22	136.97	2.24	4.75
Big Eddy	103	2585	Dec 10%	67.48	0.32	210.71	94.55	97.12	132.22	136.93	2.23	4.71
Big Eddy	103	2585	Jan 90%	15.22	0.11	142.04	76.41	78.81	132.22	136.12	1.86	3.9
Big Eddy	103	2585	Feb 90%	13.4	0.1	138.93	75.99	78.39	132.22	136.08	1.83	3.86
Big Eddy	103	2585	Mar 90%	13.91	0.1	139.79	76.1	78.5	132.22	136.09	1.84	3.87
Big Eddy	103	2585	Apr 90%	28.82	0.18	162.9	80.02	82.47	132.22	136.39	2.04	4.17
Big Eddy	103	2585	May 90%	61.67	0.3	204.11	92.15	94.7	132.22	136.86	2.21	4.64
Big Eddy	103	2585	Jun 90%	33.96	0.2	169.91	82.73	85.2	132.22	136.47	2.05	4.25
Big Eddy	103	2585	Jul 90%	16.63	0.12	144.33	76.69	79.11	132.22	136.15	1.88	3.93
Big Eddy	103	2585	Aug 90%	9.06	0.07	131.26	74.94	77.32	132.22	135.98	1.75	3.76
Big Eddy	103	2585	Sep 90%	7.63	0.06	128.64	74.5	76.87	132.22	135.94	1.73	3.72
Big Eddy	103	2585	Oct 90%	8.15	0.06	129.58	74.69	77.06	132.22	135.96	1.73	3.74
Big Eddy	103	2585	Nov 90%	9.99	0.08	132.92	75.17	77.55	132.22	136	1.77	3.78
Big Eddy	103	2585	Dec 90%	14.71	0.1	141.16	76.29	78.69	132.22	136.11	1.85	3.89
Big Eddy		2519	Jan 10%	51.39	2.2	23.38	30.61	30.79	135.55	136.45	0.76	0.9
Big Eddy		2519	Feb 10%	41.11	2.02	20.35	29.55	29.71	135.55	136.35	0.69	0.8
Big Eddy		2519	Mar 10%	51.06	2.19	23.29	30.58	30.76	135.55	136.45	0.76	0.9
Big Eddy		2519	Apr 10%	228.74	2.06	128.68	129.3	130.16	135.55	137.9	1.00	2.35
Big Eddy		2519	May 10%	208.59	2.08	114.73	120.67	121.48	135.55	137.78	0.95	2.23
Big Eddy		2519	Jun 10%	102.78	2.62	40.89	47.91	48.22	135.55	136.91	0.85	1.36
Big Eddy		2519	Jul 10%	73.86	2.47	30.24	37.29	37.52	135.55	136.66	0.81	1.11
Big Eddy		2519	Aug 10%	48.47	2.15	22.55	30.32	30.5	135.55	136.43	0.74	0.88
Big Eddy		2519	Sep 10%	31.64	1.84	17.21	28.42	28.56	135.55	136.24	0.61	0.69

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2519	Oct 10%	46.25	2.11	21.89	30.09	30.26	135.55	136.4	0.73	0.85
Big Eddy		2519	Nov 10%	71.17	2.45	29.29	36.28	36.51	135.55	136.63	0.81	1.08
Big Eddy		2519	Dec 10%	67.48	2.41	28.06	34.93	35.15	135.55	136.6	0.80	1.05
Big Eddy		2519	Jan 90%	15.22	1.41	10.76	25.94	26.03	135.55	136.01	0.41	0.46
Big Eddy		2519	Feb 90%	13.4	1.34	10.02	25.64	25.72	135.55	135.98	0.39	0.43
Big Eddy		2519	Mar 90%	13.91	1.36	10.21	25.71	25.8	135.55	135.99	0.40	0.44
Big Eddy		2519	Apr 90%	28.82	1.78	16.17	28.03	28.16	135.55	136.21	0.58	0.66
Big Eddy		2519	May 90%	61.67	2.36	26.19	32.78	32.98	135.55	136.54	0.80	0.99
Big Eddy		2519	Jun 90%	33.96	1.89	18.01	28.71	28.85	135.55	136.27	0.63	0.72
Big Eddy		2519	Jul 90%	16.63	1.47	11.29	26.15	26.24	135.55	136.03	0.43	0.48
Big Eddy		2519	Aug 90%	9.06	1.09	8.31	24.93	25	135.55	135.91	0.33	0.36
Big Eddy		2519	Sep 90%	7.63	0.99	7.74	24.69	24.75	135.55	135.89	0.31	0.34
Big Eddy		2519	Oct 90%	8.15	1.03	7.94	24.77	24.84	135.55	135.9	0.32	0.35
Big Eddy		2519	Nov 90%	9.99	1.15	8.66	25.07	25.15	135.55	135.92	0.35	0.37
Big Eddy		2519	Dec 90%	14.71	1.4	10.54	25.85	25.94	135.55	136	0.41	0.45
Big Eddy	104	2495	Jan 10%	51.39	1.1	50.47	60.71	61.27	134.55	136.52	0.83	1.97
Big Eddy	104	2495	Feb 10%	41.11	1.01	43.61	55.07	55.56	134.55	136.4	0.79	1.85
Big Eddy	104	2495	Mar 10%	51.06	1.1	50.25	60.6	61.16	134.55	136.52	0.83	1.97
Big Eddy	104	2495	Apr 10%	228.74	1.56	174.24	136.39	137.92	134.55	137.89	1.28	3.34
Big Eddy	104	2495	May 10%	208.59	1.54	160.06	126.07	127.54	134.55	137.79	1.27	3.24
Big Eddy	104	2495	Jun 10%	102.78	1.34	85.25	77.15	78.05	134.55	137.03	1.10	2.48
Big Eddy	104	2495	Jul 10%	73.86	1.24	65.71	67.83	68.54	134.55	136.76	0.97	2.21
Big Eddy	104	2495	Aug 10%	48.47	1.08	48.52	59.71	60.26	134.55	136.49	0.81	1.94
Big Eddy	104	2495	Sep 10%	31.64	0.9	37.43	49.29	49.72	134.55	136.28	0.76	1.73
Big Eddy	104	2495	Oct 10%	46.25	1.06	47.03	58.94	59.46	134.55	136.46	0.80	1.91
Big Eddy	104	2495	Nov 10%	71.17	1.23	63.79	66.98	67.67	134.55	136.73	0.95	2.18
Big Eddy	104	2495	Dec 10%	67.48	1.21	61.21	65.82	66.49	134.55	136.69	0.93	2.14
Big Eddy	104	2495	Jan 90%	15.22	0.59	26.83	37.18	37.5	134.55	136.04	0.72	1.49
Big Eddy	104	2495	Feb 90%	13.4	0.54	25.71	36.25	36.56	134.55	136	0.71	1.45
Big Eddy	104	2495	Mar 90%	13.91	0.55	26	36.49	36.81	134.55	136.01	0.71	1.46
Big Eddy	104	2495	Apr 90%	28.82	0.86	35.54	47.42	47.83	134.55	136.24	0.75	1.69
Big Eddy	104	2495	May 90%	61.67	1.18	57.13	63.95	64.58	134.55	136.63	0.89	2.08
Big Eddy	104	2495	Jun 90%	33.96	0.93	38.95	50.45	50.89	134.55	136.31	0.77	1.76
Big Eddy	104	2495	Jul 90%	16.63	0.62	27.66	37.84	38.17	134.55	136.06	0.73	1.51
Big Eddy	104	2495	Aug 90%	9.06	0.4	23.1	33.89	34.18	134.55	135.93	0.68	1.38
Big Eddy	104	2495	Sep 90%	7.63	0.35	22.25	33.06	33.35	134.55	135.9	0.67	1.35
Big Eddy	104	2495	Oct 90%	8.15	0.37	22.55	33.36	33.65	134.55	135.91	0.68	1.36
Big Eddy	104	2495	Nov 90%	9.99	0.43	23.64	34.4	34.69	134.55	135.95	0.69	1.4
Big Eddy	104	2495	Dec 90%	14.71	0.57	26.5	36.91	37.23	134.55	136.03	0.72	1.48

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	105	2379	Jan 10%	51.39	0.86	59.81	72.13	72.5	134.92	136.39	0.83	1.47
Big Eddy	105	2379	Feb 10%	41.11	0.79	52.31	67.16	67.51	134.92	136.28	0.78	1.36
Big Eddy	105	2379	Mar 10%	51.06	0.86	59.57	71.97	72.34	134.92	136.39	0.83	1.47
Big Eddy	105	2379	Apr 10%	228.74	1.26	182.22	107	107.7	134.92	137.72	1.70	2.8
Big Eddy	105	2379	May 10%	208.59	1.22	170.41	106.09	106.74	134.92	137.61	1.61	2.69
Big Eddy	105	2379	Jun 10%	102.78	1.05	97.93	86.78	87.26	134.92	136.87	1.13	1.95
Big Eddy	105	2379	Jul 10%	73.86	0.96	76.87	80.05	80.47	134.92	136.62	0.96	1.7
Big Eddy	105	2379	Aug 10%	48.47	0.84	57.65	70.73	71.1	134.92	136.36	0.82	1.44
Big Eddy	105	2379	Sep 10%	31.64	0.7	45.43	62.94	63.27	134.92	136.18	0.72	1.26
Big Eddy	105	2379	Oct 10%	46.25	0.83	56	69.65	70.01	134.92	136.34	0.80	1.42
Big Eddy	105	2379	Nov 10%	71.17	0.95	74.77	79.35	79.77	134.92	136.59	0.94	1.67
Big Eddy	105	2379	Dec 10%	67.48	0.94	71.99	78.41	78.82	134.92	136.55	0.92	1.63
Big Eddy	105	2379	Jan 90%	15.22	0.45	33.84	55.33	55.61	134.92	135.98	0.61	1.06
Big Eddy	105	2379	Feb 90%	13.4	0.41	32.54	54.41	54.69	134.92	135.96	0.60	1.04
Big Eddy	105	2379	Mar 90%	13.91	0.42	32.86	54.64	54.92	134.92	135.97	0.60	1.05
Big Eddy	105	2379	Apr 90%	28.82	0.66	43.4	61.68	62	134.92	136.15	0.70	1.23
Big Eddy	105	2379	May 90%	61.67	0.91	67.42	76.84	77.23	134.92	136.49	0.88	1.57
Big Eddy	105	2379	Jun 90%	33.96	0.72	47.12	63.98	64.31	134.92	136.21	0.74	1.29
Big Eddy	105	2379	Jul 90%	16.63	0.48	34.77	55.98	56.26	134.92	136	0.62	1.08
Big Eddy	105	2379	Aug 90%	9.06	0.31	29.5	53.12	53.38	134.92	135.9	0.56	0.98
Big Eddy	105	2379	Sep 90%	7.63	0.27	28.46	52.83	53.09	134.92	135.88	0.54	0.96
Big Eddy	105	2379	Oct 90%	8.15	0.28	28.83	52.93	53.19	134.92	135.89	0.54	0.97
Big Eddy	105	2379	Nov 90%	9.99	0.33	30.14	53.29	53.56	134.92	135.91	0.57	0.99
Big Eddy	105	2379	Dec 90%	14.71	0.44	33.45	55.06	55.33	134.92	135.98	0.61	1.06
Big Eddy		2306	Jan 10%	51.39	1.02	50.39	55.89	56.12	135.16	136.28	0.90	1.12
Big Eddy		2306	Feb 10%	41.11	0.9	45.6	52.32	52.54	135.16	136.19	0.87	1.03
Big Eddy		2306	Mar 10%	51.06	1.02	50.23	55.76	55.99	135.16	136.28	0.90	1.12
Big Eddy		2306	Apr 10%	228.74	1.67	137.33	85.2	85.68	135.16	137.5	1.61	2.34
Big Eddy		2306	May 10%	208.59	1.62	128.91	80.84	81.29	135.16	137.4	1.59	2.24
Big Eddy		2306	Jun 10%	102.78	1.34	76.57	67.51	67.81	135.16	136.69	1.13	1.53
Big Eddy		2306	Jul 10%	73.86	1.2	61.67	64.27	64.52	135.16	136.47	0.96	1.31
Big Eddy		2306	Aug 10%	48.47	0.99	48.99	54.76	54.98	135.16	136.25	0.89	1.09
Big Eddy		2306	Sep 10%	31.64	0.77	41.22	49.62	49.83	135.16	136.11	0.83	0.95
Big Eddy		2306	Oct 10%	46.25	0.96	47.94	53.7	53.92	135.16	136.24	0.89	1.08
Big Eddy		2306	Nov 10%	71.17	1.18	60.3	62.98	63.23	135.16	136.45	0.96	1.29
Big Eddy		2306	Dec 10%	67.48	1.15	58.52	61.88	62.12	135.16	136.42	0.95	1.26
Big Eddy		2306	Jan 90%	15.22	0.45	33.86	46.88	47.06	135.16	135.95	0.72	0.79
Big Eddy		2306	Feb 90%	13.4	0.41	32.97	46.67	46.85	135.16	135.93	0.71	0.77

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2306	Mar 90%	13.91	0.42	33.18	46.72	46.9	135.16	135.94	0.71	0.78
Big Eddy		2306	Apr 90%	28.82	0.72	39.95	48.75	48.95	135.16	136.08	0.82	0.92
Big Eddy		2306	May 90%	61.67	1.11	55.46	59.81	60.04	135.16	136.37	0.93	1.21
Big Eddy		2306	Jun 90%	33.96	0.8	42.29	50.3	50.51	135.16	136.13	0.84	0.97
Big Eddy		2306	Jul 90%	16.63	0.48	34.45	47.02	47.2	135.16	135.96	0.73	0.8
Big Eddy		2306	Aug 90%	9.06	0.29	30.86	46.26	46.43	135.16	135.89	0.67	0.73
Big Eddy		2306	Sep 90%	7.63	0.25	30.1	46.12	46.29	135.16	135.87	0.65	0.71
Big Eddy		2306	Oct 90%	8.15	0.27	30.37	46.17	46.34	135.16	135.88	0.66	0.72
Big Eddy		2306	Nov 90%	9.99	0.32	31.31	46.34	46.51	135.16	135.9	0.68	0.74
Big Eddy		2306	Dec 90%	14.71	0.44	33.58	46.81	47	135.16	135.95	0.72	0.79
Big Eddy	106	2214	Jan 10%	51.39	0.62	82.48	52.92	53.6	133.31	136.26	1.56	2.95
Big Eddy	106	2214	Feb 10%	41.11	0.53	78.18	52.29	52.96	133.31	136.17	1.50	2.86
Big Eddy	106	2214	Mar 10%	51.06	0.62	82.34	52.9	53.58	133.31	136.25	1.56	2.94
Big Eddy	106	2214	Apr 10%	228.74	1.44	158.35	84.42	85.41	133.31	137.4	1.88	4.09
Big Eddy	106	2214	May 10%	208.59	1.39	150.05	82.99	83.95	133.31	137.3	1.81	3.99
Big Eddy	106	2214	Jun 10%	102.78	1	103.22	55.84	56.63	133.31	136.64	1.85	3.33
Big Eddy	106	2214	Jul 10%	73.86	0.81	91.71	54.23	54.97	133.31	136.43	1.69	3.12
Big Eddy	106	2214	Aug 10%	48.47	0.6	81.25	52.74	53.42	133.31	136.23	1.54	2.92
Big Eddy	106	2214	Sep 10%	31.64	0.43	74.01	51.68	52.32	133.31	136.09	1.43	2.78
Big Eddy	106	2214	Oct 10%	46.25	0.58	80.32	52.61	53.28	133.31	136.21	1.53	2.9
Big Eddy	106	2214	Nov 10%	71.17	0.79	90.65	54.08	54.81	133.31	136.41	1.68	3.1
Big Eddy	106	2214	Dec 10%	67.48	0.76	89.25	53.88	54.61	133.31	136.38	1.66	3.07
Big Eddy	106	2214	Jan 90%	15.22	0.23	66.61	50.26	50.86	133.31	135.95	1.33	2.64
Big Eddy	106	2214	Feb 90%	13.4	0.2	65.7	50.08	50.68	133.31	135.93	1.31	2.62
Big Eddy	106	2214	Mar 90%	13.91	0.21	65.91	50.13	50.72	133.31	135.93	1.31	2.62
Big Eddy	106	2214	Apr 90%	28.82	0.4	72.77	51.45	52.09	133.31	136.07	1.41	2.76
Big Eddy	106	2214	May 90%	61.67	0.71	86.75	53.53	54.24	133.31	136.34	1.62	3.03
Big Eddy	106	2214	Jun 90%	33.96	0.45	75.05	51.84	52.48	133.31	136.11	1.45	2.8
Big Eddy	106	2214	Jul 90%	16.63	0.25	67.21	50.38	50.98	133.31	135.96	1.33	2.65
Big Eddy	106	2214	Aug 90%	9.06	0.14	63.5	49.65	50.24	133.31	135.89	1.28	2.58
Big Eddy	106	2214	Sep 90%	7.63	0.12	62.71	49.5	50.08	133.31	135.87	1.27	2.56
Big Eddy	106	2214	Oct 90%	8.15	0.13	63	49.55	50.13	133.31	135.88	1.27	2.57
Big Eddy	106	2214	Nov 90%	9.99	0.16	63.97	49.74	50.33	133.31	135.9	1.29	2.59
Big Eddy	106	2214	Dec 90%	14.71	0.22	66.33	50.21	50.81	133.31	135.94	1.32	2.63
Big Eddy		2149	Jan 10%	51.39	0.61	83.92	49.75	50.19	134	136.24	1.69	2.24
Big Eddy		2149	Feb 10%	41.11	0.51	80.07	49.29	49.7	134	136.16	1.62	2.16
Big Eddy		2149	Mar 10%	51.06	0.61	83.79	49.73	50.18	134	136.24	1.68	2.24
Big Eddy		2149	Apr 10%	228.74	1.49	153.5	87.07	87.96	134	137.31	1.76	3.31

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2149	May 10%	208.59	1.44	145.08	85.36	86.22	134	137.21	1.70	3.21
Big Eddy		2149	Jun 10%	102.78	1.01	102.25	51.44	52.04	134	136.6	1.99	2.6
Big Eddy		2149	Jul 10%	73.86	0.8	92.12	50.58	51.09	134	136.4	1.82	2.4
Big Eddy		2149	Aug 10%	48.47	0.59	82.82	49.62	50.05	134	136.22	1.67	2.22
Big Eddy		2149	Sep 10%	31.64	0.41	76.32	48.76	49.15	134	136.09	1.57	2.09
Big Eddy		2149	Oct 10%	46.25	0.56	81.99	49.52	49.95	134	136.2	1.66	2.2
Big Eddy		2149	Nov 10%	71.17	0.78	91.19	50.5	51	134	136.38	1.81	2.38
Big Eddy		2149	Dec 10%	67.48	0.75	89.95	50.4	50.89	134	136.36	1.78	2.36
Big Eddy		2149	Jan 90%	15.22	0.22	69.63	47.23	47.59	134	135.95	1.47	1.95
Big Eddy		2149	Feb 90%	13.4	0.19	68.8	47.1	47.45	134	135.93	1.46	1.93
Big Eddy		2149	Mar 90%	13.91	0.2	68.99	47.13	47.49	134	135.93	1.46	1.93
Big Eddy		2149	Apr 90%	28.82	0.38	75.2	48.46	48.85	134	136.06	1.55	2.06
Big Eddy		2149	May 90%	61.67	0.7	87.73	50.2	50.67	134	136.32	1.75	2.32
Big Eddy		2149	Jun 90%	33.96	0.44	77.25	48.95	49.34	134	136.1	1.58	2.1
Big Eddy		2149	Jul 90%	16.63	0.24	70.18	47.31	47.68	134	135.96	1.48	1.96
Big Eddy		2149	Aug 90%	9.06	0.14	66.77	46.78	47.13	134	135.88	1.43	1.88
Big Eddy		2149	Sep 90%	7.63	0.12	66.04	46.67	47.01	134	135.87	1.42	1.87
Big Eddy		2149	Oct 90%	8.15	0.12	66.3	46.71	47.05	134	135.87	1.42	1.87
Big Eddy		2149	Nov 90%	9.99	0.15	67.21	46.85	47.2	134	135.89	1.43	1.89
Big Eddy		2149	Dec 90%	14.71	0.21	69.37	47.19	47.55	134	135.94	1.47	1.94
Big Eddy	107	2039	Jan 10%	51.39	0.44	117.09	60.39	62.37	132.49	136.23	1.94	3.74
Big Eddy	107	2039	Feb 10%	41.11	0.36	112.69	57.3	59.26	132.49	136.15	1.97	3.66
Big Eddy	107	2039	Mar 10%	51.06	0.44	116.95	60.29	62.27	132.49	136.23	1.94	3.74
Big Eddy	107	2039	Apr 10%	228.74	1.16	197.18	175.6	89.27	132.49	137.25	1.12	4.76
Big Eddy	107	2039	May 10%	208.59	1.1	188.8	174.02	88.68	132.49	137.16	1.08	4.67
Big Eddy	107	2039	Jun 10%	102.78	0.73	140.69	143.8	79.65	132.49	136.58	0.98	4.09
Big Eddy	107	2039	Jul 10%	73.86	0.58	127.06	66.86	68.91	132.49	136.39	1.90	3.9
Big Eddy	107	2039	Aug 10%	48.47	0.42	115.82	59.51	61.49	132.49	136.21	1.95	3.72
Big Eddy	107	2039	Sep 10%	31.64	0.29	108.56	54.24	56.17	132.49	136.08	2.00	3.59
Big Eddy	107	2039	Oct 10%	46.25	0.4	114.86	58.84	60.81	132.49	136.19	1.95	3.7
Big Eddy	107	2039	Nov 10%	71.17	0.57	125.88	66.13	68.17	132.49	136.37	1.90	3.88
Big Eddy	107	2039	Dec 10%	67.48	0.54	124.35	65.17	67.2	132.49	136.35	1.91	3.86
Big Eddy	107	2039	Jan 90%	15.22	0.15	101.68	47.25	49.13	132.49	135.94	2.15	3.45
Big Eddy	107	2039	Feb 90%	13.4	0.13	100.85	47.11	48.99	132.49	135.93	2.14	3.44
Big Eddy	107	2039	Mar 90%	13.91	0.14	101.04	47.15	49.02	132.49	135.93	2.14	3.44
Big Eddy	107	2039	Apr 90%	28.82	0.27	107.37	53.32	55.24	132.49	136.06	2.01	3.57
Big Eddy	107	2039	May 90%	61.67	0.51	121.61	63.41	65.42	132.49	136.3	1.92	3.81
Big Eddy	107	2039	Jun 90%	33.96	0.31	109.58	55.01	56.94	132.49	136.1	1.99	3.61
Big Eddy	107	2039	Jul 90%	16.63	0.16	102.21	47.34	49.23	132.49	135.96	2.16	3.47

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	107	2039	Aug 90%	9.06	0.09	98.85	46.78	48.64	132.49	135.88	2.11	3.39
Big Eddy	107	2039	Sep 90%	7.63	0.08	98.12	46.65	48.51	132.49	135.87	2.10	3.38
Big Eddy	107	2039	Oct 90%	8.15	0.08	98.38	46.7	48.56	132.49	135.87	2.11	3.38
Big Eddy	107	2039	Nov 90%	9.99	0.1	99.28	46.85	48.71	132.49	135.89	2.12	3.4
Big Eddy	107	2039	Dec 90%	14.71	0.15	101.42	47.21	49.09	132.49	135.94	2.15	3.45
Big Eddy		1970	Jan 10%	51.39	0.51	100.54	74.53	74.73	134.34	136.22	1.35	1.88
Big Eddy		1970	Feb 10%	41.11	0.43	95.27	73.96	74.15	134.34	136.14	1.29	1.8
Big Eddy		1970	Mar 10%	51.06	0.51	100.37	74.51	74.71	134.34	136.21	1.35	1.87
Big Eddy		1970	Apr 10%	228.74	1.3	176.71	169.37	82.17	134.34	137.19	1.04	2.85
Big Eddy		1970	May 10%	208.59	1.23	169.12	164.89	81.6	134.34	137.1	1.03	2.76
Big Eddy		1970	Jun 10%	102.78	0.82	125.35	135.76	77.24	134.34	136.54	0.92	2.2
Big Eddy		1970	Jul 10%	73.86	0.66	111.68	75.71	75.95	134.34	136.36	1.48	2.02
Big Eddy		1970	Aug 10%	48.47	0.49	99.03	74.37	74.57	134.34	136.2	1.33	1.86
Big Eddy		1970	Sep 10%	31.64	0.35	90.05	73.4	73.57	134.34	136.07	1.23	1.73
Big Eddy		1970	Oct 10%	46.25	0.47	97.9	74.25	74.44	134.34	136.18	1.32	1.84
Big Eddy		1970	Nov 10%	71.17	0.64	110.43	75.57	75.81	134.34	136.35	1.46	2.01
Big Eddy		1970	Dec 10%	67.48	0.62	108.77	75.4	75.63	134.34	136.33	1.44	1.99
Big Eddy		1970	Jan 90%	15.22	0.19	80.66	68.51	68.65	134.34	135.94	1.18	1.6
Big Eddy		1970	Feb 90%	13.4	0.17	79.49	68.12	68.26	134.34	135.93	1.17	1.59
Big Eddy		1970	Mar 90%	13.91	0.17	79.76	68.21	68.35	134.34	135.93	1.17	1.59
Big Eddy		1970	Apr 90%	28.82	0.33	88.48	73.23	73.4	134.34	136.05	1.21	1.71
Big Eddy		1970	May 90%	61.67	0.58	105.72	75.08	75.3	134.34	136.29	1.41	1.95
Big Eddy		1970	Jun 90%	33.96	0.37	91.36	73.54	73.72	134.34	136.09	1.24	1.75
Big Eddy		1970	Jul 90%	16.63	0.2	81.42	68.76	68.9	134.34	135.95	1.18	1.61
Big Eddy		1970	Aug 90%	9.06	0.12	76.66	67.17	67.31	134.34	135.88	1.14	1.54
Big Eddy		1970	Sep 90%	7.63	0.1	75.63	66.82	66.96	134.34	135.87	1.13	1.53
Big Eddy		1970	Oct 90%	8.15	0.11	76	66.95	67.08	134.34	135.87	1.14	1.53
Big Eddy		1970	Nov 90%	9.99	0.13	77.26	67.38	67.51	134.34	135.89	1.15	1.55
Big Eddy		1970	Dec 90%	14.71	0.18	80.29	68.39	68.53	134.34	135.94	1.17	1.6
Big Eddy	108	1907	Jan 10%	51.39	0.4	128.57	94.94	95.72	134.18	136.21	1.35	2.03
Big Eddy	108	1907	Feb 10%	41.11	0.34	122.23	87.95	88.71	134.18	136.14	1.39	1.96
Big Eddy	108	1907	Mar 10%	51.06	0.4	128.36	94.79	95.57	134.18	136.21	1.35	2.03
Big Eddy	108	1907	Apr 10%	228.74	1.05	265.32	296.78	183.08	134.18	137.18	0.89	3
Big Eddy	108	1907	May 10%	208.59	1	248.57	285.75	175.22	134.18	137.08	0.87	2.9
Big Eddy	108	1907	Jun 10%	102.78	0.67	163.34	216.17	142.76	134.18	136.53	0.76	2.35
Big Eddy	108	1907	Jul 10%	73.86	0.53	143.19	105	105.85	134.18	136.36	1.36	2.18
Big Eddy	108	1907	Aug 10%	48.47	0.38	126.71	92.19	92.97	134.18	136.19	1.37	2.01
Big Eddy	108	1907	Sep 10%	31.64	0.27	116.35	81.18	81.91	134.18	136.07	1.43	1.89

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	108	1907	Oct 10%	46.25	0.37	125.34	90.9	91.67	134.18	136.18	1.38	2
Big Eddy	108	1907	Nov 10%	71.17	0.51	141.48	104.21	105.05	134.18	136.34	1.36	2.16
Big Eddy	108	1907	Dec 10%	67.48	0.49	139.25	103.23	104.06	134.18	136.32	1.35	2.14
Big Eddy	108	1907	Jan 90%	15.22	0.14	106.03	79.27	79.96	134.18	135.94	1.34	1.76
Big Eddy	108	1907	Feb 90%	13.4	0.13	104.69	79.16	79.85	134.18	135.92	1.32	1.74
Big Eddy	108	1907	Mar 90%	13.91	0.13	105	79.19	79.88	134.18	135.93	1.33	1.75
Big Eddy	108	1907	Apr 90%	28.82	0.25	114.67	79.96	80.69	134.18	136.05	1.43	1.87
Big Eddy	108	1907	May 90%	61.67	0.46	135.2	100	100.81	134.18	136.28	1.35	2.1
Big Eddy	108	1907	Jun 90%	33.96	0.29	117.78	82.86	83.6	134.18	136.09	1.42	1.91
Big Eddy	108	1907	Jul 90%	16.63	0.16	106.9	79.34	80.04	134.18	135.95	1.35	1.77
Big Eddy	108	1907	Aug 90%	9.06	0.09	101.42	78.9	79.57	134.18	135.88	1.29	1.7
Big Eddy	108	1907	Sep 90%	7.63	0.08	100.21	78.8	79.47	134.18	135.87	1.27	1.69
Big Eddy	108	1907	Oct 90%	8.15	0.08	100.64	78.84	79.51	134.18	135.87	1.28	1.69
Big Eddy	108	1907	Nov 90%	9.99	0.1	102.12	78.96	79.63	134.18	135.89	1.29	1.71
Big Eddy	108	1907	Dec 90%	14.71	0.14	105.61	79.24	79.93	134.18	135.94	1.33	1.76
Big Eddy	109	1718	Jan 10%	51.39	0.45	118.72	56.64	57.59	132.47	136.19	2.10	3.72
Big Eddy	109	1718	Feb 10%	41.11	0.37	115.17	54.82	55.76	132.47	136.13	2.10	3.66
Big Eddy	109	1718	Mar 10%	51.06	0.45	118.61	56.58	57.53	132.47	136.19	2.10	3.72
Big Eddy	109	1718	Apr 10%	228.74	1.47	182.56	94.36	95.53	132.47	137.03	1.93	4.56
Big Eddy	109	1718	May 10%	208.59	1.37	175.52	86.67	87.81	132.47	136.95	2.03	4.48
Big Eddy	109	1718	Jun 10%	102.78	0.8	136.18	64.83	65.84	132.47	136.48	2.10	4.01
Big Eddy	109	1718	Jul 10%	73.86	0.61	126.42	60.38	61.36	132.47	136.32	2.09	3.85
Big Eddy	109	1718	Aug 10%	48.47	0.43	117.7	56.12	57.07	132.47	136.17	2.10	3.7
Big Eddy	109	1718	Sep 10%	31.64	0.29	111.67	52.98	53.9	132.47	136.06	2.11	3.59
Big Eddy	109	1718	Oct 10%	46.25	0.41	116.93	55.73	56.68	132.47	136.16	2.10	3.69
Big Eddy	109	1718	Nov 10%	71.17	0.59	125.55	59.97	60.94	132.47	136.31	2.09	3.84
Big Eddy	109	1718	Dec 10%	67.48	0.57	124.41	59.43	60.4	132.47	136.29	2.09	3.82
Big Eddy	109	1718	Jan 90%	15.22	0.15	105.31	50.89	51.77	132.47	135.94	2.07	3.47
Big Eddy	109	1718	Feb 90%	13.4	0.13	104.48	50.8	51.67	132.47	135.92	2.06	3.45
Big Eddy	109	1718	Mar 90%	13.91	0.14	104.67	50.82	51.7	132.47	135.93	2.06	3.46
Big Eddy	109	1718	Apr 90%	28.82	0.27	110.63	52.44	53.36	132.47	136.04	2.11	3.57
Big Eddy	109	1718	May 90%	61.67	0.52	122.28	58.39	59.36	132.47	136.25	2.09	3.78
Big Eddy	109	1718	Jun 90%	33.96	0.31	112.54	53.45	54.37	132.47	136.08	2.11	3.61
Big Eddy	109	1718	Jul 90%	16.63	0.16	105.84	50.95	51.84	132.47	135.95	2.08	3.48
Big Eddy	109	1718	Aug 90%	9.06	0.09	102.42	50.57	51.43	132.47	135.88	2.03	3.41
Big Eddy	109	1718	Sep 90%	7.63	0.08	101.66	50.48	51.34	132.47	135.87	2.01	3.4
Big Eddy	109	1718	Oct 90%	8.15	0.08	101.94	50.51	51.37	132.47	135.87	2.02	3.4
Big Eddy	109	1718	Nov 90%	9.99	0.1	102.86	50.62	51.48	132.47	135.89	2.03	3.42
Big Eddy	109	1718	Dec 90%	14.71	0.14	105.05	50.86	51.74	132.47	135.93	2.07	3.46

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1687	Jan 10%	51.39	0.39	142.1	101.59	102.47	132.5	136.19	1.40	3.69
Big Eddy		1687	Feb 10%	41.11	0.32	135.82	94.28	95.13	132.5	136.13	1.44	3.63
Big Eddy		1687	Mar 10%	51.06	0.39	141.89	101.34	102.21	132.5	136.19	1.40	3.69
Big Eddy		1687	Apr 10%	228.74	1.16	295.12	237.15	238.43	132.5	137.05	1.24	4.55
Big Eddy		1687	May 10%	208.59	1.09	275.95	225.91	227.15	132.5	136.96	1.22	4.46
Big Eddy		1687	Jun 10%	102.78	0.68	179.37	156.3	157.3	132.5	136.48	1.15	3.98
Big Eddy		1687	Jul 10%	73.86	0.53	157.03	130.62	131.56	132.5	136.32	1.20	3.82
Big Eddy		1687	Aug 10%	48.47	0.37	140.28	99.32	100.19	132.5	136.17	1.41	3.67
Big Eddy		1687	Sep 10%	31.64	0.26	129.87	90.71	91.54	132.5	136.06	1.43	3.56
Big Eddy		1687	Oct 10%	46.25	0.36	138.93	98.7	99.56	132.5	136.16	1.41	3.66
Big Eddy		1687	Nov 10%	71.17	0.51	155.16	126.46	127.39	132.5	136.31	1.23	3.81
Big Eddy		1687	Dec 10%	67.48	0.49	152.8	121.67	122.59	132.5	136.29	1.26	3.79
Big Eddy		1687	Jan 90%	15.22	0.13	119.07	81.01	81.78	132.5	135.94	1.47	3.44
Big Eddy		1687	Feb 90%	13.4	0.12	117.75	80.35	81.12	132.5	135.92	1.47	3.42
Big Eddy		1687	Mar 90%	13.91	0.12	118.05	80.5	81.27	132.5	135.93	1.47	3.43
Big Eddy		1687	Apr 90%	28.82	0.24	128.1	89.99	90.81	132.5	136.04	1.42	3.54
Big Eddy		1687	May 90%	61.67	0.46	148.58	109.85	110.76	132.5	136.25	1.35	3.75
Big Eddy		1687	Jun 90%	33.96	0.27	131.36	91.32	92.15	132.5	136.08	1.44	3.58
Big Eddy		1687	Jul 90%	16.63	0.14	119.93	83.82	84.6	132.5	135.95	1.43	3.45
Big Eddy		1687	Aug 90%	9.06	0.08	114.57	76.3	77.05	132.5	135.88	1.50	3.38
Big Eddy		1687	Sep 90%	7.63	0.07	113.44	74.61	75.35	132.5	135.87	1.52	3.37
Big Eddy		1687	Oct 90%	8.15	0.07	113.84	75.2	75.95	132.5	135.87	1.51	3.37
Big Eddy		1687	Nov 90%	9.99	0.09	115.24	77.35	78.11	132.5	135.89	1.49	3.39
Big Eddy		1687	Dec 90%	14.71	0.13	118.66	80.79	81.57	132.5	135.93	1.47	3.43
Big Eddy	110	1545	Jan 10%	51.39	0.35	157.65	92.08	93.39	132.76	136.18	1.71	3.42
Big Eddy	110	1545	Feb 10%	41.11	0.29	152.14	91.21	92.51	132.76	136.12	1.67	3.36
Big Eddy	110	1545	Mar 10%	51.06	0.34	157.47	92.05	93.36	132.76	136.18	1.71	3.42
Big Eddy	110	1545	Apr 10%	228.74	1.11	253.46	164.67	166.21	132.76	136.97	1.54	4.21
Big Eddy	110	1545	May 10%	208.59	1.05	241.38	157.1	158.61	132.76	136.89	1.54	4.13
Big Eddy	110	1545	Jun 10%	102.78	0.62	182.81	95.83	97.2	132.76	136.45	1.91	3.69
Big Eddy	110	1545	Jul 10%	73.86	0.47	169.08	93.8	95.14	132.76	136.3	1.80	3.54
Big Eddy	110	1545	Aug 10%	48.47	0.33	156.08	91.83	93.14	132.76	136.16	1.70	3.4
Big Eddy	110	1545	Sep 10%	31.64	0.23	146.53	90.31	91.6	132.76	136.06	1.62	3.3
Big Eddy	110	1545	Oct 10%	46.25	0.32	154.89	91.65	92.95	132.76	136.15	1.69	3.39
Big Eddy	110	1545	Nov 10%	71.17	0.46	167.82	93.61	94.95	132.76	136.29	1.79	3.53
Big Eddy	110	1545	Dec 10%	67.48	0.44	166.18	93.37	94.7	132.76	136.27	1.78	3.51
Big Eddy	110	1545	Jan 90%	15.22	0.12	136.22	82.48	83.75	132.76	135.94	1.65	3.18
Big Eddy	110	1545	Feb 90%	13.4	0.1	134.9	81.76	83.02	132.76	135.92	1.65	3.16

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	110	1545	Mar 90%	13.91	0.11	135.19	81.92	83.19	132.76	135.93	1.65	3.17
Big Eddy	110	1545	Apr 90%	28.82	0.21	144.83	90.03	91.32	132.76	136.04	1.61	3.28
Big Eddy	110	1545	May 90%	61.67	0.41	163	92.89	94.21	132.76	136.24	1.75	3.48
Big Eddy	110	1545	Jun 90%	33.96	0.24	147.95	90.55	91.84	132.76	136.07	1.63	3.31
Big Eddy	110	1545	Jul 90%	16.63	0.13	137.06	82.94	84.21	132.76	135.95	1.65	3.19
Big Eddy	110	1545	Aug 90%	9.06	0.07	131.68	79.96	81.22	132.76	135.88	1.65	3.12
Big Eddy	110	1545	Sep 90%	7.63	0.06	130.5	79.29	80.55	132.76	135.87	1.65	3.11
Big Eddy	110	1545	Oct 90%	8.15	0.06	130.92	79.53	80.79	132.76	135.87	1.65	3.11
Big Eddy	110	1545	Nov 90%	9.99	0.08	132.37	80.35	81.61	132.76	135.89	1.65	3.13
Big Eddy	110	1545	Dec 90%	14.71	0.11	135.8	82.26	83.52	132.76	135.93	1.65	3.17
Big Eddy		1425	Jan 10%	51.39	0.26	197.96	122.2	122.51	133.97	136.17	1.62	2.2
Big Eddy		1425	Feb 10%	41.11	0.22	190.87	121.07	121.37	133.97	136.11	1.58	2.14
Big Eddy		1425	Mar 10%	51.06	0.26	197.73	122.17	122.48	133.97	136.17	1.62	2.2
Big Eddy		1425	Apr 10%	228.74	0.81	311.56	181.71	182.22	133.97	136.93	1.71	2.96
Big Eddy		1425	May 10%	208.59	0.77	298.51	177.08	177.57	133.97	136.86	1.69	2.89
Big Eddy		1425	Jun 10%	102.78	0.46	230.09	127.52	127.89	133.97	136.43	1.80	2.46
Big Eddy		1425	Jul 10%	73.86	0.36	212.58	124.21	124.55	133.97	136.29	1.71	2.32
Big Eddy		1425	Aug 10%	48.47	0.25	195.94	121.92	122.23	133.97	136.16	1.61	2.19
Big Eddy		1425	Sep 10%	31.64	0.17	183.64	119.4	119.69	133.97	136.05	1.54	2.08
Big Eddy		1425	Oct 10%	46.25	0.24	194.42	121.71	122.01	133.97	136.14	1.60	2.17
Big Eddy		1425	Nov 10%	71.17	0.35	210.98	123.99	124.33	133.97	136.28	1.70	2.31
Big Eddy		1425	Dec 10%	67.48	0.33	208.9	123.71	124.04	133.97	136.26	1.69	2.29
Big Eddy		1425	Jan 90%	15.22	0.09	170.01	114.63	114.89	133.97	135.94	1.48	1.97
Big Eddy		1425	Feb 90%	13.4	0.08	168.19	114.23	114.5	133.97	135.92	1.47	1.95
Big Eddy		1425	Mar 90%	13.91	0.08	168.6	114.32	114.59	133.97	135.92	1.47	1.95
Big Eddy		1425	Apr 90%	28.82	0.16	181.45	118.9	119.18	133.97	136.03	1.53	2.06
Big Eddy		1425	May 90%	61.67	0.31	204.82	123.15	123.47	133.97	136.23	1.66	2.26
Big Eddy		1425	Jun 90%	33.96	0.19	185.47	119.81	120.11	133.97	136.07	1.55	2.1
Big Eddy		1425	Jul 90%	16.63	0.1	171.16	114.88	115.14	133.97	135.95	1.49	1.98
Big Eddy		1425	Aug 90%	9.06	0.06	163.71	113.26	113.51	133.97	135.88	1.45	1.91
Big Eddy		1425	Sep 90%	7.63	0.05	162.04	112.89	113.14	133.97	135.87	1.44	1.9
Big Eddy		1425	Oct 90%	8.15	0.05	162.64	113.02	113.27	133.97	135.87	1.44	1.9
Big Eddy		1425	Nov 90%	9.99	0.06	164.67	113.47	113.72	133.97	135.89	1.45	1.92
Big Eddy		1425	Dec 90%	14.71	0.09	169.44	114.5	114.77	133.97	135.93	1.48	1.96
Big Eddy		1384	Jan 10%	51.39	0.2	261.16	116.94	117.32	132.99	136.17	2.23	3.18
Big Eddy		1384	Feb 10%	41.11	0.16	254.4	115.88	116.25	132.99	136.11	2.20	3.12
Big Eddy		1384	Mar 10%	51.06	0.2	260.94	116.9	117.28	132.99	136.17	2.23	3.18
Big Eddy		1384	Apr 10%	228.74	0.68	382.14	197.14	197.62	132.99	136.93	1.94	3.94

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1384	May 10%	208.59	0.63	367.96	194.44	194.92	132.99	136.85	1.89	3.86
Big Eddy		1384	Jun 10%	102.78	0.36	293.66	139.58	140.01	132.99	136.43	2.10	3.44
Big Eddy		1384	Jul 10%	73.86	0.28	275.26	124.88	125.29	132.99	136.29	2.20	3.3
Big Eddy		1384	Aug 10%	48.47	0.19	259.24	116.52	116.89	132.99	136.15	2.22	3.16
Big Eddy		1384	Sep 10%	31.64	0.13	247.47	114.97	115.32	132.99	136.05	2.15	3.06
Big Eddy		1384	Oct 10%	46.25	0.18	257.78	116.33	116.7	132.99	136.14	2.22	3.15
Big Eddy		1384	Nov 10%	71.17	0.27	273.67	122.71	123.11	132.99	136.28	2.23	3.29
Big Eddy		1384	Dec 10%	67.48	0.25	271.64	119.97	120.37	132.99	136.26	2.26	3.27
Big Eddy		1384	Jan 90%	15.22	0.07	234.36	110.29	110.63	132.99	135.94	2.12	2.95
Big Eddy		1384	Feb 90%	13.4	0.06	232.61	109.95	110.28	132.99	135.92	2.12	2.93
Big Eddy		1384	Mar 90%	13.91	0.06	233	110.03	110.36	132.99	135.92	2.12	2.93
Big Eddy		1384	Apr 90%	28.82	0.12	245.36	114.69	115.04	132.99	136.03	2.14	3.04
Big Eddy		1384	May 90%	61.67	0.24	267.72	118.32	118.71	132.99	136.23	2.26	3.24
Big Eddy		1384	Jun 90%	33.96	0.14	249.23	115.2	115.56	132.99	136.07	2.16	3.08
Big Eddy		1384	Jul 90%	16.63	0.07	235.46	110.51	110.84	132.99	135.95	2.13	2.96
Big Eddy		1384	Aug 90%	9.06	0.04	228.29	109.23	109.55	132.99	135.88	2.09	2.89
Big Eddy		1384	Sep 90%	7.63	0.03	226.69	109.01	109.33	132.99	135.87	2.08	2.88
Big Eddy		1384	Oct 90%	8.15	0.04	227.26	109.09	109.41	132.99	135.87	2.08	2.88
Big Eddy		1384	Nov 90%	9.99	0.04	229.22	109.36	109.68	132.99	135.89	2.10	2.9
Big Eddy		1384	Dec 90%	14.71	0.06	233.8	110.18	110.52	132.99	135.93	2.12	2.94
Big Eddy	111	1236	Jan 10%	51.39	0.17	315.11	152.45	153.19	132.3	136.17	2.07	3.87
Big Eddy	111	1236	Feb 10%	41.11	0.14	306.5	147.87	148.61	132.3	136.11	2.07	3.81
Big Eddy	111	1236	Mar 10%	51.06	0.17	314.83	152.31	153.05	132.3	136.17	2.07	3.87
Big Eddy	111	1236	Apr 10%	228.74	0.57	456.66	256.65	257.46	132.3	136.91	1.78	4.61
Big Eddy	111	1236	May 10%	208.59	0.53	439.04	236.59	237.39	132.3	136.84	1.86	4.54
Big Eddy	111	1236	Jun 10%	102.78	0.3	356.18	172.55	173.31	132.3	136.42	2.06	4.12
Big Eddy	111	1236	Jul 10%	73.86	0.23	333.42	161.72	162.47	132.3	136.29	2.06	3.99
Big Eddy	111	1236	Aug 10%	48.47	0.16	312.65	151.16	151.9	132.3	136.15	2.07	3.85
Big Eddy	111	1236	Sep 10%	31.64	0.11	297.85	142.9	143.63	132.3	136.05	2.08	3.75
Big Eddy	111	1236	Oct 10%	46.25	0.15	310.79	150.18	150.92	132.3	136.14	2.07	3.84
Big Eddy	111	1236	Nov 10%	71.17	0.22	331.38	160.71	161.46	132.3	136.27	2.06	3.97
Big Eddy	111	1236	Dec 10%	67.48	0.21	328.75	159.41	160.16	132.3	136.26	2.06	3.96
Big Eddy	111	1236	Jan 90%	15.22	0.05	282.67	123.08	123.81	132.3	135.94	2.30	3.64
Big Eddy	111	1236	Feb 90%	13.4	0.05	280.73	122.9	123.62	132.3	135.92	2.28	3.62
Big Eddy	111	1236	Mar 90%	13.91	0.05	281.17	122.94	123.66	132.3	135.92	2.29	3.62
Big Eddy	111	1236	Apr 90%	28.82	0.1	295.26	141.31	142.05	132.3	136.03	2.09	3.73
Big Eddy	111	1236	May 90%	61.67	0.2	323.62	156.82	157.57	132.3	136.22	2.06	3.92
Big Eddy	111	1236	Jun 90%	33.96	0.11	300.02	144.22	144.95	132.3	136.07	2.08	3.77
Big Eddy	111	1236	Jul 90%	16.63	0.06	283.9	123.2	123.92	132.3	135.95	2.30	3.65

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	111	1236	Aug 90%	9.06	0.03	275.91	122.45	123.17	132.3	135.88	2.25	3.58
Big Eddy	111	1236	Sep 90%	7.63	0.03	274.11	122.29	123	132.3	135.87	2.24	3.57
Big Eddy	111	1236	Oct 90%	8.15	0.03	274.76	122.35	123.06	132.3	135.87	2.25	3.57
Big Eddy	111	1236	Nov 90%	9.99	0.04	276.95	122.55	123.27	132.3	135.89	2.26	3.59
Big Eddy	111	1236	Dec 90%	14.71	0.05	282.06	123.03	123.75	132.3	135.93	2.29	3.63
Big Eddy		1071	Jan 10%	51.39	0.09	684.76	383.65	384.4	132.26	136.17	1.78	3.91
Big Eddy		1071	Feb 10%	41.11	0.08	663.27	367.59	368.31	132.26	136.11	1.80	3.85
Big Eddy		1071	Mar 10%	51.06	0.09	684.06	383.01	383.76	132.26	136.17	1.79	3.91
Big Eddy		1071	Apr 10%	228.74	0.31	1009.12	512.72	513.79	132.26	136.91	1.97	4.65
Big Eddy		1071	May 10%	208.59	0.29	973.29	493.82	494.86	132.26	136.84	1.97	4.58
Big Eddy		1071	Jun 10%	102.78	0.17	787.36	418.13	419	132.26	136.42	1.88	4.16
Big Eddy		1071	Jul 10%	73.86	0.13	731.18	407.78	408.58	132.26	136.28	1.79	4.02
Big Eddy		1071	Aug 10%	48.47	0.09	678.59	378.29	379.02	132.26	136.15	1.79	3.89
Big Eddy		1071	Sep 10%	31.64	0.06	641.84	355.45	356.14	132.26	136.05	1.81	3.79
Big Eddy		1071	Oct 10%	46.25	0.08	673.95	375.79	376.52	132.26	136.14	1.79	3.88
Big Eddy		1071	Nov 10%	71.17	0.12	726.05	407.08	407.88	132.26	136.27	1.78	4.01
Big Eddy		1071	Dec 10%	67.48	0.12	719.39	406.1	406.89	132.26	136.26	1.77	4
Big Eddy		1071	Jan 90%	15.22	0.03	601.15	347.42	348.05	132.26	135.94	1.73	3.68
Big Eddy		1071	Feb 90%	13.4	0.03	595.67	345.1	345.72	132.26	135.92	1.73	3.66
Big Eddy		1071	Mar 90%	13.91	0.03	596.91	345.66	346.28	132.26	135.92	1.73	3.66
Big Eddy		1071	Apr 90%	28.82	0.06	635.39	354.25	354.93	132.26	136.03	1.79	3.77
Big Eddy		1071	May 90%	61.67	0.11	706.27	402.54	403.32	132.26	136.22	1.75	3.96
Big Eddy		1071	Jun 90%	33.96	0.06	647.23	358.18	358.87	132.26	136.07	1.81	3.81
Big Eddy		1071	Jul 90%	16.63	0.03	604.62	349.47	350.11	132.26	135.95	1.73	3.69
Big Eddy		1071	Aug 90%	9.06	0.02	582.28	337.9	338.51	132.26	135.88	1.72	3.62
Big Eddy		1071	Sep 90%	7.63	0.02	577.35	335.39	335.99	132.26	135.87	1.72	3.61
Big Eddy		1071	Oct 90%	8.15	0.02	579.11	335.69	336.3	132.26	135.87	1.73	3.61
Big Eddy		1071	Nov 90%	9.99	0.02	585.15	338.63	339.25	132.26	135.89	1.73	3.63
Big Eddy		1071	Dec 90%	14.71	0.03	599.42	346.79	347.42	132.26	135.93	1.73	3.67
Big Eddy	112	1009	Jan 10%	51.39	0.08	800.73	440.7	442.15	132.12	136.17	1.82	4.05
Big Eddy	112	1009	Feb 10%	41.11	0.06	775.62	437.47	438.9	132.12	136.11	1.77	3.99
Big Eddy	112	1009	Mar 10%	51.06	0.08	799.93	440.61	442.06	132.12	136.17	1.82	4.05
Big Eddy	112	1009	Apr 10%	228.74	0.26	1148.2	516.83	518.75	132.12	136.91	2.22	4.79
Big Eddy	112	1009	May 10%	208.59	0.24	1112.02	504.87	506.74	132.12	136.84	2.20	4.72
Big Eddy	112	1009	Jun 10%	102.78	0.14	913.47	452.74	454.36	132.12	136.42	2.02	4.3
Big Eddy	112	1009	Jul 10%	73.86	0.1	852.33	447.23	448.75	132.12	136.28	1.91	4.16
Big Eddy	112	1009	Aug 10%	48.47	0.07	793.61	439.89	441.34	132.12	136.15	1.80	4.03
Big Eddy	112	1009	Sep 10%	31.64	0.05	749.8	432.39	433.8	132.12	136.05	1.73	3.93

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	112	1009	Oct 10%	46.25	0.07	788.2	439.23	440.67	132.12	136.14	1.79	4.02
Big Eddy	112	1009	Nov 10%	71.17	0.1	846.7	446.58	448.1	132.12	136.27	1.90	4.15
Big Eddy	112	1009	Dec 10%	67.48	0.1	839.41	445.69	447.2	132.12	136.26	1.88	4.14
Big Eddy	112	1009	Jan 90%	15.22	0.02	703.79	372.9	374.27	132.12	135.94	1.89	3.82
Big Eddy	112	1009	Feb 90%	13.4	0.02	697.9	372.21	373.57	132.12	135.92	1.88	3.8
Big Eddy	112	1009	Mar 90%	13.91	0.02	699.23	372.36	373.73	132.12	135.92	1.88	3.8
Big Eddy	112	1009	Apr 90%	28.82	0.05	741.98	429.39	430.79	132.12	136.03	1.73	3.91
Big Eddy	112	1009	May 90%	61.67	0.09	824.99	444.27	445.76	132.12	136.22	1.86	4.1
Big Eddy	112	1009	Jun 90%	33.96	0.05	756.34	434.29	435.71	132.12	136.07	1.74	3.95
Big Eddy	112	1009	Jul 90%	16.63	0.03	707.5	373.34	374.71	132.12	135.95	1.90	3.83
Big Eddy	112	1009	Aug 90%	9.06	0.02	683.33	370.48	371.83	132.12	135.88	1.84	3.76
Big Eddy	112	1009	Sep 90%	7.63	0.01	677.9	369.84	371.18	132.12	135.87	1.83	3.75
Big Eddy	112	1009	Oct 90%	8.15	0.01	679.85	370.07	371.41	132.12	135.87	1.84	3.75
Big Eddy	112	1009	Nov 90%	9.99	0.02	686.48	370.86	372.21	132.12	135.89	1.85	3.77
Big Eddy	112	1009	Dec 90%	14.71	0.02	701.93	372.68	374.05	132.12	135.93	1.88	3.81
Big Eddy		888	Jan 10%	51.39	0.06	1019.33	491.6	491.78	132.5	136.17	2.07	3.67
Big Eddy		888	Feb 10%	41.11	0.05	991.4	487.36	487.54	132.5	136.11	2.03	3.61
Big Eddy		888	Mar 10%	51.06	0.06	1018.43	491.34	491.52	132.5	136.17	2.07	3.67
Big Eddy		888	Apr 10%	228.74	0.2	1401.48	545.38	545.63	132.5	136.91	2.57	4.41
Big Eddy		888	May 10%	208.59	0.19	1363.06	543.2	543.45	132.5	136.83	2.51	4.33
Big Eddy		888	Jun 10%	102.78	0.11	1145.34	505.94	506.14	132.5	136.42	2.26	3.92
Big Eddy		888	Jul 10%	73.86	0.08	1076.98	501.97	502.16	132.5	136.28	2.15	3.78
Big Eddy		888	Aug 10%	48.47	0.06	1011.41	489.18	489.36	132.5	136.15	2.07	3.65
Big Eddy		888	Sep 10%	31.64	0.04	962.62	484.46	484.63	132.5	136.05	1.99	3.55
Big Eddy		888	Oct 10%	46.25	0.05	1005.39	488.65	488.83	132.5	136.14	2.06	3.64
Big Eddy		888	Nov 10%	71.17	0.08	1070.67	501.35	501.54	132.5	136.27	2.14	3.77
Big Eddy		888	Dec 10%	67.48	0.07	1062.49	500.23	500.42	132.5	136.26	2.12	3.76
Big Eddy		888	Jan 90%	15.22	0.02	906.81	482.28	482.43	132.5	135.94	1.88	3.44
Big Eddy		888	Feb 90%	13.4	0.02	899.19	481.98	482.13	132.5	135.92	1.87	3.42
Big Eddy		888	Mar 90%	13.91	0.02	900.92	482.05	482.2	132.5	135.92	1.87	3.42
Big Eddy		888	Apr 90%	28.82	0.03	953.82	484.12	484.29	132.5	136.03	1.97	3.53
Big Eddy		888	May 90%	61.67	0.07	1046.4	495.2	495.38	132.5	136.22	2.11	3.72
Big Eddy		888	Jun 90%	33.96	0.04	969.92	484.75	484.92	132.5	136.07	2.00	3.57
Big Eddy		888	Jul 90%	16.63	0.02	911.61	482.47	482.62	132.5	135.95	1.89	3.45
Big Eddy		888	Aug 90%	9.06	0.01	880.31	480.99	481.14	132.5	135.88	1.83	3.38
Big Eddy		888	Sep 90%	7.63	0.01	873.25	480.61	480.76	132.5	135.87	1.82	3.37
Big Eddy		888	Oct 90%	8.15	0.01	875.78	480.75	480.89	132.5	135.87	1.82	3.37
Big Eddy		888	Nov 90%	9.99	0.01	884.38	481.21	481.36	132.5	135.89	1.84	3.39
Big Eddy		888	Dec 90%	14.71	0.02	904.41	482.18	482.34	132.5	135.93	1.88	3.43

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	113	821	Jan 10%	51.39	0.05	1219.66	486.01	486.97	132.16	136.17	2.51	4.01
Big Eddy	113	821	Feb 10%	41.11	0.04	1191.95	484.6	485.54	132.16	136.11	2.46	3.95
Big Eddy	113	821	Mar 10%	51.06	0.05	1218.78	485.97	486.92	132.16	136.17	2.51	4.01
Big Eddy	113	821	Apr 10%	228.74	0.16	1588.15	513.93	514.99	132.16	136.91	3.09	4.75
Big Eddy	113	821	May 10%	208.59	0.15	1552.02	510.85	511.91	132.16	136.83	3.04	4.67
Big Eddy	113	821	Jun 10%	102.78	0.08	1342.72	492.39	493.39	132.16	136.42	2.73	4.26
Big Eddy	113	821	Jul 10%	73.86	0.06	1276.22	488.91	489.89	132.16	136.28	2.61	4.12
Big Eddy	113	821	Aug 10%	48.47	0.04	1211.81	485.61	486.57	132.16	136.15	2.50	3.99
Big Eddy	113	821	Sep 10%	31.64	0.03	1163.27	483.21	484.14	132.16	136.05	2.41	3.89
Big Eddy	113	821	Oct 10%	46.25	0.04	1205.85	485.31	486.26	132.16	136.14	2.48	3.98
Big Eddy	113	821	Nov 10%	71.17	0.06	1270.07	488.59	489.56	132.16	136.27	2.60	4.11
Big Eddy	113	821	Dec 10%	67.48	0.06	1262.1	488.17	489.15	132.16	136.26	2.59	4.1
Big Eddy	113	821	Jan 90%	15.22	0.01	1108.22	471.33	472.25	132.16	135.94	2.35	3.78
Big Eddy	113	821	Feb 90%	13.4	0.01	1100.78	470.8	471.71	132.16	135.92	2.34	3.76
Big Eddy	113	821	Mar 90%	13.91	0.01	1102.47	470.92	471.83	132.16	135.92	2.34	3.76
Big Eddy	113	821	Apr 90%	28.82	0.03	1154.5	482.66	483.59	132.16	136.03	2.39	3.87
Big Eddy	113	821	May 90%	61.67	0.05	1246.32	487.37	488.34	132.16	136.22	2.56	4.06
Big Eddy	113	821	Jun 90%	33.96	0.03	1170.55	483.66	484.59	132.16	136.07	2.42	3.91
Big Eddy	113	821	Jul 90%	16.63	0.02	1112.91	471.67	472.58	132.16	135.95	2.36	3.79
Big Eddy	113	821	Aug 90%	9.06	0.01	1082.34	469.47	470.37	132.16	135.88	2.31	3.72
Big Eddy	113	821	Sep 90%	7.63	0.01	1075.46	468.97	469.87	132.16	135.87	2.29	3.71
Big Eddy	113	821	Oct 90%	8.15	0.01	1077.93	469.15	470.05	132.16	135.87	2.30	3.71
Big Eddy	113	821	Nov 90%	9.99	0.01	1086.31	469.76	470.66	132.16	135.89	2.31	3.73
Big Eddy	113	821	Dec 90%	14.71	0.01	1105.87	471.17	472.08	132.16	135.93	2.35	3.77
Big Eddy	-3	724	Jan 10%	51.39	0.12	531.28	359.98	360.47	132.5	136.17	1.48	3.67
Big Eddy	-3	724	Feb 10%	41.11	0.1	510.87	358.39	358.87	132.5	136.11	1.43	3.61
Big Eddy	-3	724	Mar 10%	51.06	0.12	530.63	359.92	360.42	132.5	136.17	1.47	3.67
Big Eddy	-3	724	Apr 10%	228.74	0.4	854.14	498.87	499.42	132.5	136.9	1.71	4.4
Big Eddy	-3	724	May 10%	208.59	0.38	819.55	494.56	495.11	132.5	136.83	1.66	4.33
Big Eddy	-3	724	Jun 10%	102.78	0.22	626.77	408.53	409.04	132.5	136.42	1.53	3.92
Big Eddy	-3	724	Jul 10%	73.86	0.17	573.72	381.8	382.3	132.5	136.28	1.50	3.78
Big Eddy	-3	724	Aug 10%	48.47	0.12	525.5	359.5	359.99	132.5	136.15	1.46	3.65
Big Eddy	-3	724	Sep 10%	31.64	0.08	489.75	356.78	357.26	132.5	136.05	1.37	3.55
Big Eddy	-3	724	Oct 10%	46.25	0.11	521.1	359.16	359.65	132.5	136.14	1.45	3.64
Big Eddy	-3	724	Nov 10%	71.17	0.16	568.97	380.3	380.8	132.5	136.27	1.50	3.77
Big Eddy	-3	724	Dec 10%	67.48	0.15	562.85	374.51	375.01	132.5	136.25	1.50	3.75
Big Eddy	-3	724	Jan 90%	15.22	0.04	450.06	333.06	333.53	132.5	135.94	1.35	3.44
Big Eddy	-3	724	Feb 90%	13.4	0.04	444.82	331.81	332.28	132.5	135.92	1.34	3.42

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-3	724	Mar 90%	13.91	0.04	446	332.1	332.56	132.5	135.92	1.34	3.42
Big Eddy	-3	724	Apr 90%	28.82	0.07	483.3	356.28	356.76	132.5	136.03	1.36	3.53
Big Eddy	-3	724	May 90%	61.67	0.14	550.95	366.05	366.54	132.5	136.22	1.51	3.72
Big Eddy	-3	724	Jun 90%	33.96	0.08	495.11	357.19	357.67	132.5	136.07	1.39	3.57
Big Eddy	-3	724	Jul 90%	16.63	0.04	453.37	333.85	334.32	132.5	135.95	1.36	3.45
Big Eddy	-3	724	Aug 90%	9.06	0.02	431.89	327.17	327.63	132.5	135.88	1.32	3.38
Big Eddy	-3	724	Sep 90%	7.63	0.02	427.11	325.13	325.59	132.5	135.87	1.31	3.37
Big Eddy	-3	724	Oct 90%	8.15	0.02	428.82	325.78	326.23	132.5	135.87	1.32	3.37
Big Eddy	-3	724	Nov 90%	9.99	0.03	434.67	328.53	328.99	132.5	135.89	1.32	3.39
Big Eddy	-3	724	Dec 90%	14.71	0.04	448.41	332.67	333.13	132.5	135.93	1.35	3.43
Big Eddy	-2	607	Jan 10%	51.39	0.1	637.32	377.56	378.89	131.48	136.17	1.69	4.69
Big Eddy	-2	607	Feb 10%	41.11	0.08	615.96	375.5	376.83	131.48	136.11	1.64	4.63
Big Eddy	-2	607	Mar 10%	51.06	0.1	636.64	377.49	378.83	131.48	136.16	1.69	4.68
Big Eddy	-2	607	Apr 10%	228.74	0.34	960.72	508.55	509.91	131.48	136.89	1.89	5.41
Big Eddy	-2	607	May 10%	208.59	0.32	925.65	504.63	505.99	131.48	136.82	1.83	5.34
Big Eddy	-2	607	Jun 10%	102.78	0.18	732.44	386.61	387.96	131.48	136.42	1.89	4.94
Big Eddy	-2	607	Jul 10%	73.86	0.13	680.97	381.74	383.08	131.48	136.28	1.78	4.8
Big Eddy	-2	607	Aug 10%	48.47	0.09	631.27	376.98	378.31	131.48	136.15	1.67	4.67
Big Eddy	-2	607	Sep 10%	31.64	0.06	593.89	373.35	374.68	131.48	136.05	1.59	4.57
Big Eddy	-2	607	Oct 10%	46.25	0.09	626.67	376.53	377.86	131.48	136.14	1.66	4.66
Big Eddy	-2	607	Nov 10%	71.17	0.13	676.23	381.29	382.63	131.48	136.27	1.77	4.79
Big Eddy	-2	607	Dec 10%	67.48	0.12	670.08	380.7	382.04	131.48	136.25	1.76	4.77
Big Eddy	-2	607	Jan 90%	15.22	0.03	554.29	314.03	315.35	131.48	135.94	1.77	4.46
Big Eddy	-2	607	Feb 90%	13.4	0.03	549.36	310.13	311.45	131.48	135.92	1.77	4.44
Big Eddy	-2	607	Mar 90%	13.91	0.03	550.47	311.01	312.33	131.48	135.92	1.77	4.44
Big Eddy	-2	607	Apr 90%	28.82	0.06	587.16	372.7	374.02	131.48	136.03	1.58	4.55
Big Eddy	-2	607	May 90%	61.67	0.11	657.88	379.53	380.87	131.48	136.22	1.73	4.74
Big Eddy	-2	607	Jun 90%	33.96	0.07	599.49	373.9	375.23	131.48	136.07	1.60	4.59
Big Eddy	-2	607	Jul 90%	16.63	0.03	557.41	316.47	317.79	131.48	135.95	1.76	4.47
Big Eddy	-2	607	Aug 90%	9.06	0.02	537.41	300.45	301.77	131.48	135.88	1.79	4.4
Big Eddy	-2	607	Sep 90%	7.63	0.02	533.03	296.83	298.15	131.48	135.87	1.80	4.39
Big Eddy	-2	607	Oct 90%	8.15	0.02	534.59	298.13	299.45	131.48	135.87	1.79	4.39
Big Eddy	-2	607	Nov 90%	9.99	0.02	539.96	302.54	303.86	131.48	135.89	1.78	4.41
Big Eddy	-2	607	Dec 90%	14.71	0.03	552.73	312.8	314.12	131.48	135.93	1.77	4.45
Big Eddy	-1	334	Jan 10%	51.39	0.11	620.69	371.37	372.61	131.3	136.17	1.67	4.87
Big Eddy	-1	334	Feb 10%	41.11	0.09	599.8	369.85	371.09	131.3	136.11	1.62	4.81
Big Eddy	-1	334	Mar 10%	51.06	0.1	620.02	371.32	372.56	131.3	136.16	1.67	4.86
Big Eddy	-1	334	Apr 10%	228.74	0.37	894.53	393.7	395.05	131.3	136.88	2.27	5.58

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-1	334	May 10%	208.59	0.34	867.82	391.33	392.67	131.3	136.81	2.22	5.51
Big Eddy	-1	334	Jun 10%	102.78	0.19	713.13	378.01	379.27	131.3	136.41	1.89	5.11
Big Eddy	-1	334	Jul 10%	73.86	0.15	663.24	374.44	375.69	131.3	136.28	1.77	4.98
Big Eddy	-1	334	Aug 10%	48.47	0.1	614.77	370.94	372.18	131.3	136.15	1.66	4.85
Big Eddy	-1	334	Sep 10%	31.64	0.07	578.14	368.27	369.5	131.3	136.05	1.57	4.75
Big Eddy	-1	334	Oct 10%	46.25	0.1	610.27	370.62	371.85	131.3	136.14	1.65	4.84
Big Eddy	-1	334	Nov 10%	71.17	0.14	658.63	374.11	375.36	131.3	136.27	1.76	4.97
Big Eddy	-1	334	Dec 10%	67.48	0.13	652.65	373.68	374.93	131.3	136.25	1.75	4.95
Big Eddy	-1	334	Jan 90%	15.22	0.03	540.22	297.84	299.07	131.3	135.94	1.81	4.64
Big Eddy	-1	334	Feb 90%	13.4	0.03	535.54	296.04	297.26	131.3	135.92	1.81	4.62
Big Eddy	-1	334	Mar 90%	13.91	0.03	536.6	296.45	297.67	131.3	135.92	1.81	4.62
Big Eddy	-1	334	Apr 90%	28.82	0.06	571.52	367.79	369.01	131.3	136.03	1.55	4.73
Big Eddy	-1	334	May 90%	61.67	0.12	640.76	372.82	374.06	131.3	136.22	1.72	4.92
Big Eddy	-1	334	Jun 90%	33.96	0.07	583.64	368.68	369.9	131.3	136.07	1.58	4.77
Big Eddy	-1	334	Jul 90%	16.63	0.04	543.17	298.98	300.2	131.3	135.95	1.82	4.65
Big Eddy	-1	334	Aug 90%	9.06	0.02	524.05	291.56	292.78	131.3	135.88	1.80	4.58
Big Eddy	-1	334	Sep 90%	7.63	0.02	519.79	289.88	291.1	131.3	135.87	1.79	4.57
Big Eddy	-1	334	Oct 90%	8.15	0.02	521.32	290.48	291.7	131.3	135.87	1.79	4.57
Big Eddy	-1	334	Nov 90%	9.99	0.02	526.52	292.53	293.75	131.3	135.89	1.80	4.59
Big Eddy	-1	334	Dec 90%	14.71	0.03	538.74	297.28	298.5	131.3	135.93	1.81	4.63
Big Eddy		292	Jan 10%	51.39	0.11	583.08	276.33	277.16	131.08	136.17	2.11	5.09
Big Eddy		292	Feb 10%	41.11	0.09	567.68	270.58	271.41	131.08	136.11	2.10	5.03
Big Eddy		292	Mar 10%	51.06	0.11	582.59	276.15	276.98	131.08	136.16	2.11	5.08
Big Eddy		292	Apr 10%	228.74	0.38	803.98	322.56	323.85	131.08	136.88	2.49	5.8
Big Eddy		292	May 10%	208.59	0.35	782.13	322.37	323.58	131.08	136.81	2.43	5.73
Big Eddy		292	Jun 10%	102.78	0.2	654.31	302.44	303.27	131.08	136.41	2.16	5.33
Big Eddy		292	Jul 10%	73.86	0.15	615.23	288.08	288.91	131.08	136.28	2.14	5.2
Big Eddy		292	Aug 10%	48.47	0.1	578.69	274.71	275.54	131.08	136.15	2.11	5.07
Big Eddy		292	Sep 10%	31.64	0.07	551.99	264.59	265.42	131.08	136.05	2.09	4.97
Big Eddy		292	Oct 10%	46.25	0.1	575.37	273.47	274.3	131.08	136.14	2.10	5.06
Big Eddy		292	Nov 10%	71.17	0.14	611.7	286.8	287.63	131.08	136.27	2.13	5.19
Big Eddy		292	Dec 10%	67.48	0.14	607.14	285.15	285.98	131.08	136.25	2.13	5.17
Big Eddy		292	Jan 90%	15.22	0.03	522.86	246.53	247.35	131.08	135.94	2.12	4.86
Big Eddy		292	Feb 90%	13.4	0.03	518.99	246.06	246.88	131.08	135.92	2.11	4.84
Big Eddy		292	Mar 90%	13.91	0.03	519.86	246.17	246.98	131.08	135.92	2.11	4.84
Big Eddy		292	Apr 90%	28.82	0.06	547.25	262.75	263.58	131.08	136.03	2.08	4.95
Big Eddy		292	May 90%	61.67	0.13	598.12	281.85	282.68	131.08	136.22	2.12	5.14
Big Eddy		292	Jun 90%	33.96	0.07	555.95	266.11	266.94	131.08	136.07	2.09	4.99
Big Eddy		292	Jul 90%	16.63	0.04	525.3	246.9	247.72	131.08	135.95	2.13	4.87

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		292	Aug 90%	9.06	0.02	509.39	244.9	245.71	131.08	135.88	2.08	4.8
Big Eddy		292	Sep 90%	7.63	0.02	505.8	244.53	245.34	131.08	135.87	2.07	4.79
Big Eddy		292	Oct 90%	8.15	0.02	507.09	244.68	245.5	131.08	135.87	2.07	4.79
Big Eddy		292	Nov 90%	9.99	0.02	511.46	245.15	245.96	131.08	135.89	2.09	4.81
Big Eddy		292	Dec 90%	14.71	0.03	521.64	246.38	247.2	131.08	135.93	2.12	4.85
Big Eddy		165	Jan 10%	51.39	0.12	441	148.93	149.48	130.98	136.16	2.96	5.18
Big Eddy		165	Feb 10%	41.11	0.1	432.79	144.54	145.09	130.98	136.11	2.99	5.13
Big Eddy		165	Mar 10%	51.06	0.12	440.74	148.75	149.31	130.98	136.16	2.96	5.18
Big Eddy		165	Apr 10%	228.74	0.44	561.49	199.73	200.39	130.98	136.87	2.81	5.89
Big Eddy		165	May 10%	208.59	0.41	548.59	188.4	189.04	130.98	136.8	2.91	5.82
Big Eddy		165	Jun 10%	102.78	0.22	479.19	165.48	166.07	130.98	136.41	2.90	5.43
Big Eddy		165	Jul 10%	73.86	0.17	458.3	154.66	155.23	130.98	136.28	2.96	5.3
Big Eddy		165	Aug 10%	48.47	0.11	438.65	147.36	147.91	130.98	136.15	2.98	5.17
Big Eddy		165	Sep 10%	31.64	0.08	424.48	141.12	141.66	130.98	136.05	3.01	5.07
Big Eddy		165	Oct 10%	46.25	0.11	436.88	146.31	146.86	130.98	136.14	2.99	5.16
Big Eddy		165	Nov 10%	71.17	0.16	456.41	154.35	154.92	130.98	136.27	2.96	5.29
Big Eddy		165	Dec 10%	67.48	0.15	453.97	153.95	154.52	130.98	136.25	2.95	5.27
Big Eddy		165	Jan 90%	15.22	0.04	408.56	137.24	137.77	130.98	135.94	2.98	4.96
Big Eddy		165	Feb 90%	13.4	0.03	406.4	136.86	137.39	130.98	135.92	2.97	4.94
Big Eddy		165	Mar 90%	13.91	0.03	406.89	136.95	137.48	130.98	135.92	2.97	4.94
Big Eddy		165	Apr 90%	28.82	0.07	421.96	140.68	141.22	130.98	136.03	3.00	5.05
Big Eddy		165	May 90%	61.67	0.14	449.11	153.24	153.81	130.98	136.22	2.93	5.24
Big Eddy		165	Jun 90%	33.96	0.08	426.58	141.48	142.03	130.98	136.07	3.02	5.09
Big Eddy		165	Jul 90%	16.63	0.04	409.92	137.48	138.01	130.98	135.95	2.98	4.97
Big Eddy		165	Aug 90%	9.06	0.02	401.07	135.91	136.44	130.98	135.88	2.95	4.9
Big Eddy		165	Sep 90%	7.63	0.02	399.09	135.56	136.08	130.98	135.87	2.94	4.89
Big Eddy		165	Oct 90%	8.15	0.02	399.8	135.69	136.21	130.98	135.87	2.95	4.89
Big Eddy		165	Nov 90%	9.99	0.03	402.22	136.12	136.65	130.98	135.89	2.95	4.91
Big Eddy		165	Dec 90%	14.71	0.04	407.88	137.12	137.65	130.98	135.93	2.97	4.95
Big Eddy		141	Jan 10%	51.39	0.11	474.61	150.26	153.74	130.49	136.16	3.16	5.67
Big Eddy		141	Feb 10%	41.11	0.09	466.22	149.25	152.72	130.49	136.11	3.12	5.62
Big Eddy		141	Mar 10%	51.06	0.11	474.35	150.23	153.7	130.49	136.16	3.16	5.67
Big Eddy		141	Apr 10%	228.74	0.42	602.36	211.85	215.45	130.49	136.87	2.84	6.38
Big Eddy		141	May 10%	208.59	0.39	588.35	209.76	213.34	130.49	136.8	2.80	6.31
Big Eddy		141	Jun 10%	102.78	0.21	511.9	155.02	158.54	130.49	136.41	3.30	5.92
Big Eddy		141	Jul 10%	73.86	0.16	491.74	152.4	155.91	130.49	136.28	3.23	5.79
Big Eddy		141	Aug 10%	48.47	0.11	472.24	149.97	153.45	130.49	136.15	3.15	5.66
Big Eddy		141	Sep 10%	31.64	0.07	457.53	148.12	151.56	130.49	136.05	3.09	5.56

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		141	Oct 10%	46.25	0.1	470.43	149.76	153.23	130.49	136.14	3.14	5.65
Big Eddy		141	Nov 10%	71.17	0.15	489.88	152.16	155.66	130.49	136.27	3.22	5.78
Big Eddy		141	Dec 10%	67.48	0.14	487.48	151.84	155.34	130.49	136.25	3.21	5.76
Big Eddy		141	Jan 90%	15.22	0.04	441.5	133.53	136.94	130.49	135.94	3.31	5.45
Big Eddy		141	Feb 90%	13.4	0.03	439.4	133.03	136.44	130.49	135.92	3.30	5.43
Big Eddy		141	Mar 90%	13.91	0.03	439.87	133.14	136.55	130.49	135.92	3.30	5.43
Big Eddy		141	Apr 90%	28.82	0.07	454.88	147.63	151.07	130.49	136.03	3.08	5.54
Big Eddy		141	May 90%	61.67	0.13	482.69	151.22	154.71	130.49	136.22	3.19	5.73
Big Eddy		141	Jun 90%	33.96	0.08	459.73	148.47	151.92	130.49	136.06	3.10	5.57
Big Eddy		141	Jul 90%	16.63	0.04	442.82	133.84	137.26	130.49	135.95	3.31	5.46
Big Eddy		141	Aug 90%	9.06	0.02	434.23	131.79	135.19	130.49	135.88	3.29	5.39
Big Eddy		141	Sep 90%	7.63	0.02	432.3	131.33	134.72	130.49	135.87	3.29	5.38
Big Eddy		141	Oct 90%	8.15	0.02	432.99	131.5	134.89	130.49	135.87	3.29	5.38
Big Eddy		141	Nov 90%	9.99	0.02	435.34	132.06	135.46	130.49	135.89	3.30	5.4
Big Eddy		141	Dec 90%	14.71	0.03	440.83	133.37	136.78	130.49	135.93	3.31	5.44
Big Eddy		114	Jan 10%	51.39	0.12	433.47	127.47	131.53	131.22	136.16	3.40	4.94
Big Eddy		114	Feb 10%	41.11	0.1	426.4	125.14	129.19	131.22	136.11	3.41	4.89
Big Eddy		114	Mar 10%	51.06	0.12	433.25	127.4	131.46	131.22	136.16	3.40	4.94
Big Eddy		114	Apr 10%	228.74	0.46	534.29	186.15	190.44	131.22	136.87	2.87	5.65
Big Eddy		114	May 10%	208.59	0.42	523.11	149.91	154.18	131.22	136.8	3.49	5.58
Big Eddy		114	Jun 10%	102.78	0.23	465.8	137.77	141.91	131.22	136.41	3.38	5.19
Big Eddy		114	Jul 10%	73.86	0.17	448.14	132.22	136.32	131.22	136.28	3.39	5.06
Big Eddy		114	Aug 10%	48.47	0.11	431.46	126.81	130.87	131.22	136.15	3.40	4.93
Big Eddy		114	Sep 10%	31.64	0.08	419.17	122.71	126.74	131.22	136.05	3.42	4.83
Big Eddy		114	Oct 10%	46.25	0.11	429.94	126.31	130.37	131.22	136.14	3.40	4.92
Big Eddy		114	Nov 10%	71.17	0.16	446.53	131.7	135.8	131.22	136.27	3.39	5.05
Big Eddy		114	Dec 10%	67.48	0.16	444.46	131.03	135.12	131.22	136.25	3.39	5.03
Big Eddy		114	Jan 90%	15.22	0.04	405.75	113.07	117.06	131.22	135.94	3.59	4.72
Big Eddy		114	Feb 90%	13.4	0.03	403.98	112.58	116.57	131.22	135.92	3.59	4.7
Big Eddy		114	Mar 90%	13.91	0.03	404.38	112.69	116.68	131.22	135.92	3.59	4.7
Big Eddy		114	Apr 90%	28.82	0.07	416.98	121.97	125.99	131.22	136.03	3.42	4.81
Big Eddy		114	May 90%	61.67	0.14	440.34	129.69	133.77	131.22	136.22	3.40	5
Big Eddy		114	Jun 90%	33.96	0.08	421	123.33	127.36	131.22	136.06	3.41	4.84
Big Eddy		114	Jul 90%	16.63	0.04	406.87	113.38	117.37	131.22	135.95	3.59	4.73
Big Eddy		114	Aug 90%	9.06	0.02	399.6	111.53	115.5	131.22	135.88	3.58	4.66
Big Eddy		114	Sep 90%	7.63	0.02	397.97	111.33	115.29	131.22	135.87	3.57	4.65
Big Eddy		114	Oct 90%	8.15	0.02	398.56	111.39	115.36	131.22	135.87	3.58	4.65
Big Eddy		114	Nov 90%	9.99	0.03	400.54	111.64	115.62	131.22	135.89	3.59	4.67
Big Eddy		114	Dec 90%	14.71	0.04	405.19	112.92	116.9	131.22	135.93	3.59	4.71

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		84	Jan 10%	51.39	0.12	435.75	121.85	126.95	129.81	136.16	3.58	6.35
Big Eddy		84	Feb 10%	41.11	0.1	428.97	120.7	125.77	129.81	136.11	3.55	6.3
Big Eddy		84	Mar 10%	51.06	0.12	435.54	121.82	126.91	129.81	136.16	3.58	6.35
Big Eddy		84	Apr 10%	228.74	0.46	527.4	139.6	144.98	129.81	136.87	3.78	7.06
Big Eddy		84	May 10%	208.59	0.42	518.28	138.05	143.41	129.81	136.8	3.75	6.99
Big Eddy		84	Jun 10%	102.78	0.23	466.04	126.87	132.07	129.81	136.41	3.67	6.6
Big Eddy		84	Jul 10%	73.86	0.17	449.64	124.18	129.33	129.81	136.28	3.62	6.47
Big Eddy		84	Aug 10%	48.47	0.11	433.83	121.53	126.62	129.81	136.15	3.57	6.34
Big Eddy		84	Sep 10%	31.64	0.08	421.97	119.49	124.54	129.81	136.05	3.53	6.24
Big Eddy		84	Oct 10%	46.25	0.11	432.37	121.28	126.36	129.81	136.14	3.57	6.33
Big Eddy		84	Nov 10%	71.17	0.16	448.13	123.93	129.07	129.81	136.26	3.62	6.45
Big Eddy		84	Dec 10%	67.48	0.16	446.18	123.61	128.74	129.81	136.25	3.61	6.44
Big Eddy		84	Jan 90%	15.22	0.04	408.51	116.38	121.39	129.81	135.94	3.51	6.13
Big Eddy		84	Feb 90%	13.4	0.03	406.69	116.18	121.17	129.81	135.92	3.50	6.11
Big Eddy		84	Mar 90%	13.91	0.03	407.1	116.22	121.22	129.81	135.92	3.50	6.11
Big Eddy		84	Apr 90%	28.82	0.07	419.83	119.12	124.17	129.81	136.03	3.52	6.22
Big Eddy		84	May 90%	61.67	0.14	442.29	122.96	128.08	129.81	136.22	3.60	6.41
Big Eddy		84	Jun 90%	33.96	0.08	423.74	119.8	124.86	129.81	136.06	3.54	6.25
Big Eddy		84	Jul 90%	16.63	0.04	409.66	116.52	121.52	129.81	135.95	3.52	6.14
Big Eddy		84	Aug 90%	9.06	0.02	402.16	115.64	120.62	129.81	135.88	3.48	6.07
Big Eddy		84	Sep 90%	7.63	0.02	400.47	115.44	120.41	129.81	135.87	3.47	6.06
Big Eddy		84	Oct 90%	8.15	0.02	401.08	115.51	120.49	129.81	135.87	3.47	6.06
Big Eddy		84	Nov 90%	9.99	0.03	403.13	115.76	120.74	129.81	135.89	3.48	6.08
Big Eddy		84	Dec 90%	14.71	0.04	407.94	116.32	121.32	129.81	135.93	3.51	6.12
Big Eddy		72	Jan 10%	51.39	0.12	426.02	122.49	124.58	130.48	136.16	3.48	5.68
Big Eddy		72	Feb 10%	41.11	0.1	419.2	121.82	123.9	130.48	136.11	3.44	5.63
Big Eddy		72	Mar 10%	51.06	0.12	425.81	122.47	124.56	130.48	136.16	3.48	5.68
Big Eddy		72	Apr 10%	228.74	0.47	531.23	196.34	198.68	130.48	136.86	2.71	6.38
Big Eddy		72	May 10%	208.59	0.43	518.4	194.43	196.75	130.48	136.8	2.67	6.32
Big Eddy		72	Jun 10%	102.78	0.23	456.17	125.37	127.55	130.48	136.41	3.64	5.93
Big Eddy		72	Jul 10%	73.86	0.17	439.91	123.82	125.95	130.48	136.28	3.55	5.8
Big Eddy		72	Aug 10%	48.47	0.12	424.09	122.3	124.39	130.48	136.15	3.47	5.67
Big Eddy		72	Sep 10%	31.64	0.08	412.11	121.13	123.19	130.48	136.05	3.40	5.57
Big Eddy		72	Oct 10%	46.25	0.11	422.62	122.16	124.25	130.48	136.14	3.46	5.66
Big Eddy		72	Nov 10%	71.17	0.17	438.41	123.68	125.81	130.48	136.26	3.54	5.78
Big Eddy		72	Dec 10%	67.48	0.16	436.46	123.49	125.61	130.48	136.25	3.53	5.77
Big Eddy		72	Jan 90%	15.22	0.04	398.37	119.58	121.6	130.48	135.94	3.33	5.46
Big Eddy		72	Feb 90%	13.4	0.03	396.49	119.38	121.38	130.48	135.92	3.32	5.44

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		72	Mar 90%	13.91	0.04	396.91	119.42	121.43	130.48	135.92	3.32	5.44
Big Eddy		72	Apr 90%	28.82	0.07	409.95	120.81	122.86	130.48	136.03	3.39	5.55
Big Eddy		72	May 90%	61.67	0.15	432.58	123.12	125.23	130.48	136.22	3.51	5.74
Big Eddy		72	Jun 90%	33.96	0.08	413.91	121.31	123.37	130.48	136.06	3.41	5.58
Big Eddy		72	Jul 90%	16.63	0.04	399.55	119.72	121.73	130.48	135.95	3.34	5.47
Big Eddy		72	Aug 90%	9.06	0.02	391.83	118.87	120.86	130.48	135.88	3.30	5.4
Big Eddy		72	Sep 90%	7.63	0.02	390.1	118.68	120.67	130.48	135.87	3.29	5.39
Big Eddy		72	Oct 90%	8.15	0.02	390.72	118.75	120.74	130.48	135.87	3.29	5.39
Big Eddy		72	Nov 90%	9.99	0.03	392.84	118.98	120.98	130.48	135.89	3.30	5.41
Big Eddy		72	Dec 90%	14.71	0.04	397.77	119.52	121.53	130.48	135.93	3.33	5.45
Big Eddy		53	Jan 10%	51.39	0.13	409.56	118.46	114.09	130.78	136.16	3.46	5.38
Big Eddy		53	Feb 10%	41.11	0.1	403.27	118.36	114.09	130.78	136.11	3.41	5.33
Big Eddy		53	Mar 10%	51.06	0.12	409.36	118.46	114.09	130.78	136.16	3.46	5.38
Big Eddy		53	Apr 10%	228.74	0.47	488.44	189.15	114.09	130.78	136.86	2.58	6.08
Big Eddy		53	May 10%	208.59	0.43	481.06	187.22	114.09	130.78	136.8	2.57	6.02
Big Eddy		53	Jun 10%	102.78	0.24	436.96	118.94	114.09	130.78	136.41	3.67	5.63
Big Eddy		53	Jul 10%	73.86	0.17	422.27	118.68	114.09	130.78	136.28	3.56	5.5
Big Eddy		53	Aug 10%	48.47	0.12	407.79	118.43	114.09	130.78	136.15	3.44	5.37
Big Eddy		53	Sep 10%	31.64	0.08	396.7	118.25	114.09	130.78	136.05	3.35	5.27
Big Eddy		53	Oct 10%	46.25	0.11	406.43	118.41	114.09	130.78	136.14	3.43	5.36
Big Eddy		53	Nov 10%	71.17	0.17	420.9	118.66	114.09	130.78	136.26	3.55	5.48
Big Eddy		53	Dec 10%	67.48	0.16	419.12	118.63	114.09	130.78	136.25	3.53	5.47
Big Eddy		53	Jan 90%	15.22	0.04	383.83	118.05	114.09	130.78	135.94	3.25	5.16
Big Eddy		53	Feb 90%	13.4	0.04	382.06	118.03	114.09	130.78	135.92	3.24	5.14
Big Eddy		53	Mar 90%	13.91	0.04	382.46	118.03	114.09	130.78	135.92	3.24	5.14
Big Eddy		53	Apr 90%	28.82	0.07	394.68	118.22	114.09	130.78	136.03	3.34	5.25
Big Eddy		53	May 90%	61.67	0.15	415.58	118.57	114.09	130.78	136.22	3.50	5.44
Big Eddy		53	Jun 90%	33.96	0.09	398.37	118.28	114.09	130.78	136.06	3.37	5.28
Big Eddy		53	Jul 90%	16.63	0.04	384.94	118.07	114.09	130.78	135.95	3.26	5.17
Big Eddy		53	Aug 90%	9.06	0.02	377.65	117.97	114.09	130.78	135.88	3.20	5.1
Big Eddy		53	Sep 90%	7.63	0.02	376.01	117.94	114.09	130.78	135.87	3.19	5.09
Big Eddy		53	Oct 90%	8.15	0.02	376.6	117.95	114.09	130.78	135.87	3.19	5.09
Big Eddy		53	Nov 90%	9.99	0.03	378.61	117.98	114.09	130.78	135.89	3.21	5.11
Big Eddy		53	Dec 90%	14.71	0.04	383.27	118.05	114.09	130.78	135.93	3.25	5.15
Big Eddy		52		Inl Struct								
Big Eddy	0	35	Jan 10%	51.39	0.5	102.17	86.93	87.15	132.3	134.5	1.18	2.2
Big Eddy	0	35	Feb 10%	41.11	0.45	90.75	82.74	82.94	132.3	134.36	1.10	2.06

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	Mar 10%	51.06	0.5	101.82	86.89	87.12	132.3	134.49	1.17	2.19
Big Eddy	0	35	Apr 10%	228.74	1	232.5	105.31	105.84	132.3	135.87	2.21	3.57
Big Eddy	0	35	May 10%	208.59	0.96	219.04	103.24	103.75	132.3	135.74	2.12	3.44
Big Eddy	0	35	Jun 10%	102.78	0.71	145.67	92.71	93.05	132.3	134.98	1.57	2.68
Big Eddy	0	35	Jul 10%	73.86	0.6	122.96	89.2	89.49	132.3	134.73	1.38	2.43
Big Eddy	0	35	Aug 10%	48.47	0.49	99.09	86.64	86.86	132.3	134.46	1.14	2.16
Big Eddy	0	35	Sep 10%	31.64	0.4	79.57	69.14	69.32	132.3	134.22	1.15	1.92
Big Eddy	0	35	Oct 10%	46.25	0.48	96.66	86.41	86.62	132.3	134.43	1.12	2.13
Big Eddy	0	35	Nov 10%	71.17	0.59	120.67	88.84	89.12	132.3	134.71	1.36	2.41
Big Eddy	0	35	Dec 10%	67.48	0.57	117.48	88.33	88.61	132.3	134.67	1.33	2.37
Big Eddy	0	35	Jan 90%	15.22	0.25	59.75	57.72	57.87	132.3	133.9	1.04	1.6
Big Eddy	0	35	Feb 90%	13.4	0.23	57.21	56.8	56.95	132.3	133.85	1.01	1.55
Big Eddy	0	35	Mar 90%	13.91	0.24	57.91	57.06	57.2	132.3	133.87	1.01	1.57
Big Eddy	0	35	Apr 90%	28.82	0.38	76.37	65.01	65.18	132.3	134.17	1.17	1.87
Big Eddy	0	35	May 90%	61.67	0.55	112.29	87.86	88.12	132.3	134.61	1.28	2.31
Big Eddy	0	35	Jun 90%	33.96	0.41	82.36	73.74	73.92	132.3	134.26	1.12	1.96
Big Eddy	0	35	Jul 90%	16.63	0.27	61.72	58.42	58.57	132.3	133.93	1.06	1.63
Big Eddy	0	35	Aug 90%	9.06	0.18	50.61	54.35	54.48	132.3	133.74	0.93	1.44
Big Eddy	0	35	Sep 90%	7.63	0.16	48.18	53.42	53.55	132.3	133.69	0.90	1.39
Big Eddy	0	35	Oct 90%	8.15	0.17	49.08	53.77	53.89	132.3	133.71	0.91	1.41
Big Eddy	0	35	Nov 90%	9.99	0.19	52.12	54.92	55.06	132.3	133.76	0.95	1.46
Big Eddy	0	35	Dec 90%	14.71	0.25	59.05	57.46	57.61	132.3	133.89	1.03	1.59

Table A-8: Upstream HEC-RAS Results for Monthly Q10 and Q90 Flows – Option Two

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		3098	Jan 10%	51.39	2.36	21.78	38.88	38.95	137.5	138.18	0.56	0.68
Big Eddy		3098	Feb 10%	41.11	2.22	18.48	37.11	37.17	137.5	138.09	0.50	0.59
Big Eddy		3098	Mar 10%	51.06	2.36	21.67	38.83	38.89	137.5	138.18	0.56	0.68
Big Eddy		3098	Apr 10%	228.74	2.19	104.59	70.36	70.65	137.5	139.68	1.49	2.18
Big Eddy		3098	May 10%	208.59	2.13	97.89	69.03	69.31	137.5	139.58	1.42	2.08
Big Eddy		3098	Jun 10%	102.78	2.05	50.12	51.63	51.76	137.5	138.81	0.97	1.31
Big Eddy		3098	Jul 10%	73.86	2.14	34.48	45.04	45.14	137.5	138.48	0.77	0.98
Big Eddy		3098	Aug 10%	48.47	2.32	20.86	38.4	38.46	137.5	138.16	0.54	0.66
Big Eddy		3098	Sep 10%	31.64	2.07	15.26	35.3	35.35	137.5	138.01	0.43	0.51
Big Eddy		3098	Oct 10%	46.25	2.3	20.15	38.02	38.08	137.5	138.14	0.53	0.64
Big Eddy		3098	Nov 10%	71.17	2.17	32.86	44.31	44.4	137.5	138.45	0.74	0.95
Big Eddy		3098	Dec 10%	67.48	2.21	30.58	43.24	43.33	137.5	138.4	0.71	0.9
Big Eddy		3098	Jan 90%	15.22	1.69	9.02	31.5	31.53	137.5	137.82	0.29	0.32
Big Eddy		3098	Feb 90%	13.4	1.62	8.26	31	31.03	137.5	137.79	0.27	0.29
Big Eddy		3098	Mar 90%	13.91	1.64	8.47	31.14	31.17	137.5	137.8	0.27	0.3
Big Eddy		3098	Apr 90%	28.82	2.02	14.26	34.72	34.77	137.5	137.98	0.41	0.48
Big Eddy		3098	May 90%	61.67	2.3	26.76	41.41	41.49	137.5	138.31	0.65	0.81
Big Eddy		3098	Jun 90%	33.96	2.11	16.07	35.77	35.82	137.5	138.03	0.45	0.53
Big Eddy		3098	Jul 90%	16.63	1.73	9.64	31.9	31.93	137.5	137.84	0.30	0.34
Big Eddy		3098	Aug 90%	9.06	1.44	6.28	29.68	29.7	137.5	137.73	0.21	0.23
Big Eddy		3098	Sep 90%	7.63	1.37	5.57	29.19	29.21	137.5	137.71	0.19	0.21
Big Eddy		3098	Oct 90%	8.15	1.4	5.81	29.36	29.38	137.5	137.71	0.20	0.21
Big Eddy		3098	Nov 90%	9.99	1.49	6.7	29.97	29.99	137.5	137.74	0.22	0.24
Big Eddy		3098	Dec 90%	14.71	1.67	8.81	31.36	31.39	137.5	137.81	0.28	0.31
Big Eddy	101	2807	Jan 10%	51.39	1.01	50.71	35.36	36.54	135.01	137.66	1.43	2.65
Big Eddy	101	2807	Feb 10%	41.11	0.89	46.35	33.04	34.2	135.01	137.53	1.40	2.52
Big Eddy	101	2807	Mar 10%	51.06	1.01	50.57	35.29	36.46	135.01	137.65	1.43	2.64
Big Eddy	101	2807	Apr 10%	228.74	2.2	104.05	57.71	59.06	135.01	138.81	1.80	3.8
Big Eddy	101	2807	May 10%	208.59	2.1	99.21	56.13	57.45	135.01	138.72	1.77	3.71
Big Eddy	101	2807	Jun 10%	102.78	1.48	69.24	43.86	45.11	135.01	138.12	1.58	3.11
Big Eddy	101	2807	Jul 10%	73.86	1.24	59.42	39.71	40.92	135.01	137.89	1.50	2.88
Big Eddy	101	2807	Aug 10%	48.47	0.98	49.5	34.71	35.88	135.01	137.62	1.43	2.61
Big Eddy	101	2807	Sep 10%	31.64	0.75	42.1	31.24	32.38	135.01	137.4	1.35	2.39
Big Eddy	101	2807	Oct 10%	46.25	0.95	48.56	34.2	35.37	135.01	137.59	1.42	2.58
Big Eddy	101	2807	Nov 10%	71.17	1.22	58.43	39.24	40.45	135.01	137.86	1.49	2.85
Big Eddy	101	2807	Dec 10%	67.48	1.18	57.04	38.57	39.78	135.01	137.83	1.48	2.82
Big Eddy	101	2807	Jan 90%	15.22	0.45	33.65	26.87	27.96	135.01	137.1	1.25	2.09
Big Eddy	101	2807	Feb 90%	13.4	0.41	32.58	26.44	27.52	135.01	137.06	1.23	2.05

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	101	2807	Mar 90%	13.91	0.42	32.88	26.56	27.64	135.01	137.07	1.24	2.06
Big Eddy	101	2807	Apr 90%	28.82	0.71	40.72	30.36	31.49	135.01	137.35	1.34	2.34
Big Eddy	101	2807	May 90%	61.67	1.12	54.82	37.47	38.67	135.01	137.77	1.46	2.76
Big Eddy	101	2807	Jun 90%	33.96	0.79	43.18	31.79	32.93	135.01	137.43	1.36	2.42
Big Eddy	101	2807	Jul 90%	16.63	0.48	34.45	27.2	28.29	135.01	137.13	1.27	2.12
Big Eddy	101	2807	Aug 90%	9.06	0.3	29.85	25.35	26.41	135.01	136.96	1.18	1.95
Big Eddy	101	2807	Sep 90%	7.63	0.26	28.88	25.11	26.15	135.01	136.92	1.15	1.91
Big Eddy	101	2807	Oct 90%	8.15	0.28	29.23	25.2	26.25	135.01	136.93	1.16	1.92
Big Eddy	101	2807	Nov 90%	9.99	0.33	30.46	25.55	26.61	135.01	136.98	1.19	1.97
Big Eddy	101	2807	Dec 90%	14.71	0.44	33.35	26.75	27.84	135.01	137.09	1.25	2.08
Big Eddy		2713	Jan 10%	51.39	1.97	26.09	47.49	47.54	136.6	137.31	0.55	0.71
Big Eddy		2713	Feb 10%	41.11	1.86	22.08	44.88	44.92	136.6	137.22	0.49	0.62
Big Eddy		2713	Mar 10%	51.06	1.97	25.97	47.42	47.46	136.6	137.31	0.55	0.71
Big Eddy		2713	Apr 10%	228.74	2.81	82.21	66.18	66.38	136.6	138.26	1.24	1.66
Big Eddy		2713	May 10%	208.59	2.71	77.31	65.68	65.86	136.6	138.18	1.18	1.58
Big Eddy		2713	Jun 10%	102.78	2.28	45.04	58.19	58.26	136.6	137.67	0.77	1.07
Big Eddy		2713	Jul 10%	73.86	2.16	34.22	52.39	52.45	136.6	137.47	0.65	0.87
Big Eddy		2713	Aug 10%	48.47	1.94	25.01	46.8	46.85	136.6	137.29	0.53	0.69
Big Eddy		2713	Sep 10%	31.64	1.76	17.96	42.03	42.06	136.6	137.13	0.43	0.53
Big Eddy		2713	Oct 10%	46.25	1.92	24.14	46.24	46.28	136.6	137.27	0.52	0.67
Big Eddy		2713	Nov 10%	71.17	2.14	33.25	51.83	51.89	136.6	137.45	0.64	0.85
Big Eddy		2713	Dec 10%	67.48	2.11	31.93	51.06	51.11	136.6	137.43	0.63	0.83
Big Eddy		2713	Jan 90%	15.22	1.62	9.39	35.35	35.37	136.6	136.91	0.27	0.31
Big Eddy		2713	Feb 90%	13.4	1.57	8.56	34.64	34.66	136.6	136.88	0.25	0.28
Big Eddy		2713	Mar 90%	13.91	1.58	8.79	34.84	34.86	136.6	136.89	0.25	0.29
Big Eddy		2713	Apr 90%	28.82	1.74	16.6	41.04	41.07	136.6	137.09	0.40	0.49
Big Eddy		2713	May 90%	61.67	2.07	29.83	49.81	49.86	136.6	137.39	0.60	0.79
Big Eddy		2713	Jun 90%	33.96	1.78	19.04	42.79	42.83	136.6	137.15	0.44	0.55
Big Eddy		2713	Jul 90%	16.63	1.66	10	35.88	35.9	136.6	136.92	0.28	0.32
Big Eddy		2713	Aug 90%	9.06	1.39	6.5	32.8	32.82	136.6	136.82	0.20	0.22
Big Eddy		2713	Sep 90%	7.63	1.33	5.73	32.09	32.1	136.6	136.8	0.18	0.2
Big Eddy		2713	Oct 90%	8.15	1.36	6.01	32.35	32.36	136.6	136.81	0.19	0.21
Big Eddy		2713	Nov 90%	9.99	1.44	6.94	33.2	33.22	136.6	136.83	0.21	0.23
Big Eddy		2713	Dec 90%	14.71	1.61	9.16	35.16	35.18	136.6	136.9	0.26	0.3
Big Eddy	102	2674	Jan 10%	51.39	1.03	50.04	68.56	69.18	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Feb 10%	41.11	0.93	44.37	66.85	67.4	135.66	136.82	0.66	1.16
Big Eddy	102	2674	Mar 10%	51.06	1.02	49.84	68.52	69.13	135.66	136.9	0.73	1.24
Big Eddy	102	2674	Apr 10%	228.74	1.6	142.71	94.22	95.61	135.66	138.08	1.51	2.42

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	102	2674	May 10%	208.59	1.56	134.04	91.93	93.27	135.66	137.98	1.46	2.32
Big Eddy	102	2674	Jun 10%	102.78	1.24	83.04	75.25	76.22	135.66	137.36	1.10	1.7
Big Eddy	102	2674	Jul 10%	73.86	1.14	64.66	71.55	72.36	135.66	137.11	0.90	1.45
Big Eddy	102	2674	Aug 10%	48.47	1	48.32	68.15	68.74	135.66	136.88	0.71	1.22
Big Eddy	102	2674	Sep 10%	31.64	0.78	40.8	65.75	66.27	135.66	136.76	0.62	1.1
Big Eddy	102	2674	Oct 10%	46.25	0.98	47.05	67.73	68.32	135.66	136.86	0.69	1.2
Big Eddy	102	2674	Nov 10%	71.17	1.13	62.83	71.3	72.08	135.66	137.08	0.88	1.42
Big Eddy	102	2674	Dec 10%	67.48	1.12	60.36	70.89	71.64	135.66	137.05	0.85	1.39
Big Eddy	102	2674	Jan 90%	15.22	0.42	36.03	64.11	64.6	135.66	136.69	0.56	1.03
Big Eddy	102	2674	Feb 90%	13.4	0.4	33.64	63.24	63.71	135.66	136.65	0.53	0.99
Big Eddy	102	2674	Mar 90%	13.91	0.41	34.34	63.51	63.98	135.66	136.66	0.54	1
Big Eddy	102	2674	Apr 90%	28.82	0.72	40.29	65.57	66.09	135.66	136.76	0.61	1.1
Big Eddy	102	2674	May 90%	61.67	1.09	56.52	70.04	70.73	135.66	137	0.81	1.34
Big Eddy	102	2674	Jun 90%	33.96	0.82	41.43	65.96	66.49	135.66	136.77	0.63	1.11
Big Eddy	102	2674	Jul 90%	16.63	0.44	37.8	64.72	65.22	135.66	136.72	0.58	1.06
Big Eddy	102	2674	Aug 90%	9.06	0.33	27.14	59.05	59.48	135.66	136.55	0.46	0.89
Big Eddy	102	2674	Sep 90%	7.63	0.31	24.75	56.99	57.39	135.66	136.51	0.43	0.85
Big Eddy	102	2674	Oct 90%	8.15	0.32	25.64	57.76	58.17	135.66	136.52	0.44	0.86
Big Eddy	102	2674	Nov 90%	9.99	0.35	28.68	60.34	60.77	135.66	136.57	0.48	0.91
Big Eddy	102	2674	Dec 90%	14.71	0.42	35.37	63.88	64.36	135.66	136.68	0.55	1.02
Big Eddy		2607	Jan 10%	51.39	0.77	66.91	107.26	107.29	135.94	136.7	0.62	0.76
Big Eddy		2607	Feb 10%	41.11	0.8	51.35	99.69	99.71	135.94	136.55	0.52	0.61
Big Eddy		2607	Mar 10%	51.06	0.77	66.45	107.04	107.07	135.94	136.69	0.62	0.75
Big Eddy		2607	Apr 10%	228.74	0.94	244.7	153.85	154.05	135.94	138.03	1.59	2.09
Big Eddy		2607	May 10%	208.59	0.91	229.6	151.35	151.54	135.94	137.93	1.52	1.99
Big Eddy		2607	Jun 10%	102.78	0.75	136.85	132.45	132.52	135.94	137.28	1.03	1.34
Big Eddy		2607	Jul 10%	73.86	0.74	99.33	121.68	121.72	135.94	136.98	0.82	1.04
Big Eddy		2607	Aug 10%	48.47	0.77	62.56	105.2	105.23	135.94	136.66	0.59	0.72
Big Eddy		2607	Sep 10%	31.64	0.87	36.49	91.87	91.89	135.94	136.39	0.40	0.45
Big Eddy		2607	Oct 10%	46.25	0.78	59.21	103.58	103.61	135.94	136.63	0.57	0.69
Big Eddy		2607	Nov 10%	71.17	0.75	95.5	119.93	119.97	135.94	136.95	0.80	1.01
Big Eddy		2607	Dec 10%	67.48	0.75	90.27	117.71	117.75	135.94	136.91	0.77	0.97
Big Eddy		2607	Jan 90%	15.22	1.25	12.2	77.43	77.43	135.94	136.11	0.16	0.17
Big Eddy		2607	Feb 90%	13.4	1.2	11.16	76.75	76.75	135.94	136.09	0.15	0.15
Big Eddy		2607	Mar 90%	13.91	1.21	11.45	76.94	76.94	135.94	136.1	0.15	0.16
Big Eddy		2607	Apr 90%	28.82	0.9	31.89	89.32	89.34	135.94	136.34	0.36	0.4
Big Eddy		2607	May 90%	61.67	0.75	81.98	114.12	114.15	135.94	136.84	0.72	0.9
Big Eddy		2607	Jun 90%	33.96	0.84	40.23	93.9	93.92	135.94	136.43	0.43	0.49
Big Eddy		2607	Jul 90%	16.63	1.28	12.95	77.91	77.92	135.94	136.12	0.17	0.18

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2607	Aug 90%	9.06	1.06	8.57	75.03	75.04	135.94	136.06	0.11	0.12
Big Eddy		2607	Sep 90%	7.63	1.01	7.59	74.37	74.37	135.94	136.05	0.10	0.11
Big Eddy		2607	Oct 90%	8.15	1.02	7.95	74.62	74.62	135.94	136.05	0.11	0.11
Big Eddy		2607	Nov 90%	9.99	1.1	9.12	75.4	75.4	135.94	136.07	0.12	0.13
Big Eddy		2607	Dec 90%	14.71	1.23	11.92	77.25	77.25	135.94	136.1	0.15	0.16
Big Eddy	103	2585	Jan 10%	51.39	0.27	191.03	90.57	93.09	132.22	136.72	2.11	4.5
Big Eddy	103	2585	Feb 10%	41.11	0.23	177.85	87.06	89.54	132.22	136.57	2.04	4.35
Big Eddy	103	2585	Mar 10%	51.06	0.27	190.64	90.53	93.05	132.22	136.71	2.11	4.49
Big Eddy	103	2585	Apr 10%	228.74	0.7	377.97	181.92	184.97	132.22	138.04	2.08	5.82
Big Eddy	103	2585	May 10%	208.59	0.66	360.07	180.29	183.28	132.22	137.94	2.00	5.72
Big Eddy	103	2585	Jun 10%	102.78	0.42	250.93	135.63	138.31	132.22	137.29	1.85	5.07
Big Eddy	103	2585	Jul 10%	73.86	0.34	217.02	96.78	99.37	132.22	137	2.24	4.78
Big Eddy	103	2585	Aug 10%	48.47	0.26	187.39	90.19	92.7	132.22	136.67	2.08	4.45
Big Eddy	103	2585	Sep 10%	31.64	0.19	165.3	80.5	82.95	132.22	136.42	2.05	4.2
Big Eddy	103	2585	Oct 10%	46.25	0.25	184.55	89.73	92.23	132.22	136.64	2.06	4.42
Big Eddy	103	2585	Nov 10%	71.17	0.33	214	95.72	98.3	132.22	136.96	2.24	4.74
Big Eddy	103	2585	Dec 10%	67.48	0.32	209.86	94.24	96.81	132.22	136.92	2.23	4.7
Big Eddy	103	2585	Jan 90%	15.22	0.11	140.46	76.19	78.6	132.22	136.1	1.84	3.88
Big Eddy	103	2585	Feb 90%	13.4	0.1	137.23	75.76	78.15	132.22	136.06	1.81	3.84
Big Eddy	103	2585	Mar 90%	13.91	0.1	138.15	75.88	78.28	132.22	136.07	1.82	3.85
Big Eddy	103	2585	Apr 90%	28.82	0.18	161.42	79.73	82.18	132.22	136.37	2.02	4.15
Big Eddy	103	2585	May 90%	61.67	0.3	203.28	91.86	94.4	132.22	136.85	2.21	4.63
Big Eddy	103	2585	Jun 90%	33.96	0.2	168.41	81.89	84.35	132.22	136.46	2.06	4.24
Big Eddy	103	2585	Jul 90%	16.63	0.12	142.88	76.51	78.92	132.22	136.13	1.87	3.91
Big Eddy	103	2585	Aug 90%	9.06	0.07	128.8	74.53	76.9	132.22	135.94	1.73	3.72
Big Eddy	103	2585	Sep 90%	7.63	0.06	125.75	73.91	76.28	132.22	135.9	1.70	3.68
Big Eddy	103	2585	Oct 90%	8.15	0.06	126.88	74.14	76.51	132.22	135.92	1.71	3.7
Big Eddy	103	2585	Nov 90%	9.99	0.08	130.71	74.86	77.24	132.22	135.97	1.75	3.75
Big Eddy	103	2585	Dec 90%	14.71	0.11	139.57	76.07	78.47	132.22	136.09	1.83	3.87
Big Eddy		2519	Jan 10%	51.39	2.58	19.94	29.41	29.56	135.55	136.34	0.68	0.79
Big Eddy		2519	Feb 10%	41.11	2.4	17.16	28.4	28.54	135.55	136.24	0.60	0.69
Big Eddy		2519	Mar 10%	51.06	2.58	19.78	29.35	29.5	135.55	136.33	0.67	0.78
Big Eddy		2519	Apr 10%	228.74	2.23	117.69	122.7	123.53	135.55	137.81	0.96	2.26
Big Eddy		2519	May 10%	208.59	2.32	102.97	115.97	116.72	135.55	137.68	0.89	2.13
Big Eddy		2519	Jun 10%	102.78	3	35.03	42.01	42.27	135.55	136.78	0.83	1.23
Big Eddy		2519	Jul 10%	73.86	2.85	25.9	32.43	32.63	135.55	136.53	0.80	0.98
Big Eddy		2519	Aug 10%	48.47	2.53	19.13	29.12	29.27	135.55	136.31	0.66	0.76
Big Eddy		2519	Sep 10%	31.64	2.26	14.02	27.22	27.34	135.55	136.13	0.52	0.58

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2519	Oct 10%	46.25	2.49	18.55	28.91	29.06	135.55	136.29	0.64	0.74
Big Eddy		2519	Nov 10%	71.17	2.82	25.28	31.67	31.86	135.55	136.51	0.80	0.96
Big Eddy		2519	Dec 10%	67.48	2.78	24.29	30.92	31.1	135.55	136.48	0.79	0.93
Big Eddy		2519	Jan 90%	15.22	1.82	8.36	24.95	25.02	135.55	135.91	0.34	0.36
Big Eddy		2519	Feb 90%	13.4	1.75	7.64	24.64	24.71	135.55	135.88	0.31	0.33
Big Eddy		2519	Mar 90%	13.91	1.77	7.84	24.73	24.8	135.55	135.89	0.32	0.34
Big Eddy		2519	Apr 90%	28.82	2.2	13.1	26.86	26.97	135.55	136.1	0.49	0.55
Big Eddy		2519	May 90%	61.67	2.72	22.65	30.36	30.53	135.55	136.43	0.75	0.88
Big Eddy		2519	Jun 90%	33.96	2.29	14.81	27.52	27.64	135.55	136.16	0.54	0.61
Big Eddy		2519	Jul 90%	16.63	1.87	8.89	25.17	25.24	135.55	135.93	0.35	0.38
Big Eddy		2519	Aug 90%	9.06	1.55	5.84	23.87	23.92	135.55	135.81	0.24	0.26
Big Eddy		2519	Sep 90%	7.63	1.48	5.17	23.57	23.62	135.55	135.78	0.22	0.23
Big Eddy		2519	Oct 90%	8.15	1.5	5.42	23.68	23.73	135.55	135.79	0.23	0.24
Big Eddy		2519	Nov 90%	9.99	1.6	6.23	24.04	24.09	135.55	135.83	0.26	0.28
Big Eddy		2519	Dec 90%	14.71	1.8	8.17	24.87	24.94	135.55	135.91	0.33	0.36
Big Eddy	104	2495	Jan 10%	51.39	1.22	45.39	57.71	58.22	134.55	136.43	0.79	1.88
Big Eddy	104	2495	Feb 10%	41.11	1.11	39.24	50.65	51.09	134.55	136.32	0.77	1.77
Big Eddy	104	2495	Mar 10%	51.06	1.21	45.19	57.42	57.92	134.55	136.43	0.79	1.88
Big Eddy	104	2495	Apr 10%	228.74	1.66	163.06	128.34	129.81	134.55	137.81	1.27	3.26
Big Eddy	104	2495	May 10%	208.59	1.66	149.16	117.85	119.26	134.55	137.7	1.27	3.15
Big Eddy	104	2495	Jun 10%	102.78	1.47	77.6	73.62	74.44	134.55	136.92	1.05	2.37
Big Eddy	104	2495	Jul 10%	73.86	1.38	58.74	64.69	65.34	134.55	136.65	0.91	2.1
Big Eddy	104	2495	Aug 10%	48.47	1.19	43.62	55.09	55.58	134.55	136.4	0.79	1.85
Big Eddy	104	2495	Sep 10%	31.64	1	33.31	44.91	45.29	134.55	136.19	0.74	1.64
Big Eddy	104	2495	Oct 10%	46.25	1.17	42.3	53.04	53.52	134.55	136.38	0.80	1.83
Big Eddy	104	2495	Nov 10%	71.17	1.36	57.19	63.97	64.6	134.55	136.63	0.89	2.08
Big Eddy	104	2495	Dec 10%	67.48	1.34	55.03	62.96	63.57	134.55	136.59	0.87	2.04
Big Eddy	104	2495	Jan 90%	15.22	0.66	23.37	34.14	34.43	134.55	135.94	0.68	1.39
Big Eddy	104	2495	Feb 90%	13.4	0.62	21.87	32.7	32.98	134.55	135.89	0.67	1.34
Big Eddy	104	2495	Mar 90%	13.91	0.63	22.36	33.18	33.46	134.55	135.91	0.67	1.36
Big Eddy	104	2495	Apr 90%	28.82	0.96	31.49	42.57	42.93	134.55	136.15	0.74	1.6
Big Eddy	104	2495	May 90%	61.67	1.3	51.59	61.28	61.85	134.55	136.54	0.84	1.99
Big Eddy	104	2495	Jun 90%	33.96	1.03	34.78	46.6	46.99	134.55	136.23	0.75	1.68
Big Eddy	104	2495	Jul 90%	16.63	0.7	24.18	34.9	35.2	134.55	135.96	0.69	1.41
Big Eddy	104	2495	Aug 90%	9.06	0.46	19.86	26	26.27	134.55	135.83	0.76	1.28
Big Eddy	104	2495	Sep 90%	7.63	0.39	19.35	25.69	25.96	134.55	135.81	0.75	1.26
Big Eddy	104	2495	Oct 90%	8.15	0.42	19.53	25.8	26.07	134.55	135.81	0.76	1.26
Big Eddy	104	2495	Nov 90%	9.99	0.49	20.22	26.21	26.48	134.55	135.84	0.77	1.29
Big Eddy	104	2495	Dec 90%	14.71	0.65	23.08	33.87	34.16	134.55	135.93	0.68	1.38

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	105	2379	Jan 10%	51.39	1.05	48.92	65.06	65.4	134.92	136.23	0.75	1.31
Big Eddy	105	2379	Feb 10%	41.11	0.97	42.32	60.99	61.3	134.92	136.13	0.69	1.21
Big Eddy	105	2379	Mar 10%	51.06	1.05	48.71	64.93	65.27	134.92	136.23	0.75	1.31
Big Eddy	105	2379	Apr 10%	228.74	1.35	169.1	105.98	106.64	134.92	137.6	1.60	2.68
Big Eddy	105	2379	May 10%	208.59	1.33	157.05	104.77	105.38	134.92	137.49	1.50	2.57
Big Eddy	105	2379	Jun 10%	102.78	1.21	85.12	82.75	83.2	134.92	136.72	1.03	1.8
Big Eddy	105	2379	Jul 10%	73.86	1.16	63.72	74.58	74.97	134.92	136.45	0.85	1.53
Big Eddy	105	2379	Aug 10%	48.47	1.03	47.05	63.93	64.26	134.92	136.2	0.74	1.28
Big Eddy	105	2379	Sep 10%	31.64	0.87	36.26	57.01	57.3	134.92	136.03	0.64	1.11
Big Eddy	105	2379	Oct 10%	46.25	1.01	45.62	63.06	63.39	134.92	136.18	0.72	1.26
Big Eddy	105	2379	Nov 10%	71.17	1.15	61.92	73.46	73.84	134.92	136.42	0.84	1.5
Big Eddy	105	2379	Dec 10%	67.48	1.14	59.45	71.89	72.27	134.92	136.39	0.83	1.47
Big Eddy	105	2379	Jan 90%	15.22	0.58	26.46	52.27	52.52	134.92	135.84	0.51	0.92
Big Eddy	105	2379	Feb 90%	13.4	0.53	25.25	42.22	42.47	134.92	135.82	0.60	0.9
Big Eddy	105	2379	Mar 90%	13.91	0.54	25.58	46.68	46.94	134.92	135.83	0.55	0.91
Big Eddy	105	2379	Apr 90%	28.82	0.84	34.48	55.78	56.06	134.92	135.99	0.62	1.07
Big Eddy	105	2379	May 90%	61.67	1.11	55.57	69.36	69.72	134.92	136.33	0.80	1.41
Big Eddy	105	2379	Jun 90%	33.96	0.9	37.74	58	58.3	134.92	136.05	0.65	1.13
Big Eddy	105	2379	Jul 90%	16.63	0.61	27.23	52.49	52.75	134.92	135.86	0.52	0.94
Big Eddy	105	2379	Aug 90%	9.06	0.38	23.77	41.77	42.01	134.92	135.78	0.57	0.86
Big Eddy	105	2379	Sep 90%	7.63	0.33	23.37	41.65	41.89	134.92	135.78	0.56	0.86
Big Eddy	105	2379	Oct 90%	8.15	0.35	23.51	41.69	41.93	134.92	135.78	0.56	0.86
Big Eddy	105	2379	Nov 90%	9.99	0.42	24.05	41.86	42.1	134.92	135.79	0.57	0.87
Big Eddy	105	2379	Dec 90%	14.71	0.56	26.2	52.15	52.4	134.92	135.84	0.50	0.92
Big Eddy		2306	Jan 10%	51.39	1.47	34.91	47.12	47.31	135.16	135.97	0.74	0.81
Big Eddy		2306	Feb 10%	41.11	1.3	31.59	46.39	46.56	135.16	135.9	0.68	0.74
Big Eddy		2306	Mar 10%	51.06	1.47	34.8	47.1	47.28	135.16	135.97	0.74	0.81
Big Eddy		2306	Apr 10%	228.74	1.9	120.65	79.99	80.41	135.16	137.29	1.51	2.13
Big Eddy		2306	May 10%	208.59	1.88	110.8	77.9	78.3	135.16	137.17	1.42	2.01
Big Eddy		2306	Jun 10%	102.78	1.83	56.07	60.26	60.5	135.16	136.38	0.93	1.22
Big Eddy		2306	Jul 10%	73.86	1.71	43.14	50.83	51.05	135.16	136.14	0.85	0.98
Big Eddy		2306	Aug 10%	48.47	1.43	33.93	46.9	47.08	135.16	135.95	0.72	0.79
Big Eddy		2306	Sep 10%	31.64	1.09	28.92	45.91	46.07	135.16	135.85	0.63	0.69
Big Eddy		2306	Oct 10%	46.25	1.39	33.21	46.73	46.91	135.16	135.94	0.71	0.78
Big Eddy		2306	Nov 10%	71.17	1.69	42.08	50.18	50.39	135.16	136.12	0.84	0.96
Big Eddy		2306	Dec 10%	67.48	1.66	40.65	49.23	49.44	135.16	136.09	0.83	0.93
Big Eddy		2306	Jan 90%	15.22	0.59	25.63	45.32	45.46	135.16	135.77	0.57	0.61
Big Eddy		2306	Feb 90%	13.4	0.53	25.4	45.27	45.41	135.16	135.77	0.56	0.61

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2306	Mar 90%	13.91	0.55	25.46	45.28	45.42	135.16	135.77	0.56	0.61
Big Eddy		2306	Apr 90%	28.82	1.02	28.22	45.79	45.94	135.16	135.83	0.62	0.67
Big Eddy		2306	May 90%	61.67	1.6	38.49	47.96	48.16	135.16	136.05	0.80	0.89
Big Eddy		2306	Jun 90%	33.96	1.15	29.54	46.02	46.18	135.16	135.86	0.64	0.7
Big Eddy		2306	Jul 90%	16.63	0.64	25.84	45.35	45.49	135.16	135.78	0.57	0.62
Big Eddy		2306	Aug 90%	9.06	0.36	24.96	45.19	45.33	135.16	135.76	0.55	0.6
Big Eddy		2306	Sep 90%	7.63	0.31	24.85	45.17	45.31	135.16	135.76	0.55	0.6
Big Eddy		2306	Oct 90%	8.15	0.33	24.89	45.18	45.32	135.16	135.76	0.55	0.6
Big Eddy		2306	Nov 90%	9.99	0.4	25.04	45.21	45.35	135.16	135.76	0.55	0.6
Big Eddy		2306	Dec 90%	14.71	0.58	25.57	45.3	45.44	135.16	135.77	0.56	0.61
Big Eddy	106	2214	Jan 10%	51.39	0.79	65.38	50.02	50.62	133.31	135.92	1.31	2.61
Big Eddy	106	2214	Feb 10%	41.11	0.66	62.59	49.47	50.05	133.31	135.87	1.27	2.56
Big Eddy	106	2214	Mar 10%	51.06	0.78	65.29	50	50.6	133.31	135.92	1.31	2.61
Big Eddy	106	2214	Apr 10%	228.74	1.68	136.45	80.59	81.51	133.31	137.13	1.69	3.82
Big Eddy	106	2214	May 10%	208.59	1.66	125.65	78.17	79.05	133.31	137	1.61	3.69
Big Eddy	106	2214	Jun 10%	102.78	1.24	83.14	53.01	53.7	133.31	136.27	1.57	2.96
Big Eddy	106	2214	Jul 10%	73.86	1.02	72.48	51.4	52.03	133.31	136.06	1.41	2.75
Big Eddy	106	2214	Aug 10%	48.47	0.75	64.55	49.86	50.45	133.31	135.91	1.29	2.6
Big Eddy	106	2214	Sep 10%	31.64	0.52	60.39	49.03	49.6	133.31	135.82	1.23	2.51
Big Eddy	106	2214	Oct 10%	46.25	0.72	63.94	49.74	50.32	133.31	135.89	1.29	2.58
Big Eddy	106	2214	Nov 10%	71.17	0.99	71.57	51.22	51.85	133.31	136.05	1.40	2.74
Big Eddy	106	2214	Dec 10%	67.48	0.96	70.36	50.99	51.61	133.31	136.02	1.38	2.71
Big Eddy	106	2214	Jan 90%	15.22	0.26	57.71	48.49	49.04	133.31	135.77	1.19	2.46
Big Eddy	106	2214	Feb 90%	13.4	0.23	57.52	48.44	48.99	133.31	135.76	1.19	2.45
Big Eddy	106	2214	Mar 90%	13.91	0.24	57.57	48.45	49.01	133.31	135.76	1.19	2.45
Big Eddy	106	2214	Apr 90%	28.82	0.48	59.82	48.92	49.48	133.31	135.81	1.22	2.5
Big Eddy	106	2214	May 90%	61.67	0.9	68.49	50.63	51.24	133.31	135.99	1.35	2.68
Big Eddy	106	2214	Jun 90%	33.96	0.56	60.89	49.13	49.7	133.31	135.83	1.24	2.52
Big Eddy	106	2214	Jul 90%	16.63	0.29	57.88	48.53	49.08	133.31	135.77	1.19	2.46
Big Eddy	106	2214	Aug 90%	9.06	0.16	57.16	48.35	48.91	133.31	135.76	1.18	2.45
Big Eddy	106	2214	Sep 90%	7.63	0.13	57.07	48.33	48.88	133.31	135.75	1.18	2.44
Big Eddy	106	2214	Oct 90%	8.15	0.14	57.1	48.34	48.89	133.31	135.76	1.18	2.45
Big Eddy	106	2214	Nov 90%	9.99	0.17	57.23	48.37	48.92	133.31	135.76	1.18	2.45
Big Eddy	106	2214	Dec 90%	14.71	0.26	57.66	48.47	49.03	133.31	135.77	1.19	2.46
Big Eddy		2149	Jan 10%	51.39	0.77	67.14	46.84	47.19	134	135.89	1.43	1.89
Big Eddy		2149	Feb 10%	41.11	0.63	64.94	46.5	46.83	134	135.85	1.40	1.85
Big Eddy		2149	Mar 10%	51.06	0.76	67.07	46.83	47.18	134	135.89	1.43	1.89
Big Eddy		2149	Apr 10%	228.74	1.82	125.87	75.83	76.61	134	136.98	1.66	2.98

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		2149	May 10%	208.59	1.79	116.35	67.11	67.83	134	136.85	1.73	2.85
Big Eddy		2149	Jun 10%	102.78	1.26	81.89	49.51	49.94	134	136.2	1.65	2.2
Big Eddy		2149	Jul 10%	73.86	1.01	72.87	47.83	48.21	134	136.01	1.52	2.01
Big Eddy		2149	Aug 10%	48.47	0.73	66.49	46.74	47.08	134	135.88	1.42	1.88
Big Eddy		2149	Sep 10%	31.64	0.5	63.23	46.23	46.55	134	135.81	1.37	1.81
Big Eddy		2149	Oct 10%	46.25	0.7	66	46.66	47	134	135.87	1.41	1.87
Big Eddy		2149	Nov 10%	71.17	0.99	72.13	47.63	48	134	136	1.51	2
Big Eddy		2149	Dec 10%	67.48	0.95	71.14	47.46	47.83	134	135.98	1.50	1.98
Big Eddy		2149	Jan 90%	15.22	0.25	61.18	45.76	46.08	134	135.76	1.34	1.76
Big Eddy		2149	Feb 90%	13.4	0.22	61.04	45.72	46.04	134	135.76	1.34	1.76
Big Eddy		2149	Mar 90%	13.91	0.23	61.08	45.73	46.05	134	135.76	1.34	1.76
Big Eddy		2149	Apr 90%	28.82	0.46	62.79	46.16	46.48	134	135.8	1.36	1.8
Big Eddy		2149	May 90%	61.67	0.89	69.64	47.23	47.59	134	135.95	1.47	1.95
Big Eddy		2149	Jun 90%	33.96	0.53	63.62	46.29	46.61	134	135.82	1.37	1.82
Big Eddy		2149	Jul 90%	16.63	0.27	61.31	45.79	46.11	134	135.77	1.34	1.77
Big Eddy		2149	Aug 90%	9.06	0.15	60.77	45.65	45.96	134	135.76	1.33	1.76
Big Eddy		2149	Sep 90%	7.63	0.13	60.7	45.63	45.94	134	135.75	1.33	1.75
Big Eddy		2149	Oct 90%	8.15	0.13	60.73	45.64	45.95	134	135.75	1.33	1.75
Big Eddy		2149	Nov 90%	9.99	0.16	60.82	45.66	45.97	134	135.76	1.33	1.76
Big Eddy		2149	Dec 90%	14.71	0.24	61.14	45.75	46.06	134	135.76	1.34	1.76
Big Eddy	107	2039	Jan 10%	51.39	0.52	98.63	46.74	48.6	132.49	135.88	2.11	3.39
Big Eddy	107	2039	Feb 10%	41.11	0.43	96.63	46.4	48.25	132.49	135.84	2.08	3.35
Big Eddy	107	2039	Mar 10%	51.06	0.52	98.57	46.73	48.59	132.49	135.88	2.11	3.39
Big Eddy	107	2039	Apr 10%	228.74	1.39	164.89	161.58	85.41	132.49	136.88	1.02	4.39
Big Eddy	107	2039	May 10%	208.59	1.35	154.58	154.21	83.01	132.49	136.75	1.00	4.26
Big Eddy	107	2039	Jun 10%	102.78	0.91	112.75	57.34	59.3	132.49	136.16	1.97	3.67
Big Eddy	107	2039	Jul 10%	73.86	0.71	103.87	47.75	49.65	132.49	135.99	2.18	3.5
Big Eddy	107	2039	Aug 10%	48.47	0.49	98.03	46.64	48.49	132.49	135.87	2.10	3.38
Big Eddy	107	2039	Sep 10%	31.64	0.33	95.07	46.14	47.97	132.49	135.8	2.06	3.31
Big Eddy	107	2039	Oct 10%	46.25	0.47	97.59	46.56	48.42	132.49	135.86	2.10	3.37
Big Eddy	107	2039	Nov 10%	71.17	0.69	103.2	47.58	49.47	132.49	135.98	2.17	3.49
Big Eddy	107	2039	Dec 10%	67.48	0.66	102.29	47.35	49.24	132.49	135.96	2.16	3.47
Big Eddy	107	2039	Jan 90%	15.22	0.16	93.22	45.82	47.64	132.49	135.76	2.03	3.27
Big Eddy	107	2039	Feb 90%	13.4	0.14	93.09	45.79	47.61	132.49	135.76	2.03	3.27
Big Eddy	107	2039	Mar 90%	13.91	0.15	93.12	45.8	47.62	132.49	135.76	2.03	3.27
Big Eddy	107	2039	Apr 90%	28.82	0.3	94.67	46.07	47.9	132.49	135.79	2.05	3.3
Big Eddy	107	2039	May 90%	61.67	0.61	100.91	47.12	49	132.49	135.93	2.14	3.44
Big Eddy	107	2039	Jun 90%	33.96	0.36	95.42	46.2	48.03	132.49	135.81	2.07	3.32
Big Eddy	107	2039	Jul 90%	16.63	0.18	93.33	45.84	47.66	132.49	135.77	2.04	3.28

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	107	2039	Aug 90%	9.06	0.1	92.84	45.75	47.57	132.49	135.75	2.03	3.26
Big Eddy	107	2039	Sep 90%	7.63	0.08	92.78	45.74	47.56	132.49	135.75	2.03	3.26
Big Eddy	107	2039	Oct 90%	8.15	0.09	92.8	45.75	47.56	132.49	135.75	2.03	3.26
Big Eddy	107	2039	Nov 90%	9.99	0.11	92.89	45.76	47.58	132.49	135.76	2.03	3.27
Big Eddy	107	2039	Dec 90%	14.71	0.16	93.18	45.81	47.63	132.49	135.76	2.03	3.27
Big Eddy		1970	Jan 10%	51.39	0.69	74.59	66.47	66.61	134.34	135.85	1.12	1.51
Big Eddy		1970	Feb 10%	41.11	0.57	72.29	65.68	65.81	134.34	135.82	1.10	1.48
Big Eddy		1970	Mar 10%	51.06	0.69	74.51	66.44	66.58	134.34	135.85	1.12	1.51
Big Eddy		1970	Apr 10%	228.74	1.61	142.02	146.14	78.68	134.34	136.76	0.97	2.42
Big Eddy		1970	May 10%	208.59	1.58	132.12	140.57	77.85	134.34	136.63	0.94	2.29
Big Eddy		1970	Jun 10%	102.78	1.13	90.79	73.48	73.65	134.34	136.08	1.24	1.74
Big Eddy		1970	Jul 10%	73.86	0.91	80.83	68.57	68.71	134.34	135.95	1.18	1.61
Big Eddy		1970	Aug 10%	48.47	0.66	73.9	66.23	66.37	134.34	135.84	1.12	1.5
Big Eddy		1970	Sep 10%	31.64	0.45	70.55	65.08	65.21	134.34	135.79	1.08	1.45
Big Eddy		1970	Oct 10%	46.25	0.63	73.39	66.06	66.19	134.34	135.83	1.11	1.49
Big Eddy		1970	Nov 10%	71.17	0.89	80.01	68.29	68.44	134.34	135.93	1.17	1.59
Big Eddy		1970	Dec 10%	67.48	0.86	78.91	67.93	68.07	134.34	135.92	1.16	1.58
Big Eddy		1970	Jan 90%	15.22	0.22	68.52	64.36	64.49	134.34	135.76	1.06	1.42
Big Eddy		1970	Feb 90%	13.4	0.2	68.38	64.31	64.44	134.34	135.76	1.06	1.42
Big Eddy		1970	Mar 90%	13.91	0.2	68.41	64.33	64.45	134.34	135.76	1.06	1.42
Big Eddy		1970	Apr 90%	28.82	0.41	70.11	64.92	65.05	134.34	135.78	1.08	1.44
Big Eddy		1970	May 90%	61.67	0.8	77.27	67.38	67.51	134.34	135.89	1.15	1.55
Big Eddy		1970	Jun 90%	33.96	0.48	70.94	65.21	65.34	134.34	135.8	1.09	1.46
Big Eddy		1970	Jul 90%	16.63	0.24	68.64	64.41	64.53	134.34	135.76	1.07	1.42
Big Eddy		1970	Aug 90%	9.06	0.13	68.11	64.22	64.35	134.34	135.75	1.06	1.41
Big Eddy		1970	Sep 90%	7.63	0.11	68.04	64.2	64.32	134.34	135.75	1.06	1.41
Big Eddy		1970	Oct 90%	8.15	0.12	68.07	64.21	64.33	134.34	135.75	1.06	1.41
Big Eddy		1970	Nov 90%	9.99	0.15	68.16	64.24	64.36	134.34	135.75	1.06	1.41
Big Eddy		1970	Dec 90%	14.71	0.21	68.48	64.35	64.48	134.34	135.76	1.06	1.42
Big Eddy	108	1907	Jan 10%	51.39	0.53	97.85	78.61	79.27	134.18	135.84	1.24	1.66
Big Eddy	108	1907	Feb 10%	41.11	0.43	95.47	78.42	79.07	134.18	135.81	1.22	1.63
Big Eddy	108	1907	Mar 10%	51.06	0.52	97.77	78.61	79.26	134.18	135.84	1.24	1.66
Big Eddy	108	1907	Apr 10%	228.74	1.33	190.23	231.04	148.48	134.18	136.72	0.82	2.54
Big Eddy	108	1907	May 10%	208.59	1.31	171.17	219.93	143.88	134.18	136.59	0.78	2.41
Big Eddy	108	1907	Jun 10%	102.78	0.9	114.56	79.95	80.68	134.18	136.05	1.43	1.87
Big Eddy	108	1907	Jul 10%	73.86	0.71	104.36	79.14	79.82	134.18	135.92	1.32	1.74
Big Eddy	108	1907	Aug 10%	48.47	0.5	97.13	78.55	79.21	134.18	135.83	1.24	1.65
Big Eddy	108	1907	Sep 10%	31.64	0.34	93.68	78.27	78.92	134.18	135.78	1.20	1.6

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	108	1907	Oct 10%	46.25	0.48	96.61	78.51	79.17	134.18	135.82	1.23	1.64
Big Eddy	108	1907	Nov 10%	71.17	0.69	103.5	79.07	79.75	134.18	135.91	1.31	1.73
Big Eddy	108	1907	Dec 10%	67.48	0.66	102.36	78.98	79.65	134.18	135.9	1.30	1.72
Big Eddy	108	1907	Jan 90%	15.22	0.17	91.61	78.11	78.74	134.18	135.76	1.17	1.58
Big Eddy	108	1907	Feb 90%	13.4	0.15	91.46	78.09	78.73	134.18	135.76	1.17	1.58
Big Eddy	108	1907	Mar 90%	13.91	0.15	91.5	78.1	78.73	134.18	135.76	1.17	1.58
Big Eddy	108	1907	Apr 90%	28.82	0.31	93.23	78.24	78.88	134.18	135.78	1.19	1.6
Big Eddy	108	1907	May 90%	61.67	0.61	100.63	78.84	79.51	134.18	135.87	1.28	1.69
Big Eddy	108	1907	Jun 90%	33.96	0.36	94.08	78.31	78.95	134.18	135.79	1.20	1.61
Big Eddy	108	1907	Jul 90%	16.63	0.18	91.73	78.12	78.75	134.18	135.76	1.17	1.58
Big Eddy	108	1907	Aug 90%	9.06	0.1	91.19	78.07	78.7	134.18	135.75	1.17	1.57
Big Eddy	108	1907	Sep 90%	7.63	0.08	91.12	78.07	78.7	134.18	135.75	1.17	1.57
Big Eddy	108	1907	Oct 90%	8.15	0.09	91.15	78.07	78.7	134.18	135.75	1.17	1.57
Big Eddy	108	1907	Nov 90%	9.99	0.11	91.24	78.08	78.71	134.18	135.75	1.17	1.57
Big Eddy	108	1907	Dec 90%	14.71	0.16	91.56	78.1	78.74	134.18	135.76	1.17	1.58
Big Eddy	109	1718	Jan 10%	51.39	0.53	98.5	50.12	50.96	132.47	135.8	1.97	3.33
Big Eddy	109	1718	Feb 10%	41.11	0.43	97.55	50.01	50.84	132.47	135.79	1.95	3.32
Big Eddy	109	1718	Mar 10%	51.06	0.53	98.47	50.12	50.95	132.47	135.8	1.96	3.33
Big Eddy	109	1718	Apr 10%	228.74	1.8	134.79	64.2	65.21	132.47	136.46	2.10	3.99
Big Eddy	109	1718	May 10%	208.59	1.71	127.33	60.8	61.79	132.47	136.34	2.09	3.87
Big Eddy	109	1718	Jun 10%	102.78	0.99	105.54	50.92	51.8	132.47	135.94	2.07	3.47
Big Eddy	109	1718	Jul 10%	73.86	0.74	101.18	50.42	51.28	132.47	135.86	2.01	3.39
Big Eddy	109	1718	Aug 10%	48.47	0.5	98.21	50.09	50.92	132.47	135.8	1.96	3.33
Big Eddy	109	1718	Sep 10%	31.64	0.33	96.84	49.93	50.75	132.47	135.77	1.94	3.3
Big Eddy	109	1718	Oct 10%	46.25	0.48	98	50.06	50.9	132.47	135.79	1.96	3.32
Big Eddy	109	1718	Nov 10%	71.17	0.72	100.82	50.38	51.24	132.47	135.85	2.00	3.38
Big Eddy	109	1718	Dec 10%	67.48	0.68	100.35	50.33	51.18	132.47	135.84	1.99	3.37
Big Eddy	109	1718	Jan 90%	15.22	0.16	96.03	49.84	50.66	132.47	135.76	1.93	3.29
Big Eddy	109	1718	Feb 90%	13.4	0.14	95.98	49.83	50.65	132.47	135.75	1.93	3.28
Big Eddy	109	1718	Mar 90%	13.91	0.15	95.99	49.83	50.65	132.47	135.75	1.93	3.28
Big Eddy	109	1718	Apr 90%	28.82	0.3	96.66	49.91	50.73	132.47	135.77	1.94	3.3
Big Eddy	109	1718	May 90%	61.67	0.63	99.64	50.25	51.09	132.47	135.83	1.98	3.36
Big Eddy	109	1718	Jun 90%	33.96	0.36	97	49.95	50.77	132.47	135.77	1.94	3.3
Big Eddy	109	1718	Jul 90%	16.63	0.18	96.08	49.84	50.66	132.47	135.76	1.93	3.29
Big Eddy	109	1718	Aug 90%	9.06	0.1	95.87	49.82	50.64	132.47	135.75	1.92	3.28
Big Eddy	109	1718	Sep 90%	7.63	0.08	95.85	49.81	50.63	132.47	135.75	1.92	3.28
Big Eddy	109	1718	Oct 90%	8.15	0.09	95.86	49.82	50.63	132.47	135.75	1.92	3.28
Big Eddy	109	1718	Nov 90%	9.99	0.11	95.89	49.82	50.64	132.47	135.75	1.92	3.28
Big Eddy	109	1718	Dec 90%	14.71	0.16	96.02	49.83	50.65	132.47	135.75	1.93	3.28

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1687	Jan 10%	51.39	0.48	108.78	67.59	68.31	132.5	135.8	1.61	3.3
Big Eddy		1687	Feb 10%	41.11	0.39	107.56	66.96	67.67	132.5	135.78	1.61	3.28
Big Eddy		1687	Mar 10%	51.06	0.48	108.73	67.56	68.28	132.5	135.8	1.61	3.3
Big Eddy		1687	Apr 10%	228.74	1.54	175.49	150.41	151.41	132.5	136.45	1.17	3.95
Big Eddy		1687	May 10%	208.59	1.49	157.98	131.98	132.92	132.5	136.33	1.20	3.83
Big Eddy		1687	Jun 10%	102.78	0.89	118.76	80.84	81.62	132.5	135.94	1.47	3.44
Big Eddy		1687	Jul 10%	73.86	0.67	112.33	72.98	73.72	132.5	135.85	1.54	3.35
Big Eddy		1687	Aug 10%	48.47	0.45	108.41	67.39	68.1	132.5	135.8	1.61	3.3
Big Eddy		1687	Sep 10%	31.64	0.3	106.66	66.5	67.21	132.5	135.77	1.60	3.27
Big Eddy		1687	Oct 10%	46.25	0.43	108.14	67.25	67.97	132.5	135.79	1.61	3.29
Big Eddy		1687	Nov 10%	71.17	0.65	111.84	72.25	72.99	132.5	135.85	1.55	3.35
Big Eddy		1687	Dec 10%	67.48	0.62	111.19	71.23	71.97	132.5	135.84	1.56	3.34
Big Eddy		1687	Jan 90%	15.22	0.15	105.65	65.99	66.69	132.5	135.75	1.60	3.25
Big Eddy		1687	Feb 90%	13.4	0.13	105.58	65.95	66.65	132.5	135.75	1.60	3.25
Big Eddy		1687	Mar 90%	13.91	0.13	105.6	65.96	66.66	132.5	135.75	1.60	3.25
Big Eddy		1687	Apr 90%	28.82	0.27	106.44	66.39	67.1	132.5	135.77	1.60	3.27
Big Eddy		1687	May 90%	61.67	0.57	110.24	69.58	70.31	132.5	135.82	1.58	3.32
Big Eddy		1687	Jun 90%	33.96	0.32	106.86	66.61	67.31	132.5	135.77	1.60	3.27
Big Eddy		1687	Jul 90%	16.63	0.16	105.71	66.02	66.72	132.5	135.76	1.60	3.26
Big Eddy		1687	Aug 90%	9.06	0.09	105.45	65.88	66.58	132.5	135.75	1.60	3.25
Big Eddy		1687	Sep 90%	7.63	0.07	105.42	65.87	66.57	132.5	135.75	1.60	3.25
Big Eddy		1687	Oct 90%	8.15	0.08	105.43	65.87	66.57	132.5	135.75	1.60	3.25
Big Eddy		1687	Nov 90%	9.99	0.1	105.47	65.9	66.59	132.5	135.75	1.60	3.25
Big Eddy		1687	Dec 90%	14.71	0.14	105.63	65.98	66.68	132.5	135.75	1.60	3.25
Big Eddy	110	1545	Jan 10%	51.39	0.42	123.7	75.1	76.34	132.76	135.78	1.65	3.02
Big Eddy	110	1545	Feb 10%	41.11	0.34	122.94	74.61	75.85	132.76	135.77	1.65	3.01
Big Eddy	110	1545	Mar 10%	51.06	0.42	123.67	75.08	76.33	132.76	135.78	1.65	3.02
Big Eddy	110	1545	Apr 10%	228.74	1.49	164.79	93.16	94.49	132.76	136.26	1.77	3.5
Big Eddy	110	1545	May 10%	208.59	1.44	153.41	91.41	92.72	132.76	136.13	1.68	3.37
Big Eddy	110	1545	Jun 10%	102.78	0.81	129.75	78.87	80.12	132.76	135.86	1.65	3.1
Big Eddy	110	1545	Jul 10%	73.86	0.6	125.91	76.51	77.76	132.76	135.81	1.65	3.05
Big Eddy	110	1545	Aug 10%	48.47	0.4	123.47	74.95	76.19	132.76	135.78	1.65	3.02
Big Eddy	110	1545	Sep 10%	31.64	0.26	122.38	74.25	75.49	132.76	135.76	1.65	3
Big Eddy	110	1545	Oct 10%	46.25	0.38	123.3	74.84	76.08	132.76	135.77	1.65	3.01
Big Eddy	110	1545	Nov 10%	71.17	0.58	125.61	76.32	77.56	132.76	135.8	1.65	3.04
Big Eddy	110	1545	Dec 10%	67.48	0.55	125.21	76.06	77.31	132.76	135.8	1.65	3.04
Big Eddy	110	1545	Jan 90%	15.22	0.13	121.75	73.84	75.08	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Feb 90%	13.4	0.11	121.71	73.81	75.05	132.76	135.75	1.65	2.99

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	110	1545	Mar 90%	13.91	0.12	121.72	73.81	75.05	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Apr 90%	28.82	0.24	122.24	74.16	75.4	132.76	135.76	1.65	3
Big Eddy	110	1545	May 90%	61.67	0.5	124.63	75.69	76.94	132.76	135.79	1.65	3.03
Big Eddy	110	1545	Jun 90%	33.96	0.28	122.5	74.33	75.57	132.76	135.76	1.65	3
Big Eddy	110	1545	Jul 90%	16.63	0.14	121.79	73.86	75.1	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Aug 90%	9.06	0.08	121.63	73.76	74.99	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Sep 90%	7.63	0.06	121.61	73.74	74.98	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Oct 90%	8.15	0.07	121.62	73.75	74.99	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Nov 90%	9.99	0.08	121.64	73.76	75	132.76	135.75	1.65	2.99
Big Eddy	110	1545	Dec 90%	14.71	0.12	121.74	73.83	75.07	132.76	135.75	1.65	2.99
Big Eddy		1425	Jan 10%	51.39	0.34	150.47	110.31	110.54	133.97	135.76	1.36	1.79
Big Eddy		1425	Feb 10%	41.11	0.27	149.97	110.2	110.43	133.97	135.76	1.36	1.79
Big Eddy		1425	Mar 10%	51.06	0.34	150.45	110.31	110.54	133.97	135.76	1.36	1.79
Big Eddy		1425	Apr 10%	228.74	1.22	190.63	121.02	121.32	133.97	136.11	1.58	2.14
Big Eddy		1425	May 10%	208.59	1.21	174.67	115.63	115.91	133.97	135.98	1.51	2.01
Big Eddy		1425	Jun 10%	102.78	0.67	154.59	111.24	111.48	133.97	135.8	1.39	1.83
Big Eddy		1425	Jul 10%	73.86	0.49	151.96	110.65	110.88	133.97	135.78	1.37	1.81
Big Eddy		1425	Aug 10%	48.47	0.32	150.32	110.28	110.51	133.97	135.76	1.36	1.79
Big Eddy		1425	Sep 10%	31.64	0.21	149.6	110.11	110.34	133.97	135.75	1.36	1.78
Big Eddy		1425	Oct 10%	46.25	0.31	150.21	110.25	110.48	133.97	135.76	1.36	1.79
Big Eddy		1425	Nov 10%	71.17	0.47	151.75	110.6	110.83	133.97	135.77	1.37	1.8
Big Eddy		1425	Dec 10%	67.48	0.45	151.49	110.54	110.77	133.97	135.77	1.37	1.8
Big Eddy		1425	Jan 90%	15.22	0.1	149.19	110.02	110.25	133.97	135.75	1.36	1.78
Big Eddy		1425	Feb 90%	13.4	0.09	149.16	110.01	110.24	133.97	135.75	1.36	1.78
Big Eddy		1425	Mar 90%	13.91	0.09	149.16	110.02	110.24	133.97	135.75	1.36	1.78
Big Eddy		1425	Apr 90%	28.82	0.19	149.51	110.09	110.32	133.97	135.75	1.36	1.78
Big Eddy		1425	May 90%	61.67	0.41	151.09	110.45	110.68	133.97	135.77	1.37	1.8
Big Eddy		1425	Jun 90%	33.96	0.23	149.68	110.13	110.36	133.97	135.76	1.36	1.79
Big Eddy		1425	Jul 90%	16.63	0.11	149.21	110.03	110.25	133.97	135.75	1.36	1.78
Big Eddy		1425	Aug 90%	9.06	0.06	149.1	110	110.23	133.97	135.75	1.36	1.78
Big Eddy		1425	Sep 90%	7.63	0.05	149.09	110	110.23	133.97	135.75	1.36	1.78
Big Eddy		1425	Oct 90%	8.15	0.05	149.1	110	110.23	133.97	135.75	1.36	1.78
Big Eddy		1425	Nov 90%	9.99	0.07	149.11	110	110.23	133.97	135.75	1.36	1.78
Big Eddy		1425	Dec 90%	14.71	0.1	149.18	110.02	110.25	133.97	135.75	1.36	1.78
Big Eddy		1384	Jan 10%	51.39	0.24	215.38	107.34	107.64	132.99	135.76	2.01	2.77
Big Eddy		1384	Feb 10%	41.11	0.19	214.92	107.28	107.58	132.99	135.76	2.00	2.77
Big Eddy		1384	Mar 10%	51.06	0.24	215.37	107.33	107.63	132.99	135.76	2.01	2.77
Big Eddy		1384	Apr 10%	228.74	0.92	253.02	115.7	116.07	132.99	136.1	2.19	3.11

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		1384	May 10%	208.59	0.89	237.67	110.87	111.21	132.99	135.97	2.14	2.98
Big Eddy		1384	Jun 10%	102.78	0.47	219.12	107.82	108.13	132.99	135.8	2.03	2.81
Big Eddy		1384	Jul 10%	73.86	0.34	216.73	107.51	107.81	132.99	135.77	2.02	2.78
Big Eddy		1384	Aug 10%	48.47	0.23	215.24	107.32	107.62	132.99	135.76	2.01	2.77
Big Eddy		1384	Sep 10%	31.64	0.15	214.59	107.23	107.53	132.99	135.75	2.00	2.76
Big Eddy		1384	Oct 10%	46.25	0.22	215.14	107.3	107.61	132.99	135.76	2.01	2.77
Big Eddy		1384	Nov 10%	71.17	0.33	216.54	107.49	107.79	132.99	135.77	2.01	2.78
Big Eddy		1384	Dec 10%	67.48	0.31	216.3	107.46	107.76	132.99	135.77	2.01	2.78
Big Eddy		1384	Jan 90%	15.22	0.07	214.21	107.18	107.48	132.99	135.75	2.00	2.76
Big Eddy		1384	Feb 90%	13.4	0.06	214.19	107.18	107.48	132.99	135.75	2.00	2.76
Big Eddy		1384	Mar 90%	13.91	0.07	214.19	107.18	107.48	132.99	135.75	2.00	2.76
Big Eddy		1384	Apr 90%	28.82	0.14	214.51	107.22	107.52	132.99	135.75	2.00	2.76
Big Eddy		1384	May 90%	61.67	0.29	215.94	107.41	107.71	132.99	135.77	2.01	2.78
Big Eddy		1384	Jun 90%	33.96	0.16	214.66	107.24	107.54	132.99	135.76	2.00	2.77
Big Eddy		1384	Jul 90%	16.63	0.08	214.24	107.19	107.49	132.99	135.75	2.00	2.76
Big Eddy		1384	Aug 90%	9.06	0.04	214.14	107.17	107.47	132.99	135.75	2.00	2.76
Big Eddy		1384	Sep 90%	7.63	0.04	214.13	107.17	107.47	132.99	135.75	2.00	2.76
Big Eddy		1384	Oct 90%	8.15	0.04	214.13	107.17	107.47	132.99	135.75	2.00	2.76
Big Eddy		1384	Nov 90%	9.99	0.05	214.15	107.18	107.47	132.99	135.75	2.00	2.76
Big Eddy		1384	Dec 90%	14.71	0.07	214.21	107.18	107.48	132.99	135.75	2.00	2.76
Big Eddy	111	1236	Jan 10%	51.39	0.2	260.88	121.01	121.7	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Feb 10%	41.11	0.16	260.55	120.98	121.67	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Mar 10%	51.06	0.2	260.86	121.01	121.7	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Apr 10%	228.74	0.78	297.02	142.39	143.13	132.3	136.05	2.09	3.75
Big Eddy	111	1236	May 10%	208.59	0.75	279.55	122.79	123.51	132.3	135.91	2.28	3.61
Big Eddy	111	1236	Jun 10%	102.78	0.39	263.59	121.28	121.98	132.3	135.78	2.17	3.48
Big Eddy	111	1236	Jul 10%	73.86	0.28	261.85	121.11	121.8	132.3	135.77	2.16	3.47
Big Eddy	111	1236	Aug 10%	48.47	0.19	260.77	121	121.69	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Sep 10%	31.64	0.12	260.31	120.95	121.64	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Oct 10%	46.25	0.18	260.7	120.99	121.68	132.3	135.76	2.15	3.46
Big Eddy	111	1236	Nov 10%	71.17	0.27	261.71	121.1	121.79	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Dec 10%	67.48	0.26	261.54	121.08	121.77	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Jan 90%	15.22	0.06	260.04	120.93	121.62	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Feb 90%	13.4	0.05	260.02	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Mar 90%	13.91	0.05	260.02	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Apr 90%	28.82	0.11	260.25	120.95	121.64	132.3	135.75	2.15	3.45
Big Eddy	111	1236	May 90%	61.67	0.24	261.28	121.05	121.74	132.3	135.76	2.16	3.46
Big Eddy	111	1236	Jun 90%	33.96	0.13	260.36	120.96	121.65	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Jul 90%	16.63	0.06	260.05	120.93	121.62	132.3	135.75	2.15	3.45

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	111	1236	Aug 90%	9.06	0.03	259.99	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Sep 90%	7.63	0.03	259.98	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Oct 90%	8.15	0.03	259.98	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Nov 90%	9.99	0.04	259.99	120.92	121.61	132.3	135.75	2.15	3.45
Big Eddy	111	1236	Dec 90%	14.71	0.06	260.04	120.93	121.61	132.3	135.75	2.15	3.45
Big Eddy		1071	Jan 10%	51.39	0.11	540.91	323.11	323.68	132.26	135.76	1.67	3.5
Big Eddy		1071	Feb 10%	41.11	0.09	540.17	323.02	323.59	132.26	135.75	1.67	3.49
Big Eddy		1071	Mar 10%	51.06	0.11	540.88	323.1	323.68	132.26	135.76	1.67	3.5
Big Eddy		1071	Apr 10%	228.74	0.44	635.3	354.23	354.91	132.26	136.03	1.79	3.77
Big Eddy		1071	May 10%	208.59	0.43	587.52	339.96	340.57	132.26	135.9	1.73	3.64
Big Eddy		1071	Jun 10%	102.78	0.22	547.13	328.9	329.48	132.26	135.78	1.66	3.52
Big Eddy		1071	Jul 10%	73.86	0.16	543.13	325.08	325.66	132.26	135.76	1.67	3.5
Big Eddy		1071	Aug 10%	48.47	0.11	540.68	323.08	323.65	132.26	135.76	1.67	3.5
Big Eddy		1071	Sep 10%	31.64	0.07	539.62	322.96	323.53	132.26	135.75	1.67	3.49
Big Eddy		1071	Oct 10%	46.25	0.1	540.52	323.06	323.63	132.26	135.76	1.67	3.5
Big Eddy		1071	Nov 10%	71.17	0.15	542.82	324.8	325.37	132.26	135.76	1.67	3.5
Big Eddy		1071	Dec 10%	67.48	0.15	542.42	324.44	325.01	132.26	135.76	1.67	3.5
Big Eddy		1071	Jan 90%	15.22	0.03	539.01	322.89	323.46	132.26	135.75	1.67	3.49
Big Eddy		1071	Feb 90%	13.4	0.03	538.97	322.88	323.45	132.26	135.75	1.67	3.49
Big Eddy		1071	Mar 90%	13.91	0.03	538.98	322.88	323.45	132.26	135.75	1.67	3.49
Big Eddy		1071	Apr 90%	28.82	0.06	539.49	322.94	323.51	132.26	135.75	1.67	3.49
Big Eddy		1071	May 90%	61.67	0.13	541.83	323.9	324.47	132.26	135.76	1.67	3.5
Big Eddy		1071	Jun 90%	33.96	0.07	539.74	322.97	323.54	132.26	135.75	1.67	3.49
Big Eddy		1071	Jul 90%	16.63	0.04	539.05	322.89	323.46	132.26	135.75	1.67	3.49
Big Eddy		1071	Aug 90%	9.06	0.02	538.9	322.87	323.44	132.26	135.75	1.67	3.49
Big Eddy		1071	Sep 90%	7.63	0.02	538.87	322.87	323.44	132.26	135.75	1.67	3.49
Big Eddy		1071	Oct 90%	8.15	0.02	538.88	322.87	323.44	132.26	135.75	1.67	3.49
Big Eddy		1071	Nov 90%	9.99	0.02	538.91	322.87	323.44	132.26	135.75	1.67	3.49
Big Eddy		1071	Dec 90%	14.71	0.03	539.01	322.89	323.46	132.26	135.75	1.67	3.49
Big Eddy	112	1009	Jan 10%	51.39	0.09	637.43	365.01	366.32	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Feb 10%	41.11	0.07	636.61	364.92	366.22	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Mar 10%	51.06	0.09	637.4	365.01	366.32	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Apr 10%	228.74	0.36	740.68	428.89	430.29	132.12	136.03	1.73	3.91
Big Eddy	112	1009	May 10%	208.59	0.35	688	371.04	372.39	132.12	135.89	1.85	3.77
Big Eddy	112	1009	Jun 10%	102.78	0.18	644.17	365.82	367.13	132.12	135.77	1.76	3.65
Big Eddy	112	1009	Jul 10%	73.86	0.13	639.84	365.3	366.61	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Aug 10%	48.47	0.09	637.18	364.98	366.29	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Sep 10%	31.64	0.06	636.01	364.84	366.15	132.12	135.75	1.74	3.63

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	112	1009	Oct 10%	46.25	0.08	637	364.96	366.27	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Nov 10%	71.17	0.13	639.5	365.26	366.57	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Dec 10%	67.48	0.12	639.07	365.21	366.52	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Jan 90%	15.22	0.03	635.36	364.77	366.07	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Feb 90%	13.4	0.02	635.31	364.76	366.06	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Mar 90%	13.91	0.02	635.32	364.76	366.06	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Apr 90%	28.82	0.05	635.88	364.83	366.13	132.12	135.75	1.74	3.63
Big Eddy	112	1009	May 90%	61.67	0.11	638.43	365.13	366.44	132.12	135.76	1.75	3.64
Big Eddy	112	1009	Jun 90%	33.96	0.06	636.16	364.86	366.17	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Jul 90%	16.63	0.03	635.39	364.77	366.07	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Aug 90%	9.06	0.02	635.23	364.75	366.05	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Sep 90%	7.63	0.01	635.2	364.75	366.05	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Oct 90%	8.15	0.01	635.22	364.75	366.05	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Nov 90%	9.99	0.02	635.24	364.75	366.06	132.12	135.75	1.74	3.63
Big Eddy	112	1009	Dec 90%	14.71	0.03	635.35	364.76	366.07	132.12	135.75	1.74	3.63
Big Eddy		888	Jan 10%	51.39	0.07	820.4	475.63	475.76	132.5	135.76	1.72	3.26
Big Eddy		888	Feb 10%	41.11	0.06	819.4	475.56	475.69	132.5	135.75	1.72	3.25
Big Eddy		888	Mar 10%	51.06	0.07	820.36	475.63	475.76	132.5	135.76	1.72	3.26
Big Eddy		888	Apr 10%	228.74	0.28	950.23	483.98	484.14	132.5	136.03	1.96	3.53
Big Eddy		888	May 10%	208.59	0.27	884.11	481.2	481.34	132.5	135.89	1.84	3.39
Big Eddy		888	Jun 10%	102.78	0.14	828.69	476.2	476.33	132.5	135.77	1.74	3.27
Big Eddy		888	Jul 10%	73.86	0.1	823.36	475.83	475.97	132.5	135.76	1.73	3.26
Big Eddy		888	Aug 10%	48.47	0.07	820.09	475.61	475.74	132.5	135.76	1.72	3.26
Big Eddy		888	Sep 10%	31.64	0.04	818.66	475.51	475.64	132.5	135.75	1.72	3.25
Big Eddy		888	Oct 10%	46.25	0.06	819.87	475.59	475.72	132.5	135.75	1.72	3.25
Big Eddy		888	Nov 10%	71.17	0.1	822.95	475.81	475.94	132.5	135.76	1.73	3.26
Big Eddy		888	Dec 10%	67.48	0.09	822.42	475.77	475.9	132.5	135.76	1.73	3.26
Big Eddy		888	Jan 90%	15.22	0.02	817.86	475.46	475.59	132.5	135.75	1.72	3.25
Big Eddy		888	Feb 90%	13.4	0.02	817.8	475.45	475.58	132.5	135.75	1.72	3.25
Big Eddy		888	Mar 90%	13.91	0.02	817.82	475.45	475.58	132.5	135.75	1.72	3.25
Big Eddy		888	Apr 90%	28.82	0.04	818.5	475.5	475.63	132.5	135.75	1.72	3.25
Big Eddy		888	May 90%	61.67	0.08	821.62	475.71	475.85	132.5	135.76	1.73	3.26
Big Eddy		888	Jun 90%	33.96	0.05	818.84	475.52	475.65	132.5	135.75	1.72	3.25
Big Eddy		888	Jul 90%	16.63	0.02	817.9	475.46	475.59	132.5	135.75	1.72	3.25
Big Eddy		888	Aug 90%	9.06	0.01	817.7	475.44	475.57	132.5	135.75	1.72	3.25
Big Eddy		888	Sep 90%	7.63	0.01	817.67	475.44	475.57	132.5	135.75	1.72	3.25
Big Eddy		888	Oct 90%	8.15	0.01	817.68	475.44	475.57	132.5	135.75	1.72	3.25
Big Eddy		888	Nov 90%	9.99	0.01	817.72	475.45	475.58	132.5	135.75	1.72	3.25
Big Eddy		888	Dec 90%	14.71	0.02	817.85	475.45	475.58	132.5	135.75	1.72	3.25

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	113	821	Jan 10%	51.39	0.05	1023.81	464.9	465.77	132.16	135.76	2.20	3.6
Big Eddy	113	821	Feb 10%	41.11	0.04	1022.84	464.81	465.69	132.16	135.75	2.20	3.59
Big Eddy	113	821	Mar 10%	51.06	0.05	1023.77	464.9	465.77	132.16	135.76	2.20	3.6
Big Eddy	113	821	Apr 10%	228.74	0.21	1150.39	482.41	483.34	132.16	136.02	2.38	3.86
Big Eddy	113	821	May 10%	208.59	0.2	1085.54	469.7	470.6	132.16	135.89	2.31	3.73
Big Eddy	113	821	Jun 10%	102.78	0.11	1031.8	465.61	466.49	132.16	135.77	2.22	3.61
Big Eddy	113	821	Jul 10%	73.86	0.08	1026.67	465.15	466.03	132.16	135.76	2.21	3.6
Big Eddy	113	821	Aug 10%	48.47	0.05	1023.51	464.87	465.75	132.16	135.76	2.20	3.6
Big Eddy	113	821	Sep 10%	31.64	0.03	1022.13	464.75	465.62	132.16	135.75	2.20	3.59
Big Eddy	113	821	Oct 10%	46.25	0.05	1023.3	464.85	465.73	132.16	135.75	2.20	3.59
Big Eddy	113	821	Nov 10%	71.17	0.07	1026.27	465.12	465.99	132.16	135.76	2.21	3.6
Big Eddy	113	821	Dec 10%	67.48	0.07	1025.75	465.07	465.95	132.16	135.76	2.21	3.6
Big Eddy	113	821	Jan 90%	15.22	0.02	1021.36	464.68	465.56	132.16	135.75	2.20	3.59
Big Eddy	113	821	Feb 90%	13.4	0.01	1021.3	464.68	465.55	132.16	135.75	2.20	3.59
Big Eddy	113	821	Mar 90%	13.91	0.01	1021.32	464.68	465.55	132.16	135.75	2.20	3.59
Big Eddy	113	821	Apr 90%	28.82	0.03	1021.98	464.74	465.61	132.16	135.75	2.20	3.59
Big Eddy	113	821	May 90%	61.67	0.06	1024.99	465.01	465.88	132.16	135.76	2.20	3.6
Big Eddy	113	821	Jun 90%	33.96	0.03	1022.3	464.77	465.64	132.16	135.75	2.20	3.59
Big Eddy	113	821	Jul 90%	16.63	0.02	1021.4	464.69	465.56	132.16	135.75	2.20	3.59
Big Eddy	113	821	Aug 90%	9.06	0.01	1021.21	464.67	465.54	132.16	135.75	2.20	3.59
Big Eddy	113	821	Sep 90%	7.63	0.01	1021.18	464.67	465.54	132.16	135.75	2.20	3.59
Big Eddy	113	821	Oct 90%	8.15	0.01	1021.19	464.67	465.54	132.16	135.75	2.20	3.59
Big Eddy	113	821	Nov 90%	9.99	0.01	1021.22	464.67	465.54	132.16	135.75	2.20	3.59
Big Eddy	113	821	Dec 90%	14.71	0.02	1021.35	464.68	465.55	132.16	135.75	2.20	3.59
Big Eddy	-3	724	Jan 10%	51.39	0.15	391.3	314.25	314.69	132.5	135.75	1.25	3.25
Big Eddy	-3	724	Feb 10%	41.11	0.12	390.8	313.94	314.38	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Mar 10%	51.06	0.15	391.28	314.24	314.68	132.5	135.75	1.25	3.25
Big Eddy	-3	724	Apr 10%	228.74	0.59	472.96	355.49	355.97	132.5	136	1.33	3.5
Big Eddy	-3	724	May 10%	208.59	0.57	427.59	325.27	325.72	132.5	135.87	1.31	3.37
Big Eddy	-3	724	Jun 10%	102.78	0.29	395.43	316.02	316.46	132.5	135.77	1.25	3.27
Big Eddy	-3	724	Jul 10%	73.86	0.21	392.78	315.17	315.61	132.5	135.76	1.25	3.26
Big Eddy	-3	724	Aug 10%	48.47	0.14	391.15	314.15	314.59	132.5	135.75	1.25	3.25
Big Eddy	-3	724	Sep 10%	31.64	0.09	390.44	313.71	314.15	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Oct 10%	46.25	0.13	391.03	314.08	314.53	132.5	135.75	1.25	3.25
Big Eddy	-3	724	Nov 10%	71.17	0.2	392.57	315.04	315.48	132.5	135.76	1.25	3.26
Big Eddy	-3	724	Dec 10%	67.48	0.19	392.3	314.88	315.32	132.5	135.76	1.25	3.26
Big Eddy	-3	724	Jan 90%	15.22	0.04	390.04	313.46	313.9	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Feb 90%	13.4	0.04	390.01	313.44	313.88	132.5	135.75	1.24	3.25

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-3	724	Mar 90%	13.91	0.04	390.02	313.45	313.89	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Apr 90%	28.82	0.08	390.36	313.66	314.1	132.5	135.75	1.24	3.25
Big Eddy	-3	724	May 90%	61.67	0.18	391.91	314.63	315.07	132.5	135.76	1.25	3.26
Big Eddy	-3	724	Jun 90%	33.96	0.1	390.52	313.77	314.21	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Jul 90%	16.63	0.05	390.06	313.47	313.91	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Aug 90%	9.06	0.03	389.96	313.41	313.85	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Sep 90%	7.63	0.02	389.94	313.4	313.84	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Oct 90%	8.15	0.02	389.95	313.41	313.85	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Nov 90%	9.99	0.03	389.97	313.42	313.86	132.5	135.75	1.24	3.25
Big Eddy	-3	724	Dec 90%	14.71	0.04	390.03	313.46	313.9	132.5	135.75	1.24	3.25
Big Eddy	-2	607	Jan 10%	51.39	0.11	501.2	269.04	270.35	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Feb 10%	41.11	0.09	500.83	268.7	270.01	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Mar 10%	51.06	0.11	501.18	269.03	270.33	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Apr 10%	228.74	0.46	573.28	328.63	329.95	131.48	136	1.74	4.52
Big Eddy	-2	607	May 10%	208.59	0.44	530.91	295.06	296.37	131.48	135.86	1.80	4.38
Big Eddy	-2	607	Jun 10%	102.78	0.22	504.27	271.85	273.15	131.48	135.77	1.85	4.29
Big Eddy	-2	607	Jul 10%	73.86	0.16	502.29	270.05	271.35	131.48	135.76	1.86	4.28
Big Eddy	-2	607	Aug 10%	48.47	0.1	501.08	268.94	270.24	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Sep 10%	31.64	0.07	500.56	268.45	269.76	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Oct 10%	46.25	0.1	501	268.86	270.17	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Nov 10%	71.17	0.15	502.14	269.9	271.21	131.48	135.76	1.86	4.28
Big Eddy	-2	607	Dec 10%	67.48	0.15	501.94	269.72	271.03	131.48	135.76	1.86	4.28
Big Eddy	-2	607	Jan 90%	15.22	0.03	500.26	268.18	269.49	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Feb 90%	13.4	0.03	500.24	268.16	269.47	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Mar 90%	13.91	0.03	500.25	268.17	269.47	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Apr 90%	28.82	0.06	500.5	268.4	269.7	131.48	135.75	1.86	4.27
Big Eddy	-2	607	May 90%	61.67	0.13	501.65	269.46	270.76	131.48	135.76	1.86	4.28
Big Eddy	-2	607	Jun 90%	33.96	0.07	500.62	268.51	269.82	131.48	135.75	1.86	4.27
Big Eddy	-2	607	Jul 90%	16.63	0.04	500.28	268.2	269.5	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Aug 90%	9.06	0.02	500.2	268.13	269.43	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Sep 90%	7.63	0.02	500.19	268.12	269.42	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Oct 90%	8.15	0.02	500.2	268.12	269.43	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Nov 90%	9.99	0.02	500.21	268.13	269.44	131.48	135.75	1.87	4.27
Big Eddy	-2	607	Dec 90%	14.71	0.03	500.26	268.18	269.48	131.48	135.75	1.87	4.27
Big Eddy	-1	334	Jan 10%	51.39	0.12	487.46	276.81	278.02	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Feb 10%	41.11	0.1	487.24	276.72	277.93	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Mar 10%	51.06	0.12	487.45	276.8	278.02	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Apr 10%	228.74	0.5	550.32	301.71	302.93	131.3	135.97	1.82	4.67

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	-1	334	May 10%	208.59	0.48	510.68	286.25	287.47	131.3	135.83	1.78	4.53
Big Eddy	-1	334	Jun 10%	102.78	0.24	489.27	277.55	278.77	131.3	135.76	1.76	4.46
Big Eddy	-1	334	Jul 10%	73.86	0.17	488.11	277.07	278.29	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Aug 10%	48.47	0.11	487.39	276.78	278	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Sep 10%	31.64	0.07	487.08	276.65	277.87	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Oct 10%	46.25	0.11	487.35	276.76	277.98	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Nov 10%	71.17	0.17	488.01	277.03	278.25	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Dec 10%	67.48	0.16	487.9	276.99	278.2	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Jan 90%	15.22	0.04	486.91	276.58	277.8	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Feb 90%	13.4	0.03	486.9	276.57	277.79	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Mar 90%	13.91	0.03	486.9	276.57	277.79	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Apr 90%	28.82	0.07	487.05	276.64	277.85	131.3	135.75	1.76	4.45
Big Eddy	-1	334	May 90%	61.67	0.14	487.73	276.92	278.13	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Jun 90%	33.96	0.08	487.12	276.67	277.88	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Jul 90%	16.63	0.04	486.92	276.58	277.8	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Aug 90%	9.06	0.02	486.88	276.56	277.78	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Sep 90%	7.63	0.02	486.87	276.56	277.78	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Oct 90%	8.15	0.02	486.87	276.56	277.78	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Nov 90%	9.99	0.02	486.88	276.57	277.78	131.3	135.75	1.76	4.45
Big Eddy	-1	334	Dec 90%	14.71	0.03	486.91	276.58	277.8	131.3	135.75	1.76	4.45
Big Eddy		292	Jan 10%	51.39	0.12	478.04	240.99	241.79	131.08	135.75	1.98	4.67
Big Eddy		292	Feb 10%	41.11	0.1	477.88	240.97	241.77	131.08	135.75	1.98	4.67
Big Eddy		292	Mar 10%	51.06	0.12	478.03	240.98	241.79	131.08	135.75	1.98	4.67
Big Eddy		292	Apr 10%	228.74	0.5	530.14	247.75	248.57	131.08	135.97	2.14	4.89
Big Eddy		292	May 10%	208.59	0.48	497.09	243.4	244.21	131.08	135.83	2.04	4.75
Big Eddy		292	Jun 10%	102.78	0.24	479.42	241.15	241.96	131.08	135.76	1.99	4.68
Big Eddy		292	Jul 10%	73.86	0.18	478.53	241.05	241.85	131.08	135.75	1.99	4.67
Big Eddy		292	Aug 10%	48.47	0.12	477.99	240.98	241.79	131.08	135.75	1.98	4.67
Big Eddy		292	Sep 10%	31.64	0.08	477.75	240.95	241.76	131.08	135.75	1.98	4.67
Big Eddy		292	Oct 10%	46.25	0.11	477.95	240.98	241.78	131.08	135.75	1.98	4.67
Big Eddy		292	Nov 10%	71.17	0.17	478.46	241.04	241.84	131.08	135.75	1.98	4.67
Big Eddy		292	Dec 10%	67.48	0.16	478.38	241.03	241.83	131.08	135.75	1.98	4.67
Big Eddy		292	Jan 90%	15.22	0.04	477.62	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Feb 90%	13.4	0.03	477.61	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Mar 90%	13.91	0.03	477.62	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Apr 90%	28.82	0.07	477.73	240.95	241.75	131.08	135.75	1.98	4.67
Big Eddy		292	May 90%	61.67	0.15	478.25	241.01	241.82	131.08	135.75	1.98	4.67
Big Eddy		292	Jun 90%	33.96	0.08	477.78	240.95	241.76	131.08	135.75	1.98	4.67
Big Eddy		292	Jul 90%	16.63	0.04	477.63	240.94	241.74	131.08	135.75	1.98	4.67

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		292	Aug 90%	9.06	0.02	477.6	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Sep 90%	7.63	0.02	477.58	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Oct 90%	8.15	0.02	477.59	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Nov 90%	9.99	0.02	477.6	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		292	Dec 90%	14.71	0.03	477.62	240.93	241.74	131.08	135.75	1.98	4.67
Big Eddy		165	Jan 10%	51.39	0.14	383.6	132.76	133.28	130.98	135.75	2.89	4.77
Big Eddy		165	Feb 10%	41.11	0.11	383.56	132.76	133.27	130.98	135.75	2.89	4.77
Big Eddy		165	Mar 10%	51.06	0.13	383.6	132.76	133.28	130.98	135.75	2.89	4.77
Big Eddy		165	Apr 10%	228.74	0.57	410.09	137.51	138.04	130.98	135.95	2.98	4.97
Big Eddy		165	May 10%	208.59	0.54	391.96	134.18	134.7	130.98	135.81	2.92	4.83
Big Eddy		165	Jun 10%	102.78	0.27	383.93	132.82	133.33	130.98	135.75	2.89	4.77
Big Eddy		165	Jul 10%	73.86	0.19	383.72	132.78	133.3	130.98	135.75	2.89	4.77
Big Eddy		165	Aug 10%	48.47	0.13	383.59	132.76	133.27	130.98	135.75	2.89	4.77
Big Eddy		165	Sep 10%	31.64	0.08	383.54	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Oct 10%	46.25	0.12	383.58	132.76	133.27	130.98	135.75	2.89	4.77
Big Eddy		165	Nov 10%	71.17	0.19	383.7	132.78	133.29	130.98	135.75	2.89	4.77
Big Eddy		165	Dec 10%	67.48	0.18	383.68	132.78	133.29	130.98	135.75	2.89	4.77
Big Eddy		165	Jan 90%	15.22	0.04	383.51	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Feb 90%	13.4	0.04	383.5	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Mar 90%	13.91	0.04	383.51	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Apr 90%	28.82	0.08	383.53	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	May 90%	61.67	0.16	383.65	132.77	133.28	130.98	135.75	2.89	4.77
Big Eddy		165	Jun 90%	33.96	0.09	383.54	132.75	133.27	130.98	135.75	2.89	4.77
Big Eddy		165	Jul 90%	16.63	0.04	383.51	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Aug 90%	9.06	0.02	383.5	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Sep 90%	7.63	0.02	383.5	132.74	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Oct 90%	8.15	0.02	383.5	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Nov 90%	9.99	0.03	383.5	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		165	Dec 90%	14.71	0.04	383.51	132.75	133.26	130.98	135.75	2.89	4.77
Big Eddy		141	Jan 10%	51.39	0.12	417.34	127.68	131.04	130.49	135.75	3.27	5.26
Big Eddy		141	Feb 10%	41.11	0.1	417.31	127.67	131.03	130.49	135.75	3.27	5.26
Big Eddy		141	Mar 10%	51.06	0.12	417.34	127.68	131.04	130.49	135.75	3.27	5.26
Big Eddy		141	Apr 10%	228.74	0.53	442.84	133.84	137.26	130.49	135.95	3.31	5.46
Big Eddy		141	May 10%	208.59	0.5	425.27	129.63	133.01	130.49	135.81	3.28	5.32
Big Eddy		141	Jun 10%	102.78	0.25	417.63	127.75	131.11	130.49	135.75	3.27	5.26
Big Eddy		141	Jul 10%	73.86	0.18	417.44	127.7	131.06	130.49	135.75	3.27	5.26
Big Eddy		141	Aug 10%	48.47	0.12	417.33	127.67	131.04	130.49	135.75	3.27	5.26
Big Eddy		141	Sep 10%	31.64	0.08	417.28	127.66	131.02	130.49	135.75	3.27	5.26

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		141	Oct 10%	46.25	0.11	417.32	127.67	131.03	130.49	135.75	3.27	5.26
Big Eddy		141	Nov 10%	71.17	0.17	417.43	127.7	131.06	130.49	135.75	3.27	5.26
Big Eddy		141	Dec 10%	67.48	0.16	417.41	127.69	131.06	130.49	135.75	3.27	5.26
Big Eddy		141	Jan 90%	15.22	0.04	417.26	127.66	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Feb 90%	13.4	0.03	417.25	127.65	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Mar 90%	13.91	0.03	417.25	127.65	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Apr 90%	28.82	0.07	417.28	127.66	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	May 90%	61.67	0.15	417.38	127.69	131.05	130.49	135.75	3.27	5.26
Big Eddy		141	Jun 90%	33.96	0.08	417.29	127.66	131.03	130.49	135.75	3.27	5.26
Big Eddy		141	Jul 90%	16.63	0.04	417.26	127.66	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Aug 90%	9.06	0.02	417.25	127.65	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Sep 90%	7.63	0.02	417.25	127.65	131.01	130.49	135.75	3.27	5.26
Big Eddy		141	Oct 90%	8.15	0.02	417.25	127.65	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Nov 90%	9.99	0.02	417.25	127.65	131.02	130.49	135.75	3.27	5.26
Big Eddy		141	Dec 90%	14.71	0.04	417.26	127.66	131.02	130.49	135.75	3.27	5.26
Big Eddy		114	Jan 10%	51.39	0.13	385.16	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Feb 10%	41.11	0.11	385.14	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Mar 10%	51.06	0.13	385.16	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Apr 10%	228.74	0.57	406.29	113.22	117.21	131.22	135.94	3.59	4.72
Big Eddy		114	May 10%	208.59	0.54	391.46	110.63	114.57	131.22	135.81	3.54	4.59
Big Eddy		114	Jun 10%	102.78	0.27	385.31	109.94	113.86	131.22	135.75	3.50	4.53
Big Eddy		114	Jul 10%	73.86	0.19	385.21	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Aug 10%	48.47	0.13	385.16	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Sep 10%	31.64	0.08	385.13	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Oct 10%	46.25	0.12	385.15	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Nov 10%	71.17	0.19	385.21	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Dec 10%	67.48	0.18	385.2	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Jan 90%	15.22	0.04	385.12	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Feb 90%	13.4	0.04	385.11	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Mar 90%	13.91	0.04	385.12	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Apr 90%	28.82	0.08	385.13	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	May 90%	61.67	0.16	385.18	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Jun 90%	33.96	0.09	385.13	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Jul 90%	16.63	0.04	385.12	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Aug 90%	9.06	0.02	385.11	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Sep 90%	7.63	0.02	385.11	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Oct 90%	8.15	0.02	385.11	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Nov 90%	9.99	0.03	385.11	109.93	113.85	131.22	135.75	3.50	4.53
Big Eddy		114	Dec 90%	14.71	0.04	385.12	109.93	113.85	131.22	135.75	3.50	4.53

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		84	Jan 10%	51.39	0.13	387.17	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Feb 10%	41.11	0.11	387.16	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Mar 10%	51.06	0.13	387.17	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Apr 10%	228.74	0.57	408.69	116.4	121.41	129.81	135.94	3.51	6.13
Big Eddy		84	May 10%	208.59	0.54	393.37	114.58	119.52	129.81	135.8	3.43	5.99
Big Eddy		84	Jun 10%	102.78	0.27	387.26	113.83	118.75	129.81	135.75	3.40	5.94
Big Eddy		84	Jul 10%	73.86	0.19	387.2	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Aug 10%	48.47	0.13	387.17	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Sep 10%	31.64	0.08	387.15	113.82	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Oct 10%	46.25	0.12	387.16	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Nov 10%	71.17	0.19	387.2	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Dec 10%	67.48	0.18	387.19	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Jan 90%	15.22	0.04	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Feb 90%	13.4	0.03	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Mar 90%	13.91	0.04	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Apr 90%	28.82	0.08	387.15	113.82	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	May 90%	61.67	0.16	387.18	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Jun 90%	33.96	0.09	387.15	113.82	118.74	129.81	135.75	3.40	5.94
Big Eddy		84	Jul 90%	16.63	0.04	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Aug 90%	9.06	0.02	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Sep 90%	7.63	0.02	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Oct 90%	8.15	0.02	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Nov 90%	9.99	0.03	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		84	Dec 90%	14.71	0.04	387.14	113.81	118.73	129.81	135.75	3.40	5.94
Big Eddy		72	Jan 10%	51.39	0.14	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Feb 10%	41.11	0.11	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Mar 10%	51.06	0.14	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Apr 10%	228.74	0.59	398.25	119.57	121.58	130.48	135.93	3.33	5.45
Big Eddy		72	May 10%	208.59	0.55	382.52	117.85	119.82	130.48	135.8	3.25	5.32
Big Eddy		72	Jun 10%	102.78	0.28	376.44	117.18	119.13	130.48	135.75	3.21	5.27
Big Eddy		72	Jul 10%	73.86	0.2	376.41	117.18	119.13	130.48	135.75	3.21	5.27
Big Eddy		72	Aug 10%	48.47	0.13	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Sep 10%	31.64	0.09	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Oct 10%	46.25	0.12	376.4	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Nov 10%	71.17	0.19	376.41	117.18	119.13	130.48	135.75	3.21	5.27
Big Eddy		72	Dec 10%	67.48	0.18	376.41	117.18	119.13	130.48	135.75	3.21	5.27
Big Eddy		72	Jan 90%	15.22	0.04	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Feb 90%	13.4	0.04	376.39	117.18	119.12	130.48	135.75	3.21	5.27

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		72	Mar 90%	13.91	0.04	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Apr 90%	28.82	0.08	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	May 90%	61.67	0.17	376.41	117.18	119.13	130.48	135.75	3.21	5.27
Big Eddy		72	Jun 90%	33.96	0.09	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Jul 90%	16.63	0.04	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Aug 90%	9.06	0.02	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Sep 90%	7.63	0.02	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Oct 90%	8.15	0.02	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Nov 90%	9.99	0.03	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		72	Dec 90%	14.71	0.04	376.39	117.18	119.12	130.48	135.75	3.21	5.27
Big Eddy		53	Jan 10%	51.39	0.14	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Feb 10%	41.11	0.11	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Mar 10%	51.06	0.14	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Apr 10%	228.74	0.59	389.65	118.05	121.73	130.78	135.93	3.30	5.15
Big Eddy		53	May 10%	208.59	0.56	374.01	117.84	121.35	130.78	135.8	3.17	5.02
Big Eddy		53	Jun 10%	102.78	0.28	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Jul 10%	73.86	0.2	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Aug 10%	48.47	0.13	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Sep 10%	31.64	0.09	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Oct 10%	46.25	0.13	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Nov 10%	71.17	0.19	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Dec 10%	67.48	0.18	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Jan 90%	15.22	0.04	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Feb 90%	13.4	0.04	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Mar 90%	13.91	0.04	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Apr 90%	28.82	0.08	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	May 90%	61.67	0.17	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Jun 90%	33.96	0.09	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Jul 90%	16.63	0.05	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Aug 90%	9.06	0.02	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Sep 90%	7.63	0.02	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Oct 90%	8.15	0.02	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Nov 90%	9.99	0.03	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy		53	Dec 90%	14.71	0.04	368.05	117.76	121.2	130.78	135.75	3.13	4.97
Big Eddy	0	35	Jan 10%	51.39	0.5	102.17	86.93	87.15	132.3	134.5	1.18	2.2
Big Eddy	0	35	Feb 10%	41.11	0.45	90.75	82.74	82.94	132.3	134.36	1.10	2.06
Big Eddy	0	35	Mar 10%	51.06	0.5	101.82	86.89	87.12	132.3	134.49	1.17	2.19
Big Eddy	0	35	Apr 10%	228.74	1	232.5	105.31	105.84	132.3	135.87	2.21	3.57

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	May 10%	208.59	0.96	219.04	103.24	103.75	132.3	135.74	2.12	3.44
Big Eddy	0	35	Jun 10%	102.78	0.71	145.67	92.71	93.05	132.3	134.98	1.57	2.68
Big Eddy	0	35	Jul 10%	73.86	0.6	122.96	89.2	89.49	132.3	134.73	1.38	2.43
Big Eddy	0	35	Aug 10%	48.47	0.49	99.09	86.64	86.86	132.3	134.46	1.14	2.16
Big Eddy	0	35	Sep 10%	31.64	0.4	79.57	69.14	69.32	132.3	134.22	1.15	1.92
Big Eddy	0	35	Oct 10%	46.25	0.48	96.66	86.41	86.62	132.3	134.43	1.12	2.13
Big Eddy	0	35	Nov 10%	71.17	0.59	120.67	88.84	89.12	132.3	134.71	1.36	2.41
Big Eddy	0	35	Dec 10%	67.48	0.57	117.48	88.33	88.61	132.3	134.67	1.33	2.37
Big Eddy	0	35	Jan 90%	15.22	0.25	59.75	57.72	57.87	132.3	133.9	1.04	1.6
Big Eddy	0	35	Feb 90%	13.4	0.23	57.21	56.8	56.95	132.3	133.85	1.01	1.55
Big Eddy	0	35	Mar 90%	13.91	0.24	57.91	57.06	57.2	132.3	133.87	1.01	1.57
Big Eddy	0	35	Apr 90%	28.82	0.38	76.37	65.01	65.18	132.3	134.17	1.17	1.87
Big Eddy	0	35	May 90%	61.67	0.55	112.29	87.86	88.12	132.3	134.61	1.28	2.31
Big Eddy	0	35	Jun 90%	33.96	0.41	82.36	73.74	73.92	132.3	134.26	1.12	1.96
Big Eddy	0	35	Jul 90%	16.63	0.27	61.72	58.42	58.57	132.3	133.93	1.06	1.63
Big Eddy	0	35	Aug 90%	9.06	0.18	50.61	54.35	54.48	132.3	133.74	0.93	1.44
Big Eddy	0	35	Sep 90%	7.63	0.16	48.18	53.42	53.55	132.3	133.69	0.90	1.39
Big Eddy	0	35	Oct 90%	8.15	0.17	49.08	53.77	53.89	132.3	133.71	0.91	1.41
Big Eddy	0	35	Nov 90%	9.99	0.19	52.12	54.92	55.06	132.3	133.76	0.95	1.46
Big Eddy	0	35	Dec 90%	14.71	0.25	59.05	57.46	57.61	132.3	133.89	1.03	1.59

Table A-9: Downstream HEC-RAS Results for Monthly Q10 and Q90 Flows – Existing Conditions

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	0	35	Jan 10%	51.39	0.5	102.17	86.93	87.15	132.3	134.5	1.18	2.2
Big Eddy	0	35	Feb 10%	41.11	0.45	90.75	82.74	82.94	132.3	134.36	1.10	2.06
Big Eddy	0	35	Mar 10%	51.06	0.5	101.82	86.89	87.12	132.3	134.49	1.17	2.19
Big Eddy	0	35	Apr 10%	228.74	1	232.5	105.31	105.84	132.3	135.87	2.21	3.57
Big Eddy	0	35	May 10%	208.59	0.96	219.04	103.24	103.75	132.3	135.74	2.12	3.44
Big Eddy	0	35	Jun 10%	102.78	0.71	145.67	92.71	93.05	132.3	134.98	1.57	2.68
Big Eddy	0	35	Jul 10%	73.86	0.6	122.96	89.2	89.49	132.3	134.73	1.38	2.43
Big Eddy	0	35	Aug 10%	48.47	0.49	99.09	86.64	86.86	132.3	134.46	1.14	2.16
Big Eddy	0	35	Sep 10%	31.64	0.4	79.57	69.14	69.32	132.3	134.22	1.15	1.92
Big Eddy	0	35	Oct 10%	46.25	0.48	96.66	86.41	86.62	132.3	134.43	1.12	2.13
Big Eddy	0	35	Nov 10%	71.17	0.59	120.67	88.84	89.12	132.3	134.71	1.36	2.41
Big Eddy	0	35	Dec 10%	67.48	0.57	117.48	88.33	88.61	132.3	134.67	1.33	2.37
Big Eddy	0	35	Jan 90%	15.22	0.25	59.75	57.72	57.87	132.3	133.9	1.04	1.6
Big Eddy	0	35	Feb 90%	13.4	0.23	57.21	56.8	56.95	132.3	133.85	1.01	1.55
Big Eddy	0	35	Mar 90%	13.91	0.24	57.91	57.06	57.2	132.3	133.87	1.01	1.57
Big Eddy	0	35	Apr 90%	28.82	0.38	76.37	65.01	65.18	132.3	134.17	1.17	1.87
Big Eddy	0	35	May 90%	61.67	0.55	112.29	87.86	88.12	132.3	134.61	1.28	2.31
Big Eddy	0	35	Jun 90%	33.96	0.41	82.36	73.74	73.92	132.3	134.26	1.12	1.96
Big Eddy	0	35	Jul 90%	16.63	0.27	61.72	58.42	58.57	132.3	133.93	1.06	1.63
Big Eddy	0	35	Aug 90%	9.06	0.18	50.61	54.35	54.48	132.3	133.74	0.93	1.44
Big Eddy	0	35	Sep 90%	7.63	0.16	48.18	53.42	53.55	132.3	133.69	0.90	1.39
Big Eddy	0	35	Oct 90%	8.15	0.17	49.08	53.77	53.89	132.3	133.71	0.91	1.41
Big Eddy	0	35	Nov 90%	9.99	0.19	52.12	54.92	55.06	132.3	133.76	0.95	1.46
Big Eddy	0	35	Dec 90%	14.71	0.25	59.05	57.46	57.61	132.3	133.89	1.03	1.59
Big Eddy		-10	Jan 10%	51.39	1.42	36.14	34.43	34.87	133.21	134.36	1.05	1.15
Big Eddy		-10	Feb 10%	41.11	1.27	32.45	34.05	34.43	133.21	134.25	0.95	1.04
Big Eddy		-10	Mar 10%	51.06	1.42	36.03	34.42	34.85	133.21	134.35	1.05	1.14
Big Eddy		-10	Apr 10%	228.74	3.42	66.91	47.51	48.28	133.21	135.19	1.41	1.98
Big Eddy		-10	May 10%	208.59	3.3	63.17	41.13	41.9	133.21	135.1	1.54	1.89
Big Eddy		-10	Jun 10%	102.78	2.14	47.96	35.34	36.02	133.21	134.69	1.36	1.48
Big Eddy		-10	Jul 10%	73.86	1.75	42.28	34.93	35.49	133.21	134.53	1.21	1.32
Big Eddy		-10	Aug 10%	48.47	1.38	35.15	34.33	34.76	133.21	134.33	1.02	1.12
Big Eddy		-10	Sep 10%	31.64	1.11	28.42	33.61	33.93	133.21	134.13	0.85	0.92
Big Eddy		-10	Oct 10%	46.25	1.35	34.37	34.25	34.66	133.21	134.3	1.00	1.09
Big Eddy		-10	Nov 10%	71.17	1.71	41.65	34.88	35.43	133.21	134.52	1.19	1.31
Big Eddy		-10	Dec 10%	67.48	1.66	40.76	34.81	35.34	133.21	134.49	1.17	1.28
Big Eddy		-10	Jan 90%	15.22	0.79	19.28	32.3	32.5	133.21	133.85	0.60	0.64

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-10	Feb 90%	13.4	0.74	18.02	32.02	32.21	133.21	133.81	0.56	0.6
Big Eddy		-10	Mar 90%	13.91	0.76	18.37	32.09	32.29	133.21	133.82	0.57	0.61
Big Eddy		-10	Apr 90%	28.82	1.07	27.06	33.45	33.75	133.21	134.09	0.81	0.88
Big Eddy		-10	May 90%	61.67	1.57	39.25	34.68	35.19	133.21	134.45	1.13	1.24
Big Eddy		-10	Jun 90%	33.96	1.15	29.49	33.73	34.07	133.21	134.16	0.87	0.95
Big Eddy		-10	Jul 90%	16.63	0.82	20.27	32.51	32.72	133.21	133.88	0.62	0.67
Big Eddy		-10	Aug 90%	9.06	0.62	14.66	31.27	31.42	133.21	133.71	0.47	0.5
Big Eddy		-10	Sep 90%	7.63	0.57	13.39	30.98	31.12	133.21	133.67	0.43	0.46
Big Eddy		-10	Oct 90%	8.15	0.59	13.86	31.08	31.23	133.21	133.68	0.45	0.47
Big Eddy		-10	Nov 90%	9.99	0.65	15.44	31.44	31.61	133.21	133.73	0.49	0.52
Big Eddy		-10	Dec 90%	14.71	0.78	18.93	32.22	32.42	133.21	133.84	0.59	0.63
Big Eddy		-49	Jan 10%	51.39	1.42	36.3	58.54	58.63	133.14	134.15	0.62	1.01
Big Eddy		-49	Feb 10%	41.11	1.32	31.15	50.93	51.02	133.14	134.05	0.61	0.91
Big Eddy		-49	Mar 10%	51.06	1.41	36.14	58.3	58.4	133.14	134.15	0.62	1.01
Big Eddy		-49	Apr 10%	228.74	2.98	81.34	90.75	90.93	133.14	134.72	0.90	1.58
Big Eddy		-49	May 10%	208.59	2.69	82.59	90.82	91.01	133.14	134.73	0.91	1.59
Big Eddy		-49	Jun 10%	102.78	1.87	55.47	82.59	82.71	133.14	134.43	0.67	1.29
Big Eddy		-49	Jul 10%	73.86	1.61	45.76	68.5	68.61	133.14	134.3	0.67	1.16
Big Eddy		-49	Aug 10%	48.47	1.39	34.86	56.41	56.51	133.14	134.12	0.62	0.98
Big Eddy		-49	Sep 10%	31.64	1.2	26.27	44.37	44.46	133.14	133.95	0.59	0.81
Big Eddy		-49	Oct 10%	46.25	1.37	33.72	54.72	54.82	133.14	134.1	0.62	0.96
Big Eddy		-49	Nov 10%	71.17	1.59	44.75	67.66	67.76	133.14	134.28	0.66	1.14
Big Eddy		-49	Dec 10%	67.48	1.56	43.32	66.45	66.56	133.14	134.26	0.65	1.12
Big Eddy		-49	Jan 90%	15.22	0.88	17.23	34.69	34.77	133.14	133.72	0.50	0.58
Big Eddy		-49	Feb 90%	13.4	0.83	16.14	33.96	34.03	133.14	133.69	0.48	0.55
Big Eddy		-49	Mar 90%	13.91	0.85	16.42	34.09	34.16	133.14	133.7	0.48	0.56
Big Eddy		-49	Apr 90%	28.82	1.16	24.77	42.38	42.47	133.14	133.92	0.58	0.78
Big Eddy		-49	May 90%	61.67	1.5	41.02	64.41	64.51	133.14	134.23	0.64	1.09
Big Eddy		-49	Jun 90%	33.96	1.23	27.52	46.07	46.16	133.14	133.98	0.60	0.84
Big Eddy		-49	Jul 90%	16.63	0.92	18.15	35.67	35.75	133.14	133.75	0.51	0.61
Big Eddy		-49	Aug 90%	9.06	0.68	13.25	32.59	32.65	133.14	133.6	0.41	0.46
Big Eddy		-49	Sep 90%	7.63	0.63	12.17	32.06	32.12	133.14	133.57	0.38	0.43
Big Eddy		-49	Oct 90%	8.15	0.65	12.56	32.26	32.31	133.14	133.58	0.39	0.44
Big Eddy		-49	Nov 90%	9.99	0.72	13.92	32.91	32.97	133.14	133.62	0.42	0.48
Big Eddy		-49	Dec 90%	14.71	0.87	16.94	34.38	34.45	133.14	133.71	0.49	0.57
Big Eddy		-101	Jan 10%	51.39	1.74	29.56	97.05	97.07	133.06	133.39	0.30	0.33
Big Eddy		-101	Feb 10%	41.11	1.62	25.31	95.23	95.24	133.06	133.34	0.27	0.28
Big Eddy		-101	Mar 10%	51.06	1.73	29.43	96.99	97.01	133.06	133.39	0.30	0.33

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-101	Apr 10%	228.74	2.42	94.43	114.53	114.61	133.06	133.99	0.82	0.93
Big Eddy		-101	May 10%	208.59	2.64	78.98	112.58	112.64	133.06	133.85	0.70	0.79
Big Eddy		-101	Jun 10%	102.78	2.14	48.11	104.64	104.66	133.06	133.57	0.46	0.51
Big Eddy		-101	Jul 10%	73.86	1.94	38.1	100.61	100.64	133.06	133.47	0.38	0.41
Big Eddy		-101	Aug 10%	48.47	1.71	28.38	96.55	96.56	133.06	133.38	0.29	0.32
Big Eddy		-101	Sep 10%	31.64	1.5	21.11	93.39	93.4	133.06	133.3	0.23	0.24
Big Eddy		-101	Oct 10%	46.25	1.68	27.46	96.15	96.17	133.06	133.37	0.29	0.31
Big Eddy		-101	Nov 10%	71.17	1.92	37.12	100.21	100.23	133.06	133.46	0.37	0.4
Big Eddy		-101	Dec 10%	67.48	1.89	35.75	99.64	99.67	133.06	133.45	0.36	0.39
Big Eddy		-101	Jan 90%	15.22	1.19	12.83	89.65	89.66	133.06	133.21	0.14	0.15
Big Eddy		-101	Feb 90%	13.4	1.14	11.73	89.15	89.15	133.06	133.2	0.13	0.14
Big Eddy		-101	Mar 90%	13.91	1.15	12.05	89.29	89.3	133.06	133.2	0.13	0.14
Big Eddy		-101	Apr 90%	28.82	1.45	19.81	92.81	92.82	133.06	133.28	0.21	0.22
Big Eddy		-101	May 90%	61.67	1.84	33.58	98.74	98.76	133.06	133.43	0.34	0.37
Big Eddy		-101	Jun 90%	33.96	1.53	22.18	93.86	93.87	133.06	133.31	0.24	0.25
Big Eddy		-101	Jul 90%	16.63	1.22	13.6	90.01	90.01	133.06	133.22	0.15	0.16
Big Eddy		-101	Aug 90%	9.06	1	9.03	87.88	87.89	133.06	133.17	0.10	0.11
Big Eddy		-101	Sep 90%	7.63	0.95	8.01	87.41	87.41	133.06	133.15	0.09	0.09
Big Eddy		-101	Oct 90%	8.15	0.97	8.41	87.6	87.6	133.06	133.16	0.10	0.1
Big Eddy		-101	Nov 90%	9.99	1.04	9.62	88.16	88.17	133.06	133.17	0.11	0.11
Big Eddy		-101	Dec 90%	14.71	1.17	12.54	89.52	89.53	133.06	133.21	0.14	0.15
Big Eddy	1	-172	Jan 10%	51.39	0.48	107.7	39.77	43.02	128.75	132.77	2.71	4.02
Big Eddy	1	-172	Feb 10%	41.11	0.4	103.64	39.61	42.76	128.75	132.66	2.62	3.91
Big Eddy	1	-172	Mar 10%	51.06	0.47	107.57	39.76	43.02	128.75	132.76	2.71	4.01
Big Eddy	1	-172	Apr 10%	228.74	1.46	156.48	41.3	46.43	128.75	133.96	3.79	5.21
Big Eddy	1	-172	May 10%	208.59	1.37	151.99	41.2	45.97	128.75	133.86	3.69	5.11
Big Eddy	1	-172	Jun 10%	102.78	0.82	124.79	40.77	44.42	128.75	133.19	3.06	4.44
Big Eddy	1	-172	Jul 10%	73.86	0.64	115.67	40.08	43.54	128.75	132.97	2.89	4.22
Big Eddy	1	-172	Aug 10%	48.47	0.45	106.58	39.72	42.95	128.75	132.74	2.68	3.99
Big Eddy	1	-172	Sep 10%	31.64	0.32	99.58	39.46	42.5	128.75	132.56	2.52	3.81
Big Eddy	1	-172	Oct 10%	46.25	0.44	105.71	39.69	42.9	128.75	132.72	2.66	3.97
Big Eddy	1	-172	Nov 10%	71.17	0.62	114.77	40.03	43.48	128.75	132.94	2.87	4.19
Big Eddy	1	-172	Dec 10%	67.48	0.59	113.51	39.99	43.4	128.75	132.91	2.84	4.16
Big Eddy	1	-172	Jan 90%	15.22	0.17	91.35	38.99	41.85	128.75	132.35	2.34	3.6
Big Eddy	1	-172	Feb 90%	13.4	0.15	90.29	38.92	41.76	128.75	132.32	2.32	3.57
Big Eddy	1	-172	Mar 90%	13.91	0.15	90.59	38.94	41.78	128.75	132.33	2.33	3.58
Big Eddy	1	-172	Apr 90%	28.82	0.29	98.3	39.41	42.42	128.75	132.53	2.49	3.78
Big Eddy	1	-172	May 90%	61.67	0.55	111.48	39.91	43.27	128.75	132.86	2.79	4.11
Big Eddy	1	-172	Jun 90%	33.96	0.34	100.61	39.5	42.57	128.75	132.59	2.55	3.84

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	1	-172	Jul 90%	16.63	0.18	92.15	39.04	41.92	128.75	132.37	2.36	3.62
Big Eddy	1	-172	Aug 90%	9.06	0.1	87.53	38.75	41.52	128.75	132.25	2.26	3.5
Big Eddy	1	-172	Sep 90%	7.63	0.09	86.52	38.68	41.43	128.75	132.23	2.24	3.48
Big Eddy	1	-172	Oct 90%	8.15	0.09	86.89	38.71	41.46	128.75	132.24	2.24	3.49
Big Eddy	1	-172	Nov 90%	9.99	0.11	88.16	38.79	41.57	128.75	132.27	2.27	3.52
Big Eddy	1	-172	Dec 90%	14.71	0.16	91.06	38.97	41.82	128.75	132.34	2.34	3.59
Big Eddy		-194	Jan 10%	51.39	2.18	23.56	49.04	49.34	131.99	132.5	0.48	0.51
Big Eddy		-194	Feb 10%	41.11	2.03	20.28	48.87	49.12	131.99	132.44	0.41	0.45
Big Eddy		-194	Mar 10%	51.06	2.18	23.46	49.04	49.33	131.99	132.5	0.48	0.51
Big Eddy		-194	Apr 10%	228.74	3.57	64.28	50.56	51.58	131.99	133.32	1.27	1.33
Big Eddy		-194	May 10%	208.59	3.46	60.43	50.42	51.38	131.99	133.24	1.20	1.25
Big Eddy		-194	Jun 10%	102.78	2.74	37.52	49.64	50.17	131.99	132.78	0.76	0.79
Big Eddy		-194	Jul 10%	73.86	2.46	30.04	49.32	49.72	131.99	132.63	0.61	0.64
Big Eddy		-194	Aug 10%	48.47	2.14	22.64	49	49.28	131.99	132.48	0.46	0.49
Big Eddy		-194	Sep 10%	31.64	1.86	17.01	48.7	48.9	131.99	132.37	0.35	0.38
Big Eddy		-194	Oct 10%	46.25	2.11	21.92	48.96	49.23	131.99	132.47	0.45	0.48
Big Eddy		-194	Nov 10%	71.17	2.43	29.29	49.29	49.68	131.99	132.62	0.59	0.63
Big Eddy		-194	Dec 10%	67.48	2.39	28.27	49.24	49.62	131.99	132.6	0.57	0.61
Big Eddy		-194	Jan 90%	15.22	1.46	10.41	48.22	48.34	131.99	132.23	0.22	0.24
Big Eddy		-194	Feb 90%	13.4	1.4	9.55	48.15	48.26	131.99	132.21	0.20	0.22
Big Eddy		-194	Mar 90%	13.91	1.42	9.8	48.17	48.28	131.99	132.22	0.20	0.23
Big Eddy		-194	Apr 90%	28.82	1.8	15.98	48.65	48.83	131.99	132.35	0.33	0.36
Big Eddy		-194	May 90%	61.67	2.32	26.6	49.17	49.52	131.99	132.56	0.54	0.57
Big Eddy		-194	Jun 90%	33.96	1.9	17.84	48.75	48.96	131.99	132.39	0.37	0.4
Big Eddy		-194	Jul 90%	16.63	1.51	11.04	48.28	48.4	131.99	132.25	0.23	0.26
Big Eddy		-194	Aug 90%	9.06	1.22	7.41	47.97	48.06	131.99	132.17	0.15	0.18
Big Eddy		-194	Sep 90%	7.63	1.13	6.74	47.91	47.99	131.99	132.16	0.14	0.17
Big Eddy		-194	Oct 90%	8.15	1.17	6.99	47.94	48.02	131.99	132.16	0.15	0.17
Big Eddy		-194	Nov 90%	9.99	1.28	7.82	48.01	48.1	131.99	132.18	0.16	0.19
Big Eddy		-194	Dec 90%	14.71	1.45	10.17	48.2	48.32	131.99	132.23	0.21	0.24
Big Eddy		-274	Jan 10%	51.39	2.84	18.1	36.62	36.67	129.09	129.73	0.49	0.64
Big Eddy		-274	Feb 10%	41.11	2.62	15.7	34.9	34.95	129.09	129.66	0.45	0.57
Big Eddy		-274	Mar 10%	51.06	2.83	18.02	36.57	36.62	129.09	129.72	0.49	0.63
Big Eddy		-274	Apr 10%	228.74	4.92	46.54	47.02	47.2	129.09	130.38	0.99	1.29
Big Eddy		-274	May 10%	208.59	4.75	43.9	46.61	46.77	129.09	130.33	0.94	1.24
Big Eddy		-274	Jun 10%	102.78	3.61	28.45	43.26	43.33	129.09	129.98	0.66	0.89
Big Eddy		-274	Jul 10%	73.86	3.22	22.93	39.85	39.91	129.09	129.85	0.58	0.76
Big Eddy		-274	Aug 10%	48.47	2.78	17.44	36.16	36.2	129.09	129.71	0.48	0.62

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-274	Sep 10%	31.64	2.38	13.27	33.08	33.11	129.09	129.59	0.40	0.5
Big Eddy		-274	Oct 10%	46.25	2.73	16.94	35.8	35.84	129.09	129.69	0.47	0.6
Big Eddy		-274	Nov 10%	71.17	3.18	22.39	39.51	39.57	129.09	129.84	0.57	0.75
Big Eddy		-274	Dec 10%	67.48	3.12	21.61	39	39.06	129.09	129.82	0.55	0.73
Big Eddy		-274	Jan 90%	15.22	1.81	8.4	29.06	29.08	129.09	129.43	0.29	0.34
Big Eddy		-274	Feb 90%	13.4	1.73	7.77	28.49	28.52	129.09	129.41	0.27	0.32
Big Eddy		-274	Mar 90%	13.91	1.75	7.95	28.66	28.68	129.09	129.41	0.28	0.32
Big Eddy		-274	Apr 90%	28.82	2.3	12.52	32.49	32.52	129.09	129.56	0.39	0.47
Big Eddy		-274	May 90%	61.67	3.02	20.39	38.19	38.25	129.09	129.79	0.53	0.7
Big Eddy		-274	Jun 90%	33.96	2.45	13.85	33.52	33.56	129.09	129.6	0.41	0.51
Big Eddy		-274	Jul 90%	16.63	1.87	8.88	29.47	29.5	129.09	129.45	0.30	0.36
Big Eddy		-274	Aug 90%	9.06	1.49	6.06	26.92	26.94	129.09	129.35	0.23	0.26
Big Eddy		-274	Sep 90%	7.63	1.42	5.36	26.24	26.26	129.09	129.32	0.20	0.23
Big Eddy		-274	Oct 90%	8.15	1.45	5.62	26.49	26.51	129.09	129.33	0.21	0.24
Big Eddy		-274	Nov 90%	9.99	1.55	6.46	27.3	27.32	129.09	129.36	0.24	0.27
Big Eddy		-274	Dec 90%	14.71	1.79	8.21	28.89	28.91	129.09	129.42	0.28	0.33
Big Eddy		-302	Jan 10%	51.39	1.28	40.13	44.85	44.98	127.76	128.92	0.89	1.16
Big Eddy		-302	Feb 10%	41.11	1.19	34.47	42.57	42.68	127.76	128.79	0.81	1.03
Big Eddy		-302	Mar 10%	51.06	1.28	39.95	44.78	44.91	127.76	128.92	0.89	1.16
Big Eddy		-302	Apr 10%	228.74	2.01	117.79	70.64	70.97	127.76	130.25	1.67	2.49
Big Eddy		-302	May 10%	208.59	1.94	110.26	69.83	70.14	127.76	130.15	1.58	2.39
Big Eddy		-302	Jun 10%	102.78	1.56	65.74	53.98	54.17	127.76	129.44	1.22	1.68
Big Eddy		-302	Jul 10%	73.86	1.43	51.8	49.22	49.38	127.76	129.17	1.05	1.41
Big Eddy		-302	Aug 10%	48.47	1.26	38.54	44.22	44.35	127.76	128.89	0.87	1.13
Big Eddy		-302	Sep 10%	31.64	1.09	28.93	40.21	40.31	127.76	128.66	0.72	0.9
Big Eddy		-302	Oct 10%	46.25	1.24	37.32	43.73	43.86	127.76	128.86	0.85	1.1
Big Eddy		-302	Nov 10%	71.17	1.41	50.45	48.74	48.9	127.76	129.14	1.04	1.38
Big Eddy		-302	Dec 10%	67.48	1.39	48.56	48.05	48.2	127.76	129.11	1.01	1.35
Big Eddy		-302	Jan 90%	15.22	0.85	18.01	35.09	35.16	127.76	128.37	0.51	0.61
Big Eddy		-302	Feb 90%	13.4	0.81	16.64	34.4	34.46	127.76	128.33	0.48	0.57
Big Eddy		-302	Mar 90%	13.91	0.82	17.03	34.6	34.67	127.76	128.34	0.49	0.58
Big Eddy		-302	Apr 90%	28.82	1.06	27.21	39.44	39.54	127.76	128.62	0.69	0.86
Big Eddy		-302	May 90%	61.67	1.35	45.55	46.93	47.08	127.76	129.04	0.97	1.28
Big Eddy		-302	Jun 90%	33.96	1.12	30.33	40.82	40.92	127.76	128.69	0.74	0.93
Big Eddy		-302	Jul 90%	16.63	0.87	19.05	35.62	35.69	127.76	128.4	0.53	0.64
Big Eddy		-302	Aug 90%	9.06	0.69	13.04	32.5	32.56	127.76	128.22	0.40	0.46
Big Eddy		-302	Sep 90%	7.63	0.65	11.75	31.8	31.85	127.76	128.18	0.37	0.42
Big Eddy		-302	Oct 90%	8.15	0.67	12.23	32.06	32.11	127.76	128.2	0.38	0.44
Big Eddy		-302	Nov 90%	9.99	0.72	13.87	32.95	33	127.76	128.25	0.42	0.49

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-302	Dec 90%	14.71	0.83	17.62	34.9	34.97	127.76	128.36	0.50	0.6
Big Eddy		-321	Jan 10%	51.39	1.66	30.95	36.41	36.58	127.73	128.76	0.85	1.03
Big Eddy		-321	Feb 10%	41.11	1.54	26.71	34.92	35.07	127.73	128.65	0.76	0.92
Big Eddy		-321	Mar 10%	51.06	1.66	30.82	36.37	36.53	127.73	128.76	0.85	1.03
Big Eddy		-321	Apr 10%	228.74	2.51	91.32	58.99	59.41	127.73	130.04	1.55	2.31
Big Eddy		-321	May 10%	208.59	2.44	85.63	54.36	54.74	127.73	129.94	1.58	2.21
Big Eddy		-321	Jun 10%	102.78	2.02	50.91	45.72	45.95	127.73	129.25	1.11	1.52
Big Eddy		-321	Jul 10%	73.86	1.86	39.74	40.51	40.7	127.73	128.99	0.98	1.26
Big Eddy		-321	Aug 10%	48.47	1.63	29.75	36	36.16	127.73	128.73	0.83	1
Big Eddy		-321	Sep 10%	31.64	1.41	22.51	33.38	33.51	127.73	128.52	0.67	0.79
Big Eddy		-321	Oct 10%	46.25	1.6	28.84	35.68	35.83	127.73	128.71	0.81	0.98
Big Eddy		-321	Nov 10%	71.17	1.84	38.71	39.98	40.18	127.73	128.97	0.97	1.24
Big Eddy		-321	Dec 10%	67.48	1.81	37.25	39.23	39.42	127.73	128.93	0.95	1.2
Big Eddy		-321	Jan 90%	15.22	1.09	14	30.01	30.1	127.73	128.25	0.47	0.52
Big Eddy		-321	Feb 90%	13.4	1.04	12.93	29.56	29.64	127.73	128.22	0.44	0.49
Big Eddy		-321	Mar 90%	13.91	1.05	13.25	29.7	29.78	127.73	128.23	0.45	0.5
Big Eddy		-321	Apr 90%	28.82	1.36	21.19	32.88	33	127.73	128.48	0.64	0.75
Big Eddy		-321	May 90%	61.67	1.76	34.98	38.03	38.21	127.73	128.87	0.92	1.14
Big Eddy		-321	Jun 90%	33.96	1.44	23.58	33.78	33.91	127.73	128.55	0.70	0.82
Big Eddy		-321	Jul 90%	16.63	1.12	14.84	30.36	30.45	127.73	128.28	0.49	0.55
Big Eddy		-321	Aug 90%	9.06	0.9	10.05	28.31	28.37	127.73	128.12	0.35	0.39
Big Eddy		-321	Sep 90%	7.63	0.84	9.04	27.86	27.92	127.73	128.08	0.32	0.35
Big Eddy		-321	Oct 90%	8.15	0.86	9.42	28.03	28.09	127.73	128.1	0.34	0.37
Big Eddy		-321	Nov 90%	9.99	0.93	10.71	28.6	28.67	127.73	128.14	0.37	0.41
Big Eddy		-321	Dec 90%	14.71	1.07	13.69	29.88	29.97	127.73	128.24	0.46	0.51
Big Eddy		-339	Jan 10%	51.39	2.45	20.97	30.06	30.2	127.54	128.38	0.70	0.84
Big Eddy		-339	Feb 10%	41.11	2.35	17.51	28.6	28.72	127.54	128.27	0.61	0.73
Big Eddy		-339	Mar 10%	51.06	2.45	20.85	30.02	30.15	127.54	128.38	0.69	0.84
Big Eddy		-339	Apr 10%	228.74	3.64	62.9	47.28	47.58	127.54	129.47	1.33	1.93
Big Eddy		-339	May 10%	208.59	3.53	59.08	46.51	46.79	127.54	129.39	1.27	1.85
Big Eddy		-339	Jun 10%	102.78	2.7	38.01	38.04	38.25	127.54	128.89	1.00	1.35
Big Eddy		-339	Jul 10%	73.86	2.56	28.81	33.14	33.31	127.54	128.63	0.87	1.09
Big Eddy		-339	Aug 10%	48.47	2.42	20.07	29.69	29.82	127.54	128.35	0.68	0.81
Big Eddy		-339	Sep 10%	31.64	2.22	14.27	27.16	27.26	127.54	128.15	0.53	0.61
Big Eddy		-339	Oct 10%	46.25	2.4	19.3	29.37	29.49	127.54	128.33	0.66	0.79
Big Eddy		-339	Nov 10%	71.17	2.56	27.75	32.74	32.91	127.54	128.6	0.85	1.06
Big Eddy		-339	Dec 10%	67.48	2.54	26.57	32.29	32.45	127.54	128.56	0.82	1.02
Big Eddy		-339	Jan 90%	15.22	1.81	8.39	24.33	24.39	127.54	127.92	0.34	0.38

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-339	Feb 90%	13.4	1.75	7.68	23.97	24.02	127.54	127.89	0.32	0.35
Big Eddy		-339	Mar 90%	13.91	1.77	7.86	24.06	24.12	127.54	127.9	0.33	0.36
Big Eddy		-339	Apr 90%	28.82	2.17	13.28	26.71	26.8	127.54	128.11	0.50	0.57
Big Eddy		-339	May 90%	61.67	2.52	24.48	31.48	31.63	127.54	128.5	0.78	0.96
Big Eddy		-339	Jun 90%	33.96	2.26	15.04	27.51	27.62	127.54	128.18	0.55	0.64
Big Eddy		-339	Jul 90%	16.63	1.86	8.92	24.6	24.67	127.54	127.94	0.36	0.4
Big Eddy		-339	Aug 90%	9.06	1.53	5.92	23.04	23.09	127.54	127.82	0.26	0.28
Big Eddy		-339	Sep 90%	7.63	1.44	5.3	22.71	22.75	127.54	127.79	0.23	0.25
Big Eddy		-339	Oct 90%	8.15	1.47	5.54	22.83	22.88	127.54	127.8	0.24	0.26
Big Eddy		-339	Nov 90%	9.99	1.58	6.32	23.25	23.3	127.54	127.83	0.27	0.29
Big Eddy		-339	Dec 90%	14.71	1.79	8.2	24.23	24.29	127.54	127.91	0.34	0.37
Big Eddy		-368	Jan 10%	51.39	2.91	17.69	20.57	20.84	126.53	127.65	0.86	1.12
Big Eddy		-368	Feb 10%	41.11	2.76	14.9	19.37	19.61	126.53	127.51	0.77	0.98
Big Eddy		-368	Mar 10%	51.06	2.9	17.6	20.54	20.8	126.53	127.65	0.86	1.12
Big Eddy		-368	Apr 10%	228.74	3.69	62.63	69.26	69.7	126.53	128.79	0.90	2.26
Big Eddy		-368	May 10%	208.59	3.48	60.55	68.34	68.77	126.53	128.76	0.89	2.23
Big Eddy		-368	Jun 10%	102.78	2.97	34.62	37.29	37.67	126.53	128.31	0.93	1.78
Big Eddy		-368	Jul 10%	73.86	3.19	23.17	22.74	23.07	126.53	127.91	1.02	1.38
Big Eddy		-368	Aug 10%	48.47	2.88	16.84	20.21	20.47	126.53	127.61	0.83	1.08
Big Eddy		-368	Sep 10%	31.64	2.59	12.23	18.15	18.35	126.53	127.37	0.67	0.84
Big Eddy		-368	Oct 10%	46.25	2.85	16.25	19.97	20.22	126.53	127.58	0.81	1.05
Big Eddy		-368	Nov 10%	71.17	3.14	22.63	22.54	22.86	126.53	127.88	1.00	1.35
Big Eddy		-368	Dec 10%	67.48	3.11	21.67	22.17	22.48	126.53	127.84	0.98	1.31
Big Eddy		-368	Jan 90%	15.22	2.13	7.13	15.56	15.69	126.53	127.07	0.46	0.54
Big Eddy		-368	Feb 90%	13.4	2.06	6.51	15.21	15.33	126.53	127.03	0.43	0.5
Big Eddy		-368	Mar 90%	13.91	2.08	6.7	15.32	15.44	126.53	127.04	0.44	0.51
Big Eddy		-368	Apr 90%	28.82	2.53	11.41	17.76	17.95	126.53	127.33	0.64	0.8
Big Eddy		-368	May 90%	61.67	3.04	20.31	21.64	21.94	126.53	127.78	0.94	1.25
Big Eddy		-368	Jun 90%	33.96	2.63	12.91	18.47	18.68	126.53	127.41	0.70	0.88
Big Eddy		-368	Jul 90%	16.63	2.19	7.61	15.82	15.96	126.53	127.1	0.48	0.57
Big Eddy		-368	Aug 90%	9.06	1.85	4.91	14.28	14.37	126.53	126.92	0.34	0.39
Big Eddy		-368	Sep 90%	7.63	1.76	4.34	13.93	14.02	126.53	126.88	0.31	0.35
Big Eddy		-368	Oct 90%	8.15	1.79	4.55	14.06	14.15	126.53	126.89	0.32	0.36
Big Eddy		-368	Nov 90%	9.99	1.9	5.26	14.49	14.59	126.53	126.94	0.36	0.41
Big Eddy		-368	Dec 90%	14.71	2.11	6.96	15.46	15.59	126.53	127.06	0.45	0.53
Big Eddy	2	-446	Jan 10%	51.39	0.67	76.23	58.88	59.64	124.82	127.5	1.29	2.68
Big Eddy	2	-446	Feb 10%	41.11	0.59	69.33	57.41	58.15	124.82	127.38	1.21	2.56
Big Eddy	2	-446	Mar 10%	51.06	0.67	76	58.81	59.57	124.82	127.49	1.29	2.67

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	2	-446	Apr 10%	228.74	1.51	154.45	73.71	74.86	124.82	128.66	2.10	3.84
Big Eddy	2	-446	May 10%	208.59	1.44	147.43	72.99	74.11	124.82	128.56	2.02	3.74
Big Eddy	2	-446	Jun 10%	102.78	0.98	104.61	64.67	65.53	124.82	127.95	1.62	3.13
Big Eddy	2	-446	Jul 10%	73.86	0.82	89.78	62.59	63.39	124.82	127.72	1.43	2.9
Big Eddy	2	-446	Aug 10%	48.47	0.65	74.31	58.32	59.08	124.82	127.46	1.27	2.64
Big Eddy	2	-446	Sep 10%	31.64	0.51	62.31	55.95	56.66	124.82	127.25	1.11	2.43
Big Eddy	2	-446	Oct 10%	46.25	0.63	72.85	58.07	58.82	124.82	127.44	1.25	2.62
Big Eddy	2	-446	Nov 10%	71.17	0.81	88.3	62.38	63.17	124.82	127.69	1.42	2.87
Big Eddy	2	-446	Dec 10%	67.48	0.78	86.18	62.05	62.84	124.82	127.66	1.39	2.84
Big Eddy	2	-446	Jan 90%	15.22	0.32	47.95	45.94	46.57	124.82	126.98	1.04	2.16
Big Eddy	2	-446	Feb 90%	13.4	0.29	46.24	44.14	44.77	124.82	126.94	1.05	2.12
Big Eddy	2	-446	Mar 90%	13.91	0.3	46.72	44.66	45.29	124.82	126.95	1.05	2.13
Big Eddy	2	-446	Apr 90%	28.82	0.48	60.07	55.58	56.28	124.82	127.21	1.08	2.39
Big Eddy	2	-446	May 90%	61.67	0.75	82.75	61.32	62.09	124.82	127.6	1.35	2.78
Big Eddy	2	-446	Jun 90%	33.96	0.53	64.1	56.33	57.04	124.82	127.28	1.14	2.46
Big Eddy	2	-446	Jul 90%	16.63	0.34	49.26	47.1	47.74	124.82	127	1.05	2.18
Big Eddy	2	-446	Aug 90%	9.06	0.22	42.08	38.71	39.32	124.82	126.84	1.09	2.02
Big Eddy	2	-446	Sep 90%	7.63	0.19	40.73	36.66	37.26	124.82	126.8	1.11	1.98
Big Eddy	2	-446	Oct 90%	8.15	0.2	41.2	36.85	37.46	124.82	126.81	1.12	1.99
Big Eddy	2	-446	Nov 90%	9.99	0.23	43	40.53	41.14	124.82	126.86	1.06	2.04
Big Eddy	2	-446	Dec 90%	14.71	0.31	47.48	45.45	46.08	124.82	126.97	1.04	2.15
Big Eddy		-494	Jan 10%	51.39	2.26	22.73	43.73	43.78	126.5	127.14	0.52	0.64
Big Eddy		-494	Feb 10%	41.11	2.13	19.34	41.69	41.73	126.5	127.06	0.46	0.56
Big Eddy		-494	Mar 10%	51.06	2.25	22.69	43.71	43.76	126.5	127.14	0.52	0.64
Big Eddy		-494	Apr 10%	228.74	3.3	69.34	62.64	62.78	126.5	128	1.11	1.5
Big Eddy		-494	May 10%	208.59	3.21	64.9	61.55	61.68	126.5	127.93	1.05	1.43
Big Eddy		-494	Jun 10%	102.78	2.68	38.36	52.13	52.21	126.5	127.47	0.74	0.97
Big Eddy		-494	Jul 10%	73.86	2.47	29.96	47.8	47.87	126.5	127.3	0.63	0.8
Big Eddy		-494	Aug 10%	48.47	2.22	21.82	43.19	43.24	126.5	127.12	0.51	0.62
Big Eddy		-494	Sep 10%	31.64	1.99	15.88	39.49	39.53	126.5	126.98	0.40	0.48
Big Eddy		-494	Oct 10%	46.25	2.2	21.01	42.71	42.76	126.5	127.1	0.49	0.6
Big Eddy		-494	Nov 10%	71.17	2.45	29.01	47.29	47.35	126.5	127.28	0.61	0.78
Big Eddy		-494	Dec 10%	67.48	2.42	27.92	46.69	46.75	126.5	127.26	0.60	0.76
Big Eddy		-494	Jan 90%	15.22	1.62	9.42	35.03	35.05	126.5	126.8	0.27	0.3
Big Eddy		-494	Feb 90%	13.4	1.56	8.61	34.43	34.45	126.5	126.78	0.25	0.28
Big Eddy		-494	Mar 90%	13.91	1.58	8.82	34.58	34.61	126.5	126.79	0.26	0.29
Big Eddy		-494	Apr 90%	28.82	1.94	14.85	38.82	38.85	126.5	126.95	0.38	0.45
Big Eddy		-494	May 90%	61.67	2.37	25.99	45.61	45.67	126.5	127.21	0.57	0.71
Big Eddy		-494	Jun 90%	33.96	2.03	16.75	40.05	40.09	126.5	127	0.42	0.5

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-494	Jul 90%	16.63	1.66	10.02	35.46	35.49	126.5	126.82	0.28	0.32
Big Eddy		-494	Aug 90%	9.06	1.4	6.48	32.79	32.81	126.5	126.72	0.20	0.22
Big Eddy		-494	Sep 90%	7.63	1.34	5.67	32.15	32.17	126.5	126.69	0.18	0.19
Big Eddy		-494	Oct 90%	8.15	1.35	6.06	32.46	32.47	126.5	126.7	0.19	0.2
Big Eddy		-494	Nov 90%	9.99	1.45	6.91	33.13	33.15	126.5	126.73	0.21	0.23
Big Eddy		-494	Dec 90%	14.71	1.61	9.16	34.84	34.86	126.5	126.8	0.26	0.3
Big Eddy		-552	Jan 10%	51.39	0.7	73.62	49.85	52.18	123.71	126.42	1.48	2.71
Big Eddy		-552	Feb 10%	41.11	0.62	66.17	48.84	51.1	123.71	126.27	1.35	2.56
Big Eddy		-552	Mar 10%	51.06	0.7	73.39	49.82	52.15	123.71	126.41	1.47	2.7
Big Eddy		-552	Apr 10%	228.74	1.53	149.92	55.74	58.97	123.71	127.87	2.69	4.16
Big Eddy		-552	May 10%	208.59	1.46	143.41	54.97	58.16	123.71	127.76	2.61	4.05
Big Eddy		-552	Jun 10%	102.78	1	102.86	51.77	54.51	123.71	126.99	1.99	3.28
Big Eddy		-552	Jul 10%	73.86	0.84	87.79	51.1	53.61	123.71	126.7	1.72	2.99
Big Eddy		-552	Aug 10%	48.47	0.68	71.59	49.58	51.89	123.71	126.38	1.44	2.67
Big Eddy		-552	Sep 10%	31.64	0.54	58.45	47.77	49.94	123.71	126.11	1.22	2.4
Big Eddy		-552	Oct 10%	46.25	0.66	70	49.36	51.66	123.71	126.34	1.42	2.63
Big Eddy		-552	Nov 10%	71.17	0.83	86.22	51.03	53.52	123.71	126.67	1.69	2.96
Big Eddy		-552	Dec 10%	67.48	0.8	84.03	50.93	53.39	123.71	126.62	1.65	2.91
Big Eddy		-552	Jan 90%	15.22	0.37	41.35	45.34	47.32	123.71	125.74	0.91	2.03
Big Eddy		-552	Feb 90%	13.4	0.34	38.88	45.1	47.05	123.71	125.68	0.86	1.97
Big Eddy		-552	Mar 90%	13.91	0.35	39.57	45.17	47.12	123.71	125.7	0.88	1.99
Big Eddy		-552	Apr 90%	28.82	0.51	55.98	47.42	49.57	123.71	126.05	1.18	2.34
Big Eddy		-552	May 90%	61.67	0.77	80.41	50.75	53.16	123.71	126.55	1.58	2.84
Big Eddy		-552	Jun 90%	33.96	0.56	60.44	48.05	50.24	123.71	126.15	1.26	2.44
Big Eddy		-552	Jul 90%	16.63	0.38	43.25	45.59	47.6	123.71	125.78	0.95	2.07
Big Eddy		-552	Aug 90%	9.06	0.28	32.06	43.43	45.28	123.71	125.53	0.74	1.82
Big Eddy		-552	Sep 90%	7.63	0.26	29.52	42.11	43.91	123.71	125.47	0.70	1.76
Big Eddy		-552	Oct 90%	8.15	0.27	30.47	42.61	44.43	123.71	125.49	0.72	1.78
Big Eddy		-552	Nov 90%	9.99	0.3	33.82	44.33	46.21	123.71	125.57	0.76	1.86
Big Eddy		-552	Dec 90%	14.71	0.36	40.69	45.28	47.25	123.71	125.72	0.90	2.01
Big Eddy	3	-597	Jan 10%	51.39	0.7	73.35	51.87	53.92	123.71	126.39	1.41	2.68
Big Eddy	3	-597	Feb 10%	41.11	0.62	65.78	50.64	52.65	123.71	126.24	1.30	2.53
Big Eddy	3	-597	Mar 10%	51.06	0.7	73.12	51.83	53.88	123.71	126.38	1.41	2.67
Big Eddy	3	-597	Apr 10%	228.74	1.46	163.05	73.23	76.05	123.71	127.83	2.23	4.12
Big Eddy	3	-597	May 10%	208.59	1.4	154.51	72.74	75.51	123.71	127.71	2.12	4
Big Eddy	3	-597	Jun 10%	102.78	0.99	104.32	59.91	62.14	123.71	126.95	1.74	3.24
Big Eddy	3	-597	Jul 10%	73.86	0.84	87.93	54.69	56.82	123.71	126.66	1.61	2.95
Big Eddy	3	-597	Aug 10%	48.47	0.68	71.3	51.54	53.58	123.71	126.35	1.38	2.64

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy	3	-597	Sep 10%	31.64	0.55	57.96	49.33	51.31	123.71	126.08	1.17	2.37
Big Eddy	3	-597	Oct 10%	46.25	0.66	69.68	51.27	53.31	123.71	126.32	1.36	2.61
Big Eddy	3	-597	Nov 10%	71.17	0.82	86.29	54.29	56.41	123.71	126.63	1.59	2.92
Big Eddy	3	-597	Dec 10%	67.48	0.8	84.01	53.72	55.83	123.71	126.59	1.56	2.88
Big Eddy	3	-597	Jan 90%	15.22	0.37	40.76	46.09	47.97	123.71	125.72	0.88	2.01
Big Eddy	3	-597	Feb 90%	13.4	0.35	38.3	45.69	47.57	123.71	125.67	0.84	1.96
Big Eddy	3	-597	Mar 90%	13.91	0.36	38.98	45.8	47.68	123.71	125.68	0.85	1.97
Big Eddy	3	-597	Apr 90%	28.82	0.52	55.46	48.91	50.87	123.71	126.03	1.13	2.32
Big Eddy	3	-597	May 90%	61.67	0.77	80.3	52.97	55.06	123.71	126.52	1.52	2.81
Big Eddy	3	-597	Jun 90%	33.96	0.57	59.97	49.67	51.66	123.71	126.12	1.21	2.41
Big Eddy	3	-597	Jul 90%	16.63	0.39	42.67	46.42	48.32	123.71	125.76	0.92	2.05
Big Eddy	3	-597	Aug 90%	9.06	0.29	31.55	43.39	45.2	123.71	125.52	0.73	1.81
Big Eddy	3	-597	Sep 90%	7.63	0.26	29.07	41.93	43.71	123.71	125.46	0.69	1.75
Big Eddy	3	-597	Oct 90%	8.15	0.27	30	42.48	44.27	123.71	125.48	0.71	1.77
Big Eddy	3	-597	Nov 90%	9.99	0.3	33.28	44.39	46.22	123.71	125.56	0.75	1.85
Big Eddy	3	-597	Dec 90%	14.71	0.37	40.1	45.98	47.86	123.71	125.71	0.87	2
Big Eddy		-688	Jan 10%	51.39	0.72	71.42	55.12	58.11	123.91	126.32	1.30	2.41
Big Eddy		-688	Feb 10%	41.11	0.65	63.73	53.96	56.91	123.91	126.18	1.18	2.27
Big Eddy		-688	Mar 10%	51.06	0.72	71.19	55.08	58.07	123.91	126.32	1.29	2.41
Big Eddy		-688	Apr 10%	228.74	1.47	157.2	68.28	71.68	123.91	127.7	2.30	3.79
Big Eddy		-688	May 10%	208.59	1.4	149.45	67.8	71.13	123.91	127.59	2.20	3.68
Big Eddy		-688	Jun 10%	102.78	1.01	102.06	59.99	63.13	123.91	126.86	1.70	2.95
Big Eddy		-688	Jul 10%	73.86	0.86	86.14	57.26	60.32	123.91	126.58	1.50	2.67
Big Eddy		-688	Aug 10%	48.47	0.7	69.34	54.81	57.79	123.91	126.28	1.27	2.37
Big Eddy		-688	Sep 10%	31.64	0.57	55.77	52.55	55.47	123.91	126.03	1.06	2.12
Big Eddy		-688	Oct 10%	46.25	0.68	67.69	54.56	57.53	123.91	126.25	1.24	2.34
Big Eddy		-688	Nov 10%	71.17	0.84	84.51	57.03	60.08	123.91	126.55	1.48	2.64
Big Eddy		-688	Dec 10%	67.48	0.82	82.23	56.7	59.74	123.91	126.51	1.45	2.6
Big Eddy		-688	Jan 90%	15.22	0.4	38.25	48.04	50.84	123.91	125.69	0.80	1.78
Big Eddy		-688	Feb 90%	13.4	0.37	35.81	46.91	49.68	123.91	125.63	0.76	1.72
Big Eddy		-688	Mar 90%	13.91	0.38	36.48	47.1	49.88	123.91	125.65	0.77	1.74
Big Eddy		-688	Apr 90%	28.82	0.54	53.24	52.08	54.99	123.91	125.98	1.02	2.07
Big Eddy		-688	May 90%	61.67	0.79	78.47	56.15	59.18	123.91	126.45	1.40	2.54
Big Eddy		-688	Jun 90%	33.96	0.59	57.82	52.92	55.85	123.91	126.07	1.09	2.16
Big Eddy		-688	Jul 90%	16.63	0.41	40.19	49.05	51.87	123.91	125.73	0.82	1.82
Big Eddy		-688	Aug 90%	9.06	0.31	29.14	44.46	47.17	123.91	125.49	0.66	1.58
Big Eddy		-688	Sep 90%	7.63	0.29	26.75	42.51	45.2	123.91	125.44	0.63	1.53
Big Eddy		-688	Oct 90%	8.15	0.29	27.64	43.54	46.25	123.91	125.46	0.63	1.55
Big Eddy		-688	Nov 90%	9.99	0.32	30.86	45.83	48.57	123.91	125.53	0.67	1.62

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-688	Dec 90%	14.71	0.39	37.59	47.69	50.48	123.91	125.67	0.79	1.76
Big Eddy		-764	Jan 10%	51.39	1.25	41.13	39.48	42.07	124.11	126.15	1.04	2.04
Big Eddy		-764	Feb 10%	41.11	1.13	36.47	37.93	40.5	124.11	126.03	0.96	1.92
Big Eddy		-764	Mar 10%	51.06	1.25	40.98	39.43	42.02	124.11	126.15	1.04	2.04
Big Eddy		-764	Apr 10%	228.74	2.47	92.95	49.17	52.11	124.11	127.29	1.89	3.18
Big Eddy		-764	May 10%	208.59	2.36	88.49	48.77	51.67	124.11	127.2	1.81	3.09
Big Eddy		-764	Jun 10%	102.78	1.71	60.26	45.09	47.77	124.11	126.6	1.34	2.49
Big Eddy		-764	Jul 10%	73.86	1.47	50.29	42.73	45.35	124.11	126.38	1.18	2.27
Big Eddy		-764	Aug 10%	48.47	1.22	39.87	39.06	41.65	124.11	126.12	1.02	2.01
Big Eddy		-764	Sep 10%	31.64	1	31.69	36.29	38.83	124.11	125.9	0.87	1.79
Big Eddy		-764	Oct 10%	46.25	1.19	38.86	38.73	41.31	124.11	126.1	1.00	1.99
Big Eddy		-764	Nov 10%	71.17	1.44	49.26	42.4	45.02	124.11	126.35	1.16	2.24
Big Eddy		-764	Dec 10%	67.48	1.41	47.83	41.94	44.56	124.11	126.32	1.14	2.21
Big Eddy		-764	Jan 90%	15.22	0.7	21.63	29.42	31.92	124.11	125.61	0.74	1.5
Big Eddy		-764	Feb 90%	13.4	0.66	20.35	28.13	30.62	124.11	125.56	0.72	1.45
Big Eddy		-764	Mar 90%	13.91	0.67	20.69	28.54	31.03	124.11	125.57	0.72	1.46
Big Eddy		-764	Apr 90%	28.82	0.95	30.2	35.75	38.29	124.11	125.86	0.84	1.75
Big Eddy		-764	May 90%	61.67	1.36	45.48	41.02	43.63	124.11	126.26	1.11	2.15
Big Eddy		-764	Jun 90%	33.96	1.03	32.92	36.72	39.27	124.11	125.94	0.90	1.83
Big Eddy		-764	Jul 90%	16.63	0.73	22.67	31.12	33.62	124.11	125.64	0.73	1.53
Big Eddy		-764	Aug 90%	9.06	0.53	17.03	23.52	25.97	124.11	125.44	0.72	1.33
Big Eddy		-764	Sep 90%	7.63	0.48	15.95	22.46	24.9	124.11	125.39	0.71	1.28
Big Eddy		-764	Oct 90%	8.15	0.5	16.35	22.86	25.3	124.11	125.41	0.72	1.3
Big Eddy		-764	Nov 90%	9.99	0.56	17.87	26.03	28.5	124.11	125.47	0.69	1.36
Big Eddy		-764	Dec 90%	14.71	0.69	21.28	29.21	31.7	124.11	125.59	0.73	1.48
Big Eddy		-794	Jan 10%	51.39	2.39	21.5	37.44	37.51	124.98	125.71	0.57	0.73
Big Eddy		-794	Feb 10%	41.11	2.26	18.22	35.62	35.68	124.98	125.62	0.51	0.64
Big Eddy		-794	Mar 10%	51.06	2.39	21.4	37.39	37.46	124.98	125.71	0.57	0.73
Big Eddy		-794	Apr 10%	228.74	3.53	64.86	51.23	51.5	124.98	126.66	1.27	1.68
Big Eddy		-794	May 10%	208.59	3.43	60.75	50.6	50.85	124.98	126.58	1.20	1.6
Big Eddy		-794	Jun 10%	102.78	2.81	36.54	45.35	45.47	124.98	126.08	0.81	1.1
Big Eddy		-794	Jul 10%	73.86	2.62	28.2	40.92	41	124.98	125.88	0.69	0.9
Big Eddy		-794	Aug 10%	48.47	2.35	20.59	36.95	37.01	124.98	125.69	0.56	0.71
Big Eddy		-794	Sep 10%	31.64	2.1	15.03	33.75	33.81	124.98	125.53	0.45	0.55
Big Eddy		-794	Oct 10%	46.25	2.33	19.88	36.55	36.62	124.98	125.67	0.54	0.69
Big Eddy		-794	Nov 10%	71.17	2.6	27.42	40.53	40.62	124.98	125.86	0.68	0.88
Big Eddy		-794	Dec 10%	67.48	2.56	26.35	39.99	40.07	124.98	125.84	0.66	0.86
Big Eddy		-794	Jan 90%	15.22	1.72	8.86	29.8	29.84	124.98	125.34	0.30	0.36

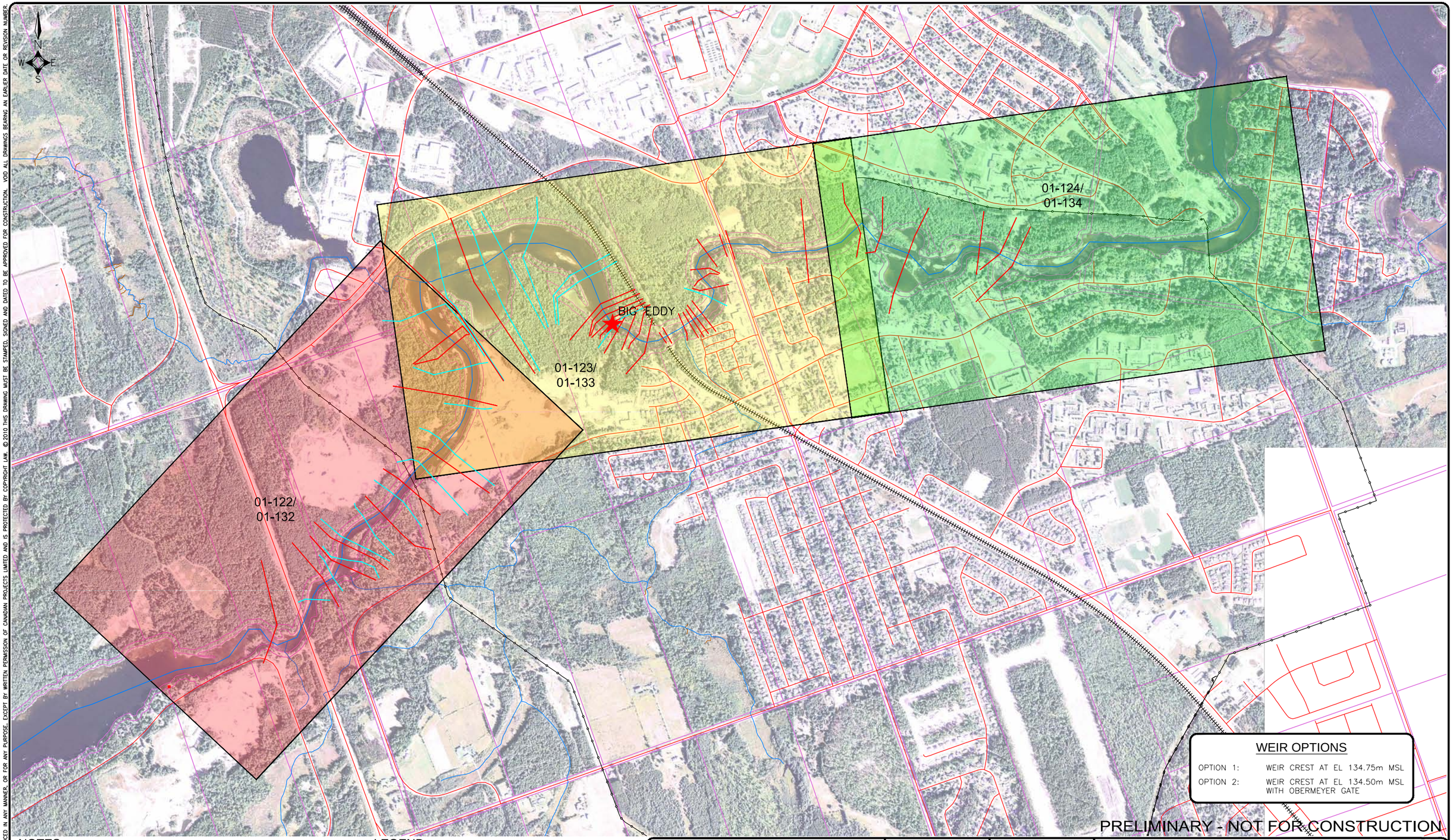
Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-794	Feb 90%	13.4	1.66	8.09	29.27	29.3	124.98	125.31	0.28	0.33
Big Eddy		-794	Mar 90%	13.91	1.67	8.33	29.44	29.47	124.98	125.32	0.28	0.34
Big Eddy		-794	Apr 90%	28.82	2.05	14.05	33.15	33.2	124.98	125.5	0.42	0.52
Big Eddy		-794	May 90%	61.67	2.5	24.63	39.11	39.19	124.98	125.79	0.63	0.81
Big Eddy		-794	Jun 90%	33.96	2.15	15.83	34.23	34.29	124.98	125.55	0.46	0.57
Big Eddy		-794	Jul 90%	16.63	1.76	9.44	30.2	30.24	124.98	125.35	0.31	0.37
Big Eddy		-794	Aug 90%	9.06	1.48	6.13	27.88	27.91	124.98	125.24	0.22	0.26
Big Eddy		-794	Sep 90%	7.63	1.4	5.44	27.37	27.39	124.98	125.22	0.20	0.24
Big Eddy		-794	Oct 90%	8.15	1.43	5.69	27.56	27.58	124.98	125.22	0.21	0.24
Big Eddy		-794	Nov 90%	9.99	1.52	6.56	28.2	28.22	124.98	125.26	0.23	0.28
Big Eddy		-794	Dec 90%	14.71	1.7	8.66	29.67	29.7	124.98	125.33	0.29	0.35
Big Eddy		-1127	Jan 10%	51.39	0.76	67.22	33.43	34.36	121	123.52	2.01	2.52
Big Eddy		-1127	Feb 10%	41.11	0.66	62.48	32.66	33.54	121	123.37	1.91	2.37
Big Eddy		-1127	Mar 10%	51.06	0.76	67.06	33.4	34.33	121	123.51	2.01	2.51
Big Eddy		-1127	Apr 10%	228.74	1.64	139.58	64.96	66.44	121	124.95	2.15	3.95
Big Eddy		-1127	May 10%	208.59	1.57	132.6	64.25	65.69	121	124.85	2.06	3.85
Big Eddy		-1127	Jun 10%	102.78	1.16	88.79	45.96	47.13	121	124.08	1.93	3.08
Big Eddy		-1127	Jul 10%	73.86	0.96	76.61	37.06	38.1	121	123.79	2.07	2.79
Big Eddy		-1127	Aug 10%	48.47	0.74	65.9	33.22	34.13	121	123.48	1.98	2.48
Big Eddy		-1127	Sep 10%	31.64	0.55	57.79	31.89	32.71	121	123.23	1.81	2.23
Big Eddy		-1127	Oct 10%	46.25	0.71	64.9	33.06	33.96	121	123.45	1.96	2.45
Big Eddy		-1127	Nov 10%	71.17	0.94	75.5	36.16	37.18	121	123.76	2.09	2.76
Big Eddy		-1127	Dec 10%	67.48	0.91	74	34.88	35.89	121	123.72	2.12	2.72
Big Eddy		-1127	Jan 90%	15.22	0.31	48.4	30.27	30.98	121	122.93	1.60	1.93
Big Eddy		-1127	Feb 90%	13.4	0.28	47.21	30.06	30.76	121	122.89	1.57	1.89
Big Eddy		-1127	Mar 90%	13.91	0.29	47.54	30.12	30.82	121	122.9	1.58	1.9
Big Eddy		-1127	Apr 90%	28.82	0.51	56.29	31.64	32.44	121	123.18	1.78	2.18
Big Eddy		-1127	May 90%	61.67	0.86	71.64	34.13	35.1	121	123.65	2.10	2.65
Big Eddy		-1127	Jun 90%	33.96	0.58	58.93	32.08	32.91	121	123.26	1.84	2.26
Big Eddy		-1127	Jul 90%	16.63	0.34	49.28	30.43	31.15	121	122.95	1.62	1.95
Big Eddy		-1127	Aug 90%	9.06	0.2	44.28	29.54	30.2	121	122.79	1.50	1.79
Big Eddy		-1127	Sep 90%	7.63	0.18	43.26	29.36	30	121	122.75	1.47	1.75
Big Eddy		-1127	Oct 90%	8.15	0.19	43.64	29.42	30.08	121	122.77	1.48	1.77
Big Eddy		-1127	Nov 90%	9.99	0.22	44.93	29.66	30.32	121	122.81	1.51	1.81
Big Eddy		-1127	Dec 90%	14.71	0.31	48.05	30.21	30.92	121	122.91	1.59	1.91
Big Eddy		-1379	Jan 10%	51.39	1.93	26.6	70.36	70.39	122.5	122.96	0.38	0.46
Big Eddy		-1379	Feb 10%	41.11	1.8	22.87	69.82	69.84	122.5	122.91	0.33	0.41
Big Eddy		-1379	Mar 10%	51.06	1.92	26.54	70.35	70.38	122.5	122.96	0.38	0.46

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-1379	Apr 10%	228.74	3.11	73.56	74.64	74.87	122.5	123.61	0.99	1.11
Big Eddy		-1379	May 10%	208.59	3.03	68.83	74.21	74.42	122.5	123.54	0.93	1.04
Big Eddy		-1379	Jun 10%	102.78	2.41	42.65	71.84	71.94	122.5	123.19	0.59	0.69
Big Eddy		-1379	Jul 10%	73.86	2.18	33.95	71.04	71.1	122.5	123.06	0.48	0.56
Big Eddy		-1379	Aug 10%	48.47	1.89	25.63	70.27	70.29	122.5	122.95	0.36	0.45
Big Eddy		-1379	Sep 10%	31.64	1.67	18.99	67.99	68	122.5	122.85	0.28	0.35
Big Eddy		-1379	Oct 10%	46.25	1.87	24.75	70.18	70.21	122.5	122.93	0.35	0.43
Big Eddy		-1379	Nov 10%	71.17	2.15	33.14	70.96	71.02	122.5	123.05	0.47	0.55
Big Eddy		-1379	Dec 10%	67.48	2.11	31.97	70.85	70.91	122.5	123.04	0.45	0.54
Big Eddy		-1379	Jan 90%	15.22	1.37	11.09	58.34	58.35	122.5	122.73	0.19	0.23
Big Eddy		-1379	Feb 90%	13.4	1.31	10.2	57.09	57.1	122.5	122.71	0.18	0.21
Big Eddy		-1379	Mar 90%	13.91	1.33	10.44	57.43	57.44	122.5	122.71	0.18	0.21
Big Eddy		-1379	Apr 90%	28.82	1.62	17.83	67.09	67.09	122.5	122.83	0.27	0.33
Big Eddy		-1379	May 90%	61.67	2.05	30.02	70.67	70.72	122.5	123.01	0.42	0.51
Big Eddy		-1379	Jun 90%	33.96	1.69	20.13	68.57	68.59	122.5	122.87	0.29	0.37
Big Eddy		-1379	Jul 90%	16.63	1.4	11.92	59.48	59.49	122.5	122.74	0.20	0.24
Big Eddy		-1379	Aug 90%	9.06	1.19	7.64	53.31	53.32	122.5	122.66	0.14	0.16
Big Eddy		-1379	Sep 90%	7.63	1.12	6.81	52.03	52.03	122.5	122.65	0.13	0.15
Big Eddy		-1379	Oct 90%	8.15	1.15	7.09	52.48	52.48	122.5	122.65	0.14	0.15
Big Eddy		-1379	Nov 90%	9.99	1.21	8.26	54.25	54.26	122.5	122.68	0.15	0.18
Big Eddy		-1379	Dec 90%	14.71	1.35	10.9	58.07	58.08	122.5	122.72	0.19	0.22
Big Eddy		-1510	Jan 10%	51.39	1.2	42.86	90.52	90.56	120	120.53	0.47	0.53
Big Eddy		-1510	Feb 10%	41.11	1.11	37.09	88.97	89	120	120.47	0.42	0.47
Big Eddy		-1510	Mar 10%	51.06	1.2	42.56	90.45	90.48	120	120.53	0.47	0.53
Big Eddy		-1510	Apr 10%	228.74	1.98	115.61	101.76	101.92	120	121.28	1.14	1.28
Big Eddy		-1510	May 10%	208.59	1.9	109.82	101.18	101.32	120	121.22	1.09	1.22
Big Eddy		-1510	Jun 10%	102.78	1.52	67.74	96.39	96.45	120	120.8	0.70	0.8
Big Eddy		-1510	Jul 10%	73.86	1.36	54.25	93.28	93.32	120	120.65	0.58	0.65
Big Eddy		-1510	Aug 10%	48.47	1.18	41.21	90.11	90.15	120	120.51	0.46	0.51
Big Eddy		-1510	Sep 10%	31.64	1.01	31.28	86.28	86.3	120	120.4	0.36	0.4
Big Eddy		-1510	Oct 10%	46.25	1.16	40.03	89.82	89.85	120	120.5	0.45	0.5
Big Eddy		-1510	Nov 10%	71.17	1.35	52.89	92.95	92.99	120	120.64	0.57	0.64
Big Eddy		-1510	Dec 10%	67.48	1.32	51.07	92.52	92.56	120	120.62	0.55	0.62
Big Eddy		-1510	Jan 90%	15.22	0.77	19.69	80.63	80.64	120	120.26	0.24	0.26
Big Eddy		-1510	Feb 90%	13.4	0.73	18.33	79.94	79.95	120	120.24	0.23	0.24
Big Eddy		-1510	Mar 90%	13.91	0.75	18.67	80.11	80.13	120	120.25	0.23	0.25
Big Eddy		-1510	Apr 90%	28.82	0.98	29.48	85.42	85.45	120	120.38	0.35	0.38
Big Eddy		-1510	May 90%	61.67	1.28	48.14	91.81	91.85	120	120.59	0.52	0.59
Big Eddy		-1510	Jun 90%	33.96	1.04	32.8	86.99	87.02	120	120.42	0.38	0.42

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-1510	Jul 90%	16.63	0.79	20.92	81.25	81.27	120	120.28	0.26	0.28
Big Eddy		-1510	Aug 90%	9.06	0.63	14.34	77.89	77.9	120	120.19	0.18	0.19
Big Eddy		-1510	Sep 90%	7.63	0.59	12.97	77.17	77.18	120	120.18	0.17	0.18
Big Eddy		-1510	Oct 90%	8.15	0.61	13.44	77.41	77.42	120	120.18	0.17	0.18
Big Eddy		-1510	Nov 90%	9.99	0.66	15.18	78.32	78.34	120	120.2	0.19	0.2
Big Eddy		-1510	Dec 90%	14.71	0.76	19.31	80.44	80.45	120	120.26	0.24	0.26
Big Eddy		-1645	Jan 10%	51.39	2.27	22.61	117.93	43.28	118	118.58	0.19	0.58
Big Eddy		-1645	Feb 10%	41.11	2.12	19.37	112.29	42.19	118	118.5	0.17	0.5
Big Eddy		-1645	Mar 10%	51.06	2.26	22.62	117.96	43.28	118	118.58	0.19	0.58
Big Eddy		-1645	Apr 10%	228.74	3.33	68.7	241.81	56.32	118	119.5	0.28	1.5
Big Eddy		-1645	May 10%	208.59	3.34	62.44	231.84	54.92	118	119.39	0.27	1.39
Big Eddy		-1645	Jun 10%	102.78	2.76	37.18	173.78	47.86	118	118.9	0.21	0.9
Big Eddy		-1645	Jul 10%	73.86	2.52	29.32	129.19	45.45	118	118.73	0.23	0.73
Big Eddy		-1645	Aug 10%	48.47	2.23	21.77	116.48	43	118	118.56	0.19	0.56
Big Eddy		-1645	Sep 10%	31.64	1.96	16.13	106.5	41.07	118	118.42	0.15	0.42
Big Eddy		-1645	Oct 10%	46.25	2.2	21.02	115.18	42.75	118	118.54	0.18	0.54
Big Eddy		-1645	Nov 10%	71.17	2.49	28.6	128.01	45.22	118	118.71	0.22	0.71
Big Eddy		-1645	Dec 10%	67.48	2.45	27.53	126.23	44.88	118	118.69	0.22	0.69
Big Eddy		-1645	Jan 90%	15.22	1.56	9.74	94.6	38.78	118	118.26	0.10	0.26
Big Eddy		-1645	Feb 90%	13.4	1.52	8.79	92.78	38.43	118	118.24	0.09	0.24
Big Eddy		-1645	Mar 90%	13.91	1.53	9.11	93.39	38.55	118	118.25	0.10	0.25
Big Eddy		-1645	Apr 90%	28.82	1.91	15.09	104.62	40.71	118	118.4	0.14	0.4
Big Eddy		-1645	May 90%	61.67	2.39	25.81	123.37	44.32	118	118.65	0.21	0.65
Big Eddy		-1645	Jun 90%	33.96	2.01	16.88	107.86	41.33	118	118.44	0.16	0.44
Big Eddy		-1645	Jul 90%	16.63	1.63	10.21	95.52	38.95	118	118.28	0.11	0.28
Big Eddy		-1645	Aug 90%	9.06	1.33	6.81	88.93	37.68	118	118.19	0.08	0.19
Big Eddy		-1645	Sep 90%	7.63	1.27	6.01	87.33	37.38	118	118.17	0.07	0.17
Big Eddy		-1645	Oct 90%	8.15	1.28	6.35	88.01	37.51	118	118.18	0.07	0.18
Big Eddy		-1645	Nov 90%	9.99	1.36	7.32	89.93	37.88	118	118.2	0.08	0.2
Big Eddy		-1645	Dec 90%	14.71	1.55	9.48	94.11	38.68	118	118.26	0.10	0.26
Big Eddy		-2034	Jan 10%	51.39	0.47	109.24	48.43	49.26	115	117.79	2.26	2.79
Big Eddy		-2034	Feb 10%	41.11	0.39	105.13	47.86	48.67	115	117.7	2.20	2.7
Big Eddy		-2034	Mar 10%	51.06	0.47	109.1	48.41	49.24	115	117.78	2.25	2.78
Big Eddy		-2034	Apr 10%	228.74	1.47	155.09	57.29	58.31	115	118.66	2.71	3.66
Big Eddy		-2034	May 10%	208.59	1.38	151	56.51	57.52	115	118.59	2.67	3.59
Big Eddy		-2034	Jun 10%	102.78	0.82	125.77	51.48	52.4	115	118.12	2.44	3.12
Big Eddy		-2034	Jul 10%	73.86	0.63	117.05	49.48	50.37	115	117.95	2.37	2.95
Big Eddy		-2034	Aug 10%	48.47	0.45	108.11	48.27	49.1	115	117.76	2.24	2.76

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-2034	Sep 10%	31.64	0.31	100.92	47.28	48.06	115	117.61	2.13	2.61
Big Eddy		-2034	Oct 10%	46.25	0.43	107.23	48.15	48.97	115	117.74	2.23	2.74
Big Eddy		-2034	Nov 10%	71.17	0.61	116.18	49.36	50.24	115	117.93	2.35	2.93
Big Eddy		-2034	Dec 10%	67.48	0.59	114.96	49.2	50.07	115	117.9	2.34	2.9
Big Eddy		-2034	Jan 90%	15.22	0.17	91.84	45.99	46.71	115	117.42	2.00	2.42
Big Eddy		-2034	Feb 90%	13.4	0.15	90.59	45.81	46.53	115	117.39	1.98	2.39
Big Eddy		-2034	Mar 90%	13.91	0.15	90.95	45.86	46.58	115	117.4	1.98	2.4
Big Eddy		-2034	Apr 90%	28.82	0.29	99.56	47.09	47.86	115	117.58	2.11	2.58
Big Eddy		-2034	May 90%	61.67	0.55	112.96	48.93	49.79	115	117.86	2.31	2.86
Big Eddy		-2034	Jun 90%	33.96	0.33	102	47.43	48.22	115	117.63	2.15	2.63
Big Eddy		-2034	Jul 90%	16.63	0.18	92.77	46.12	46.85	115	117.44	2.01	2.44
Big Eddy		-2034	Aug 90%	9.06	0.1	87.23	45.32	46.01	115	117.32	1.92	2.32
Big Eddy		-2034	Sep 90%	7.63	0.09	85.95	45.13	45.82	115	117.29	1.90	2.29
Big Eddy		-2034	Oct 90%	8.15	0.09	86.42	45.2	45.89	115	117.3	1.91	2.3
Big Eddy		-2034	Nov 90%	9.99	0.11	88	45.43	46.13	115	117.33	1.94	2.33
Big Eddy		-2034	Dec 90%	14.71	0.16	91.5	45.94	46.66	115	117.41	1.99	2.41
Big Eddy		-2125	Jan 10%	51.39	1.86	27.6	79.45	79.46	117	117.55	0.35	0.55
Big Eddy		-2125	Feb 10%	41.11	1.78	23.16	73.22	73.23	117	117.5	0.32	0.5
Big Eddy		-2125	Mar 10%	51.06	1.85	27.57	79.41	79.42	117	117.55	0.35	0.55
Big Eddy		-2125	Apr 10%	228.74	2.59	88.43	131.54	131.58	117	118.12	0.67	1.12
Big Eddy		-2125	May 10%	208.59	2.53	82.41	129.16	129.18	117	118.07	0.64	1.07
Big Eddy		-2125	Jun 10%	102.78	2.15	47.72	103.08	103.09	117	117.78	0.46	0.78
Big Eddy		-2125	Jul 10%	73.86	2.01	36.77	90.98	90.99	117	117.66	0.40	0.66
Big Eddy		-2125	Aug 10%	48.47	1.84	26.36	77.77	77.78	117	117.54	0.34	0.54
Big Eddy		-2125	Sep 10%	31.64	1.68	18.83	66.59	66.59	117	117.43	0.28	0.43
Big Eddy		-2125	Oct 10%	46.25	1.82	25.45	76.51	76.52	117	117.53	0.33	0.53
Big Eddy		-2125	Nov 10%	71.17	1.99	35.69	89.7	89.71	117	117.65	0.40	0.65
Big Eddy		-2125	Dec 10%	67.48	1.97	34.2	87.9	87.91	117	117.63	0.39	0.63
Big Eddy		-2125	Jan 90%	15.22	1.43	10.64	51.77	51.78	117	117.3	0.21	0.3
Big Eddy		-2125	Feb 90%	13.4	1.38	9.68	49.74	49.75	117	117.28	0.19	0.28
Big Eddy		-2125	Mar 90%	13.91	1.4	9.93	50.27	50.27	117	117.28	0.20	0.28
Big Eddy		-2125	Apr 90%	28.82	1.65	17.5	64.41	64.42	117	117.41	0.27	0.41
Big Eddy		-2125	May 90%	61.67	1.93	31.95	85.12	85.13	117	117.61	0.38	0.61
Big Eddy		-2125	Jun 90%	33.96	1.71	19.9	68.29	68.3	117	117.45	0.29	0.45
Big Eddy		-2125	Jul 90%	16.63	1.46	11.39	53.29	53.3	117	117.31	0.21	0.31
Big Eddy		-2125	Aug 90%	9.06	1.27	7.13	43.89	43.9	117	117.22	0.16	0.22
Big Eddy		-2125	Sep 90%	7.63	1.22	6.25	41.7	41.7	117	117.2	0.15	0.2
Big Eddy		-2125	Oct 90%	8.15	1.24	6.58	42.55	42.55	117	117.21	0.15	0.21
Big Eddy		-2125	Nov 90%	9.99	1.3	7.71	45.3	45.3	117	117.24	0.17	0.24

Reach	BPR - Section	River Sta	Profile	Q Total	Vel Chnl	Flow Area	Top Width	W.P. Total	Min Ch El	W.S. Elev	Ave Depth	Max Depth
				(m3/s)	(m/s)	(m2)	(m)	(m)	(m)	(m)	(m)	(m)
Big Eddy		-2125	Dec 90%	14.71	1.42	10.36	51.18	51.18	117	117.29	0.20	0.29



NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.

LEGEND

- WATER
- WETLAND
- ROAD
- RAILWAY
- UTILITY LINE
- LOT LINES
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- PROPOSED STRUCTURE LOCATION

WEIR OPTIONS

OPTION 1:	WEIR CREST AT EL 134.75m MSL
OPTION 2:	WEIR CREST AT EL 134.50m MSL WITH OBERMEYER GATE

PRELIMINARY - NOT FOR CONSTRUCTION

SCALE 1:15 000

0 150 300 450 600 750

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
D	12	02	28	REPLACED AIR PHOTO	DK	RJS	AB	ADF

Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
KEY PLAN

PROJECT NUMBER	1052-001
CADD NUMBER	4.3.030
DRAWING NUMBER	01-121

WSC STATION 02KB001

PETAWAWA RIVER

FLOW

STA 3+098
STA 2+807
STA 2+713
STA 2+674
STA 2+607
STA 2+585
STA 2+519
STA 2+495
STA 2+379
STA 2+306
STA 2+214
STA 2+149
STA 2+039
STA 1+970
STA 1+907
STA 1+718
STA 1+687
STA 1+545
STA 1+425
STA 1+384
STA 1+236
STA 1+071

MATCHLINE A
SEE DWG 01-123

PRELIMINARY - NOT FOR CONSTRUCTION

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.

LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
E	12	03	02	UPDATED INUNDATION EXTENTS	ADF	RJS	ADF	CPB

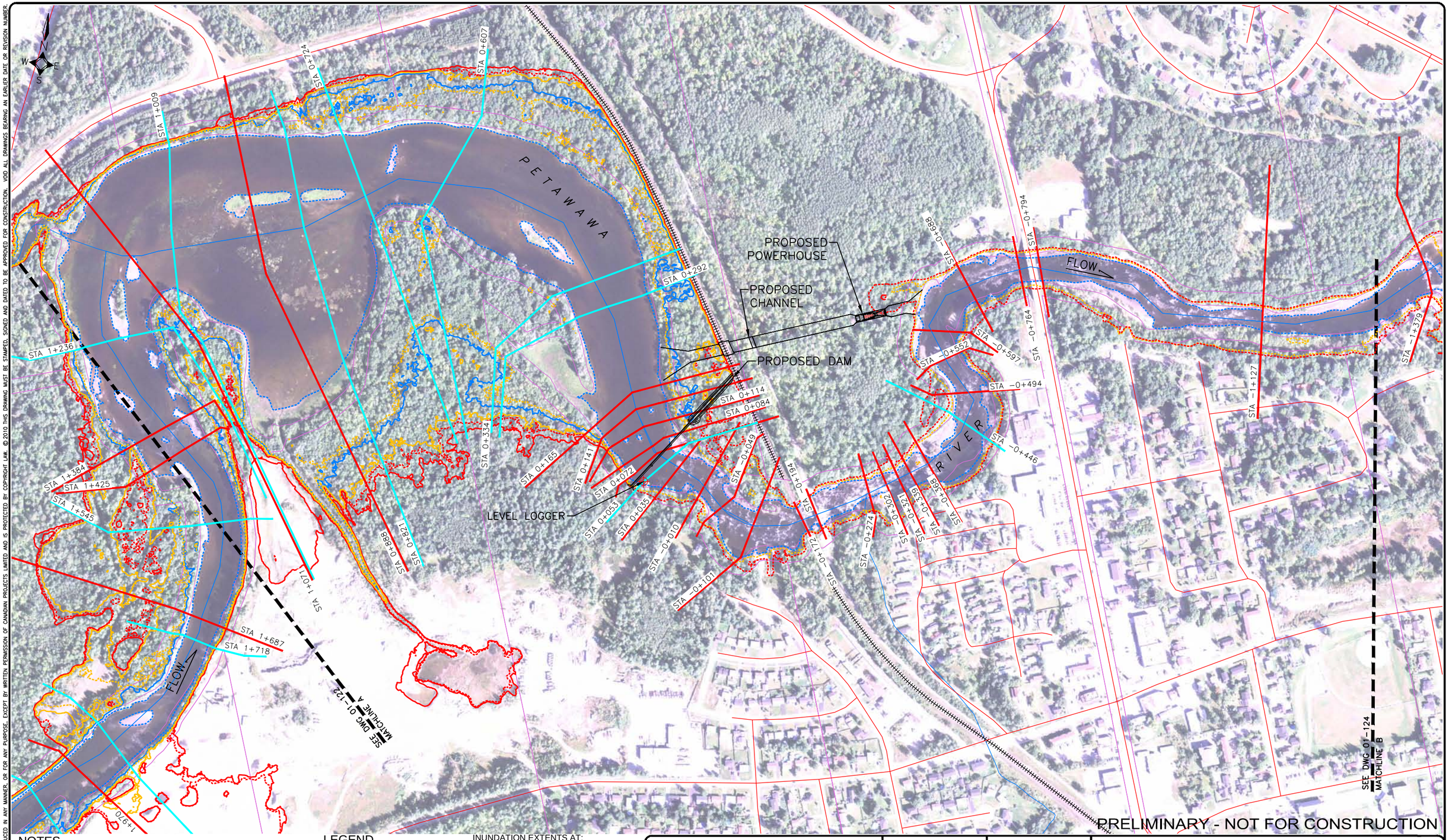
Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION 3+098 TO 1+236

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-122



PRELIMINARY - NOT FOR CONSTRUCTION

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.
4. WATER LEVELS DOWNSTREAM OF THE PROPOSED STRUCTURE WILL BE UNCHANGED.

LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
E	12	03	02	UPDATED INUNDATION EXTENTS	ADF	RJS	ADF	CPB

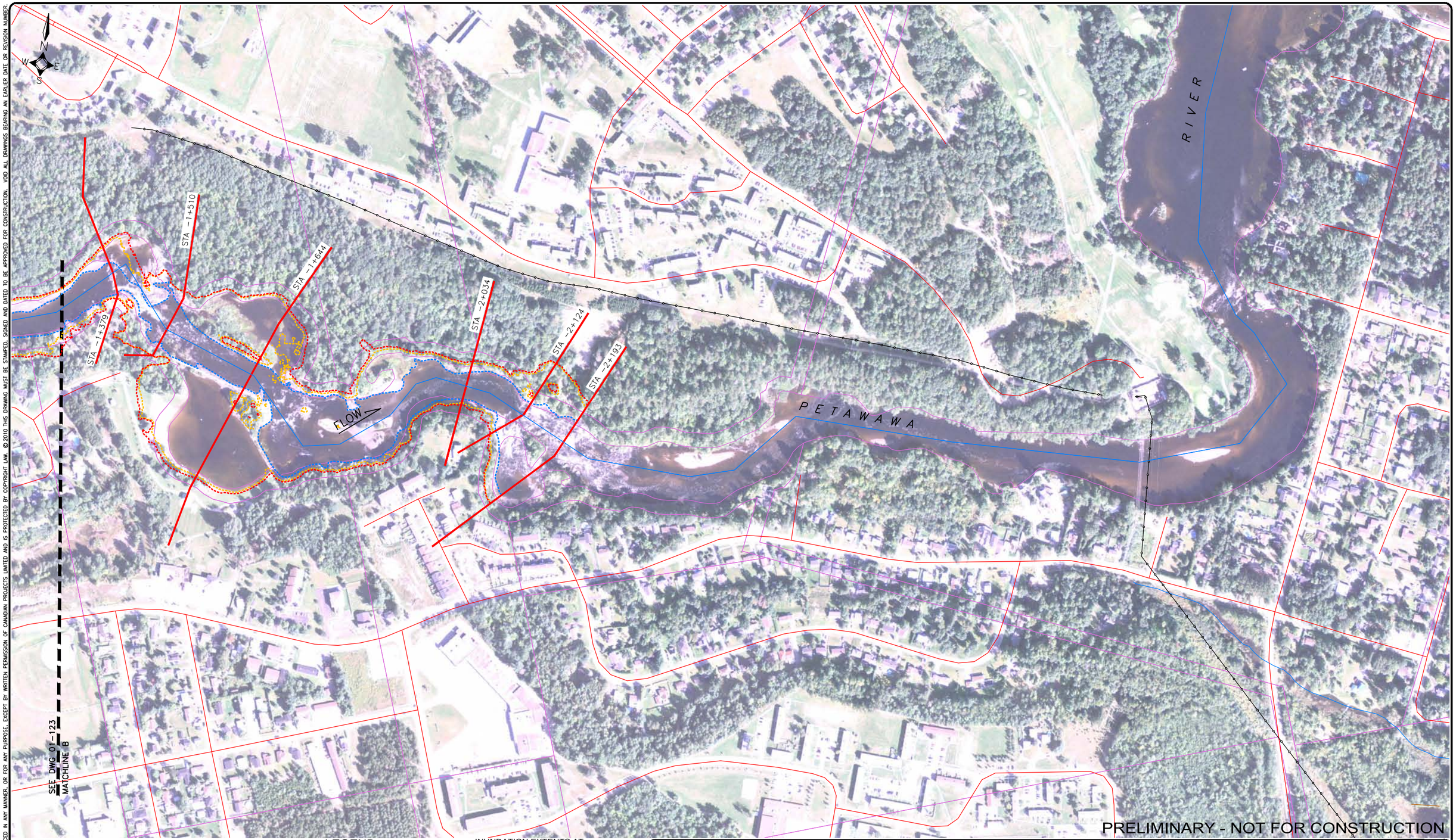
Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION 1+970 TO -1+379

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-123



PRELIMINARY - NOT FOR CONSTRUCTION

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.
4. WATER LEVELS DOWNSTREAM OF THE PROPOSED STRUCTURE WILL BE UNCHANGED.

LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
D	12	03	02	UPDATED INUNDATION EXTENTS	ADF	RJS	ADF	CPB

Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION -1+379 TO -3+642

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
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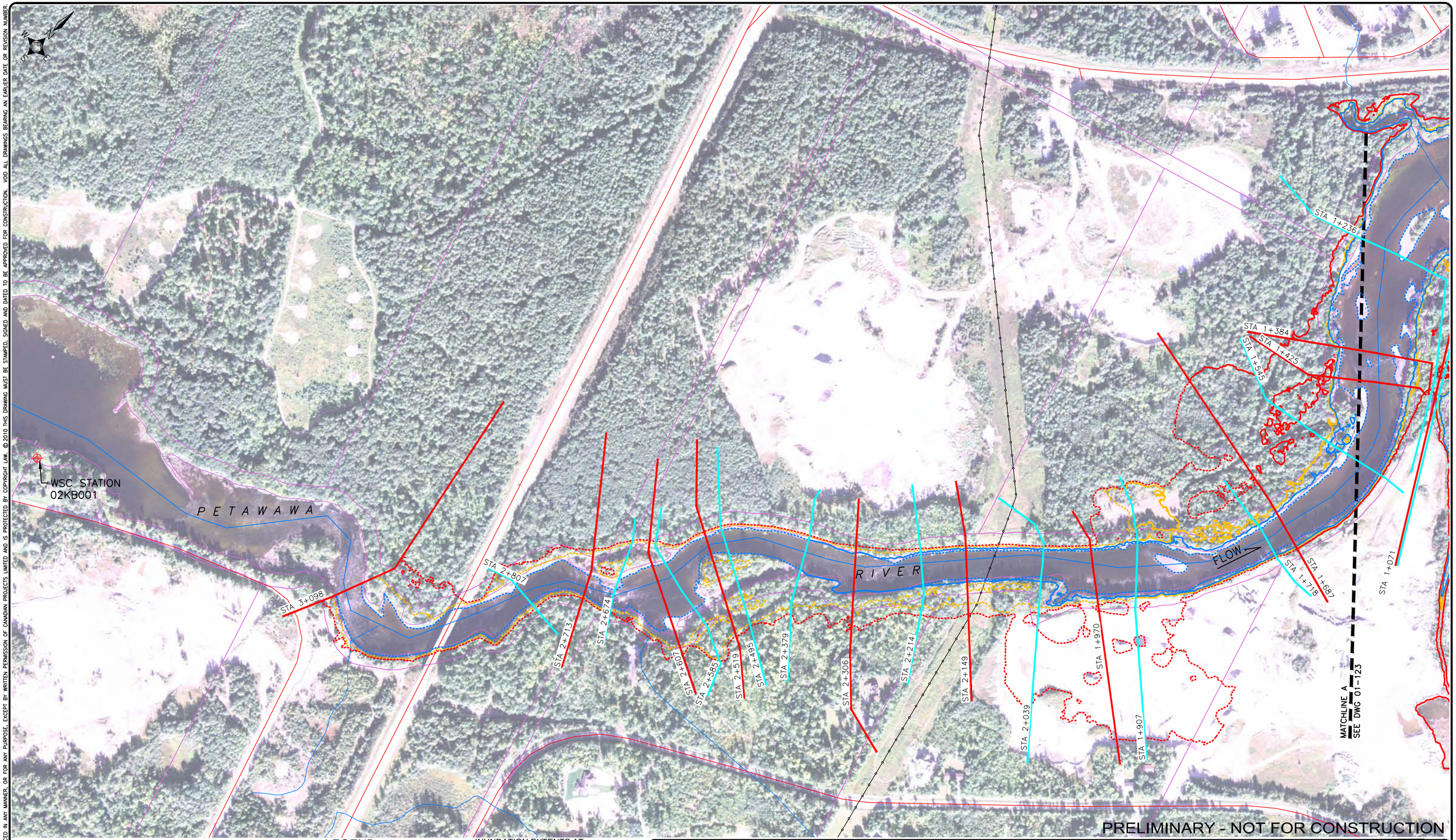


PRELIMINARY - NOT FOR CONSTRUCTION

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.

LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
A	12	03	02	NEW DRAWING	ADF	RJS	ADF	CPB

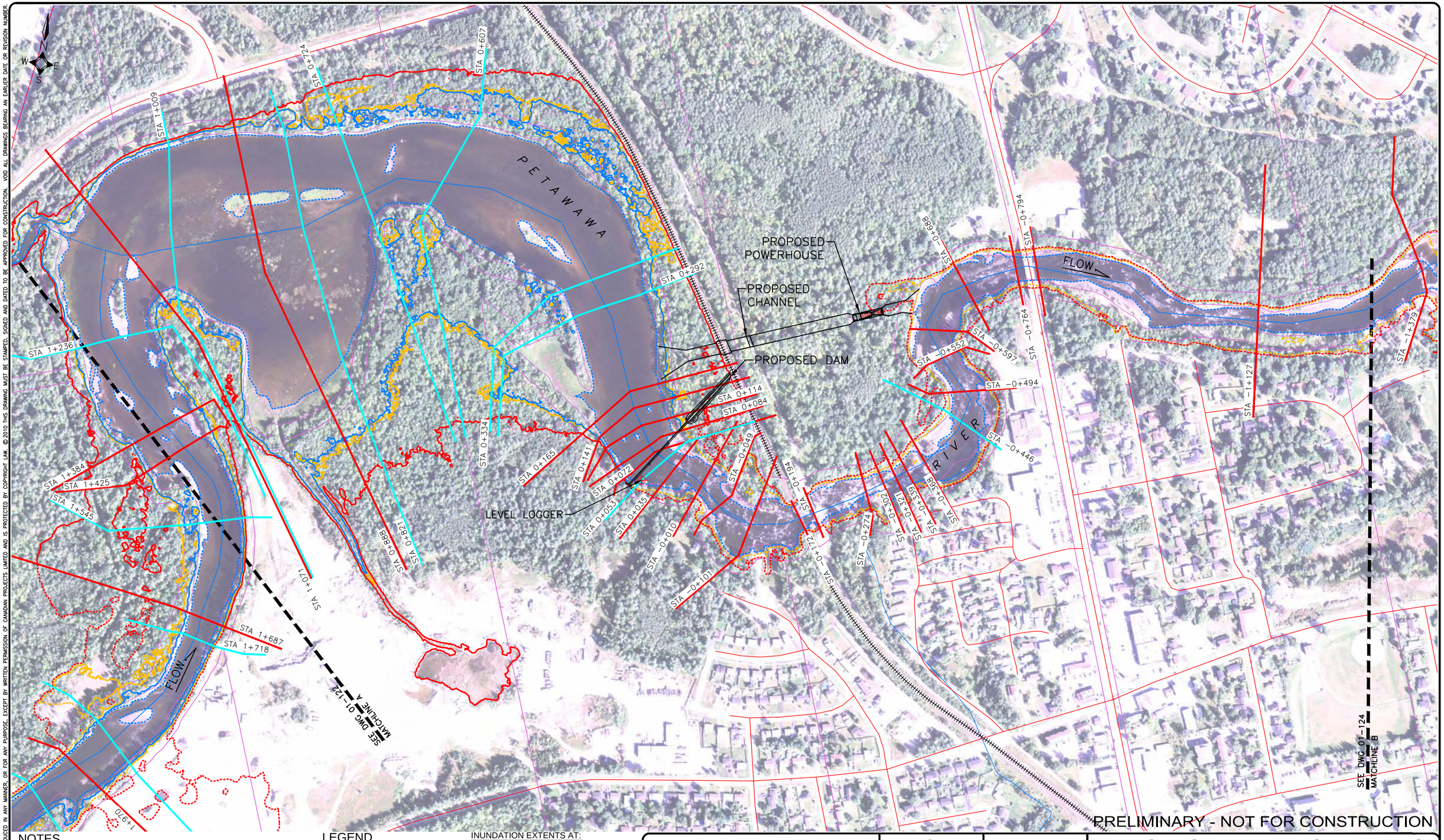
Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 2 - STATION 3+098 TO 1+236

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-132



PRELIMINARY - NOT FOR CONSTRUCTION

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3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.
4. WATER LEVELS DOWNSTREAM OF THE PROPOSED STRUCTURE WILL BE UNCHANGED.

LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
A	12	03	02	NEW DRAWING	ADF	RJS	ADF	CPB

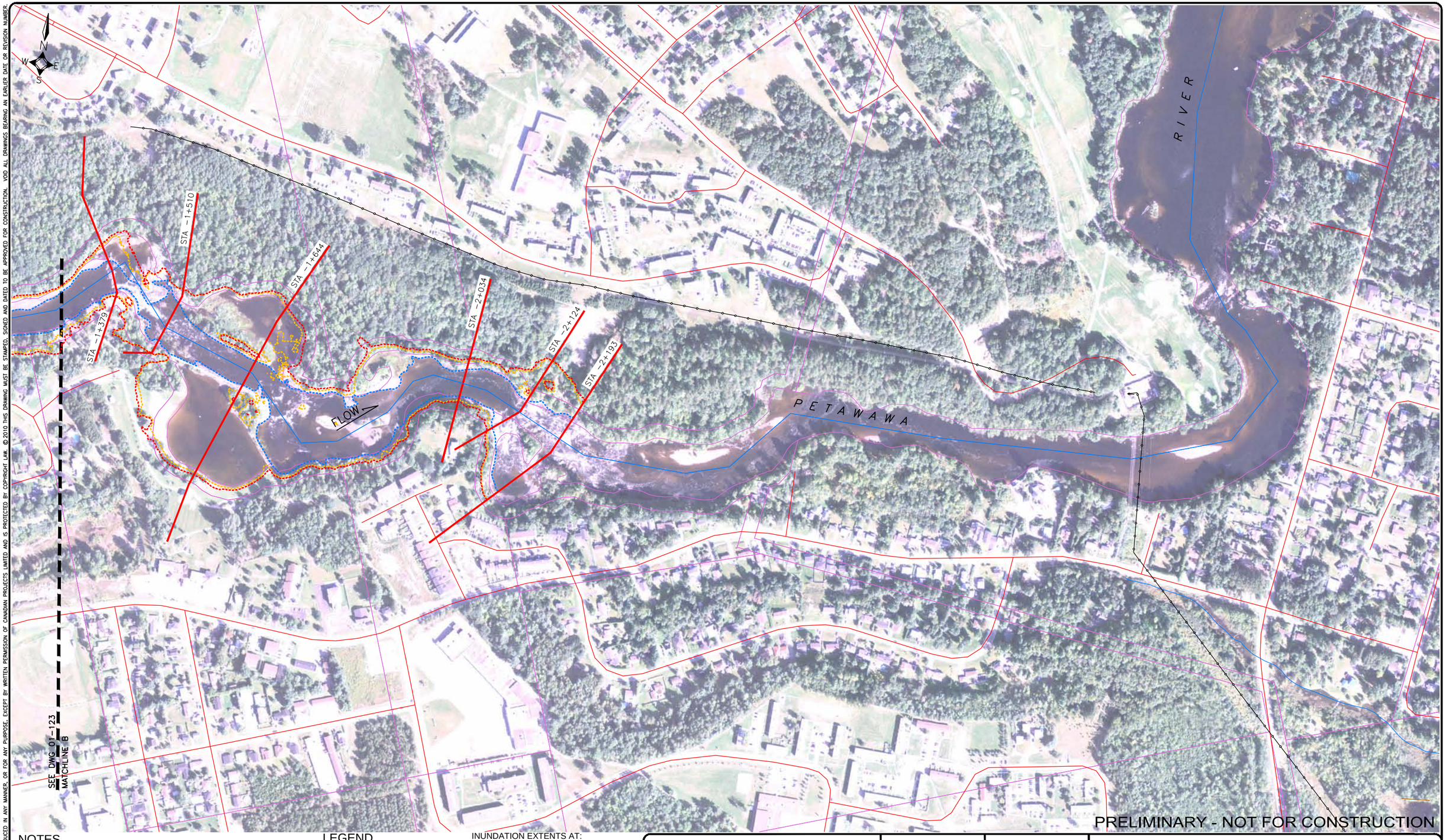
Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 2 - STATION 1+970 TO -1+379

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-133



PRELIMINARY - NOT FOR CONSTRUCTION

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LEGEND

- ROAD
- RAILWAY
- UTILITY LINE
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- LOT LINES

INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
A	12	03	02	NEW DRAWING	ADF	RJS	ADF	CPB

Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 2 - STATION -1+379 TO -3+642

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-134

CANADIAN PROJECTS LIMITED
#240, 523 Woodpark Blvd SW
Calgary, Alberta T2W 4J3
Phone: (403) 508-1560 Fax: (403) 238-5460

File:1052-001-3.1.3

"CONFIDENTIAL AND PRIVILEGED
FOR XENECA USE ONLY"

January 9, 2012

DRAFT

Xeneca Power Development Inc.
5160 Yonge Street, Suite 520
North York, ON M2N 6L9

Dear Nava,

Re: **Ontario South Hydro- Supplemental Report to "HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling Petawawa River – Big Eddy" (issued March 5, 2012)**

1. Introduction

Xeneca Power Development Inc (Xeneca) requested that Canadian Projects Limited (CPL) update the steady HEC-RAS model for Big Eddy Hydro Project that was issued March 5, 2012. This report is supplemental to the previously written report titled "*Ontario South Hydro HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling Petawawa River – Big Eddy*". New bathymetric data obtained on July 27, 2012 was used to update the existing HEC-RAS model.

The additional flow, level, and velocity information for the new cross sections were added to the March 5, 2012 HEC-RAS model. This letter outlines the addition of the new cross sections and calibration of the updated model. Model results are presented for the additional cross sections within the bypass reach for flows ranging from 1 to 15 m^3/s.

2. Model Geometry

The additional cross sections from the July 27, 2012 bathymetric data that were added to the model include:

- Cross section -0+006
- Cross section -0+054
- Cross section -0+090
- Cross section -0+152

- Cross section -0+165
- Cross section -0+180
- Cross section -0+201
- Cross section -0+281
- Cross section -0+334
- Cross section -0+398
- Cross section -0+459
- Cross section -0+512
- Cross section -0+553
- Cross section -0+685

The locations of these cross sections are shown in purple on the attached Drawing 01-181 which was prepared for the steady state hydraulic model.

Two of the 2012 bathymetric sections were not used in the updated model. It is likely that the LiDAR taken over the rail bridge and the road bridge were producing erroneous water surface elevations. In this case, the water surface elevations from the July 27, 2012 bathymetry survey were taken to be correct over the LiDAR water surface elevations. These sections are shown in green and include:

- Cross section -0+180
- Cross section -0+201

Some of the new cross sections obtained from the 2012 bathymetric survey were in close proximity to estimated cross sections from the previous model. In this case, the measured cross sections replaced the estimated cross sections. The cross sections that were removed from the model include:

- Cross section -0+010
- Cross section -0+049
- Cross section -0+172
- Cross section -0+274
- Cross section -0+339
- Cross section -0+368
- Cross section -0+552
- Cross section -0+688

During calibration of the model, two new estimated cross sections were added using the LiDAR data. The two new estimated sections include:

- Cross section -0+131
- Cross section -0+240

Existing bathymetric sections in the bypass channel from the 2011 survey are shown in blue.

3. Model Calibration

A flow of 4.9 m^3/s was measured at the Petawawa River at Petawawa water survey station on July 27, 2012 and was used to calibrate the model. Existing bathymetric flow data (17.1 m^3/s) and LiDAR (70.5 m^3/s) were both used for calibration ensuring the models accuracy. Figure 1 below shows a comparison of the water surface elevations obtained from the LiDAR to the updated HEC-RAS model, Table 1 below compares the water surface elevations of the updated model to those obtained during the 2012 bathymetric survey.

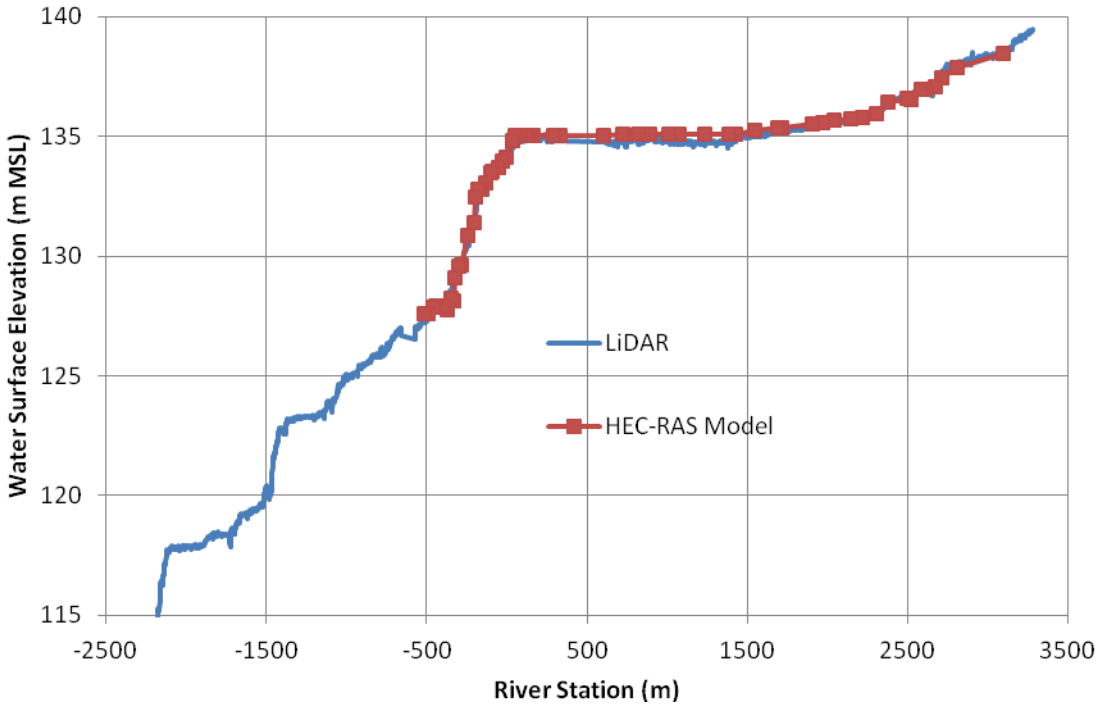


Figure 1: Model Calibration with LiDAR

Table 1: Surveyed Water Level During Bathymetric Survey (2012)

Approximate Cross Section	Surveyed Water Level (m MSL)	Modelled Water Level (m MSL)	Error (m MSL)
-006	133.108	133.18	0.07
-054	132.991	132.95	-0.04
-90	132.865	132.94	0.07
-152	132.071	132.02	-0.05
-165	132.021	132.02	0.00
-281	128.751	128.71	-0.04
-334	127.23	127.37	0.14
-398	126.982	126.94	-0.04
-459	126.894	126.94	0.05
-512	126.356	126.37	0.01
-553	126.35	126.36	0.01
-685	125.814	125.85	0.04

.
Comparison of the model to LiDAR data as well as surveyed water levels indicate a good level of confidence.

4. Modelling

The flows listed in the Tables below were entered into the steady flow HEC-RAS model and the resulting water level, velocity, and wetted perimeter was calculated by the program for each of the cross sections of interest.

The upstream and downstream boundary conditions remained unchanged from the March 5, 2012 model.

Tables 2 through 15 show the specified range of flows along with the corresponding water levels, depths, velocities and wetted perimeter produced from the HEC-RAS model for the July 27, 2012 bathymetric sections within the bypass channel. Figures 1 through 14 show the cross sectional geometry and water surfaces for flows of 2 and 4 m^3/s.

Table 2: Cross Section -0+006 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	133.02	0.81	0.08	26	26
2.00	133.07	0.86	0.15	28	28
3.00	133.12	0.91	0.20	30	30
4.00	133.15	0.94	0.25	31	31
5.00	133.19	0.98	0.29	32	32
7.00	133.25	1.04	0.37	34	34
10.00	133.33	1.12	0.46	37	37
15.00	133.44	1.23	0.57	40	41

Table 3: Cross Section -0+054 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	132.86	1.39	0.07	19	20
2.00	132.88	1.41	0.14	20	20
3.00	132.91	1.44	0.20	20	21
4.00	132.93	1.46	0.26	21	21
5.00	132.95	1.48	0.31	21	21
7.00	132.99	1.52	0.42	22	22
10.00	133.05	1.58	0.55	23	23
15.00	133.13	1.66	0.75	26	26

Table 4: Cross Section -0+090 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	132.85	0.79	0.04	48	48
2.00	132.88	0.82	0.08	49	49
3.00	132.91	0.85	0.12	50	50
4.00	132.93	0.87	0.15	51	51
5.00	132.95	0.89	0.18	52	52
7.00	132.98	0.92	0.24	54	54
10.00	133.03	0.97	0.32	57	57
15.00	133.09	1.03	0.42	60	60

Table 5: Cross Section -0+152 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	131.92	0.66	0.11	26	27
2.00	131.95	0.69	0.21	27	27
3.00	131.98	0.72	0.29	28	28
4.00	132.00	0.74	0.36	29	29
5.00	132.02	0.76	0.43	30	30
7.00	132.06	0.80	0.54	33	33
10.00	132.12	0.86	0.67	36	36
15.00	132.20	0.94	0.83	42	42

Table 6: Cross Section -0+165 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	131.92	1.62	0.04	31	32
2.00	131.95	1.65	0.08	33	33
3.00	131.98	1.68	0.12	35	35
4.00	132.00	1.70	0.15	37	37
5.00	132.03	1.73	0.18	40	40
7.00	132.07	1.77	0.24	40	41
10.00	132.12	1.82	0.32	41	41
15.00	132.20	1.90	0.43	41	42

Table 7: Cross Section -0+281 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	128.50	0.78	0.25	11	11
2.00	128.58	0.86	0.41	12	12
3.00	128.63	0.91	0.54	13	13
4.00	128.68	0.96	0.65	13	13
5.00	128.72	1.00	0.75	14	14
7.00	128.79	1.07	0.92	14	15
10.00	128.87	1.15	1.13	15	15
15.00	128.97	1.25	1.43	16	16

Table 8: Cross Section -0+334 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	127.09	0.67	0.46	6	7
2.00	127.19	0.77	0.70	7	7
3.00	127.26	0.84	0.88	8	8
4.00	127.32	0.90	1.03	8	9
5.00	127.37	0.95	1.16	9	9
7.00	127.07	0.65	3.38	6	6
10.00	127.19	0.77	3.49	7	7
15.00	127.36	0.94	3.56	9	9

Table 9: Cross Section -0+398 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	126.78	1.84	0.03	38	39
2.00	126.83	1.89	0.06	40	40
3.00	126.88	1.94	0.08	41	41
4.00	126.91	1.97	0.11	42	42
5.00	126.95	2.01	0.13	43	43
7.00	127.01	2.07	0.17	44	44
10.00	127.09	2.15	0.22	46	46
15.00	127.20	2.26	0.30	49	49

Table 10: Cross Section -0+459 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	126.78	0.89	0.05	55	55
2.00	126.83	0.94	0.09	57	57
3.00	126.87	0.98	0.12	60	60
4.00	126.91	1.02	0.14	62	62
5.00	126.95	1.06	0.17	64	64
7.00	127.01	1.12	0.21	66	67
10.00	127.08	1.19	0.26	67	67
15.00	127.19	1.30	0.33	67	67

Table 11: Cross Section -0+512 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	125.93	0.40	0.25	18	18
2.00	126.08	0.55	0.29	22	22
3.00	126.19	0.66	0.32	24	24
4.00	126.30	0.77	0.33	26	26
5.00	126.38	0.85	0.35	27	27
7.00	126.49	0.96	0.40	29	29
10.00	126.63	1.10	0.47	31	31
15.00	126.83	1.30	0.54	34	35

Table 12: Cross Section -0+553 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	125.91	0.64	0.15	30	30
2.00	126.07	0.80	0.17	33	33
3.00	126.18	0.91	0.19	35	35
4.00	126.29	1.02	0.21	36	36
5.00	126.37	1.10	0.22	36	37
7.00	126.48	1.21	0.26	37	38
10.00	126.61	1.34	0.32	39	39
15.00	126.81	1.54	0.38	42	42

Table 13: Cross Section -0+685 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)
1.00	125.69	0.37	0.29	14	14
2.00	125.74	0.42	0.48	15	15
3.00	125.78	0.46	0.62	16	16
4.00	125.82	0.50	0.72	17	17
5.00	125.85	0.53	0.81	18	18
7.00	125.92	0.60	0.95	20	20
10.00	126.01	0.69	1.08	22	22
15.00	126.15	0.83	1.15	38	38

The information presented in Tables 2 through 13 is illustrated in Figures 2 through 15 on the following pages. The vertical and horizontal scales on the cross section figures are not persistent but have been selected to present the entire area of interest in a reasonably sized figure

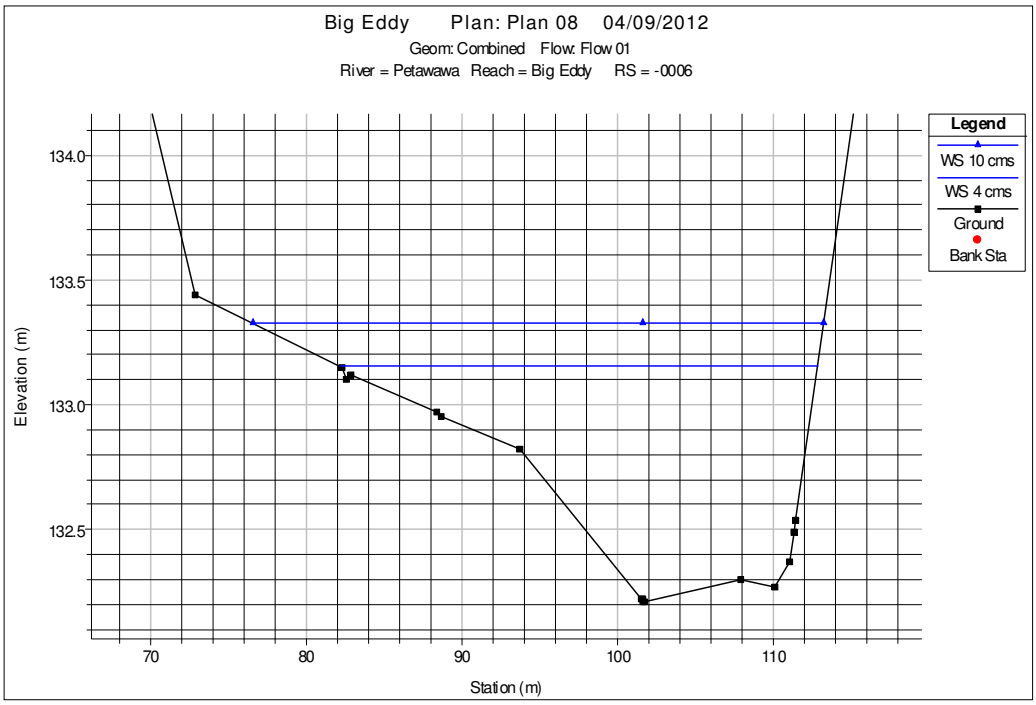


Figure 1: Cross Section -0+006 Water Levels

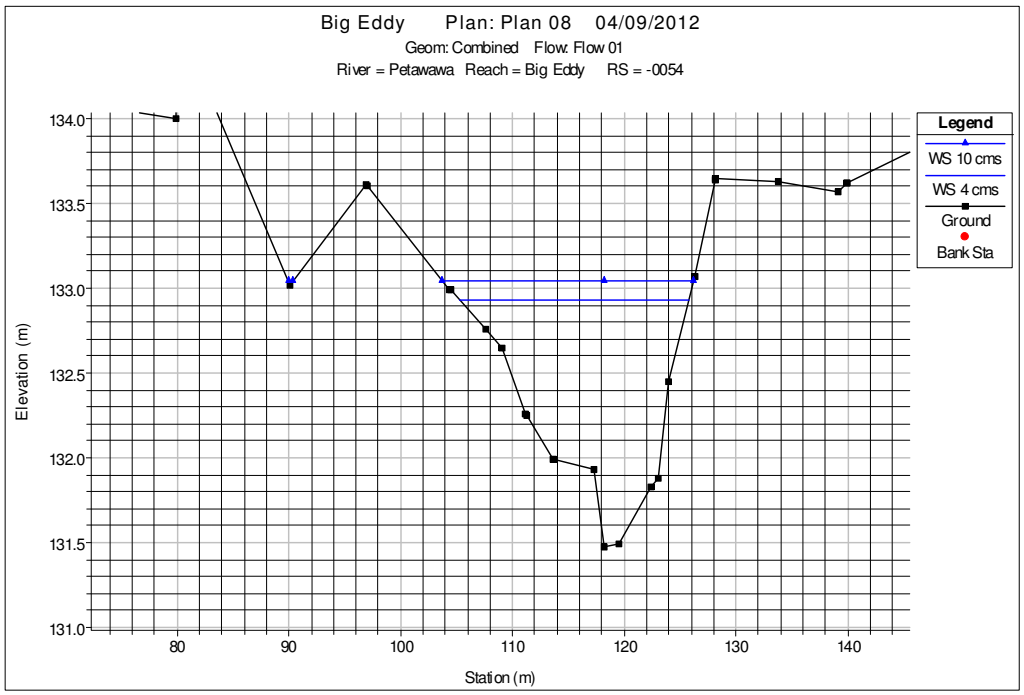


Figure 2: Cross Section -0+054 Water Levels

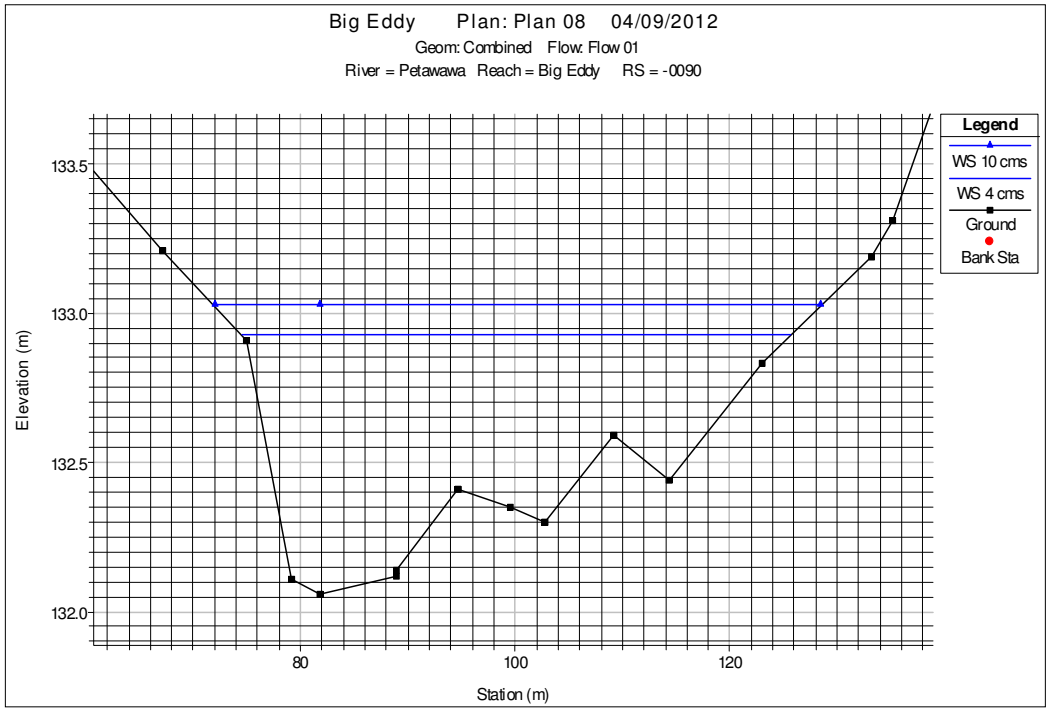


Figure 3: Cross Section -0+090 Water Levels

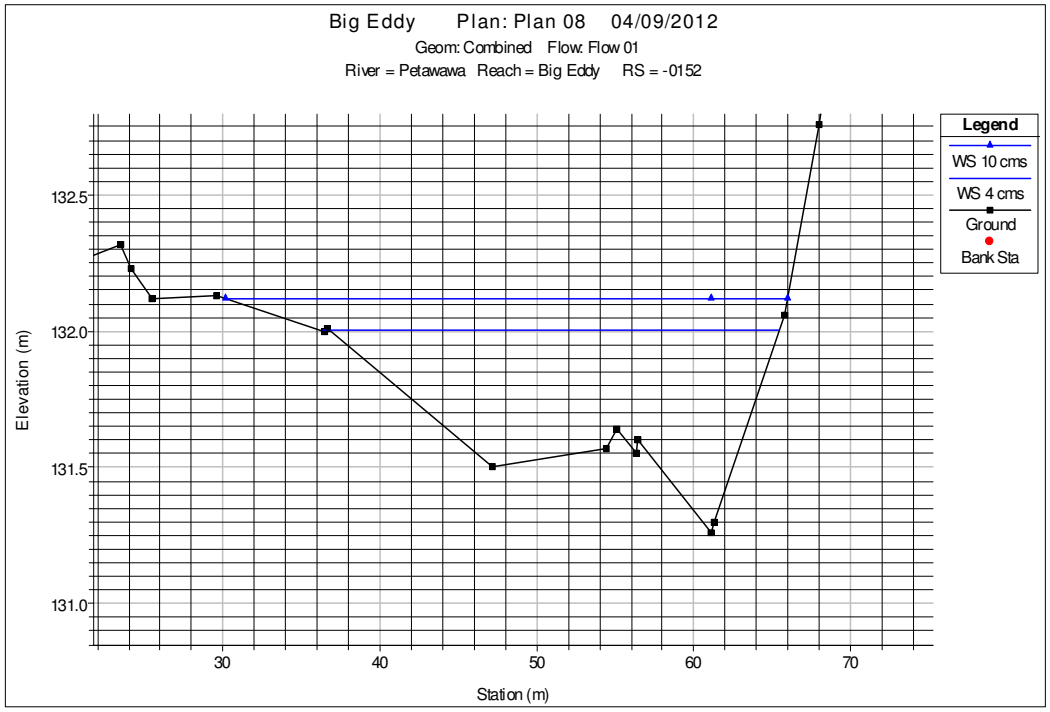


Figure 4: Cross Section -0+152 Water Levels

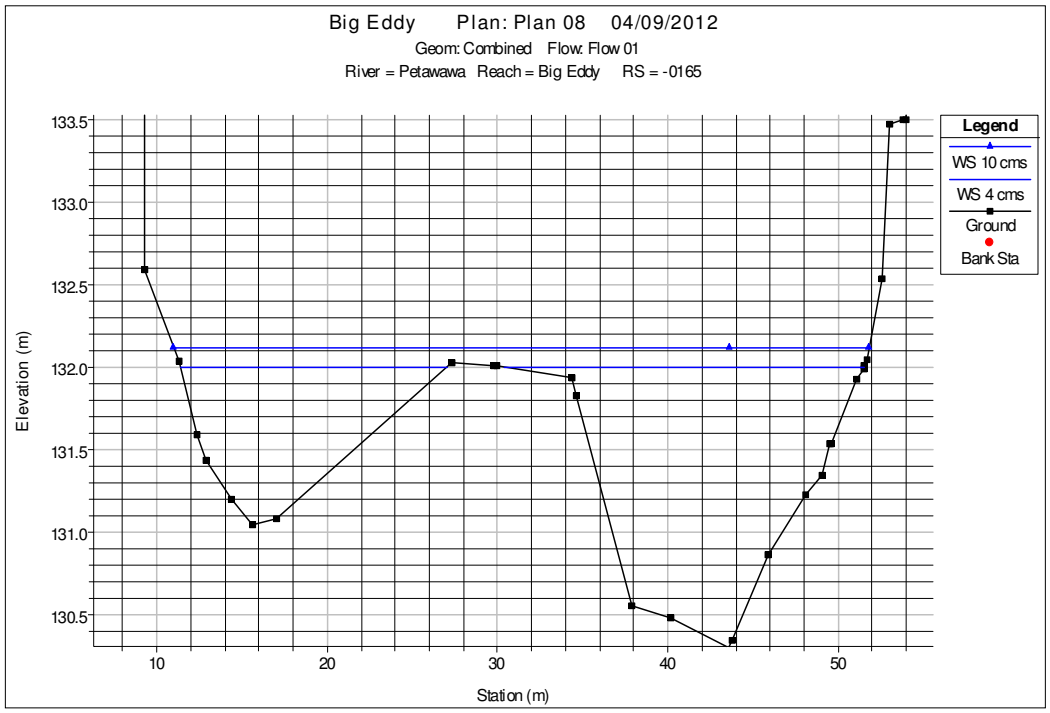


Figure 5: Cross Section -0+165 Water Levels

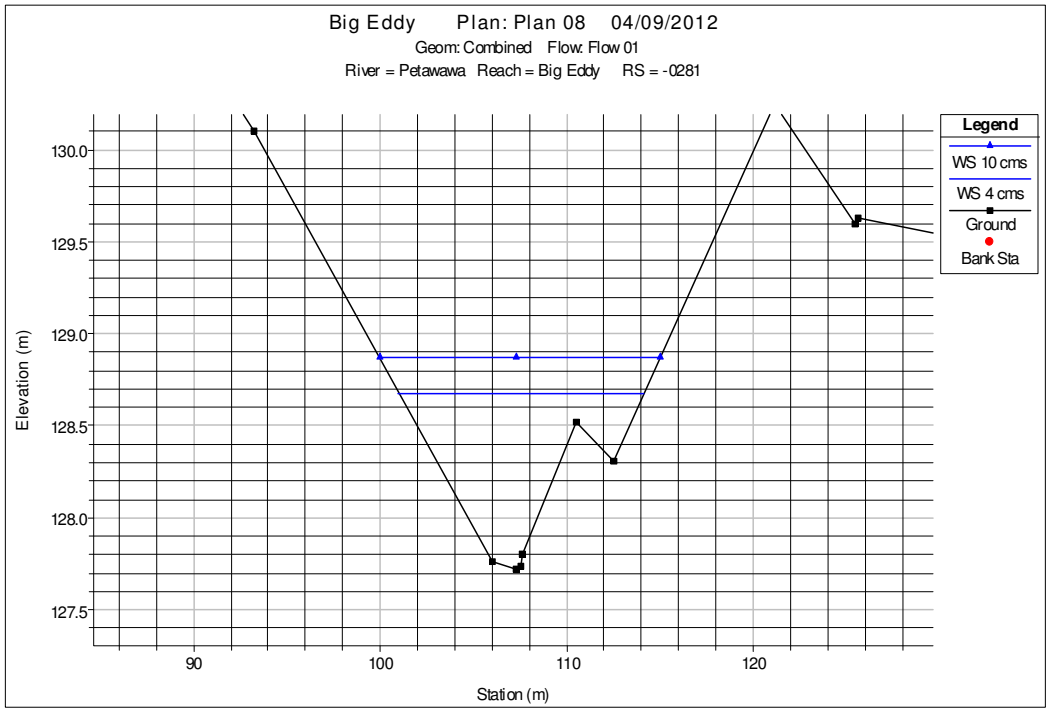


Figure 6: Cross Section -0+281 Water Levels

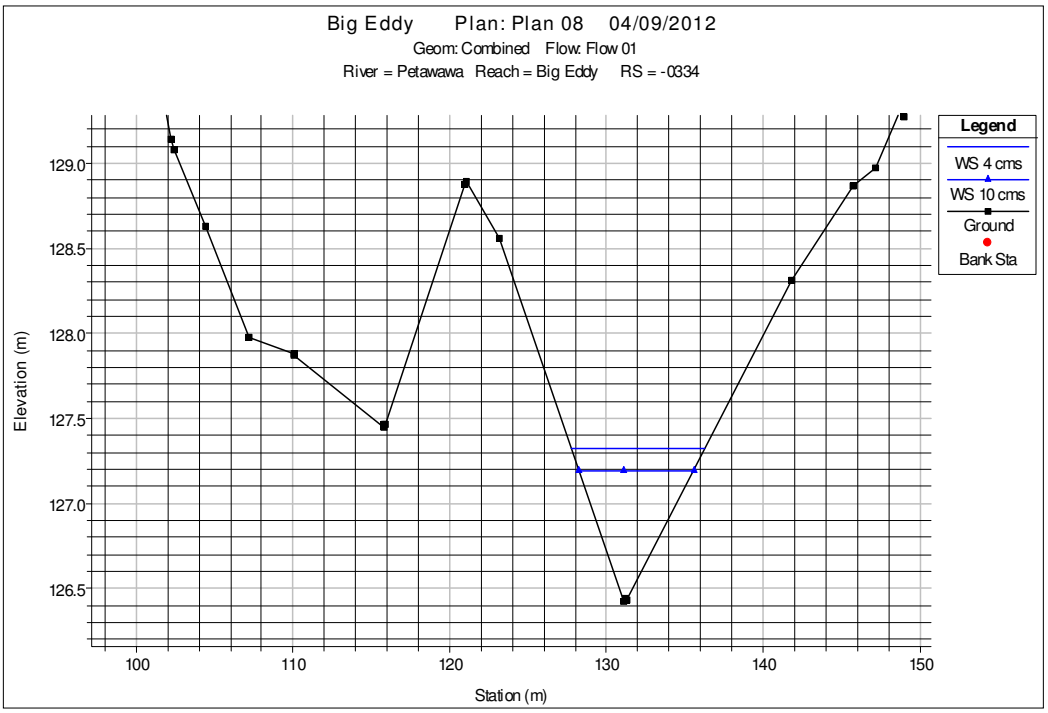


Figure 9: Cross Section -0+334 Water Levels

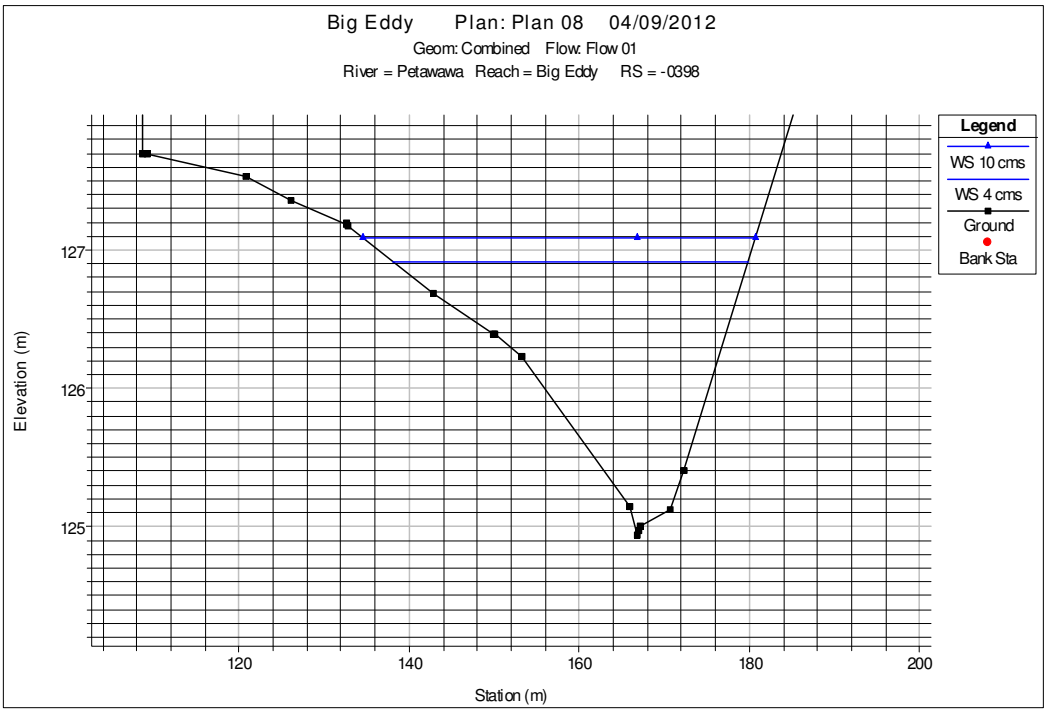


Figure 8: Cross Section -0+398 Water Levels

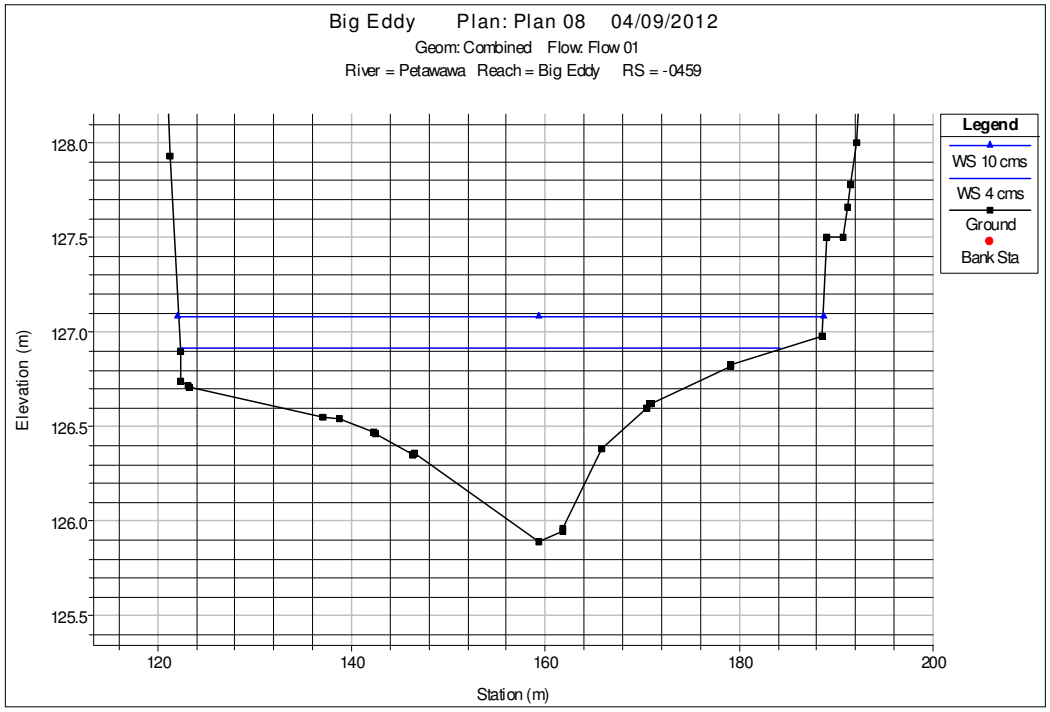


Figure 9: Cross Section -0+459 Water Levels

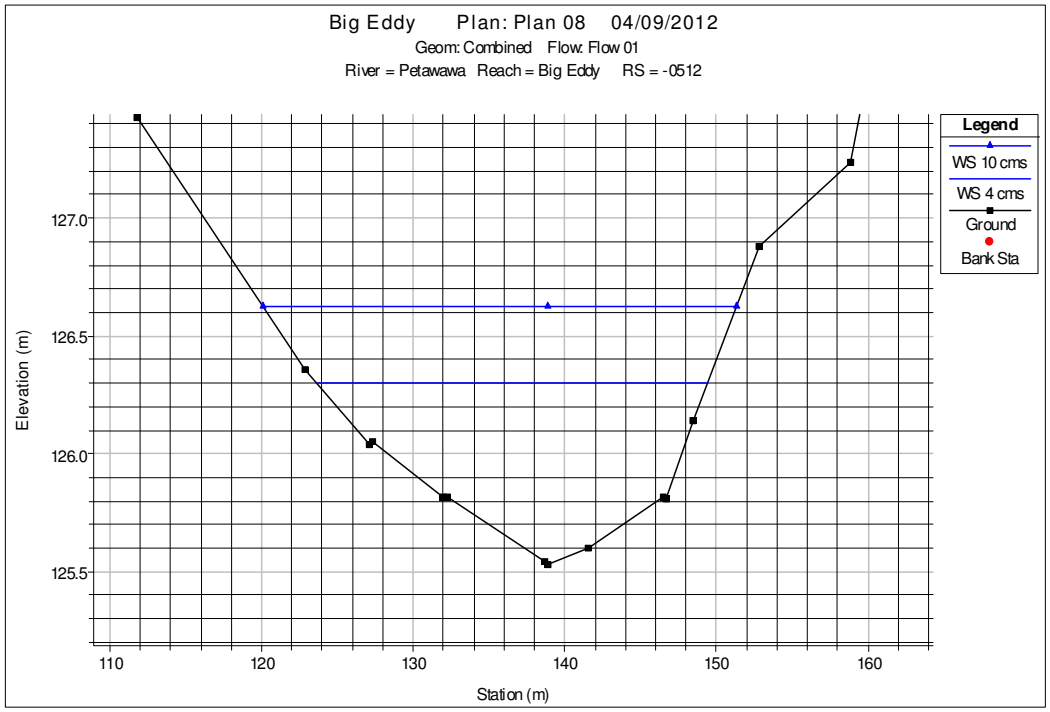


Figure 10: Cross Section -0+512 Water Levels

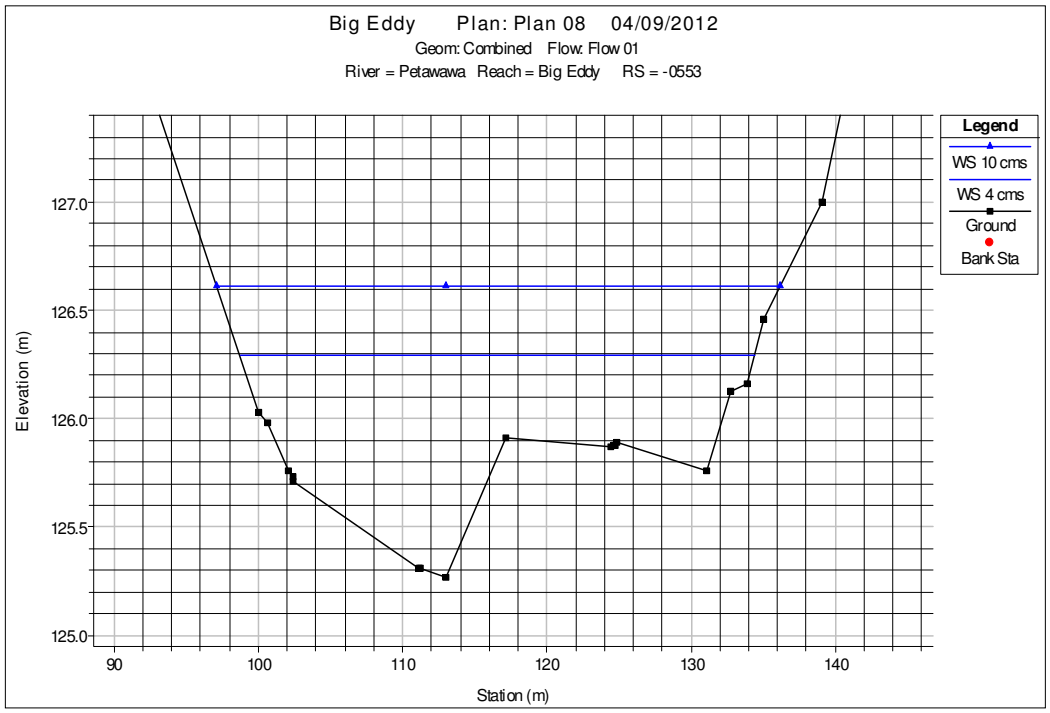


Figure 11: Cross Section -0+553 Water Levels

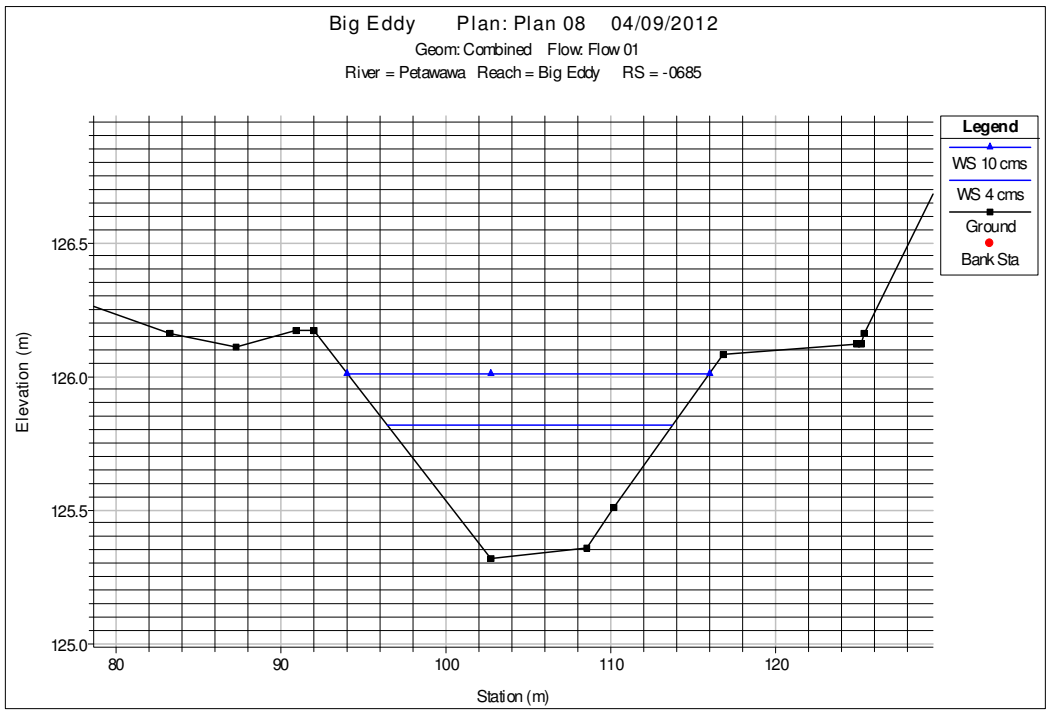


Figure 112: Cross Section -0+685 Water Levels

5. Conclusions

This supplemental letter provides hydraulic information for several cross sections in the bypass channel of the Big Eddy Hydro Project based on requests from Xeneca. The locations of the cross sections are shown on the attached Drawing 01-181.

The model is made up of measured and estimated sections which were then calibrated to flows measured at a nearby hydrometric station. The updated model is calibrated to the measured flows with confidence.

Sincerely,

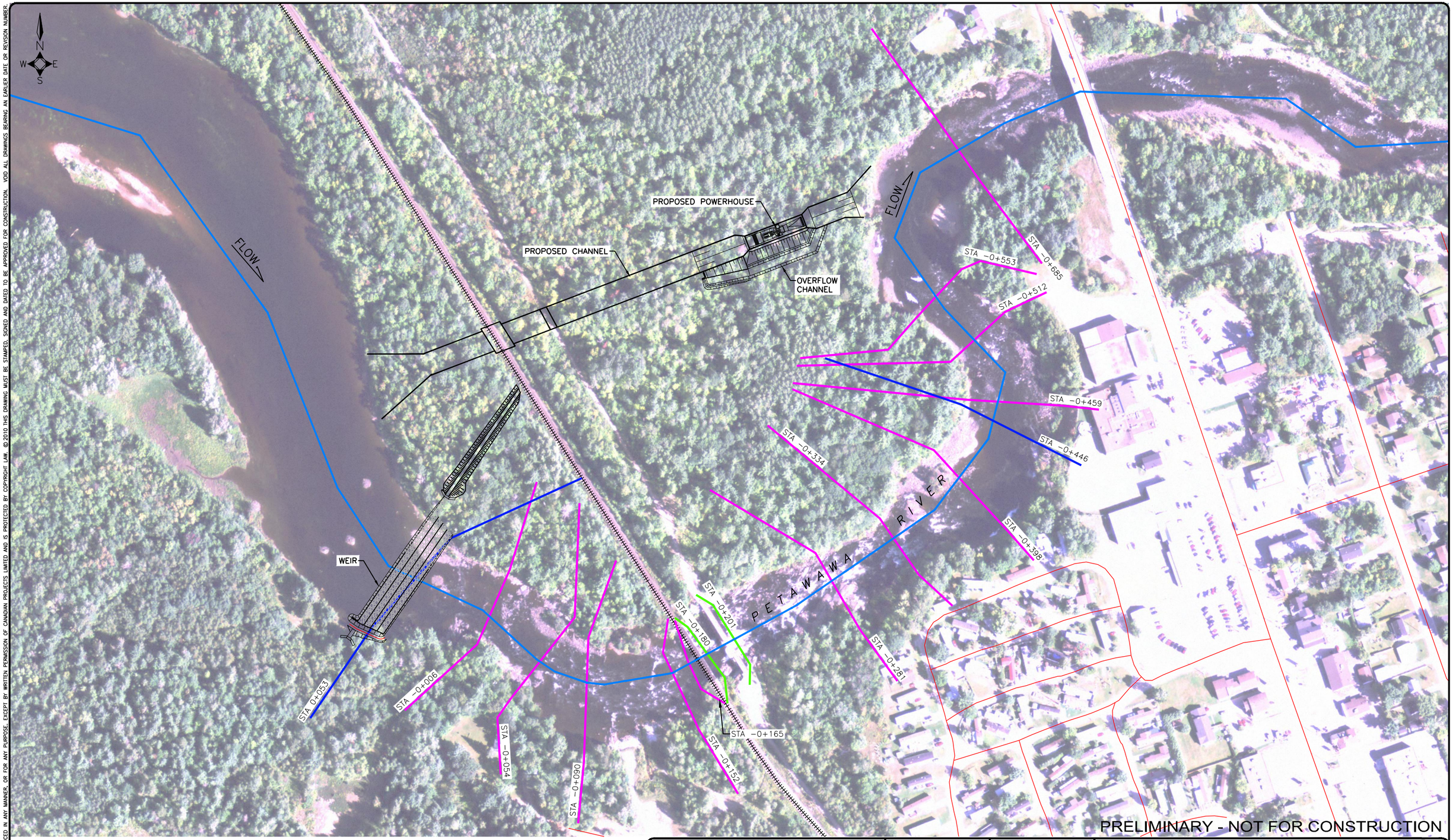
CANADIAN PROJECTS LIMITED

Brenda Tackaberry E.I.T.
Junior Engineer

David Kushner E.I.T.
Junior Engineer

BT/vs

Attachments
Drawing 01-181



NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.
3. CROSS SECTIONS PROVIDED BY ADAM KASPRZAK SURVEYING LTD.

LEGEND

- ROAD
- RAILWAY
- NEW BATHYMETRY SECTIONS – USED
- EXISTING BATHYMETRY SECTIONS – USED
- NEW BATHYMETRY SECTIONS – NOT USED

SCALE 1:2 000

0 20 40 60 80 100

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
D	12	09	04	UPDATED WEIR, REMOVED EXISTING SECTIONS	DK	BT	AB	CPB

Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

PRELIMINARY - NOT FOR CONSTRUCTION

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEC-RAS SECTIONS
PLAN

PROJECT NUMBER 1052-001
CADD NUMBER 4.3.032
DRAWING NUMBER 01-181

MEMORANDUM

Canadian Projects Limited
#240, 523 Woodpark Blvd. SW
Calgary, AB T2W 4J3
Phone: (403) 508-1560 Fax: (403) 238-5460
www.canprojects.com

TO	Nava Pokharel (Xeneca Power Development Inc.)	**DATE**	September 10, 2012
FROM	Dave Kushner	**FILE NO.**	1052-001-3.1.3
cc	Richard Slopek	**PAGE**	1 of 10
SUBJECT	**Big Eddy – Fish Passage Velocity Barriers**		

1. Introduction

Xeneca Power Development Inc (Xeneca) has requested that Canadian Projects Limited (CPL) provide an analysis of the flow velocity at four cross sections on the Petawawa River near the Big Eddy Hydro Project (the Project). Xeneca indicated that the four cross sections (-0+281, -0+334, -0+512 and -0+685) are possible velocity barriers to fish passage in the Petawawa River and requested that these locations be evaluated. The locations of the cross sections are shown on Drawing 01-181[i].

The average river velocity at the four cross sections was calculated using the HEC-RAS model provided to Xeneca with the September 4, 2012 Draft CPL report, "*Ontario South Hydro-Supplemental Report to HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling Petawawa River – Big Eddy (issued March 5, 2012) revision 0"*.

2. Modelling

At Xeneca's request flow rates of 2, 4, 10 and 25 m^3/s were entered into the Big Eddy steady HEC-RAS model. HEC-RAS modelling has the ability to calculate a finite flow distribution in the channel based on wetted perimeter. Average channel velocity results generated by the model are presented in Table 1 and Figures 1 through 16 show the graphical plots of the velocity distribution in each cross section.

Table 1: Average Channel Velocities

Flow (m^3/s)	Average Velocity (m/s) at Cross Section			
	-0+281	**-0+334**	**-0+512**	**-0+685**
2	0.41	0.70	0.29	0.48
4	0.65	1.03	0.33	0.72
10	1.13	3.49	0.47	1.08
25	1.92	3.52	0.71	1.05

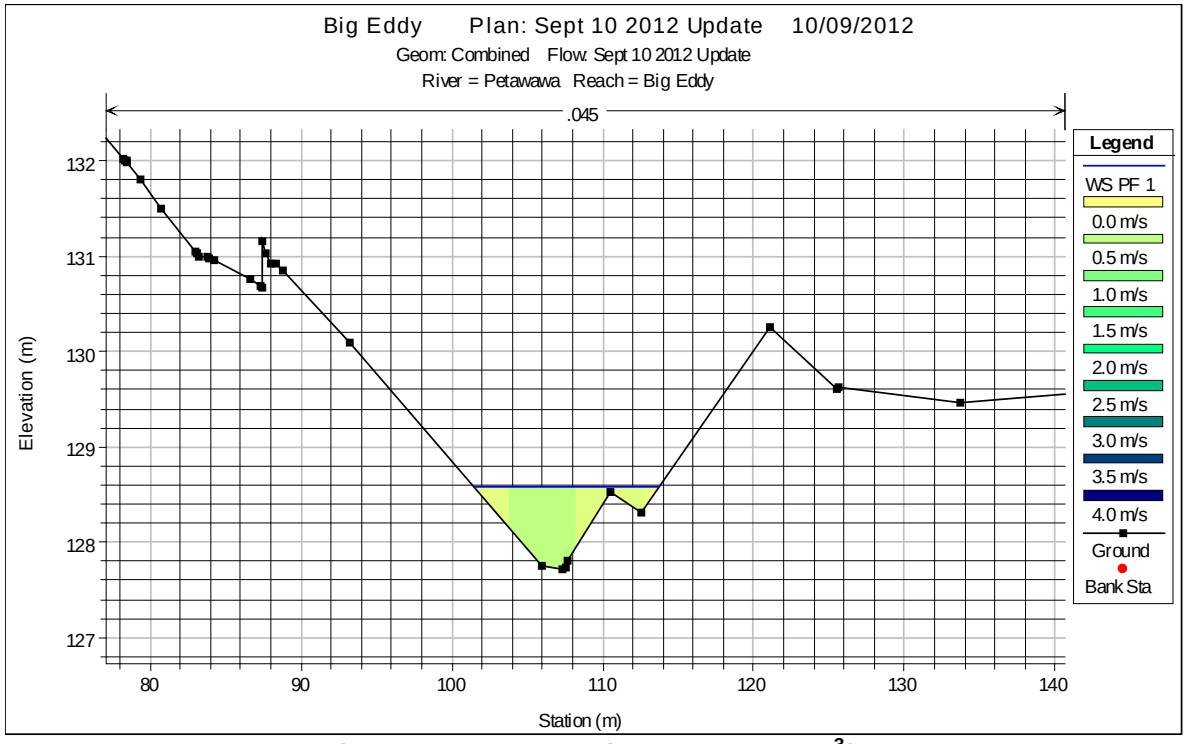


Figure 1: Cross Section -0+281 – 2 m^3/s

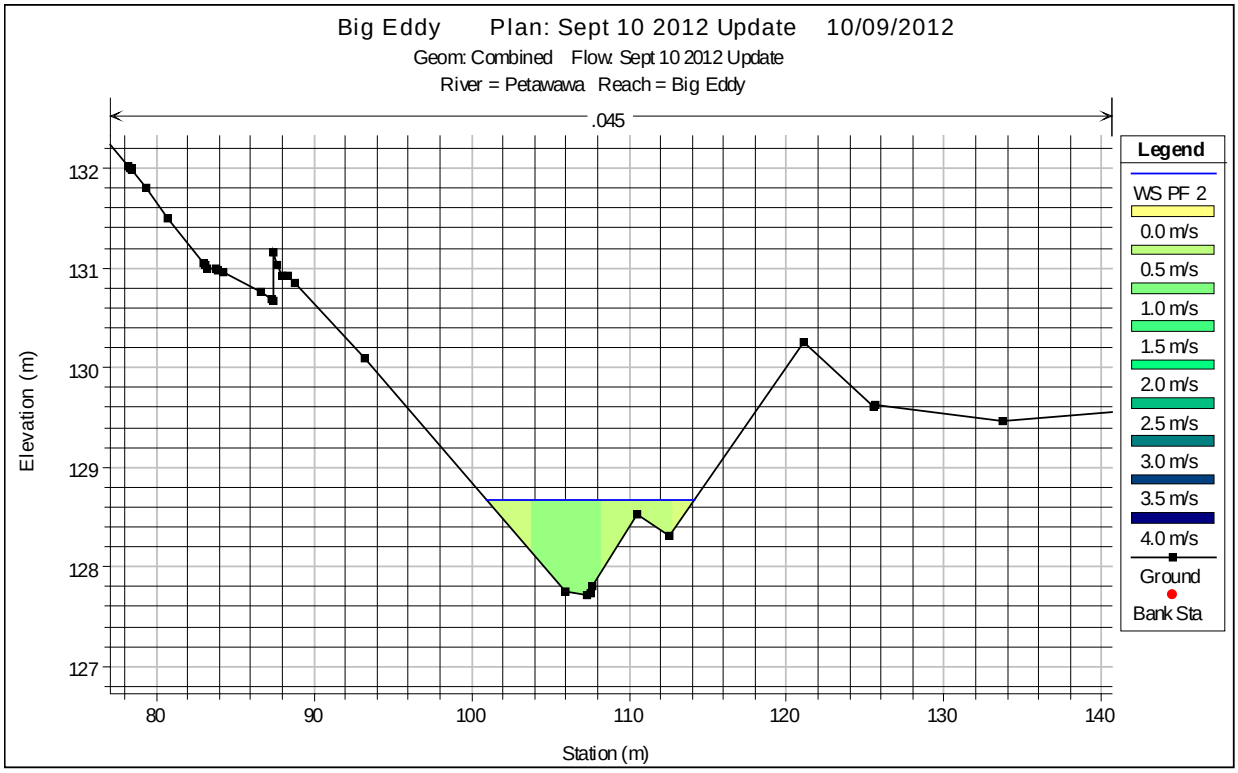


Figure 2: Cross Section -0+281 – 4 m^3/s

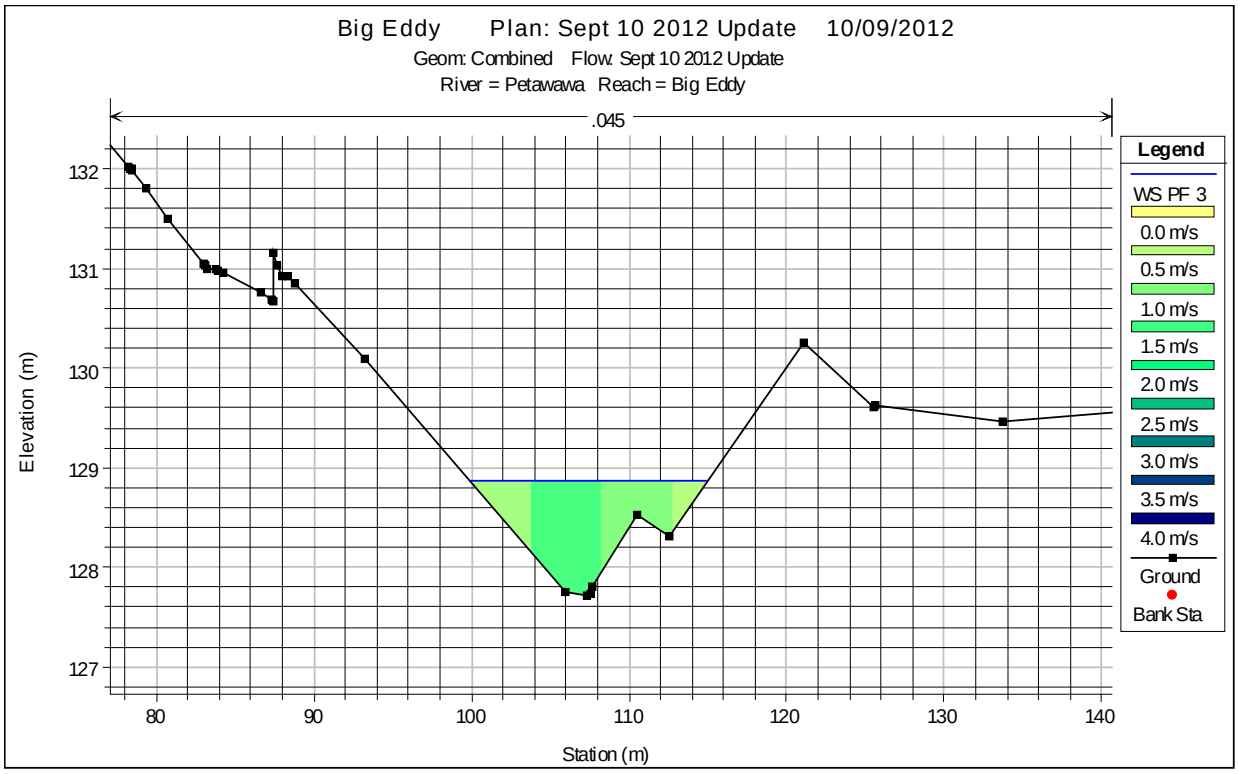


Figure 3: Cross Section -0+281 – 10 m^3/s

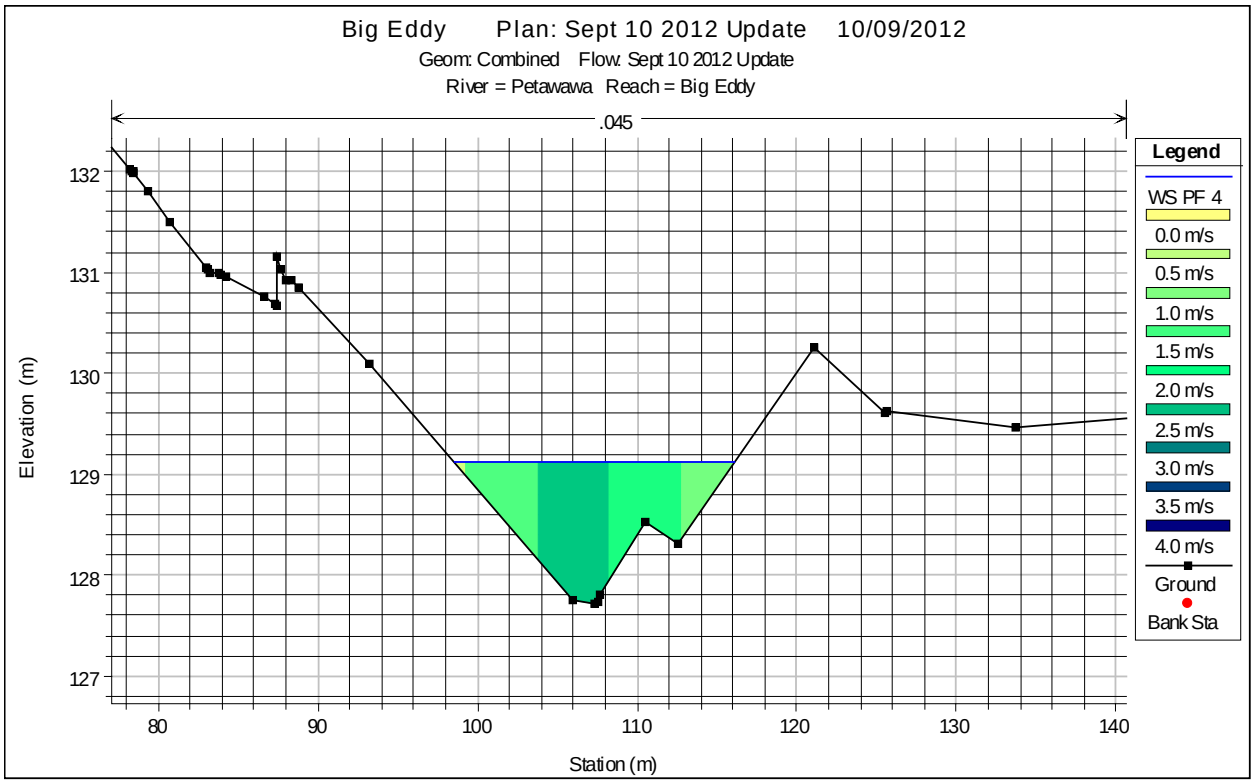


Figure 4: Cross Section -0+281 – 25 m^3/s

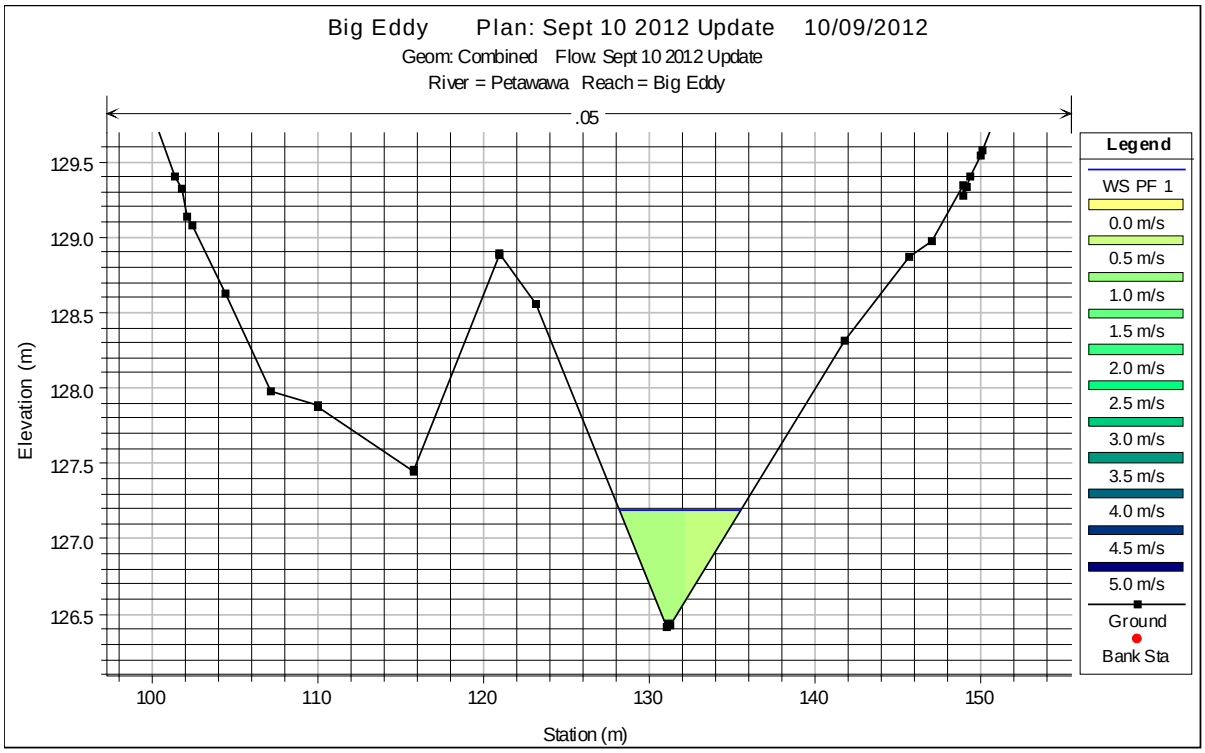


Figure 5: Cross Section -0+334 – 2 m^3/s

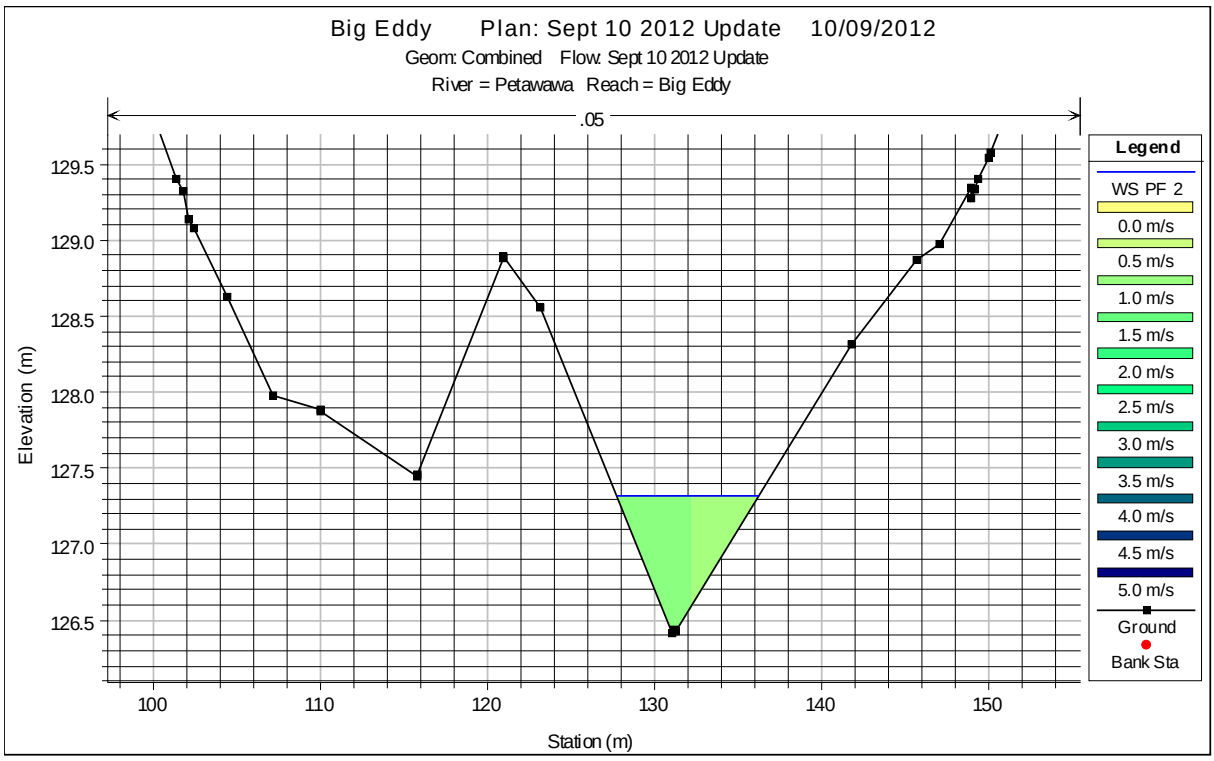


Figure 6: Cross Section -0+334 – 4 m^3/s

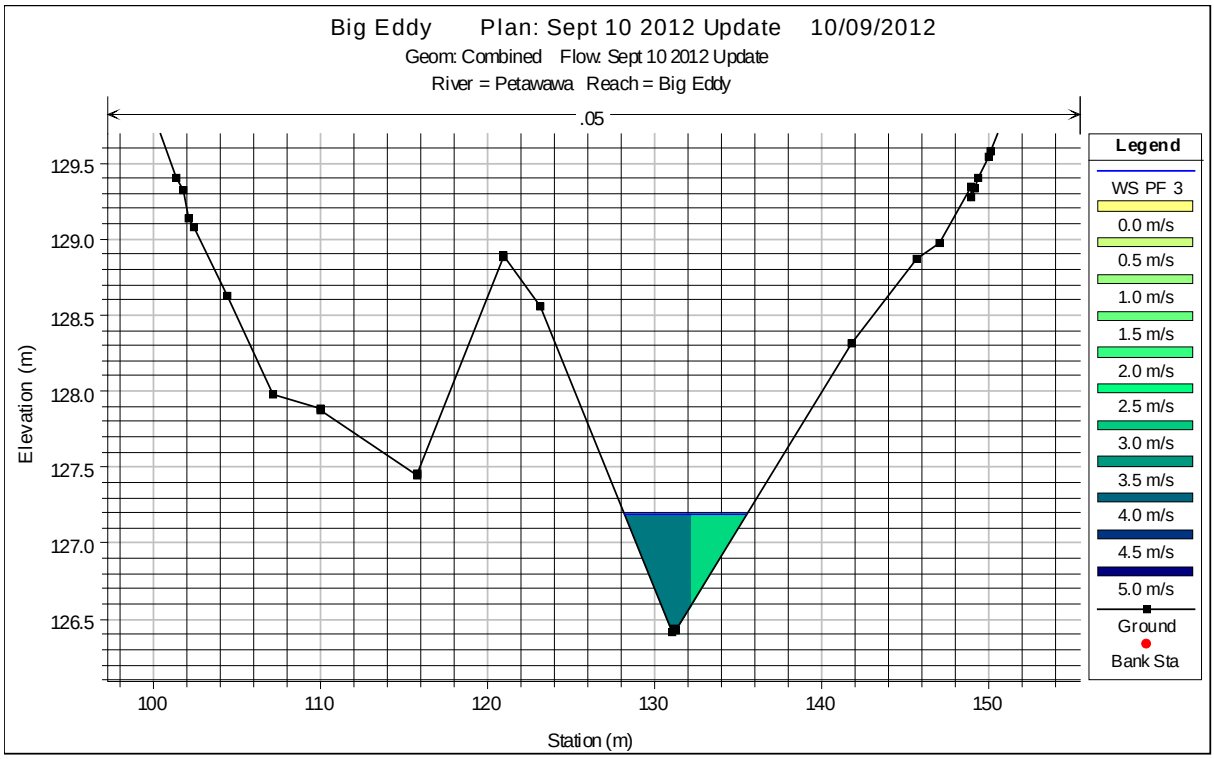


Figure 7: Cross Section -0+334 – 10 m^3/s

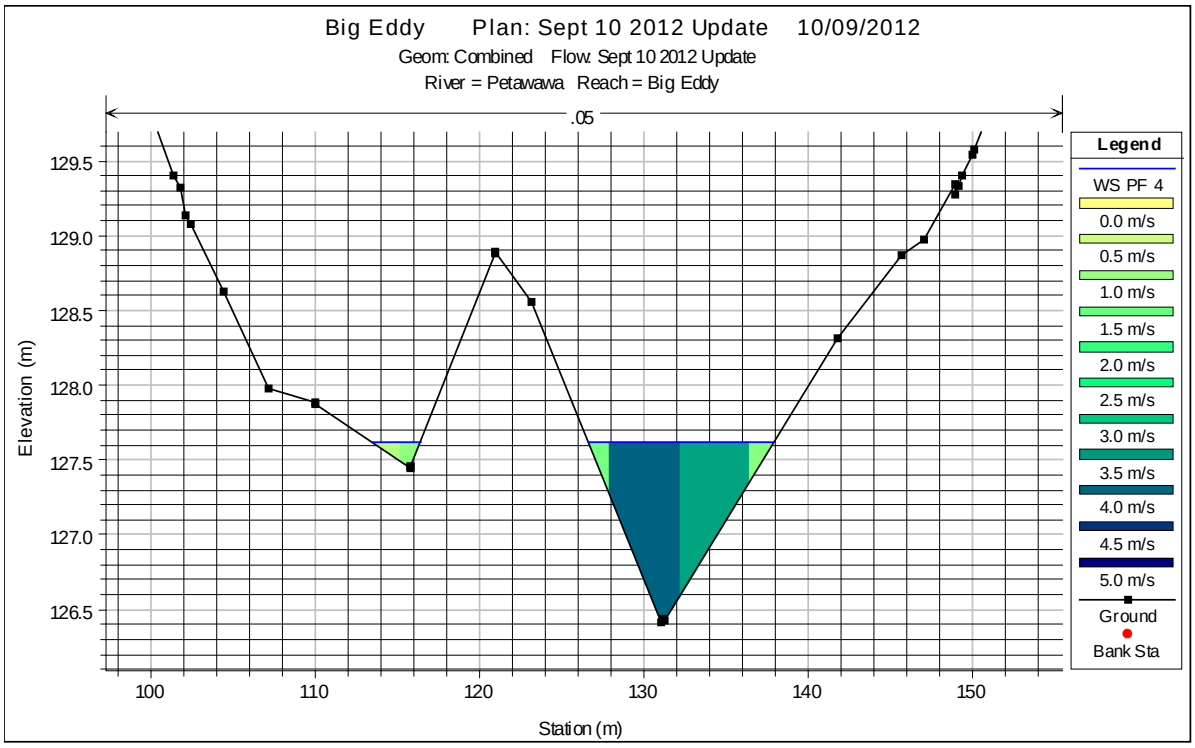


Figure 8: Cross Section -0+334 – 25 m^3/s

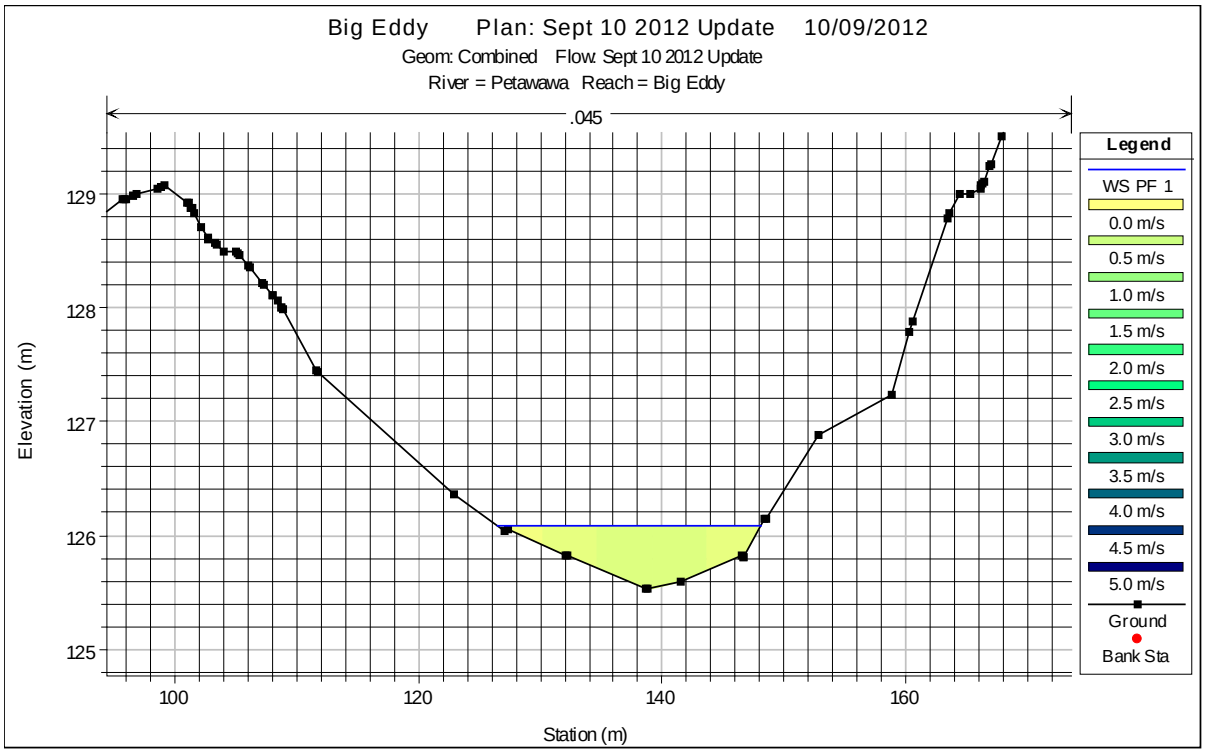


Figure 9: Cross Section -0+512 – 2 m^3/s

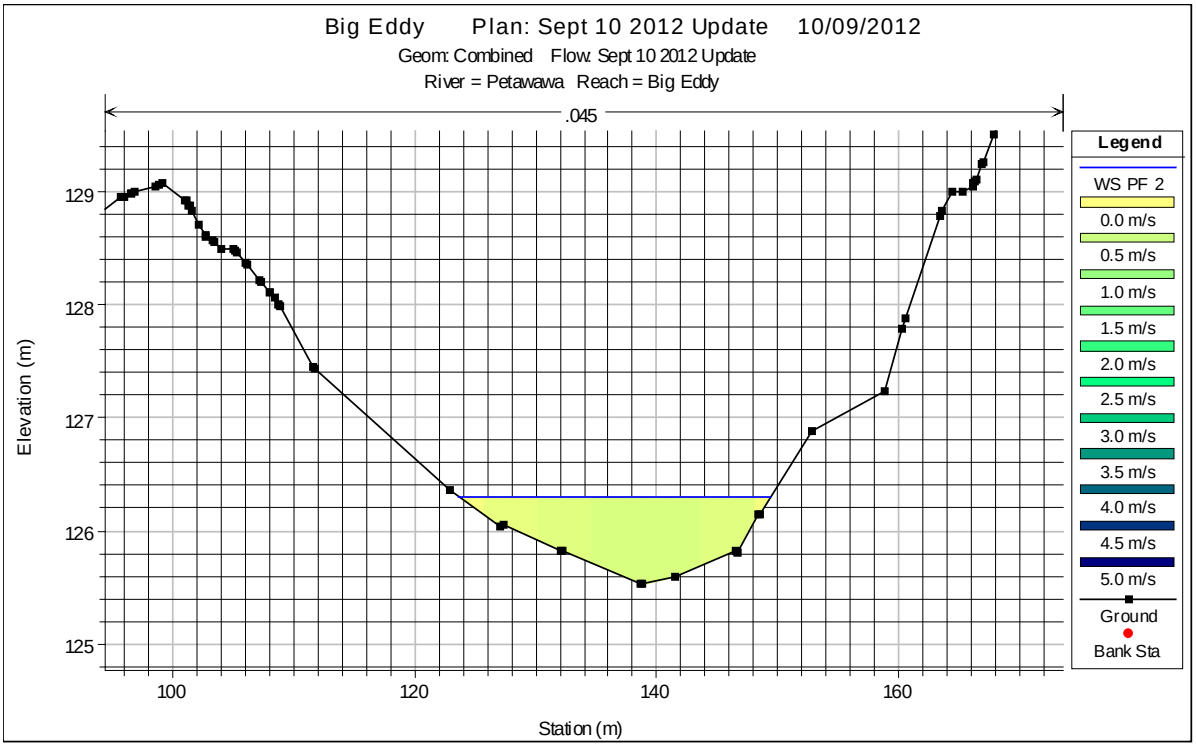


Figure 10: Cross Section -0+512 – 4 m^3/s

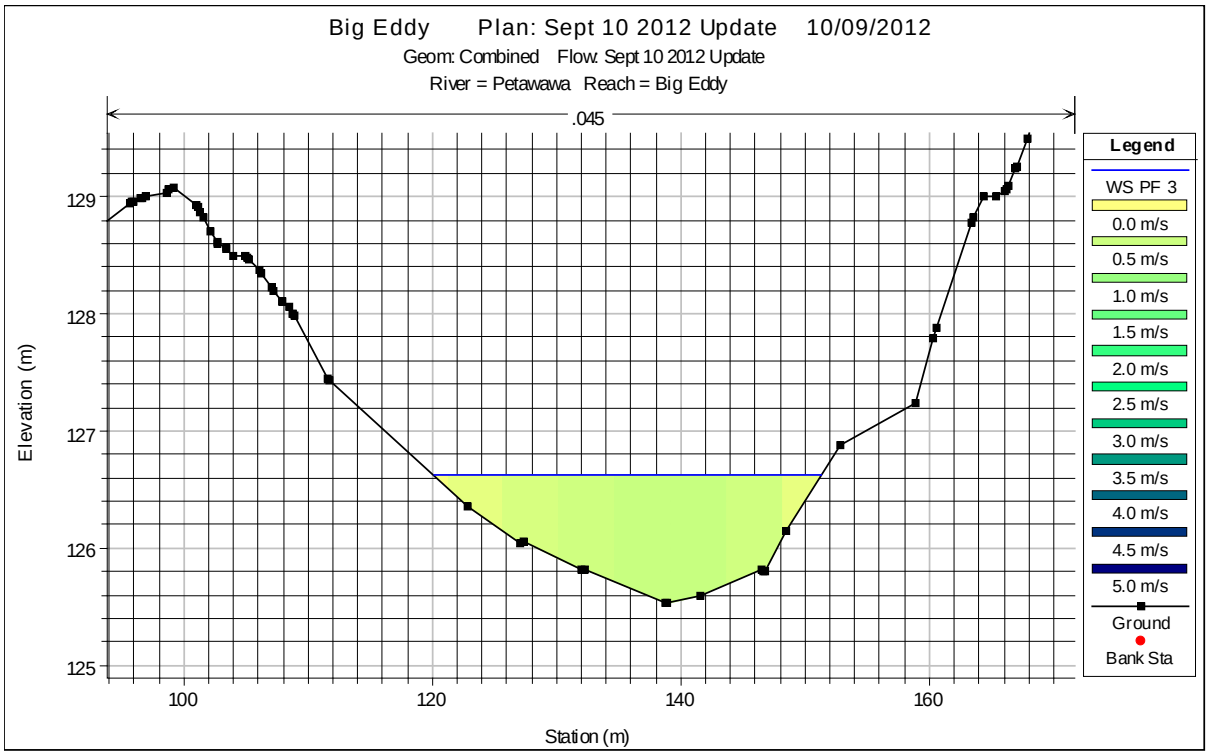


Figure 11: Cross Section -0+512 – 10 m^3/s

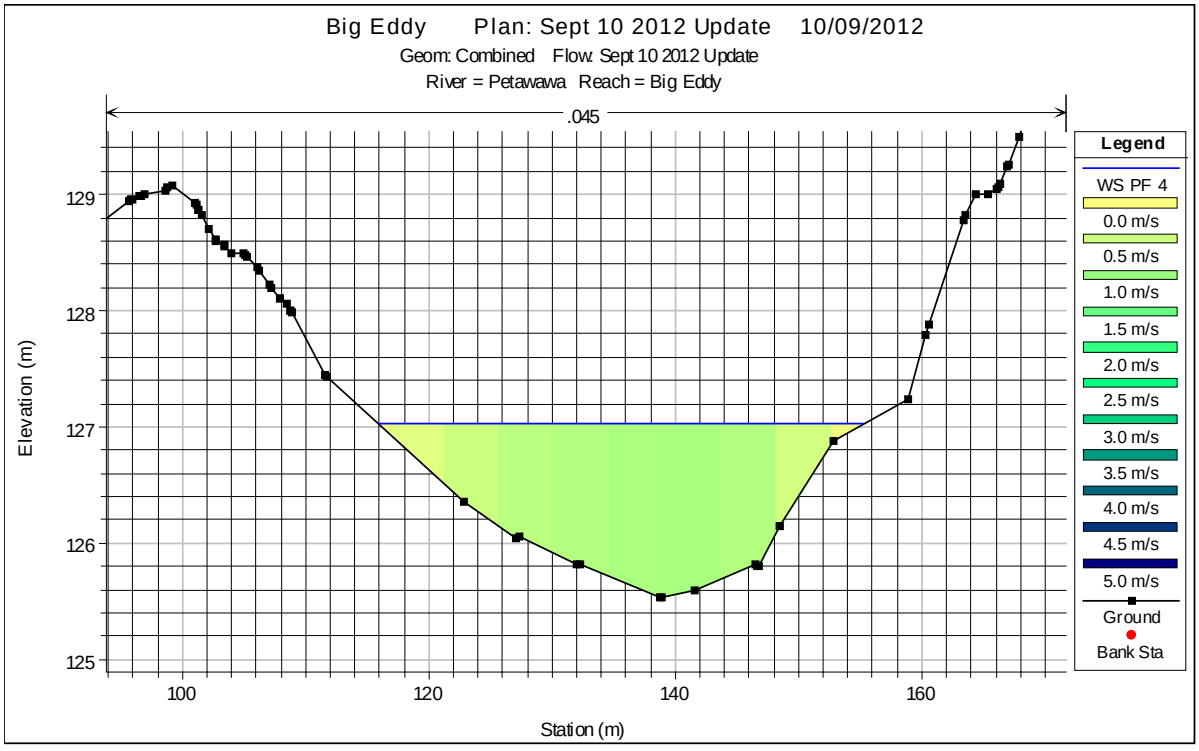


Figure 12: Cross Section -0+512 – 25 m^3/s

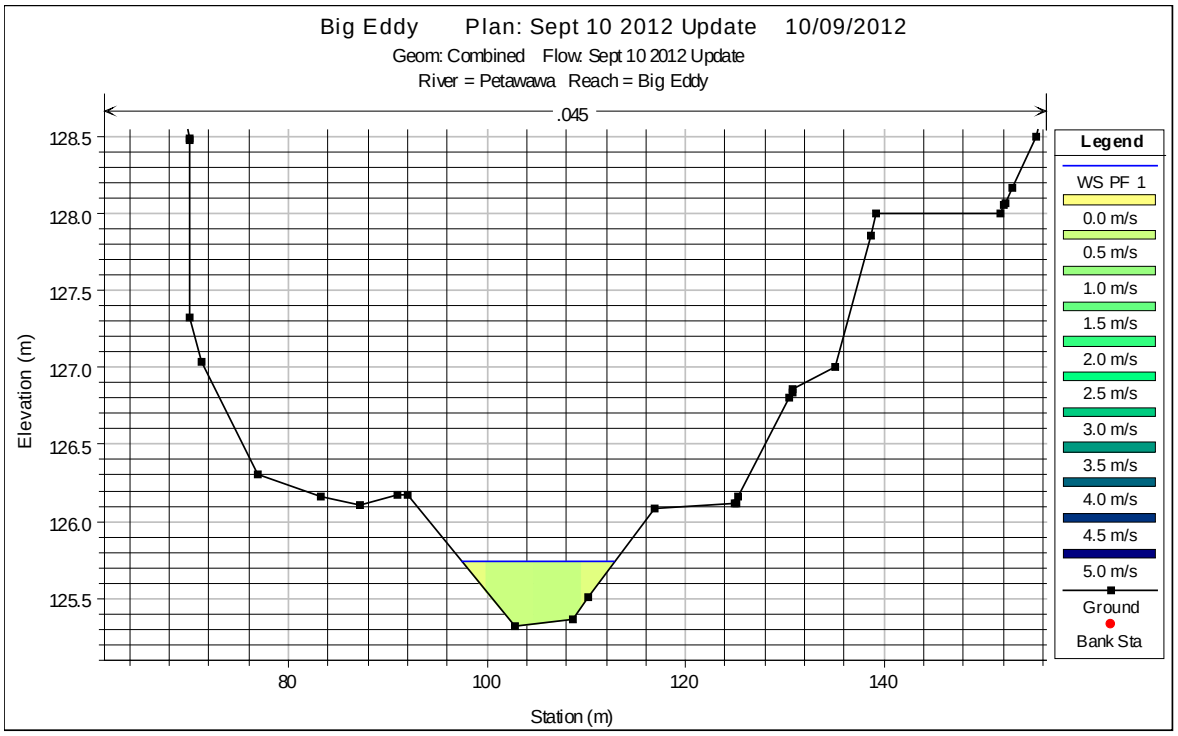


Figure 13: Cross Section -0+685 – 2 m^3/s

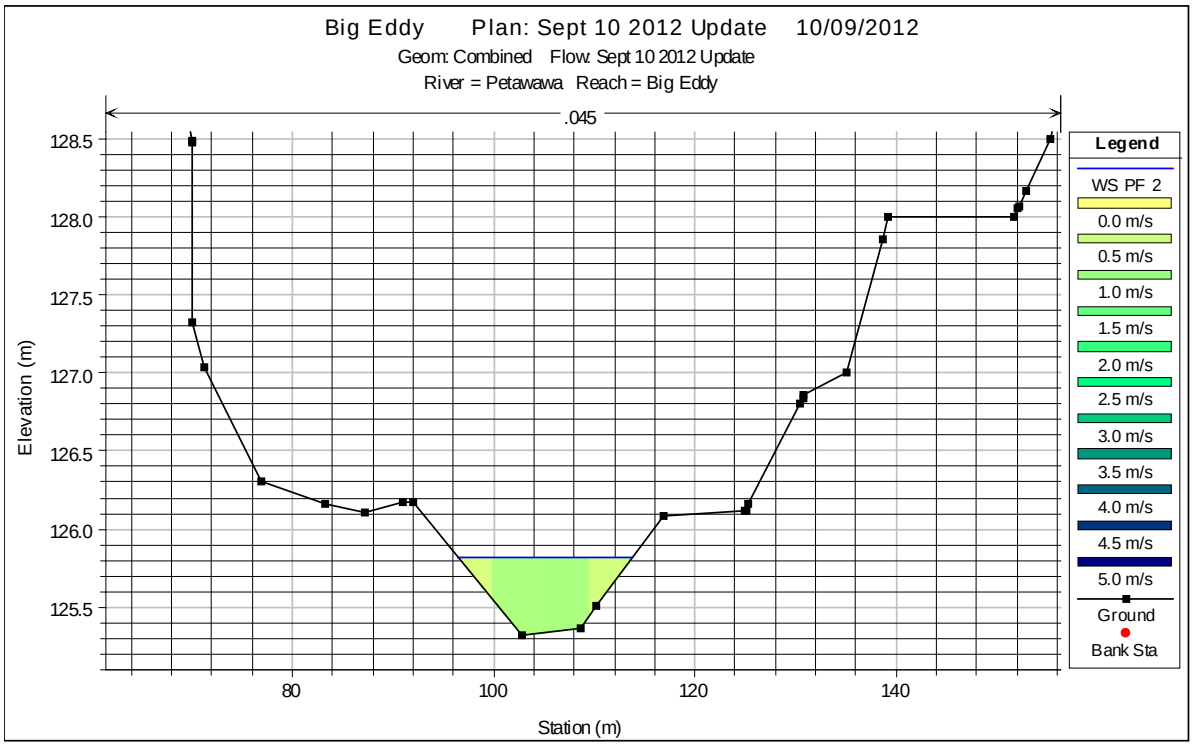


Figure 14: Cross Section -0+685 – 4 m^3/s

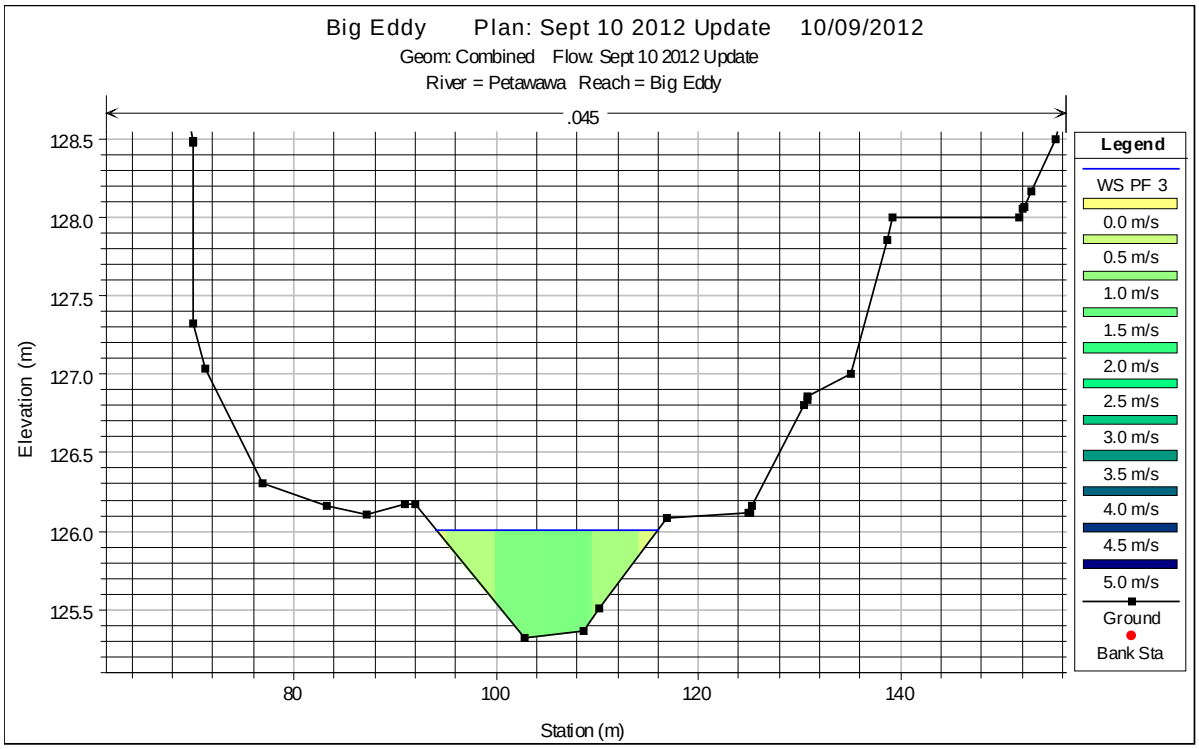


Figure 15: Cross Section -0+685 – 10 m^3/s

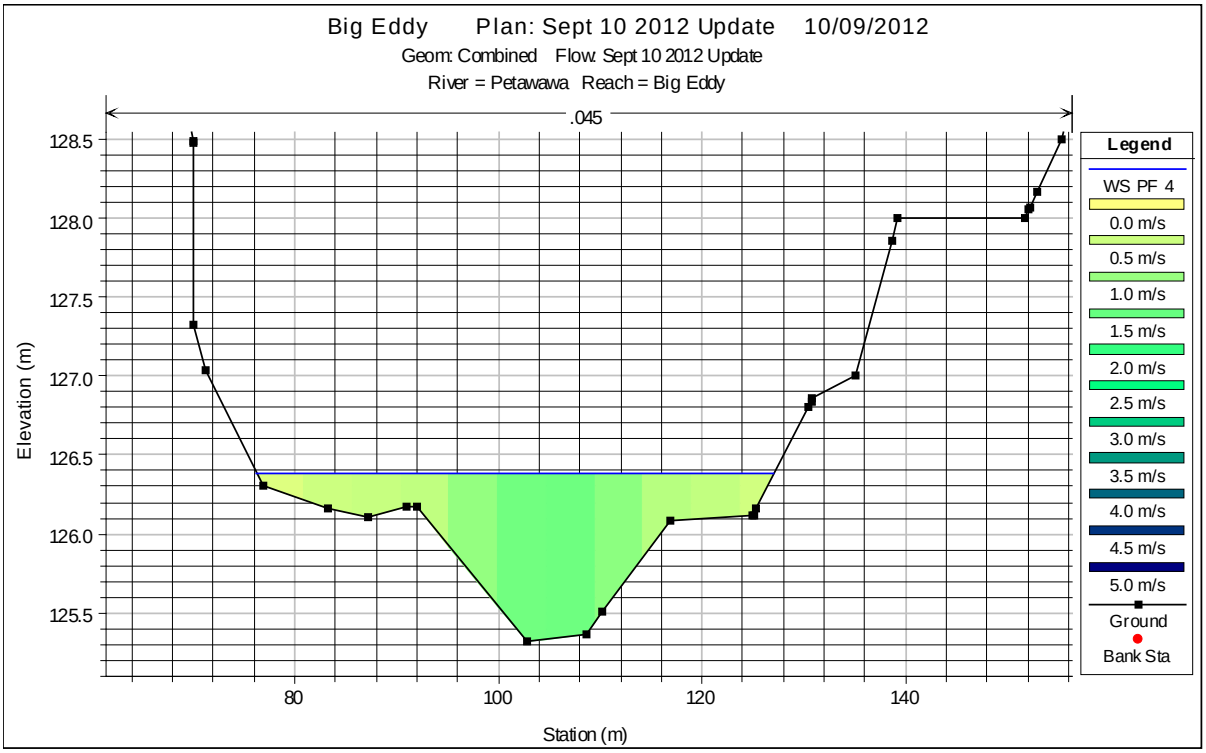


Figure 16: Cross Section -0+685 – 25 m^3/s

3. Conclusion

The Big Eddy steady state HEC-RAS flow model developed by CPL was used to calculate the average channel velocities as well as velocity distributions for flows of 2, 4, 10 and 25 m^3/s specifically at four cross sections which were identified by Xeneca as possible velocity barriers to fish passage in the Petawawa River.. The resulting average channel velocities ranged from 0.29 m/s 3.52 m/s with the highest average velocities occurring at Sta -0+334 followed by Sta. -0+281. For flow rates of 4 m^3/s and less the average velocities at all sections were approximately 1 m/s or less and at Sta. -0+512 and -0+685 the average velocities were less than 1 m/s for flows up to 25 m^3/s.

The evaluation of whether these sections are potential fish barriers will need to be assessed by the fisheries biologist and the information contained herein has been provided to assist in this assessment.

Sincerely,

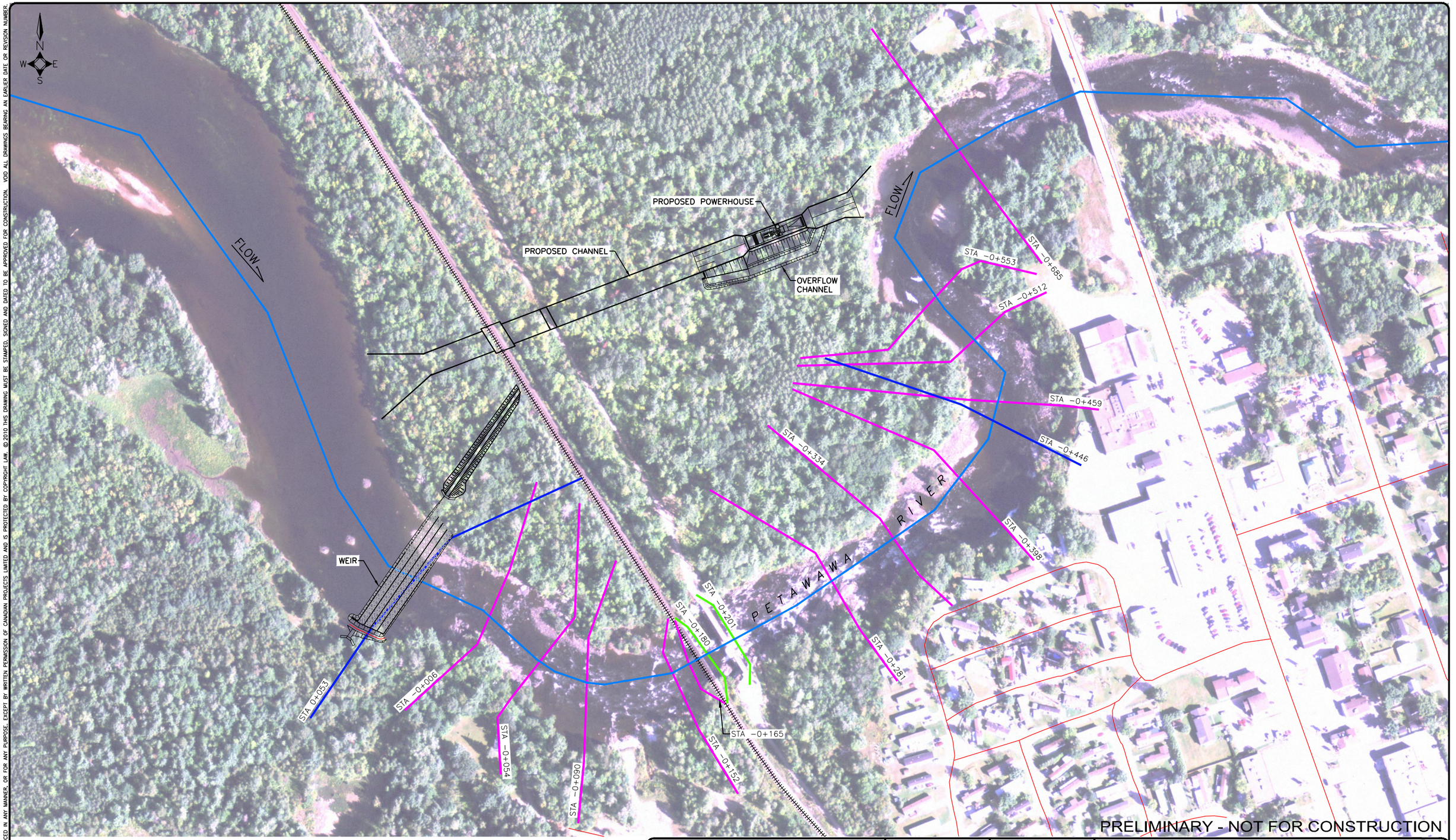
CANADIAN PROJECTS LIMITED

David Kushner, E.I.T.
Junior Engineer

Richard Slopek, P.Eng.
Project Manager

DK/dk

[i] DWG 01-181 Big Eddy Hydro Project - Project General – HEC-RAS Sections. September 4, 2012. Canadian Projects Limited.



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XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEC-RAS SECTIONS
PLAN

PROJECT NUMBER 1052-001
CADD NUMBER 4.3.032
DRAWING NUMBER 01-181

CANADIAN PROJECTS LIMITED
#240, 523 Woodpark Blvd SW
Calgary, Alberta T2W 4J3
Phone: (403) 508-1560 Fax: (403) 238-5460

File:1052-004-3.1.3.2

"CONFIDENTIAL AND PRIVILEGED
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February 21, 2013

DRAFT

Xeneca Power Development Inc.
5255 Yonge Street, Suite 1200
North York, ON M2N 6L9

Attn: Nava Pokharel, M.Sc., P.Eng.
Senior Project Manager

Re: **Petawawa River Site #01 – Big Eddy**
Bypass Channel Hydraulic Analysis

1. Introduction

Xeneca Power Development Inc (Xeneca) requested that Canadian Projects Limited (CPL) provide a hydraulic analysis of the bypass reach of the Big Eddy Hydro Project (the Project) to assist in the selection of a Minimum Release Flow (MRF) or Minimum Maintenance Flow (MMF). This letter presents the results and analysis of the hydraulic analysis of the bypass channel.

This report is supplemental to the previously written report titled "*Ontario South Hydro HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling Petawawa River – Big Eddy*" issued March 5, 2012.

The following two reports contain additional information on the bypass channel and should be read in conjunction with this report.

1. "*Ontario South Hydro - Supplemental Report to HEC-RAS Inundation Mapping and Environmentally Sensitive Area Modelling Petawawa River – Big Eddy*" issued January 9, 2012; and

2. "*Big Eddy – Fish Passage Velocity Barriers*" issued September 10, 2012.

2. Background

As part of the proposed Big Eddy Hydro Project, a portion of flows will be diverted from the Petawawa River (the River) though the Project conveyance system, and returned to the River further downstream. As shown on Drawing 181 the conveyance system bypasses approximately 500 m of the River. This 500 m section of the River is referred to as the bypass channel.

The bypass channel is characterized as a steep section of the River with an average slope of 1.5%. The bypass channel consists of several pools and riffles with many sections of turbulent flow.

In order to maintain ecological function of the bypass channel, the MRF must be maintained within the bypass channel at all possible times (i.e. when total river flow is equal to or greater than the MRF). The MRF will be determined through analysis and discussions between Xeneca, CPL, Department of Fisheries and Oceans (DFO) and Ontario Ministry of the Environment (OMNR).

In order to determine an appropriate MRF, a hydraulic analysis of the bypass channel was requested by DFO. The purpose of this analysis is to compare the hydraulic properties of the channel for various low flows to the hydraulic properties of the bypass channel at the bankfull discharge.

3. Bankfull Discharge

It is generally accepted that the bankfull discharge is that flow rate which just fills the channel to the top of its banks. The bankfull discharge is a consistent morphological index which can be related to the maintenance of a channel. This report compares the hydraulic parameters of the bypass channel at the bankfull flow to various low flows to aid in the discussion and selection of an appropriate MRF.

The bankfull discharge can be estimated by determining the 1:1.5 year flood flow rate or by field observations and hydraulic modeling.

As part of a flood frequency analysis performed by CPL, the 1:1.5 year flood flow rate was determined to be 165 m^3/s.[1]

As part of a bathymetric survey performed by BPR Engineering (BPR) in 2010 the High Water Mark (HWM) was surveyed at various sections along the River near the Project location.[2] The

[1] Ontario South Hydro Review and Analysis of Flood Frequency Estimates Revision C. Canadian Projects Limited. December 3, 2010.
[2] Hydrology Memo Report, 01 – Big Eddy, Petawawa River. BPR Engineering. November 23, 2010.

HWM is considered synonymous with the bankfull elevation. The corresponding HWM flow rate was determined through hydraulic modeling by CPL to be 170 m^3/s.[3]

The observed HWM and hydraulic modeling method of determining the bankfull flow rate closely agrees with the flood frequency method. However, the observed HWM and hydraulic modeling method is considered more accurate and more conservative, therefore the bankfull flow is estimated to be 170 m^3/s.

4. Bypass Channel Hydraulic Analysis

Using the HEC-RAS hydraulic model developed by CPL, a hydraulic analysis of the bypass channel was performed. The analysis focused on comparing low flow wetted perimeters to the bankfull condition, but also includes information on channel velocities, and depths for flow rates ranging from the bank full flow rate to low flows of 0.5 m^3/s (including the Q_{95} flow rate of 9.2 m^3/s). Table 1 lists the various flows modeled and their description.

Table 1: Modeled Flows

Flow (m^3/s)	Description	
170.0	Bankfull Discharge	
48.1	Mean Flow (LTAF)	
30.0		
18.0		
10.0		
9.2	Q_{95}	Low Flows
7.0		
4.0		
2.0		
0.5		

The relevant hydraulic properties of surveyed cross sections within the bypass reach are shown in Tables 2 through 12 and Figures 1 through 11. The location of the cross sections and the bypass reach is shown on Drawing 181.

[3] Ontario South Hydro HEC-RAS Inundation Mapping Petawawa River – Big Eddy Revision 0. Canadian Projects Limited. February 25, 2011.

Table 2: Cross Section -0+006 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	134.78	2.57	1.97	48.8	49.5	100%
48.1	133.90	1.69	1.06	43.3	43.8	88%
30.0	133.67	1.46	0.84	42.0	42.3	85%
18.0	133.49	1.28	0.64	40.9	41.2	83%
10.0	133.33	1.12	0.46	36.7	36.9	75%
9.2	133.31	1.10	0.43	36.0	36.2	73%
7.0	133.25	1.04	0.37	34.0	34.2	69%
4.0	133.15	0.94	0.25	30.7	30.9	62%
2.0	133.07	0.86	0.15	28.1	28.3	57%
0.5	132.99	0.78	0.04	24.7	24.9	50%

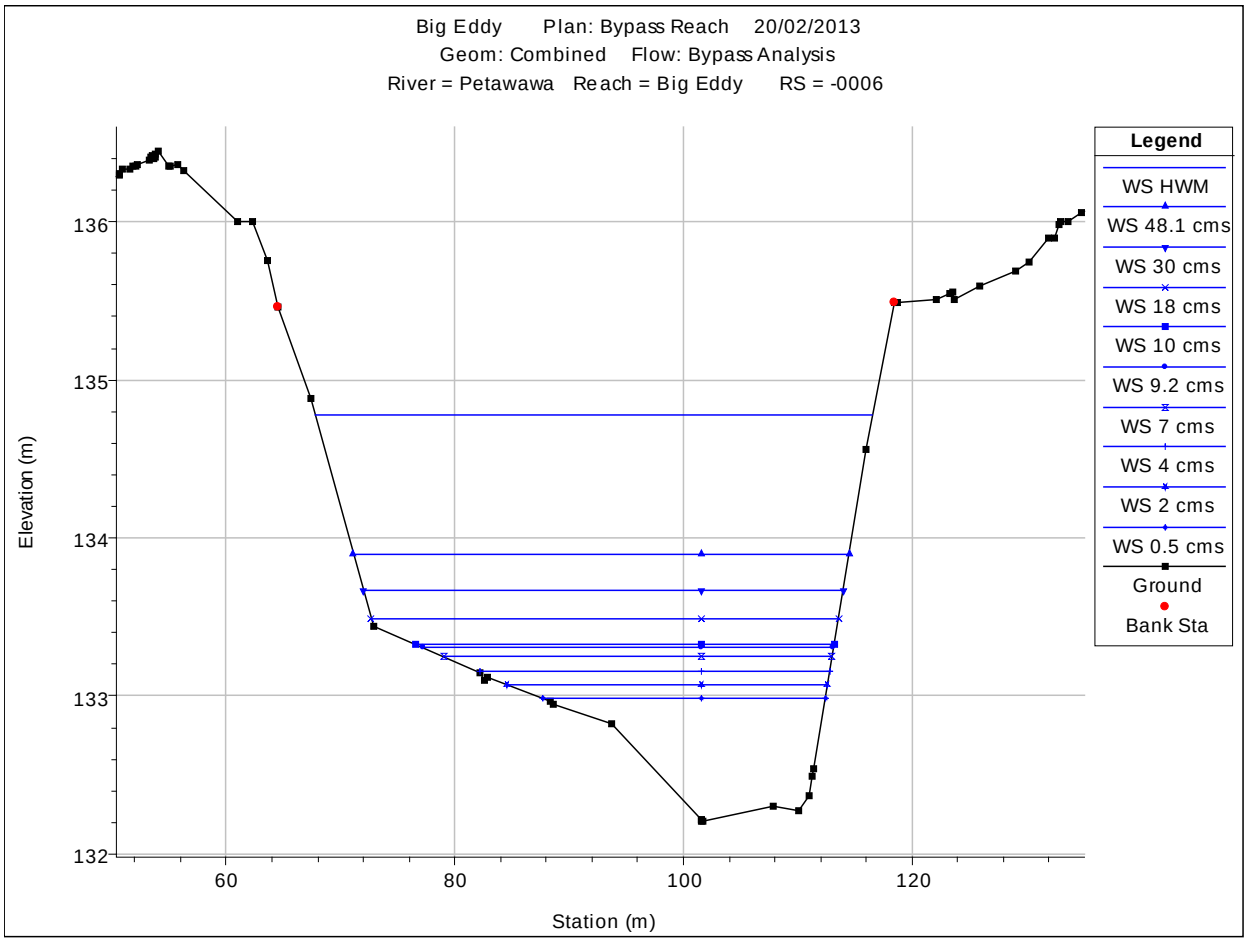


Figure 1: Cross Section -0+006 Water Surface Elevations

Table 3: Cross Section -0+054 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	134.17	2.70	2.41	67.5	68.2	100%
48.1	133.49	2.02	1.53	37.8	38.4	56%
30.0	133.32	1.85	1.17	32.1	32.7	48%
18.0	133.17	1.70	0.85	27.2	27.7	41%
10.0	133.05	1.58	0.55	23.0	23.4	34%
9.2	133.03	1.56	0.52	22.5	22.9	34%
7.0	132.99	1.52	0.42	21.7	22.1	32%
4.0	132.93	1.46	0.26	20.5	21.0	31%
2.0	132.88	1.41	0.14	19.7	20.1	29%
0.5	132.84	1.37	0.04	18.9	19.3	28%

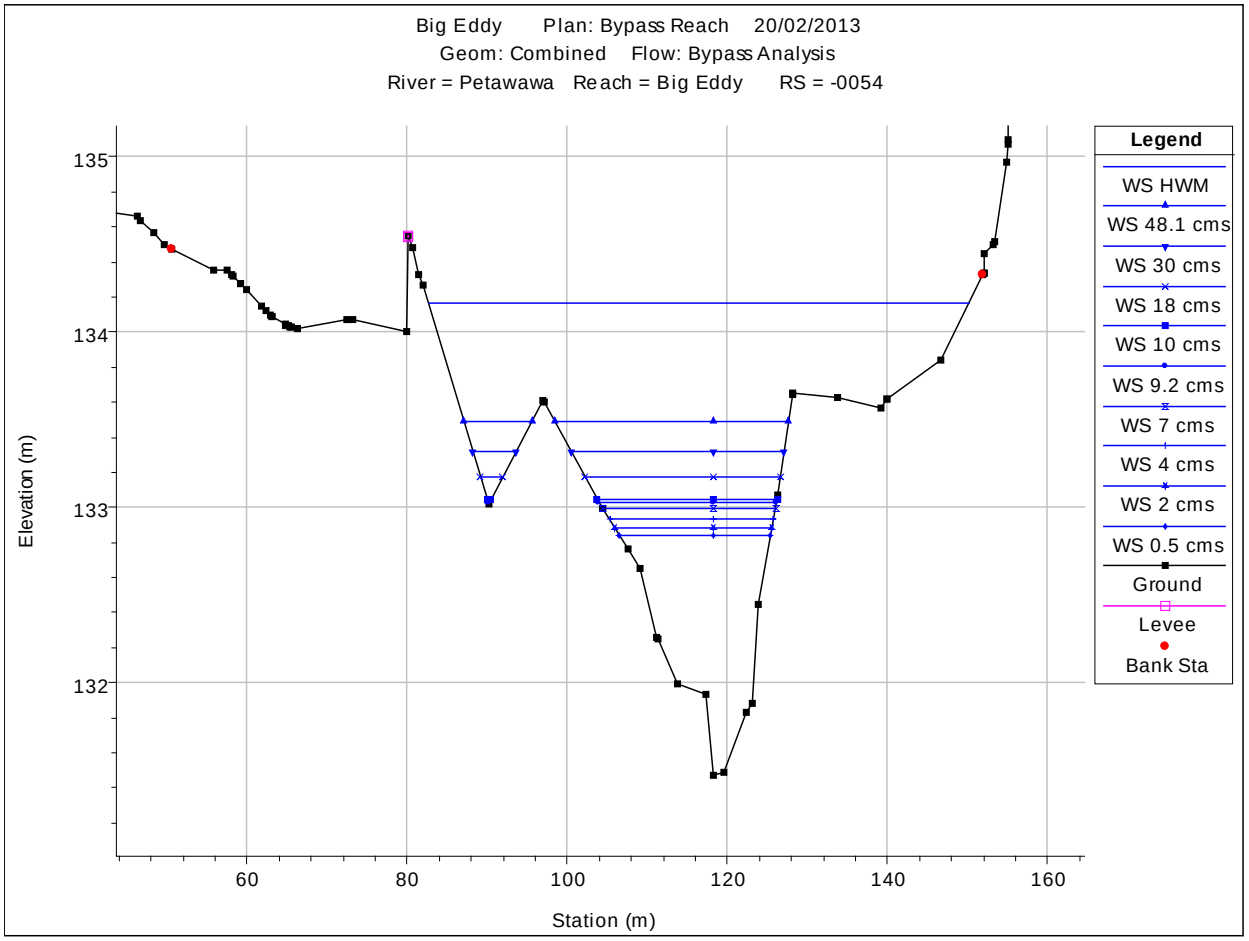


Figure 2: Cross Section -0+054 Water Surface Elevations

Table 4: Cross Section -0+090 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	133.99	1.93	1.66	83.6	83.8	100%
48.1	133.39	1.33	0.86	73.2	73.4	88%
30.0	133.25	1.19	0.66	68.1	68.2	81%
18.0	133.13	1.07	0.48	62.3	62.4	74%
10.0	133.03	0.97	0.32	56.5	56.6	68%
9.2	133.01	0.95	0.30	55.9	56.0	67%
7.0	132.98	0.92	0.24	54.0	54.1	65%
4.0	132.93	0.87	0.15	51.1	51.2	61%
2.0	132.88	0.82	0.08	49.3	49.4	59%
0.5	132.84	0.78	0.02	47.8	47.9	57%

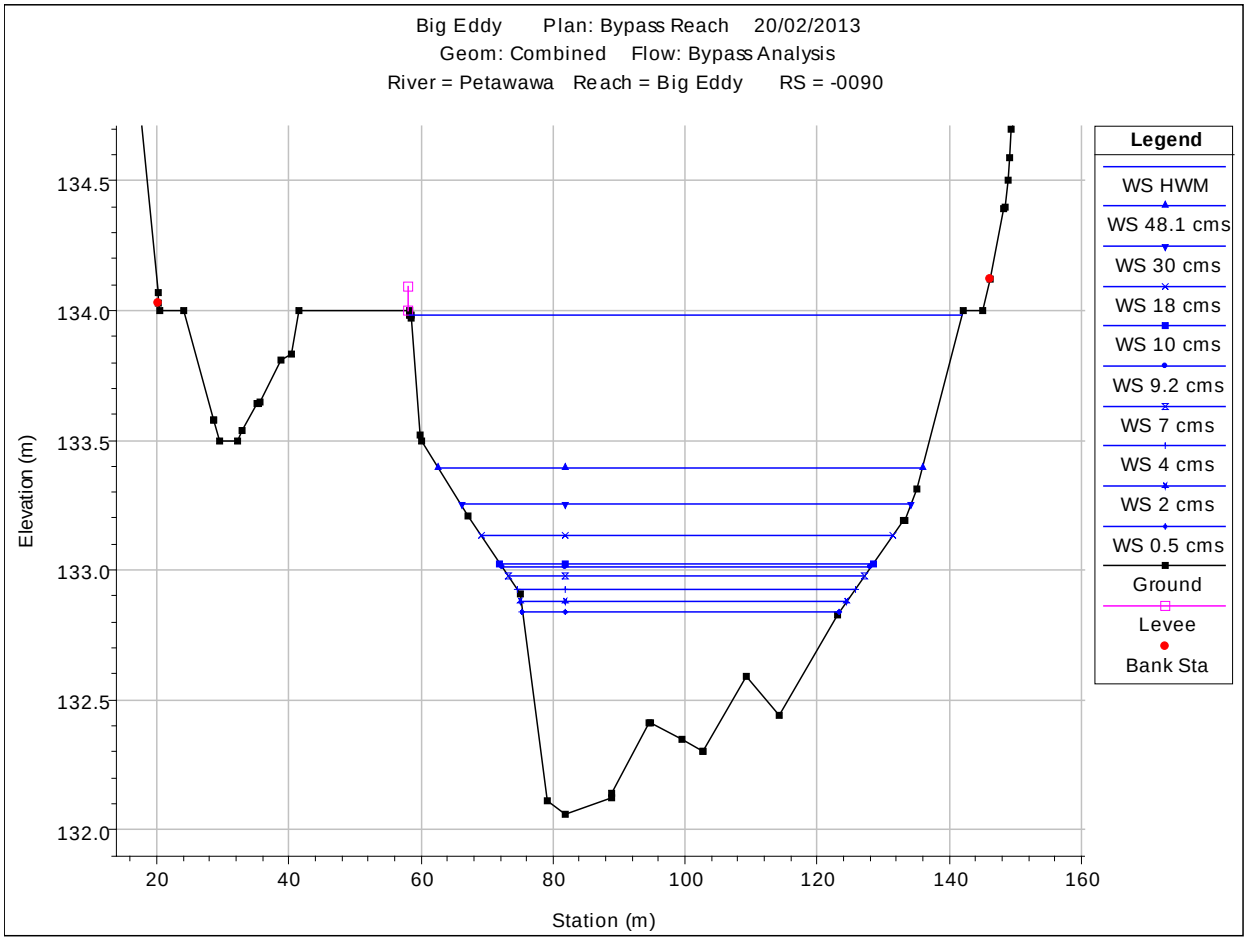


Figure 3: Cross Section -0+090 Water Surface Elevations

Table 5: Cross Section -0+152 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	133.49	2.23	1.98	62.7	63.9	100%
48.1	132.59	1.33	1.32	48.4	48.9	77%
30.0	132.40	1.14	1.10	47.7	48.1	75%
18.0	132.24	0.98	0.90	43.3	43.5	68%
10.0	132.12	0.86	0.67	35.8	35.9	56%
9.2	132.11	0.85	0.64	35.0	35.1	55%
7.0	132.06	0.80	0.54	32.7	32.8	51%
4.0	132.00	0.74	0.36	28.7	28.9	45%
2.0	131.95	0.69	0.21	27.3	27.4	43%
0.5	131.90	0.64	0.06	25.9	26.0	41%

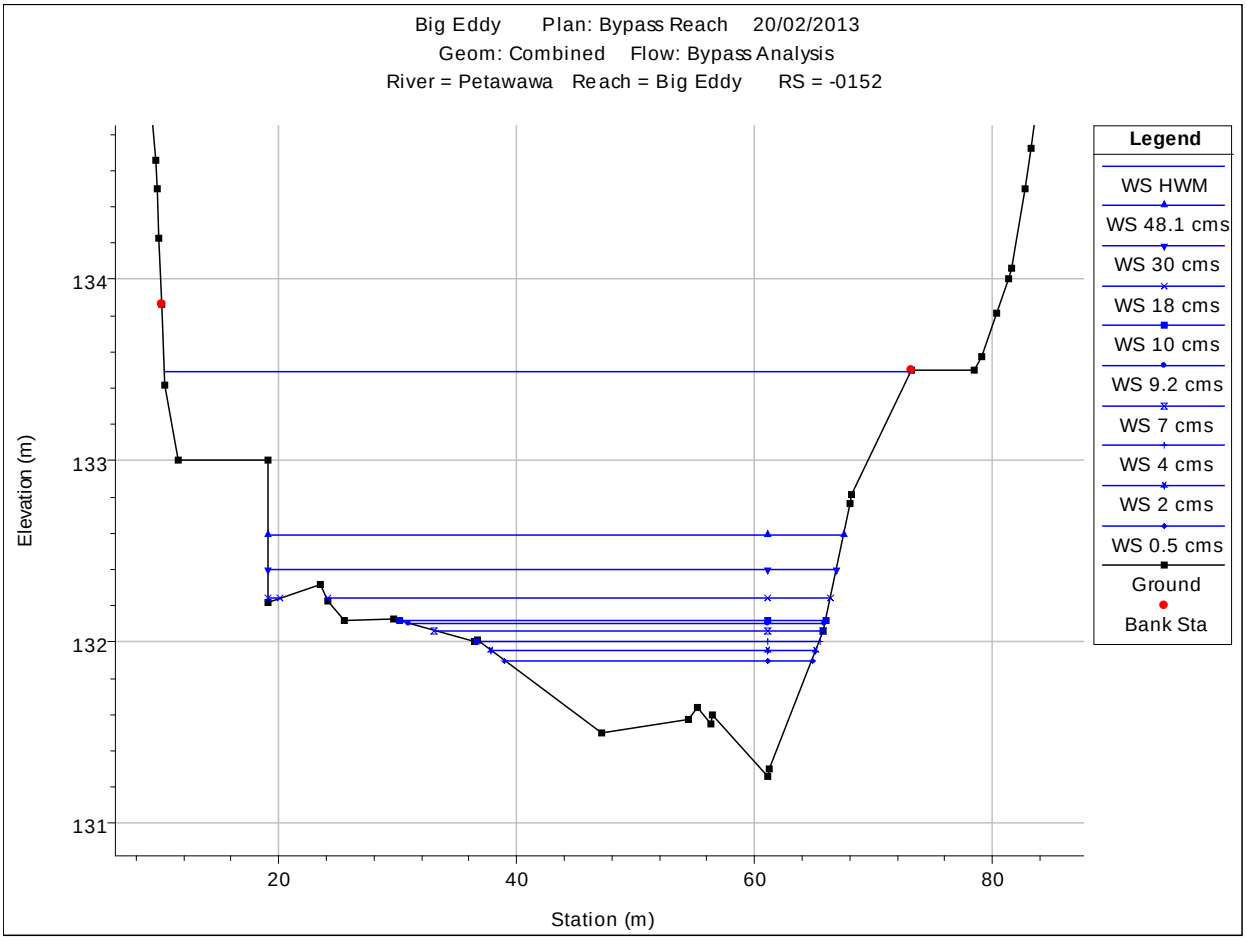


Figure 4: Cross Section -0+152 Water Surface Elevations

Table 6: Cross Section -0+165 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	133.44	3.14	1.92	43.7	46.0	100%
48.1	132.59	2.29	0.94	43.3	44.2	96%
30.0	132.40	2.10	0.69	42.3	43.1	94%
18.0	132.25	1.95	0.49	41.5	42.2	92%
10.0	132.12	1.82	0.32	40.8	41.5	90%
9.2	132.11	1.81	0.30	40.7	41.4	90%
7.0	132.07	1.77	0.24	40.5	41.2	89%
4.0	132.00	1.70	0.15	36.8	37.4	81%
2.0	131.95	1.65	0.08	32.6	33.2	72%
0.5	131.90	1.60	0.02	30.8	31.4	68%

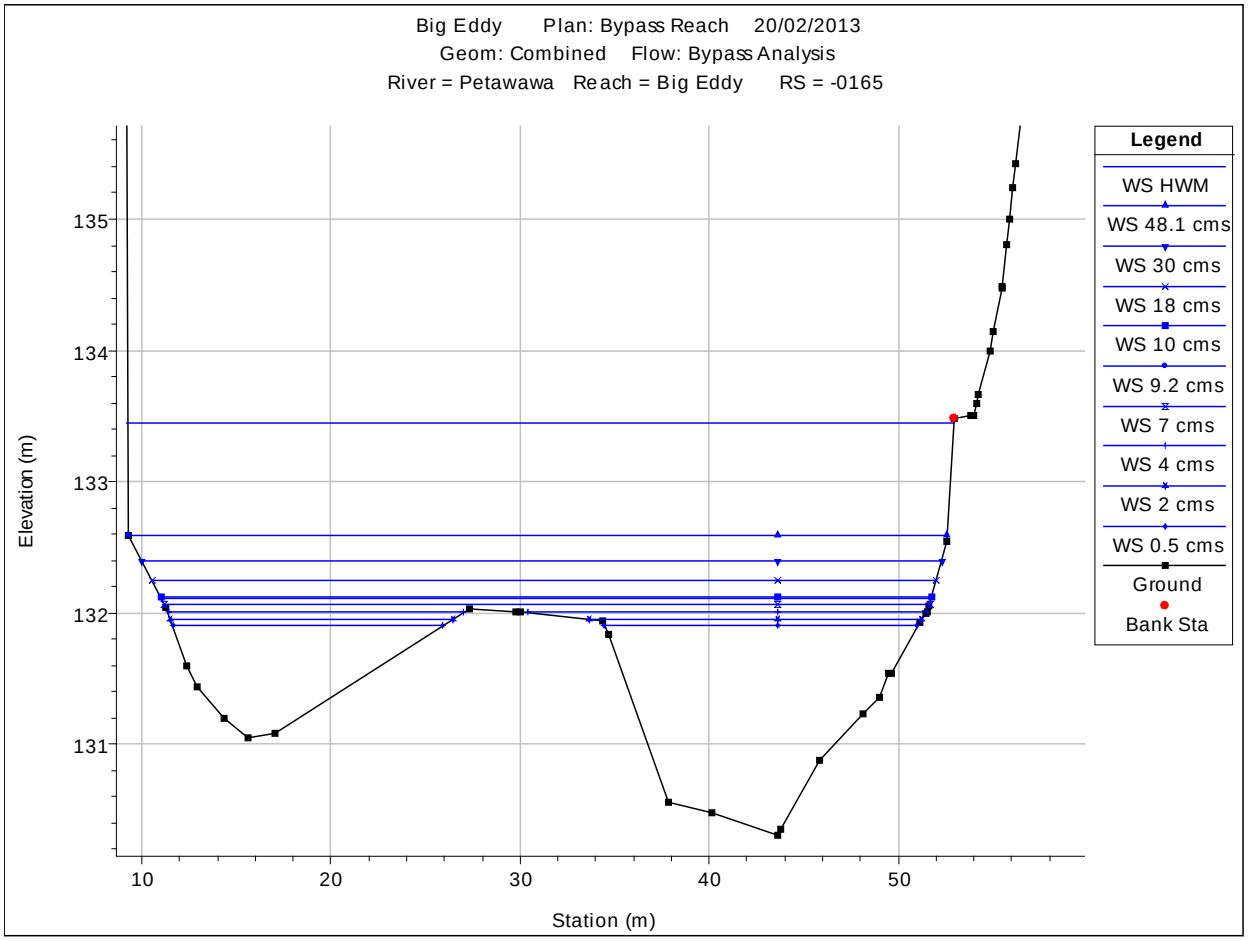


Figure 5: Cross Section -0+165 Water Surface Elevations

Table 7: Cross Section -0+281 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	130.42	2.70	2.68	64.3	65.5	100%
48.1	129.19	1.47	3.37	18.3	18.6	28%
30.0	129.18	1.46	2.14	18.1	18.5	28%
18.0	129.02	1.30	1.59	16.6	16.9	26%
10.0	128.87	1.15	1.13	15.0	15.3	23%
9.2	128.85	1.13	1.08	14.8	15.1	23%
7.0	128.79	1.07	0.92	14.2	14.5	22%
4.0	128.68	0.96	0.65	13.2	13.4	20%
2.0	128.58	0.86	0.41	12.2	12.4	19%
0.5	128.45	0.73	0.14	10.1	10.3	16%

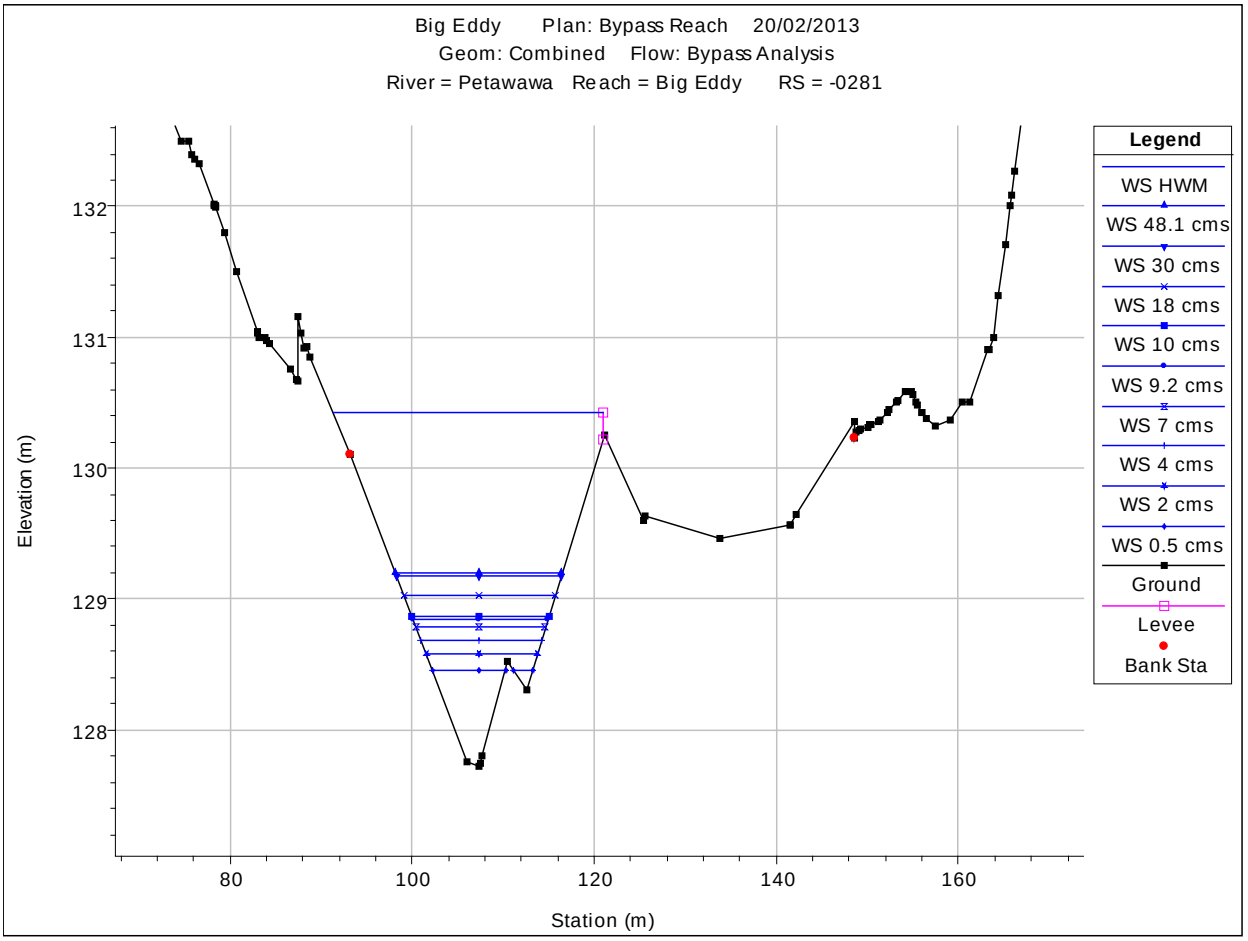


Figure 6: Cross Section -0+281 Water Surface Elevations

Table 8: Cross Section -0+334 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	129.44	3.02	2.44	48.3	49.3	100%
48.1	127.94	1.52	3.71	23.4	23.8	48%
30.0	127.71	1.29	3.54	16.6	16.9	34%
18.0	127.45	1.03	3.59	9.7	9.9	20%
10.0	127.19	0.77	3.49	7.3	7.5	15%
9.2	127.16	0.74	3.46	7.0	7.2	15%
7.0	127.07	0.65	3.38	6.2	6.4	13%
4.0	127.32	0.90	1.03	8.5	8.7	18%
2.0	127.19	0.77	0.70	7.3	7.5	15%
0.5	127.01	0.59	0.29	5.6	5.8	12%

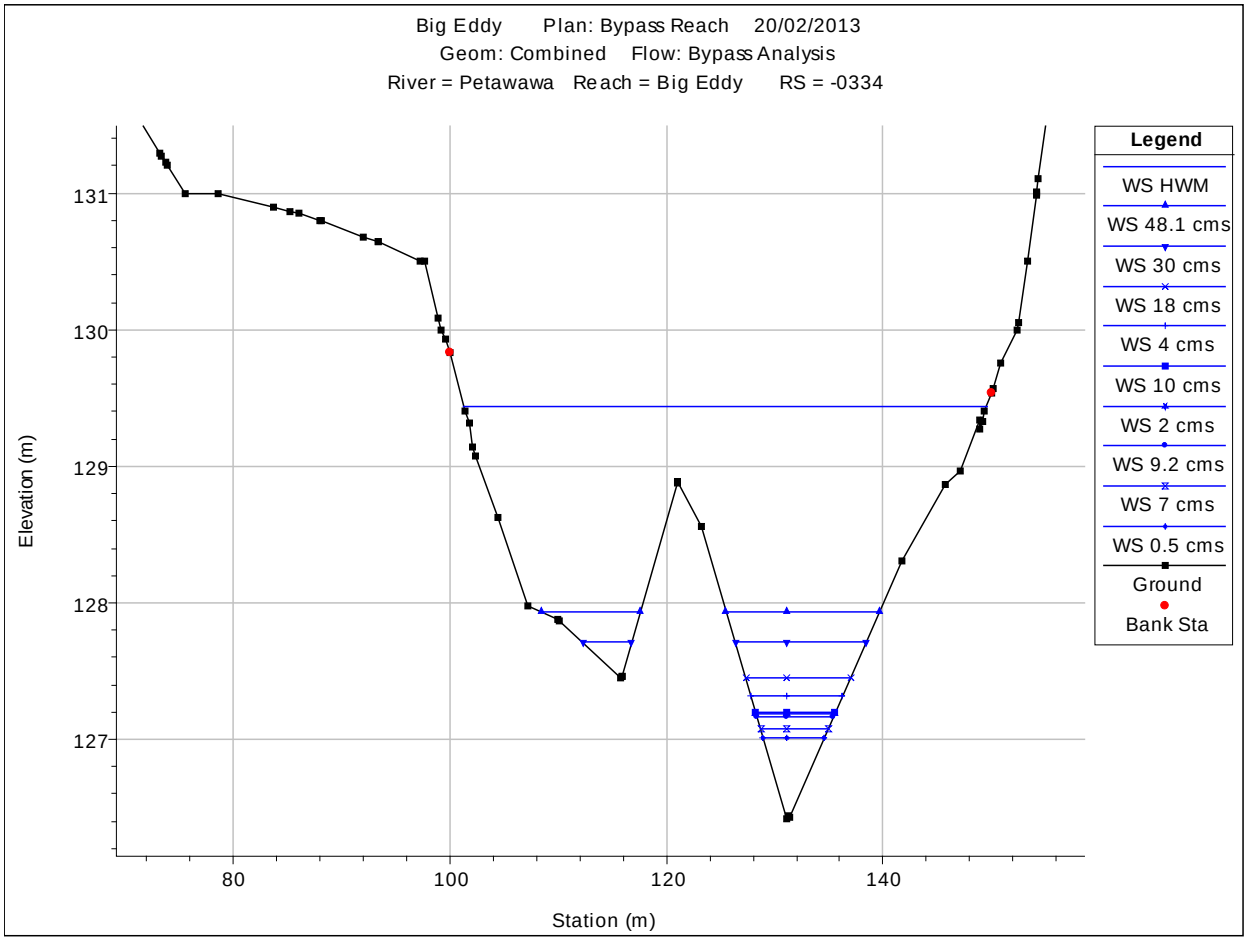


Figure 7: Cross Section -0+334 Water Surface Elevations

Table 9: Cross Section -0+398 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	128.70	3.76	1.07	83.1	84.3	100%
48.1	127.69	2.75	0.60	74.1	74.5	88%
30.0	127.45	2.51	0.46	59.3	59.6	71%
18.0	127.26	2.32	0.34	51.5	51.8	61%
10.0	127.09	2.15	0.22	46.2	46.5	55%
9.2	127.07	2.13	0.21	45.7	45.9	55%
7.0	127.01	2.07	0.17	44.1	44.4	53%
4.0	126.91	1.97	0.11	41.7	41.9	50%
2.0	126.83	1.89	0.06	39.6	39.8	47%
0.5	126.75	1.81	0.02	37.5	37.7	45%

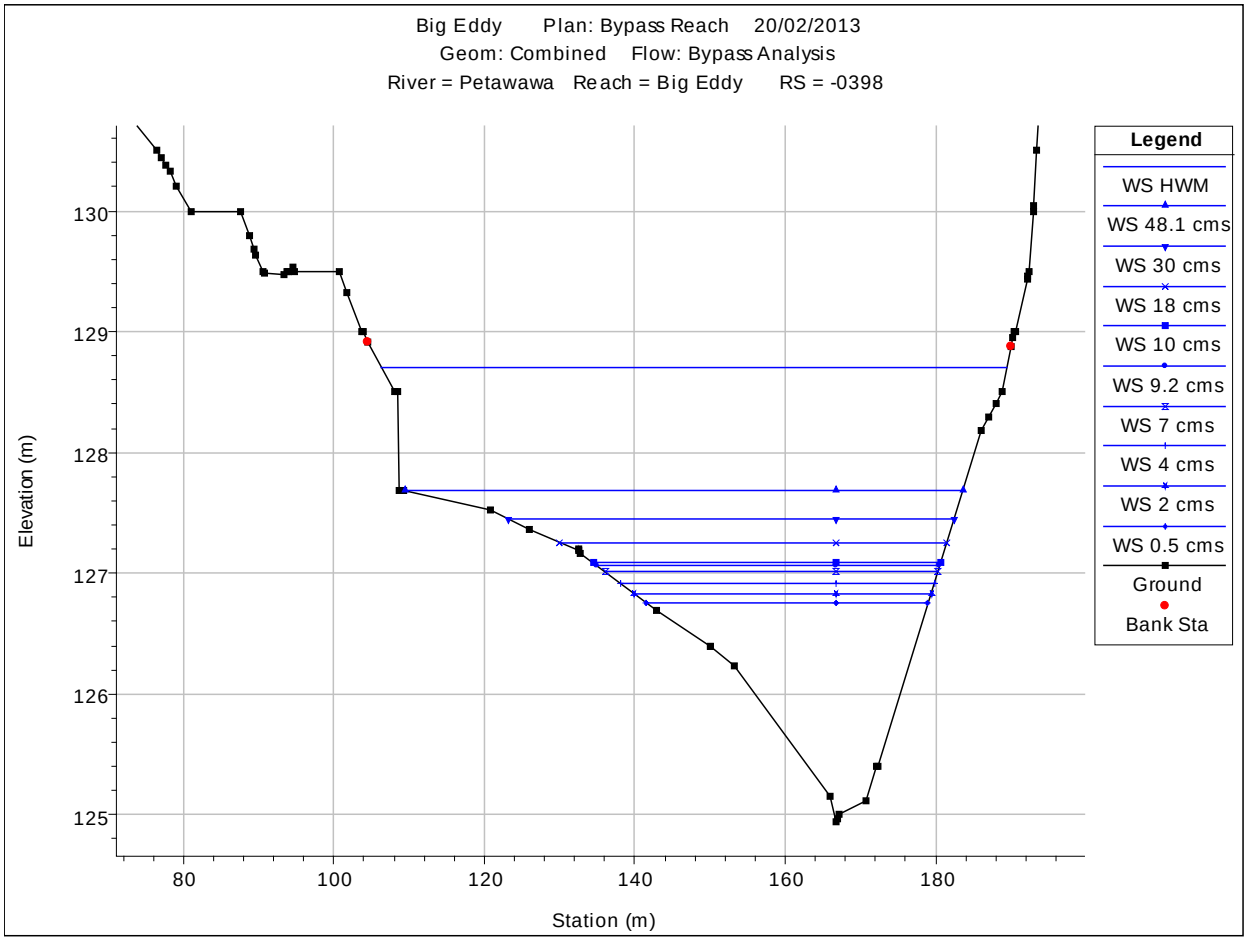


Figure 10: Cross Section -0+398 Water Surface Elevations

Table 10: Cross Section -0+446 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	128.67	4.25	0.96	73.8	75.5	100%
48.1	127.67	3.25	0.43	64.5	65.6	87%
30.0	127.44	3.02	0.31	63.5	64.4	85%
18.0	127.25	2.83	0.21	62.0	62.7	83%
10.0	127.09	2.67	0.13	58.7	59.5	79%
9.2	127.07	2.65	0.12	58.4	59.2	78%
7.0	127.01	2.59	0.10	57.8	58.5	78%
4.0	126.91	2.49	0.06	56.7	57.4	76%
2.0	126.83	2.41	0.03	55.7	56.5	75%
0.5	126.75	2.33	0.01	53.7	54.4	72%

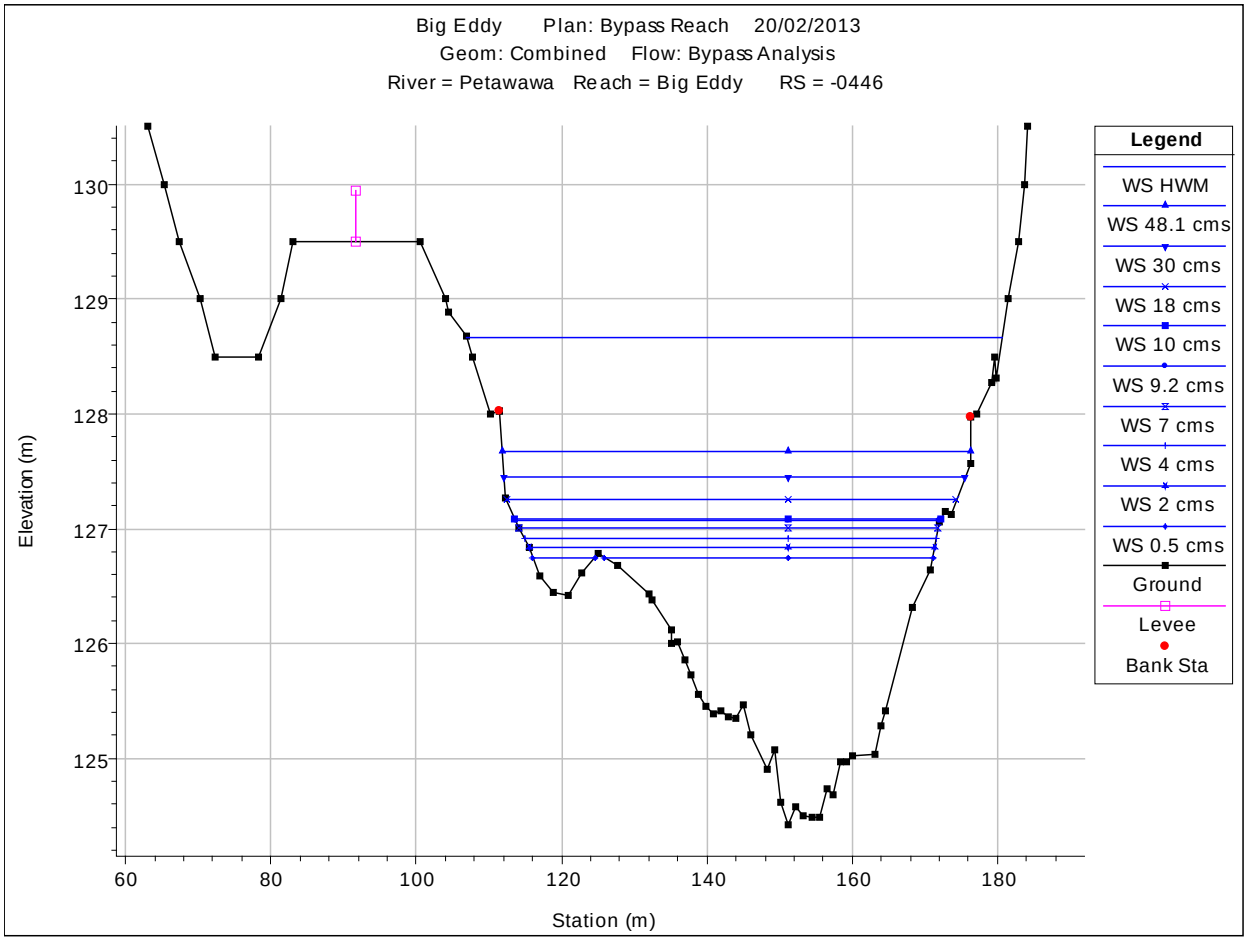


Figure 9: Cross Section -0+446 Water Surface Elevations

Table 11: Cross Section -0+459 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	128.63	2.74	1.15	73.2	74.6	100%
48.1	127.66	1.77	0.62	69.6	70.4	94%
30.0	127.43	1.54	0.48	67.2	67.9	91%
18.0	127.25	1.36	0.36	66.9	67.3	90%
10.0	127.08	1.19	0.26	66.6	66.9	90%
9.2	127.06	1.17	0.24	66.5	66.8	90%
7.0	127.01	1.12	0.21	66.4	66.7	89%
4.0	126.91	1.02	0.14	62.0	62.2	83%
2.0	126.83	0.94	0.09	56.9	57.1	76%
0.5	126.75	0.86	0.03	53.9	54.0	72%

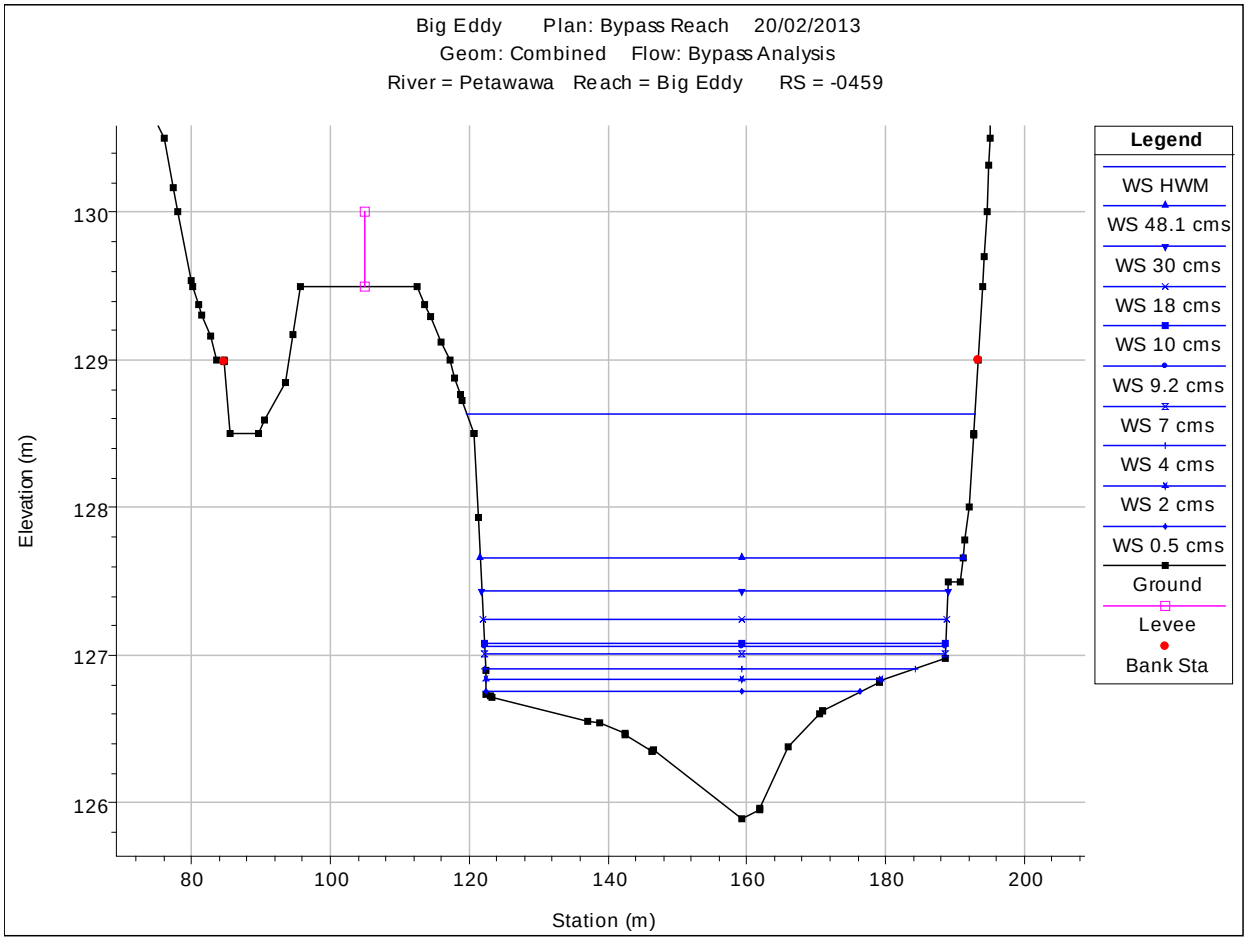


Figure 10: Cross Section -0+459 Water Surface Elevations

Table 12: Cross Section -0+512 Hydraulic Properties

Flow (m^3/s)	Water Level (m MSL)	Maximum Depth (m)	Average Flow Velocity (m/s)	Top Width (m)	Wetted Perimeter (m)	Percentage of HWM Wetted Perimeter
170.0	128.34	2.81	1.70	55.8	56.3	100%
48.1	127.35	1.82	0.98	46.6	46.8	83%
30.0	127.10	1.57	0.78	41.4	41.6	74%
18.0	126.90	1.37	0.59	35.8	36.0	64%
10.0	126.63	1.10	0.47	31.3	31.4	56%
9.2	126.60	1.07	0.45	30.8	30.9	55%
7.0	126.49	0.96	0.40	29.1	29.2	52%
4.0	126.30	0.77	0.33	25.8	25.9	46%
2.0	126.08	0.55	0.29	21.6	21.6	38%
0.5	125.79	0.26	0.28	12.8	12.8	23%

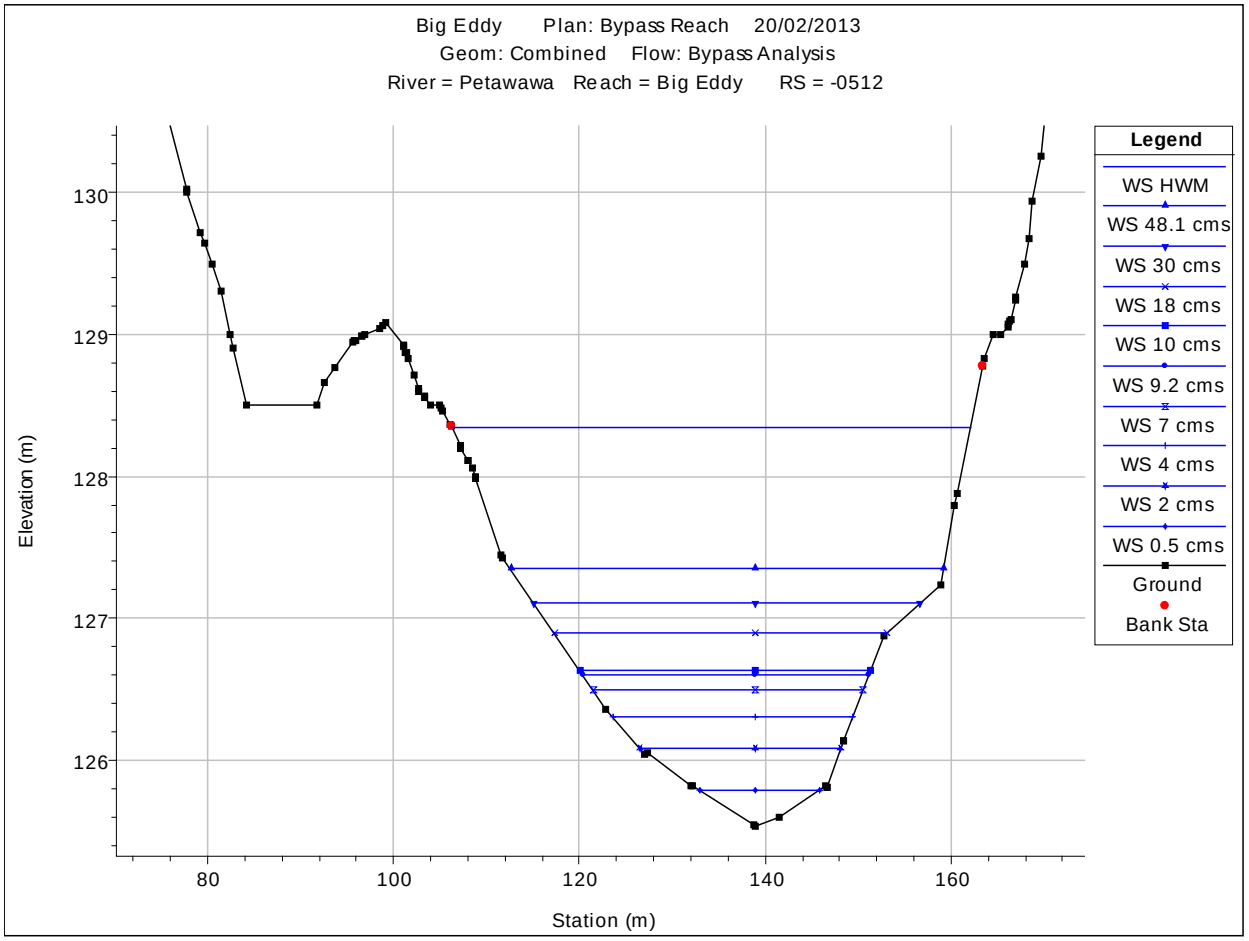


Figure 11: Cross Section -0+512 Water Surface Elevations

5. Summary

Figure 12 shows a summary of wetted perimeter for the bypass reach for the flows modeled. Points on Figure 12 represent surveyed cross sections. Figure 13 shows the percentage of bankfull wetted perimeter for the flows modeled. Table 13 shows the average wetted perimeter for the entire bypass reach for the flows modeled.

Table 13: Average Wetted Perimeter

	Flow (m^3/s)	Average Wetted Perimeter (m)	Average Percentage of Bankfull Wetted Perimeter
Bankfull Flow	170.0	66	100%
LTAF	48.1	49	71%
	30.0	45	65%
	18.0	42	62%
	10.0	38	57%
Q_{95}	9.2	38	57%
	7.0	37	55%
	4.0	35	52%
	2.0	33	48%
	0.5	30	43%

The average percentage of bankfull wetted perimeters varies from approximately 40% to 60% for flows from 0.5 m^3/s to 18 m^3/s. The minimum wetted perimeter and largest percent reduction from the bankfull wetted perimeter occurs at cross section -0+398. The smallest percent reduction from the bankfull wetted perimeter occurs at cross sections -0+459 and -0+165.

The percentage of bankfull wetted perimeter is lowest at sections -0+398, -0+281, and -0+090. However, the wetted perimeter does not vary significantly in these areas (less than 5% from 0.5 m^3/s to 18 m^3/s).

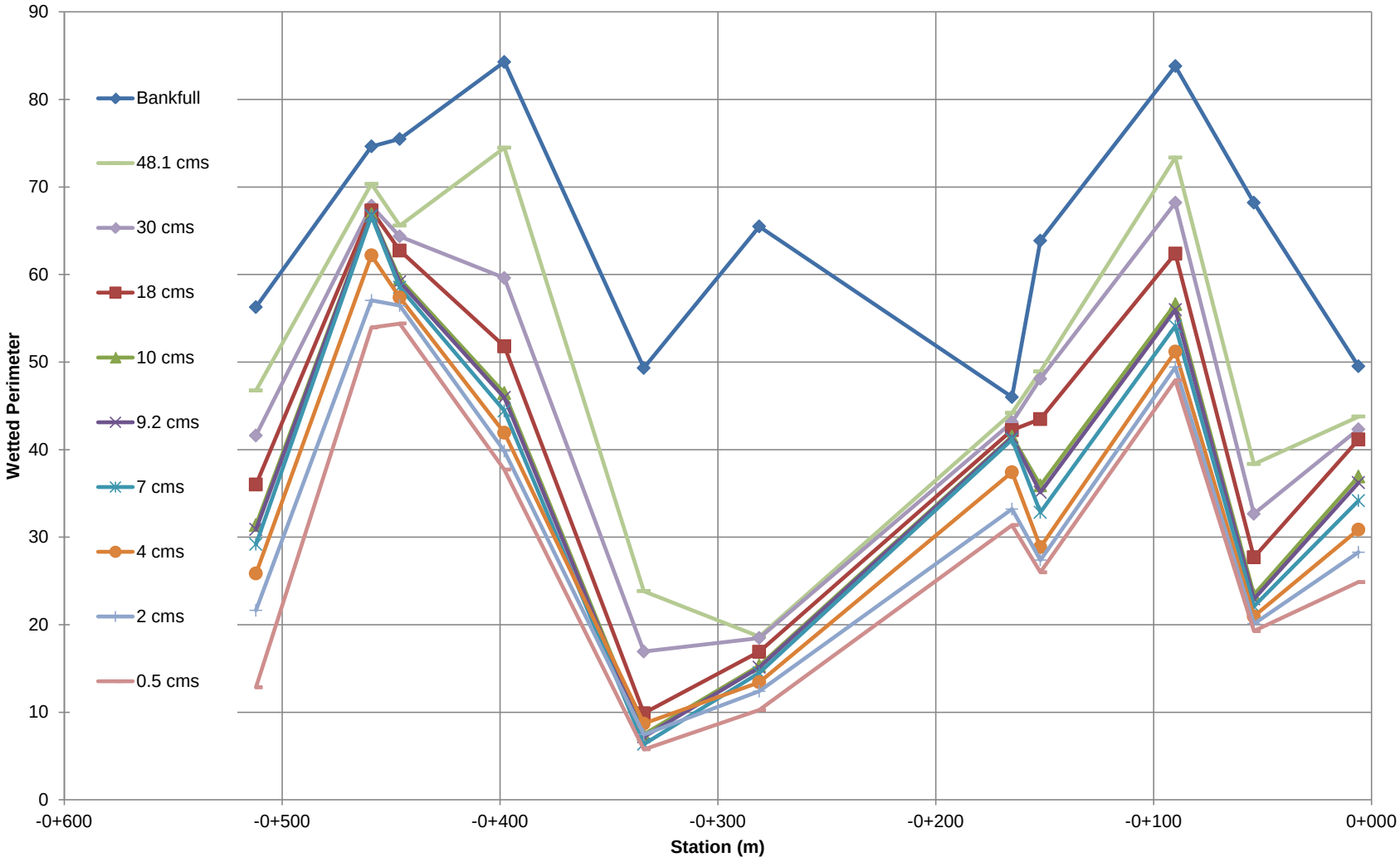


Figure 12: Wetted Perimeter Results

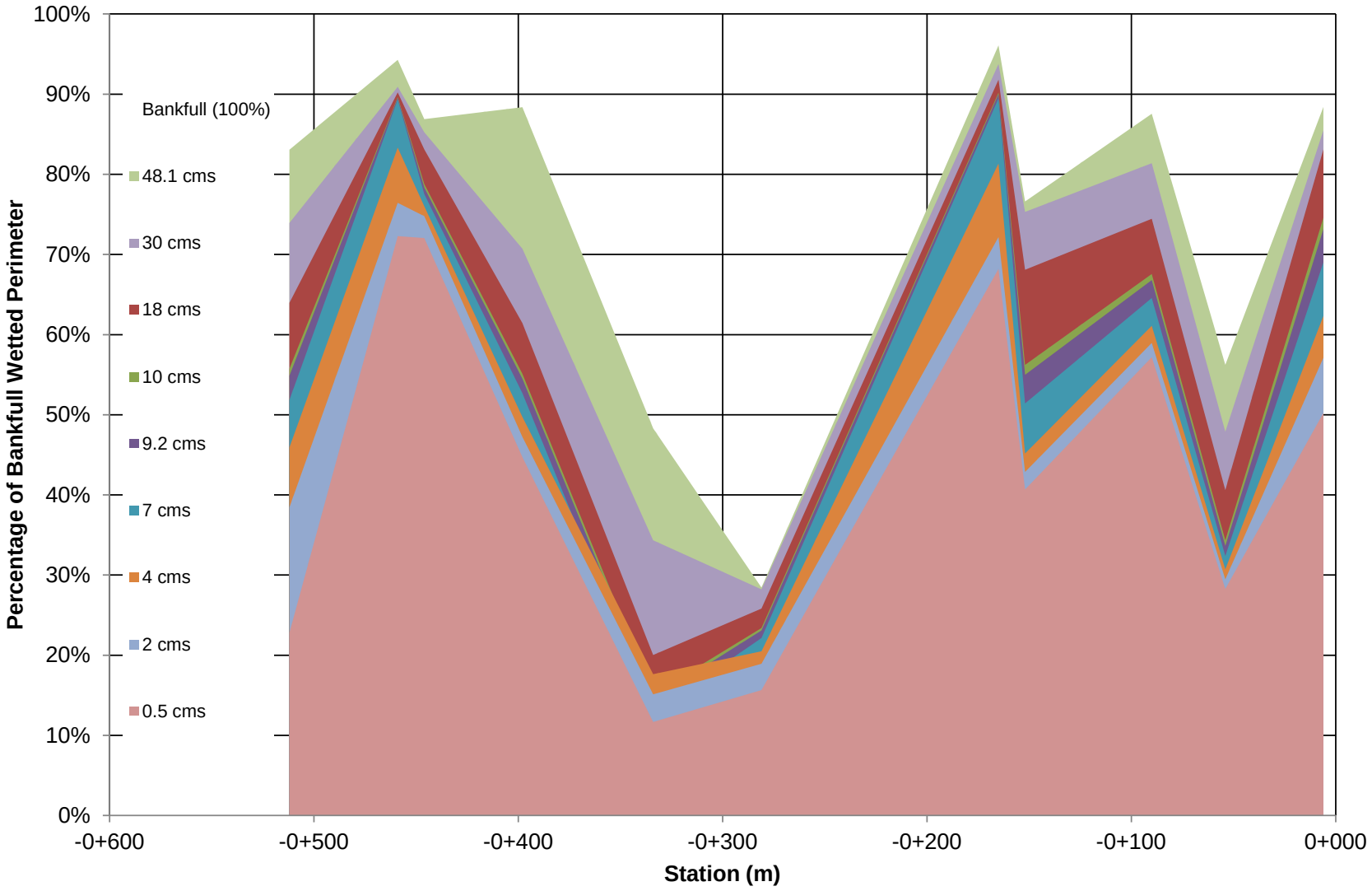


Figure 13: Percentage of Bankfull Wetted Perimeter Results

6. Conclusion

This supplemental letter provides hydraulic information and analysis for the bypass channel of the Big Eddy Hydro Project to assist in the selection of a Minimum Release Flow (MRF) or Minimum Maintenance Flow (MMF). The analysis focused on comparing low flow wetted perimeters to the bankfull condition, but also includes information on channel velocities, and depths for flow rates ranging from the bank full flow rate to low flows of 0.5 m^3/s. Tables and Figures of the hydraulic details of the bypass channel have been provided.

Over the range of low flows modeled (0.5 m^3/s to 18 m^3/s) the average bypass channel wetted perimeter varies from approximately 40% to 60% of the bankfull wetted perimeter. The minimum wetted perimeter and largest reduction from the bankfull wetted perimeter occurs at cross section -0+398.

We trust this report meets with your requirements. If you require any clarification, have questions or would like to discuss the information contained within, please contact us.

Sincerely,

CANADIAN PROJECTS LIMITED

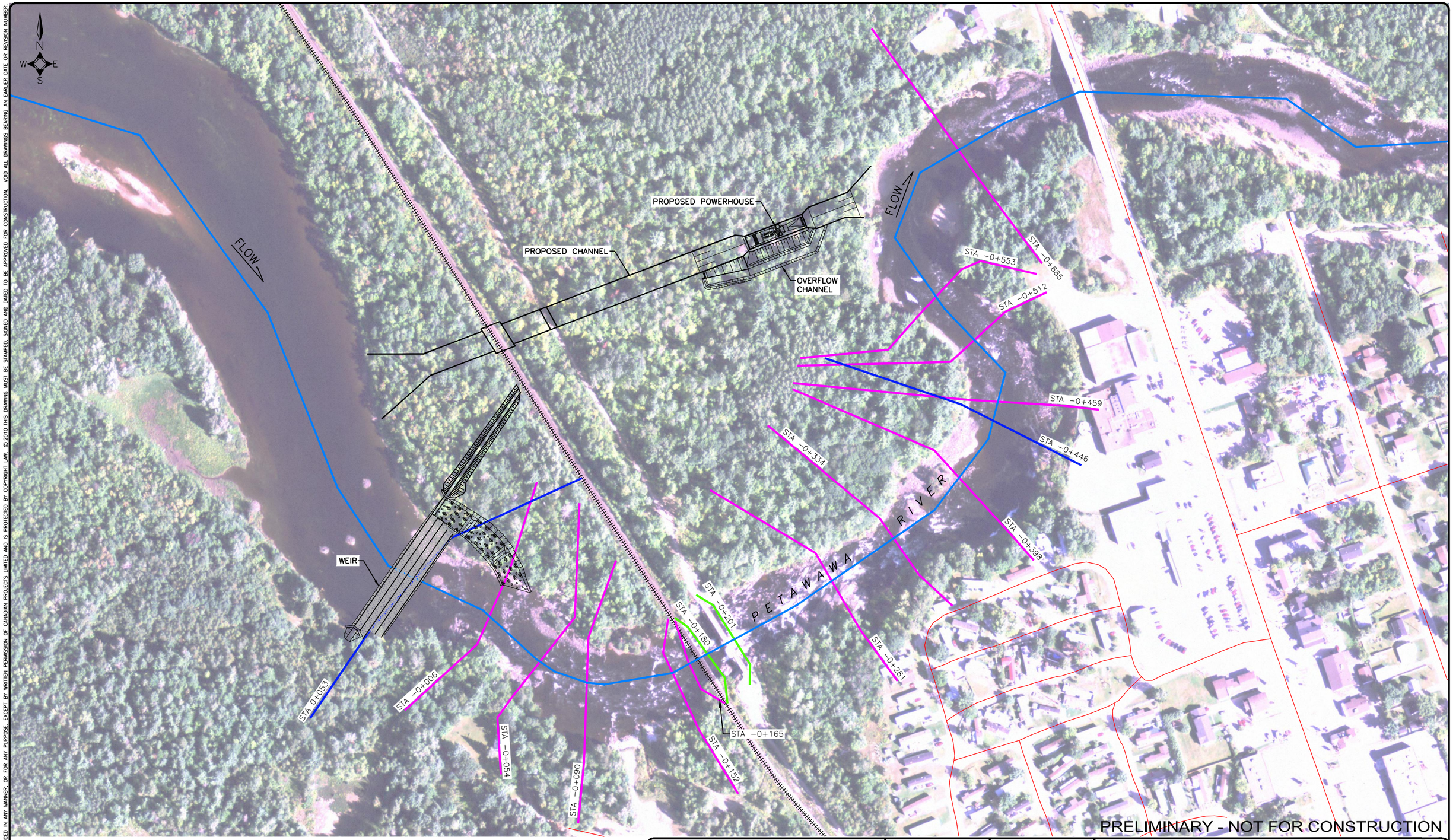
David Kushner E.I.T.
Junior Engineer

Reviewed by,

Richard Slopek, P.Eng.
Project Manager

DK/wi

Attachments
Drawing 181



PRELIMINARY - NOT FOR CONSTRUCTION

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.
3. CROSS SECTIONS PROVIDED BY ADAM KASPRZAK SURVEYING LTD.

LEGEND

- ROAD
- RAILWAY
- NEW BATHYMETRY SECTIONS – USED
- EXISTING BATHYMETRY SECTIONS – USED
- NEW BATHYMETRY SECTIONS – NOT USED

SCALE 1:2 000

0 20 40 60 80 100

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
D	13	02	15	REVISED WEIR LAYOUT		DK	DK	AB	CPB

Canadian Projects Limited
CALGARY, ALBERTA

Xeneca Power Development Inc.

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEC-RAS SECTIONS
PLAN

PROJECT NUMBER 1052-004
CADD NUMBER 4.3.011
DRAWING NUMBER 181

HATCH™

Xeneca Power Development Inc.

Hydrology Review

For

Petawawa Hydropower Sites
Half Mile Rapids and Big Eddy Hydropower Projects

H333385
Rev. 0
October 6, 2009

Project Report

October 6, 2009

Xeneca Power Development Inc.
Petawawa Hydropower Sites
Hydrology Review

DISTRIBUTION

Xeneca	Attention: Mr. Patrick Gillette Xeneca Power Development Inc. 5160 Yonge Street, Suite 520 Toronto, Ontario M2N 6L9	1 hard copy and 1 electronic copy (posted to Xeneca FTP site)
Jim Law/File H333385	Hatch, Oakville	1 hard copy

Xeneca Power Development Inc.
Petawawa Hydropower Sites

Hydrology Review

Prepared by: Mark Orton — October 6, 2009 (Date)

Approvals

Hatch

Approved by: Jim Law — October 6, 2009 (Date)

Xeneca Power

Approved by: (Not required) Patrick Gillette — October 6, 2009 (Date)

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1. Introduction

The objective of this report is to develop flow series for the Petawawa River that can be used to assess the hydroelectric generating potential of the following sites:

- Half Mile Rapids
- Big Eddy Rapids

Flows in the Petawawa River have been measured in the past at the Big Eddy Rapids site, but not at Half Mile Rapids. As such, long term flow series at the Half Mile Rapids location must be synthesized from flow records at other gauge(s) on the Petawawa River and on other rivers in the region.

Figure 1 shows the Petawawa River watershed at the two project sites. Figure 2 shows the Petawawa River watershed as well as the locations of Water Survey of Canada (WSC) streamflow gauges and the annual average precipitation distribution in the region.

Flow synthesis generally follows these steps:

- Estimation of the expected mean annual runoff at the site
- Definition of the seasonal flow pattern
- Assessing the variability of runoff from year to year
- Synthesis of a long term daily flow record that meets the above parameters.

2. Mean Annual Runoff

Mean annual runoff (MAR) describes how much of the rainfall and snowmelt runoff in the basin drains past the site on average each year. MAR is usually expressed in units of mm over the drainage basin, for ease of comparison with precipitation (rain and snow) and evaporation, which are also expressed in mm.

The estimation of MAR for an ungauged site depends on the extent of regional information available and whether a water level monitoring gauge has been installed at the site. MAR estimation makes use of the following approaches, depending on the level of information available:

- A regional water balance analysis using precipitation and evapotranspiration data.
- Estimation of the long term average flow (LTAF) at a gauge on the same river.
- Regional runoff trends from a network of established streamflow stations.
- Flow synthesis from the gauged record on the same river.

2.1 Regional Water Balance

Where regional flow data is very limited MAR must be estimated from regional isohyets of equal precipitation and estimates of evapotranspiration, which tends to decrease from south to north across

Ontario. MAR is then estimated as the difference between long term average precipitation and evapotranspiration loss.

The streamflow station network in and around the Petawawa River basin is extensive and this simplistic approach was not used directly to estimate the MAR at the two sites. However, a calibrated water balance within the Petawawa River basin has been used to model the variation in runoff between the sites. This is described in Section 6.

2.2 Long Term Flow in the Petawawa River

Flows have been measured on the Petawawa River near Petawawa, since November 1915 and are published by the Water Survey of Canada (WSC) as station 02KB001. At this location, the river has a drainage area of 4,120 km^2 according to Water Survey of Canada. The mean annual flow for the period 1916 to 2007 was 47.4 m^3/s. The flows at this station are classified as "Regulated" by WSC due to the presence of dams on a number of the lakes and tributaries within the Petawawa River basin. The main purpose of the regulation of the river appears to be recreational.

To confirm this assumption it is necessary to screen the flow record for consistency and to compare the flow data for station 02KB001 with other streamflow stations in the region.

2.3 Flow Data Screening

The WSC flow series at Petawawa gives a flow record of 92 years to analyse the generation potential of the site. However, before using such a lengthy flow record it is important to screen the data for non-stationarity. A stationary flow series is a flow series that is free of trends or other statistical anomalies that might have resulted from influences such as deforestation, climate change, upstream development or changes in the flow monitoring cross-section. The annual flow series for 02KB001 was screened for randomness, trend, serial correlation and homogeneity. The record exhibits slight positive trend from 1916 to 2007, but this is not significant at the 5% level. If the record is split in half and tested periods with negative trends appear. This occurs when natural high and low cycles appear in a long flow record.

As a result of this screening it was decided that the full 92-year record for the Petawawa River is stationary and should be adopted for flow synthesis to capture the complete range of historical variation in the flow sequence. Table 1 shows monthly flows for the Petawawa River near Petawawa [02KB001] for 1916 to 2007.

2.4 Regional Runoff

Between Temiscaming and Ottawa, the Ottawa River is fed by a series of rivers draining east from basins in Ontario drain and south from basins in Quebec. The MAR in the Ottawa River drops from 442 mm at Des Joachims [02KA002] upstream of Petawawa to 409 mm at Chats Falls [02KF009] below Arnprior. The major tributaries in this reach from Quebec are the Coulonge River and the Noire River, which have MARs of $\pm$450 mm. The major tributaries in this reach from Ontario are the Petawawa River near Petawawa [02KB001] with a MAR of 363 mm, the Bonnechere River near Castleford [02KC009], MAR = 252 mm, and the Madawaska River near Arnprior [02KE002], MAR = 341 mm.

The large variation in runoff between the Petawawa River and the adjacent Bonnechere River is

Table 1 Mean Monthly Flows for the Petawawa River near Petawawa (02KB001)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year
1916	17.9	21.6	21.6	79.0	123.4	101.4	62.3	28.1	19.6	20.9	33.9	34.6	47.0
1917	35.2	27.1	18.5	98.6	144.0	68.7	73.9	58.8	19.3	15.2	16.4	15.3	49.4
1918	14.2	13.3	13.7	52.2	69.6	57.5	35.8	20.0	16.5	33.9	51.5	53.2	36.1
1919	44.7	34.3	33.4	110.5	138.5	113.9	62.4	27.1	17.8	19.2	32.7	29.9	55.4
1920	26.9	22.5	25.2	62.7	75.7	45.5	51.1	30.4	19.8	16.9	18.2	19.7	34.6
1921	19.6	18.2	39.7	132.1	88.4	51.2	41.1	19.2	10.7	9.4	11.9	13.9	38.0
1922	13.3	13.1	16.3	146.6	114.2	64.1	50.3	40.1	24.0	15.5	17.4	20.3	44.7
1923	16.0	13.2	13.0	49.7	191.5	99.3	55.5	25.7	23.3	14.3	12.2	18.7	44.6
1924	19.2	18.8	18.7	60.5	163.3	116.8	74.0	35.8	15.3	12.6	10.7	12.8	46.7
1925	11.6	11.2	14.8	95.7	95.6	90.0	73.0	33.4	15.5	10.9	15.3	21.6	40.8
1926	18.6	15.0	13.5	25.2	134.3	97.5	85.5	65.6	20.5	15.1	36.4	48.0	48.3
1927	31.1	25.2	30.3	56.1	80.6	98.6	87.9	58.5	26.9	19.2	29.7	42.1	49.0
1928	39.3	32.6	29.1	163.4	206.6	97.9	98.8	77.0	61.6	86.4	102.6	81.8	89.9
1929	58.9	57.1	60.0	208.6	214.8	100.8	60.8	18.2	11.2	7.9	9.7	9.2	68.0
1930	9.6	10.9	13.9	44.9	102.5	62.6	57.7	34.2	13.6	9.5	8.7	8.4	31.5
1931	7.9	7.7	7.3	25.1	46.5	40.2	35.0	18.0	9.1	6.4	7.0	11.6	18.5
1932	24.1	32.9	27.6	84.8	111.9	67.8	28.9	20.6	25.5	38.2	72.6	57.7	49.4
1933	54.8	41.4	31.4	118.9	121.4	65.6	29.2	20.5	13.0	11.4	10.6	12.8	44.2
1934	13.1	12.0	12.2	53.9	158.4	73.6	55.4	35.6	12.1	9.7	16.1	26.1	40.1
1935	24.1	17.8	18.1	65.4	76.6	65.2	82.7	56.4	19.1	13.9	15.2	16.9	39.4
1936	16.9	16.0	19.3	65.5	175.6	99.9	57.5	25.8	13.6	19.3	29.0	26.1	47.2
1937	38.1	37.9	33.2	83.8	136.5	75.7	57.2	33.6	14.0	13.6	27.6	33.0	48.8
1938	27.5	27.5	45.2	193.9	137.6	78.7	54.5	26.8	22.7	26.9	21.8	20.4	57.0
1939	20.5	20.5	21.3	41.3	136.2	58.2	51.7	45.2	15.5	13.7	16.3	15.4	38.2
1940	13.2	12.3	13.0	29.8	98.2	88.7	49.8	30.0	21.8	20.6	27.0	33.8	36.6
1941	33.4	30.0	30.0	115.6	81.7	40.3	33.6	12.2	7.2	9.1	25.3	29.5	37.3
1942	28.0	23.2	26.7	128.7	112.6	73.3	40.1	24.6	13.2	16.2	14.9	23.1	43.7
1943	22.7	20.3	23.7	62.4	222.5	105.6	51.3	28.3	32.2	26.7	31.9	27.7	54.8
1944	22.4	19.9	18.2	33.6	87.0	55.8	38.1	16.8	11.4	15.1	18.1	22.9	30.0
1945	21.0	17.9	45.3	116.6	85.5	71.1	44.8	22.2	15.8	17.7	23.7	23.1	42.1
1946	24.1	25.6	46.8	93.0	57.3	52.3	30.7	14.3	10.8	10.9	14.9	20.3	33.4
1947	25.2	26.4	31.8	136.2	247.1	146.0	78.5	49.4	46.9	49.0	38.7	45.9	77.0
1948	46.6	40.3	53.9	168.3	106.2	65.3	34.8	22.5	13.9	12.1	17.7	27.1	50.6
1949	30.3	33.4	32.0	165.0	135.8	62.2	33.8	15.3	9.8	8.3	8.2	10.5	45.3
1950	18.9	27.2	21.9	72.2	90.0	53.4	26.9	18.2	19.0	17.9	37.7	53.3	38.1
1951	41.8	36.3	35.6	232.1	193.1	61.3	44.7	23.6	17.2	28.2	56.4	59.7	69.2
1952	44.5	37.0	31.5	144.6	146.6	70.4	30.4	20.0	15.2	11.3	10.2	20.2	48.4
1953	20.4	20.2	50.3	106.5	65.8	33.9	19.1	11.1	9.0	7.8	8.0	14.8	30.6
1954	19.9	19.0	29.6	110.3	109.7	101.8	54.0	35.6	30.3	61.5	67.4	53.2	57.8
1955	43.3	33.7	27.9	166.6	94.8	39.9	22.2	13.5	8.5	10.9	25.4	24.6	42.5
1956	21.1	17.8	16.9	60.2	132.6	79.5	48.1	37.5	48.2	35.4	33.3	40.8	47.7
1957	33.3	28.6	25.2	47.5	67.0	46.3	95.3	35.3	30.9	35.3	66.5	65.2	48.2
1958	57.3	42.0	33.0	90.1	83.2	49.2	58.0	34.0	24.4	22.2	24.1	22.6	45.0
1959	21.8	19.7	18.1	80.7	125.1	57.8	27.8	22.8	26.5	31.6	53.6	71.3	46.5
1960	48.0	36.9	31.2	170.0	165.2	62.0	51.0	32.3	15.3	14.7	16.3	16.6	55.0
1961	13.6	13.3	14.8	56.8	90.2	52.1	53.0	50.8	25.3	19.2	16.9	27.9	36.3
1962	25.4	21.6	19.6	78.6	114.2	43.0	19.5	10.3	6.7	7.5	12.0	19.1	31.5
1963	16.0	10.5	8.2	113.1	80.4	46.6	22.8	12.3	16.1	12.2	21.7	29.1	32.4
1964	20.7	18.9	20.2	68.1	64.8	29.3	13.4	7.3	6.9	7.2	7.7	13.4	23.1
1965	16.7	15.4	15.9	47.5	175.0	43.7	20.7	20.7	22.9	55.6	68.7	65.7	47.7
1966	57.6	39.9	44.7	132.2	127.6	68.1	26.6	14.4	10.1	10.5	31.8	112.7	56.4
1967	50.5	35.4	28.5	145.4	110.1	69.5	42.5	15.9	15.0	50.3	93.0	54.9	59.2
1968	37.4	27.4	32.6	143.5	63.7	35.6	32.0	17.2	19.4	16.1	15.8	24.1	38.6
1969	25.9	22.8	19.8	118.0	165.0	75.7	36.5	18.9	23.7	21.1	51.1	47.9	52.3
1970	25.3	19.9	18.5	78.6	153.4	63.4	54.2	49.5	24.1	31.2	34.6	40.8	49.7
1971	31.6	28.5	29.8	114.1	165.8	54.6	19.5	9.8	8.4	9.1	10.3	23.5	42.1
1972	25.7	22.2	20.5	60.4	246.3	92.7	74.5	58.9	47.5	51.9	88.7	54.7	70.6
1973	47.4	45.6	71.1	230.2	132.2	94.0	65.3	39.4	19.8	22.8	28.7	45.7	70.1
1974	34.5	33.2	38.8	155.4	216.5	74.6	32.9	18.2	13.7	25.1	42.2	41.7	60.7
1975	29.0	24.9	25.0	70.3	140.6	41.5	16.6	12.2	9.2	16.4	19.6	39.8	37.2
1976	27.9	22.3	42.4	219.6	105.2	49.5	50.6	18.9	12.2	13.3	14.9	18.4	49.5
1977	15.3	13.2	29.8	140.3	70.8	23.6	13.7	7.7	10.5	29.8	42.5	50.5	37.3
1978	33.4	25.3	17.9	76.8	178.4	52.1	17.2	12.0	17.8	29.2	23.2	25.7	42.6
1979	26.5	25.2	32.6	186.5	158.3	53.3	27.2	25.8	19.8	38.6	60.5	63.8	59.9
1980	39.3	25.1	27.9	170.1	102.4	61.1	71.3	58.2	41.8	67.0	69.6	52.2	65.5
1981	33.5	49.1	89.1	174.6	98.2	62.6	33.0	26.7	83.7	86.7	50.6	38.1	68.7
1982	29.4	26.4	24.2	108.0	116.7	48.0	26.1	10.3	15.2	22.6	40.0	77.4	45.4
1983	76.3	38.9	48.6	118.4	181.1	74.3	20.4	10.5	13.2	25.3	49.6	50.4	59.0
1984	32.8	36.4	50.7	197.8	135.2	87.9	40.7	21.0	14.1	15.1	36.5	44.2	59.2
1985	46.9	31.0	47.3	178.4	160.0	39.7	26.0	19.8	22.2	16.4	26.6	37.4	54.4
1986	27.0	21.4	25.7	159.9	90.2	61.7	22.9	19.0	9.7	18.8	19.2	19.9	41.2
1987	17.6	16.6	21.4	125.8	53.0	41.0	16.8	8.3	7.1	9.4	22.5	29.1	30.7
1988	25.5	24.3	21.8	148.4	97.3	28.2	12.5	24.3	23.5	44.8	66.8	46.6	46.9
1989	29.1	23.3	24.9	99.5	123.3	64.3	32.1	10.3	6.4	6.3	22.2	28.0	39.2
1990	23.1	24.7	56.0	129.4	115.5	47.9	25.9	10.0	5.3	20.5	39.8	70.8	47.5
1991	36.8	27.0	42.6	200.2	81.1	33.2	11.5	10.3	10.1	20.5	41.9	51.3	47.1
1992	35.6	25.8	28.5	93.2	146.9	38.0	31.3	18.5	35.0	44.2	93.0	62.8	54.4
1993	43.6	32.1	23.4	115.3	83.4	67.3	33.1	14.3	13.3	43.2	55.2	44.1	47.3
1994	24.9	21.3	19.3	66.9	95.7	58.6	65.7	32.7	18.1	20.6	43.2	46.1	42.9
1995	47.0	41.6	59.2	77.4	96.4	55.1	24.6	21.6	12.4	21.8	72.8	52.2	48.5
1996	38.2	49.5	36.9	122.5	203.9	68.5	53.3	35.8	24.3	22.9	44.4	47.5	62.4
1997	45.7	43.6	42.7	142.9	221.1	52.8	23.9	8.6	10.3	10.3	28.4	20.7	54.3
1998	21.6	18.5	31.2	227.6	49.4	21.2	18.5	7.8	6.4	9.4	12.8	29.2	37.6
1999	24.4	29.1	24.3	100.2	41.5	34.1	39.5	14.0	8.1	29.4	58.6	74.7	39.8
2000	39.3	23.6	59.1	111.5	110.9	53.5	35.8	31.3	17.1	8.2	12.8	19.6	43.6
2001	20.4	19.9	21.6	97.8	70.3	57.1	24.7	6.3	9.3	29.9	69.5	78.1	42.1
2002	45.9	32.8	52.1	176.2	122.4	98.2	35.0	9.1	5.4	6.0	11.0	15.1	50.7
2003	15.3	12.9	16.2	90.7	93.7	80.1	24.2	23.9	9.6	38.0	96.2	84.3	48.8
2004	56.8	35.9	46.7	160.1	136.4	57.5	28.1	12.9	8.3	5.5	9.8	19.8	48.1
2005	30.4	27.0	19.3	188.5	111.0	45.2	16.8	6.7	5.4	13.2	27.0	51.1	45.0
2006	40.0	38.9	39.7	195.2	92.4	42.3	27.3	26.2	17.7	49.3	92.1	101.2	63.5
2007	70.5	36.7	34.5	126.6	80.4	67.7	38.9	17.4	16.3	17.1	28.7	32.1	47.2
Mean	30.6	26.2	30.3	115.1	121.9	64.3	41.7	25.1	18.3	23.0	34.4	37.8	47.4

initially a cause for concern. However, this difference in runoff can be explained by the location of the Bonnechere River basin within the lowest precipitation zone in Figure 2 and by an examination of the runoff in the Madawaska River, south of the Bonnechere River, as it flows east out of Algonquin Provincial Park to the Ottawa River. Table 2 shows the variation of total and incremental runoff in the Madawaska River.

Table 2 Runoff Variation along the Madawaska River

WSC Streamflow Station		Drainage Area (km^2)	Runoff (mm)	
WSC No.	Name		Total	Incremental
02KD001	Madawaska R at Madawaska	1,370	422	422
02KD004	Madawaska R at Palmer Rapids	5,800	374	359
02KE002	Madawaska R near Arnprior	8,260	341	263

The Bonnechere River basin lies in a similar longitudinal zone as the Madawaska River between Palmer Rapids and Arnprior, has a similar drainage area, 2380 km^2 vs 2460 km^2, and similar MAR, 252 mm vs 263 mm. Similarly, the Petawawa River basin lies in a similar longitudinal zone as the Madawaska River between Madawaska and Palmer Rapids, has a similar drainage area, 4120 km^2 vs 4430 km^2, and similar MAR, 363 mm vs 359 mm.

Thus the long term MAR for the Petawawa River, 363 mm, is consistent with runoff values and trends observed at other WSC streamflow stations in the region.

3. Seasonal Flow Pattern

A run-of-river hydroelectric project uses natural river flows, without the benefit of storage regulation through a reservoir. Thus it is important to know not only how much flow passes the dam, but also the distribution and timing of flows. This means that it is important to examine the seasonal flow pattern of streamflow stations that might be considered as a base for simulating a daily flow record at the dam.

The seasonal runoff patterns for the regulated Petawawa, Bonnechere and Madawaska Rivers and the "Natural" Indian River near Pembroke [02KC014] have been compared to examine the impacts of location, drainage area and natural lake regulation. Figure 3 shows the seasonal flow pattern for the streamflow records, with each month expressed as a ratio to the LTAF.

All four rivers exhibit similar seasonal pattern, with minimum flows of 25-40% LTAF occurring in summer and maximum flows of 200-400% LTAF occurring in the spring. The largest seasonal variation is seen in station 02KC014, the Indian River near Pembroke, which has the least natural lake coverage in proportion to its drainage area and is unregulated. The Bonnechere and Petawawa Rivers show the affects of regulation for recreation, where the lakes are filled during the spring freshet and flow is released in the summer and fall, drawing the lakes down for the winter ahead of the next spring inflow. The Petawawa River basin has greater regulated lake coverage than the

Bonnechere and provides a greater amount of seasonal regulation. The least seasonal variation is seen in station 02KD004, the Madawaska River at Palmer Rapids, where the river is regulated for hydropower as well as recreation and some of the spring runoff is stored for energy generation in the winter months.

The Petawawa River exhibits the expected seasonal flow patterns of a river regulated for recreation.

4. Annual Flow Variability

The third component of a long term flow record required for generation analysis is flow variability from year to year. The LTAF and the seasonal flow pattern summarize the long term average characteristics of the flow series expected at the dam site. However, these flows will vary from year to year and will influence the generating potential of the site.

Figure 4 shows the variation in long term annual flow for the four streamflow stations in Figure 3, expressed as ratios of the LTAF at each site. This figure demonstrates the importance of synthesizing a multi-year flow record to capture the full range of flow variation that could be expected over the life of the project. Although there is some variation between stations extreme low flow sequences, such as 1961 to 1964, it is generally low at all stations for other years, and the record for the Petawawa River fits this regional pattern.

The complete records for the period show that sequences of up to six years with below average flow could be expected in the future.

5. Turbinable Flow

The run-of-river plants proposed for the two Petawawa River hydropower sites must use river flows as they arrive, without the use of reservoir storage to regulate flows. The principal hydrological tool used to evaluate run-of-river plants is the flow duration curve. This curve ranks all flows from lowest to highest and plots them against the percent of time they are exceeded. This enables the analyst to compute the volume of flow on average that will pass through the turbine(s) for a given turbine discharge capacity.

Figure 5 shows the flow duration curves for the four streamflow stations compared above with flows expressed as ratios of the LTAF at each site.

The seasonal variation in flows seen at the selected streamflow stations is reflected in the flow duration curves. The natural flow in the Indian River [02KC014] is less than the LTAF for $\pm 75\%$ of the year because a large part of the annual runoff is the result of snowmelt, which generally occurs in only two to four months of the year. The river record with the highest degree of regulation and the lowest seasonal variation coverage, the Madawaska River at Palmer Rapids [02KD004] is less than the LTAF for $\pm 63\%$ of the time. The Petawawa River at Petawawa [02KB001] flow duration curve lies between these two extremes, as expected from its lake coverage and seasonal regulation.

6. Long Term Daily Flow Synthesis

Synthesis of a long-term daily flow series at an ungauged site requires selection of an historic streamflow record that has the same characteristics as those expected at the dam to prorate to the site. Here the availability of flow data for the Petawawa River at Petawawa [02KB001] makes this the obvious choice as the representative gauge. Furthermore, the previous sections have demonstrated that the 02KB001 record fits the runoff and low patterns expected from review of the flow records of adjacent rivers in the region.

Daily flows at the two Petawawa River hydropower sites can be synthesized by prorating 02KB001 flows by the drainage area at each site. However, as Figure 2 shows, the drainage area of the Petawawa River lies in an area where precipitation drops from ±1000 mm at its source Algonquin Provincial Park to ±840 mm at Petawawa. Since the whole basin is at approximately the same latitude evaporation loss should be very similar throughout the basin. This means that unit runoff is likely to be higher at Half Mile Rapids than at Big Eddy Rapids.

As noted in Section 2.1, the long term runoff can be estimated as:

Runoff = Precipitation – Evaporation Loss

Annual average precipitation over each sub-basin can be estimated from Figure 2. Annual average lake evaporation loss in Ontario is well correlated with latitude, as shown in Appendix B, thus:

Annual average lake evaporation = -36.123*Latitude + 2296.6 mm

Actual evaporation loss can be estimated as a constant (=0.806 from calibration) times lake evaporation.

By accumulating annual average precipitation and evaporation loss for each sub-basin the runoff at each hydropower site and at the WSC streamflow station near Petawawa can be estimated. Here we know the long term average runoff at station 02KB001 is 363 mm, so the runoff equation can be calibrated. Table 3 shows the runoff calculations for each site.

Table 3 Petawawa Hydropower Sites – Estimated Mean Annual Runoff

Precipitation		Latitude	Evap Et	PPT-Et	Area	Area*(PPT-Et)	∑Area	∑Area*(ppt-Et)	Location	Runoff
Sub-basin	mm	dec N	mm	mm	km^2	$mm.km^2$	km^2	mm.km2		mm
1	985	45.7	520	465	319	148176	319	148176		464.5
2	990	45.75	519	471	179	84301	498	232478		466.8
3	955	45.88	515	440	413	181614	911	414092		454.5
4	925	46.1	509	416	192	79900	1103	493992		447.9
5	875	45.95	513	362	467	168952	1570	662944		422.3
6	885	45.9	515	370	247	91470	1817	754414		415.2
7	860	46.1	509	351	182	63909	1999	818323		409.4
8	835	45.85	516	319	505	161029	2504	979352		391.1
9	835	46	512	323	522	168730	3026	1148082	Half Mile Rapids	379.4
10	835	45.85	516	319	1012	322696	4038	1470778		364.2
11	835	45.88	515	320	82	26219	4120	1496997	WSC 02KB001	363.3
	835	45.87	516	319	35	11181	4155	1508177	Big Eddy	363.0

Thus the MAR at the Half Mile Rapids hydropower site is 379 mm ±4% higher than the runoff at station 02KB001 and Big Eddy Rapids.

Daily flows at each site have been prorated from the 02KB001 gauge flows by the ratios of runoff*drainage area, giving LTAF values of 36.4 m^3/s and 47.8 m^3/s at Half Mile Rapids and Big Eddy Rapids, respectively.

7. Results

The principal output of this hydrology review is two 92-year, daily flow series that can be used in the generation potential analysis of the Half Mile Rapids and Big Eddy Rapids hydropower sites on the Petawawa River. These datasets are too large to include in this report, but the following characteristics of the flow series are reproduced here to confirm their adherence to the objectives stated throughout the report:

- Tables 4-5 Monthly flow summary tables for each site
- Figure 6 Seasonal flow patterns for the two sites
- Figure 7 An annual flow variation diagram for the sites
- Figure 8 Daily flow duration curves for the sites.

In addition to the above Hatch has prepared Flow Metrics for each site using the synthesized 92-year daily flow series.

The Flow Metrics sheets have been attached as Appendix A.

The flow series datasets are included on CDROM is Appendix C.

8. Recommendations for Future Work

No additional analyses are recommended at this time in support of the energy generation analysis for the two sites on the Petawawa River.

As noted above, the flow series derived for the Petawawa sites are intended for generation potential analysis and should not be used for final flood design or low flow estimates. Detailed flood and low flow estimates should be undertaken during the Environmental Assessment and Project Design phases.

Mark Orton

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Table 4 Mean Monthly Flows in the Petawawa River at Half Mile Rapids

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year
1916	13.7	16.5	16.6	60.6	94.6	77.7	47.8	21.6	15.0	16.0	26.0	26.5	36.1
1917	27.0	20.8	14.1	75.6	110.5	52.7	56.7	45.1	14.8	11.6	12.6	11.7	37.9
1918	10.9	10.2	10.5	40.0	53.3	44.1	27.5	15.3	12.6	26.0	39.5	40.8	27.6
1919	34.2	26.3	25.6	84.7	106.2	87.4	47.8	20.7	13.7	14.7	25.1	22.9	42.5
1920	20.6	17.3	19.3	48.1	58.1	34.9	39.2	23.3	15.2	12.9	14.0	15.1	26.5
1921	15.0	13.9	30.5	101.3	67.8	39.3	31.5	14.7	8.2	7.2	9.2	10.6	29.1
1922	10.2	10.1	12.5	112.4	87.6	49.2	38.6	30.8	18.4	11.9	13.3	15.6	34.3
1923	12.3	10.1	9.9	38.1	146.9	76.1	42.5	19.7	17.9	11.0	9.4	14.3	34.2
1924	14.7	14.4	14.4	46.4	125.2	89.6	56.8	27.5	11.8	9.7	8.2	9.8	35.8
1925	8.9	8.6	11.3	73.4	73.3	69.0	55.9	25.6	11.9	8.3	11.7	16.6	31.3
1926	14.2	11.5	10.4	19.4	103.0	74.8	65.6	50.3	15.7	11.5	27.9	36.8	37.0
1927	23.8	19.3	23.3	43.0	61.8	75.6	67.4	44.8	20.6	14.7	22.8	32.3	37.6
1928	30.2	25.0	22.3	125.3	158.4	75.1	75.7	59.1	47.3	66.3	78.7	62.7	68.9
1929	45.2	43.8	46.0	159.9	164.7	77.3	46.6	13.9	8.6	6.1	7.4	7.0	52.2
1930	7.4	8.4	10.6	34.5	78.6	48.0	44.2	26.2	10.5	7.3	6.7	6.4	24.2
1931	6.1	5.9	5.6	19.2	35.6	30.9	26.8	13.8	7.0	4.9	5.4	8.9	14.2
1932	18.5	25.2	21.2	65.1	85.8	52.0	22.2	15.8	19.6	29.3	55.7	44.3	37.8
1933	42.0	31.8	24.0	91.2	93.1	50.3	22.4	15.7	10.0	8.7	8.1	9.8	33.9
1934	10.0	9.2	9.4	41.4	121.5	56.4	42.5	27.3	9.3	7.4	12.4	20.0	30.8
1935	18.5	13.6	13.9	50.1	58.8	50.0	63.4	43.3	14.7	10.7	11.6	12.9	30.2
1936	13.0	12.3	14.8	50.3	134.7	76.6	44.1	19.8	10.5	14.8	22.2	20.0	36.2
1937	29.3	29.1	25.4	64.3	104.7	58.0	43.9	25.7	10.8	10.4	21.2	25.3	37.4
1938	21.1	21.1	34.7	148.7	105.5	60.4	41.8	20.5	17.4	20.6	16.7	15.6	43.7
1939	15.7	15.7	16.3	31.7	104.5	44.7	39.6	34.6	11.9	10.5	12.5	11.8	29.3
1940	10.1	9.5	9.9	22.8	75.3	68.0	38.2	23.0	16.7	15.8	20.7	25.9	28.1
1941	25.6	23.0	23.0	88.7	62.6	30.9	25.8	9.4	5.5	7.0	19.4	22.6	28.6
1942	21.5	17.8	20.5	98.7	86.3	56.2	30.8	18.8	10.1	12.5	11.4	17.7	33.5
1943	17.4	15.6	18.2	47.8	170.7	80.9	39.3	21.7	24.7	20.5	24.4	21.2	42.1
1944	17.1	15.2	13.9	25.8	66.7	42.8	29.2	12.9	8.7	11.6	13.9	17.5	23.0
1945	16.1	13.8	34.7	89.4	65.5	54.5	34.3	17.0	12.1	13.6	18.2	17.7	32.3
1946	18.5	19.6	35.9	71.3	43.9	40.1	23.5	11.0	8.3	8.4	11.4	15.5	25.6
1947	19.3	20.2	24.4	104.4	189.5	112.0	60.2	37.9	35.9	37.6	29.7	35.2	59.0
1948	35.7	30.9	41.4	129.1	81.5	50.0	26.7	17.2	10.7	9.3	13.6	20.8	38.8
1949	23.3	25.6	24.5	126.5	104.1	47.7	25.9	11.8	7.5	6.4	6.3	8.0	34.7
1950	14.5	20.8	16.8	55.3	69.0	40.9	20.6	13.9	14.5	13.7	28.9	40.9	29.2
1951	32.1	27.8	27.3	178.0	148.1	47.0	34.3	18.1	13.2	21.7	43.2	45.8	53.1
1952	34.2	28.4	24.2	110.8	112.4	54.0	23.3	15.4	11.7	8.7	7.8	15.5	37.1
1953	15.6	15.5	38.6	81.7	50.5	26.0	14.6	8.5	6.9	5.9	6.1	11.4	23.4
1954	15.3	14.6	22.7	84.6	84.1	78.0	41.4	27.3	23.2	47.2	51.7	40.8	44.3
1955	33.2	25.9	21.4	127.8	72.7	30.6	17.0	10.4	6.5	8.3	19.5	18.9	32.6
1956	16.2	13.7	12.9	46.2	101.7	61.0	36.9	28.8	37.0	27.1	25.5	31.2	36.6
1957	25.5	21.9	19.3	36.4	51.4	35.5	73.1	27.0	23.7	27.0	51.0	50.0	36.9
1958	43.9	32.2	25.3	69.1	63.8	37.7	44.5	26.1	18.7	17.0	18.5	17.3	34.5
1959	16.7	15.1	13.9	61.9	95.9	44.3	21.3	17.5	20.3	24.2	41.1	54.7	35.7
1960	36.8	28.3	23.9	130.4	126.7	47.6	39.1	24.8	11.8	11.2	12.5	12.8	42.1
1961	10.4	10.2	11.3	43.6	69.2	39.9	40.6	39.0	19.4	14.7	13.0	21.4	27.9
1962	19.5	16.5	15.1	60.3	87.5	33.0	15.0	7.9	5.1	5.7	9.2	14.7	24.1
1963	12.3	8.0	6.3	86.8	61.7	35.7	17.5	9.4	12.3	9.3	16.6	22.3	24.8
1964	15.9	14.5	15.5	52.2	49.7	22.5	10.3	5.6	5.3	5.6	5.9	10.3	17.7
1965	12.8	11.8	12.2	36.4	134.2	33.5	15.9	15.8	17.6	42.6	52.7	50.4	36.5
1966	44.1	30.6	34.3	101.3	97.8	52.2	20.4	11.0	7.7	8.1	24.4	86.4	43.3
1967	38.7	27.2	21.8	111.5	84.5	53.3	32.6	12.2	11.5	38.5	71.3	42.1	45.4
1968	28.7	21.0	25.0	110.0	48.8	27.3	24.5	13.2	14.9	12.3	12.1	18.5	29.6
1969	19.9	17.5	15.2	90.5	126.5	58.1	28.0	14.5	18.2	16.2	39.2	36.8	40.1
1970	19.4	15.2	14.2	60.3	117.7	48.6	41.5	38.0	18.5	23.9	26.6	31.3	38.1
1971	24.3	21.8	22.8	87.5	127.1	41.8	15.0	7.5	6.4	7.0	7.9	18.0	32.3
1972	19.7	17.1	15.7	46.3	188.9	71.1	57.1	45.2	36.4	39.8	68.0	41.9	54.1
1973	36.4	35.0	54.5	176.5	101.4	72.1	50.0	30.2	15.2	17.5	22.0	35.1	53.8
1974	26.5	25.5	29.8	119.2	166.0	57.2	25.2	13.9	10.5	19.2	32.4	32.0	46.5
1975	22.2	19.1	19.2	53.9	107.8	31.8	12.7	9.4	7.1	12.5	15.1	30.5	28.5
1976	21.4	17.1	32.5	168.4	80.6	38.0	38.8	14.5	9.4	10.2	11.4	14.1	37.9
1977	11.8	10.1	22.9	107.6	54.3	18.1	10.5	5.9	8.0	22.9	32.6	38.7	28.6
1978	25.6	19.4	13.8	58.9	136.8	40.0	13.2	9.2	13.6	22.4	17.8	19.7	32.6
1979	20.3	19.3	25.0	143.0	121.4	40.9	20.9	19.8	15.2	29.6	46.4	48.9	45.9
1980	30.2	19.3	21.4	130.5	78.5	46.9	54.7	44.6	32.1	51.4	53.4	40.0	50.2
1981	25.7	37.7	68.3	133.9	75.3	48.0	25.3	20.5	64.1	66.5	38.8	29.2	52.7
1982	22.5	20.2	18.6	82.8	89.5	36.8	20.0	7.9	11.7	17.4	30.7	59.3	34.8
1983	58.5	29.9	37.3	90.8	138.9	57.0	15.6	8.1	10.1	19.4	38.0	38.6	45.3
1984	25.2	27.9	38.9	151.7	103.7	67.4	31.2	16.1	10.8	11.5	28.0	33.9	45.4
1985	36.0	23.8	36.3	136.8	122.7	30.4	19.9	15.2	17.0	12.6	20.4	28.7	41.7
1986	20.7	16.4	19.7	122.6	69.1	47.3	17.5	14.6	7.4	14.4	14.7	15.2	31.6
1987	13.5	12.8	16.4	96.5	40.7	31.5	12.9	6.4	5.5	7.2	17.3	22.3	23.5
1988	19.5	18.7	16.8	113.8	74.6	21.6	9.6	18.6	18.0	34.3	51.2	35.7	36.0
1989	22.3	17.9	19.1	76.3	94.6	49.3	24.6	7.9	4.9	4.8	17.0	21.4	30.0
1990	17.7	18.9	42.9	99.2	88.6	36.7	19.9	7.7	4.1	15.7	30.5	54.3	36.4
1991	28.2	20.7	32.6	153.5	62.2	25.5	8.9	7.9	7.8	15.7	32.1	39.3	36.1
1992	27.3	19.8	21.9	71.5	112.6	29.2	24.0	14.1	26.8	33.9	71.3	48.2	41.7
1993	33.4	24.6	18.0	88.4	63.9	51.6	25.4	11.0	10.2	33.1	42.3	33.8	36.3
1994	19.1	16.3	14.8	51.3	73.4	44.9	50.4	25.1	13.9	15.8	33.1	35.4	32.9
1995	36.0	31.9	45.4	59.4	73.9	42.2	18.9	16.5	9.5	16.8	55.8	40.0	37.2
1996	29.3	38.0	28.3	94.0	156.3	52.5	40.9	27.4	18.6	17.5	34.1	36.5	47.8
1997	35.0	33.4	32.7	109.6	169.5	40.5	18.3	6.6	7.9	7.9	21.8	15.8	41.6
1998	16.6	14.2	23.9	174.5	37.9	16.2	14.2	6.0	4.9	7.2	9.8	22.4	28.9
1999	18.7	22.3	18.7	76.8	31.8	26.2	30.3	10.7	6.2	22.5	44.9	57.3	30.5
2000	30.1	18.1	45.4	85.5	85.0	41.0	27.5	24.0	13.1	6.3	9.8	15.1	33.4
2001	15.7	15.3	16.6	75.0	53.9	43.8	19.0	4.8	7.1	22.9	53.3	59.9	32.3
2002	35.2	25.2	40.0	135.1	93.9	75.3	26.8	7.0	4.1	4.6	8.4	11.6	38.9
2003	11.7	9.9	12.4	69.6	71.8	61.4	18.6	18.3	7.4	29.2	73.8	64.7	37.4
2004	43.6	27.5	35.8	122.8	104.6	44.1	21.6	9.9	6.4	4.2	7.5	15.2	36.9
2005	23.3	20.7	14.8	144.6	85.1	34.6	12.9	5.1	4.2	10.1	20.7	39.2	34.5
2006	30.7	29.8	30.5	149.7	70.8	32.4	20.9	20.1	13.6	37.8	70.6	77.6	48.7
2007	54.1	28.1	26.4	97.0	61.6	51.9	29.8	13.3	12.5	13.1	22.0	24.6	36.2
Mean	23.5	20.1	23.2	88.2	93.5	49.3	32.0	19.3	14.1	17.6	26.4	29.0	36.4

Table 5 Mean Monthly Flows in the Petawawa River at Big Eddy Rapids

Year	January	February	March	April	May	June	July	August	September	October	November	December	Year
1916	18.0	21.7	21.8	79.6	124.3	102.1	62.8	28.3	19.7	21.1	34.1	34.8	47.4
1917	35.4	27.3	18.6	99.3	145.1	69.2	74.4	59.2	19.5	15.3	16.5	15.4	49.8
1918	14.4	13.4	13.8	52.6	70.1	58.0	36.1	20.2	16.6	34.1	51.9	53.6	36.3
1919	45.0	34.6	33.7	111.3	139.5	114.8	62.8	27.3	18.0	19.4	33.0	30.1	55.8
1920	27.1	22.7	25.3	63.2	76.3	45.8	51.5	30.7	19.9	17.0	18.4	19.9	34.9
1921	19.8	18.3	40.0	133.1	89.0	51.6	41.4	19.4	10.8	9.5	12.0	14.0	38.3
1922	13.4	13.2	16.4	147.6	115.1	64.6	50.7	40.4	24.2	15.6	17.5	20.5	45.0
1923	16.1	13.3	13.1	50.1	193.0	100.0	55.9	25.9	23.5	14.4	12.3	18.8	44.9
1924	19.3	18.9	18.9	60.9	164.5	117.7	74.6	36.1	15.4	12.7	10.8	12.9	47.0
1925	11.7	11.3	14.9	96.4	96.3	90.7	73.5	33.6	15.6	11.0	15.4	21.8	41.1
1926	18.7	15.1	13.6	25.4	135.3	98.3	86.2	66.1	20.7	15.2	36.7	48.3	48.6
1927	31.3	25.4	30.6	56.5	81.2	99.4	88.6	58.9	27.1	19.4	29.9	42.5	49.4
1928	39.6	32.9	29.3	164.6	208.1	98.7	99.5	77.6	62.1	87.1	103.3	82.4	90.6
1929	59.4	57.6	60.4	210.1	216.4	101.5	61.2	18.3	11.3	8.0	9.8	9.3	68.5
1930	9.7	11.0	14.0	45.3	103.3	63.0	58.1	34.4	13.7	9.5	8.8	8.4	31.8
1931	8.0	7.7	7.3	25.2	46.8	40.5	35.3	18.2	9.1	6.4	7.1	11.7	18.7
1932	24.3	33.1	27.9	85.5	112.8	68.3	29.1	20.8	25.7	38.5	73.1	58.1	49.7
1933	55.2	41.7	31.6	119.8	122.3	66.1	29.4	20.6	13.1	11.5	10.7	12.9	44.5
1934	13.2	12.1	12.3	54.3	159.6	74.1	55.8	35.9	12.2	9.8	16.3	26.3	40.4
1935	24.3	17.9	18.2	65.8	77.2	65.7	83.3	56.8	19.3	14.0	15.3	17.0	39.7
1936	17.1	16.1	19.4	66.0	176.9	100.7	57.9	26.0	13.7	19.4	29.2	26.3	47.5
1937	38.4	38.2	33.4	84.4	137.5	76.3	57.6	33.8	14.1	13.7	27.8	33.3	49.1
1938	27.7	27.7	45.5	195.3	138.6	79.3	54.9	26.9	22.9	27.1	21.9	20.5	57.4
1939	20.6	20.6	21.4	41.6	137.2	58.7	52.1	45.5	15.7	13.8	16.5	15.5	38.5
1940	13.2	12.4	13.0	30.0	98.9	89.4	50.2	30.2	22.0	20.7	27.2	34.0	36.8
1941	33.6	30.3	30.2	116.5	82.3	40.6	33.9	12.3	7.3	9.2	25.5	29.7	37.6
1942	28.2	23.4	26.9	129.6	113.4	73.8	40.4	24.7	13.3	16.4	15.0	23.3	44.1
1943	22.9	20.4	23.9	62.8	224.2	106.3	51.7	28.5	32.4	26.9	32.1	27.9	55.2
1944	22.5	20.0	18.3	33.9	87.6	56.2	38.3	16.9	11.5	15.2	18.3	23.0	30.2
1945	21.2	18.1	45.6	117.5	86.1	71.6	45.1	22.4	16.0	17.8	23.9	23.3	42.4
1946	24.2	25.8	47.1	93.6	57.7	52.7	30.9	14.4	10.8	11.0	15.0	20.4	33.6
1947	25.4	26.6	32.0	137.2	248.9	147.1	79.1	49.8	47.2	49.4	39.0	46.2	77.6
1948	46.9	40.6	54.3	169.6	107.0	65.7	35.1	22.6	14.0	12.2	17.8	27.3	51.0
1949	30.6	33.6	32.2	166.2	136.8	62.6	34.1	15.5	9.8	8.4	8.2	10.5	45.6
1950	19.1	27.4	22.0	72.7	90.7	53.8	27.1	18.3	19.1	18.0	38.0	53.7	38.3
1951	42.1	36.5	35.8	233.8	194.5	61.8	45.0	23.7	17.3	28.4	56.8	60.1	69.7
1952	44.9	37.3	31.8	145.6	147.7	71.0	30.6	20.2	15.4	11.4	10.2	20.3	48.8
1953	20.6	20.3	50.7	107.3	66.3	34.2	19.2	11.2	9.0	7.8	8.0	14.9	30.8
1954	20.1	19.1	29.9	111.1	110.5	102.5	54.3	35.8	30.5	62.0	67.9	53.6	58.2
1955	43.6	34.0	28.1	167.8	95.5	40.2	22.3	13.6	8.6	10.9	25.6	24.8	42.8
1956	21.3	18.0	17.0	60.7	133.5	80.1	48.5	37.8	48.6	35.6	33.5	41.1	48.0
1957	33.5	28.8	25.4	47.8	67.5	46.6	96.0	35.5	31.1	35.5	67.0	65.6	48.5
1958	57.7	42.3	33.3	90.7	83.8	49.6	58.4	34.2	24.6	22.4	24.3	22.8	45.4
1959	22.0	19.9	18.2	81.3	126.0	58.2	28.0	22.9	26.7	31.8	53.9	71.9	46.9
1960	48.4	37.2	31.4	171.3	166.4	62.5	51.4	32.6	15.5	14.8	16.4	16.8	55.4
1961	13.7	13.4	14.9	57.2	90.8	52.4	53.4	51.2	25.5	19.3	17.1	28.1	36.6
1962	25.6	21.7	19.8	79.2	115.0	43.3	19.6	10.3	6.7	7.5	12.1	19.3	31.7
1963	16.2	10.6	8.2	114.0	81.0	46.9	23.0	12.4	16.2	12.2	21.8	29.3	32.6
1964	20.8	19.0	20.3	68.6	65.3	29.5	13.5	7.4	6.9	7.3	7.8	13.5	23.3
1965	16.8	15.5	16.0	47.9	176.3	44.0	20.8	20.8	23.1	56.0	69.2	66.2	48.0
1966	58.0	40.2	45.0	133.1	128.5	68.6	26.8	14.5	10.1	10.6	32.1	113.5	56.8
1967	50.9	35.7	28.7	146.4	111.0	70.0	42.8	16.1	15.1	50.6	93.7	55.3	59.6
1968	37.7	27.6	32.8	144.6	64.1	35.8	32.2	17.3	19.5	16.2	15.9	24.3	38.9
1969	26.1	23.0	20.0	118.8	166.2	76.3	36.8	19.1	23.9	21.2	51.5	48.3	52.7
1970	25.4	20.0	18.6	79.2	154.6	63.9	54.5	49.9	24.3	31.4	34.9	41.1	50.1
1971	31.9	28.7	30.0	114.9	167.0	55.0	19.7	9.9	8.4	9.1	10.4	23.7	42.4
1972	25.8	22.4	20.6	60.8	248.1	93.4	75.0	59.4	47.8	52.3	89.3	55.1	71.1
1973	47.8	46.0	71.6	231.9	133.2	94.7	65.7	39.7	19.9	23.0	29.0	46.0	70.7
1974	34.8	33.5	39.1	156.5	218.1	75.1	33.1	18.3	13.8	25.3	42.5	42.0	61.1
1975	29.2	25.1	25.2	70.9	141.6	41.8	16.7	12.3	9.3	16.5	19.8	40.1	37.5
1976	28.2	22.5	42.7	221.2	105.9	49.9	51.0	19.0	12.3	13.4	15.0	18.6	49.8
1977	15.4	13.3	30.1	141.4	71.3	23.8	13.8	7.8	10.5	30.0	42.8	50.9	37.6
1978	33.7	25.5	18.1	77.3	179.7	52.5	17.3	12.1	17.9	29.4	23.4	25.9	42.9
1979	26.7	25.4	32.8	187.8	159.4	53.7	27.4	26.0	20.0	38.9	61.0	64.3	60.3
1980	39.6	25.3	28.1	171.4	103.2	61.6	71.8	58.6	42.1	67.5	70.1	52.6	66.0
1981	33.8	49.5	89.7	175.8	98.9	63.1	33.2	26.9	84.3	87.4	50.9	38.4	69.2
1982	29.6	26.6	24.4	108.8	117.5	48.3	26.3	10.3	15.3	22.8	40.3	77.9	45.8
1983	76.9	39.2	48.9	119.3	182.5	74.8	20.5	10.6	13.3	25.5	50.0	50.8	59.5
1984	33.1	36.6	51.1	199.2	136.2	88.6	41.0	21.2	14.2	15.2	36.8	44.6	59.7
1985	47.3	31.3	47.6	179.7	161.1	40.0	26.2	19.9	22.3	16.5	26.8	37.7	54.8
1986	27.2	21.6	25.8	161.1	90.8	62.1	23.0	19.1	9.8	19.0	19.3	20.0	41.5
1987	17.8	16.8	21.6	126.7	53.4	41.3	16.9	8.4	7.2	9.4	22.7	29.3	30.9
1988	25.7	24.5	22.0	149.4	98.0	28.4	12.6	24.5	23.7	45.1	67.2	47.0	47.3
1989	29.3	23.5	25.0	100.2	124.2	64.8	32.4	10.3	6.4	6.3	22.4	28.2	39.5
1990	23.3	24.9	56.4	130.3	116.3	48.3	26.1	10.1	5.3	20.6	40.1	71.4	47.9
1991	37.1	27.2	42.9	201.6	81.7	33.5	11.6	10.4	10.2	20.7	42.2	51.7	47.5
1992	35.9	26.0	28.7	93.9	148.0	38.3	31.5	18.6	35.2	44.5	93.6	63.3	54.8
1993	43.9	32.3	23.6	116.2	84.0	67.8	33.4	14.4	13.4	43.5	55.6	44.4	47.7
1994	25.1	21.5	19.5	67.4	96.4	59.0	66.2	33.0	18.2	20.7	43.5	46.5	43.2
1995	47.3	41.9	59.6	78.0	97.1	55.5	24.8	21.7	12.5	22.0	73.3	52.6	48.9
1996	38.5	49.9	37.2	123.4	205.4	69.0	53.7	36.0	24.4	23.0	44.8	47.9	62.8
1997	46.0	43.9	43.0	144.0	222.7	53.2	24.0	8.7	10.4	10.4	28.6	20.8	54.7
1998	21.7	18.6	31.4	229.3	49.7	21.3	18.6	7.9	6.5	9.5	12.9	29.4	37.9
1999	24.5	29.3	24.5	100.9	41.8	34.4	39.8	14.1	8.2	29.6	59.0	75.3	40.1
2000	39.5	23.8	59.6	112.3	111.7	53.9	36.1	31.5	17.3	8.3	12.9	19.8	43.9
2001	20.6	20.1	21.8	98.6	70.9	57.6	24.9	6.3	9.4	30.1	70.0	78.7	42.4
2002	46.2	33.1	52.5	177.5	123.3	98.9	35.2	9.2	5.4	6.1	11.1	15.2	51.0
2003	15.4	13.0	16.3	91.4	94.4	80.7	24.4	24.1	9.7	38.3	96.9	84.9	49.2
2004	57.2	36.1	47.0	161.3	137.4	57.9	28.3	13.0	8.4	5.6	9.9	19.9	48.5
2005	30.6	27.2	19.4	189.9	111.8	45.5	16.9	6.7	5.5	13.3	27.2	51.4	45.4
2006	40.3	39.2	40.0	196.7	93.1	42.6	27.5	26.4	17.8	49.7	92.8	101.9	63.9
2007	71.0	36.9	34.7	127.5	81.0	68.2	39.2	17.5	16.5	17.2	28.9	32.3	47.5
Mean	30.9	26.4	30.5	115.9	122.8	64.8	42.0	25.3	18.5	23.1	34.7	38.1	47.8

FIGURES

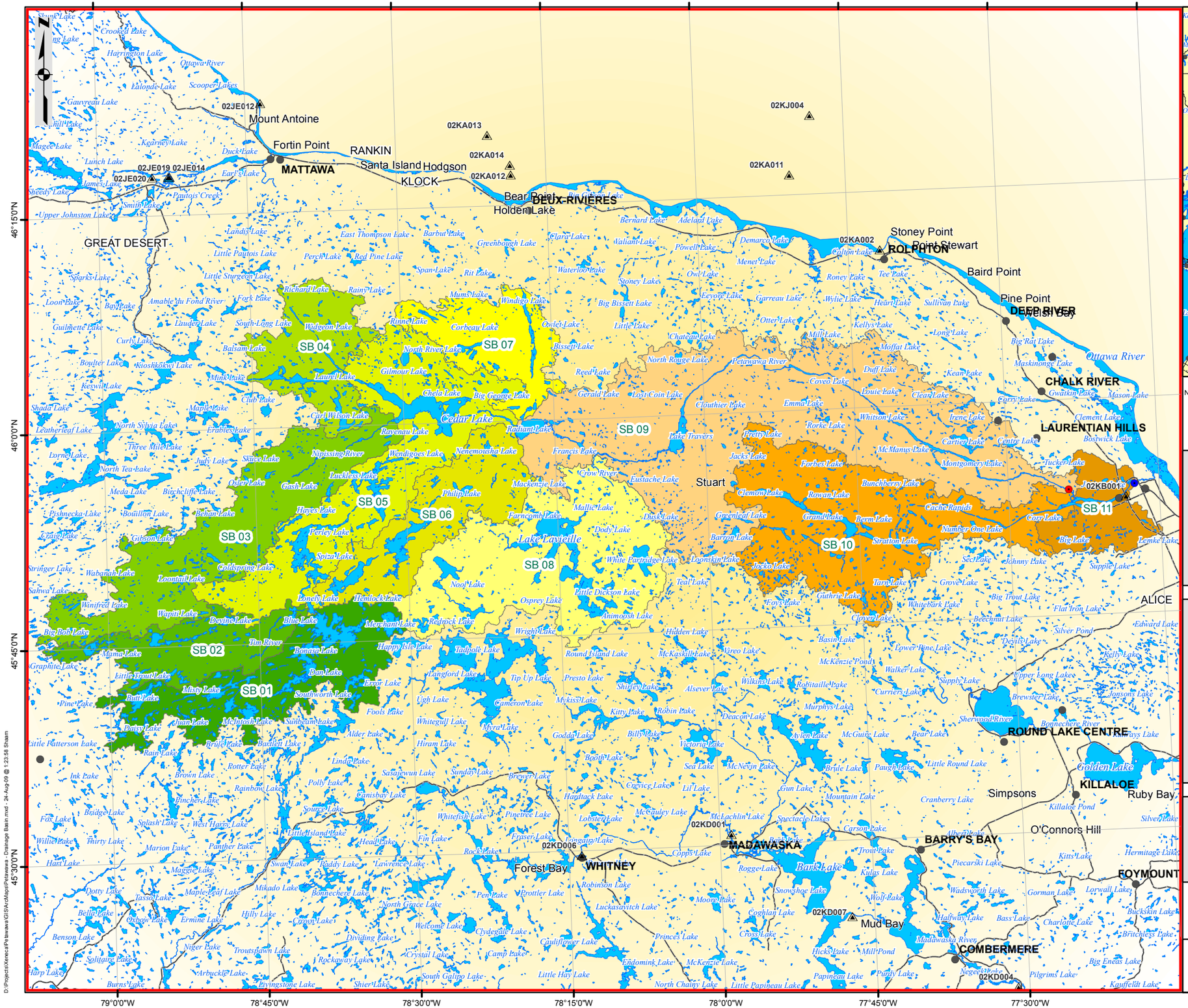
79°0'0"W 78°45'0"W 78°30'0"W 78°15'0"W 78°0'0"W 77°45'0"W 77°30'0"W 77°15'0"W

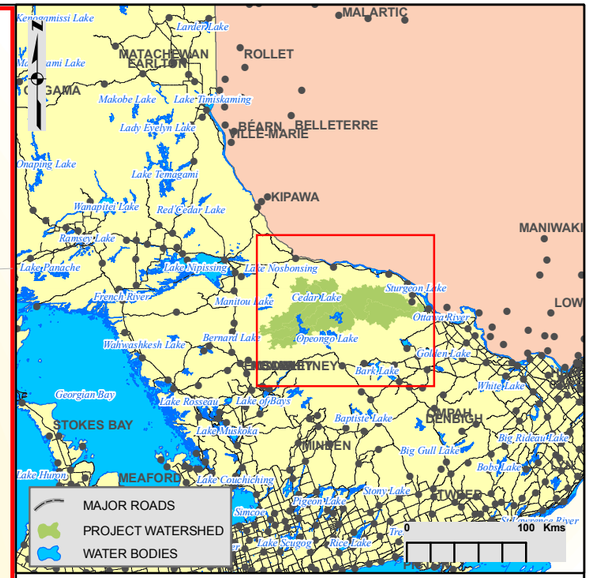
46°15'0"N

46°0'0"N

45°45'0"N

45°30'0"N





NOTES:

1. MAPPING INFORMATION SHOWN ON THE DRAWING HAS BEEN DERIVED FROM THE DIGITAL DATA FROM MNR DATABASE
2. PROJECTED COORDINATE SYSTEM IS NAD 1983, UTM ZONE 17N.

LEGEND

- HALF MILE RAPIDS
- BIG EDDY RAPIDS
- WSC GAUGING STATION
- WATER BODIES
- SUB-BASINS

SUB BASIN ID	DRAINAGE	AREA (km^2)
SB 01	TROUT LAKE	319
SB 02	TIMS RIVER	179
SB 03	NIPISSING RIVER	413
SB 04	VILLENEUVE CREEK	192
SB 05	PETAWAWA RIVER	467
SB 06	LITTLE MADAWASKA RIVER	247
SB 07	NORTH RIVER	182
SB 08	LAKE LAVIEILLE / CROW RIVER	505
SB 09	PETAWAWA RIVER, HALF MILE	522
SB 10	BARRON RIVER	1012
SB 11	BIG EDDY DAM SITE LOCAL	118

DRAINAGE AREA SUMMARY:

LOCATION	AREA (km^2)
GAUGE - 02KB001	4120
HALF MILE RAPIDS	3026
BIG EDDY RAPIDS	4155

Xeneca Power Development Inc.

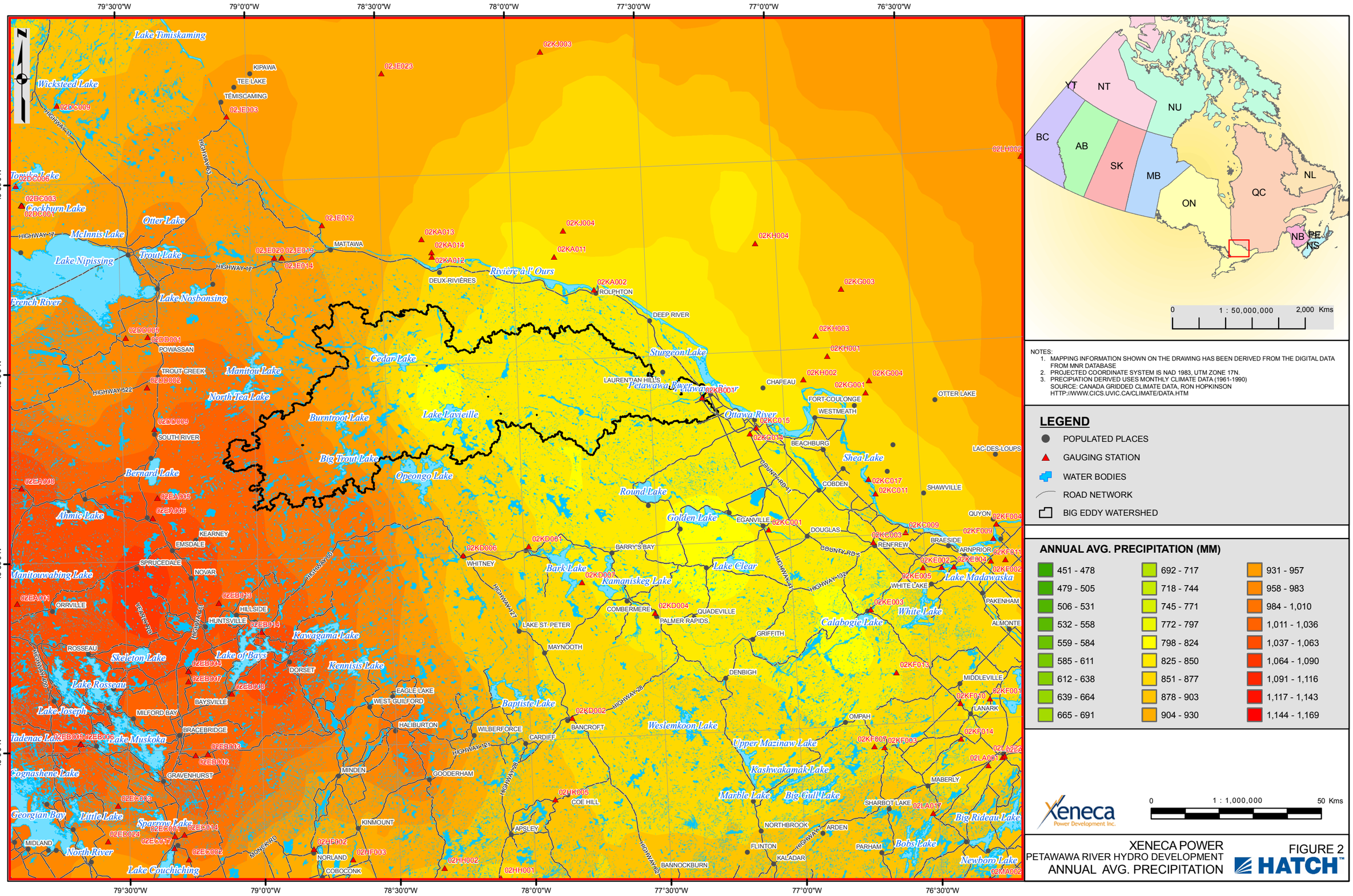
0 1 : 500,000 20 Kms

XENECA POWER FIGURE 1

PETAWAWA RIVER HYDRO DEVELOPMENT

PETAWAWA RIVER WATERSHED HATCH™

D:\Projects\Xeneca\Petawawa\GIS\Arc\Maps\Petawawa - Drainage Basin.mxd - 24-Aug-09 @ 1:23:58 Shawn



NOTES:
1. MAPPING INFORMATION SHOWN ON THE DRAWING HAS BEEN DERIVED FROM THE DIGITAL DATA FROM MNR DATABASE
2. PROJECTED COORDINATE SYSTEM IS NAD 1983, UTM ZONE 17N.
3. PRECIPIATION DERIVED USES MONTHLY CLIMATE DATA (1961-1990)
   SOURCE: CANADA GRIDDED CLIMATE DATA, RON HOPKINSON
   HTTP://WWW.CICS.UVIC.CA/CLIMATE/DATA.HTM

LEGEND

- POPULATED PLACES
- GAUGING STATION
- WATER BODIES
- ROAD NETWORK
- BIG EDDY WATERSHED

ANNUAL AVG. PRECIPITATION (MM)

451 - 478	692 - 717	931 - 957
479 - 505	718 - 744	958 - 983
506 - 531	745 - 771	984 - 1,010
532 - 558	772 - 797	1,011 - 1,036
559 - 584	798 - 824	1,037 - 1,063
585 - 611	825 - 850	1,064 - 1,090
612 - 638	851 - 877	1,091 - 1,116
639 - 664	878 - 903	1,117 - 1,143
665 - 691	904 - 930	1,144 - 1,169

Xeneca Power Development Inc.

0 1 : 1,000,000 50 Kms

XENECA POWER
PETAWAWA RIVER HYDRO DEVELOPMENT
ANNUAL AVG. PRECIPITATION

FIGURE 2

HATCH™

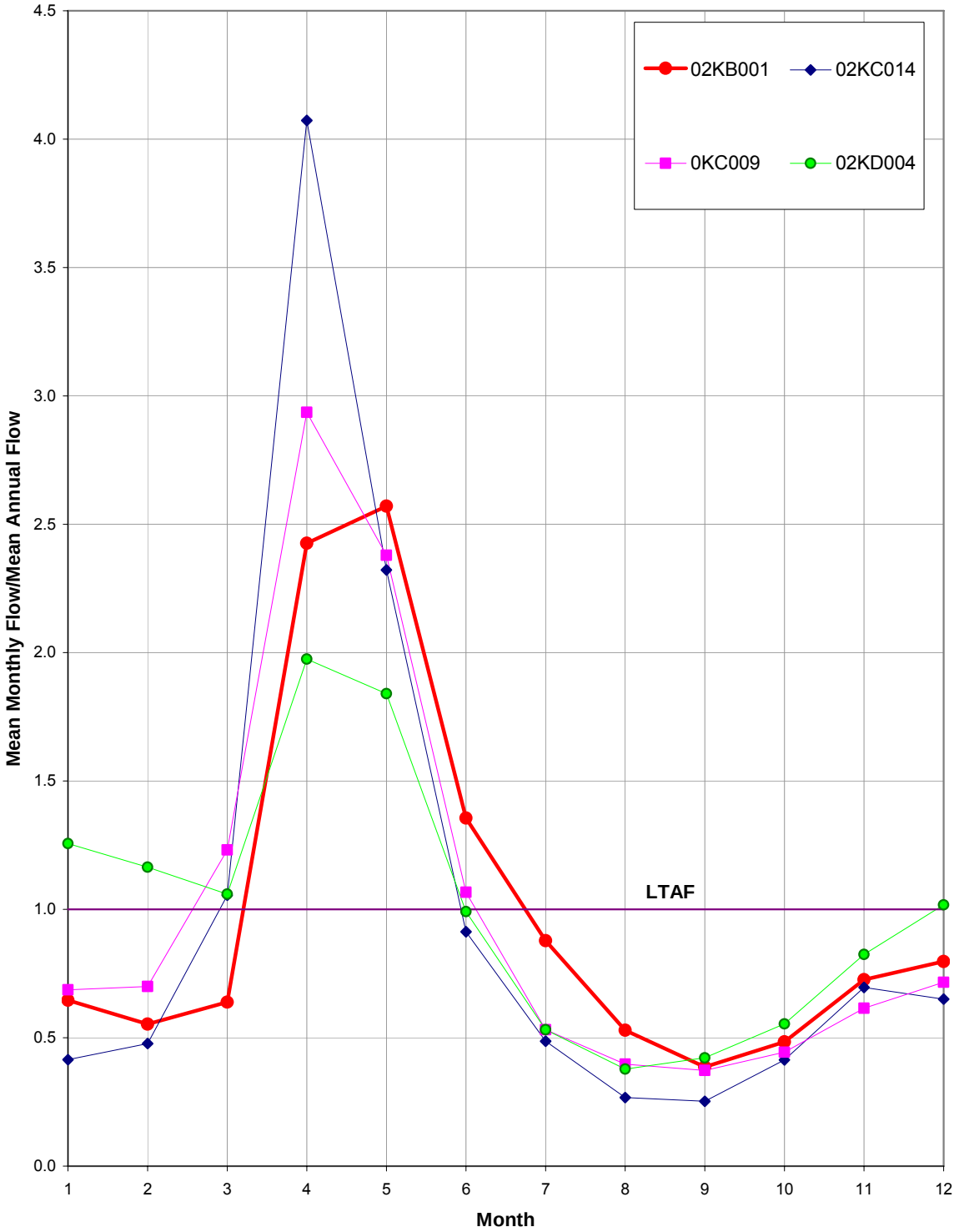


Figure 3
Xeneca Power
Petawawa Hydropower Sites
Seasonal Flow Patterns

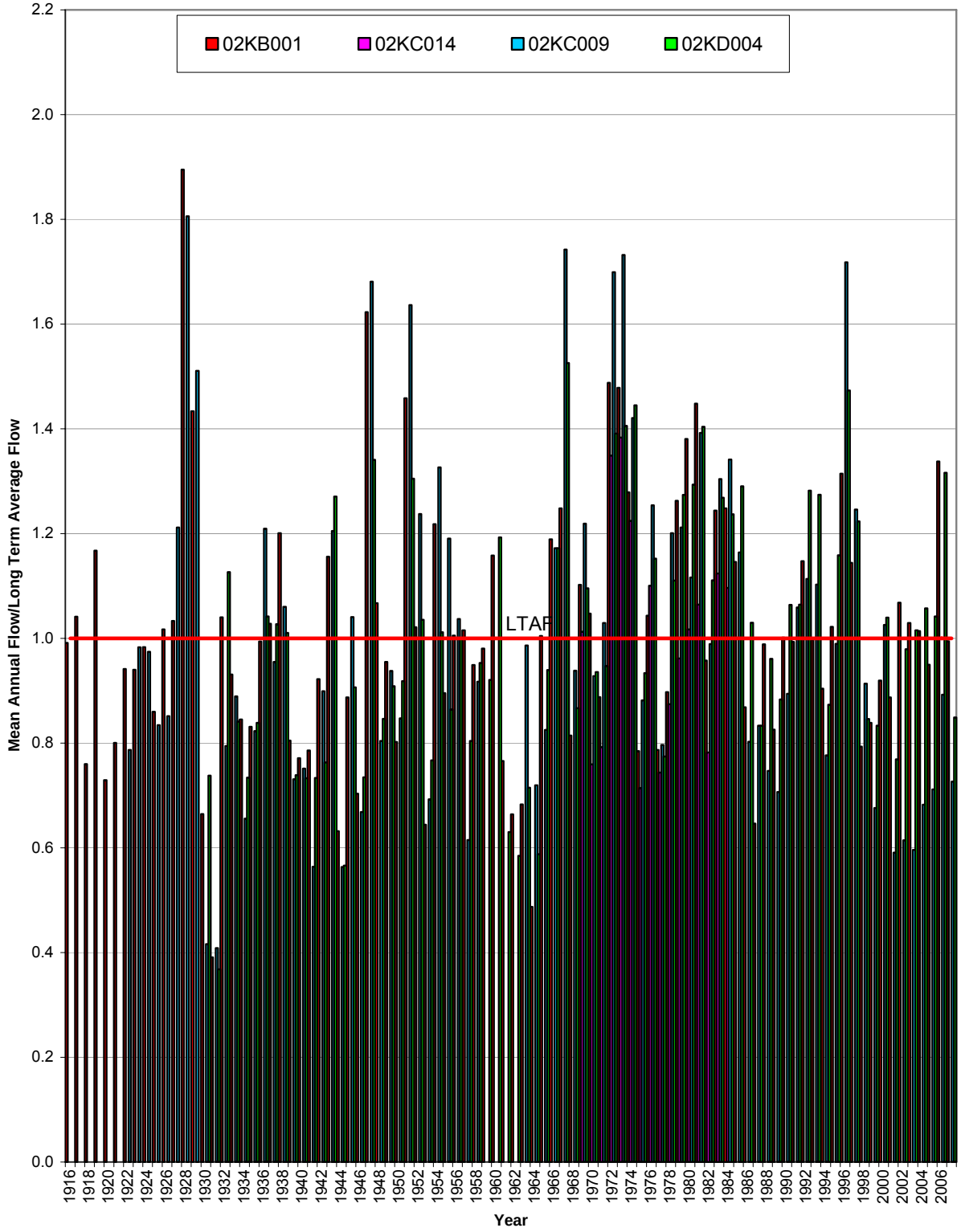


Figure 4
Xeneca Power
Petawawa Hydropower Sites
Annual Flow Variability

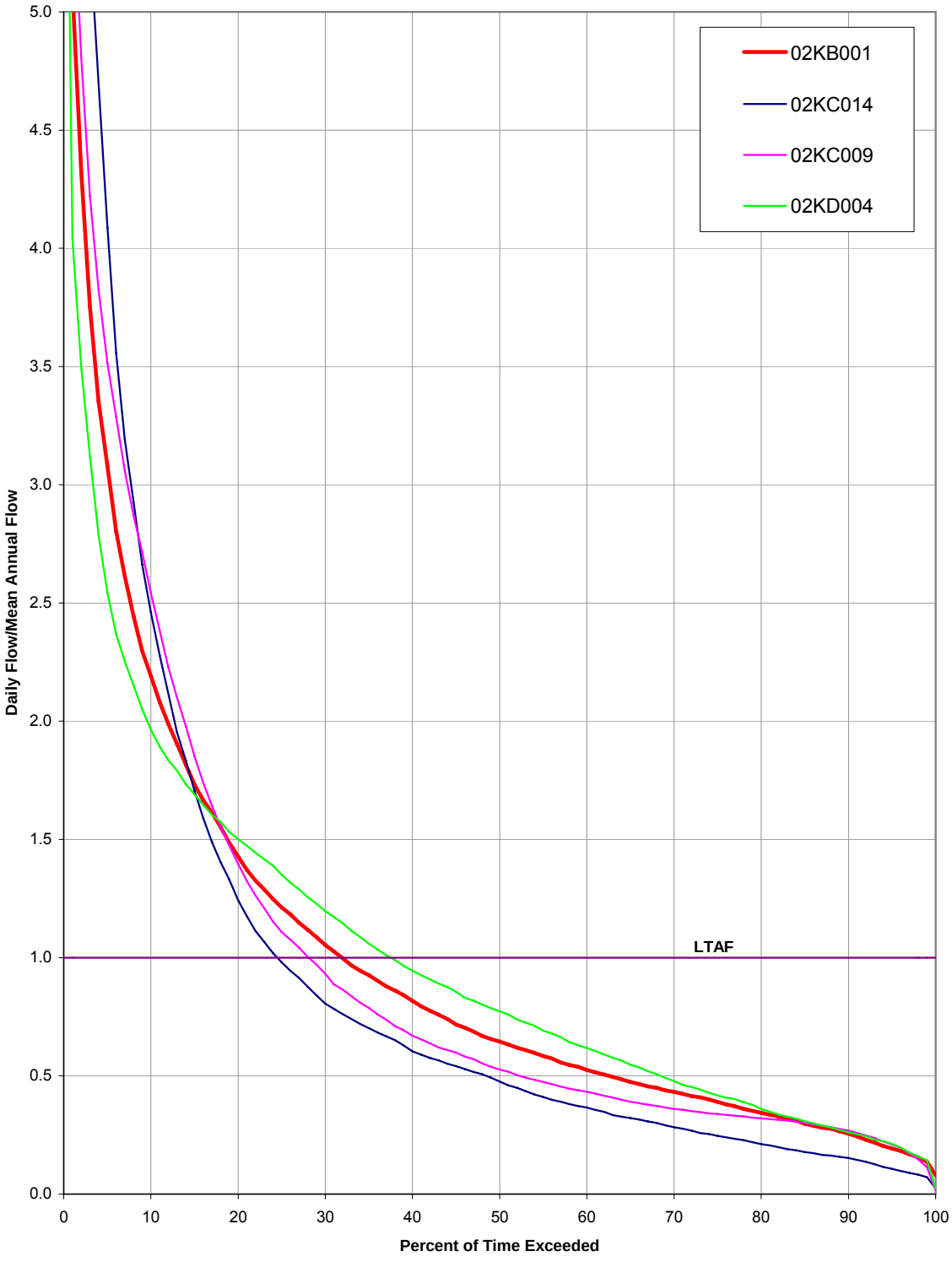


Figure 5
Xeneca Power
Petawawa Hydropower Sites
Daily Flow Duration Curves

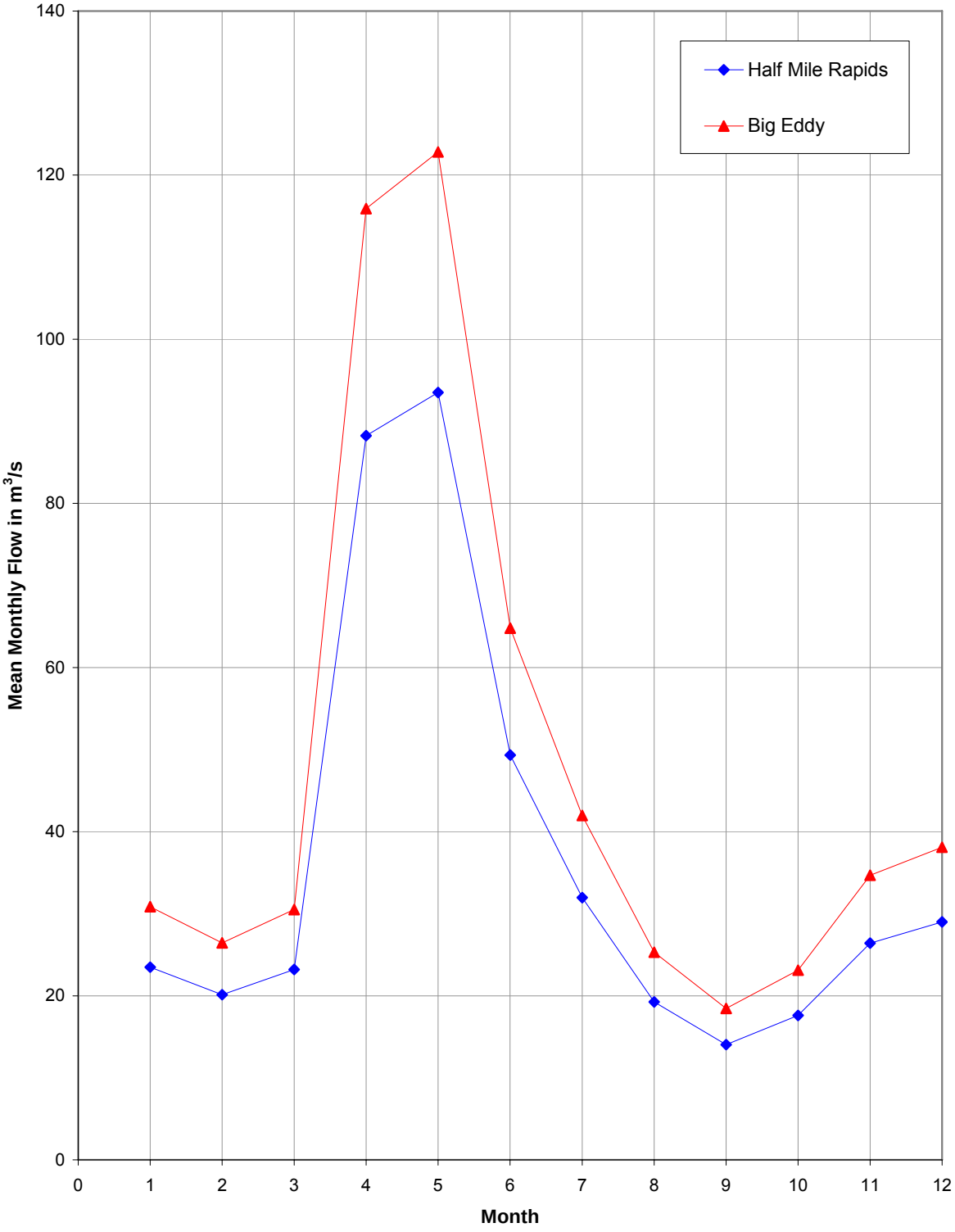


Figure 6
Xeneca Power
Petawawa Hydropower Sites
Petawawa River Hydropower Sites – Seasonal Flow Pattern

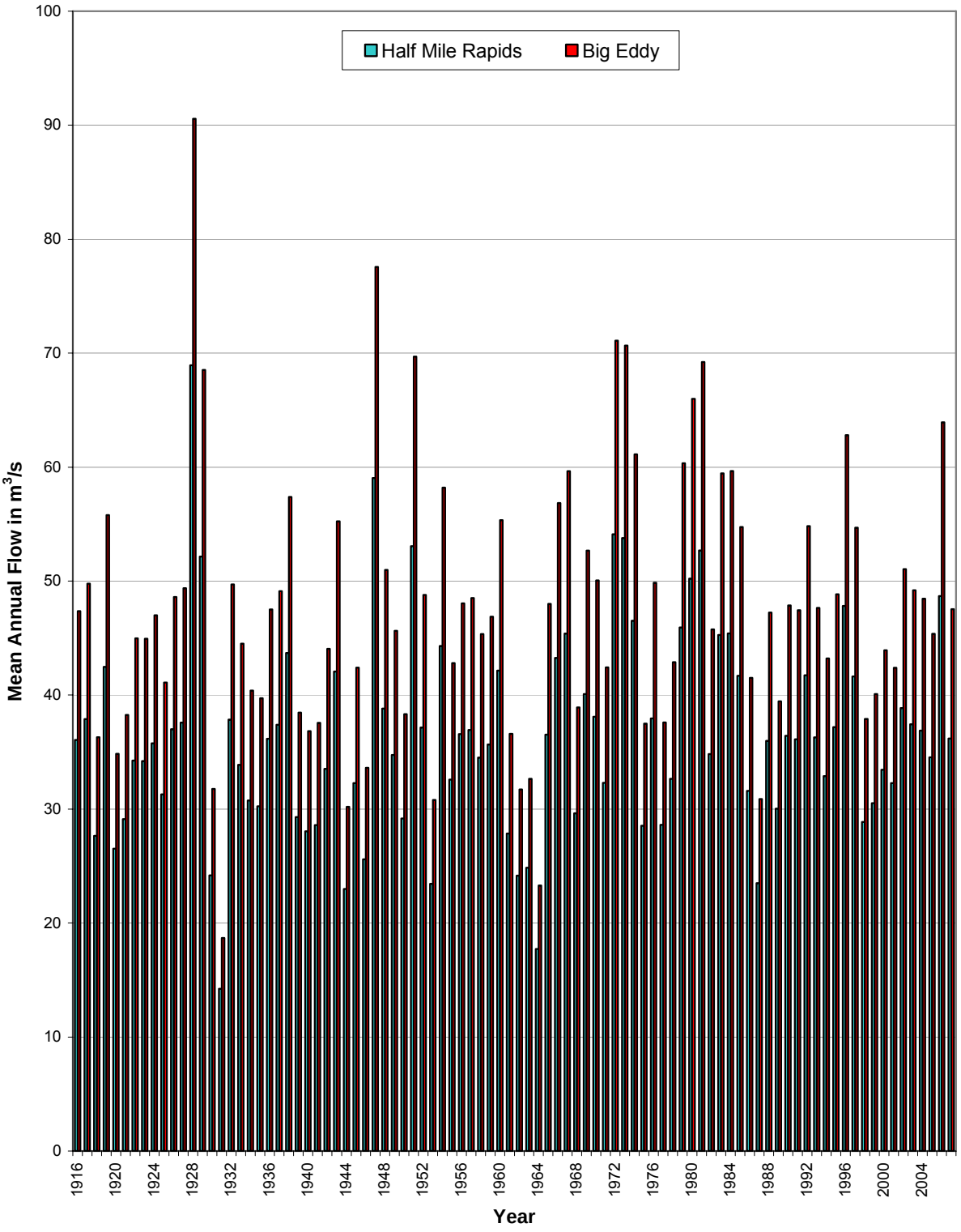


Figure 7
Xeneca Power
Petawawa Hydropower Sites
Petawawa River at Hydropower Sites – Annual Flow Variability

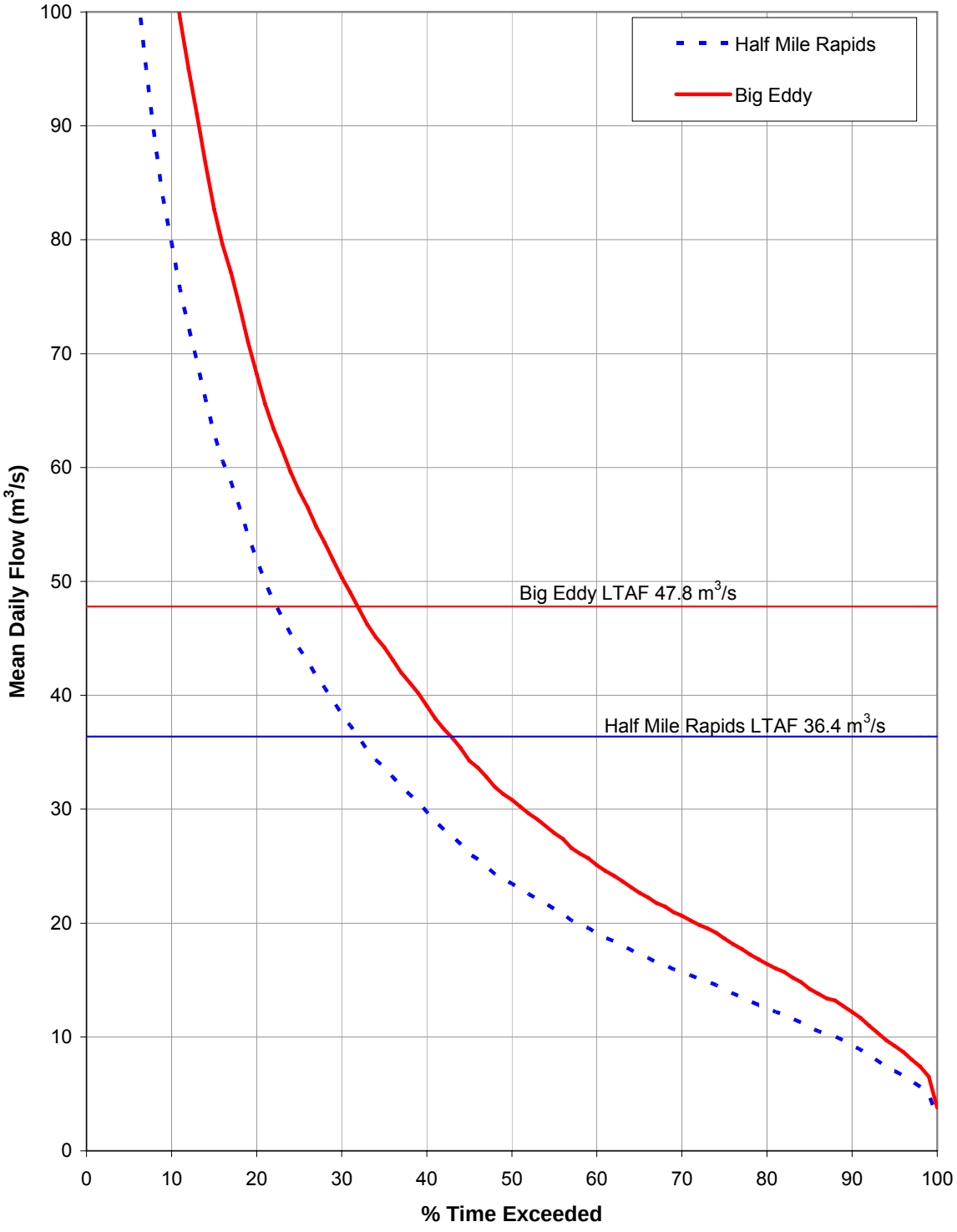


Figure 8
Xeneca Power
Petawawa Hydropower Sites
Petawawa River at Hydropower Sites – Daily Flow Duration Curve

APPENDIX A
Flow Metrics

BIG EDDY - PETAWAWA RIVER
NATURAL FLOW METRICS DATA SHEET

STATION INFORMATION		
SITE ID	0	
RIVER NAME	PETAWAWA RIVER	
SITE NAME	BIG EDDY	
REGION	SOUTHERN	
DISTRICT	PEMBROKE	
DRAINAGE AREA	4155	km^2
OWNER	XENECA POWER	

Flow metrics are provided for the potential waterpower site based on the Water Survey of Canada (WSC) gauging station, Petawawa River near Petawawa (02KB001). Metrics are based on WSC flows from 1916 to 2007 (92 years).

The flow records for the site have been synthesized by pro-rating gauge flows by the ratio of runoff*drainage areas. Other descriptive metrics have been included in the data sheet to provide a more complete description of the ranges of streamflow on the river system and to facilitate comparisons between river systems.

Annual (1916 - 2007):

I. Streamflow Time Series

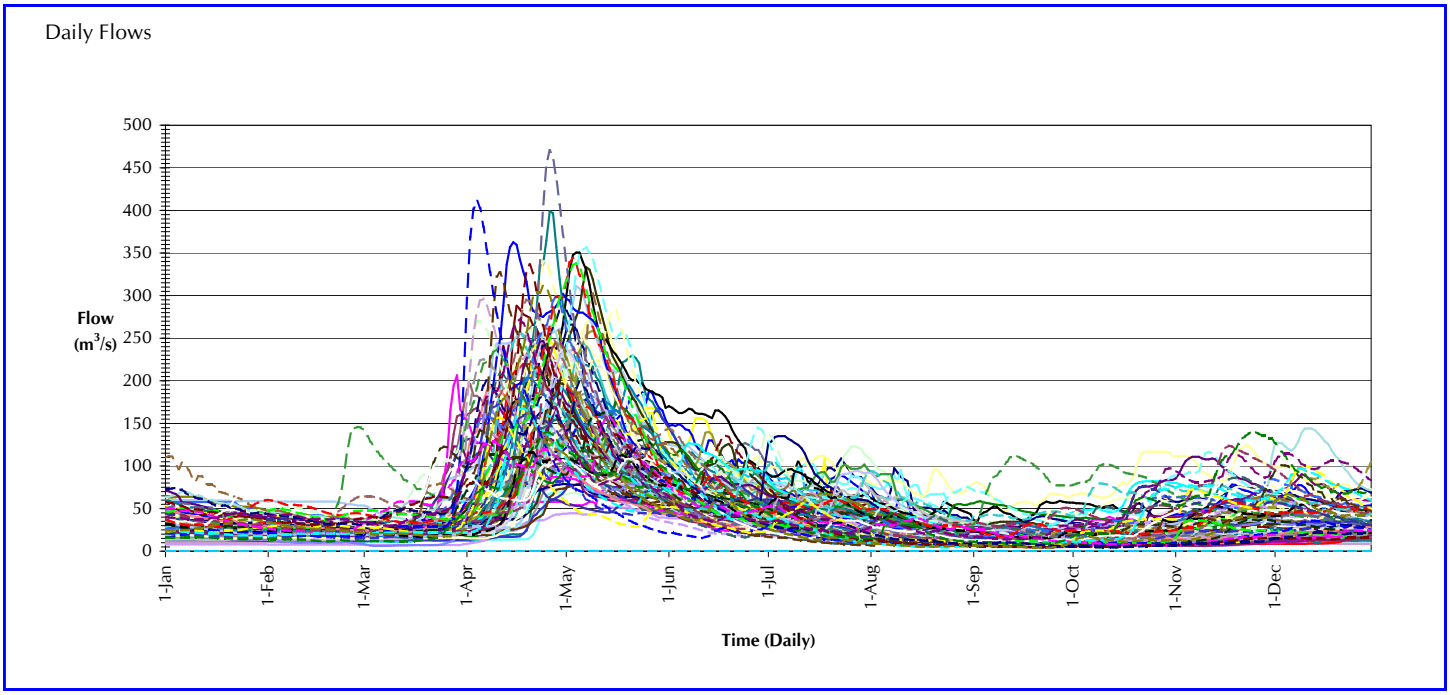


Figure 1 : Annual Daily flow hydrographs from 1916 to 2007.

Table 1 : Annual flow metrics based on 92 years of data.

Descriptive Metric		
Mean Annual Flow	47.79	m^3/s
20% Time Exceeded Flow	68.06	m^3/s
Median Flow	30.82	m^3/s
80% Time Exceeded Flow	16.42	m^3/s
Mean Rising Rate of Change of Flow	3.06	$m^3/s/day$
Mean Falling Rate of Change of Flow	-1.93	$m^3/s/day$
Extreme Low Flow Conditions:		
7-day-avg. low flow in 2-yr return period, $7Q_2$	11.68	m^3/s
7-day-avg. low flow in 10-yr return period, $7Q_{10}$	5.71	m^3/s
7-day-avg. low flow in 20-yr return period, $7Q_{20}$	4.35	m^3/s
Target Metric		
Riparian Flows (Q_2 - Q_{20})	208 -372	m^3/s
Bankfull Flows ($Q_{1.5}$ - $Q_{1.7}$)	178 -192	m^3/s

II. Flow Duration

Time Exceeded %	Flow (m^3/s)
0%	470.4
1%	243.8
5%	147.1
10%	104.8
20%	68.2
30%	50.4
40%	39.1
50%	30.8
60%	25.1
70%	20.7
80%	16.4
90%	12.2
95%	9.2
99%	6.5
100%	4.8

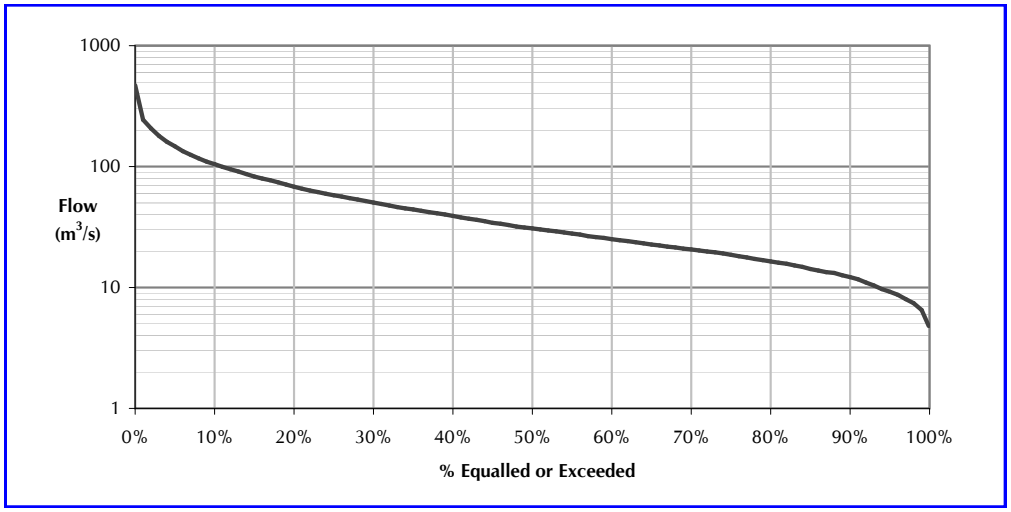


Table 2 & Figure 2 : Flow duration table and curve displaying flow vs. percent time exceeded over 92 years.

III. Flood Frequency Analysis

Return Period (years)	Flow (m^3/s)
1.05	113.8
1.25	154.1
1.5	178.3
1.7	191.9
2	207.5
5	279.3
10	326.8
20	372.4
50	431.5
100	475.7

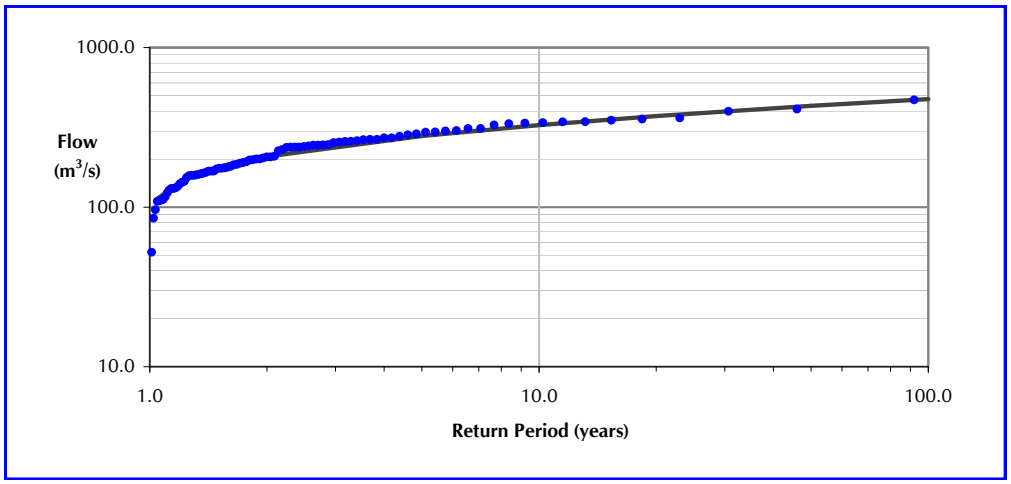


Table 3 & Figure 3 : Flood frequency analysis and curve fitted by the Gumbel probability distribution.

IV. Low Flow Frequency Analysis (Performed using 7-day-average low flow)

Return Period (years)	Flow (m^3/s)
1.005	25.30
1.01	24.00
1.11	18.46
1.25	16.09
2	11.68
5	7.60
10	5.71
20	4.35
50	3.05
100	2.34

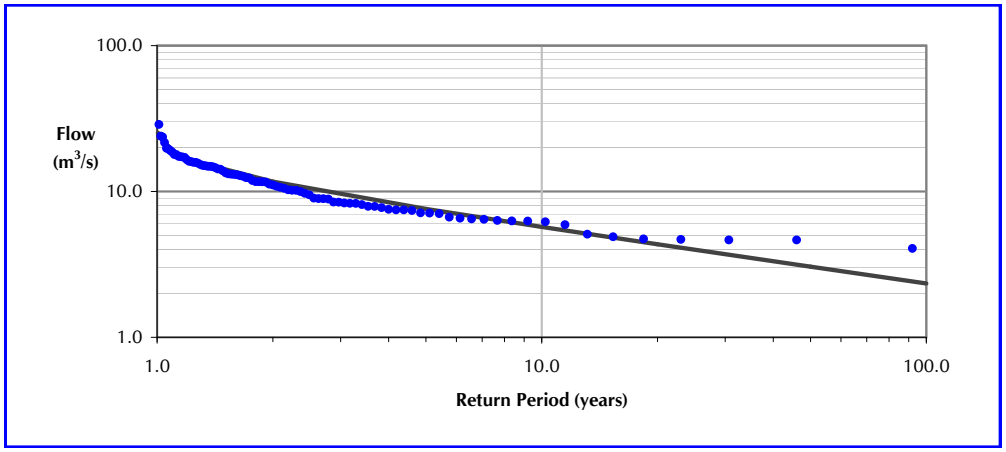


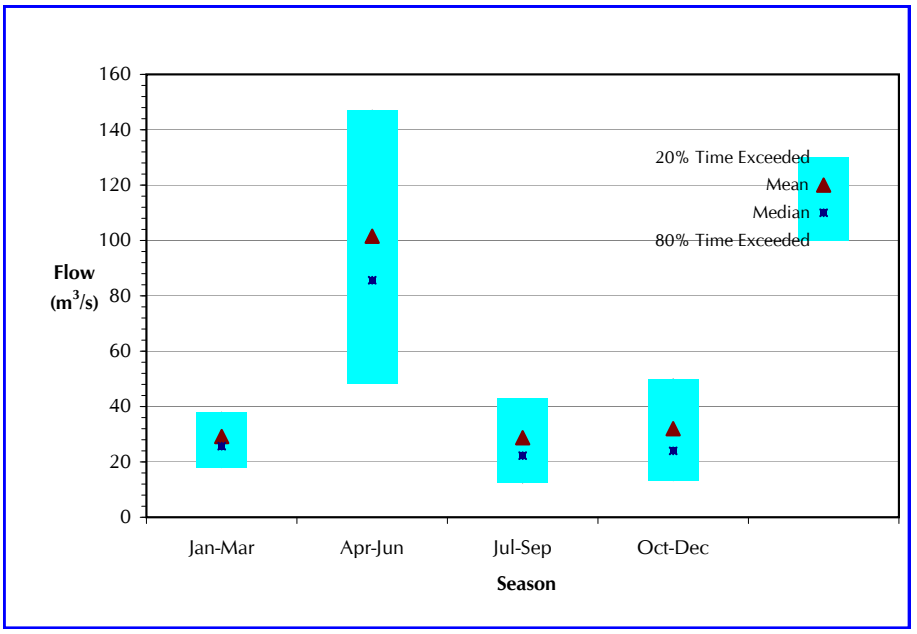
Table 4 & Figure 4 : 7-day-average low flow frequency analysis and curve fitted by the Gumbel probability distribution.

Seasonal :

I. Flow Duration

Table 5 & Figure 5 : Seasonal median flow duration for determining minimum flow targets.

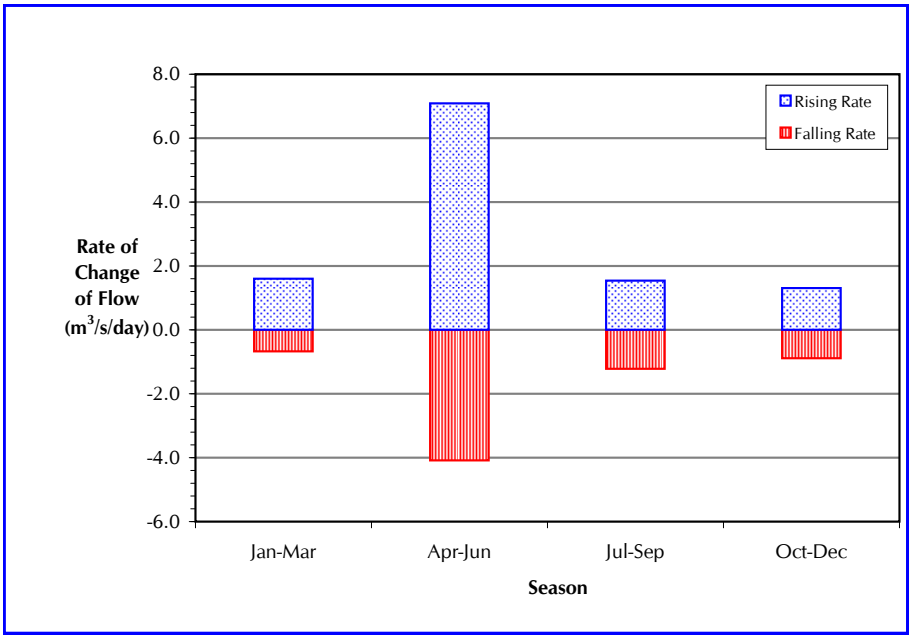
Season	20% Time Exceeded (m^3/s)	Median (m^3/s)	80% Time Exceeded (m^3/s)
Jan-Mar	38.0	25.7	17.9
Apr-Jun	147.1	85.6	48.5
Jul-Sep	42.9	22.3	12.4
Oct-Dec	50.0	24.0	13.2



II. Rate of Change of Flow

Table 6 & Figure 6 : Seasonal rising and falling rates of change of flow for determining ramping rate targets.

Season	Rising Rate ($m^3/s/day$)	Falling Rate ($m^3/s/day$)
Jan-Mar	1.60	-0.67
Apr-Jun	7.09	-4.08
Jul-Sep	1.54	-1.22
Oct-Dec	1.31	-0.89

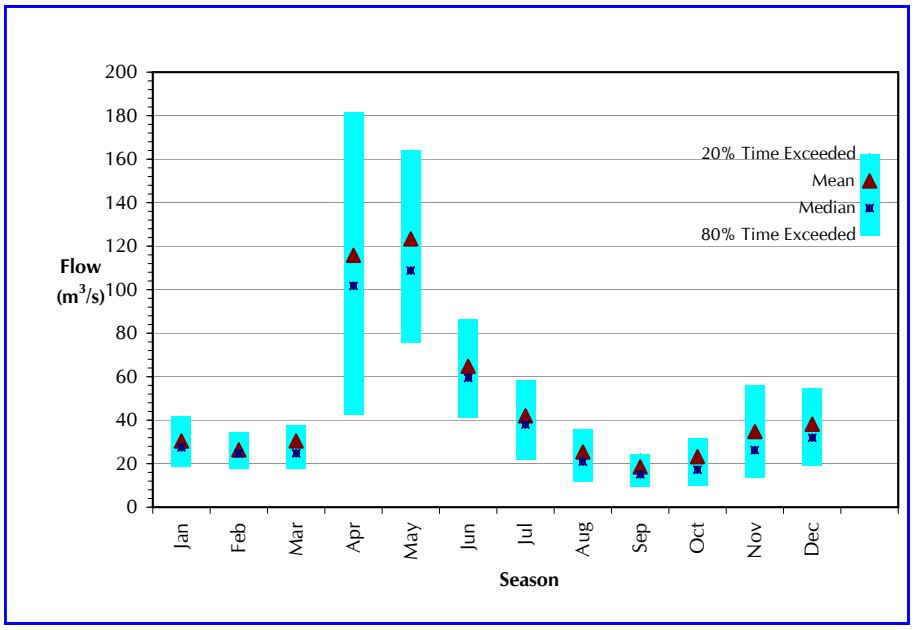


Monthly :

I. Flow Duration

Table 7 & Figure 7 : Monthly median flow duration for determining minimum flow targets.

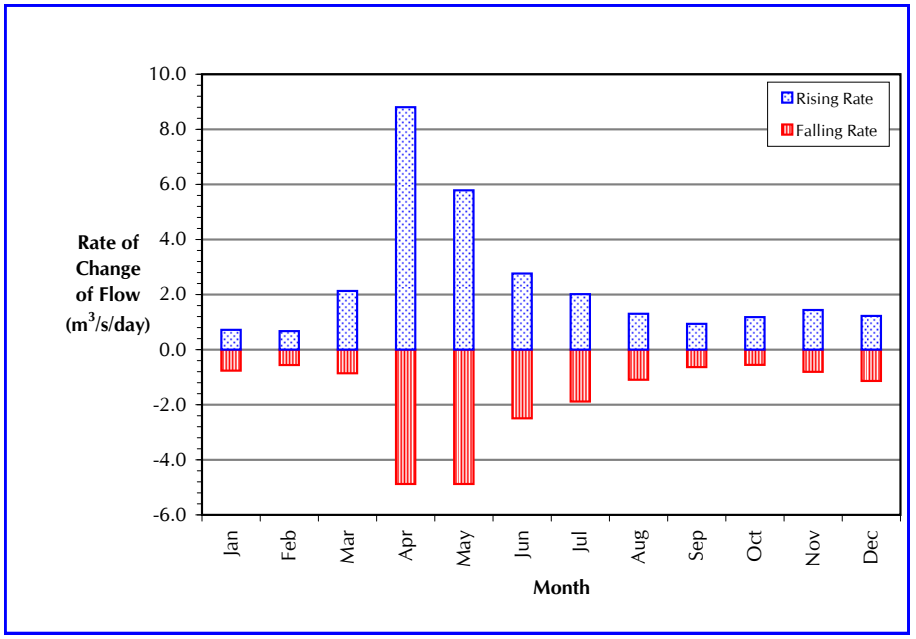
Month	20% Time Exceeded (m^3/s)	Median (m^3/s)	80% Time Exceeded (m^3/s)
Jan	41.9	27.5	18.8
Feb	34.6	24.8	17.9
Mar	37.7	24.8	17.5
Apr	181.5	101.7	42.4
May	164.2	108.8	75.6
Jun	86.4	59.4	41.3
Jul	58.3	38.0	22.0
Aug	36.0	21.0	11.9
Sep	24.6	15.1	9.5
Oct	31.6	17.2	10.0
Nov	55.9	26.3	13.6
Dec	54.7	31.9	19.1



II. Rate of Change of Flow

Table 8 & Figure 8 : Monthly rising and falling rates of change of flow for determining ramping rate targets.

Month	Rising Rate ($m^3/s/day$)	Falling Rate ($m^3/s/day$)
Jan	0.72	-0.76
Feb	0.67	-0.56
Mar	2.13	-0.86
Apr	8.80	-4.88
May	5.78	-4.88
Jun	2.76	-2.49
Jul	2.01	-1.88
Aug	1.30	-1.09
Sep	0.94	-0.63
Oct	1.18	-0.55
Nov	1.44	-0.81
Dec	1.22	-1.14



HALF MILE RAPIDS - PETAWAWA RIVER
NATURAL FLOW METRICS DATA SHEET

STATION INFORMATION		
SITE ID	0	
RIVER NAME	PETAWAWA RIVER	
SITE NAME	HALF MILE RAPIDS	
REGION	SOUTHERN	
DISTRICT	PEMBROKE	
DRAINAGE AREA	3026	km^2
OWNER	XENECA POWER	

Flow metrics are provided for the potential waterpower site based on the Water Survey of Canada (WSC) gauging station, Petawawa River near Petawawa (02KB001). Metrics are based on WSC flows from 1916 to 2007 (92 years).

The flow records for the site have been synthesized by pro-rating gauge flows by the ratio of runoff*drainage areas. Other descriptive metrics have been included in the data sheet to provide a more complete description of the ranges of streamflow on the river system and to facilitate comparisons between river systems.

Annual (1916 - 2007):

I. Streamflow Time Series

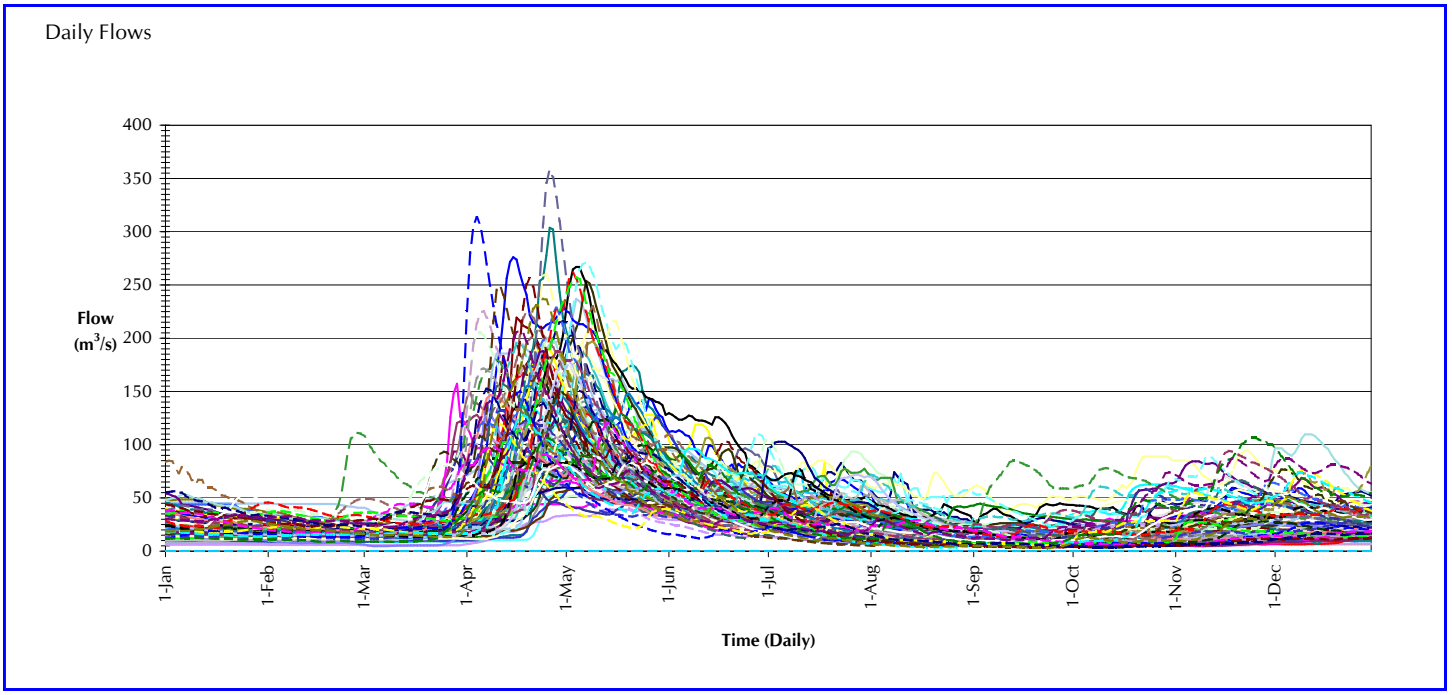


Figure 1 : Annual Daily flow hydrographs from 1916 to 2007.

Table 1 : Annual flow metrics based on 92 years of data.

Descriptive Metric		
Mean Annual Flow	36.38	m^3/s
20% Time Exceeded Flow	51.81	m^3/s
Median Flow	23.47	m^3/s
80% Time Exceeded Flow	12.50	m^3/s
Mean Rising Rate of Change of Flow	2.33	$m^3/s/day$
Mean Falling Rate of Change of Flow	-1.47	$m^3/s/day$
Extreme Low Flow Conditions:		
7-day-avg. low flow in 2-yr return period, $7Q_2$	8.89	m^3/s
7-day-avg. low flow in 10-yr return period, $7Q_{10}$	4.35	m^3/s
7-day-avg. low flow in 20-yr return period, $7Q_{20}$	3.31	m^3/s
Target Metric		
Riparian Flows (Q_2 - Q_{20})	158 -284	m^3/s
Bankfull Flows ($Q_{1.5}$ - $Q_{1.7}$)	136 -146	m^3/s

II. Flow Duration

Time Exceeded %	Flow (m^3/s)
0%	358.1
1%	185.6
5%	112.0
10%	79.8
20%	51.9
30%	38.3
40%	29.8
50%	23.5
60%	19.1
70%	15.7
80%	12.5
90%	9.3
95%	7.0
99%	5.0
100%	3.7

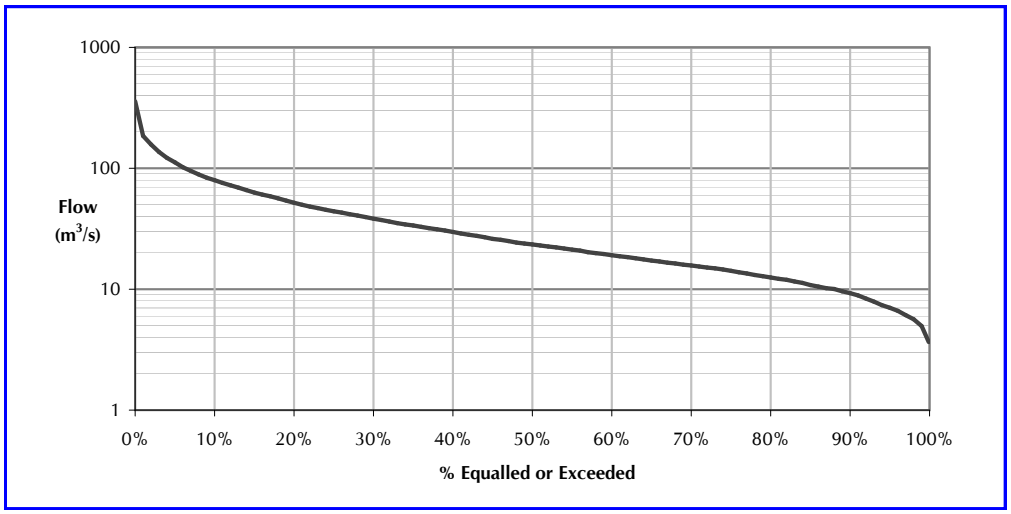


Table 2 & Figure 2 : Flow duration table and curve displaying flow vs. percent time exceeded over 92 years.

III. Flood Frequency Analysis

Return Period (years)	Flow (m^3/s)
1.05	86.6
1.25	117.3
1.5	135.8
1.7	146.1
2	158.0
5	212.6
10	248.8
20	283.5
50	328.4
100	362.1

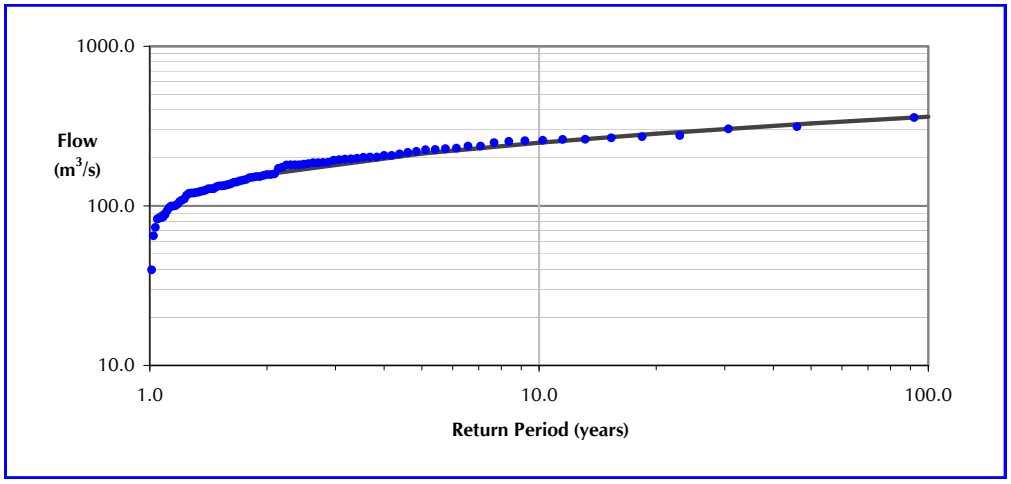


Table 3 & Figure 3 : Flood frequency analysis and curve fitted by the Gumbel probability distribution.

IV. Low Flow Frequency Analysis (Performed using 7-day-average low flow)

Return Period (years)	Flow (m^3/s)
1.005	19.26
1.01	18.27
1.11	14.05
1.25	12.24
2	8.89
5	5.78
10	4.35
20	3.31
50	2.32
100	1.78

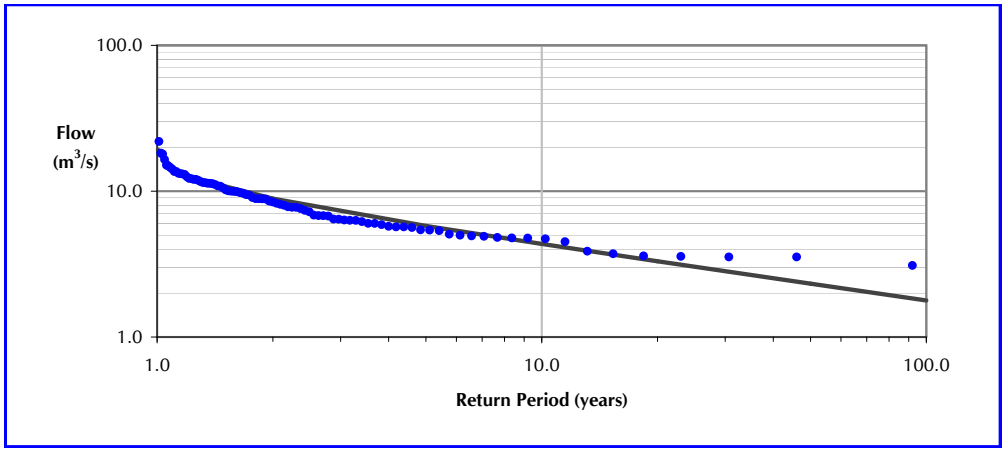


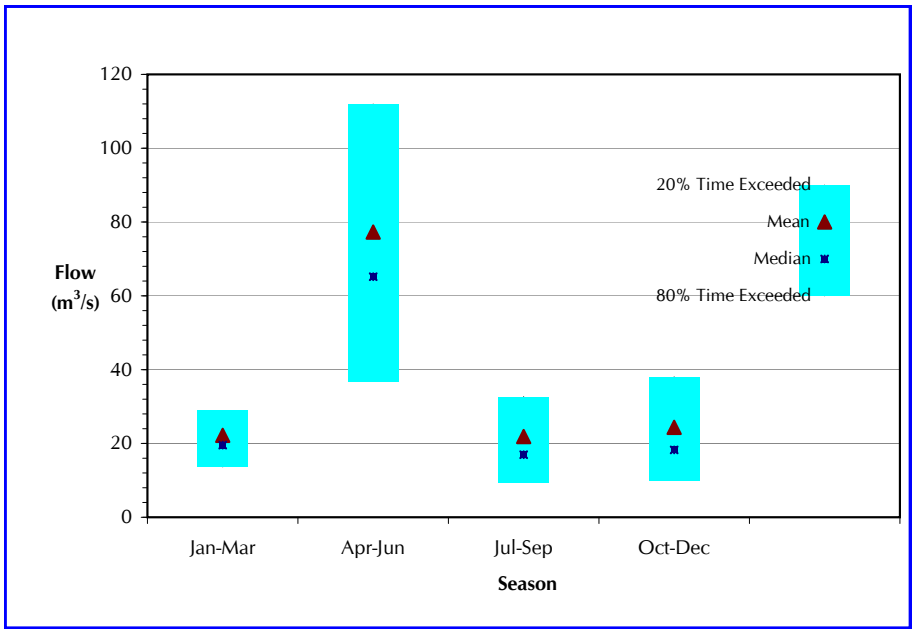
Table 4 & Figure 4 : 7-day-average low flow frequency analysis and curve fitted by the Gumbel probability distribution.

Seasonal :

I. Flow Duration

Table 5 & Figure 5 : Seasonal median flow duration for determining minimum flow targets.

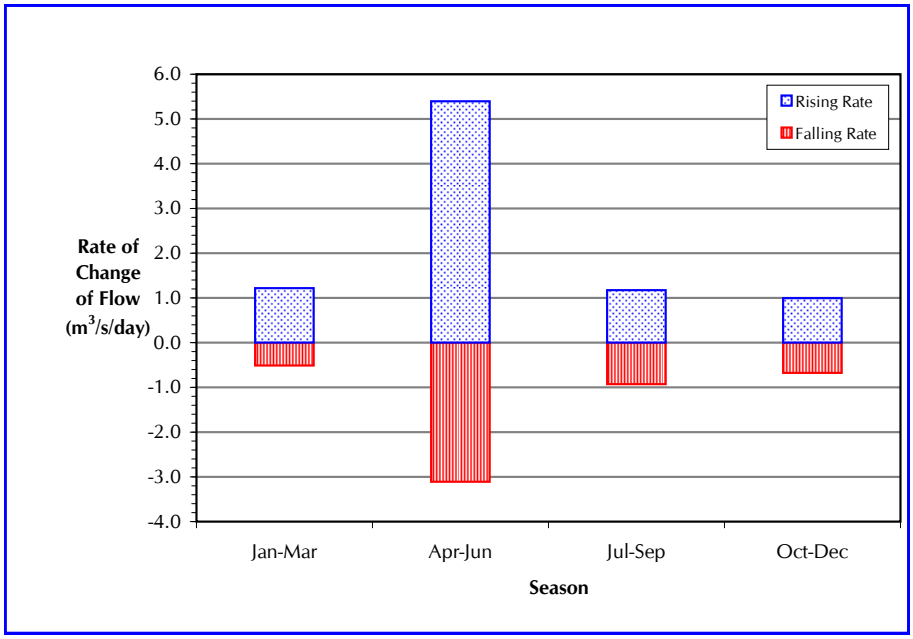
Season	20% Time Exceeded (m^3/s)	Median (m^3/s)	80% Time Exceeded (m^3/s)
Jan-Mar	28.9	19.6	13.6
Apr-Jun	112.0	65.2	36.9
Jul-Sep	32.7	16.9	9.4
Oct-Dec	38.0	18.3	10.0



II. Rate of Change of Flow

Table 6 & Figure 6 : Seasonal rising and falling rates of change of flow for determining ramping rate targets.

Season	Rising Rate ($m^3/s/day$)	Falling Rate ($m^3/s/day$)
Jan-Mar	1.22	-0.51
Apr-Jun	5.40	-3.11
Jul-Sep	1.17	-0.93
Oct-Dec	0.99	-0.67

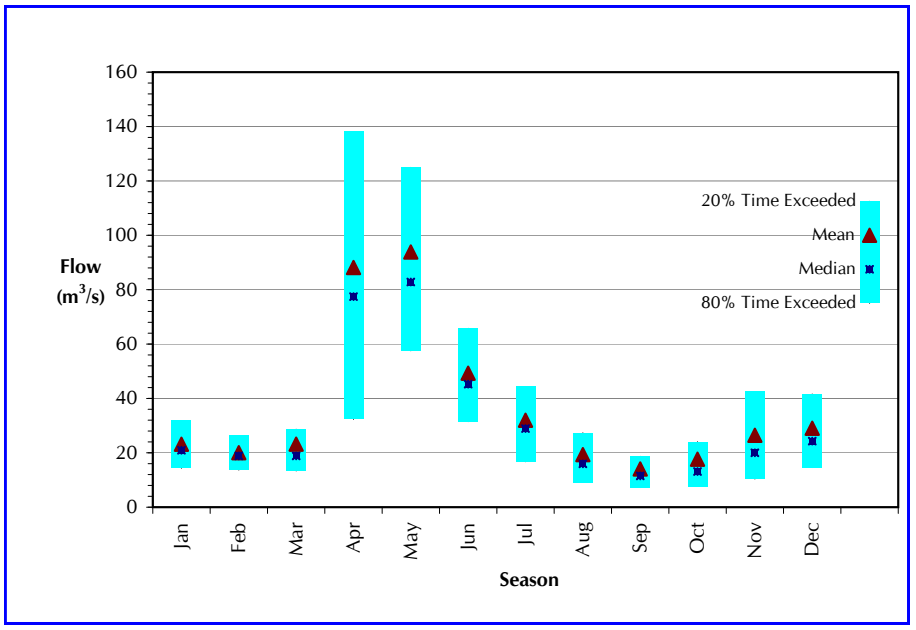


Monthly :

I. Flow Duration

Table 7 & Figure 7 : Monthly median flow duration for determining minimum flow targets.

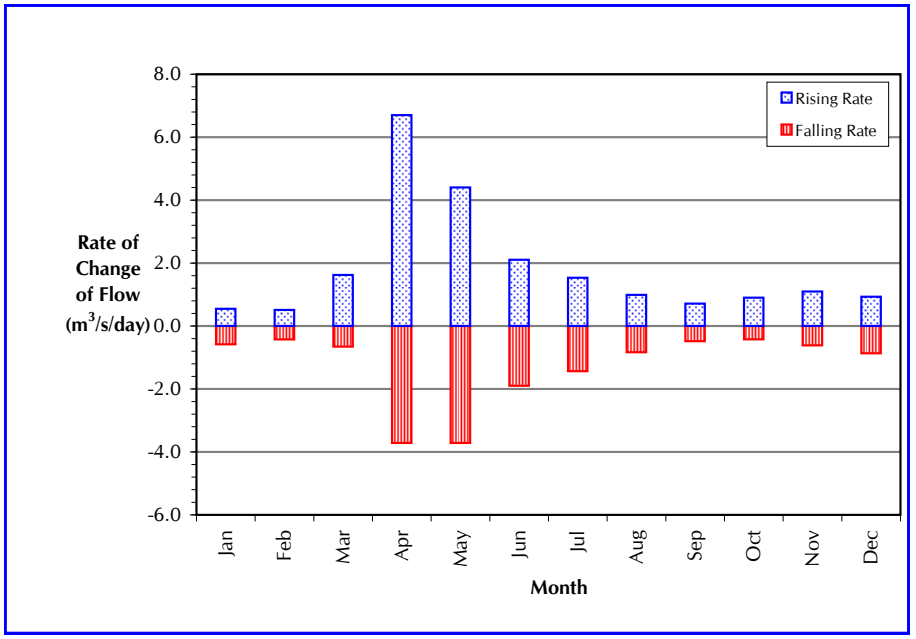
Month	20% Time Exceeded (m^3/s)	Median (m^3/s)	80% Time Exceeded (m^3/s)
Jan	31.9	20.9	14.3
Feb	26.3	18.9	13.6
Mar	28.7	18.9	13.3
Apr	138.2	77.5	32.3
May	125.0	82.8	57.5
Jun	65.8	45.2	31.4
Jul	44.4	28.9	16.7
Aug	27.4	16.0	9.0
Sep	18.7	11.5	7.2
Oct	24.1	13.1	7.6
Nov	42.6	20.0	10.4
Dec	41.6	24.3	14.6



II. Rate of Change of Flow

Table 8 & Figure 8 : Monthly rising and falling rates of change of flow for determining ramping rate targets.

Month	Rising Rate ($m^3/s/day$)	Falling Rate ($m^3/s/day$)
Jan	0.55	-0.58
Feb	0.51	-0.43
Mar	1.62	-0.65
Apr	6.70	-3.71
May	4.40	-3.71
Jun	2.10	-1.90
Jul	1.53	-1.43
Aug	0.99	-0.83
Sep	0.71	-0.48
Oct	0.90	-0.42
Nov	1.10	-0.61
Dec	0.93	-0.87



APPENDIX B
Lake Evaporation vs. Latitude in Ontario

Lake Evaporation vs. Latitude in Ontario

Lake evaporation in Ontario generally occurs between April and November each year when lakes are free of ice. Lake evaporation varies with extra terrestrial radiation, temperature, vapour pressure, humidity and wind speed. Although lake evaporation varies from year it is more stable than evapotranspiration or general evaporation loss in a river basin because it does not depend on the surficial geology or land use in the basin, which can affect the precipitation reaching the ground and the soil moisture available for transpiration.

Lake Evaporation datasets in Ontario are limited and not always complete, but Environment Canada publishes average lake evaporation data for some climate stations in the online Canadian Climate Normals or Averages 1971-2000 series.

The table below shows Annual Average Lake Evaporation data for six climate stations in Ontario and one each from Manitoba and Quebec.

Station	Province	Latitude ° N	Altitude m	Annual E_{Lake} mm
Amos	QUE	48.57	310	538
Atikokan	ONT	48.80	442	538
Delhi	ONT	42.87	232	709
Harrow	ONT	42.02	191	789
Moosonee	ONT	51.27	8	433
Ottawa	ONT	45.37	79	672
Rawson Lake	ONT	49.65	358	556
Norway House Forestry	MAN	54.00	217	320

The *Evaporation Atlas for the Contiguous 48 United States, NOAA Technical Report NWS 33, Washington D.C. June, 1982* shows that annual free water surface evaporation from shallow lakes (1956-70) varies approximately linearly with latitude in the states contiguous with the Province of Ontario.

To investigate whether this trend persists in Ontario the annual average lake evaporation data above were plotted against climate station latitude in Figure B-1. A linear regression equation fitted to this data set has a correlation coefficient $R^2 = 0.9655$ and gives the relationship for annual average lake evaporation:

$E_{Lake} = 2296.6 - 36.123 * \text{Latitude}$

Where: E_{Lake} is annual average lake evaporation in mm

Latitude is in decimal ° N.

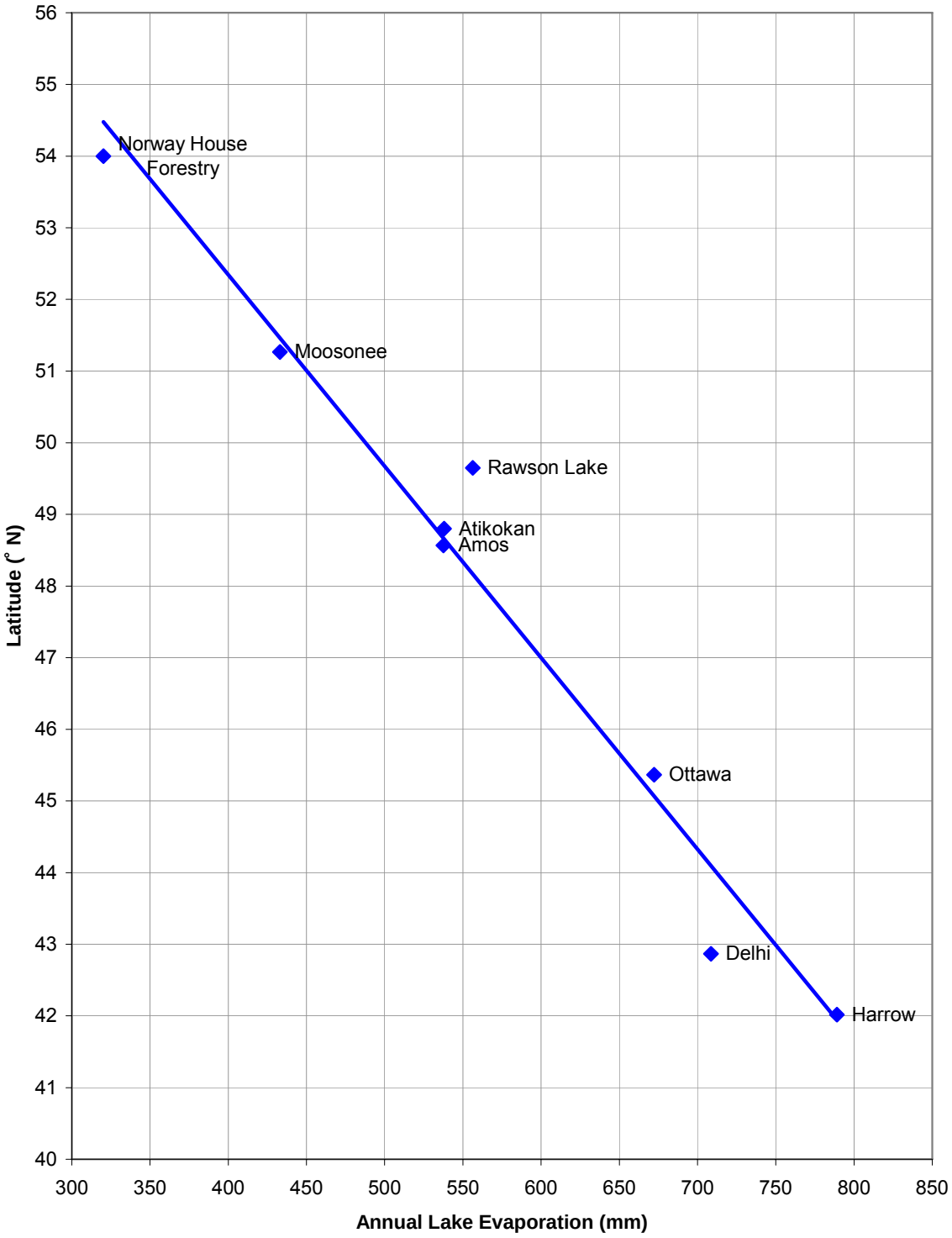


Figure B-1
Xeneca Power
Petawawa Hydropower Sites
Annual Average Lake Evaporation vs. Latitude

A typical monthly lake evaporation distribution for the project sites is shown in Figure B-2.

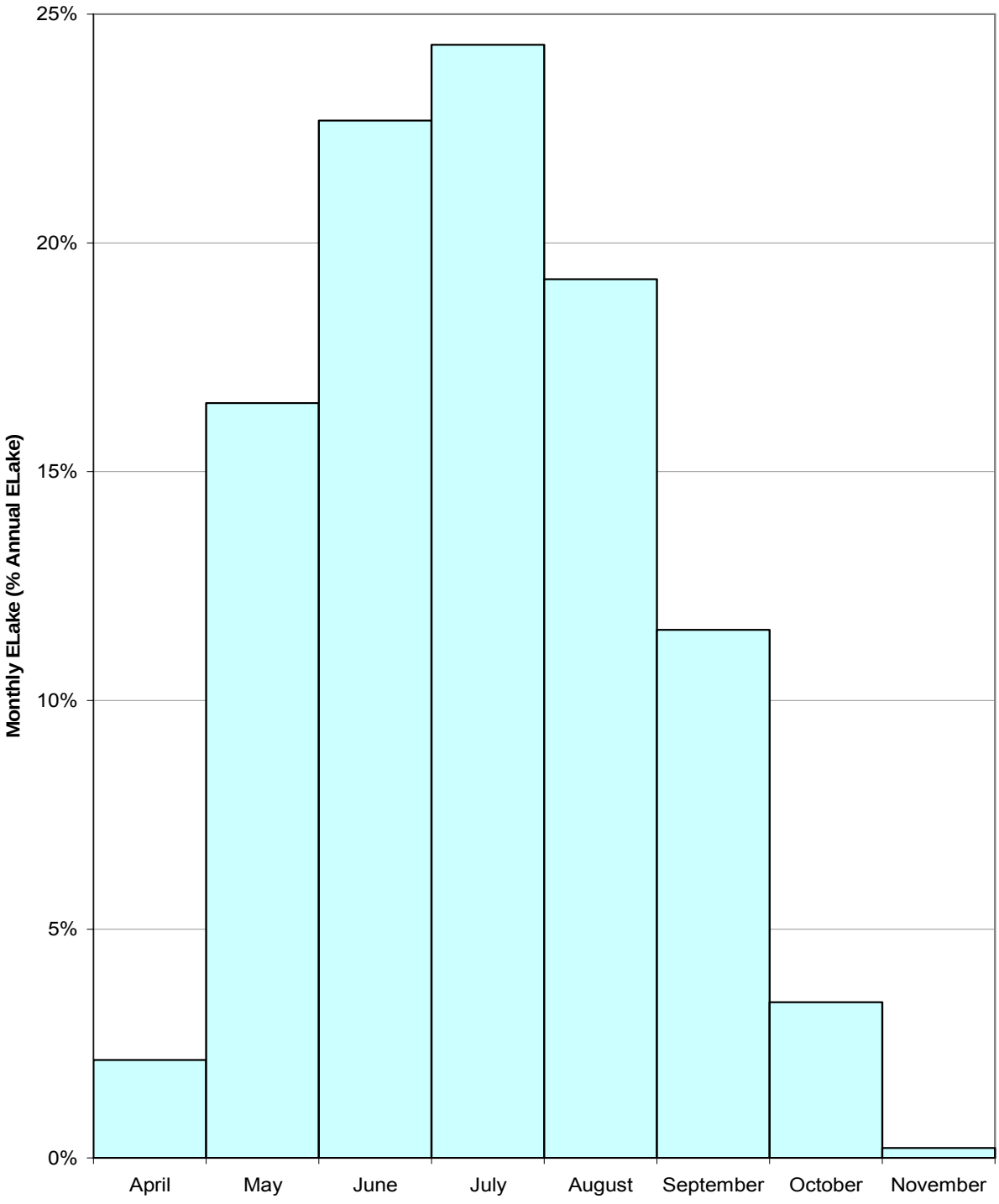


Figure B-2
Xeneca Power
Petawawa Hydropower Sites
Monthly Lake Evaporation Distribution in Ontario

APPENDIX C
CD-ROM containing Flow Series Datasets

1235 North Service Road West
Oakville, Ontario, Canada L6M 2W2
Tel 905 469 3400 ◆ Fax 905 469 3404

CANADIAN PROJECTS LIMITED
#240, 523 Woodpark Blvd SW
Calgary, Alberta T2W 4J3
Phone: (403) 508-1560 Fax: (403) 238-5460

File: 1052-001-3.1.1

April 11, 2011

Mr. Nava Pokharel, M.Sc., P.Eng.
Senior Project Manager
Xeneca Power Development Inc.
5160 Yonge Street, Suite 520
Toronto, ON, M2N 6L9

Dear Nava:

Re: Ontario South Hydro
Petawawa River at Big Eddy Hydrologic Analyses

Xeneca Power Development Inc. is proposing to develop the Big Eddy hydropower project on the Petawawa River in Ontario. Xeneca commissioned Canadian Projects Ltd. (CPL) to prepare hydrologic analyses for the project in accordance with Ontario Ministry of the Environment (MOE) requirements as listed in Table 1. The table provides a concordance between the MOE requirements and the various sections, tables and figures in this letter report.

The analyses relied on hydrologic information, including the site catchment area and a set of synthetic daily flow estimates for the project, provided by Hatch[1]. The synthetic data was extended to include the years 2008 and 2009 which were not included in the Hatch dataset, using the methods and factors presented in the Hatch report.

1. Season Definitions

Xeneca defined four seasons for the hydrologic analyses, as described in the project Operating Plan[2]. The season definitions are illustrated on Figure 1.

2. Flow-Duration Curves of Total Streamflow

MOE requirements c) and e) include analyses of daily mean discharges to obtain flow-duration curves for the full year, and on a monthly and seasonal basis. Flow-duration estimates were obtained by analysis of the synthetic dataset as follows:

[1] Hydrology Review for Petawawa Hydropower Sites, Half Mile Rapids and Big Eddy Hydropower Projects. Hatch Ltd. October 6, 2009.
[2] Proposed Operating Flows and Levels: Big Eddy Hydro Project. Xeneca Power Development Inc., in preparation.

- Standard (or Period of Record) flow-duration curves for the full year and for each season of the year are shown on Figure 2 and Table 2.
- Standard (or Period of Record) flow-duration curves for each month of the year are shown on Figure 3 and Table 3.

3. Flow-Duration Curves of Baseflow

MOE requirement d) specifies a flow-duration analysis of baseflow data. The series of synthetic daily discharges was analyzed to obtain estimates of daily baseflow using the Streamflow Analysis and Assessment Software (SAAS) developed at Trent University and recommended by MOE. SAAS implements a recursive digital filtering method to estimate baseflow. Following the SAAS methodology, the first and last months of the dataset were removed to eliminate the end effects of the filtering procedure.

- Standard (or Period of Record) baseflow flow-duration curves for the full year and for each season of the year are shown on Figure 4 and Table 4.
- Standard (or Period of Record) baseflow flow-duration curves for each month of the year are shown on Figure 5 and Table 5.

4. Median of Percentiles Analysis

MOE requirement e) specifies a "median of percentiles" analysis in which the period of record is subdivided into years, seasons or months; flow exceedance statistics are computed individually for each period; and then the values for each percentile are analyzed to obtain the median value for that percentile across the years of record.

- Median of Percentiles analysis results for the full year and for each season of the year are shown on Figure 6 and Table 6.
- Median of Percentiles analysis results for each month of the year are shown on Figure 7 and Table 7.

5. Low Flow Analysis

MOE requirements b) and g) specify a low-flow frequency analysis of 7-day average low flow for return periods of 2, 10 and 20 years. The Hatch report provided preliminary drought frequency estimates, but recommended that detailed low flow analyses be undertaken for environmental assessment and design phases of the projects. Therefore CPL conducted low flow analyses. The analyses were based on the series of minimum 7-day average discharges on a water year basis (May 1 – April 30). Four probability distributions were tested using the Hyfran[3] software: Gumbel (used by Hatch), Weibull or Gumbel III (recommended by Environment Canada[4]), Pearson III, and lognormal.

The lognormal distribution provided the best fit to the data. Results are presented in Table 8.

[3] Developed by the Institut National de la Recherche Scientifique - Eau Terre et Environnement (INRS-ETE) at the University of Quebec with sponsorship from Hydro-Quebec and the Natural Sciences and Engineering Research Council of Canada.
[4] Modelling of Low Flow Frequency Distributions and Parameter Estimation. R. Condie and G.A. Nix. International Water Resources Symposium, Water for Arid Lands, Teheran, Iran, December 8-9, 1975.

6. Flood Frequency Analysis

MOE requirement f) specifies a flood frequency analysis of maximum instantaneous discharges. The Hatch report provided preliminary flood frequency estimates, but recommended that detailed flood analyses should be undertaken for environmental assessment and design phases of the projects. Therefore CPL conducted a new flood frequency analysis which encompassed the 1:2 year to the 1:10,000 year instantaneous flood flows as documented in a separate report[5].

Maximum instantaneous flood estimates for various return periods are provided in Table 9.

7. Summary Statistics

MOE requirement a) specifies descriptive statistics of daily discharges including the maximum, mean, median, minimum and 20% and 80% exceedance values. Summary statistics are presented in Table 10.

8. Conclusion

This hydrological analysis letter report was prepared and provides the information compiled in accordance with MOE requirements. We trust that the information contained in this letter meets with your requirements.

Sincerely,

CANADIAN PROJECTS LIMITED

Wes Dick, M.Sc.
Senior Hydrologist

Reviewed By

Paul Kemp, P.Eng.
Project Director

WD/wd

[5] Ontario South Hydro: Hydrology Review and Flood Frequency Analyses – DRAFT. Letter report to Xeneca, Canadian Projects Limited, February 17, 2011.

Table 1
Concordance between MOE Requirements and Report

MOE Requirement	Results Presented In		
	Section No.	Figure No.	Table No.
a) Descriptive flow statistics using all available daily flows for all years: mean, median, minimum, maximum, flow exceeded 20% time, flow exceeded 80% time.	7	--	10
b) Extreme low flow statistics: $7Q_2$ (2 year return period 7-day-average-low flow), $7Q_{10}$ (10 year return period 7-day-average-low flow) and $7Q_{20}$ (20 year return period 7-day-average-low flow).	5	--	8
c) Flow duration curves and tables using total daily average flow data for the entire period, for all four seasons and for all twelve months.	2	2 – 3	2 – 3
d) Flow duration curves and tables using daily baseflow data for the entire period, for all four seasons and for all twelve months.	3	4 – 5	4 – 5
e) Flow duration curves derived using both the percentile method and the median of percentiles method. Both methods are incorporated into the flow analysis tool, developed by Schmidt and Metcalfe (2009), which can be downloaded for free from http://trentu.ca/iws/software.php.	2, 4	2 – 3, 6 – 7	2 – 3, 6 – 7
f) Flood frequency analysis using instantaneous maximum flow of each year for the entire period of records.	6	--	9
g) Low flow frequency analysis using 7-day-average-low flow for the entire period of records.	5	--	8
h) Altered flow of the bypass reach and the reach below tailrace, if applicable.*	--	--	--
i) Compensation flow for the bypass reach and the reach below tailrace, if applicable.*	--	--	--

* These items are addressed in the Operation Plan.

Figure 1

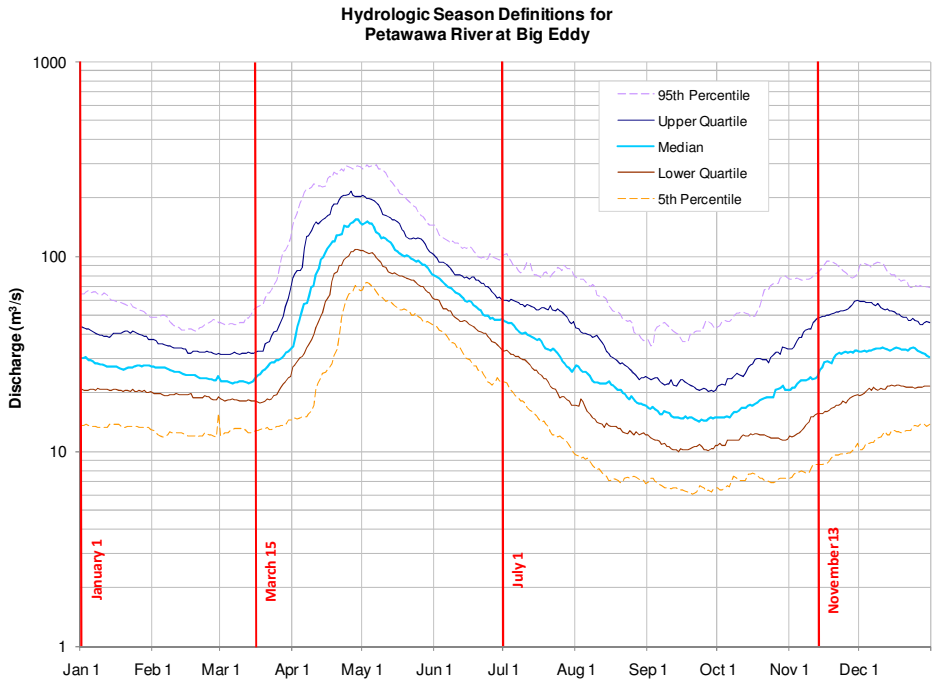

Hydrologic Season Definitions for
Petawawa River at Big Eddy
Discharge (m³/s)
1000
100
10
1
95th Percentile
Upper Quartile
Median
Lower Quartile
5th Percentile
January 1
March 15
July 1
November 13
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Nov 1
Dec 1

Figure 2

Annual and Seasonal Flow-Duration Curves
Petawawa River at Big Eddy

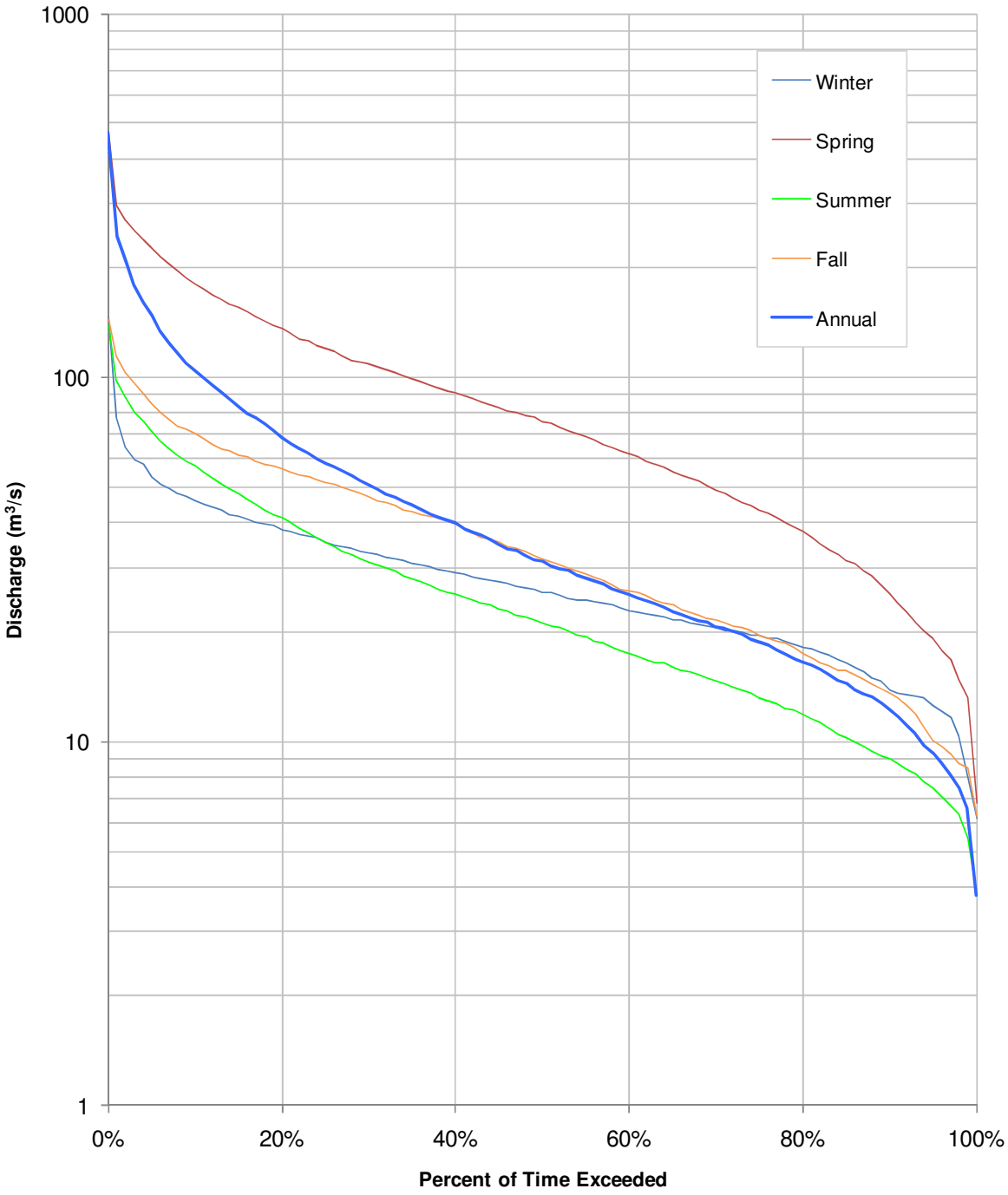


Table 2
Annual and Seasonal Flow-Duration Estimates
Petawawa River at Big Eddy

% of Time Exceeded	Discharge (m^3/s)				
	Winter	Spring	Summer	Fall	Annual
	Jan 1 Mar 14	Mar 15 Jun 30	Jul 1 Nov 12	Nov 13 Dec 31	
1	78.0	298	98.4	115	246
5	53.6	227	71.6	84.8	148
10	45.9	181	57.0	70.0	105
15	41.6	156	48.0	61.4	83.0
20	38.2	136	41.1	55.9	68.7
25	35.4	120	35.4	51.7	58.2
30	33.1	109	31.2	47.1	50.8
35	30.8	99.3	28.0	42.8	44.5
40	29.1	91.0	25.4	39.5	39.7
45	27.4	82.7	23.2	35.3	34.8
50	25.7	75.9	21.2	31.6	31.2
55	24.4	68.5	19.3	28.8	28.2
60	22.9	61.7	17.4	26.0	25.4
65	21.7	55.3	16.0	23.7	22.9
70	20.6	49.1	14.7	21.6	20.8
75	19.5	43.3	13.2	19.6	18.8
80	18.1	37.7	11.9	17.5	16.5
85	16.4	31.3	10.3	15.7	14.4
90	13.9	25.4	8.93	13.6	12.3
95	12.6	19.1	7.48	10.1	9.24
99	7.99	13.2	5.45	8.44	6.56

Figure 3

Monthly Flow-Duration Curves - Petawawa River at Big Eddy

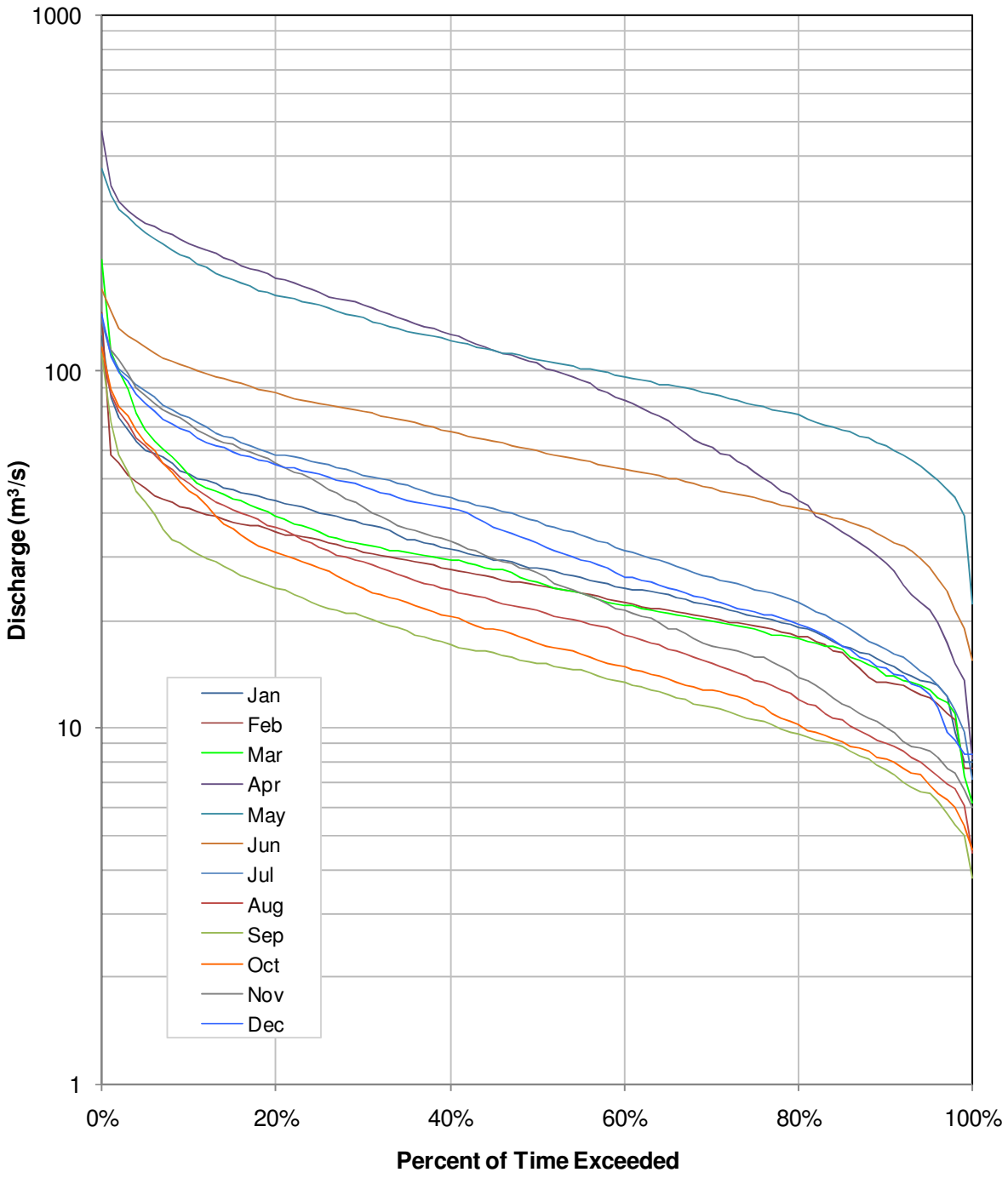


Table 3
Monthly Flow-Duration Estimates
Petawawa River at Big Eddy

% of Time Exceeded	Discharge (m^3/s)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	85.0	58.2	114	333	313	147	112	86.7	72.3	88.6	115	111
5	60.2	47.1	68.4	261	244	117	88.0	61.9	42.8	63.1	85.7	80.9
10	51.4	41.1	51.1	229	209	103	73.9	48.5	31.6	46.3	71.2	67.5
15	46.7	37.8	44.0	204	180	93.9	64.8	40.8	27.4	36.3	62.2	59.7
20	43.3	35.4	39.3	183	163	86.8	58.4	36.5	24.7	31.2	55.1	54.5
25	40.2	33.7	35.3	166	153	81.3	55.3	31.9	22.0	28.0	48.5	51.3
30	37.3	31.0	32.7	154	141	77.3	51.1	29.1	20.5	24.6	41.6	47.4
35	33.8	29.4	31.1	139	130	72.5	48.0	26.4	18.6	22.4	36.3	43.3
40	31.6	27.7	29.6	127	122	67.9	44.2	24.5	17.1	20.6	33.4	41.4
45	29.6	26.3	27.9	115	114	63.6	41.1	22.7	16.2	18.8	29.9	36.5
50	28.0	25.1	25.6	106	108	60.0	38.0	21.3	15.2	17.3	27.2	33.0
55	26.3	23.9	23.8	94.2	102	56.2	34.6	19.9	14.5	16.0	24.0	29.6
60	24.6	22.4	22.1	82.7	96.7	53.1	31.5	18.1	13.4	14.8	21.3	26.5
65	23.7	21.3	21.0	72.5	91.3	50.2	28.8	16.6	12.4	13.7	19.0	24.6
70	22.0	20.3	20.0	61.0	86.4	47.1	26.3	15.1	11.4	12.8	16.9	22.8
75	20.6	19.2	18.8	51.9	80.7	44.2	24.5	13.6	10.5	11.7	15.7	21.1
80	19.1	17.9	17.7	43.3	75.3	41.3	22.4	12.1	9.6	10.2	13.9	19.4
85	16.9	16.2	16.5	35.4	68.5	38.5	19.4	10.5	8.8	9.1	11.7	16.9
90	15.2	13.4	13.9	28.8	61.7	34.0	16.6	9.1	7.6	8.2	10.0	14.7
95	13.4	12.1	12.8	21.4	51.6	28.0	13.8	7.6	6.5	6.9	8.6	12.4
99	8.0	7.7	7.3	13.6	39.4	18.9	9.7	6.0	5.0	5.3	6.7	8.4

Figure 4

Annual and Seasonal Flow-Duration Curves
Petawawa River Baseflow at Big Eddy

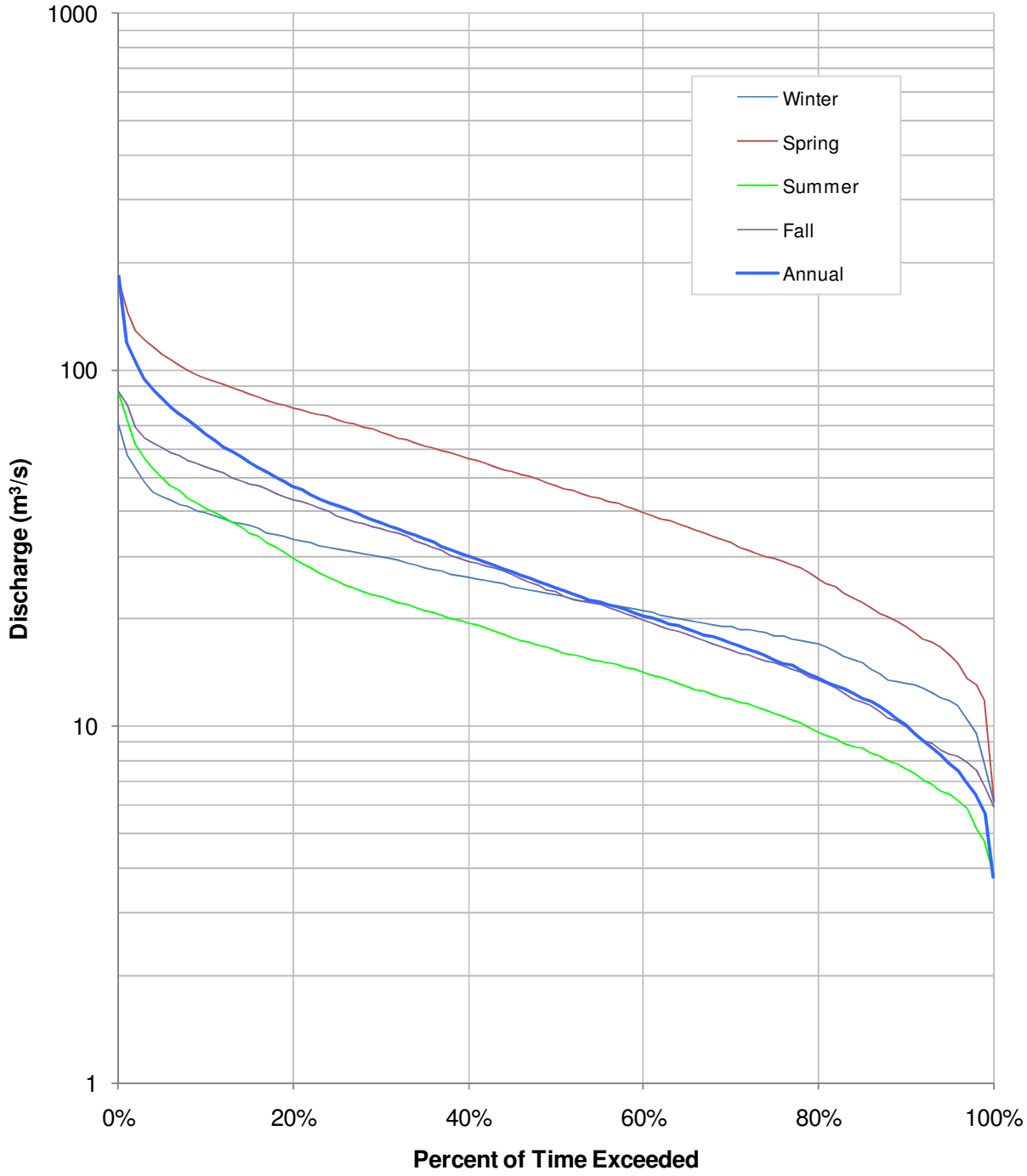


Table 4
Annual and Seasonal Flow-Duration Estimates
Petawawa River Baseflow at Big Eddy

	Discharge (m^3/s)				
	Winter	Spring	Summer	Fall	Annual
% of Time Exceeded	Jan 1 Mar 14	Mar 15 Jun 30	Jul 1 Nov 12	Nov 13 Dec 31	
1	57.3	146	71.8	79.4	119
5	44.2	111	50.0	60.4	83.1
10	39.6	94.8	41.1	53.6	66.1
15	36.6	85.7	35.0	47.8	55.0
20	33.6	78.1	29.6	43.3	47.1
25	31.4	72.5	25.5	39.0	41.8
30	29.9	66.7	23.1	35.9	37.3
35	27.9	61.4	21.2	32.5	33.5
40	26.1	56.4	19.5	29.0	30.1
45	24.7	51.8	17.8	26.7	27.2
50	23.3	47.4	16.3	23.8	24.4
55	22.1	43.4	15.3	21.9	22.3
60	21.1	39.9	14.2	19.9	20.5
65	19.8	36.2	13.0	18.1	18.8
70	19.0	32.7	11.9	16.4	17.1
75	18.0	29.4	10.9	15.1	15.4
80	17.0	26.0	9.66	13.4	13.6
85	15.0	22.2	8.66	11.7	12.0
90	13.2	19.0	7.61	10.0	10.1
95	11.7	15.8	6.42	8.37	7.91
99	7.80	11.8	4.76	6.81	5.68

Figure 5

Monthly Flow-Duration Curves
Petawawa River Baseflow at Big Eddy

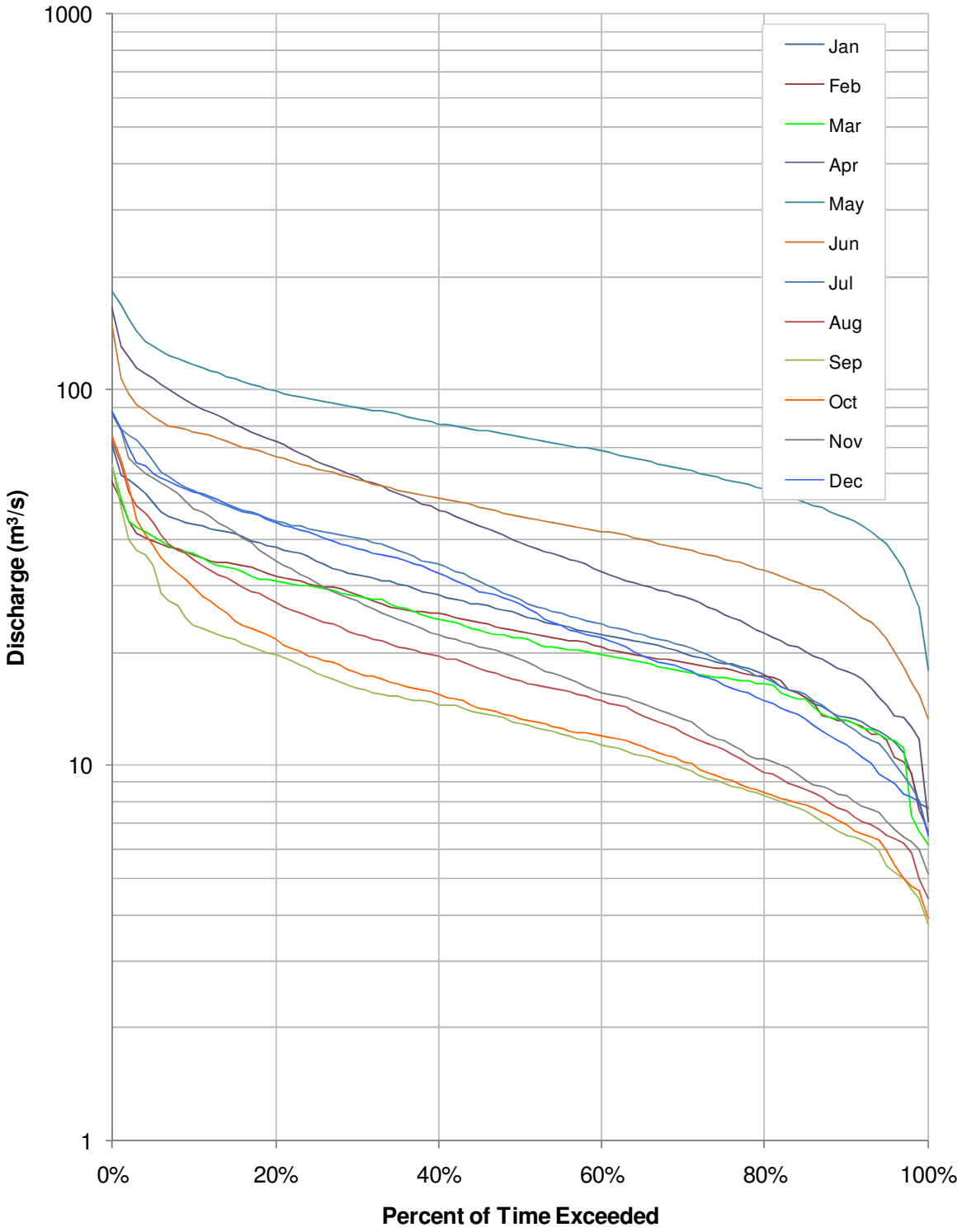


Table 5
Monthly Flow-Duration Estimates
Petawawa River Baseflow at Big Eddy

	Discharge (m^3/s)											
Percent	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1	59.3	50.6	51.7	130	168	107	78.3	63.1	48.6	65.4	77.9	78.7
5	49.8	39.5	40.7	107	130	84.6	64.5	44.4	34.1	38.4	58.0	60.0
10	43.8	36.3	36.6	91.6	116	77.3	53.8	35.4	23.6	29.8	48.3	53.6
15	41.3	34.4	33.4	81.1	108	71.6	48.1	30.6	21.6	24.2	41.7	48.6
20	38.0	32.0	30.9	72.6	99.2	66.6	44.7	27.3	19.7	21.6	35.1	44.1
25	35.0	30.1	29.7	64.6	93.8	61.7	42.2	24.5	17.6	19.4	30.6	41.0
30	32.2	28.4	28.2	58.5	89.5	57.6	40.3	22.4	16.1	17.6	27.4	37.8
35	30.5	26.1	26.5	53.0	86.2	54.1	37.3	20.7	15.2	16.4	24.5	35.6
40	28.3	25.4	24.6	47.9	81.1	51.3	34.2	19.5	14.5	15.4	22.2	32.5
45	26.8	24.0	22.9	43.5	78.1	48.9	31.0	18.1	13.8	14.1	20.7	29.1
50	25.3	22.7	21.8	39.2	75.0	46.0	27.7	16.8	12.9	13.3	19.2	26.9
55	23.5	21.7	20.5	35.9	71.8	43.7	25.4	15.9	12.1	12.5	17.3	23.7
60	22.3	20.6	19.7	32.8	68.7	42.0	23.8	14.8	11.4	12.0	15.6	21.9
65	21.3	19.6	18.7	30.2	65.1	40.0	22.2	13.6	10.6	11.2	14.6	19.6
70	19.9	18.8	17.8	28.2	61.4	37.8	20.8	12.2	9.83	10.2	13.2	18.1
75	18.7	18.0	17.1	25.3	57.9	35.4	18.9	11.0	8.96	9.25	11.7	16.4
80	17.4	17.2	16.4	22.5	54.3	33.0	17.1	9.61	8.29	8.44	10.4	14.8
85	15.1	15.1	15.0	20.0	50.2	30.1	15.4	8.62	7.56	7.83	9.11	13.2
90	13.4	13.1	13.2	17.8	45.5	26.6	12.8	7.54	6.52	6.92	8.27	11.3
95	12.0	11.7	11.8	14.4	38.7	21.7	10.8	6.53	5.41	5.92	7.09	9.18
99	7.96	7.65	6.71	11.7	26.3	15.5	8.11	5.00	4.42	4.63	5.98	8.03

Figure 6

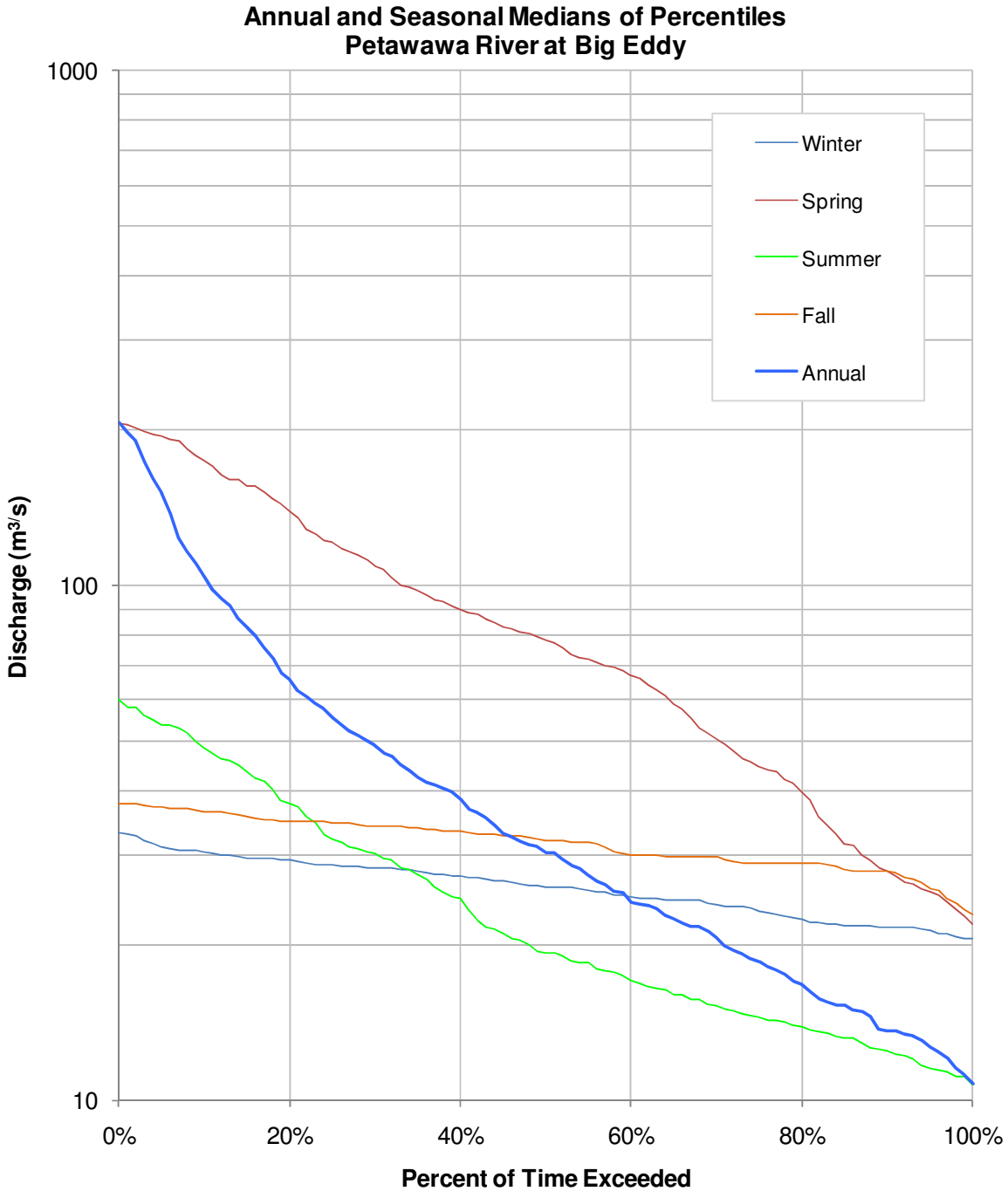

Annual and Seasonal Medians of Percentiles
Petawawa River at Big Eddy
1000
100
10
Discharge (m3/s)
0%
20%
40%
60%
80%
100%
Percent of Time Exceeded
Winter
Spring
Summer
Fall
Annual

Table 6
Annual and Seasonal Medians of Percentiles
Petawawa River at Big Eddy

Percent	Discharge (m^3/s)				
	Winter	Spring	Summer	Fall	Annual
	Jan 1 Mar 14	Mar 15 Jun 30	Jul 1 Nov 12	Nov 13 Dec 31	
1	32.9	205	58.0	37.6	198
5	31.0	195	53.6	37.0	152
10	30.4	175	48.3	36.4	104
15	29.6	156	43.6	35.5	82.8
20	29.3	139	37.7	34.9	65.9
25	28.6	121	32.2	34.7	55.2
30	28.2	109	30.1	34.0	48.9
35	27.9	97.7	27.5	33.7	42.5
40	27.2	89.6	24.6	33.2	38.4
45	26.6	83.2	21.1	32.7	33.0
50	26.0	78.6	19.3	31.8	30.2
55	25.6	72.1	18.5	31.7	27.3
60	24.9	67.0	17.1	30.0	24.2
65	24.5	58.7	16.1	29.7	22.6
70	24.0	50.2	15.2	29.6	20.7
75	23.3	44.4	14.5	28.9	18.5
80	22.4	39.5	13.9	28.9	16.8
85	21.8	31.4	13.2	28.1	15.3
90	21.7	27.8	12.5	27.8	13.6
95	21.3	25.3	11.5	25.8	12.6
99	20.6	22.8	11.1	23.5	11.2

Figure 7

Monthly Medians of Percentiles - Petawawa River at Big Eddy

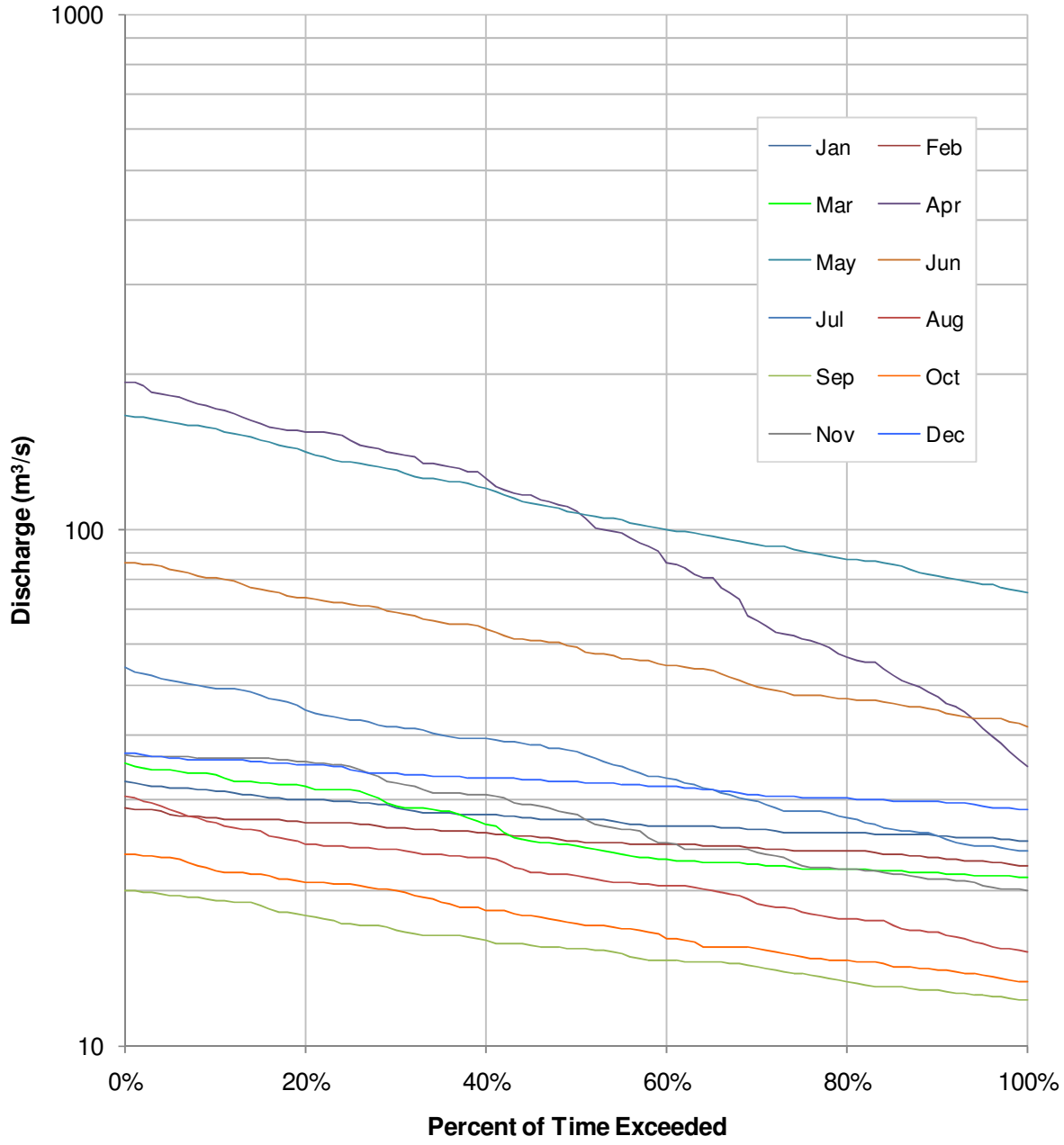


Table 7
Monthly Medians of Percentiles
Petawawa River at Big Eddy

Percent	Discharge (m^3/s)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	32.3	28.8	34.9	193	166	86.4	53.2	30.2	19.9	23.4	36.3	36.8
5	31.7	28.1	34.2	183	162	84.0	51.1	28.6	19.6	23.2	36.3	36.1
10	31.2	27.6	33.5	172	157	80.8	49.4	27.0	19.1	21.9	36.2	35.8
15	30.5	27.4	32.2	161	150	76.7	47.9	26.0	18.7	21.5	36.1	35.5
20	30.0	27.1	31.8	155	142	73.7	44.7	24.6	17.8	20.8	35.5	35.0
25	29.7	27.1	31.3	149	135	71.7	42.9	24.3	17.2	20.5	34.7	34.4
30	29.0	26.4	29.2	141	131	69.1	41.6	24.0	16.8	20.0	32.4	33.7
35	28.2	26.2	28.5	134	125	66.4	40.0	23.5	16.3	19.0	30.9	33.2
40	28.1	25.8	26.9	126	120	64.5	39.4	23.1	15.9	18.3	30.6	33.0
45	27.6	25.4	25.0	117	112	61.1	38.4	21.7	15.6	17.8	29.3	32.8
50	27.4	24.9	24.3	109	108	59.2	37.1	21.4	15.4	17.2	28.0	32.4
55	27.1	24.7	23.5	98.4	105	56.3	34.7	20.7	15.1	16.9	26.3	32.1
60	26.7	24.5	22.9	86.6	99.9	54.6	33.1	20.5	14.6	16.1	24.7	31.8
65	26.6	24.5	22.7	80.6	97.6	53.2	31.3	20.0	14.5	15.6	24.0	31.3
70	26.2	24.1	22.5	66.7	93.5	49.7	29.7	18.9	14.2	15.4	23.8	30.6
75	25.9	23.9	22.1	61.6	90.8	47.8	28.5	18.2	13.8	14.9	22.4	30.3
80	25.8	23.9	22.0	56.6	87.8	47.1	27.7	17.6	13.3	14.6	22.0	30.1
85	25.7	23.5	21.8	52.4	86.0	46.2	26.3	17.1	13.0	14.2	21.6	29.9
90	25.5	23.1	21.6	47.3	81.4	44.6	25.5	16.6	12.8	14.0	21.0	29.7
95	25.2	22.7	21.4	41.2	78.6	43.1	24.4	15.7	12.5	13.7	20.5	29.0
99	25.0	22.4	21.2	35.7	76.2	42.2	23.9	15.3	12.3	13.3	20.1	28.7

Table 8
Seven-Day Low Flow Frequency Estimates
Petawawa River at Big Eddy

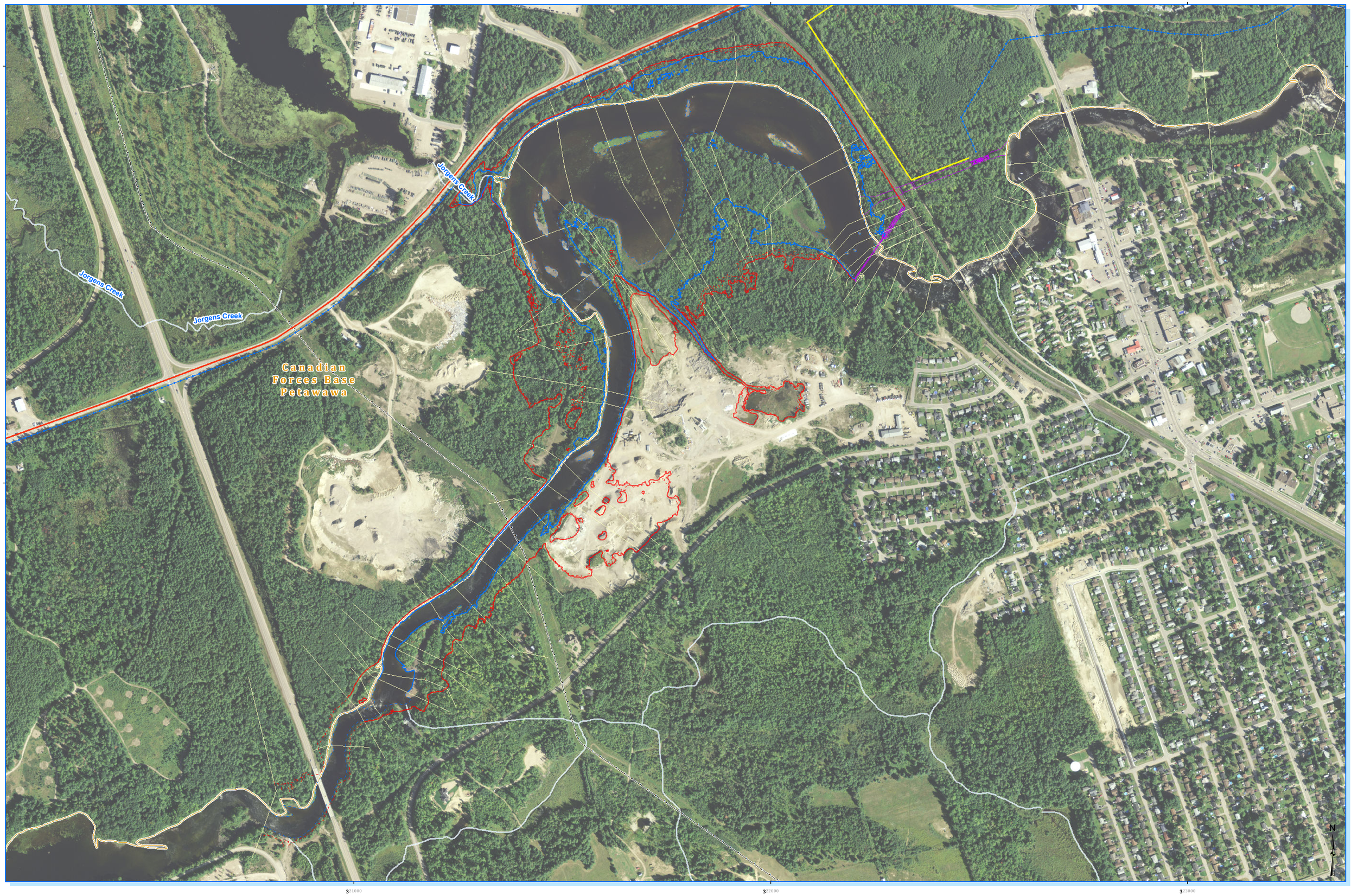
Return Period (years)	Discharge (m^3/s)
100	3.53
50	4.04
20	4.94
10	5.90
5	7.33
3.3	8.57
2	11.1

Table 9
Maximum Instantaneous Flood Estimates
Petawawa River at Big Eddy

Return Period (years)	Maximum Instantaneous Discharge (m^3/s)
2	215
5	290
10	334
20	371
50	412
100	440
1000	515
10,000	574

Table 10
Descriptive Flow Statistics
Petawawa River at Big Eddy

Statistic	Daily Discharge (m^3/s)
Maximum	471
20% Exceedance	68.7
Mean	48.1
Median	31.2
80% Exceedance	16.5
Minimum	3.78



Reference data based on the Toporama 1: 50,000 scale topographic reference product developed by Natural Resources Canada (NRCan) and the Land Information Ontario data warehouse, Ontario Ministry of Natural Resources.

Date Created: Wednesday March 14, 2012

- LTAF (Existing)
- LTAF (Proposed with Fixed Crest Weir)
- 100 Year Flow (Existing)
- 100 Year Flow (Proposed with Fixed Crest Weir)
- **Point of Connection (PC)**
- **Point of Common Coupling (PCC)**
- **Proposed Powerline**
- **Proposed Alternate Powerline**
- **Existing Powerline**
- **Resource / Recreation Access Route (requires field verification)**
- **Existing Access Road**
- **New Access Road**
- **Federal Land - Other**

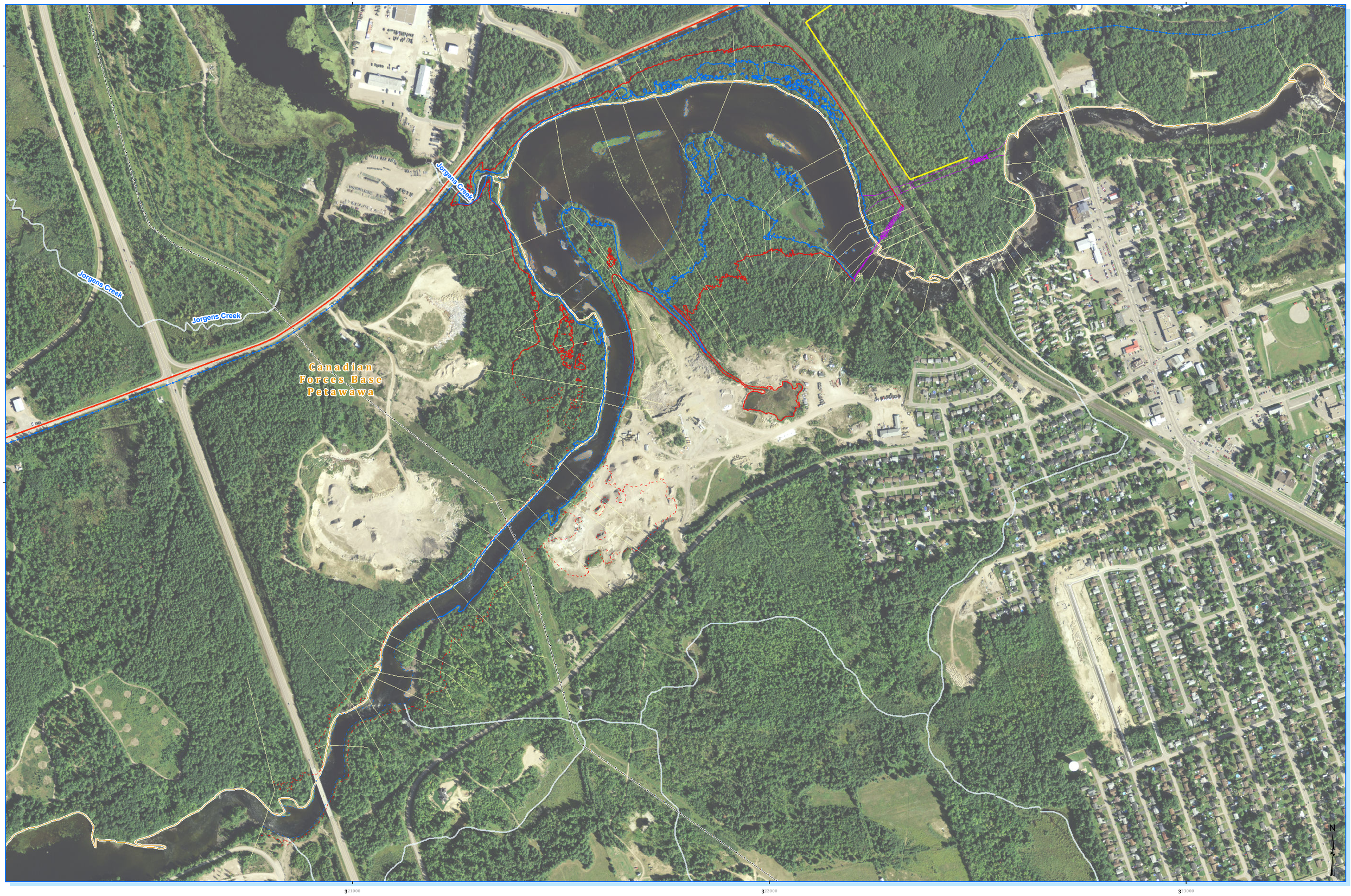
Petawawa River (Big Eddy) Option 1

Xeneca Power Development Inc.

Scale 1 : 3,000

0 90 180 360

Metres



Reference data based on the Toporama 1: 50,000 scale topographic reference product developed by Natural Resources Canada (NRCan) and the Land Information Ontario data warehouse, Ontario Ministry of Natural Resources.

Date Created: Wednesday March 14, 2012

- LTAF (Existing)
- LTAF (Proposed with Obermeyer)
- 100 Year Flow (Existing)
- 100 Year Flow (Proposed with Obermeyer)
- **Point of Connection (PC)**
- **Point of Common Coupling (PCC)**
- **Proposed Powerline**
- **Proposed Alternate Powerline**
- **Existing Powerline**
- **Resource / Recreation Access Route (requires field verification)**
- **Existing Access Road**
- **New Access Road**
- **Federal Land - Other**

Petawawa River (Big Eddy) Option 2

Xeneca Power Development Inc.

Scale 1 : 3,000

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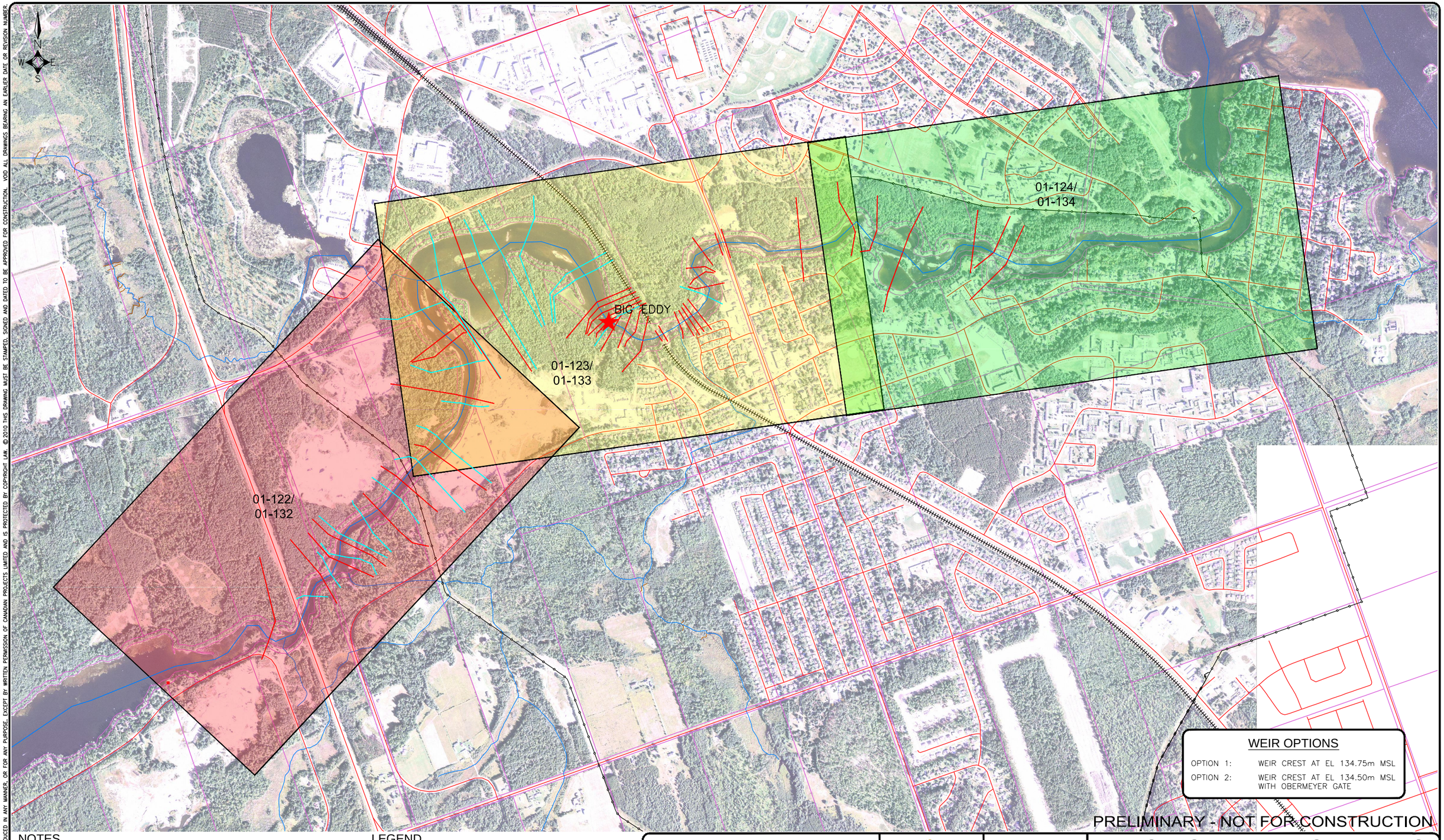
Metres



WEIR OPTIONS

OPTION 1:	WEIR CREST AT EL 134.75m MSL
OPTION 2:	WEIR CREST AT EL 134.50m MSL WITH OBERMEYER GATE

NOTES

1. ALL DIMENSIONS, ELEVATIONS AND STATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. 2.5 m INTERVAL CONTOURS FROM LiDAR FLOWN JUNE, 2009.
3. BASE MAPPING FROM ONTARIO MINISTRY OF NATURAL RESOURCES OBTAINED DECEMBER, 2010.

LEGEND

- WATER
- WETLAND
- ROAD
- RAILWAY
- UTILITY LINE
- LOT LINES
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- PROPOSED STRUCTURE LOCATION

SCALE 1:15 000

0 150 300 450 600 750

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
D	12	02	28	REPLACED AIR PHOTO	DK	RJS	AB	ADF

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CALGARY, ALBERTA

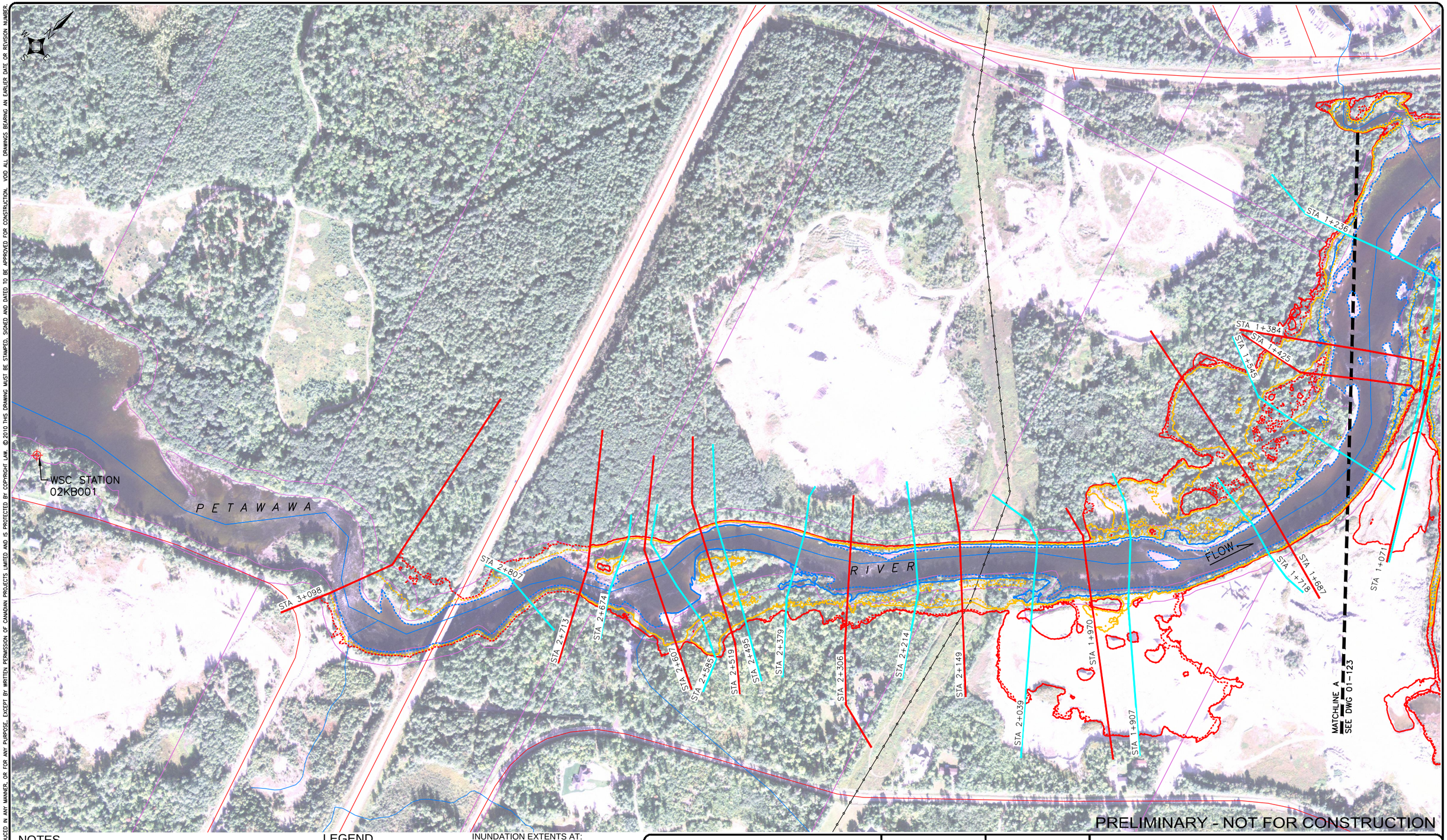
Xeneca Power Development Inc.

PRELIMINARY - NOT FOR CONSTRUCTION

XENECA POWER DEVELOPMENT INC.

BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
KEY PLAN

PROJECT NUMBER	1052-001
CADD NUMBER	4.3.030
DRAWING NUMBER	01-121



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- ROAD
- RAILWAY
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- SECTION WITH ASSUMED BATHYMETRY
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INUNDATION EXTENTS AT:

- LTAF (EXISTING)
- LTAF (PROPOSED)
- 1:2 YEAR FLOW (EXISTING)
- 1:2 YEAR FLOW (PROPOSED)
- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
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XENECA POWER DEVELOPMENT INC.

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PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION 3+098 TO 1+236

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
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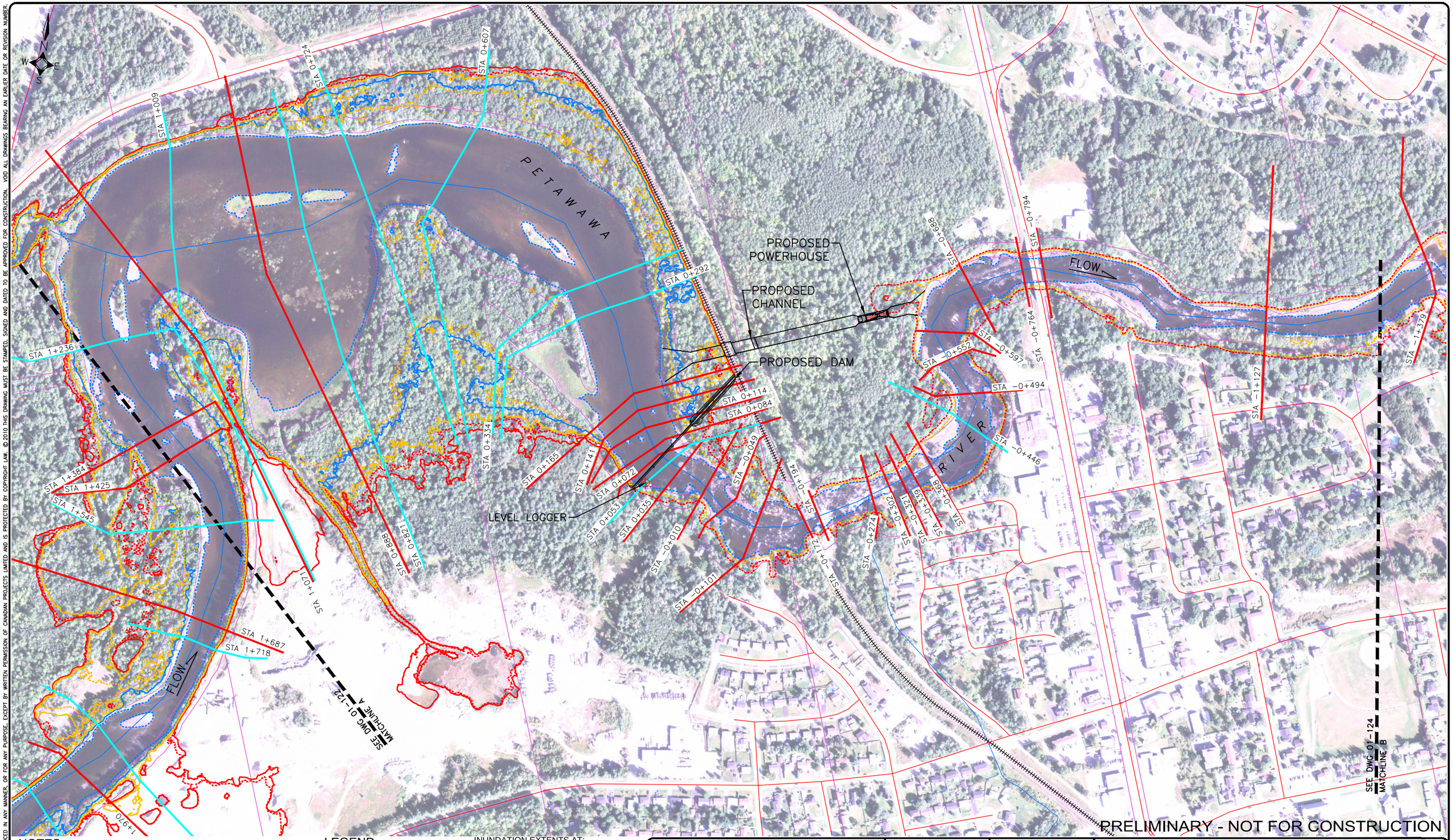

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LEGEND

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- RAILWAY
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- SECTION WITH ASSUMED BATHYMETRY
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- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

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METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
E	12	03	02	UPDATED INUNDATION EXTENTS	ADF	RJS	ADF	CPB

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PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION 1+970 TO -1+379

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
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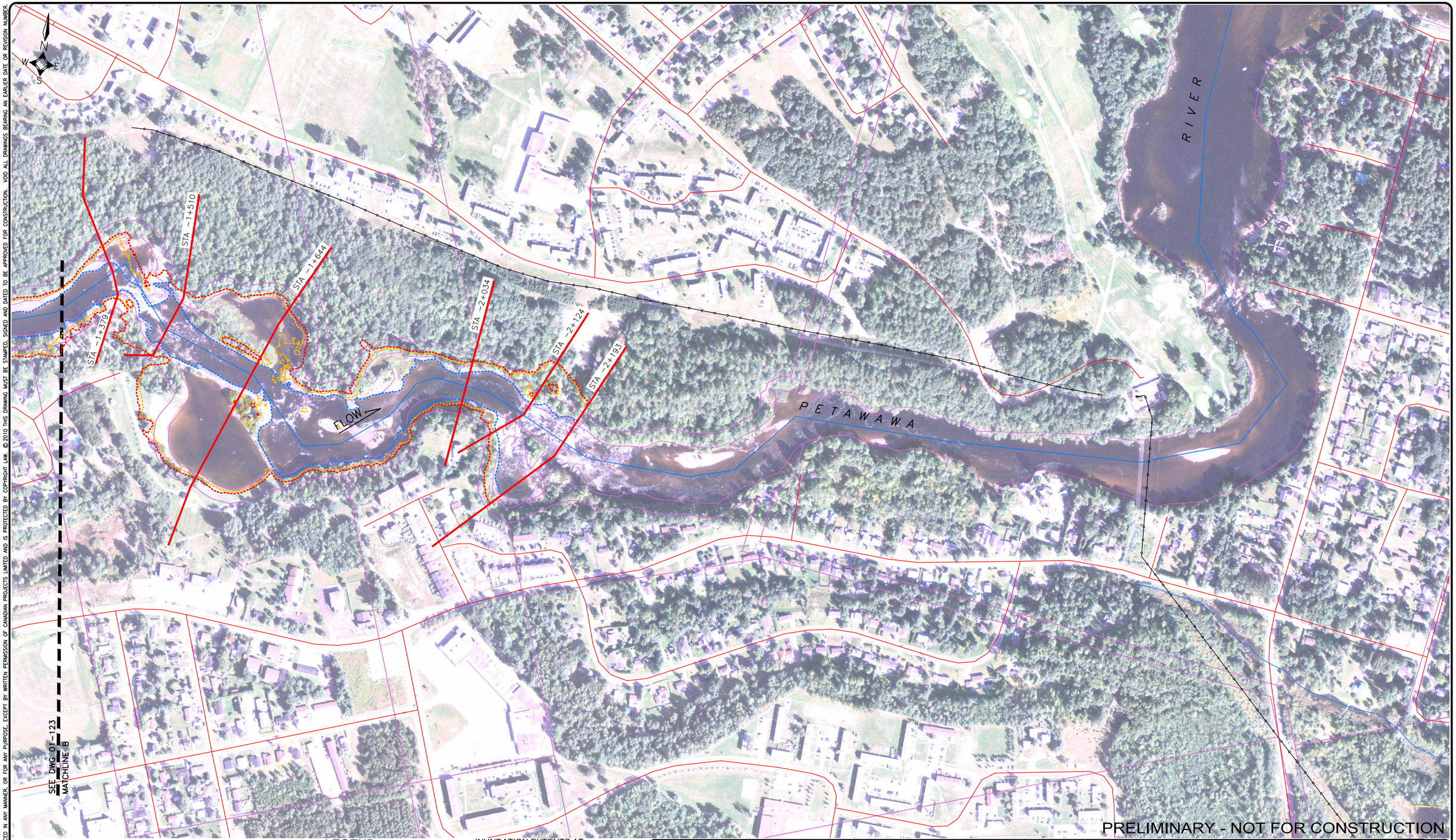

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SCALE 1:5 000

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METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
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BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 1 - STATION -1+379 TO -3+642

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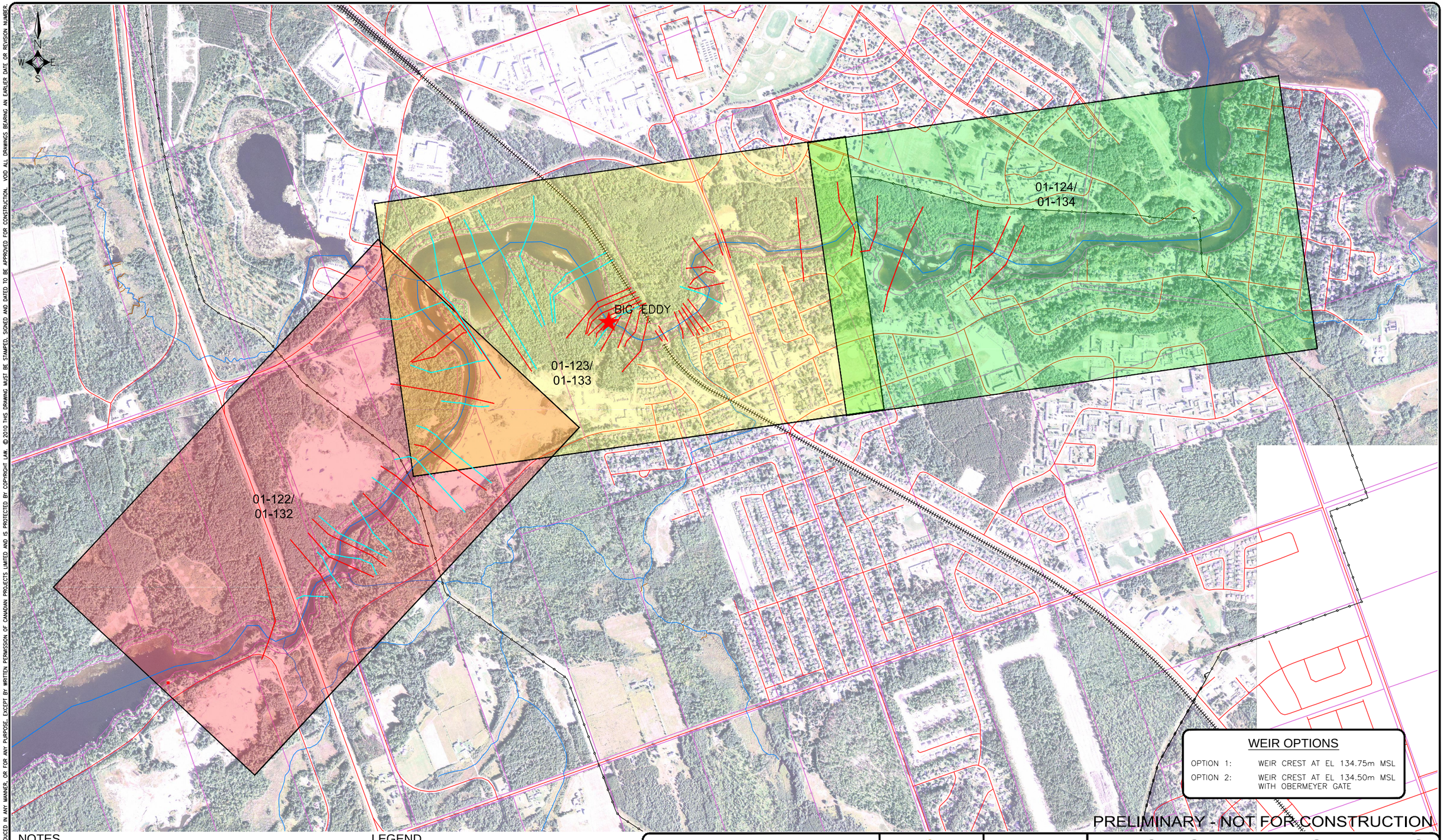
CADD NUMBER	4.3.030
DRAWING NUMBER	01-124



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OPTION 2:	WEIR CREST AT EL 134.50m MSL WITH OBERMEYER GATE

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LEGEND

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- WETLAND
- ROAD
- RAILWAY
- UTILITY LINE
- LOT LINES
- SECTION WITH ASSUMED BATHYMETRY
- SECTION WITH SURVEYED BATHYMETRY
- PROPOSED STRUCTURE LOCATION

SCALE 1:15 000

0 150 300 450 600 750

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
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HEADPOND INUNDATION MAPPING
KEY PLAN

PROJECT NUMBER	1052-001
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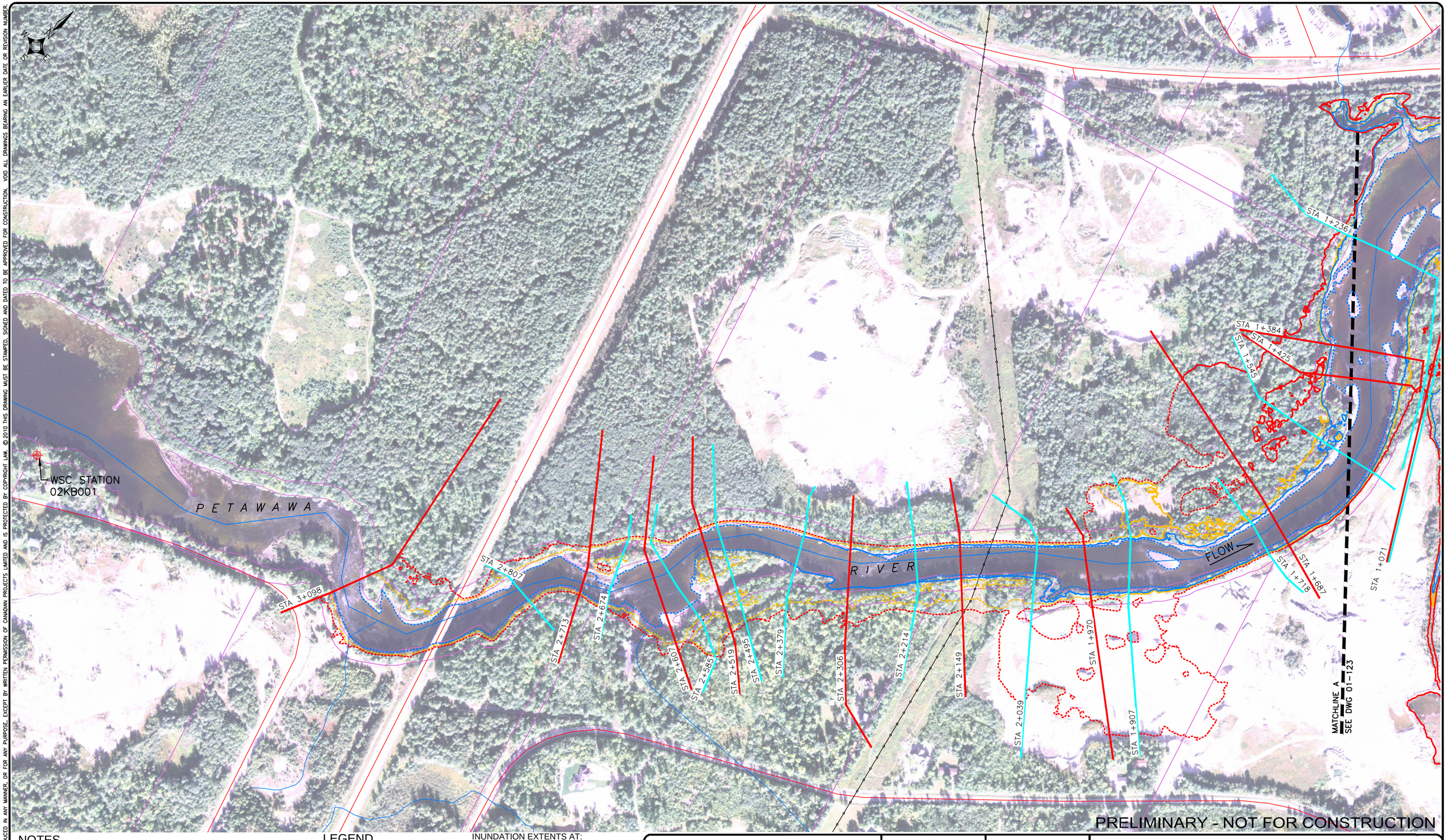

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- 1:100 YEAR FLOW (EXISTING)
- 1:100 YEAR FLOW (PROPOSED)

SCALE 1:5 000

0 50 100 150 200 250

METRES

REV	Y	M	D	REVISION DESCRIPTION	DES	CHK	DRN	CHK
A	12	03	02	NEW DRAWING	ADF	RJS	ADF	CPB

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BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 2 - STATION 3+098 TO 1+236

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
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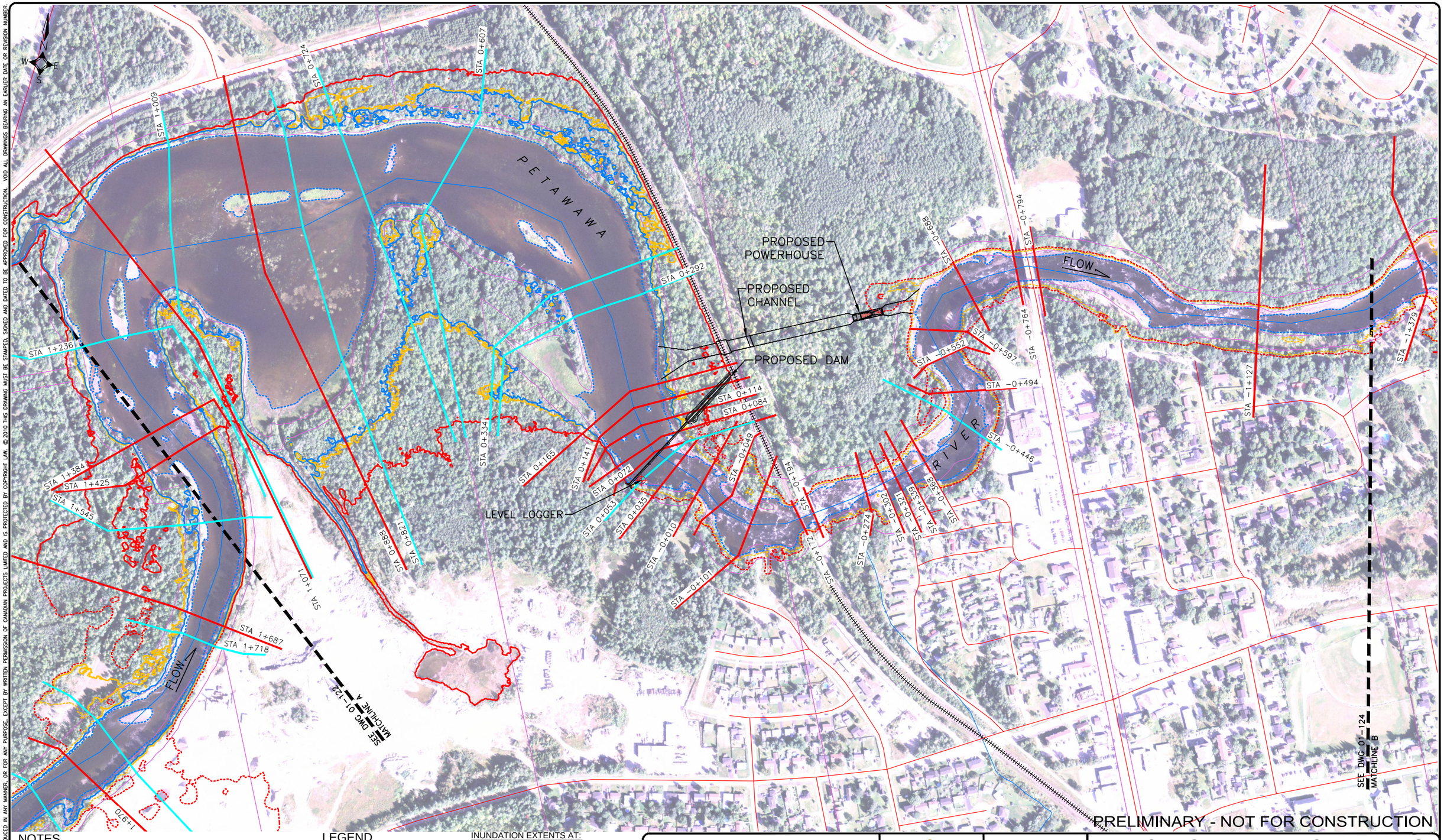

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OPTION 2 - STATION 1+970 TO -1+379

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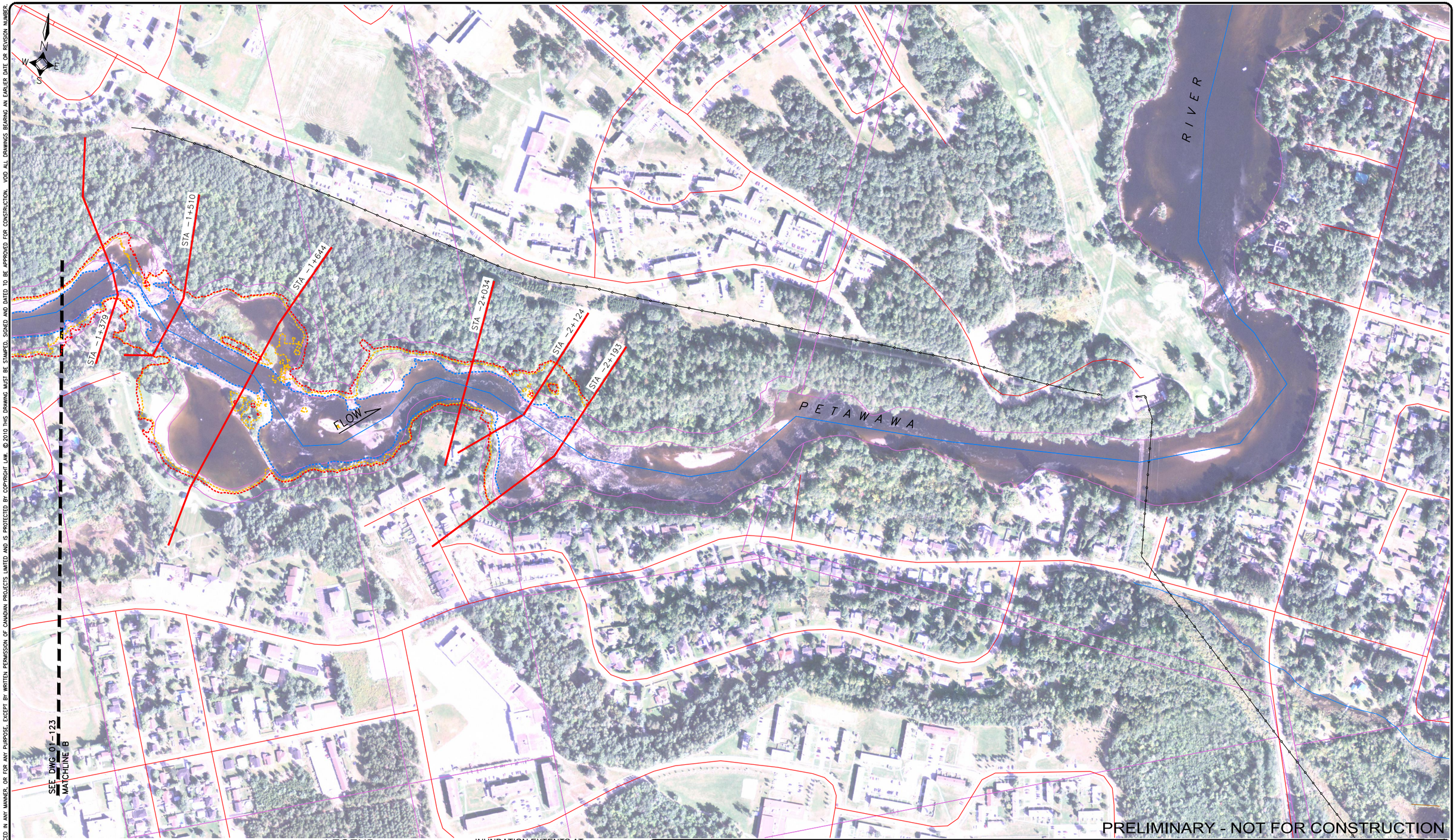
CADD NUMBER	4.3.030
DRAWING NUMBER	01-133



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0 50 100 150 200 250

METRES

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A	12	03	02	NEW DRAWING	ADF	RJS	ADF	CPB

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CALGARY, ALBERTA

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BIG EDDY HYDRO PROJECT
PROJECT - GENERAL
HEADPOND INUNDATION MAPPING
OPTION 2 - STATION -1+379 TO -3+642

PROJECT NUMBER	CADD NUMBER	DRAWING NUMBER
1052-001	4.3.030	01-134

Draft Report

ORTECH Environmental
a division of ORTECH Consulting Inc.

Proposed Operating Plan & Water Management Plan Amendment Big Eddy Waterpower Project
(Draft-for discussion only)

A Draft Report to:	Xeneca Power Development Inc. 5255 Yonge Street, Suite 1200 Toronto, Ontario M2N 6P4
Submitted by:	ORTECH Consulting Inc. 804 Southdown Road Mississauga, Ontario L5J 2Y4
Project No.	91195
Date:	April 2013

Xeneca
Power Development Inc.

TABLE OF CONTENTS

Appendices

1 INTRODUCTION

This document outlines the proposed Operating Plan and Water Management Plan (WMP) for the proposed Big Eddy run-of-river small waterpower project on the Petawawa River in the Town of Petawawa, Ontario. The document has been prepared in support of regulatory approval processes required for the construction and operation of the project. The document should be considered "draft" until all relevant regulatory processes related to the operation of the project have been successfully completed. Once the regulatory processes have been completed, this document forms a binding commitment and regulatory requirement on the project and its owner and operator.

The purpose of this document is to describe and propose parameters for the long term operation of the project and any future WMP. In particular, operating parameters are proposed for:

- Operating levels of the upstream headpond, and
- Operating flows in the bypassed river reach (Railroad Rapids).

The objective of setting operating parameters is to allow flexibility in the electricity generation while limiting significant negative impacts due to operation.

1.1 Regulatory Context

The Big Eddy waterpower facilities and associated control structures are required to establish a WMP under the Lakes and Rivers Improvement Act (LRIA), as administered by the Ministry of Natural Resources (MNR).

The MNR (2007) recommended a coordinated approach between the Environmental Screening Process (Class Environmental Assessment for Waterpower Facilities, April 2012) and WMP process to avoid duplication of effort. This report and the supporting referenced documents have been prepared in accordance with the MNR's WMP Guidelines (2002).

Acceptance of the Operating Plan will not relieve the Proponent from responsibility to comply with other applicable legislation or provide authority to flood private or public lands without consent of the owners of the affected property.

The Operating Plan proposed herein was based on various background studies listed below and further referenced in the bibliography of the environmental assessment document:

1. Lidar Survey: detailed topographic mapping of the upstream and downstream river reach.
2. Conceptual Design: drawings of the structures as conceptually proposed for the project.
3. Hydrology Study: an analysis of the natural river flows.

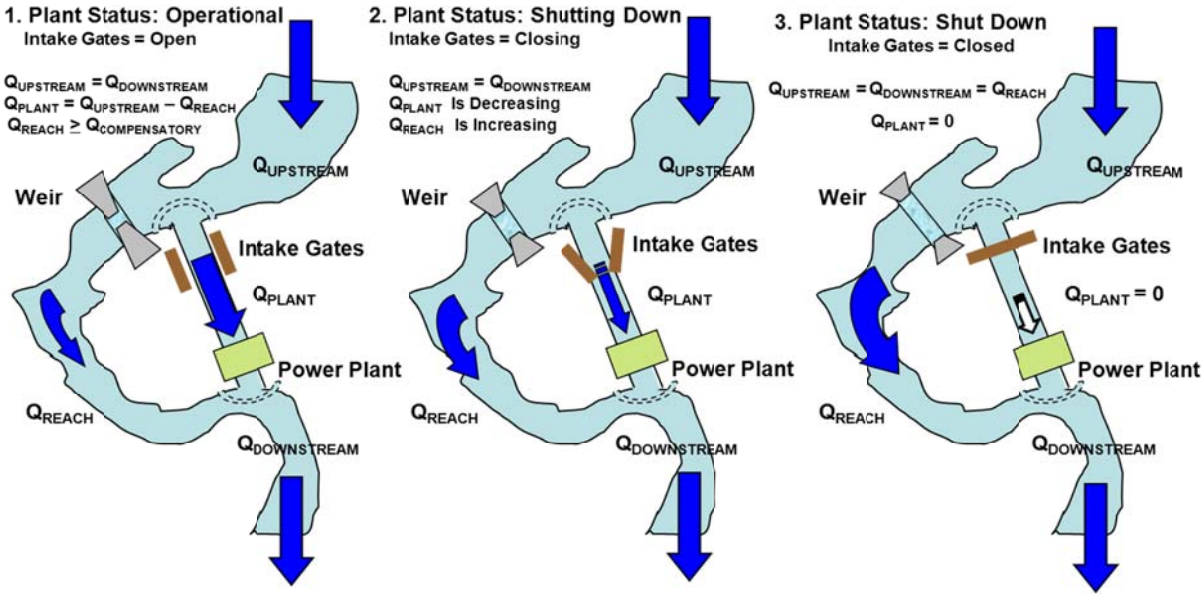
4. Bathymetric Study: a field study of water depths upstream and downstream of the project location and a spot measurement of flows required for hydraulic model calibration.
5. Hydraulic Study: a detailed hydraulic engineering analysis was carried out under separate cover (i.e. a 1-dimensional HEC-RAS model) to better understand the various hydraulic parameters relevant to assess operational and environmental matters.
6. Erosion Survey: a desktop survey of upstream locations that could be sensitive to future shoreline erosion after the project is built.
7. Environmental Field Studies: studies of environmental areas and aspects of interest as documented in other parts of this environmental assessment.
8. Safety Study: a preliminary study to assess risk to public safety and identification of safety measures.
9. Recreational Use Study: a review of weir design options and other engineering features to preserve and/or enhance recreational uses in the bypass reach.

It is noted that the Operating Plan presented herein is based on the conceptual engineering design information and environmental information as it was available at the time of writing. The final engineering design or other information that becomes available over time may require minor adjustments to this plan to ensure that the objectives of mitigation and limiting impacts as contemplated herein are met.

1.2 Facility Layout & Diversion

The operation of the facility will divert flow immediately upstream of Railroad Bridge to an area 600 metres downstream as shown in Figure 1 below. The diversion will consist of placing a low (~ 1.5m high) overflow weir immediately upstream of Railroad Bridge. The resulting water level increase will provide sufficient water depth to allow part of the flow to be directed into a man-made intake channel. The water diverted through the powerhouse will be returned into the river 600 m downstream of Railroad Bridge. All the water diverted into the powerhouse is returned to the river at the tailrace outflow of the powerhouse. Flows downstream of the powerhouse will equal the natural flows in the river upstream of the facility.

Figure 1: Layout and Water Flow



The facility will be operated in true run-of-river mode. The natural inflows upstream (Qupstream) of the facility will equal the outflow downstream of the facility (Qdownstream). A modification of natural river flows is not contemplated in this operation plan except in the reach of river bypassed by the facility layout.

The portion of flow diverted into the powerhouse (Qplant) will depend on the amount of natural inflow from upstream and the amount of flow required for environmental and recreational purposes in the bypassed river reach (Qreach). The apportionment of flow between the powerhouse and the bypassed river reach is the primary focus of this operation plan. The bypassed reach is referred to locally as Railroad Rapids.

2 HEADPOND OPERATING OBJECTIVES

The construction of the overflow weir will increase the water levels in the area immediately upstream of Railroad Bridge. The effects of the increased water levels on civil structures and private property were carefully evaluated.

Civil structures are man-made structures, such as bridges, roads, transmission lines, water intakes, boat launches and docks. Private property includes any leased, deeded, eased or owned real property (i.e. land). During the conceptual engineering design of the project, the upstream area that could be affected by the project and by inundation was reviewed. A static inundation map was created to identify potential sites of concern where the upstream inundation of the project could affect civil structures. Where the potential for effects on civil structures exists, steps were taken in the conceptual design to avoid or minimize impacts.

It was concluded that any significant increase in water levels ends before the gas pipeline crossing and the highway 17 bridge located upstream. However, a private commercial property located immediately upstream of the weir will be affected. A very minor increase in water levels may also occur under certain flow conditions between the gas pipeline crossing and the highway 17 bridge; however, water level changes will be similar to natural conditions. Steps have been taken to negotiate with the land owners on this matter. The Operating Plan outlined herein is based on the assumption that an agreement will be put into place. An alternative weir design would have to be used if such an agreement is not reached, as discussed in the environmental assessment documentation. More detailed information about the upstream levels is contained in the HEC-RAS Study referenced at the start of this Operating Plan.

Xeneca has taken reasonable steps to ensure that civil structures and private property will not be impacted beyond what already occurs naturally or as specifically agreed with relevant parties on a bilateral basis. Any stakeholder with a concern about upstream impacts on any specific civil structures and/or private property is encouraged to review the available study information and contact Xeneca for additional clarification and bilateral discussion as necessary.

In addition to the above, the following steps were taken in developing the proposed operating parameters for the Project:

1. Set the maximum upstream operating water level: The maximum upstream operating water level was carefully set based on the results of the HEC-RAS Study to specifically avoid infringing on the pre-construction High Water Mark at any civil structure or private property as much as possible. More specifically, the proposed operating values were reviewed to ensure that any backwater effect does not exceed the natural High Water Mark in areas where the potential for impact exists except where specifically planned.
2. Overflow weir, fishway and bypass design: The overflow weir, fishway and bypass structures will be sized and designed to provide the amount of flood passage capacity required to safely manage flood flows. A rock channel fishway structure has been incorporated into the weir to allow fish that migrate upstream in Railroad Rapids to pass around the overflow weir where required.

3 DOWNSTREAM OPERATING OBJECTIVES

The facility will be operated in true run-of-river mode. The natural inflows upstream of the facility will equal the outflow downstream of the facility. A modification of natural river flows is not contemplated in this Operating Plan except in the reach of river bypassed by the facility known as Railroad Rapids. Operating objectives have been considered to address recreational uses, environmental effects and public safety in Railroad Rapids.

3.1 Kayaking & Rafting Objectives

According to stakeholder reports and based on a usage study carried out by the proponent in 2011/2012, Railroad Rapids is used regularly for recreational kayaking and rafting, forming an important tourism aspect for the area. Railroad Rapids is one of several rapids located between Highway 17 upstream and the Ottawa River downstream. Railroad Rapids consists of a 300 meter long section of Class 3 to 4 rapids. Railroad Rapids is the most difficult section of rapids in the area, sought out by skilled whitewater users. The operating objective is to achieve shared use of the natural water resource such that electricity generation and recreational uses can co-exist on the river.

Some key considerations are:

1. Time of Use: Recreational kayaking and rafting useappears to occur primarily during April and May with occasional usage in the summer and fall. No usage appears to occur from November 1 to April 1. Use occurs primarily on weekends from 11 AM to 3 PM (4 hours), and weekdays from 5 PM to 8 PM (3 hours). No nighttime navigational use has been documented.
2. Useful Flows: Recreational use occurs primarily during the spring when flows are high. Use diminishes with receding flow rates. Recreational use of Railroad Rapids has been observed at flows as low as 19 m^3/s and as high as 150+ m^3/s. The majority of uses occur at 40 m^3/s to 150 m^3/s.
3. Number of Uses: Some users appear to favor Railroad Rapids (the most challenging and steepest rapids on this section of river) while others avoid Railroad Rapids. Of the usage recorded at 3 locations (Highway 17, Wilson House and Railroad), recreational rafting and kayaking was observed 765 times in 2011 and 463 times in 2012 (average). The documented use occurred over 11 usage days in 2011 and 28 usage days in 2012.
4. Events: An annual 2-day weekend event (Saturday/Sunday), entitled “Hell or High Water” is organized by recreational users every May. The majority of recorded use of Railroad Rapids occurs during this 2-day weekend event.

To achieve a shared used objective, specific flows must be provided to Railroad Rapids at key times to accommodate recreational kayaking and rafting. Based on the information on current recreational use of Railroad Rapids, the vast majority of documented uses can be accommodated by the following operating commitments:

1. Hell or High Water Event: Electricity generation will be stopped during daylight hours for the **2 days** of the scheduled annual weekend event. All flow will be directed to Railroad Rapids, allowing recreational navigation over the weir and through the fishway, and down Railroad Rapids.
2. Excess Flow: Any flow in excess of the powerhouse capacity (68 m^3/s) is directed down Railroad Rapids. On average, excess flow conditions occur from March 15 to July 1 with average flows during this period of 75 m^3/s. In a typical year, excess flows greater than 60 m^3/s in Railroad Rapids occur **21 days** between March 15 and July 1.
3. On-Demand Flows: Upon the request by users, electricity generation will be stopped during daylight hours for a maximum cumulative total of 100 hours per year on an 'on-demand' basis, and all flow at these times is directed down Railroad Rapids. Assuming 4 hour use days, the on-demand flows provide a further **25 day**s of recreational use.
4. Low Flows: No electricity production will occur when flows are less than the minimum turbine capacity and flow will be directed to Railroad Rapids.
5. Ecological Flows: Flows of not less than 4 m^3/s will be provided for ecological compensation (Q_{Comp}) through the fishway at all times (24/7).
6. Non-impacted Rapids: The facility will be operated as run-of-river, such that the rapids located upstream, between the weir and Highway17, and the rapids located downstream, between the tailrace and the Ottawa River, remain unaffected by electricity generation.

The above flow commitments result in **48 days** in a typical year where either the full flow rate or not less than 60 m^3/s of excess flow rate is directed down Railroad Rapids for 4 to 12 hours. These flow commitments are expected to fully address the usage observed in the usage study carried out in 2011/2012, while facilitating shared use of the water resource for electricity production.

In addition to the high flows with whitewater conditions, there are low flow days that may or may not provide some navigational or other recreational value. Ecological flows of 4 m^3/s are provided on a priority basis to Railroad Rapids at all times, 24/7. Both the weir and the fishway structures are designed to allow navigation of rafts and kayaks, so that passage through the dam structure is possible even at low flows.

3.2 Environmental Objectives

According to the environmental assessment studies, the significance of the natural habitat in Railroad Rapids is limited. The rapids consist mainly of a rock channel river section. However, the rapids were deemed significant for fish passage and to a lesser extent, certain benthic invertebrates. To this end, the operating objectives for the bypassed reach in Railroad Rapids are as follows:

1. Upstream fish passage facilitation during spring spawns.

2. Downstream fish passage facilitation all year.
3. Maintaining productivity for benthic invertebrates in the low flow portion of the channel.

A nature-like fishway has been incorporated into the north end of the overflow weir. The fishway is intended to facilitate upstream and downstream fish migration under a wide variety of flow conditions. However, it is believed that natural fish passage in an upstream direction through Railroad Rapids (and hence to the bottom end of the fishway entrance) only occurs under flows in excess of 27 m^3/s due to natural obstacles (rock ledges) that exist naturally in Railroad Rapids. It is further believed that upstream passage through railroad rapids during high flows (say in excess of 100 m^3/s) may be limited due to steep slopes and high flow velocities that occur naturally in Railroad Rapids. Detailed information on the ecological features of Railroad Rapids is contained in the environmental assessment study report.

3.3 Public Safety

The areas downstream of the weir are used by the public. The operating objective is to avoid sudden changes in flows and levels in Railroad Rapids and areas further downstream.

The facility will be operated strictly in run-of-river mode. This mode of operation will ensure that downstream flows equal the natural inflows that occur upstream of the facility. During start up and shut down of the facility, the possibility of minor flow variations exist. This can occur where the flow over the weir increases or decreases more slowly than the rate at which the facility starts up or shuts down. The effect occurs infrequently and normalizes within a short period of time (i.e. approximately 5 to 30 minutes). To minimize this effect, the plant control system will start up and shut down at minimum turbine flow (i.e. approximately 30% of maximum turbine flow) and increase or decrease flows gradually. At the same time, the flow over the weir will compensate due to the change in water level that will occur as the plant starts up or shuts down. The combined effect will result in a short term flow variation that should not be significant or readily perceptible to the downstream environment or recreational uses.

Circumstances can arise where the facility will shut down abruptly due to an emergency. Such circumstances include unexpected transmission grid outages or tripping of the protection systems. The frequency of such occurrences is expected to be very rare. The result would be a sudden drop in flows and water levels downstream over the period of a few minutes, followed by a subsequent increase in flows and water levels back to the prior state within 5 to 30 minutes, depending on the natural flow rates in the river at that time. The variability of flow occurring as water rises behind the weir in response to the facility flow being stopped. The rise in water level causes more water to overflow the weir with the amount of flow going through Railroad Rapids equaling the natural run-of-river flow.

To minimize the risk of sudden water level changes during an emergency shut-down of the powerhouse, a powerhouse bypass valve has been incorporated into the powerhouse structure. The bypass will be designed to open when an emergency shut-down occurs thereby minimizing the risk of sudden changes of water levels at the weir and in Railroad Rapids. The bypass valve will be designed to operate automatically until normal operation can be restored.

4 SEASONAL OPERATIONS

Environmental protection requirements and recreational uses vary significantly by time of year. Operating parameters have to be set accordingly to address these changing requirements throughout the year.

For operating purposes, operating seasons can be defined in various ways, including calendar seasons, periods of consistent meteorological conditions and periods of special environmental significance. The approach used in this operating plan divides the year into the following operating seasons:

1. Spring Freshet: The spring freshet period begins with the rapid increase in spring snow melt flow on the hydrograph of average annual flows and ends with the leveling off of flows after flood waters have receded. The period coincides with increases in water temperature and flows that trigger various aquatic activities in the river.
2. Summer Low: The summer low period begins with the end of the freshet and lasts until the upward inflection that occurs on the hydrograph of average annual flows in early fall. The period typically exhibits warm water temperatures and a high degree of activity in the entire food chain. Flows are generally low but highly variable, depending on rainfall events.
3. Fall Freshet: The fall freshet begins with the upward inflection on the hydrograph of average annual flows and ends with the leveling off of flows after the freshet flows have receded. The period exhibits decreasing water temperatures and moderate flows. The insect activity has become minimal due to cool air temperatures above the water and the associated food chain activity is slowing down.
4. Winter Low: The winter low period begins with the end of the fall freshet and finishes when the spring freshet starts. Water and air temperatures are cold. Most water surfaces freeze during this period and various fish and aquatic species either hibernate or seek deeper waters such as pools and lakes. Flows are generally low and decrease gradually but continuously until spring freshet.

The start and end dates for the above operating seasons have been picked from a hydrograph of average annual flows (see figure below) and summarized in the following table. A flow exceedence curve is provided for each season.

Table 1: Hydrologic Flow Seasons

Season	Season Start Date
Spring	March 15
Summer	July 1
Fall	November 13
Winter	January 1

As shown on the hydrograph in Figure 2, flows vary substantially for the same day from one year to the next. While the hydrograph of the average annual flow provides a reasonable representation of the typical start and end times for each operating season, the actual start and end times will vary every year. This weather related aspect means that calendar dates can only serve as approximations of the actual timing of natural events. For the purposes of the Operating Plan, the start and end dates in the table will be used to govern operation until a better technique for defining the start and end date becomes available. Flow duration curves for each hydrologic flow season are shown in Figure 3 below.

Figure 2: Annual Hydrograph

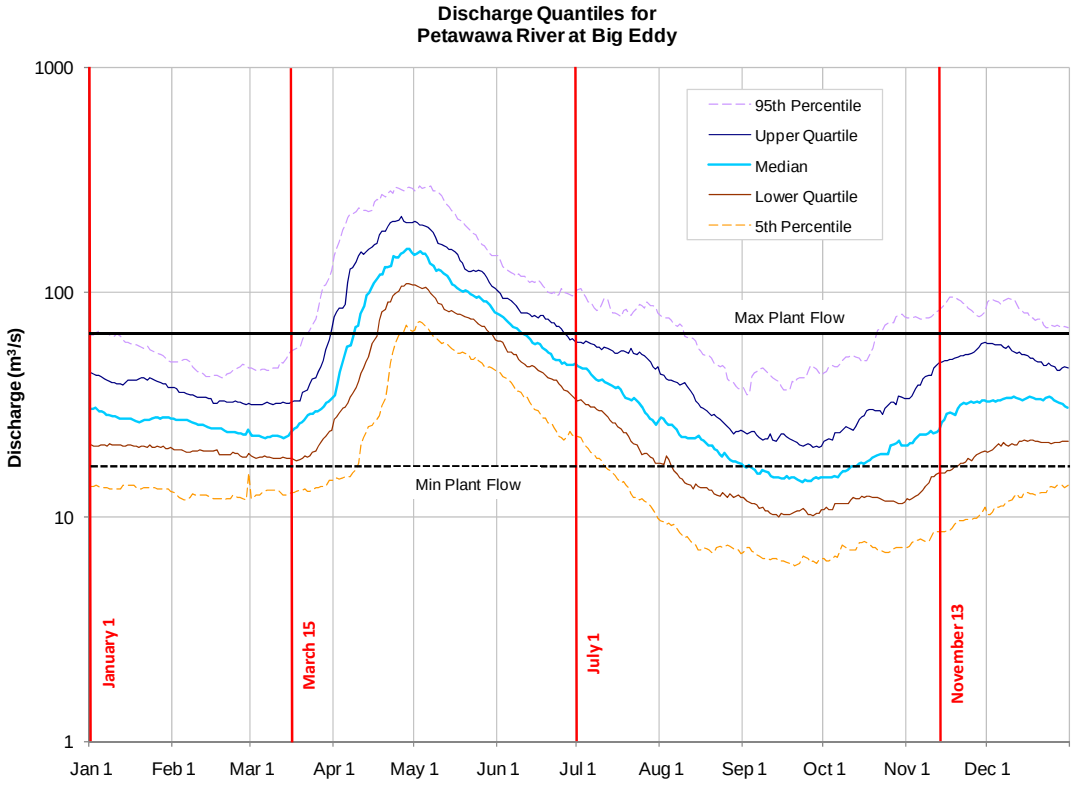


Figure 3: Seasonal and Annual Flow Duration Curves

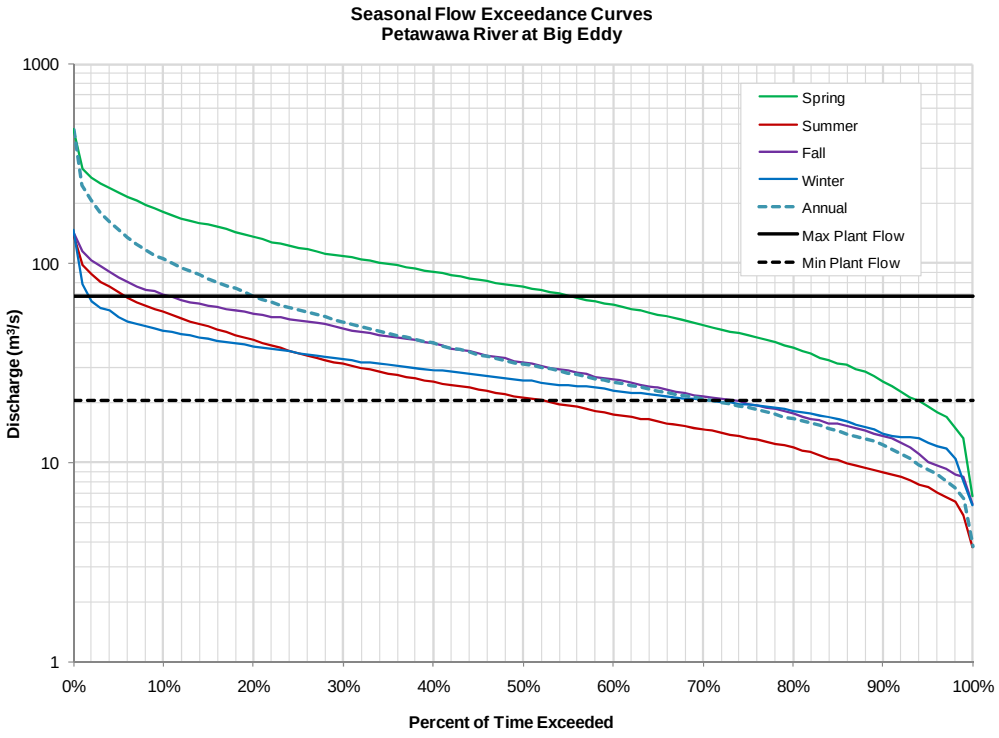


Table 2 below summarizes relevant reference values derived from the flow hydrology information for the project site. Additional information about the site hydrology can be found in the hydrology study referenced at the end of this report. Also shown are turbine flow parameters as contemplated in the conceptual design. It should be noted that turbine flow parameters may change as the project proceeds to detailed engineering design and commercially available equipment options are selected as part of the construction procurement process.

Table 2: Hydrologic and Turbine Flow Parameters

Acronym	Description	Project &Streamflow Conditions (m^3/s)			
		Spring (Mar 15 - Jun 30)	Summer (Jul 1 - Nov 12)	Fall (Nov 13 - Dec 31)	Winter (Jan 1 - Mar 14)
Q_{99}	Streamflow exceeded 99% of time	13.2	5.5	8.4	8.0
Q_{95}	Streamflow exceeded 95% of time	19.1	7.5	10.1	12.6
Q_{80}	Streamflow exceeded 80% of time	37.7	11.9	17.5	18.1
Q_{50}	Streamflow exceeded 50% of time	75.9	21.2	31.6	25.7
Q_{20}	Streamflow exceeded 20% of time	136	41.1	55.9	38.2
Q_{TMAX}	Maximum turbine capacity	68			
Q_{Tmin}	Minimum turbine flow(generation may occur at lower values)	12			
LTAF	Long term average flow	48			
Q_{MED}	Median stream flow value	31			
7Q2	2 year return period 7-day-average-low flow	11			
7Q10	10 year return period 7-day-average-low flow	5.9			
7Q20	20 year return period 7-day-average-low flow	4.9			
Q_{HWM}	Streamflow corresponding to high water mark	170			
Q1:2	High streamflow event; occurrence of 1 in 2 yr	215			
Q1:100	High streamflow event; occurrence of 1 in 100 yr	440			

Table 3 below summarizes information about the relationship between natural flows, powerhouse operation and spill flows over the weir. Whenever natural flows exceed the maximum turbine capacity (Q_{Tmax}, 68 m^3/s), excess water is spilled over the weir through Railroad Rapids. This occurs 55% of the time during the hydrologic spring season from March 15 to June 30, but less frequently during the remainder of the year.Whenever natural flows are less than the minimum turbine capacity plus 4 m^3/s for the fishway, the powerhouse is shut down and all flows are passed over the weir and fishway. This occurs approximately 22% of the time during the hydrologic summer season from July 1 to November 12. It should be noted that hydrologic flows vary substantially from year to year and the actual results for any particular year may vary.

The powerhouse is designed so that it can divert all the natural inflow for a wide range of flow conditions. To ensure that sufficient flow is available in Railroad Rapids for ecological and recreational purposes, specific compensatory flow requirements are set out as part of the Operating Plan.

Table 3: Spill Flow Occurrences by Season

Spill Condition	Flow	Spring	Summer	Fall	Winter	Annual
Flood Flow Spill	$>Q_{Tmax}$	55%	6%	11%	2%	20%
Compensatory Flow	Q_{Tmin} - Q_{Tmax}	38%	72%	82%	93%	69%
Low Flow Spill	$<Q_{Tmin}$	4%	22%	7%	5%	11%
		100%	100%	100%	100%	100%

Appendix 1 illustrates the flow apportionment between the powerhouse and Railroad Rapids for each typical month of the year. It should be noted that actual flow conditions vary from year to year. Actual flow apportionment will occur in accordance with the operating objectives and operating parameters set out in this Operating Plan and in accordance with the prevailing natural inflow rate.

5 PROPOSED OPERATING PARAMETERS

This section summarizes the proposed operations parameters for the project. In selecting the operations parameters, the environmental aspects outlined as part of the environmental assessment process and the public stakeholder consultation process were considered so as to provide a reasonable balance among operational constraints, environmental aspects and mitigation of possible impacts. Different operating parameters are proposed for each of the ecological seasons to reflect different needs and mitigation objectives for various times of the year. In addition, special operating protocols are provided for spawning periods identified in the environmental assessment process.

To better illustrate the type of operation that typically occurs at various times of the year, a series of daily operations graphs are presented in Appendix 1. Each graph illustrates the hour-by-hour operation of the headpond and the downstream flows for a given operating scenario.

5.1 Upstream Operation Parameters:

This section outlines the relevant operating parameter for the headpond created by the overflow weir. Table 4 below lists the key headpond parameters including the inundation area of the headpond and operating levels. Figure 4 below shows a map of the headpond inundation extent.

Table 4: Upstream Operating Parameters

Inundation Area at LTAF	29.4	ha
Inundation Area - Pre-project	25.2	ha
Upstream Extent	2.7	km
Normal Operating Target	136.0	m MSL
1:100 year Flood Level	137.5	m MSL
Daily Operation	0.0	m

Note: values are for normal flow conditions, parameters may vary during droughts or floods due to factors of nature.

Figure 4: Headpond Extent

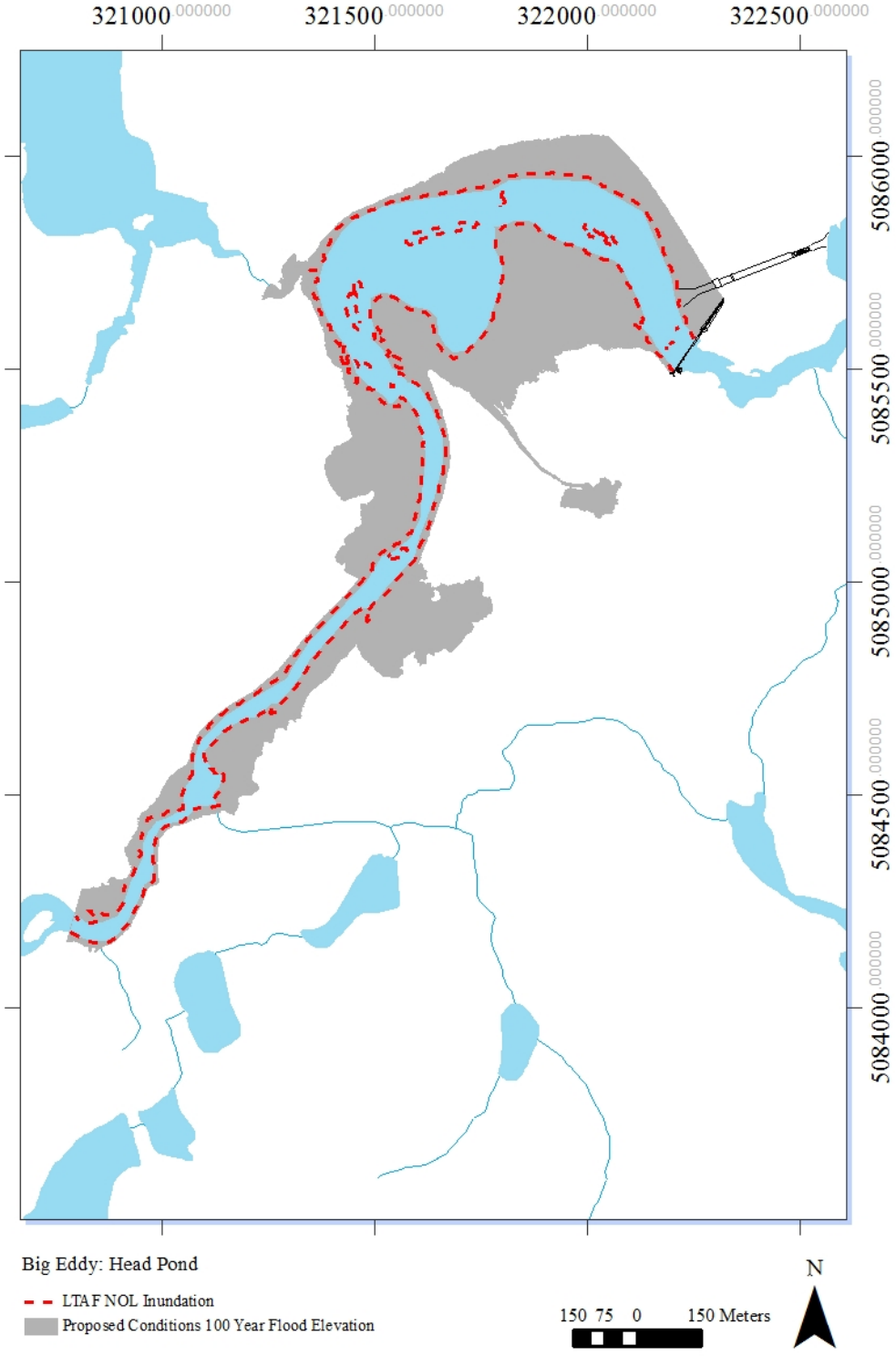
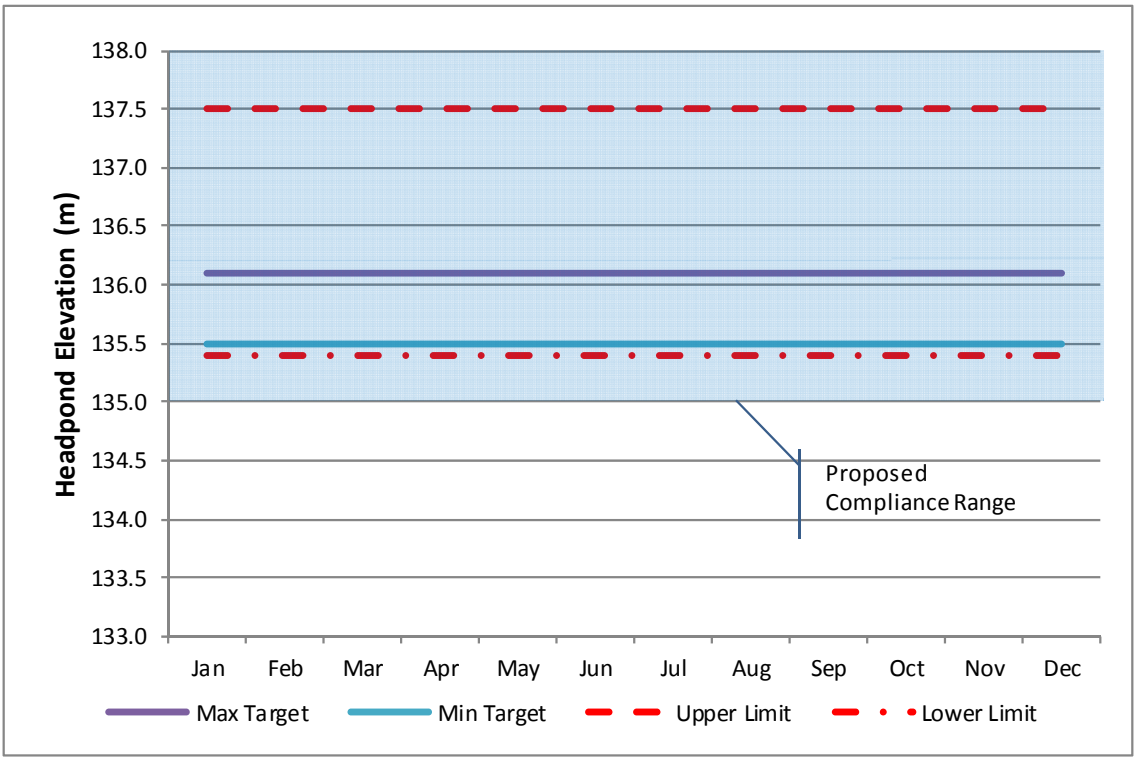


Figure 5 shows the target operating levels of the headpond for each month, assuming typical flows. The target values are consistent with the operating scenarios presented in Appendix 1. The target operating lines represent levels as defined by Table 2. The regulatory compliance limits represent a safety margin in case unexpected operating or flow conditions occur. No daily operation is proposed. Hence the operating ranges are required only for accommodating the variability in natural inflow.

Figure 5: Headpond Operating Limits



5.2 Railroad Rapids Operation Parameters:

This section outlines the relevant operating parameters for Railroad Rapids, including any compensatory flow (Q_{Comp}) allocation for the overflow weir and the fishway structure. Table 5 below provides the minimum values for compensatory flow (Q_{Comp}) committed to be provided at all times, provided natural inflow is not less than the stated amount. Figure 6 below shows the typical operating flows in graphical form.

Figure 6: Downstream Operating Flows

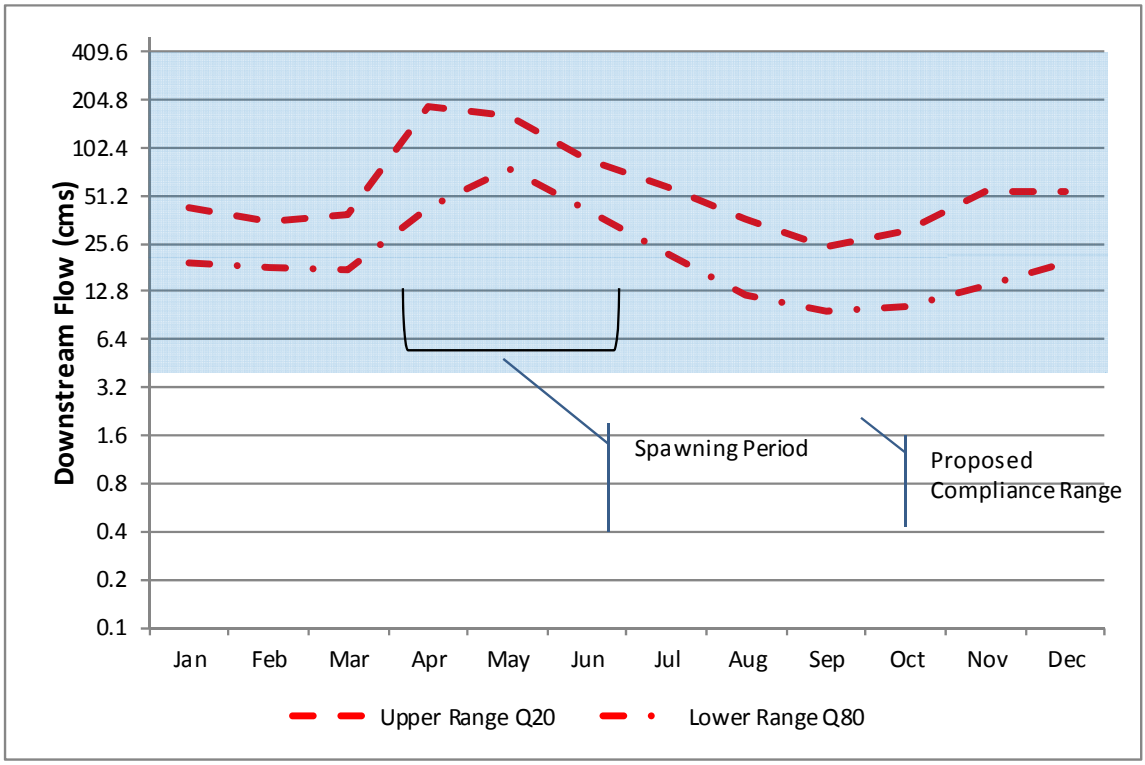


Table 5: Railroad Rapids Operating Parameters

	Parameter	Flows m^3/s by Hydrologic Season			
		Spring	**Summer**	**Fall**	**Winter**
Q_{Comp}	Min. compensatory flow in Railroad Rapids	4	4	4	4
Fishway	Min. fishway flow	4	4	4	4
Note: to facilitate staging and upstream passage at the time of spawning, the minimum compensatory flow in Railroad Rapids shall be 30 m^3/s during walleye spawning when water temperatures are 6 to 12^oC, and 30 m^3/s during sturgeon spawning when water temperatures are 9 to 16^oC. At such times, not less than 4 m^3/s shall be passed through the fishway. Any excess flow may be passed over the weir.					

As noted in Table 3 above (see Section 4), any flow in excess of the maximum turbine flow (Q_{Tmax}, 68 m^3/s) and any flow less than the minimum turbine flow is naturally routed over the weir and the fishway towards Railroad Rapids. Hence the actual flow in Railroad Rapids will either be the amount specifically committed to in Table 5 or a larger amount depending on natural inflow rates. At least the first 4m^3/s of any compensatory flow for Railroad Rapids will be routed through the fishway structure. As noted in Table 5, a flow rate of not less than 30 m^3/s is required in Railroad Rapids during walleye and sturgeon spawning to facilitate upward passage. This flow rate would consist of not less than 4 m^3/s passing through the fishway, with any excess flow passing over the weir and through the fishway as dictated by upstream water levels.

Table 6: Additional Operating Constraint

	Additional Operating Constraint
1	Recreational flows in Railroad Rapids to be provided in accordance with Section 3.1 of this document, consisting of all low flows, ecological flows, excess spillway flows and up to 100 hours per year of "on-demand" flows whereby all available flow is routed to Railroad Rapids.

For illustrative purposes Table 7 provides proposed unrestricted and restricted operations under varying monthly inflow conditions.

Table 7: Proposed Operations and Flows

Month	Condition	INFLOW m3/s	OUTPUT	UNRESTRICTED m3/s	RESTRICTED m3/s	SPILLWAY FLOW m3/s
JAN	wet	43	Hi(day)	39		4
			Lo(night)	39		4
	typical	28	Hi(day)	24		4
			Lo(night)	24		4
	dry	19	Hi(day)	15		4
			Lo(night)	15		4
FEB	wet	35	Hi(day)	31		4
			Lo(night)	31		4
	typical	25	Hi(day)	21		4
			Lo(night)	21		4
	dry	18	Hi(day)	14		4
			Lo(night)	14		4
MAR	wet	39	Hi(day)	35		4
			Lo(night)	35		4
	typical	26	Hi(day)	22		4
			Lo(night)	22		4
	dry	18	Hi(day)	14		4
			Lo(night)	14		4
APR	wet	183	Hi(day)	68		115
			Lo(night)	68		115
	typical	106	Hi(day)	68		38
			Lo(night)	68		38
	dry	43	Hi(day)	39	13	30
			Lo(night)	39	13	30
MAY	wet	163	Hi(day)	68		95
			Lo(night)	68		95
	typical	108	Hi(day)	68		40
			Lo(night)	68		40
	dry	75	Hi(day)	68	45	30
			Lo(night)	68	45	30
JUN	wet	87	Hi(day)	68	57	30
			Lo(night)	68	57	30
	typical	60	Hi(day)	56	30	30
			Lo(night)	56	30	30
	dry	41	Hi(day)	37	11	30
			Lo(night)	37	11	30
JUL	wet	58	Hi(day)	54		4
			Lo(night)	54		4
	typical	38	Hi(day)	34		4
			Lo(night)	34		4
	dry	22	Hi(day)	18		4
			Lo(night)	18		4
AUG	wet	37	Hi(day)	33		4
			Lo(night)	33		4
	typical	21	Hi(day)	17		4
			Lo(night)	17		4
	dry	12	Hi(day)	No Generation		12
			Lo(night)	No Generation		12
SEP	wet	25	Hi(day)	21		4
			Lo(night)	21		4
	typical	15	Hi(day)	No Generation		15
			Lo(night)	No Generation		15
	dry	10	Hi(day)	No Generation		10
			Lo(night)	No Generation		10
OCT	wet	31	Hi(day)	27		4
			Lo(night)	27		4
	typical	17	Hi(day)	13		4
			Lo(night)	13		4
	dry	10	Hi(day)	No Generation		10
			Lo(night)	No Generation		10
NOV	wet	55	Hi(day)	51		4
			Lo(night)	51		4
	typical	27	Hi(day)	23		4
			Lo(night)	23		4
	dry	14	Hi(day)	No Generation		14
			Lo(night)	No Generation		14
DEC	wet	55	Hi(day)	51		4
			Lo(night)	51		4
	typical	33	Hi(day)	29		4
			Lo(night)	29		4
	dry	19	Hi(day)	15		4
			Lo(night)	15		4

Notes:
Run of River Operations: upstream and downstream flows are equal. Other information contained within the operational plan such as compliance limits and targets have an over riding effect on this table.

6 SUMMARY DISCUSSION

The Big Eddy facility will be operated in run-of-river mode, effects related to the project are constrained to a 600 meter bypass reach, known as Railroad Rapids. This operating plan demonstrates how operating objectives established through the Environmental Screening Report will be achieved. The Environmental Screening Report concludes that the project can be operated in such a manner that significant environmental impacts are avoided.

Key operating considerations for the Big Eddy facility:

1. Upstream Water Levels: Upstream inundation and backwater effect of the weir has been carefully assessed using hydraulic modeling (HEC-RAS).
2. Kayaking & rafting: A special weir design will be deployed to allow kayaking and rafting over the weir and through the fishway. Facility operation will be curtailed at designated times to accommodate kayaking and rafting uses.
3. Fish passage: Upstream fish passage is believed to occur when flows exceed 30 m^3/s, primarily in the spring. A special nature-like fishway has been designed into the weir structure and flows will be provided to allow fish to swim upstream in Railroad Rapids and over the fishway to the upstream side of the facility at certain times.
4. Public Safety: Stakeholders have raised questions about facility safety. During normal operation, facility flows will be changed gradually to ensure that downstream flows do not change erratically. During a facility malfunction, the risk of sudden water level changes has been mitigated by incorporating a bypass valve in the powerhouse structure.

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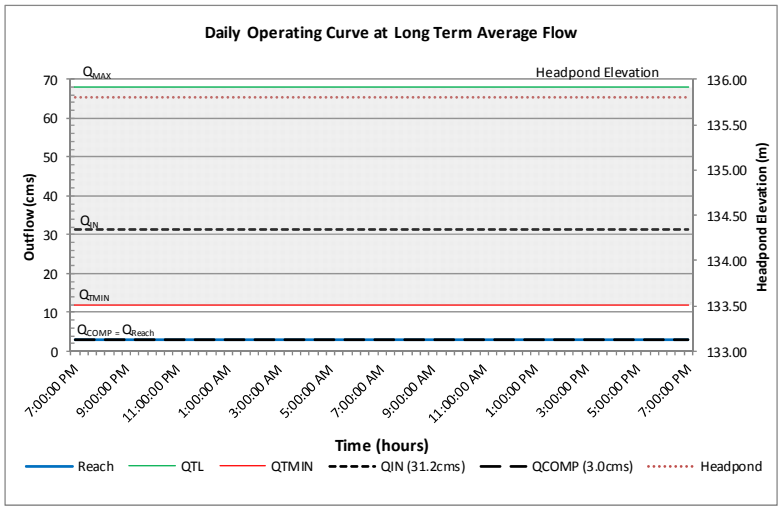
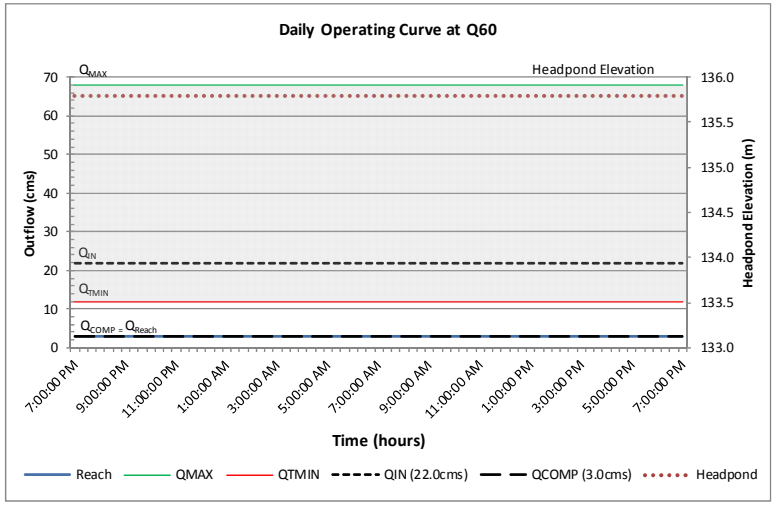
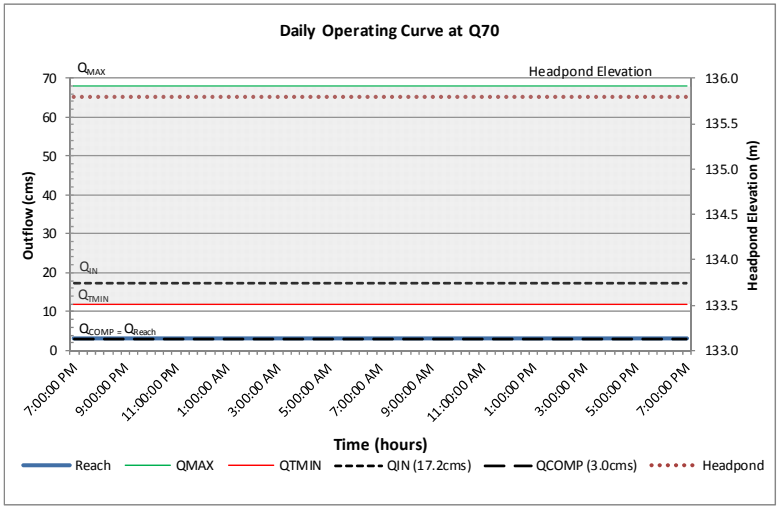
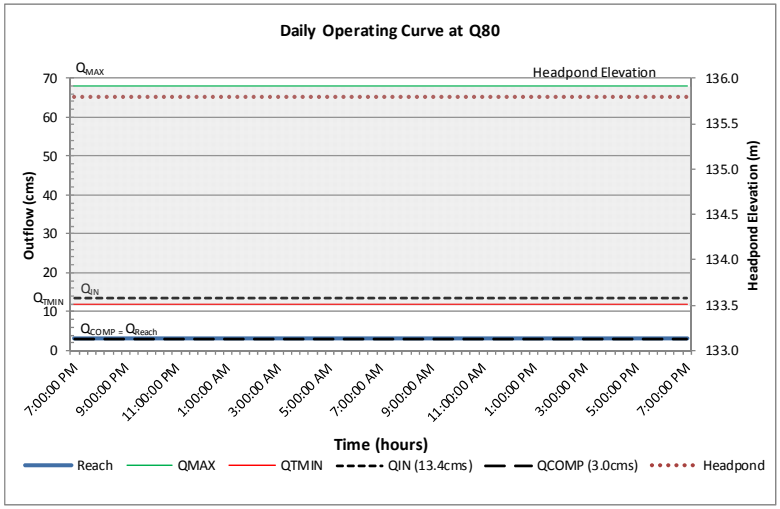
Appendix 1: Operating Scenarios for Railroad Rapids

(5 pages)


Daily Operating Curve at Long Term Average Flow
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QTL
QTMIN
QIN (31.2cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve at Q60
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (22.0cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve at Q70
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (17.2cms)
QCOMP (3.0cms)
Headpond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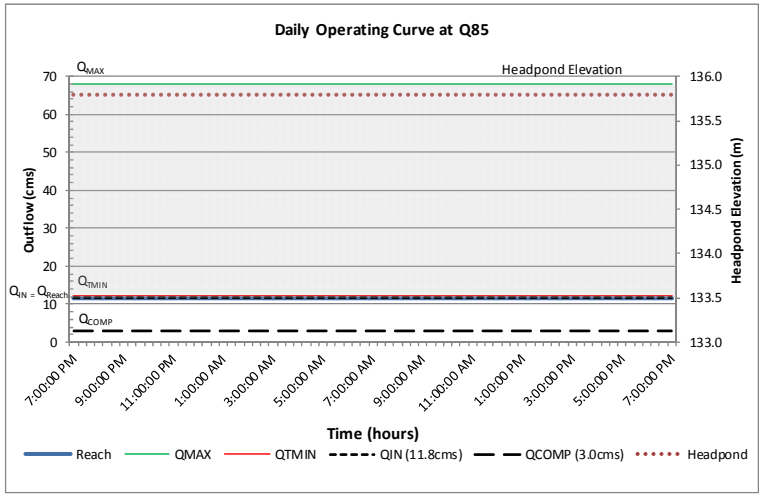
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (13.4cms)
QCOMP (3.0cms)
Headpond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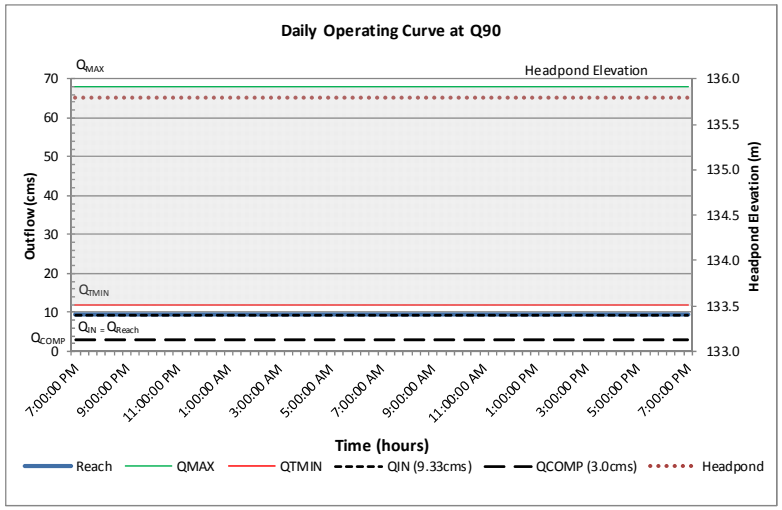
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (11.8cms)
QCOMP (3.0cms)
Headpond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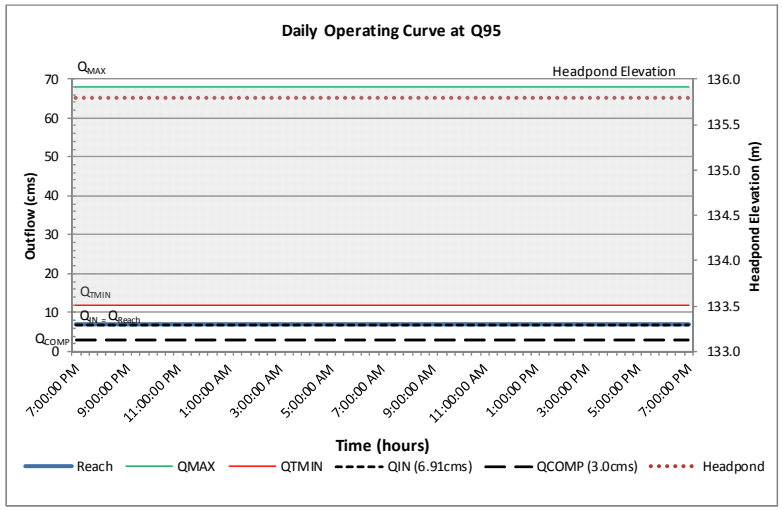
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (9.33cms)
QCOMP (3.0cms)
Headpond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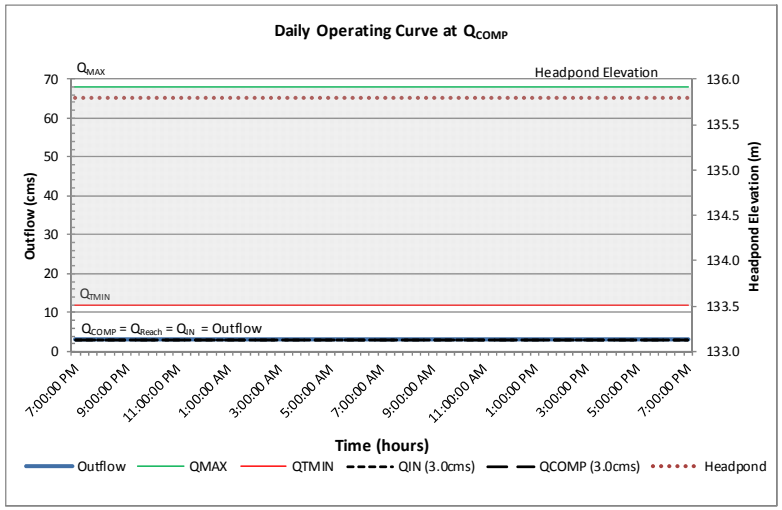
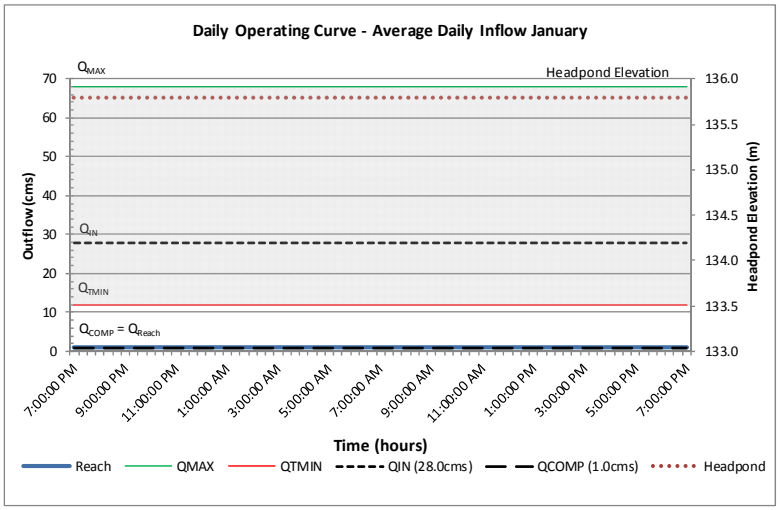
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (6.91cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve at QCOMP
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Outflow
QMAX
QTMIN
QIN (3.0cms)
QCOMP (3.0cms)
Headpond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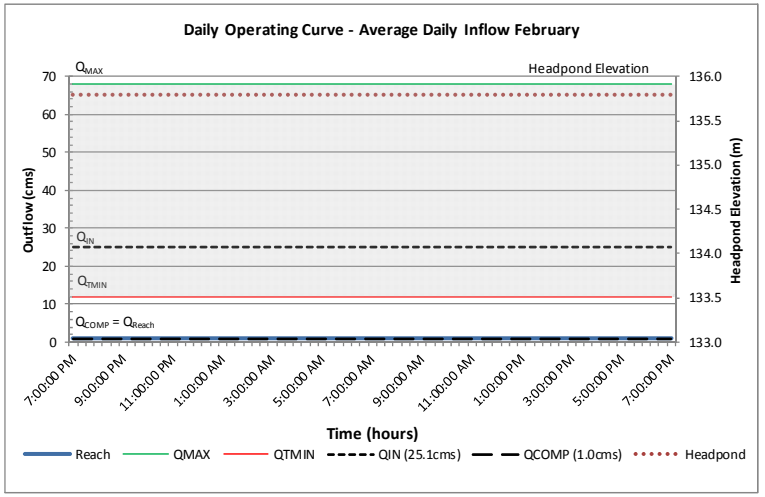
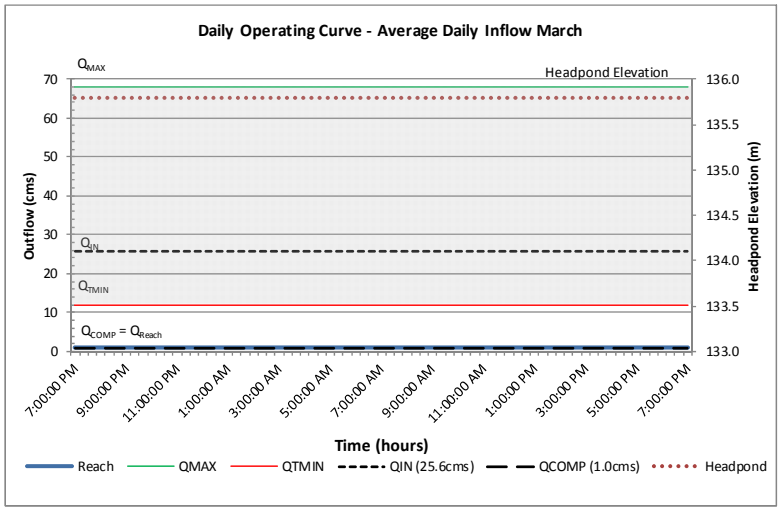
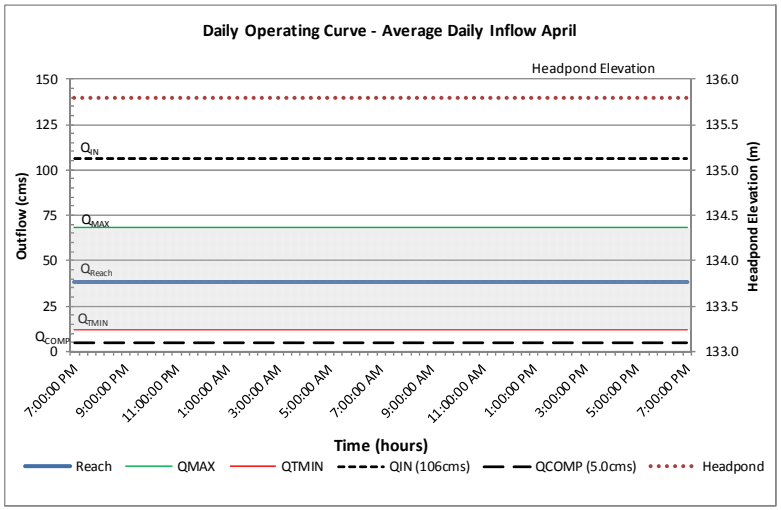
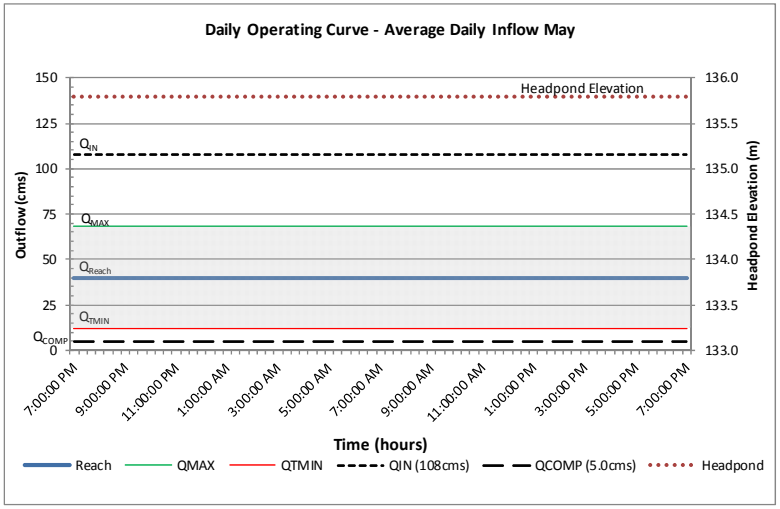
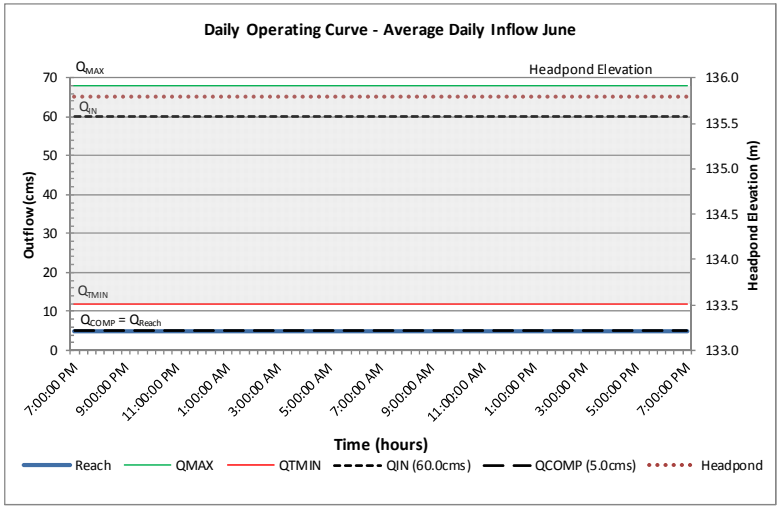
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (28.0cms)
QCOMP (1.0cms)
Headpond

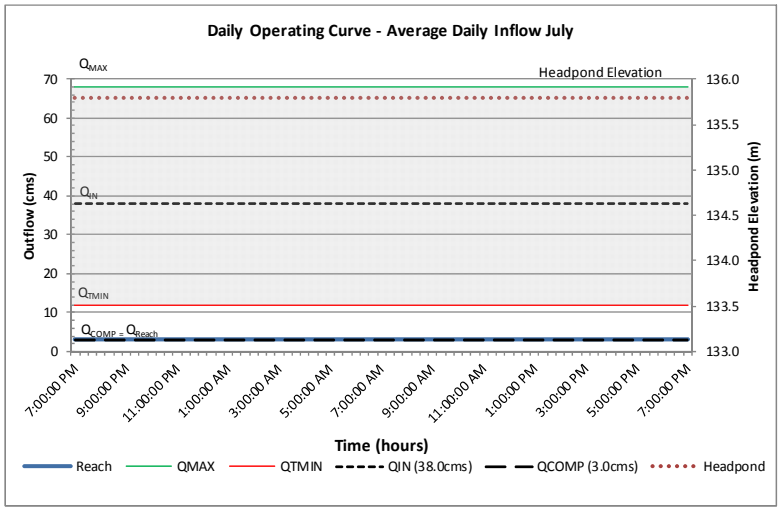

Daily Operating Curve - Average Daily Inflow February
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (25.1cms)
QCOMP (1.0cms)
Headpond

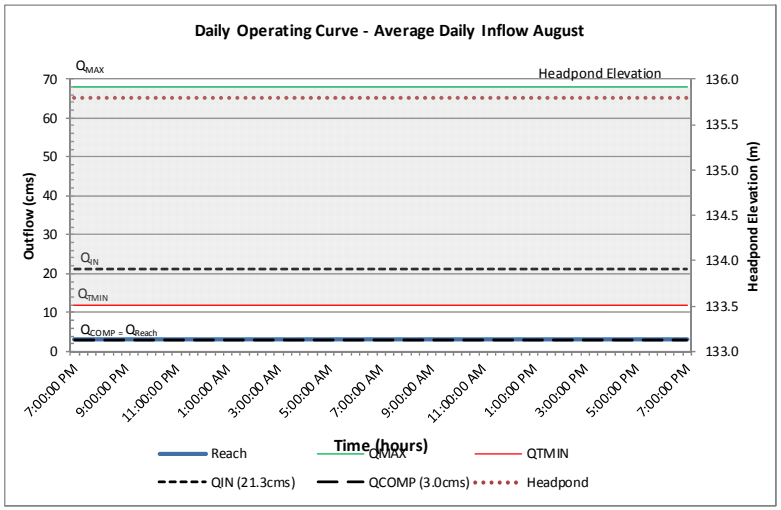

Daily Operating Curve - Average Daily Inflow March
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (25.6cms)
QCOMP (1.0cms)
Headpond

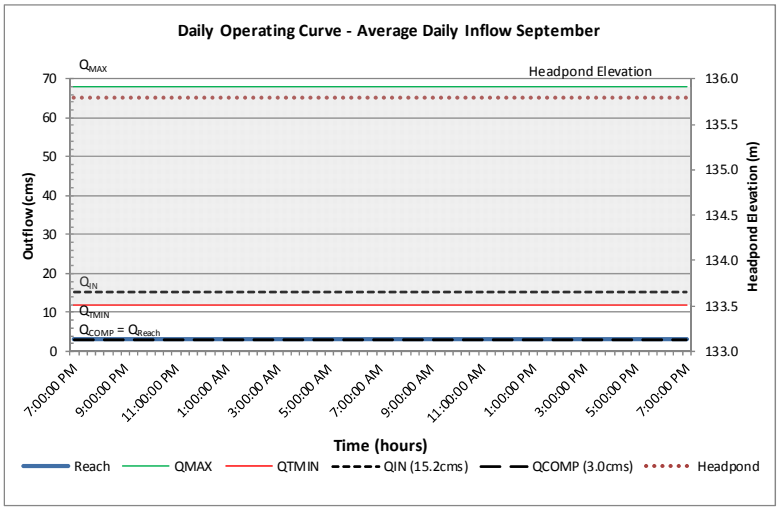

Daily Operating Curve - Average Daily Inflow April
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (106cms)
QCOMP (5.0cms)
Headpond

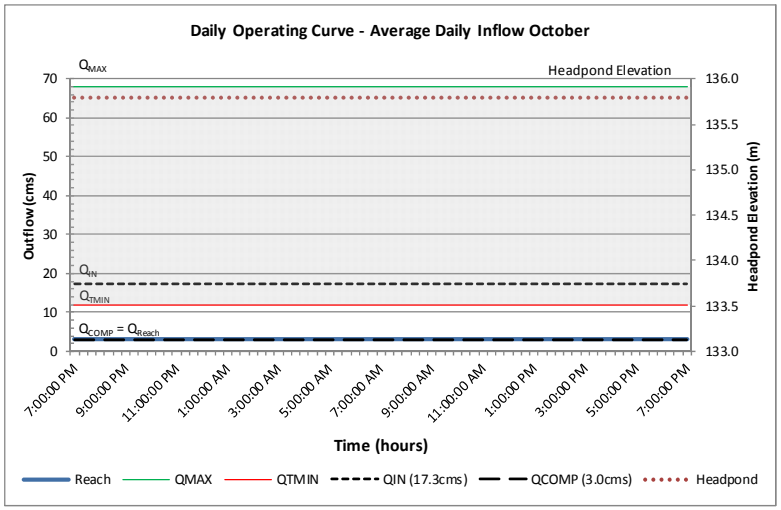

Daily Operating Curve - Average Daily Inflow May
Headpond Elevation
Q_{IN}
Q_{MAX}
Q_{Reach}
Q_{TMIN}
Q_{COMP}
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (108cms)
QCOMP (5.0cms)
Headpond

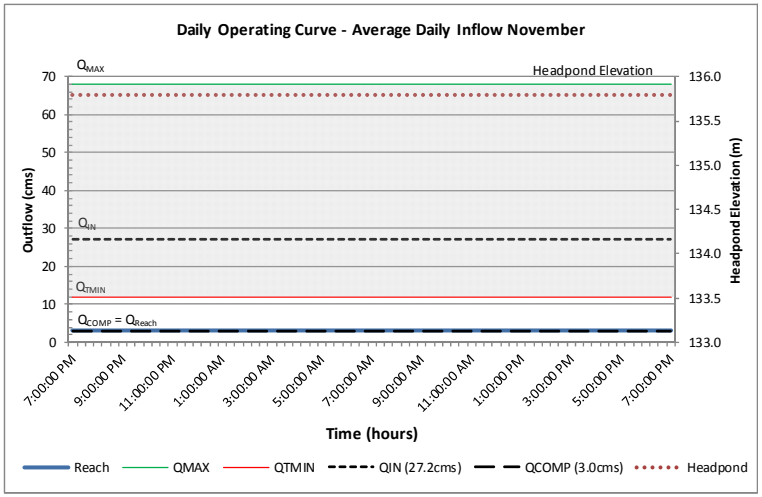

Daily Operating Curve - Average Daily Inflow June
Q_{MAX}
Headpond Elevation
Q_{IN}
Q_{TMIN}
$Q_{COMP} = Q_{Reach}$
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (60.0cms)
QCOMP (5.0cms)
Headpond

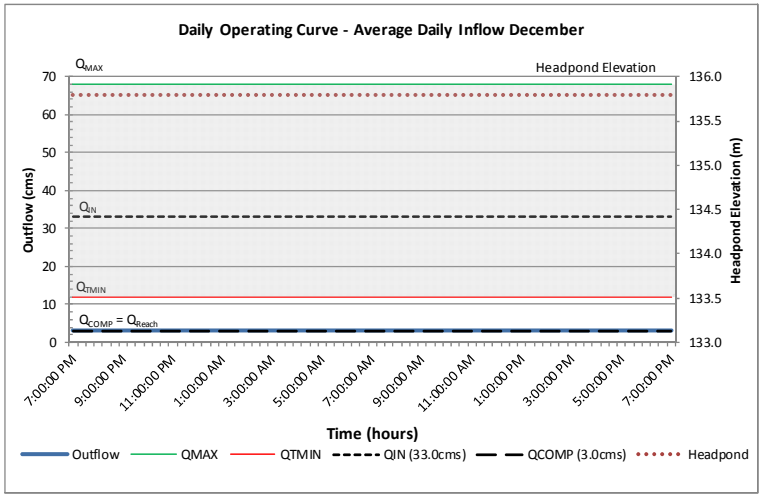

Daily Operating Curve - Average Daily Inflow July
Q_{MAX}
Headpond Elevation
Q_{IN}
Q_{TMIN}
$Q_{COMP} = Q_{Reach}$
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (38.0cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve - Average Daily Inflow August
Q_{MAX}
Headpond Elevation
Q_{IN}
Q_{TMIN}
$Q_{COMP} = Q_{Reach}$
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (21.3cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve - Average Daily Inflow September
Headpond Elevation
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (15.2cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve - Average Daily Inflow October
Headpond Elevation
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (17.3cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve - Average Daily Inflow November
Headpond Elevation
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Reach
QMAX
QTMIN
QIN (27.2cms)
QCOMP (3.0cms)
Headpond


Daily Operating Curve - Average Daily Inflow December
Headpond Elevation
Outflow (cms)
Headpond Elevation (m)
Time (hours)
Outflow
QMAX
QTMIN
QIN (33.0cms)
QCOMP (3.0cms)
Headpond

Report

EROSION POTENTIAL ASSESSMENT OF NORTHERN ONTARIO WATERPOWER SITES FOR XENECA POWER DEVELOPMENT INC.

A Report to:

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M2N 6L9

Submitted by:

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804 Southdown Road
Mississauga, Ontario
L5J 2Y4

Date: June 2011

May 2011

ACKNOWLEDGEMENT

This Erosion Potential Assessment of Northern Ontario Waterpower Sites was prepared under the direction of Xeneca Power Development Inc. (Xeneca Power). Xeneca Power acknowledges the assistance and input from ORTECH Consulting Inc. (ORTECH), R.J. Burnside and AquaLogic Consulting.

AUTHENTICATION

This Erosion Potential Assessment document was prepared under the direction of Xeneca Power.

The main participants in the assessment were:

NAME	POSITION	RESPONSIBILITIES
Xeneca Power Development Inc.		
Nava Pokharel	Senior Project Manager	Project Management and Coordination
ORTECH Consulting Inc.		
Scott Manser	Senior Project Manager	Overall development and report summary.
R.J. Burnside		
Dan Miller, P.Eng. Tim Lozon	Project Manager, Senior Water Resources Engineer Water Resources Engineer	Preparation of HEC RAS related modelling, figures and tables.
AquaLogic		
Bill de Geus., CET, CPESC, EP	Project Manager	Development of erosion potential methodology and detailed report.

Contents

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Introduction

Background

Xeneca Power Development Inc. (Xeneca) is developing eighteen Waterpower Renewable energy Projects in Northern Ontario under contracts from the Ontario Feet in Tariff (FIT) program, regulated by the Ontario Power Authority (OPA). As part of the requirements of the FIT contract Xeneca is working towards the completion of the required Class Environmental Assessments (Class EA) for these projects. Xeneca contracted ORTECH Consulting Inc. (ORTECH) to conduct a desktop screening level assessment of the erosion potential for all eighteen projects in support of the overall Class EA process.

A screening level assessment tool was developed to compare conditions under different water depth scenarios, channel bank angle, channel velocity range and substrate type using available GIS, and topographic data.

Project Description

The waterpower projects are primarily run-of-river (ROR) type projects with varying storage capacity to allow for some degree of daily or weekly peaking operation. These projects are therefore referred to as "modified run-of-river" generating facilities having dominant properties of ROR projects with short term or limited peaking capabilities.

With "modified run-of-river" operations, a facility would operate at the same rate as the natural flow in the river (i.e. "run-of-river") with no variation in upstream water levels due to operation and no man-made variation in downstream flows from those experienced naturally. At other times, a facility would "modify" the natural flow in the river by storing some of the natural river flow during night time and/or weekend hours to be used during daytime hours (i.e. on business days from 11 am to 7 pm) when the need for electricity in the Province is greater.

Run-of-river operation would occur during two (2) types of natural flow conditions:

1) When natural river flows are greater than the maximum turbine capacity (Q_{Tmax}): Since the natural flow exceeds the amount of water that can be processed through the turbine, any excess water is bypassed through the spillway structure. The combined flow of the water used in the turbine to generate electricity and the water bypassed over the spillway equals the natural flow. This situation occurs primarily during spring thaw run-off conditions and during major storm events in the spring, summer and fall.

2) When natural flows are so low that any available water must be released to protect the downstream environment: The flow in this situation is typically too low to generate electricity. This situation occurs primarily in late summer and late winter when natural flows are typically very low. This situation may also occur during certain years when spring run-off flow is unusually low and the amount of water available is needed downstream.

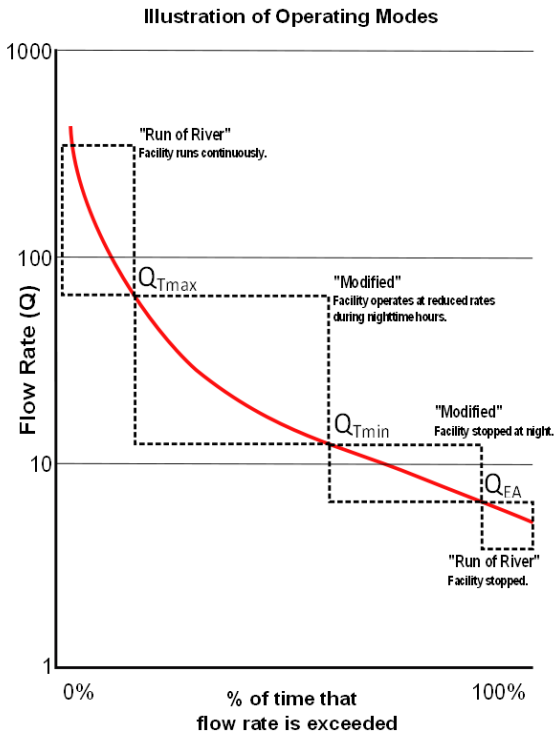
Modified run-of-river operation would occur during moderate and low flows when the natural flow in the river is below the maximum turbine flow capacity (Q_{Tmax}) but above the minimum flow required to protect the environment (Q_{EA}). During these flow conditions, some of the natural river flow during nighttime and/or weekend hours can be stored and used to produce electricity during daytime hours. There are two modes of modified operation as follows:

1) Facility runs at reduced rate at night: When natural river flows are moderate (i.e. between the minimum (Q_{Tmin}) and the maximum (Q_{Tmax}) rate of turbine capacity), the facility runs continuously, but some of the water is saved during nighttime and/or weekend hours. This operation results in downstream flows that are smaller than natural river flows during nighttime and/or weekend hours and larger than natural river flows during daytime hours when electricity use is higher. However, the minimum flow in this mode of operation is not less than the minimum turbine capacity (Q_{Tmin}).

2) Facility is stopped at night: When natural river flows are low (i.e. below the minimum turbine capacity (Q_{Tmin})), the facility will need to stop operation during some nighttime hours and save water until operation is again possible. The lower the natural river flow, the longer the period of stoppage will be. When the facility operates, it operates at a rate less than maximum turbine capacity (Q_{Tmax}). To ensure that the downstream river reach receives enough water flow to protect the environment (Q_{EA}), the appropriate amount of water is released through a bypass while the turbine operation is stopped.

Figure 1 below illustrates the mode of operation that occurs depending on the amount of natural flow in the river.

Figure 1: Mode of Operation



Note: Figure is for illustrative purposes only

An important factor in modified run-of-river operation is the availability of storage upstream of the facility. As described in the project description section of the environmental assessments, the amount of storage created as part of each project is very limited. To achieve the objective of building a project with limited environmental impact, the conceptual design of the facility limits the height of structure, the depth and the area of inundation upstream. Consequently, the amount of storage available for operation is inherently limited in relation the natural flow in the river, thereby limiting the storage to a few hours during moderate and low flows. The ability to use this storage is further constrained by environmental constraints outlined in other parts the environmental assessment document. It is the limited storage that differentiates modified run-of-river projects from hydroelectric projects that create large storage reservoirs with the ability to store water for weeks or seasons to “peak” when seasonal periods of hot or cold spells raise the need for extra electricity production. Typically, modified run-of-river projects have significantly less environmental impact than peaking hydroelectric projects.

For the purpose of these projects the range of headpond elevations is represented by the upstream normal operating level (U/S N.O.L.) and the N.O.L. minus 1 m. A summary of additional project features for the eighteen project sites is provided in Table 1 below.

Table 1: Key Project Features

	Project Name	Installed Capacity @ FIT	Design Flow (Qd)	U/S N.O.L.	Tailwater Level	Project Type
		(MW)	(m^3/s)	(m)	(m)	
1	Big Eddy	5.3	68	136	127	ROR
2	Half Mile Rapids	4.8	52	155	144.5	MROR
3	Marter Twp	2.1	16	196	183.5	MROR
4	Larder & Raven (Option 1)	1.25	7	286	268	Lake (MROR)
5	Allen and Struthers	2.8	57	187.5	182	MROR
6	Wabageshik Rapid	3.4	64	205	199	Lake (MROR)
7	At Soo Crossing	4.3	50	238	231.5	MROR
8	Cascade Fall	2.1	49	248.5	242	MROR
9	McPherson Fall	2	49	254	248.5	MROR
10	Four Slide Falls	7.3	23	284	255	MROR
11	McCarthy Chute	2	35.6	250	243	Lake (MROR)
12	Wanatango	4.67	50	259	250	MROR
13	The Chute	3.6	38	298	288.5	MROR
14	Ivanhoe: Third Falls (out side conservation area)	5.1	46	287	278	MROR
15	Lapinigam Rapids (Buchan Falls) - Option 1	8.2	49	294.5	274.5	MROR
16	Outlet Kapuskasing	2.5	48	312	305.5	Lake (MROR)
17	Middle Twp Buchan (Clouston Rapids)	5	50	274	260.5	MROR
18	Near North Boundary (Cedar Rapids)	3.75	60	259	250	MROR

Note:

ROR= Run of River
MROR= Modified Run of River
Lake (MROR)= Modified Run of River with Lake

Screening Level Methodology

The erosion potential screening assessment relies on a series of matrices covering a wide range of channel conditions and substrate combinations that represent the range of combinations at the eighteen waterpower sites. Substrate combinations are summarized in Table 2 with bolded values representing the dominant substrate type.

Table 2: Substrate Combinations

Scenario #	% Substrate Composition			
	Bedrock / Boulder / Cobble	**Gravel**	**Sand**	**Silt clay**
1	**100**			
2		**100**		
3			**100**	
4				**100**
5	**75**	8.3	8.3	8.3
6	8.3	**75**	8.3	8.3
7	8.3	8.3	**75**	8.3
8	8.3	8.3	8.3	**75**
9	**50**	16.6	16.6	16.6
10	16.6	**50**	16.6	16.6
11	16.6	16.6	**50**	16.6
12	16.6	16.6	16.6	**50**
13	**25**	**25**	**25**	**25**
14	**50**	**50**		
15		**50**	**50**	
16			**50**	**50**

Each substrate combination was modeled using hydraulic geometry and vegetative protection relationships indexed to rating scores, normalized on a 0 to 10 scale, as established in the bank erosion hazard index (BEHI) method. The overall rating represents conditions ranging from very low (0 – 1.9) to extreme (> 9.0) erosion potential based on how the noted physical and mechanical variables work together to provide natural erosion resistance and dynamic channel stability (AquaLogic, 2011).

The ranges of parameters considered in the assessment are provided in Table 3.

Table 3: Erosion Potential Data Inputs

Parameter	Value
Bank Height	equal to flow depth
Flow Depth	0.5 m - 6 m
Rooting Depth	2 m
Rooting Density	50%
Bank Angle	15 - 55 degrees
Vegetative Bank Face Protection	50%

A detailed analysis of a 40 km section of the Kapuskasing River was conducted and the range of conditions observed along this project was used to represent typical average site conditions. Rooting

depth was assumed as an average of 2m, and rooting density and bank face protection as 50%, reflecting the range of scrub to treed conditions in shallow to medium depth soils for Boreal Forest on the Canadian Shield.

Bank angles representing conditions steeper than typical stable slope equilibrium and higher than 2m, under the noted average vegetative cover conditions, were excluded from analysis because they are considered erosion prone and unstable under all flow scenarios.

Applying the Screening Methodology

Erosion potential scenarios were assessed for each substrate type combination shown in Table 1 with incremental flow depth and bank angles applicable over a range of channel velocities. The resultant index scores are provided in Attachment 1. For each substrate combination velocities below the matrix value would represent "very low" erosion potential whereas velocities above the upper range of values provided would be deemed to trigger sustained erosion potential (AquaLogic, 2011).

Additionally, site areas that are relatively void of significant vegetation should be identified and referenced to the Hjulstrom Curve relationship for velocity as provided in Attachment 2. The Hjulstrom curve relationship is used by hydrologists to determine whether a river system will erode, transport or deposit particles of a given size at a specified channel velocity. This methodology agrees with the MNR guideline approach of identifying the point of incipient erosion as the threshold of channel stability (OMNR, 2002) for channel banks generally less than 2 m high.

The following steps were used in developing the erosion potential assessment for each project site:

1) A slope analysis map was produced for each project site based upon topographic information in the form of 0.5 m LIDAR contour data;
2) Slopes were categorized in ten degree intervals corresponding to the erosion sensitivity scoring system (15 to 55) degrees;
3) Surificial geology mapping was overlaid onto the slope analysis map;
4) Surfical geology for each project site was placed into one of the sixteen categories used in the erosion sensitivity scoring index as provided in Attachment 1, and
5) Areas deemed as having the potential for "moderate" erosion potential or areas requiring additional analysis were identified by blue circles.

Based upon the above approach the following project sites may have areas adjacent to the waterbody requiring additional analysis or "moderate" erosion potential:

- Big Eddy
- Half Mile Rapids
- Lapinigam Rapids

- Near North boundary

Erosion potential mapping for all project sites is provided in Attachment 3.

Conclusions

Erosion potential scenarios were assessed for each substrate type combination shown in Table 1 with incremental flow depth and bank angles. The resultant index scores are provided in Attachment 1. Modelling results indicate that:

- Good channel stability is generally found under all conditions for bedrock/boulder/cobble scenarios, as typical of most watercourses;
- Good stability conditions in aggregate and soil substrates is generally due to the positive influence of vegetative cover supplying additional reinforcement;
- Silt clay conditions are considered to have lower sensitivity to erosion than sand and gravel conditions which is an inherent result of cohesive properties;
- Any shift in velocity to above the identified stability range from one flow scenario to another would require a more detailed analysis;
- For flow depths of 1 m or less, which are proposed under the site operating plans, 100% sand and 75% sand + 25% "mixed" substrates have a potential for "moderate" erosion impacts under specific bank angle and flow velocity conditions, and
- All other substrate combinations, within the prescribed velocity ranges, for flow depths of 1 m or less are predicted to have either "low" or "very low" erosion potentials when bank angles are 45 degrees or less.

Comparative flow depth scenarios (existing and proposed) are possible using the screening methodology. This is typical of dynamic integrated stability under existing conditions representing decades and/or centuries of long term natural cycles and processes acting on a watercourse. Any identified shift from "very low" to "low" or from "low" to "moderate", under a manmade change in flow depth could be generally reflective of an equivalent natural peak flow event that the system is already adjusted to (AquaLogic, 2011).

The methodology presented in this report is a desk top screening level review tool so the assessment is by no means an exhaustive review of all physical, temporal and unknown factors.

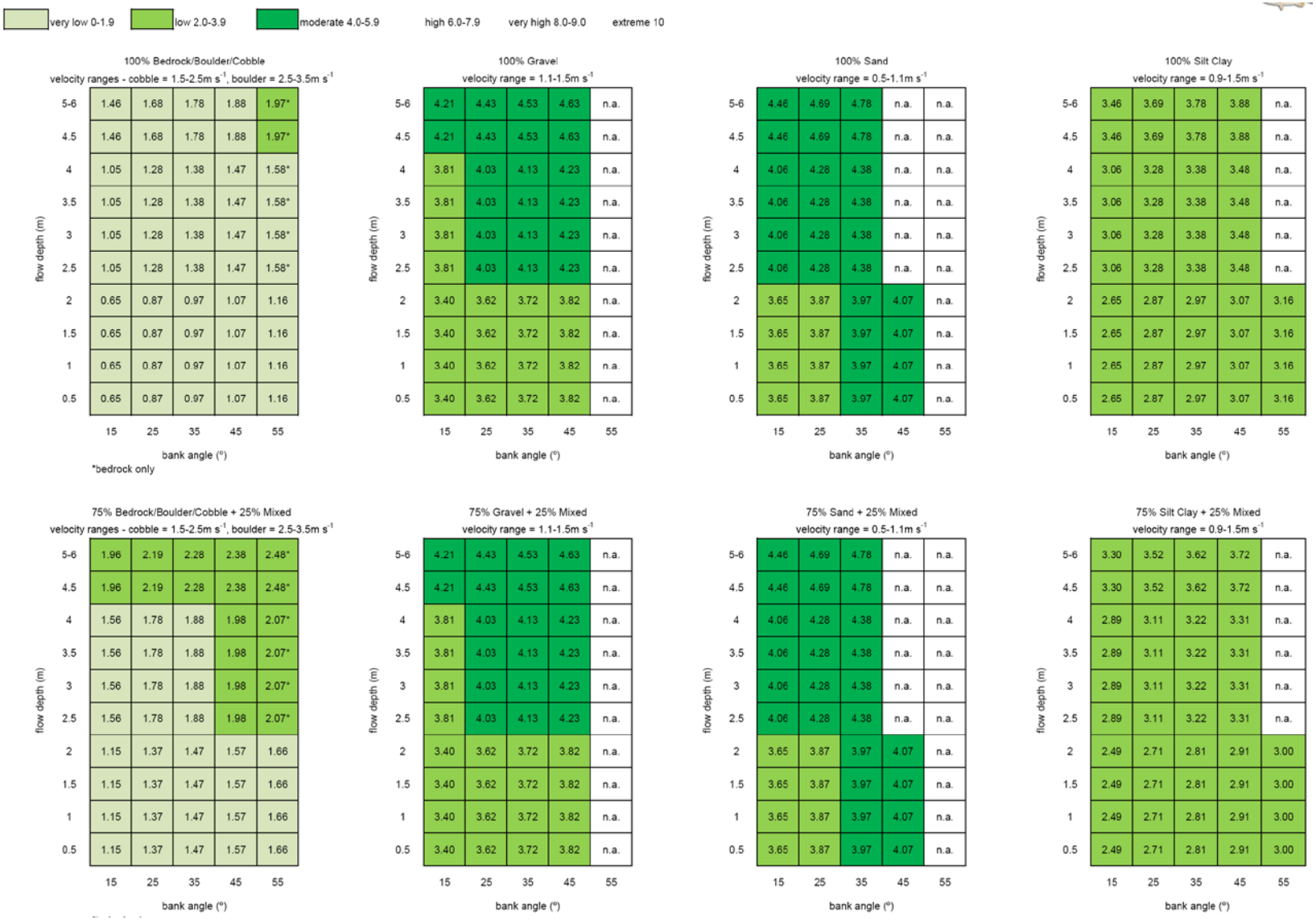
References:

deGeus, B., 2011 Erosion Sensitivity Analysis Kapuskasing River Hydroelectric Candidate Sties Xeneca Power Development. AquaLogic Consulting

Ontario Ministry of Natural Resources. 2002. Natural Hazards Technical Guides; River and Steam Systems Erosion Hazard Limit Technical Guide.

Attachment 1

Erosion Sensitivity Scores



Prepared by: AquaLogic, 2011

very low 0-1.9 | low 2.0-3.9 | moderate 4.0-5.9 | high 6.0-7.9 | very high 8.0-9.0 | extreme 10

50% Bedrock/Boulder/Cobble + 50% Mixed
velocity ranges - cobble = 1.4-1.8m s^{-1}, boulder = 1.8-2.5m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	2.46	2.68	2.78	2.88	n.a.
4.5	2.46	2.68	2.78	2.88	n.a.
4	2.06	2.28	2.38	2.48	n.a.
3.5	2.06	2.28	2.38	2.48	n.a.
3	2.06	2.28	2.38	2.48	n.a.
2.5	2.06	2.28	2.38	2.48	n.a.
2	1.65	1.87	1.97	2.07	2.16
1.5	1.65	1.87	1.97	2.07	2.16
1	1.65	1.87	1.97	2.07	2.16
0.5	1.65	1.87	1.97	2.07	2.16

bank angle (°)

50% Gravel + 50% Mixed
velocity range = 1.3-1.7m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	3.46	3.68	3.78	3.88	n.a.
4.5	3.46	3.68	3.78	3.88	n.a.
4	3.06	3.28	3.38	3.48	n.a.
3.5	3.06	3.28	3.38	3.48	n.a.
3	3.06	3.28	3.38	3.48	n.a.
2.5	3.06	3.28	3.38	3.48	n.a.
2	2.65	2.87	2.97	3.07	n.a.
1.5	2.65	2.87	2.97	3.07	n.a.
1	2.65	2.87	2.97	3.07	n.a.
0.5	2.65	2.87	2.97	3.07	n.a.

bank angle (°)

50% Sand + 50% Mixed
velocity range = 0.7-1.2m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	3.46	3.68	3.78	n.a.	n.a.
4.5	3.46	3.68	3.78	n.a.	n.a.
4	3.06	3.28	3.38	n.a.	n.a.
3.5	3.06	3.28	3.38	n.a.	n.a.
3	3.06	3.28	3.38	n.a.	n.a.
2.5	3.06	3.28	3.38	n.a.	n.a.
2	2.65	2.87	2.97	3.07	n.a.
1.5	2.65	2.87	2.97	3.07	n.a.
1	2.65	2.87	2.97	3.07	n.a.
0.5	2.65	2.87	2.97	3.07	n.a.

bank angle (°)

50% Silt Clay + 50% Mixed
velocity range = 0.9-1.5m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	3.14	3.36	3.46	3.56	n.a.
4.5	3.14	3.36	3.46	3.56	n.a.
4	2.74	2.96	3.06	3.16	n.a.
3.5	2.74	2.96	3.06	3.16	n.a.
3	2.74	2.96	3.06	3.16	n.a.
2.5	2.74	2.96	3.06	3.16	n.a.
2	2.33	2.55	2.65	2.75	2.84
1.5	2.33	2.55	2.65	2.75	2.84
1	2.33	2.55	2.65	2.75	2.84
0.5	2.33	2.55	2.65	2.75	2.84

bank angle (°)

25% Each Type
velocity range = 1.3-1.7m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	2.96	3.18	3.28	n.a.	n.a.
4.5	2.96	3.18	3.28	n.a.	n.a.
4	2.56	2.78	2.88	n.a.	n.a.
3.5	2.56	2.78	2.88	n.a.	n.a.
3	2.56	2.78	2.88	n.a.	n.a.
2.5	2.56	2.78	2.88	n.a.	n.a.
2	2.15	2.37	2.47	2.57	n.a.
1.5	2.15	2.37	2.47	2.57	n.a.
1	2.15	2.37	2.47	2.57	n.a.
0.5	2.15	2.37	2.47	2.57	n.a.

bank angle (°)

50% Bedrock/Boulder/Cobble + 50% Gravel
velocity range = 1.5-2.0m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	2.46	2.68	2.78	2.88	n.a.
4.5	2.46	2.68	2.78	2.88	n.a.
4	2.06	2.28	2.38	2.48	n.a.
3.5	2.06	2.28	2.38	2.48	n.a.
3	2.06	2.28	2.38	2.48	n.a.
2.5	2.06	2.28	2.38	2.48	n.a.
2	1.65	1.87	1.97	2.07	2.16
1.5	1.65	1.87	1.97	2.07	2.16
1	1.65	1.87	1.97	2.07	2.16
0.5	1.65	1.87	1.97	2.07	2.16

bank angle (°)

50% Gravel + 50% Sand
velocity range = 0.9-1.2m s^{-1}

flow depth (m)	15	25	35	45	55
5-6	3.46	3.68	3.78	n.a.	n.a.
4.5	3.46	3.68	3.78	n.a.	n.a.
4	3.06	3.28	3.38	n.a.	n.a.
3.5	3.06	3.28	3.38	n.a.	n.a.
3	3.06	3.28	3.38	n.a.	n.a.
2.5	3.06	3.28	3.38	n.a.	n.a.
2	2.65	2.87	2.97	3.07	n.a.
1.5	2.65	2.87	2.97	3.07	n.a.
1	2.65	2.87	2.97	3.07	n.a.
0.5	2.65	2.87	2.97	3.07	n.a.

bank angle (°)

50% Sand + 50% Silt Clay
velocity range = 0.7-1.2m s^{-1}

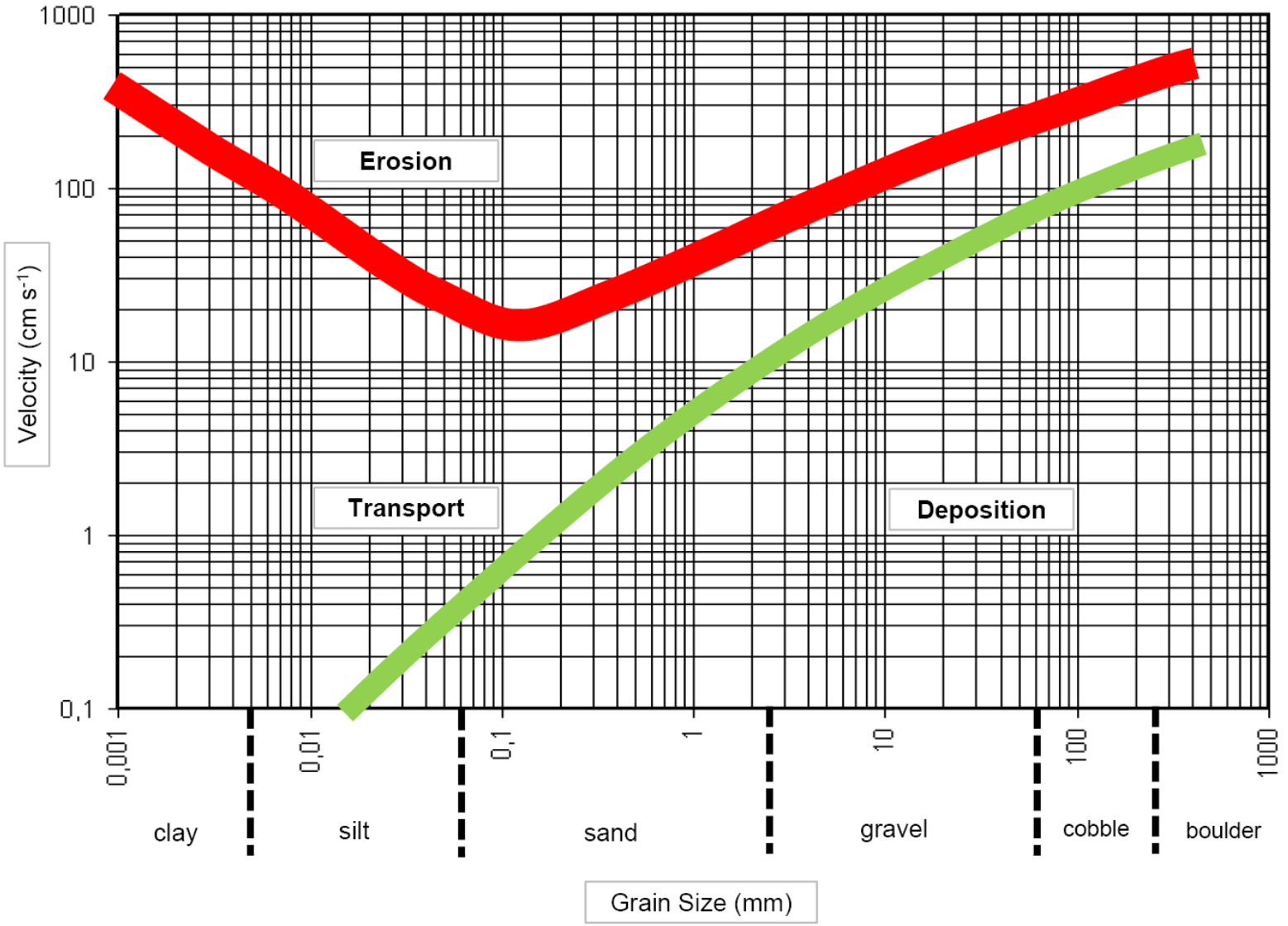
flow depth (m)	15	25	35	45	55
5-6	3.46	3.68	3.78	3.88	n.a.
4.5	3.46	3.68	3.78	3.88	n.a.
4	3.06	3.28	3.38	3.48	n.a.
3.5	3.06	3.28	3.38	3.48	n.a.
3	3.06	3.28	3.38	3.48	n.a.
2.5	3.06	3.28	3.38	3.48	n.a.
2	2.65	2.87	2.97	3.07	3.16
1.5	2.65	2.87	2.97	3.07	3.16
1	2.65	2.87	2.97	3.07	3.16
0.5	2.65	2.87	2.97	3.07	3.16

bank angle (°)

Prepared by: AquaLogic, 2011

Attachment 2

Erosion Sensitivity – Hjulstrom Curve


1000
100
10
1
0,1
Velocity (cm s-1)
Erosion
Transport
Deposition
0,001
0,01
0,1
1
10
100
1000
clay
silt
sand
gravel
cobble
boulder
Grain Size (mm)

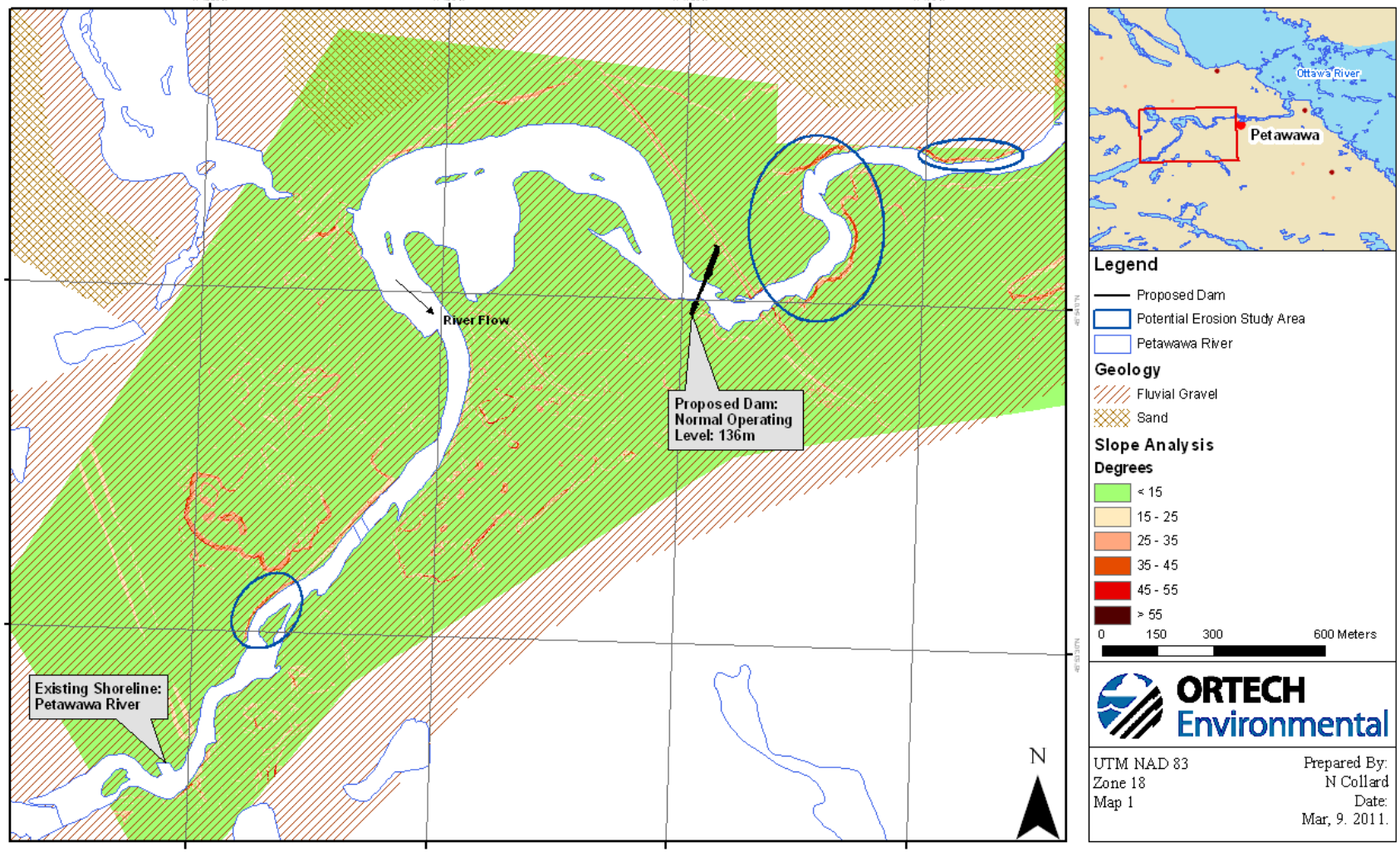
Attachment 3

Erosion Potential Mapping

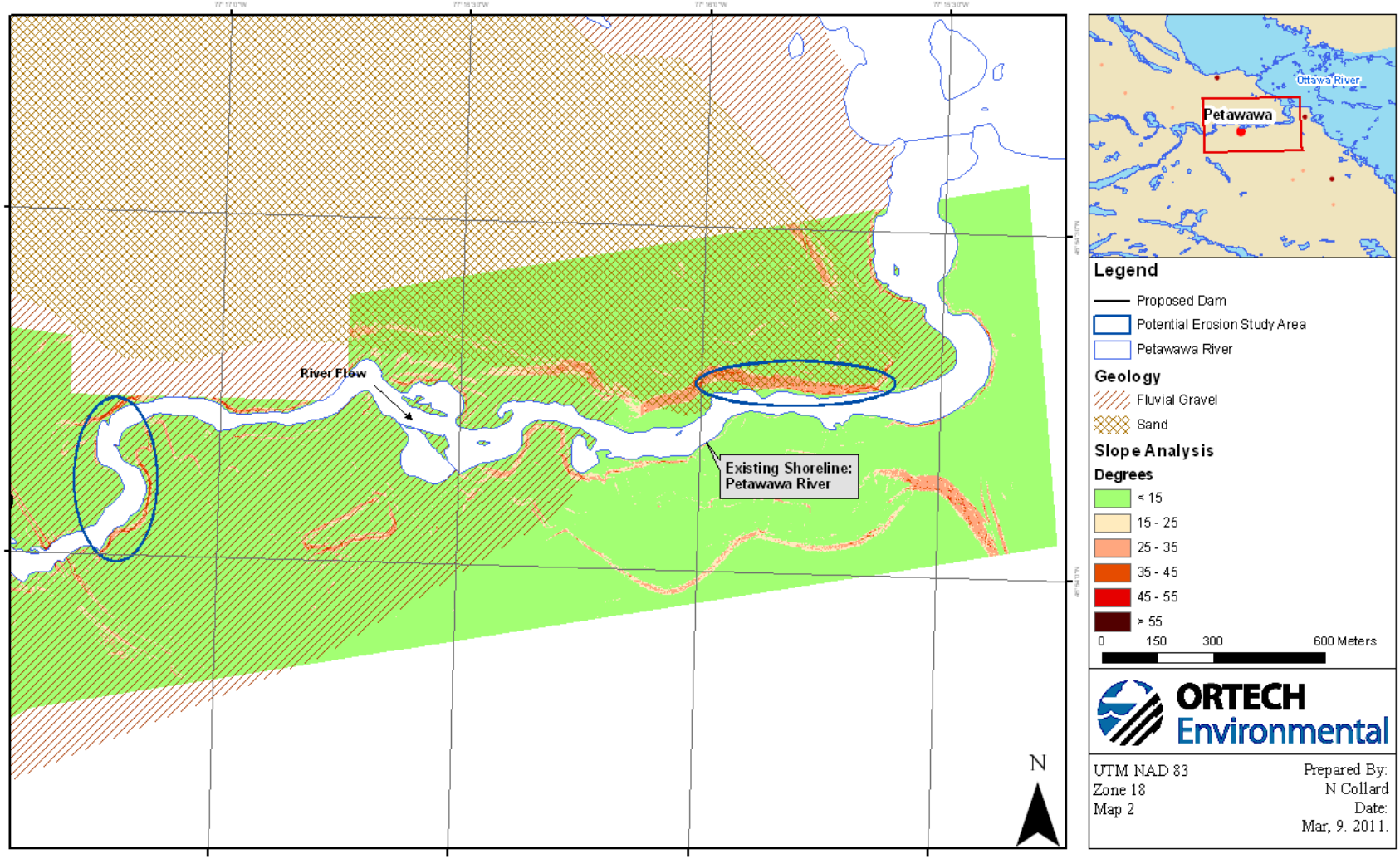
Table A3: Project Site Surficial Geology and Erosion Potential

				Erosion Sensitivity at Flow Depth of 1m			
Geological Formation	**Substrate Category**	**Upper Velocity Range (m/s)**	**Project Site #**	**Very Low**	**Low**	**Moderate**	**Additional Analysis Required**
Fluvial Gravel	2, 6	1.5	1, 2		<45		**>45**
Sand	3	1.1	1, 2		<25	**25 - 45**	**>45**
Bedrock	1	2.5	2, 13	<55			
Bog Deposits	7	1.1	2		<25	**25-45**	**>45**
Glacial Gravel	2, 6	1.5	2		<45		**>45**
Glacial Till	7	1.1	2		<25		
Ice Contract Drift	7	1.1	2		<25	**25-45**	**>45**
Granite	1	2.5	3	<55			
Gneiss	1	2.5	5	<55			
Ultramafic Rock	1	2.5	6	<55			
Volcanic, Sedimentary Material	1	2.5	7	<55			
Batholithic Intrusives	1	2.5	7, 8, 10	<55			
McKim Formation	1	2.5	7	<55			
Mississaji Quarizite	1	2.5	7	<55			
Ramsay Lake Conglomerate	1	2.5	7	<55			
Schistified Volcanics, Clastic Sediments	1	2.5	7, 8	<55			
Basic Intrusives	1	2.5	8, 10	<55			
Noritic "Basic Edge" Differentiate	1	2.5	8, 9	<55			
Nickel Bearing Irruptive	1	2.5	9	<55			
Onaping Tuff	1	2.5	9	<55			
Transition Zone (Tuff / Irruptive)	1	2.5	9	<55			
Schist Complex	1	2.5	10	<55			
Transition Material (Schist / Intrusives)	1	2.5	10	<55			
Glasiolacustrine Deposits	4, 16	1.5	12, 14		<55		
Glaciofluvial Outwash Deposits	4, 16	1.2	13		<55		
Glaciofluvial Ice	4, 16	1.2	14		<55		
Fluvial Deposits	4, 16	1.2	14		<55		
Beach	3, 7	1.1	15, 18		<25	**25-45**	**>45**
Cloustan Silt	4	1.5	15, 17, 18		<55		
Wadsworth Rock Upland	1	2.5	15	<55			
Drumlins	13	1.7	16		<45		**>45**
Hanging Cliff	1	2.5	16	<55			
Lisgar Silt	4	1.5	16		<55		
The Flutes	1	2.5	17, 18	<55			
Ablation	13	1.7	18		<45		**>45**
Allenby Lake Clay	4	1.5	18		<55		

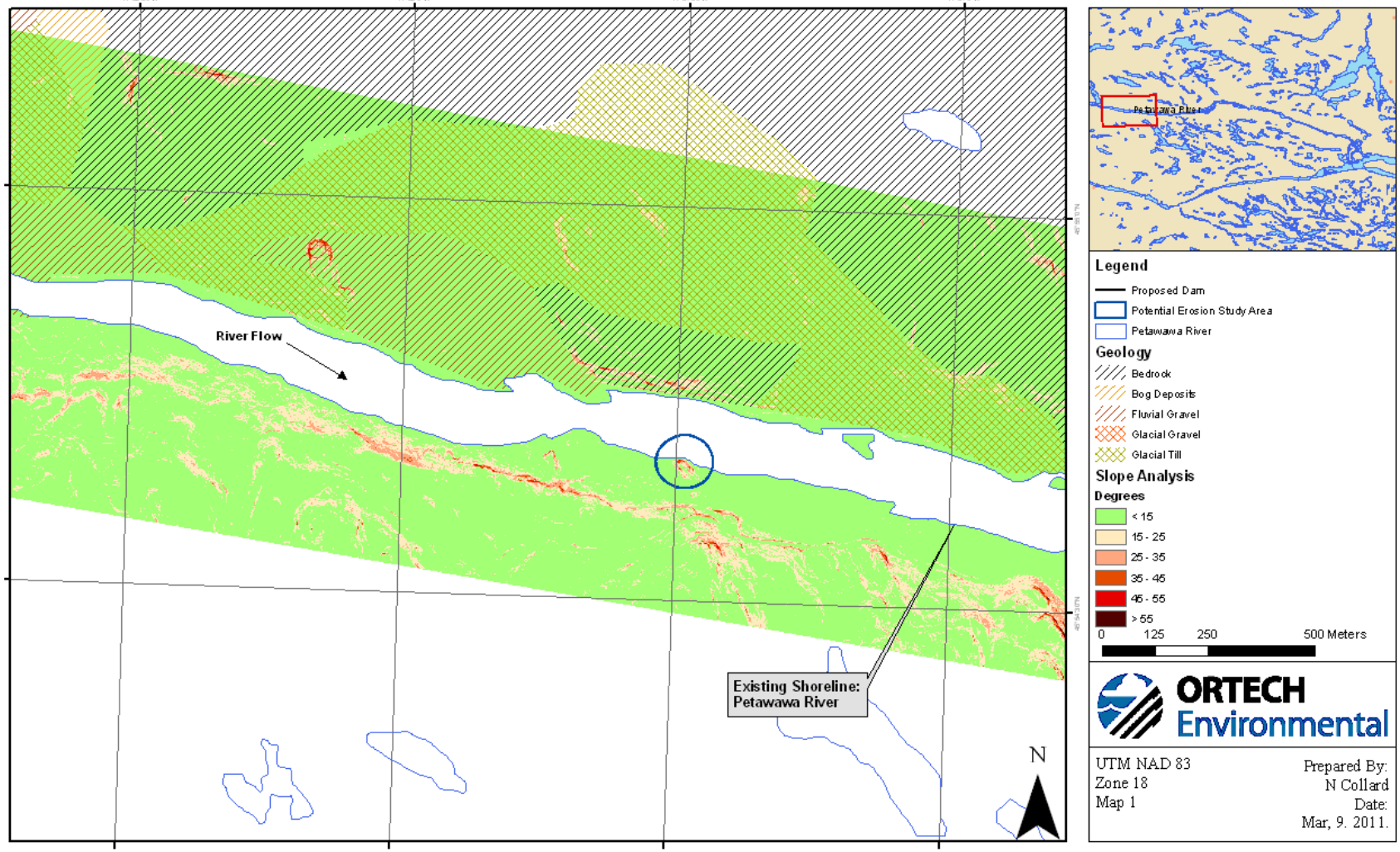
Big Eddy - Slope Analysis



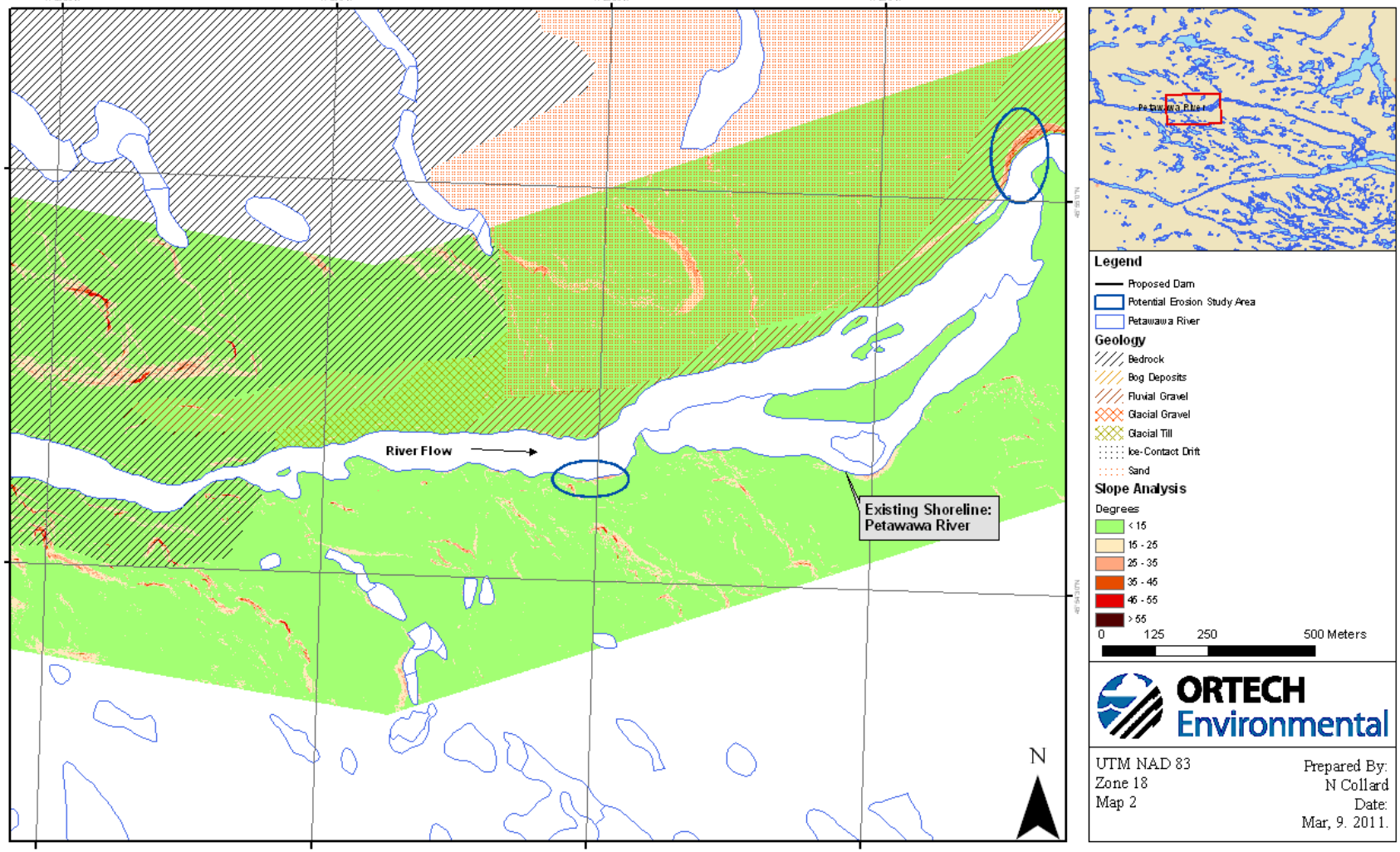
Big Eddy - Slope Analysis



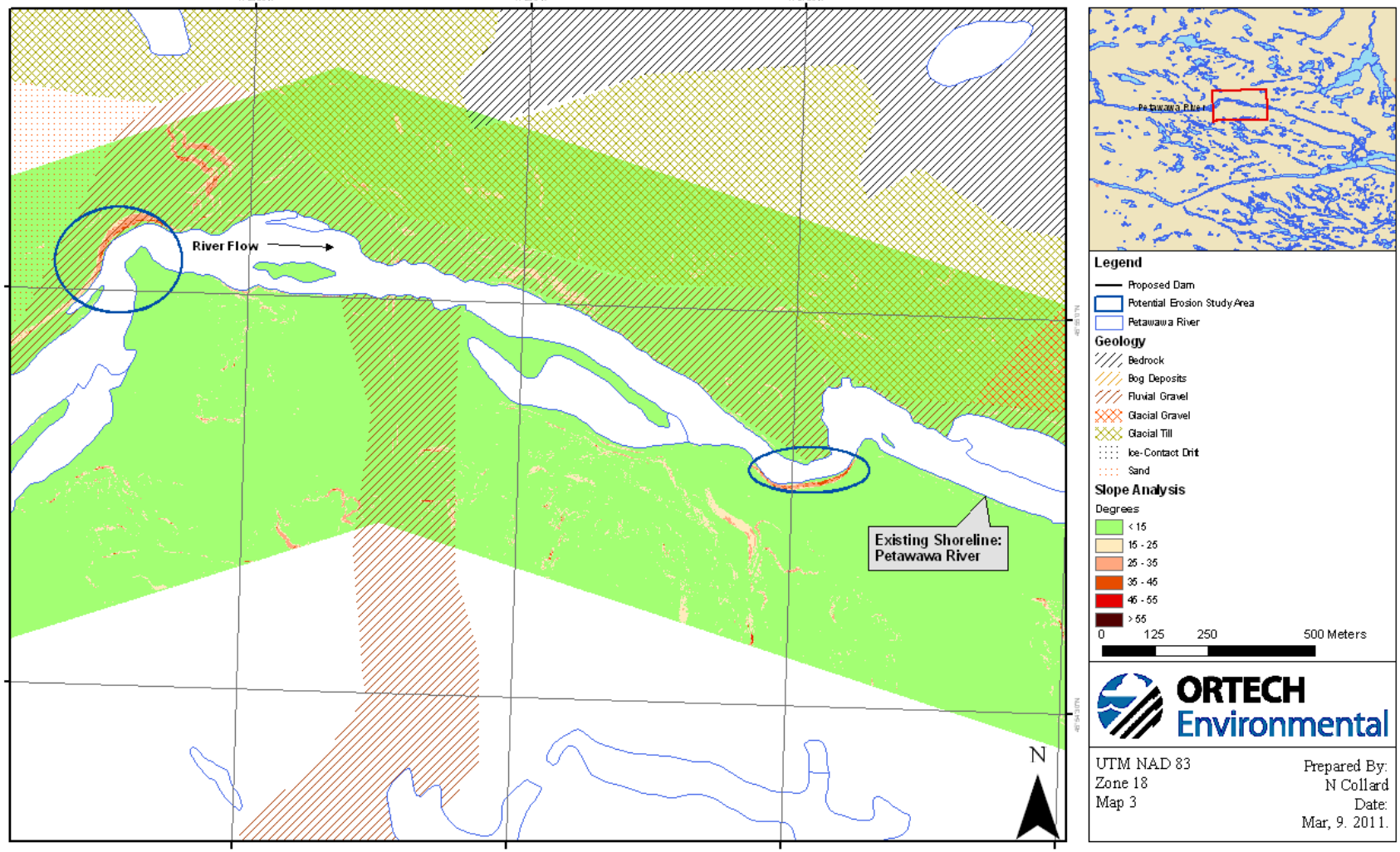
Half Mile - Slope Analysis



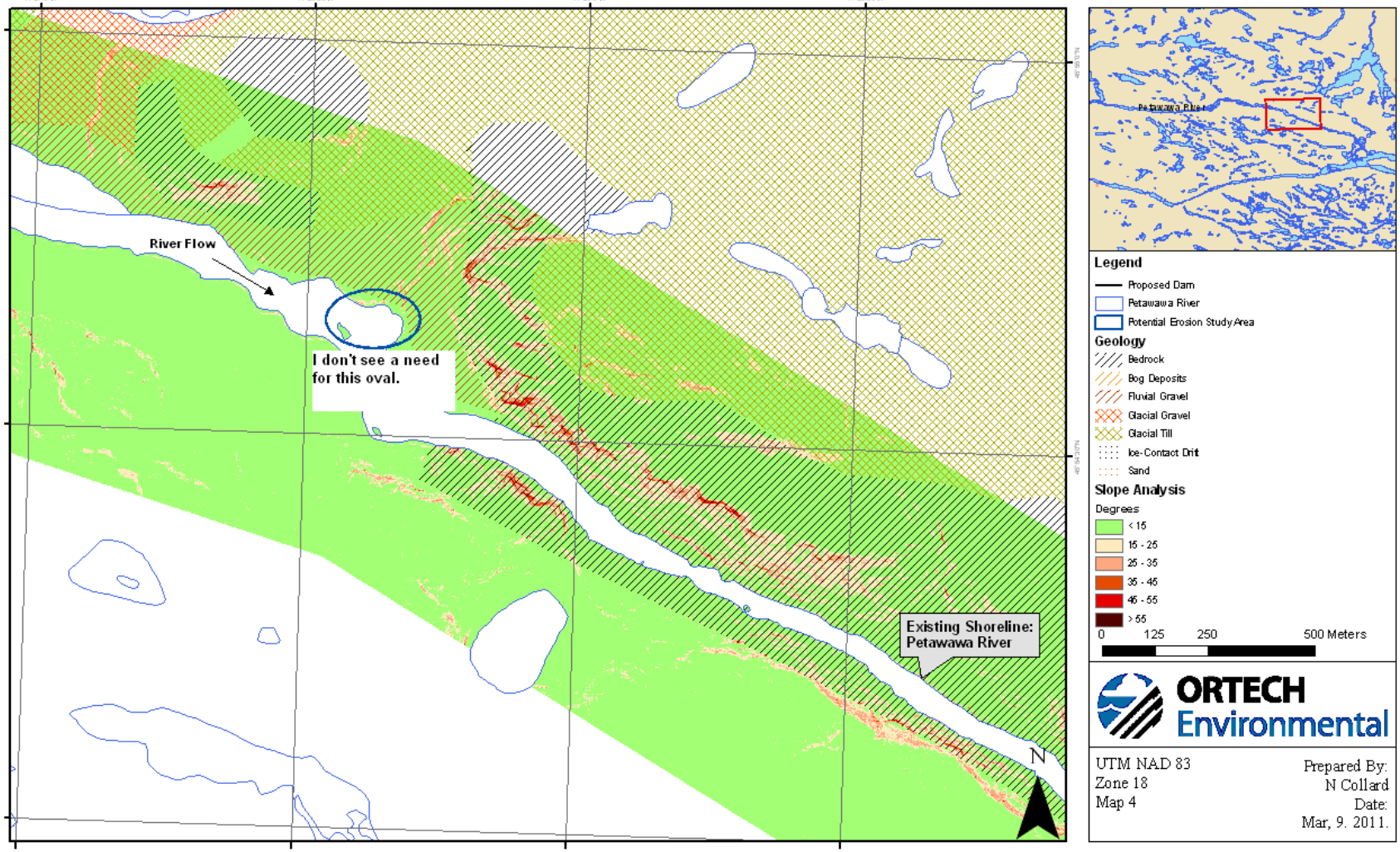
Half Mile - Slope Analysis



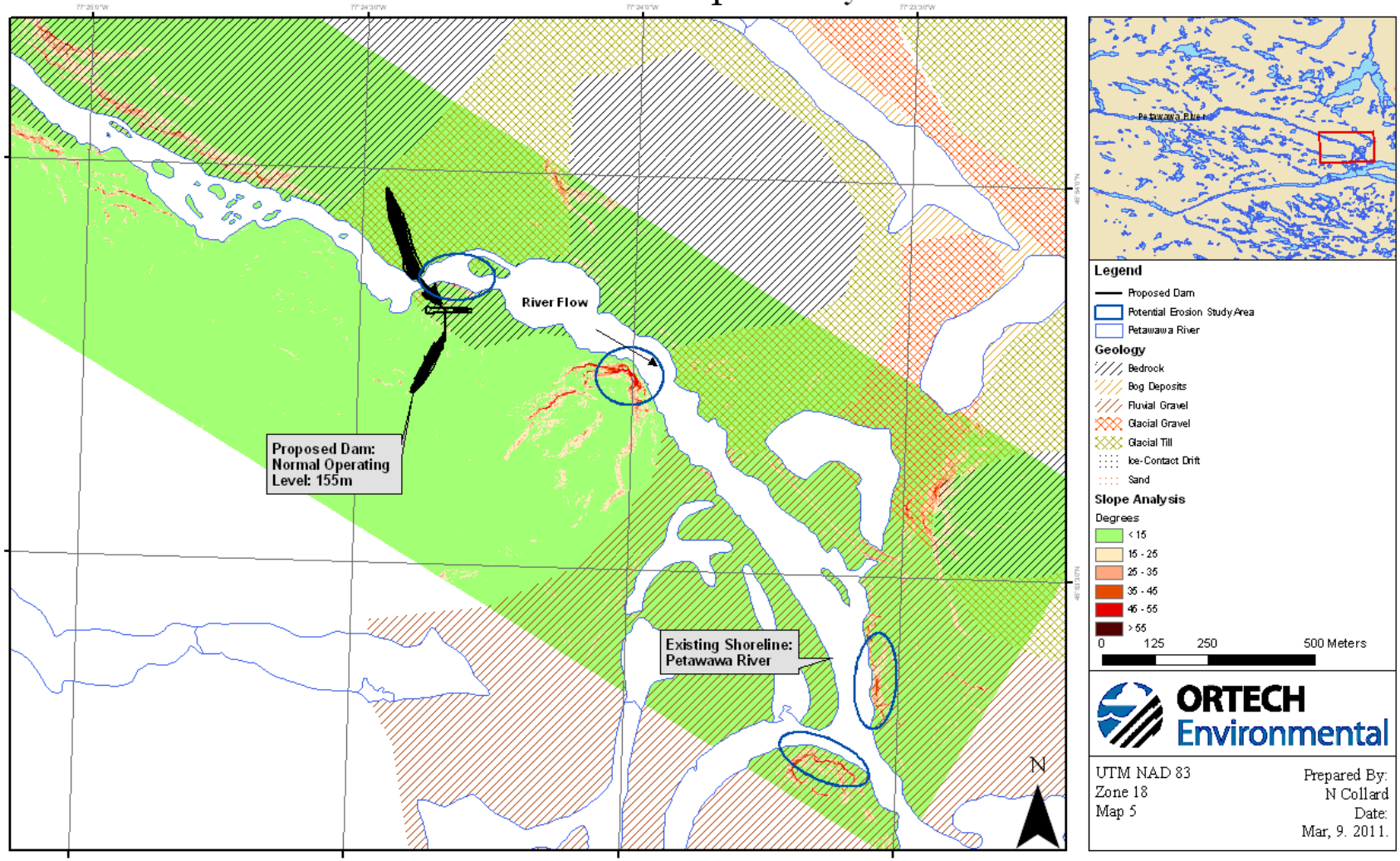
Half Mile - Slope Analysis



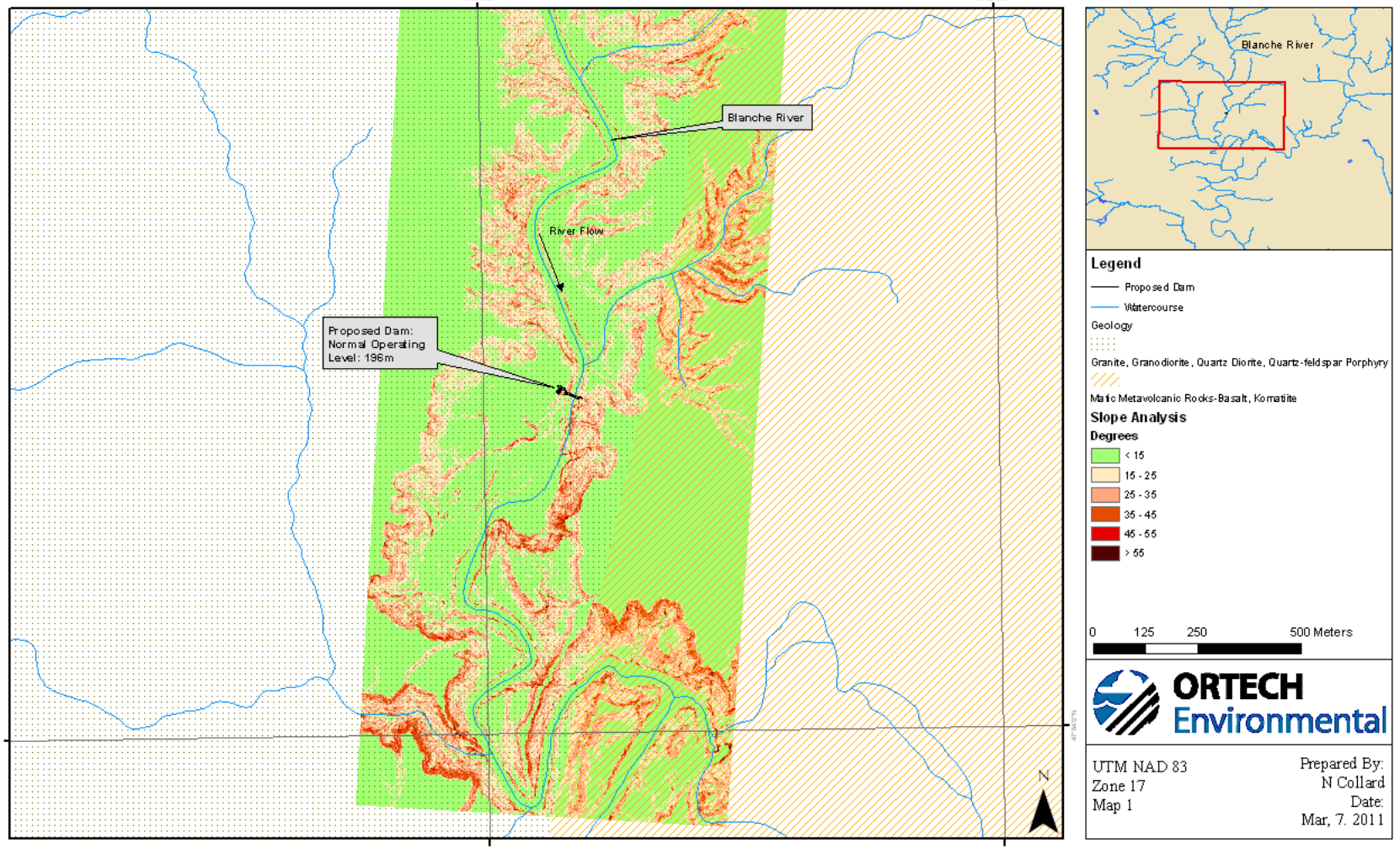
Half Mile - Slope Analysis



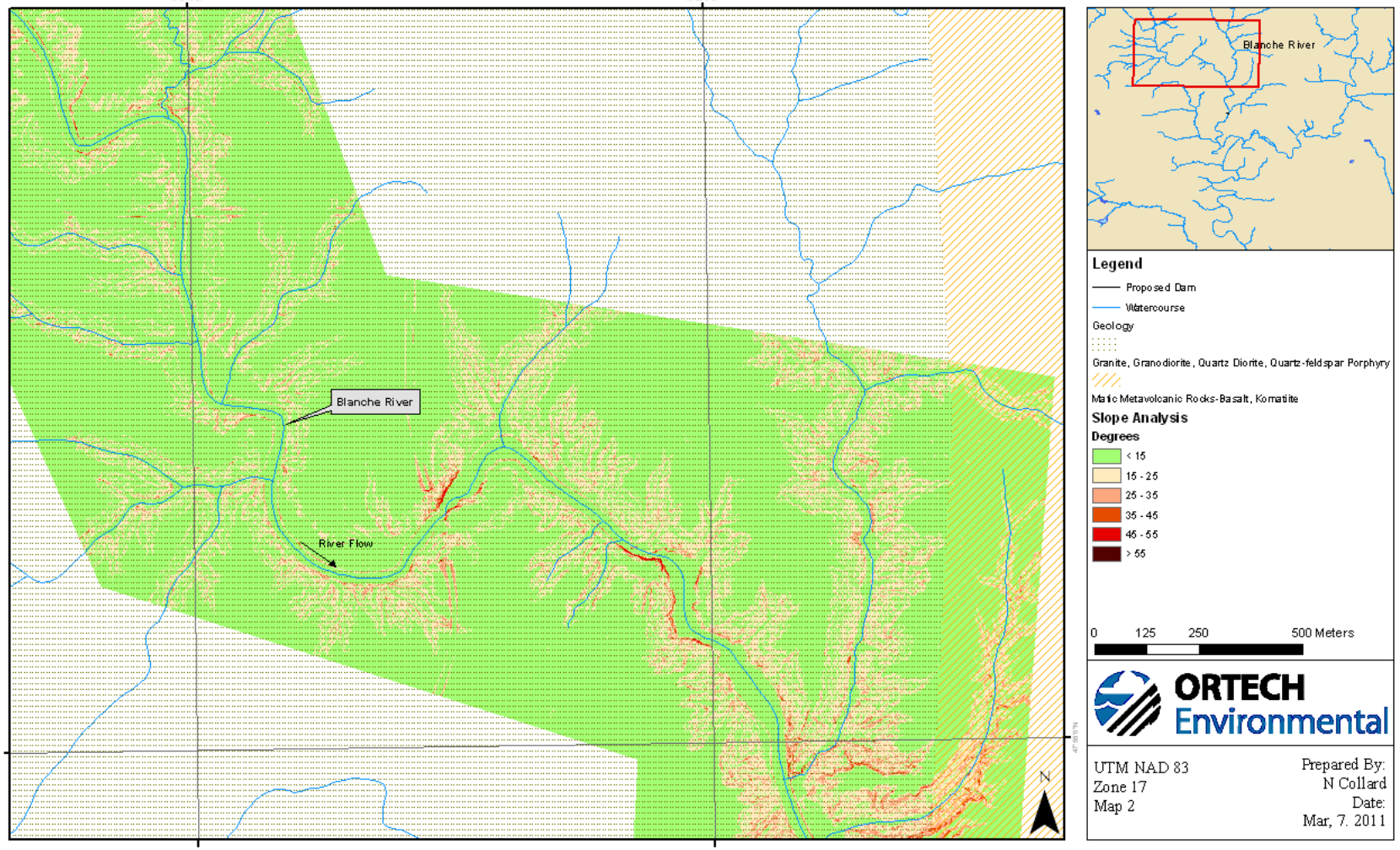
Half Mile - Slope Analysis



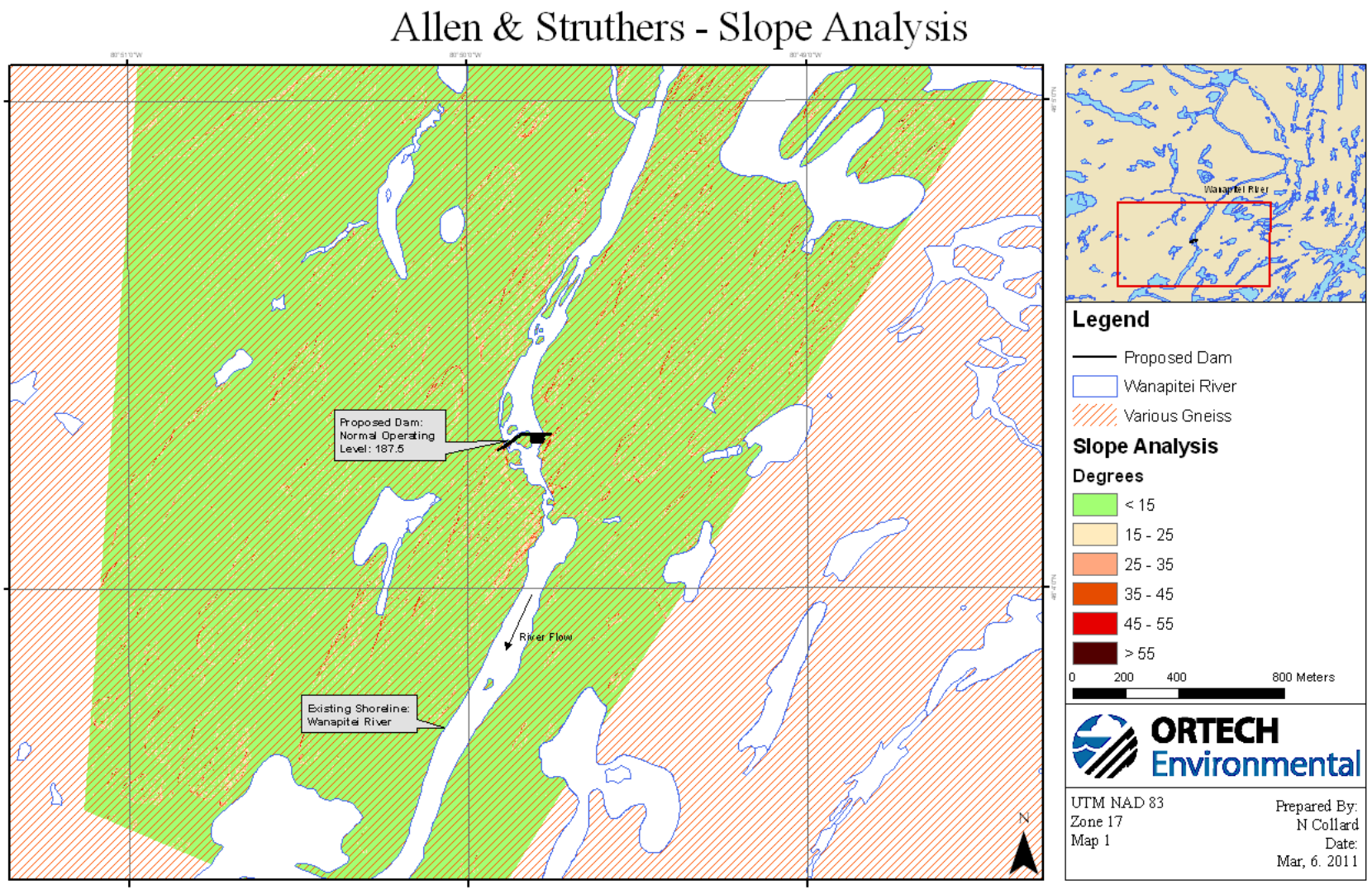
Marter - Slope Analysis



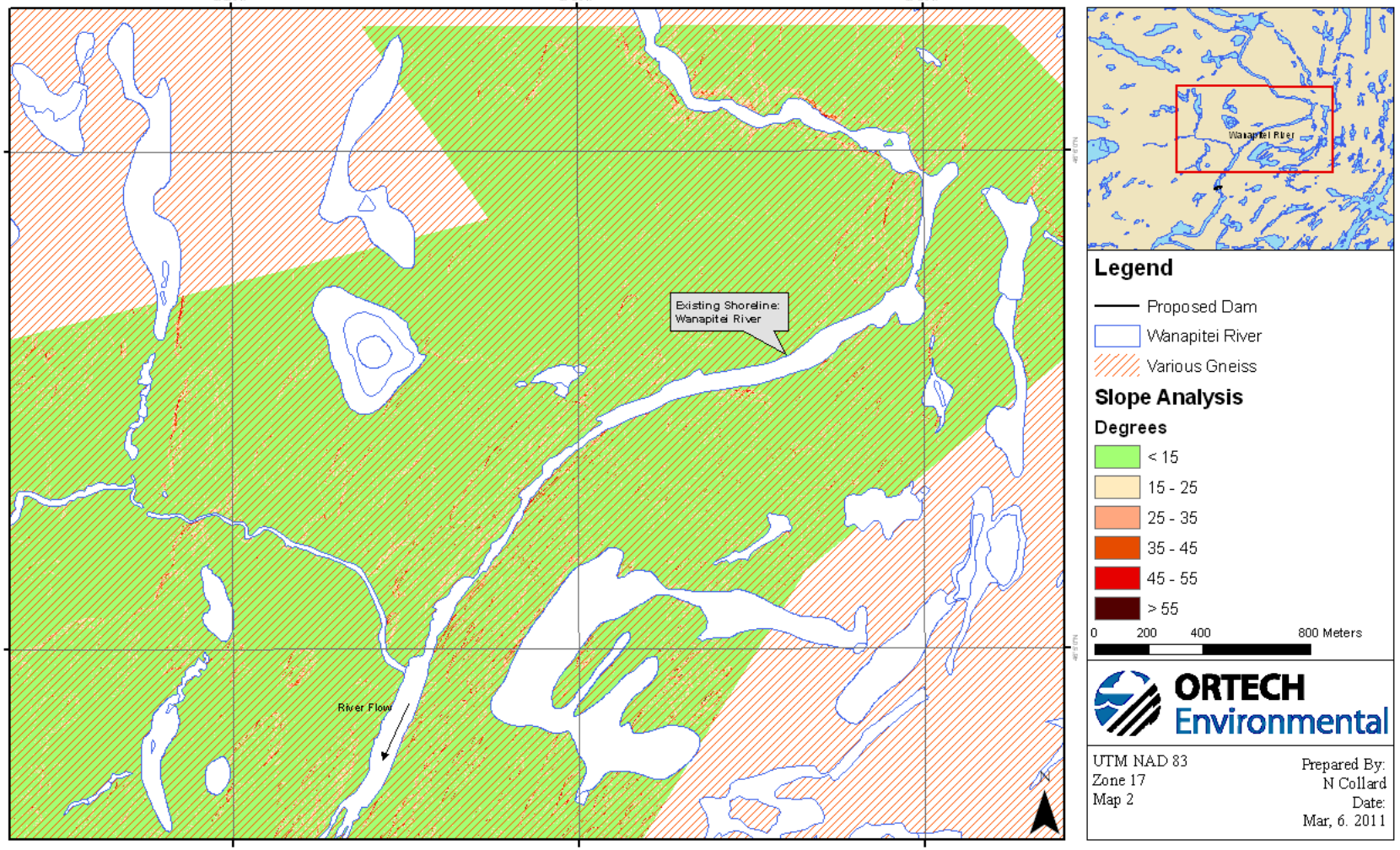
Marter - Slope Analysis



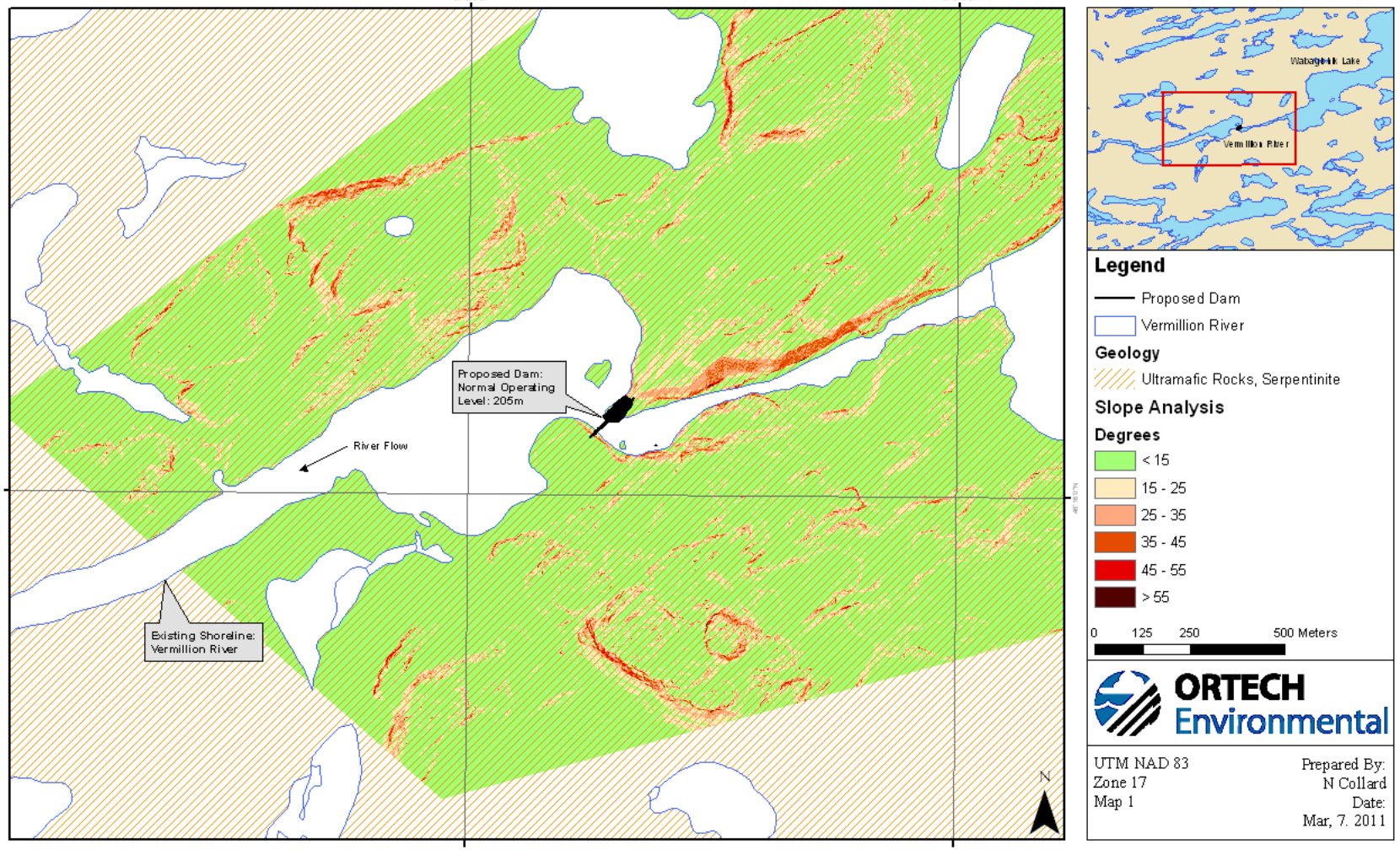
Larder & Raven – LIDAR Data not Available


Allen & Struthers - Slope Analysis
Proposed Dam:
Normal Operating
Level: 187.5
River Flow
Existing Shoreline:
Wanapitei River
N
Wanapitei River
Legend
Proposed Dam
Wanapitei River
Various Gneiss
Slope Analysis
Degrees
< 15
15 - 25
25 - 35
35 - 45
45 - 55
> 55
0
200
400
800 Meters
ORTECH
Environmental
UTM NAD 83
Zone 17
Map 1
Prepared By:
N Collard
Date:
Mar, 6. 2011

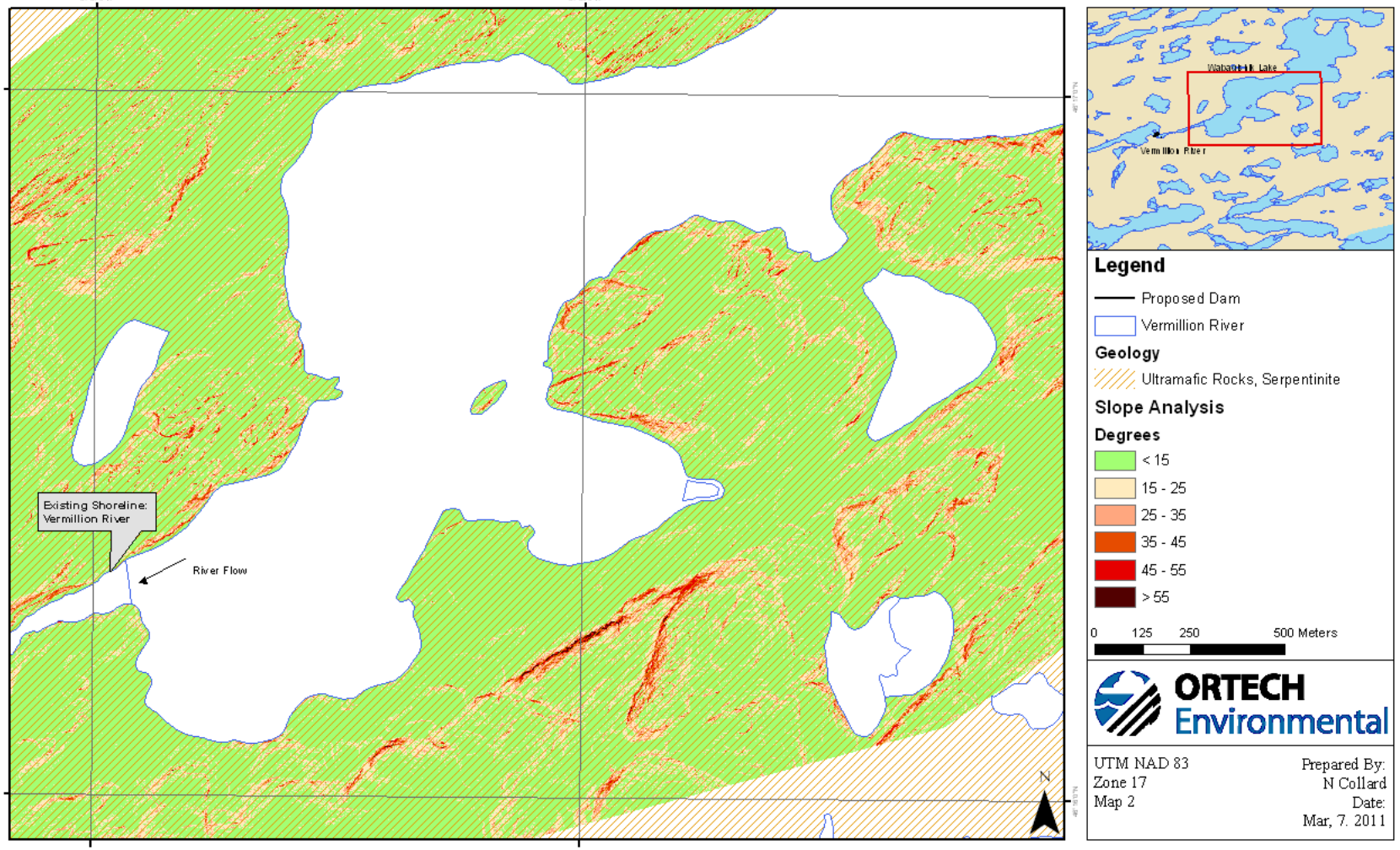
Allen & Struthers - Slope Analysis



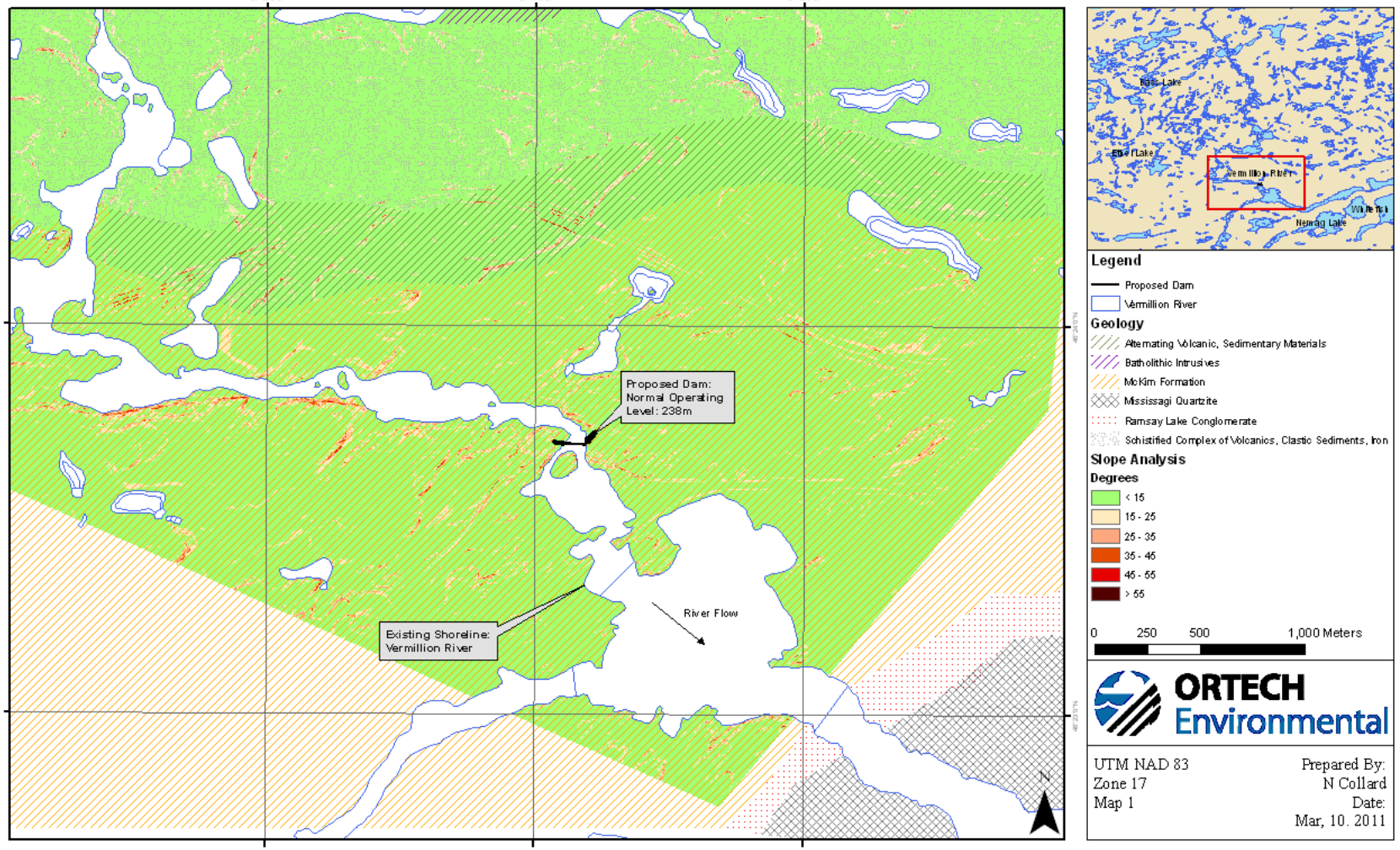
Wabagishik - Slope Analysis



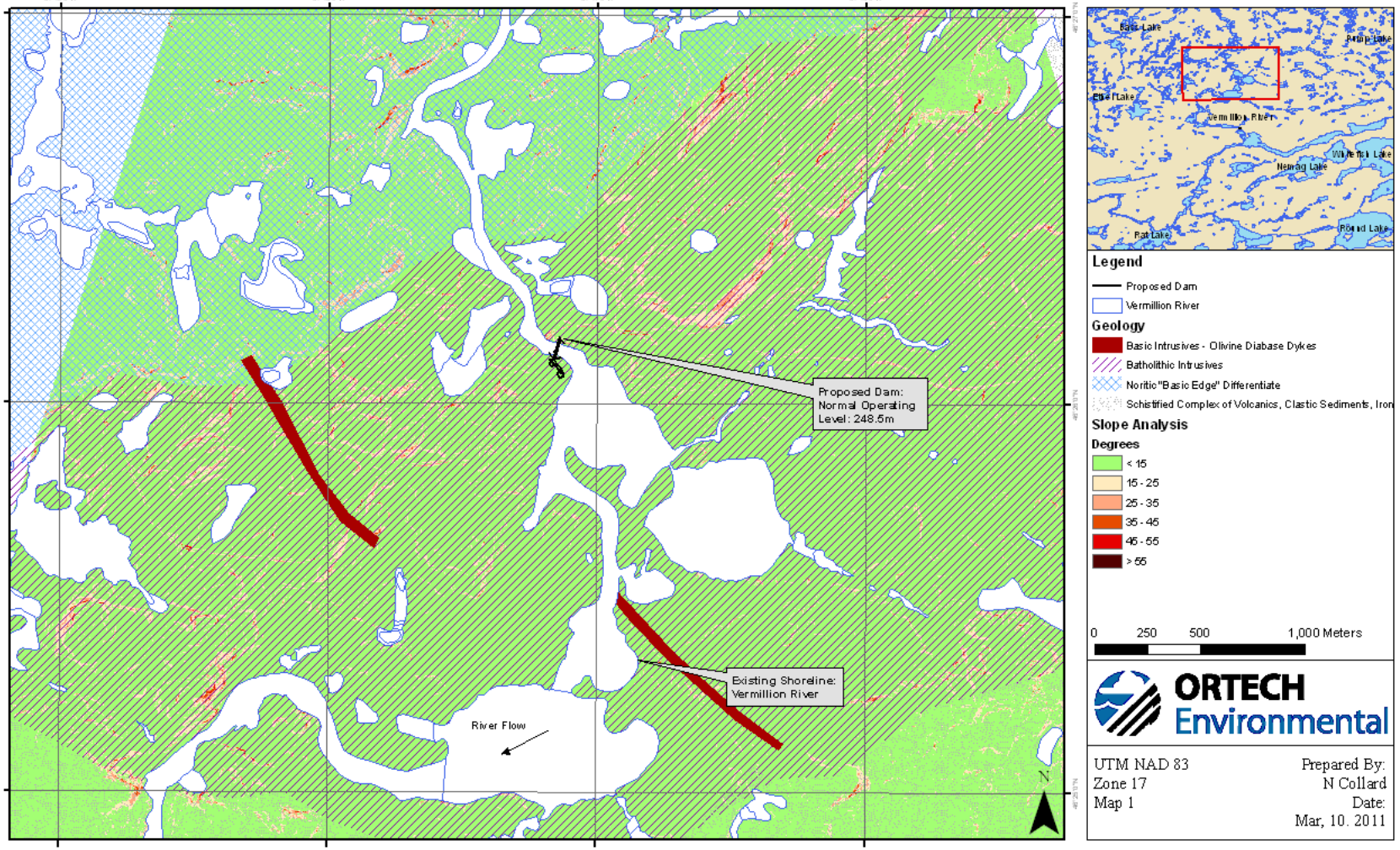
Wabagishik - Slope Analysis



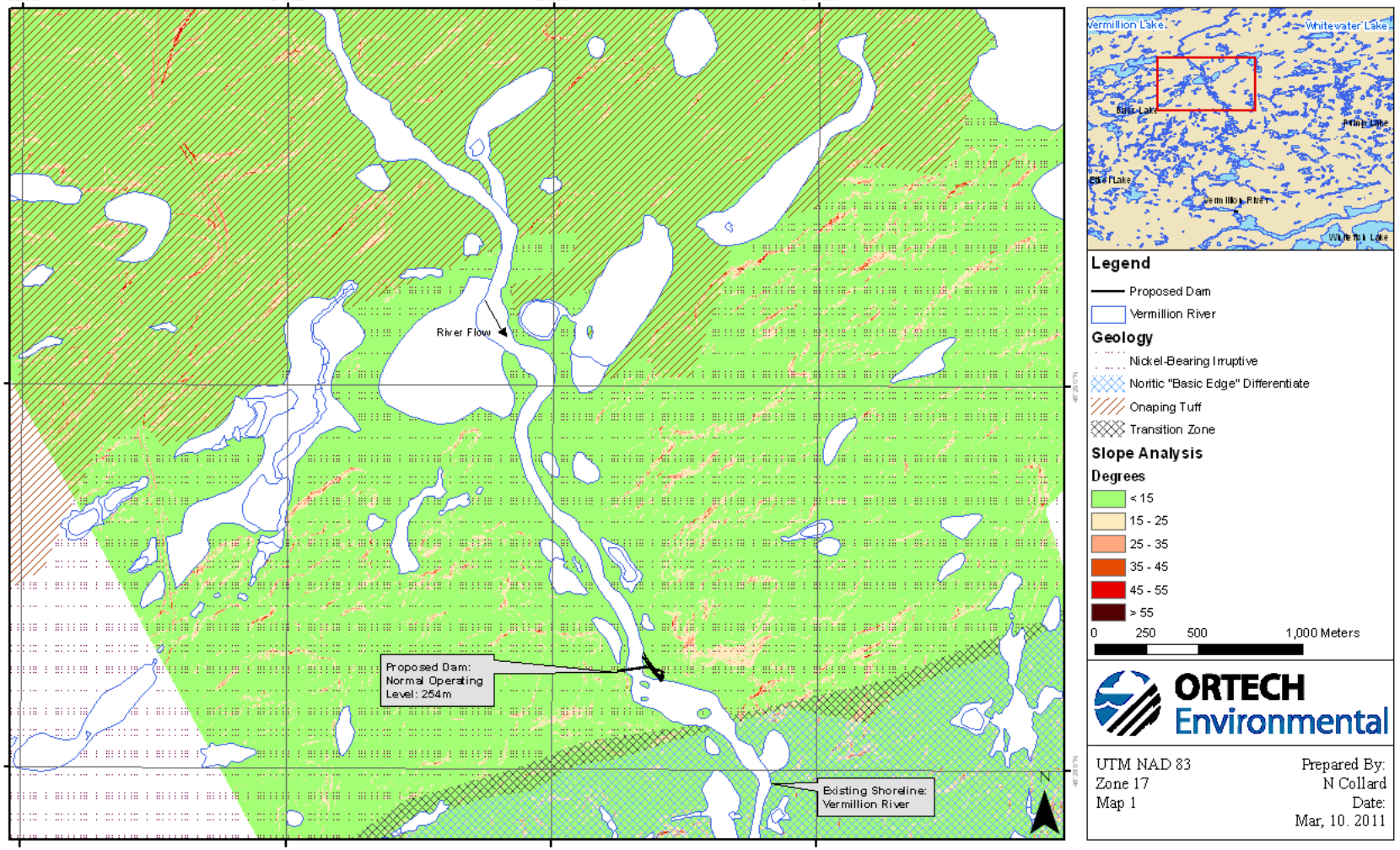
At Soo Crossing - Slope Analysis



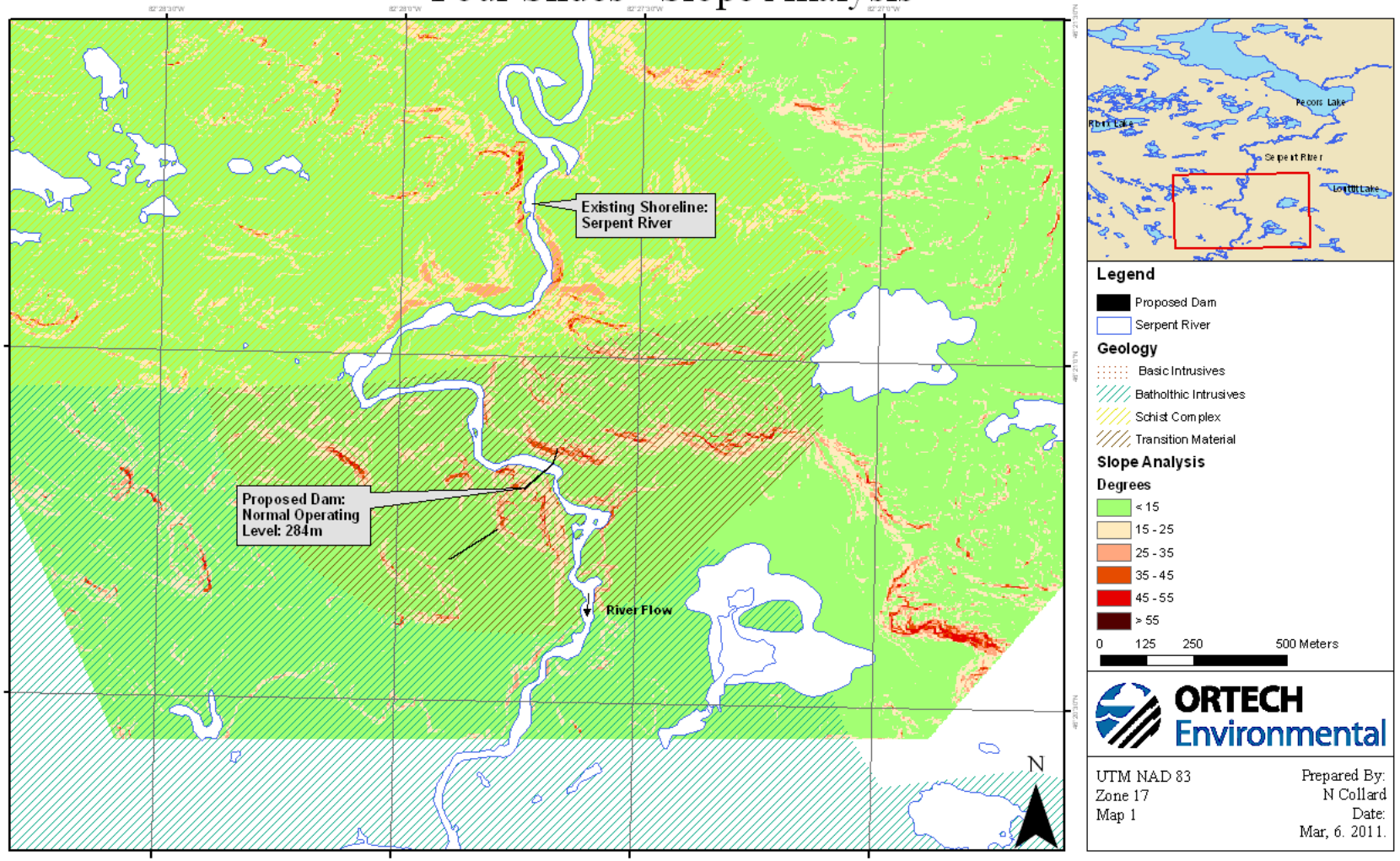
Cascade Falls - Slope Analysis



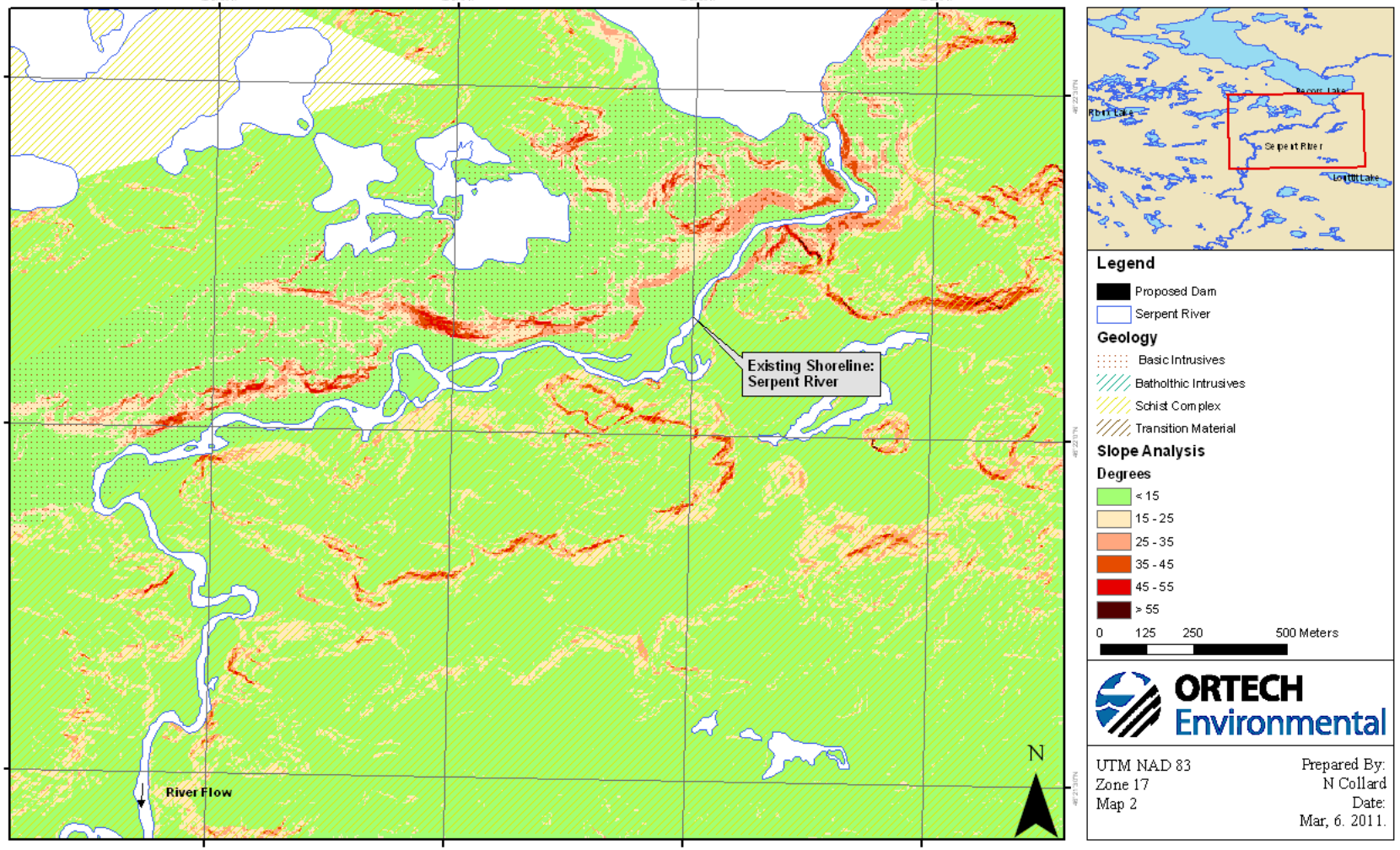
MacPherson Falls - Slope Analysis



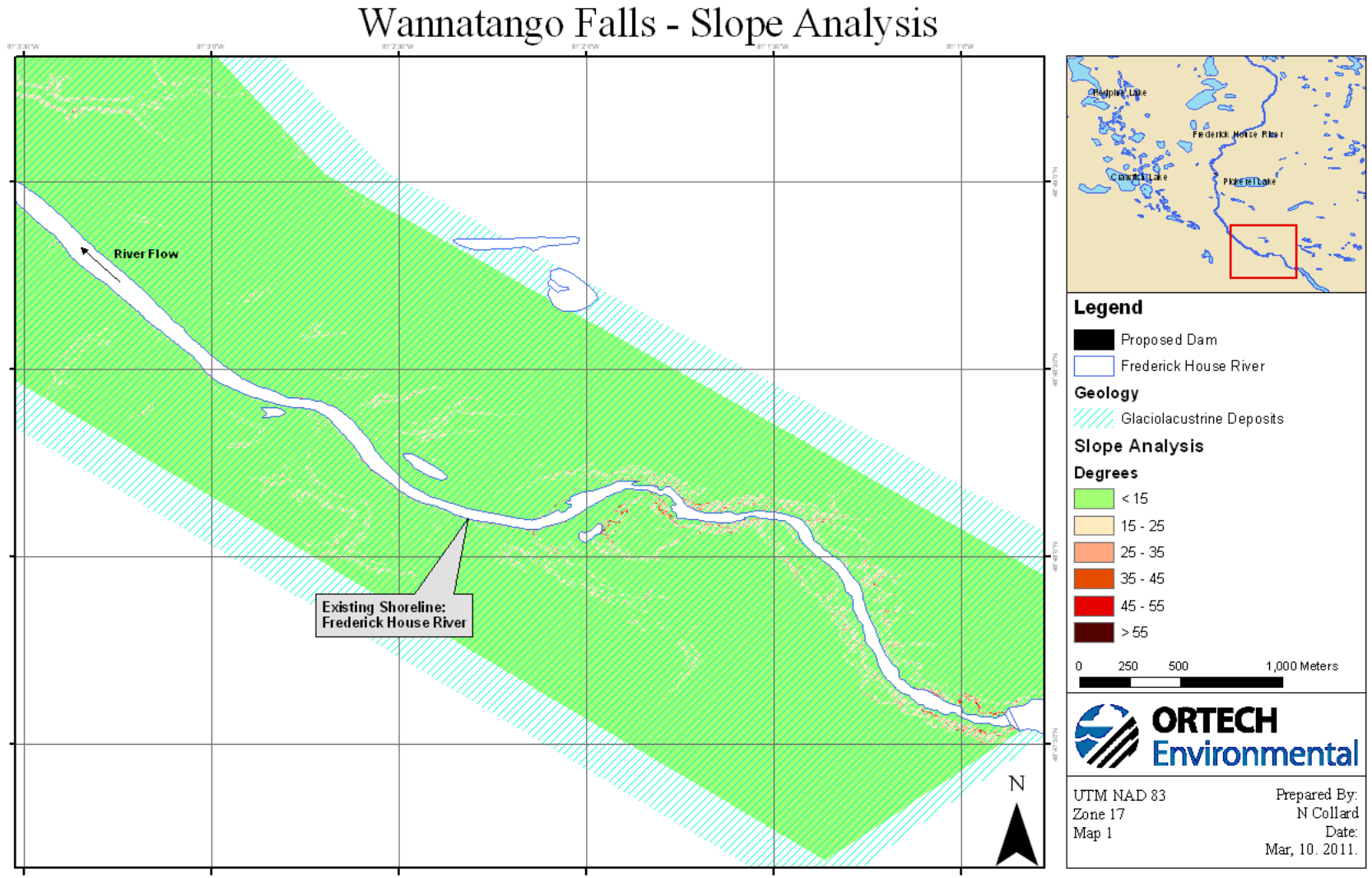
Four Slides - Slope Analysis

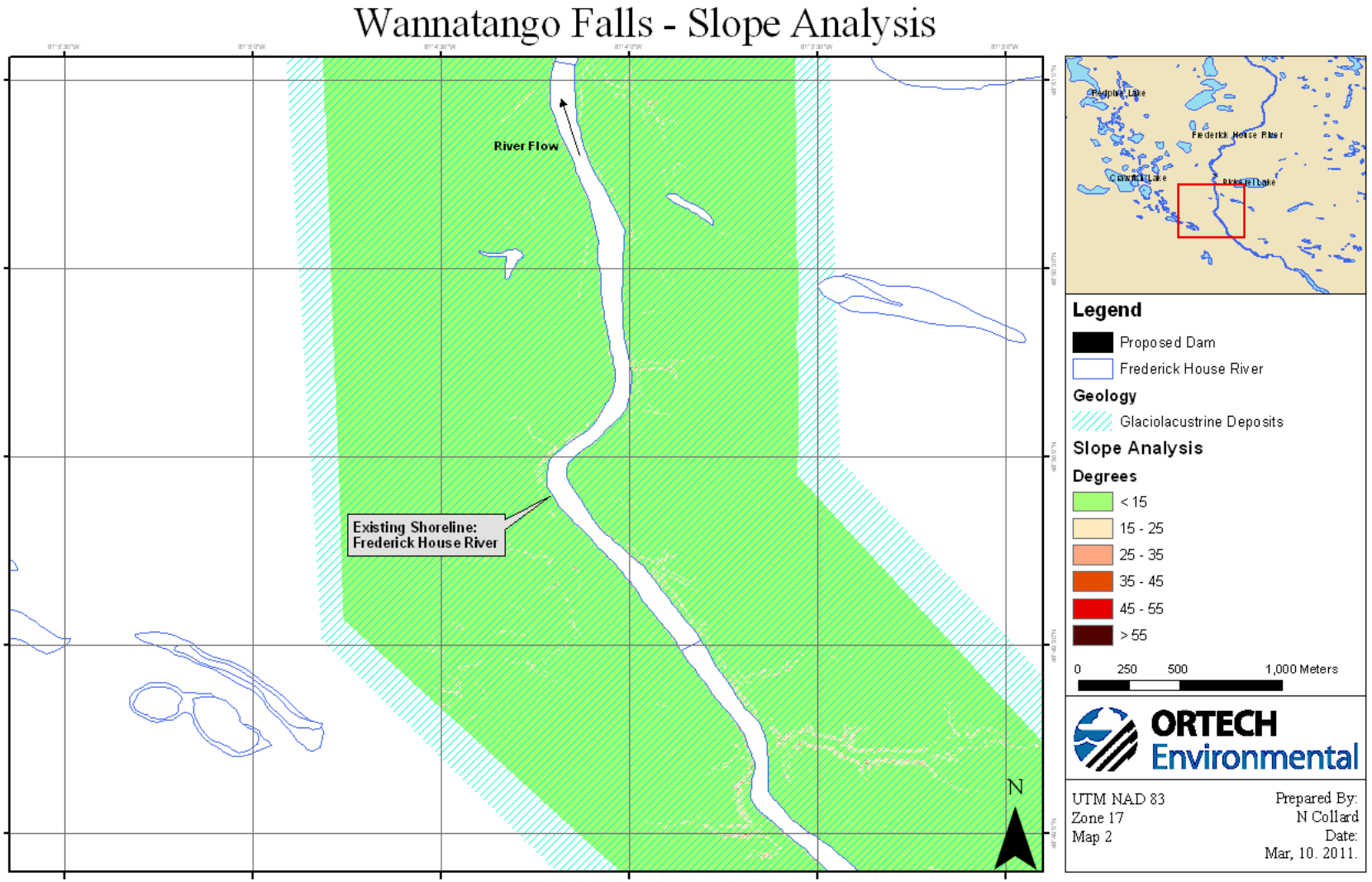


Four Slides - Slope Analysis

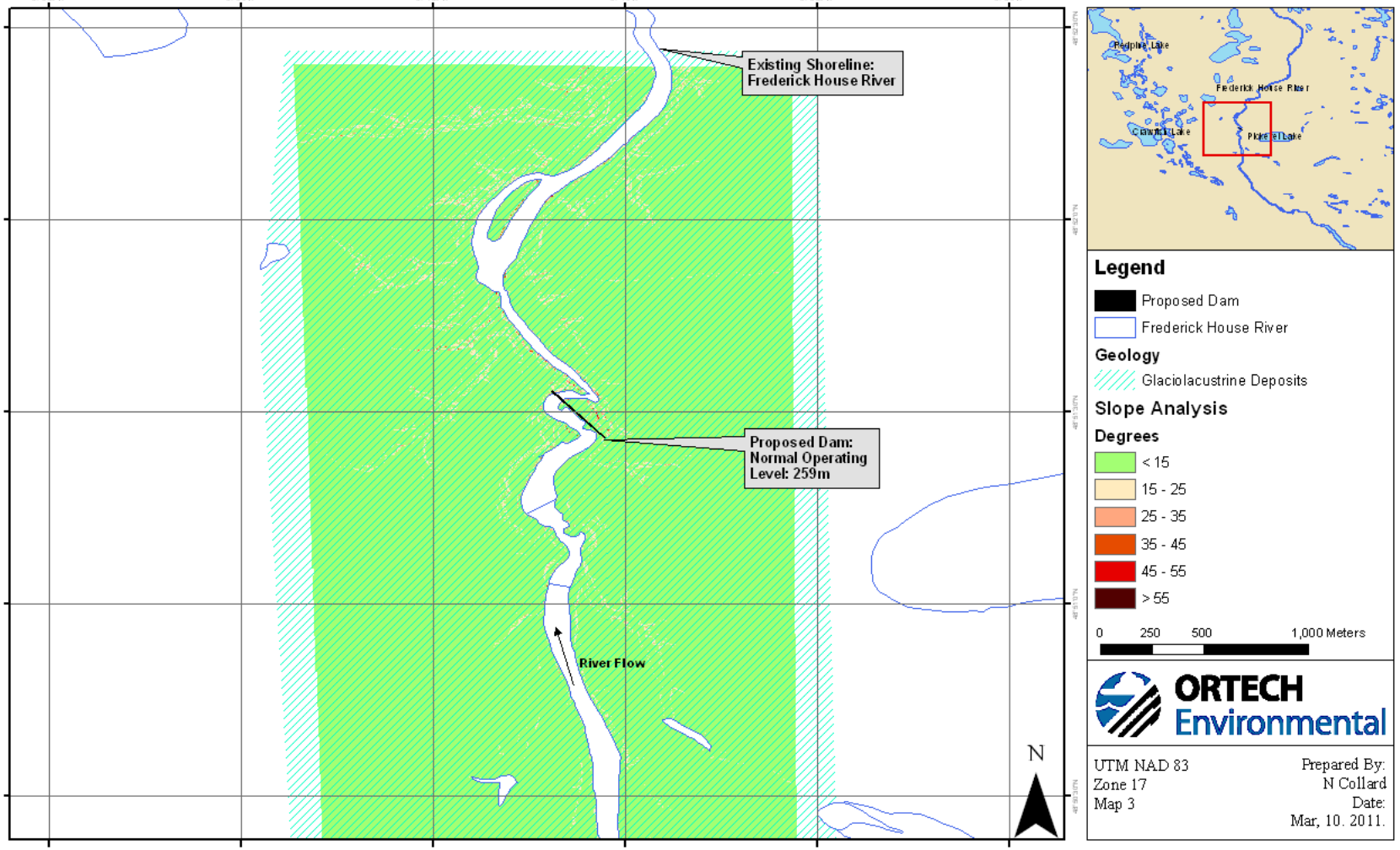


McCarthy Chute – no LIDAR Data available

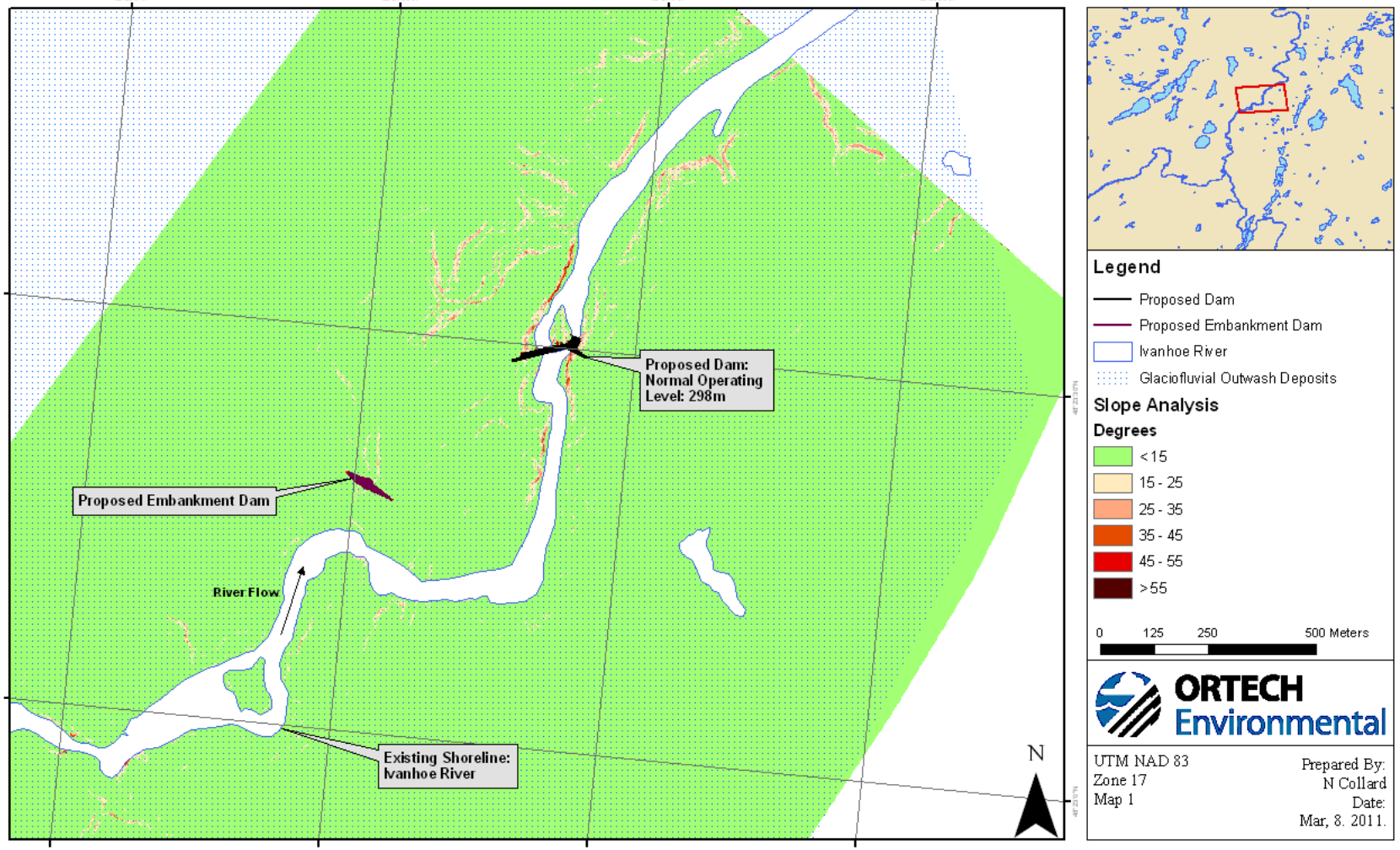

Wannatango Falls - Slope Analysis
River Flow
Existing Shoreline:
Frederick House River
N
Legend
Proposed Dam
Frederick House River
Geology
Glaciolacustrine Deposits
Slope Analysis
Degrees
< 15
15 - 25
25 - 35
35 - 45
45 - 55
> 55
0 250 500 1,000 Meters
ORTECH Environmental
UTM NAD 83
Zone 17
Map 1
Prepared By:
N Collard
Date:
Mar, 10. 2011.


Wannatango Falls - Slope Analysis
River Flow
Existing Shoreline:
Frederick House River
N
Legend
Proposed Dam
Frederick House River
Geology
Glaciolacustrine Deposits
Slope Analysis
Degrees
< 15
15 - 25
25 - 35
35 - 45
45 - 55
> 55
0
250
500
1,000 Meters
ORTECH
Environmental
UTM NAD 83
Zone 17
Map 2
Prepared By:
N Collard
Date:
Mar, 10. 2011.

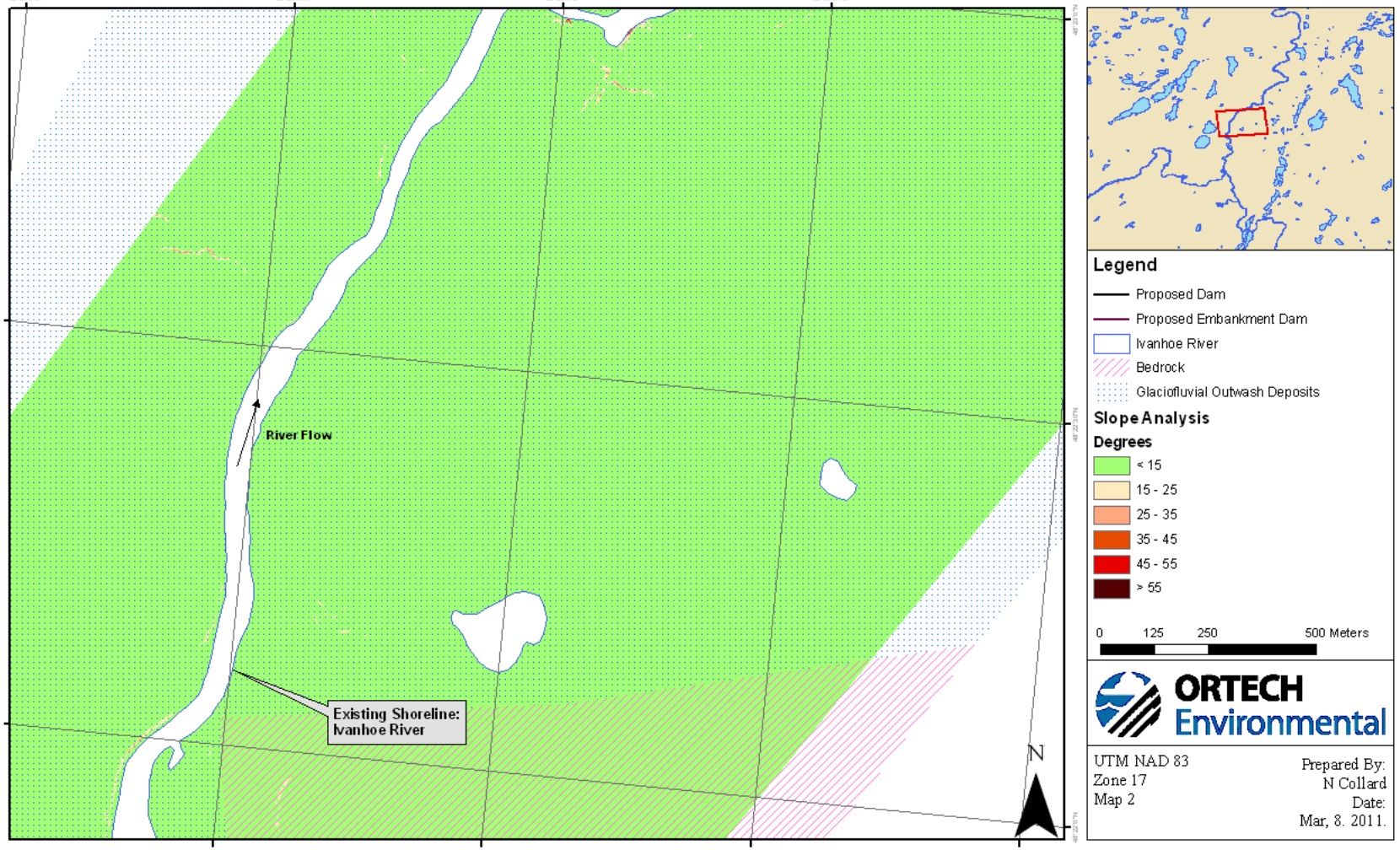
Wannatango Falls - Slope Analysis



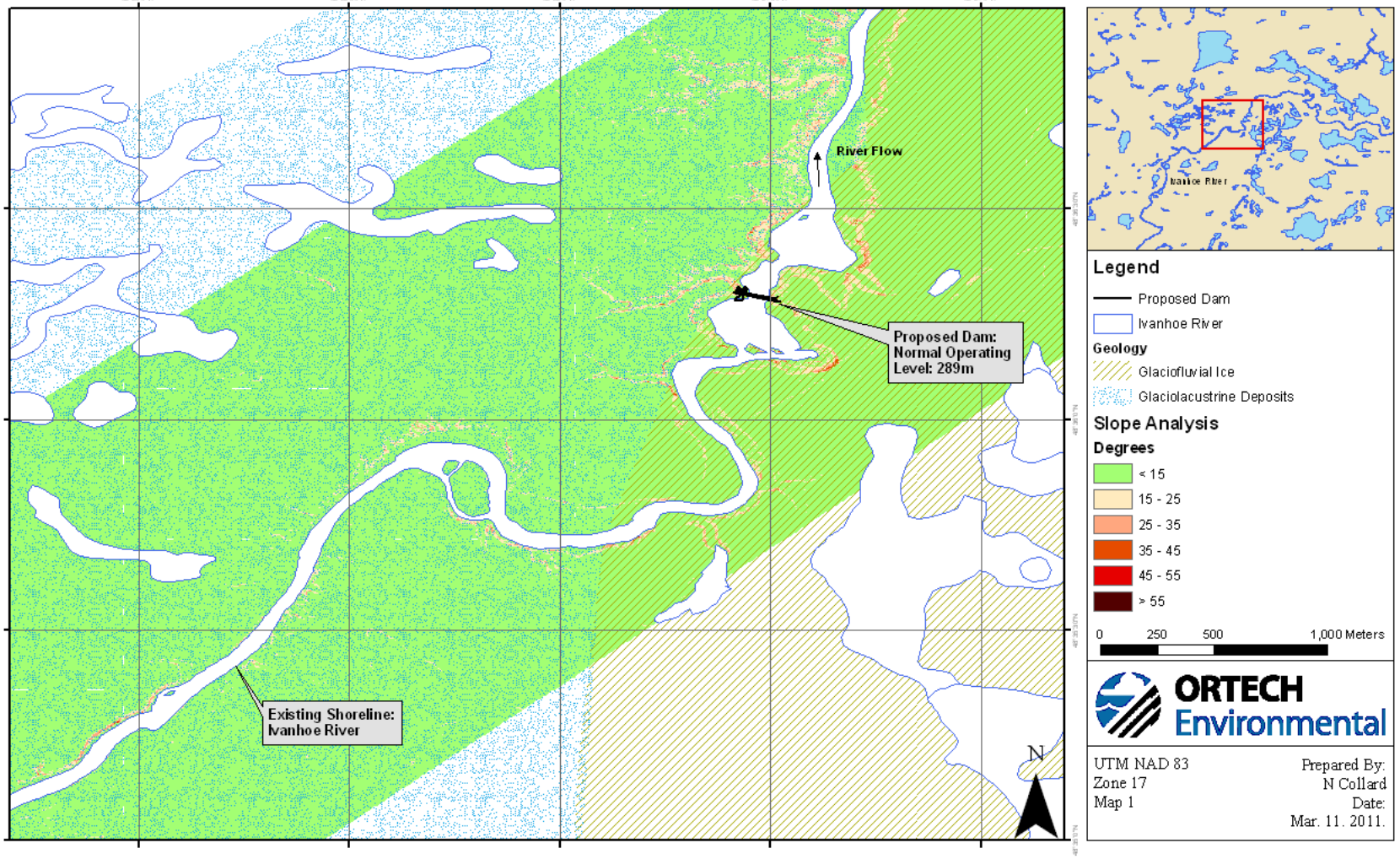
The Chute - Slope Analysis



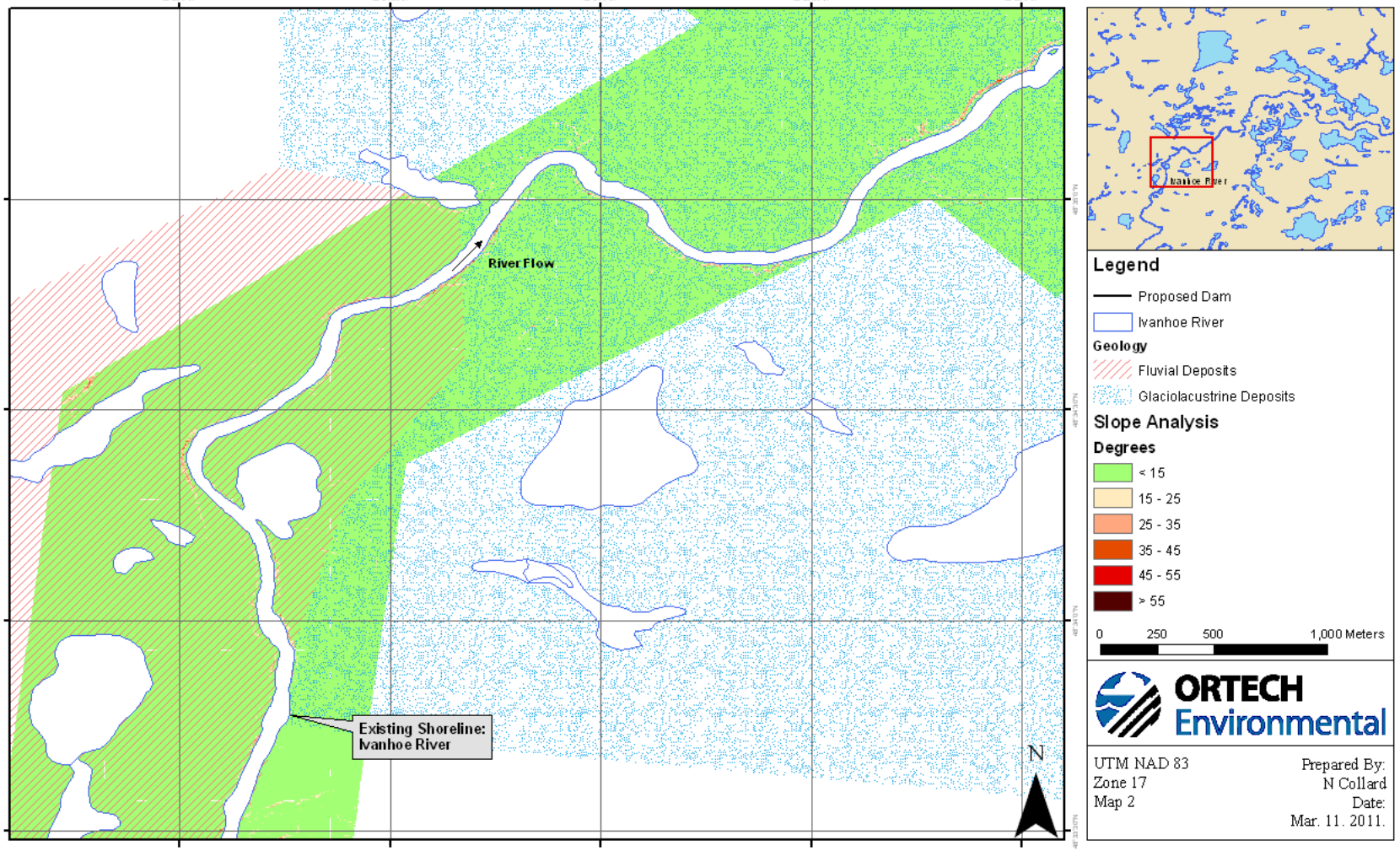
The Chute - Slope Analysis



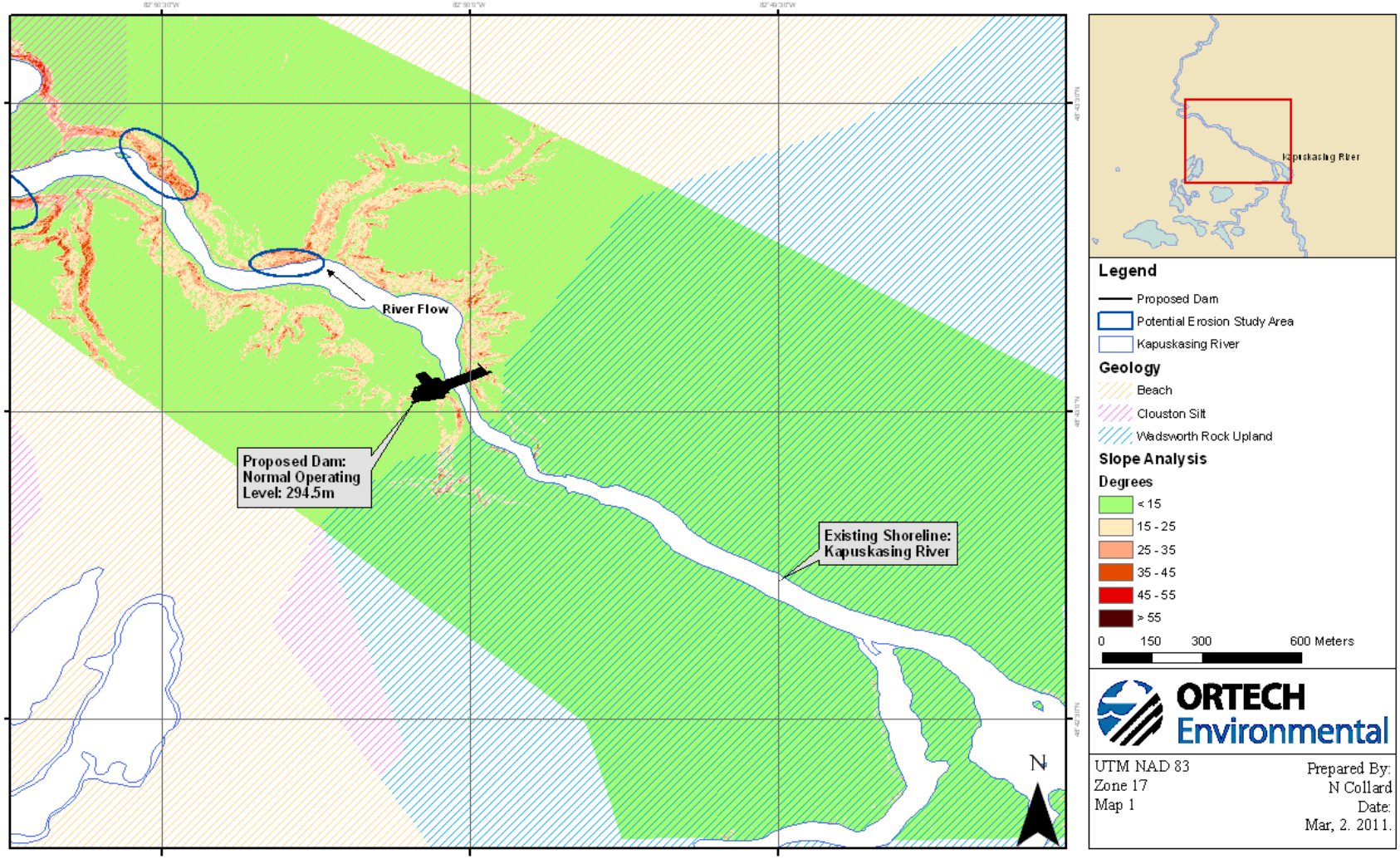
Three Falls - Slope Analysis



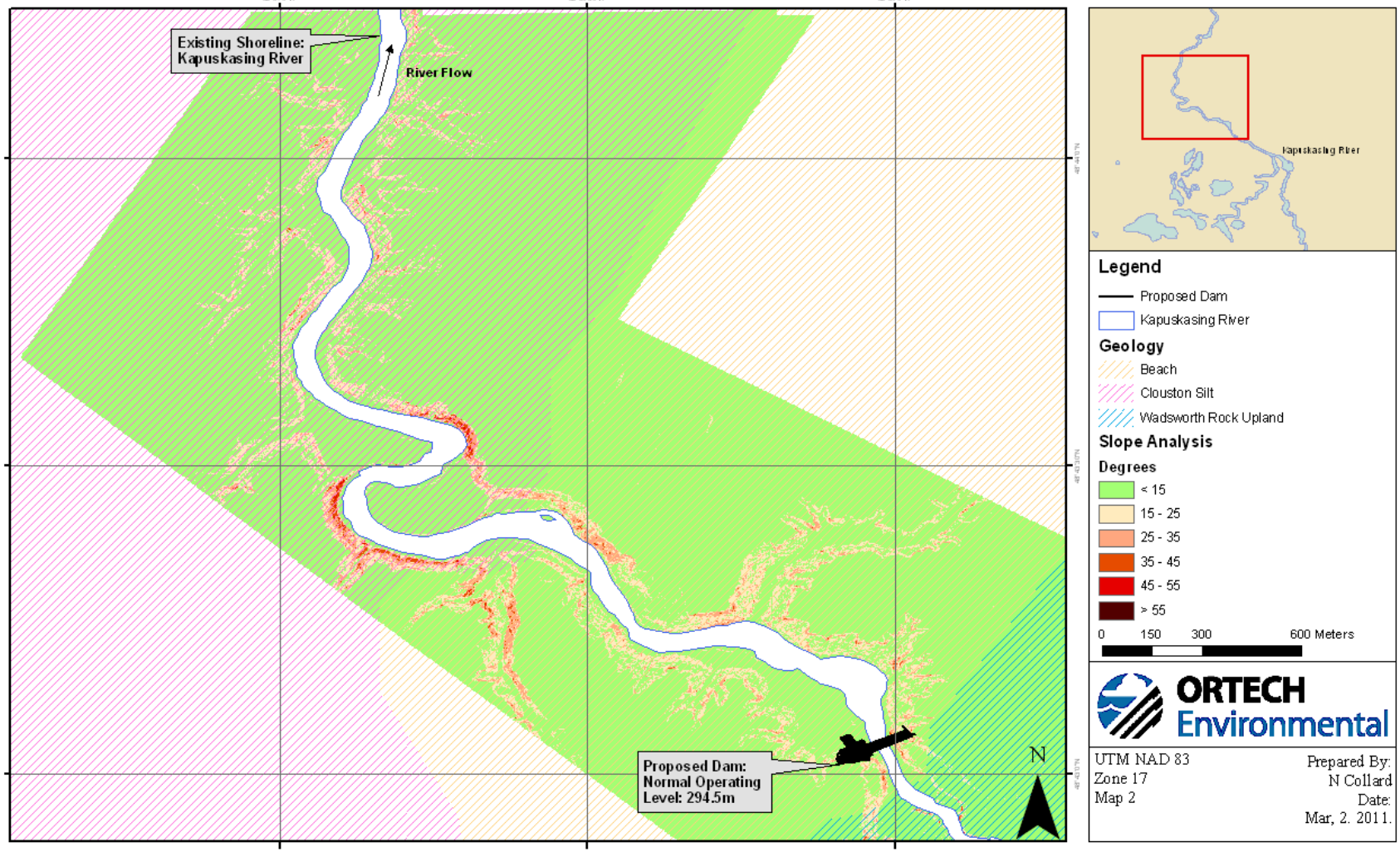
Three Falls - Slope Analysis



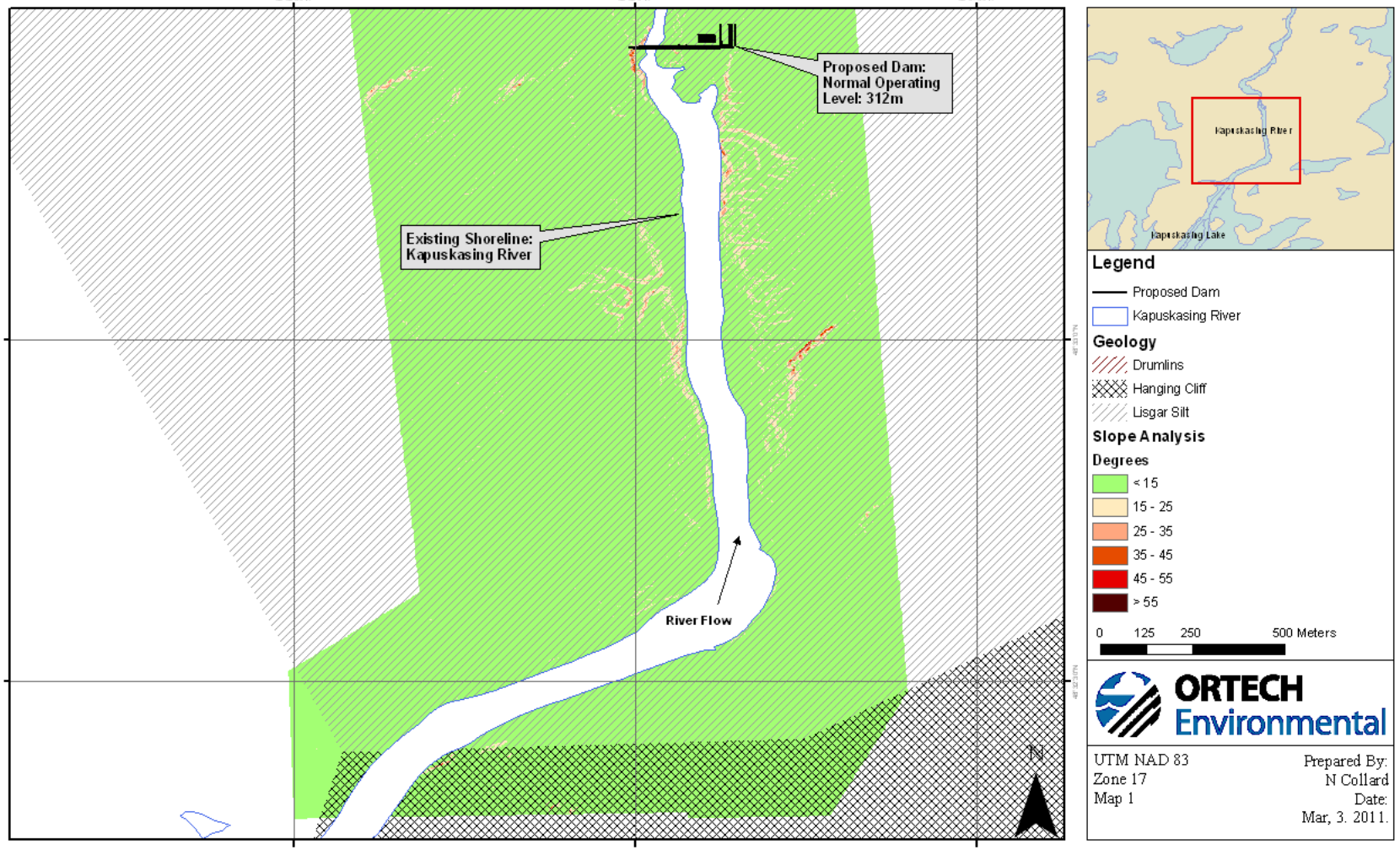
Buchan Falls - Slope Analysis



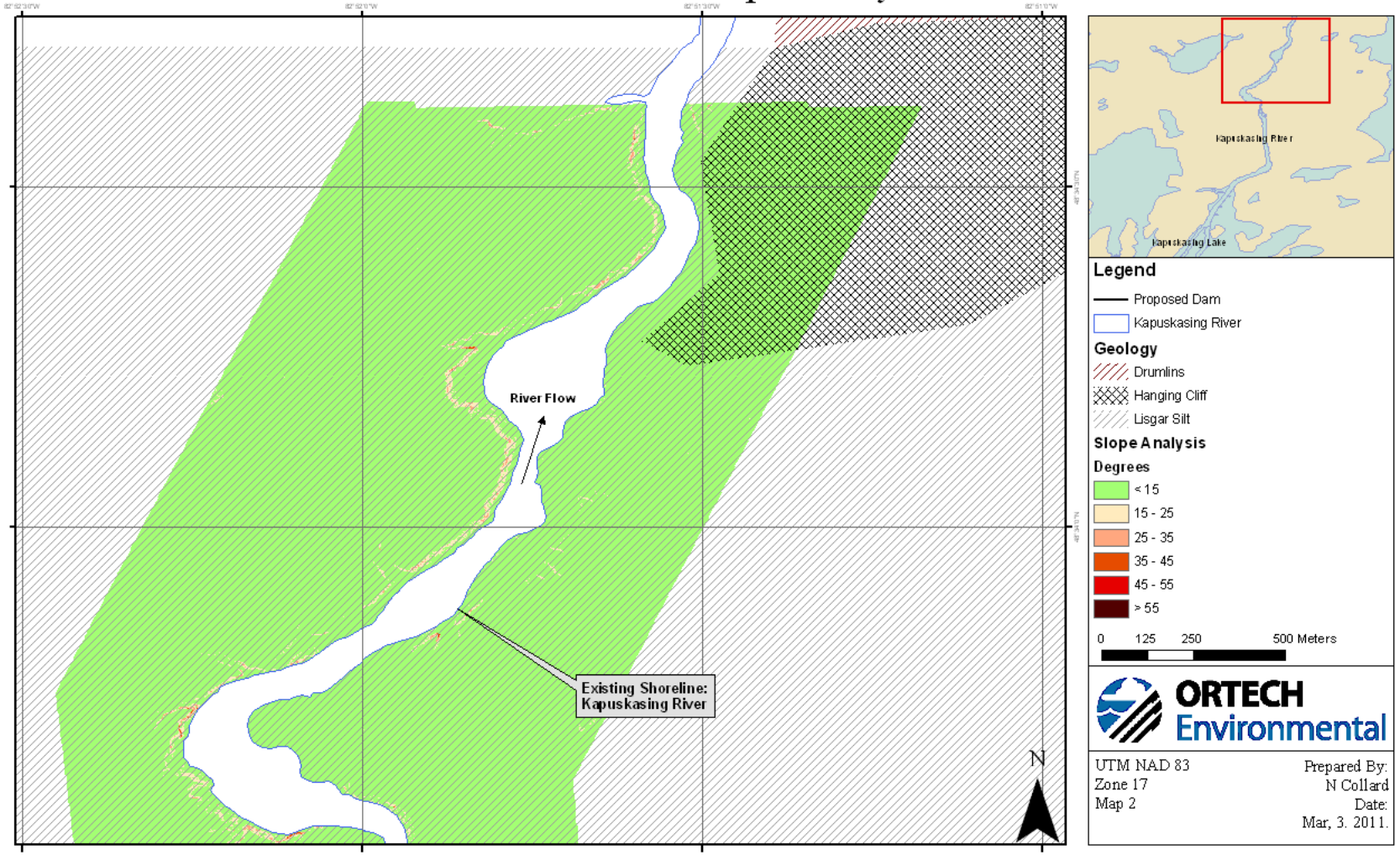
Buchan Falls - Slope Analysis



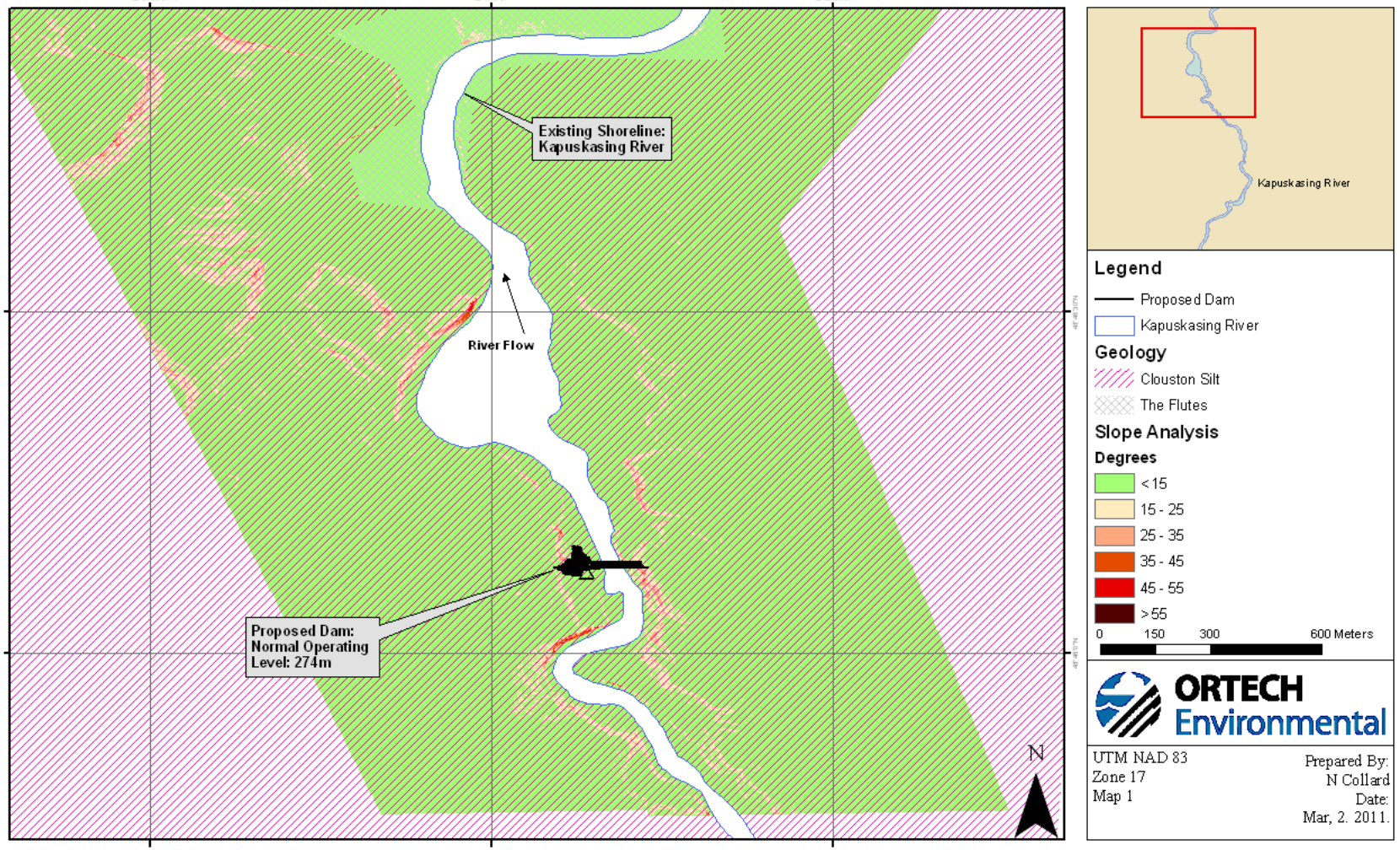
Outlet Lake - Slope Analysis



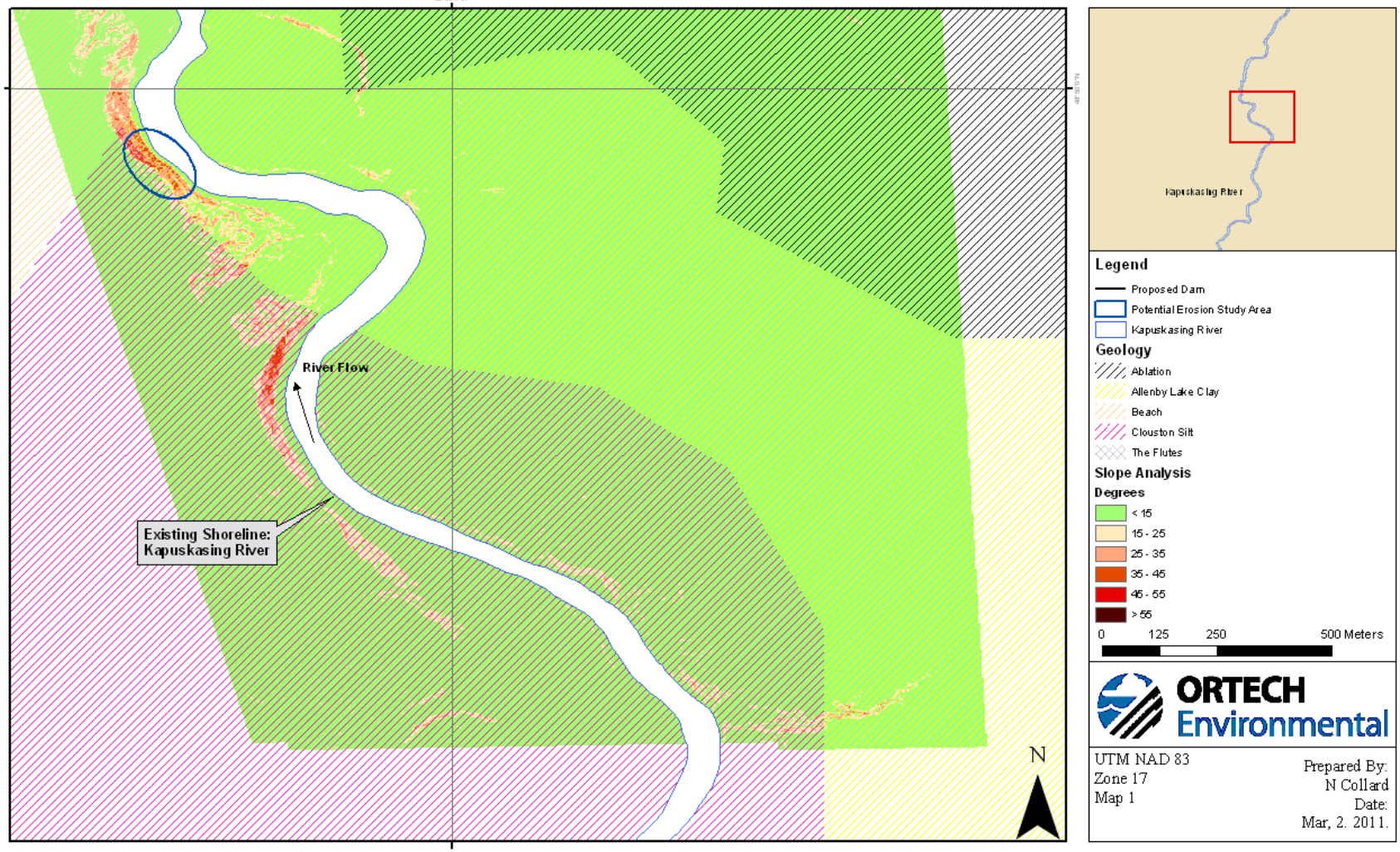
Outlet Lake - Slope Analysis



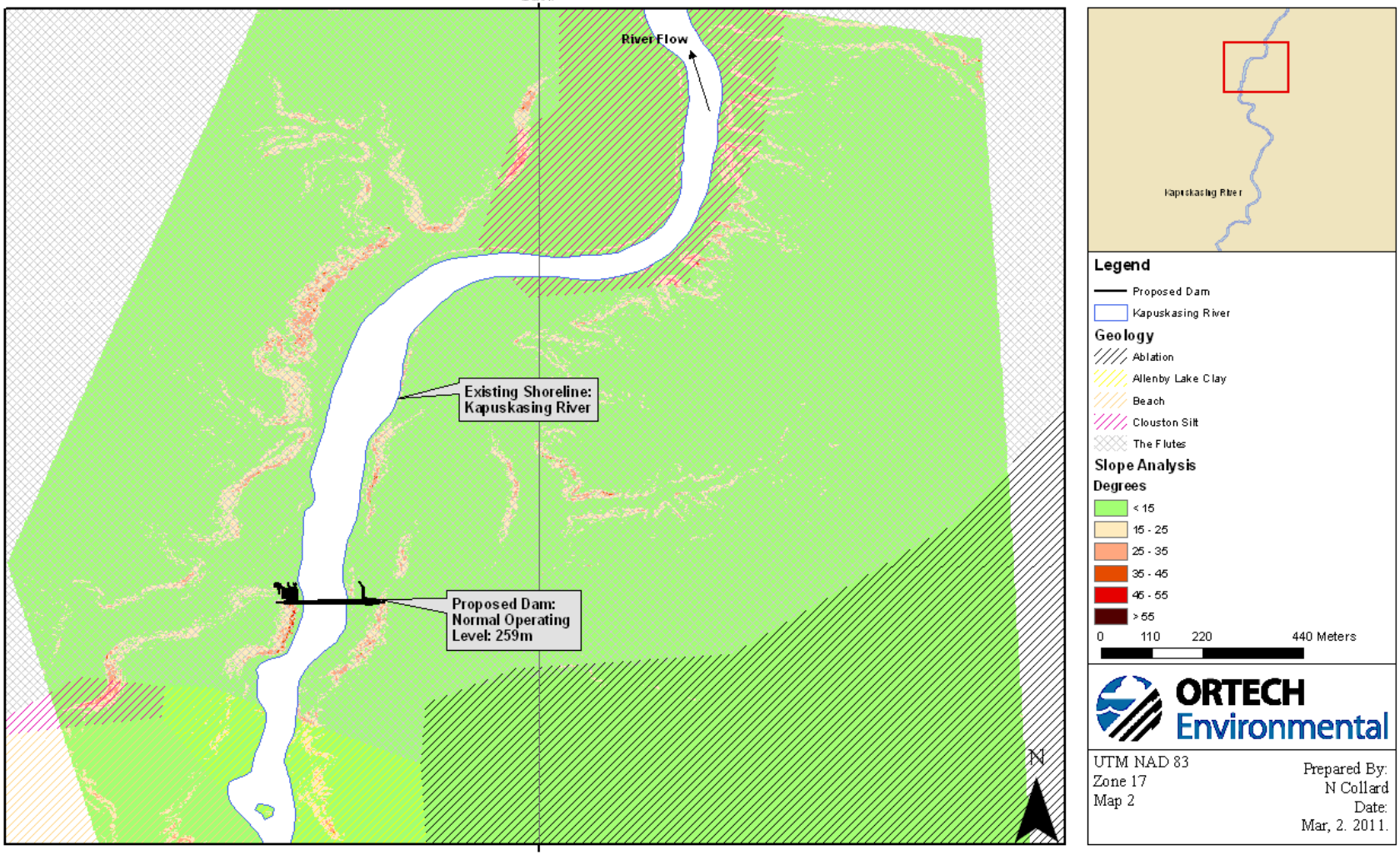
Clouston Rapids - Slope Analysis



Cedar Rapids - Slope Analysis



Cedar Rapids - Slope Analysis



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Initial Environmental Sound Study
Big Eddy Hydro-Power Plant, Petawawa, Ontario

As requested, HGC Engineering has conducted an initial acoustical analysis of the proposed Big Eddy Rapids Hydropower Development, in Petawawa, Ontario. As the project is at the Environmental Assessment stage, and detailed design has not yet been completed, the analysis used predicted sound emission levels and acoustical modeling to assess the potential impact of a single electrical transformer associated with the proposed site, with respect to the guidelines of the Ontario Ministry of Environment ("MOE").

In Ontario, the guidelines of the MOE form the basis of an environmental noise assessment, specifically publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 and Class 2 Areas (Urban). The area surrounding the proposed facility is likely best categorized as a Class 2 environment, due to the proximity to a population centre, and the presence of several significant roadways For the purposes of this initial study, the most stringent, "exclusionary minimum" MOE limits have conservatively been assumed. For equipment that could operate during both daytime and nighttime hours in a Class 2 environment, the exclusionary minimum limit is 45 dBA at any sound sensitive points of reception in the vicinity. Additionally, some types of sound have a special quality which may tend to increase their audibility and potential for disturbance or annoyance. For tonal sound, such as that typically emitted by electrical transformers, the MOE guidelines stipulate that a penalty of 5 dBA is to be added to the measured source level. In the subsequent analysis, a tonal penalty has been applied to the sound of the transformer.

The four closest points of reception were initially identified by Xeneca as part of their preliminary feasibility work. All four of these are commercial establishments, which are not considered "sound-sensitive" under MOE noise guidelines. Therefore, in this study, a fifth location has been considered, which consists of a hotel and represents the most potentially impacted sound sensitive point of reception proximate to the facility. These locations are labelled as POR1 through POR5.

The only source anticipated to emit sound to the outdoors at the facility, will be a small oil filled transformer with a capacity of approximately 5.18 Megawatts (6.22 MVA), with integral cooling fans. The location of the transformer will be within 30 metres of the proposed powerhouse, and has been assumed to be as depicted in Figure 1. The sound power emission level of the transformer, which was calculated to be 91 dBA [Ref. 1] including the 5 dBA tonal penalty, was input into a predictive computer model (Cadna-A version 4.3.143). The model is based on the methods from ISO Standard 9613-2.2 "Acoustics - Attenuation of Sound During Propagation Outdoors", which accounts for the reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures (or by topography and foliage where applicable).

Table 1, below, summarizes the total predicted sound levels at the points of reception given the modeling assumptions outlined above, along with the applicable sound level limits.

Table 1: Predicted Equivalent Hourly Sound Levels, L_{EQ} [dBA]

Receptor	MOE Sound Level Limit	L_{EQ}
POR1	Not sound sensitive	41 dBA
POR2	Not sound sensitive	31 dBA
POR3	Not sound sensitive	33 dBA
POR4	Not sound sensitive	30 dBA
POR5	45	30 dBA

The prediction results presented in Table 1 indicate that sound levels from the proposed Big Eddy Hydropower Development will be well within the applicable MOE sound level limit at the nearest sound sensitive point of reception, without the need for physical noise control measures. As well, the sound levels at the non-sound-sensitive points of reception are also low, and are not anticipated to have potential for adverse impact. Figure 1 shows the predicted energy-equivalent (L_{EQ}) sound level contours resulting from the sound emissions of the proposed facility.

Given that the specific make and model of the transformer has not yet been selected, its sound power emission level was a prediction based on its MVA rating. In order to ensure that the selected transformer is not louder than assumed in this analysis, it should be selected during the project design to have an IEC/IEEE/NEMA/CSA sound pressure level rating of 65 dBA.

REFERENCES

[1] Malcom J. Crocker (Editor), *Encyclopedia of Acoustics*. John Wiley & Sons, Inc. New York, 1997. p. 1050 & 1052.

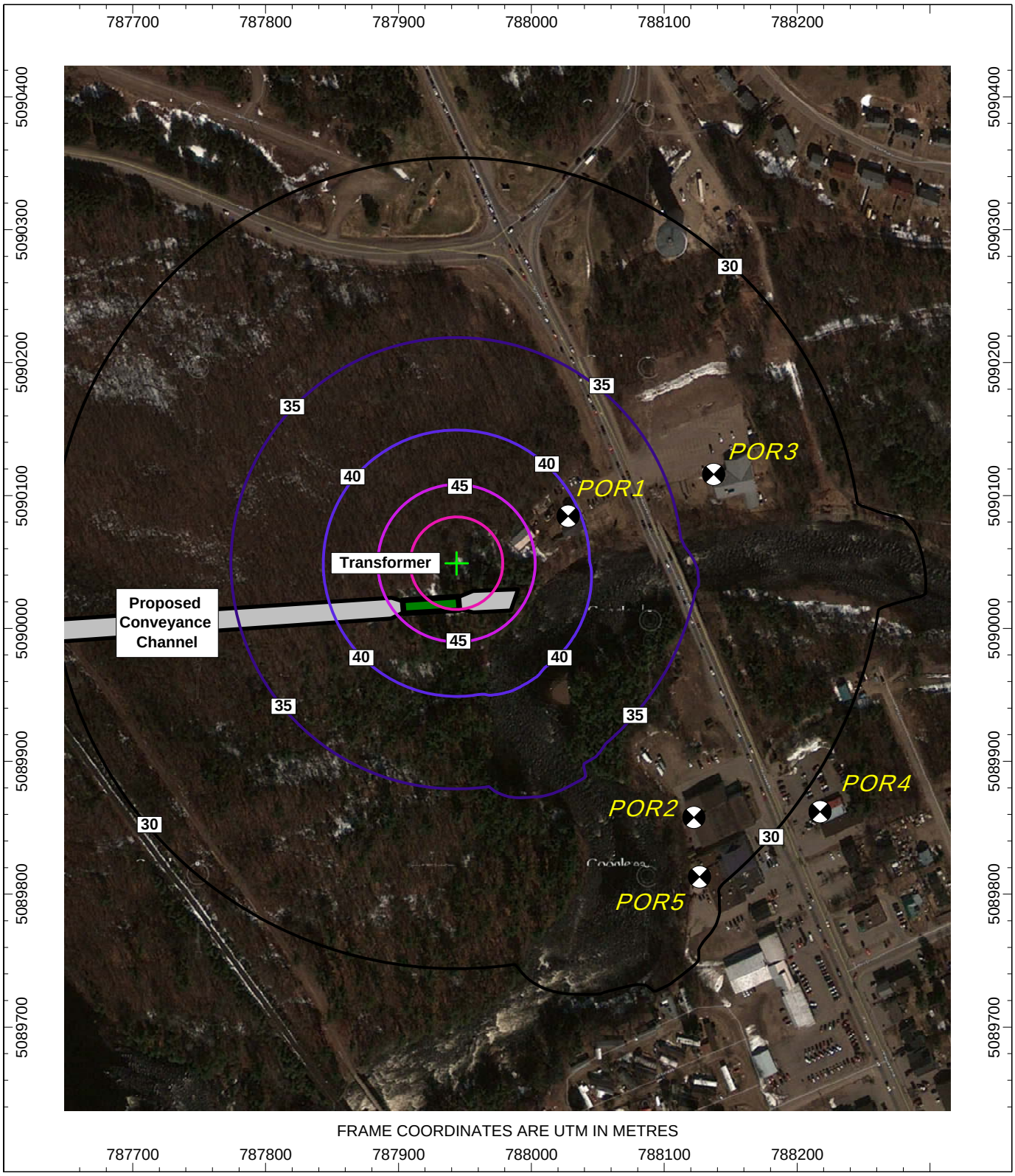

Figure 1: Predicted Sound Level Contours, Leq [dBA] Big Eddy Hydropower Development
Prediction Height = 4.5 Metres Above Grade