Submitted to:

Niagara Peninsula Conservation Authority

FINAL DRAFT- FLOODPLAIN MAPPING UPDATE IN THE TOWNS OF GRIMSBY & LINCOLN

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1 INTRODUCTION

In 1989, the Niagara Peninsula Conservation Authority (NPCA) completed a hydrologic update study in response to the standardization of hydrologic and hydraulic procedures by the Ministry of Natural Resources. As part of this study, floodplain mapping was generated for Prudhomme's Creek, Bartlett Creek and Beamsville/Konkle Creek in the Town of Lincoln, and for portions of Lake Ontario Tributaries 31, 32, 44, and 44a in the Town of Grimsby. In 2018, the NPCA retained Aquafor Beech Limited to update and create new floodplain mapping for the watercourses listed above as well as Lake Ontario Tributaries 29 and 39 in the Town of Grimsby.

1.1 General

In 1986, the Ministry of Natural Resources standardized hydrologic and hydraulic procedures in "Flood Plain Management in Ontario – Technical Guidelines". Due to this standardization, it was suggested that the region update its current hydrologic database to a standard, accepted methodology for runoff determination. Municipal staff also recognized a need for a more comprehensive evaluation of certain stormwater management techniques such as flood storage, and its potential impacts on downstream flooding and erosion. In 1989, Philips Planning and Engineering Limited completed a storm drainage update for the Town of Grimsby in which updated floodplain mapping was completed for Prudhomme's Creek, Bartlett Creek and Beamsville/Konkle Creek in the Town of Lincoln, and for portions of Lake Ontario Tributaries 31, 32, 44, and 44a in the Town of Grimsby.

In the ensuing 28 years, the Towns of Grimsby and Lincoln have experienced significant growth. Due to the increased development and new infrastructure in the area, changes in the watershed have occurred. The update of the floodplain mapping incorporates new flow and field survey data, and uses new computer modelling capabilities to create more accurate and reliable mapping for the region.

1.2 Study Area

The study area is illustrated in **Figures 1.2.1 to 1.2.4** and includes the main branch and tributaries of Prudhomme Creek, Bartlett Creek, Beamsville/Konkle Creek and Ontario Tributaries 29, 31, 32, 39, 44 and 44a as they flow North into Lake Ontario.

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Proposed Floodplain Mapping - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°38'0"W 79°37'0"W 79°36'0"W

43°13'0"N 43°12'0"N

N

LAKE ONTARIO

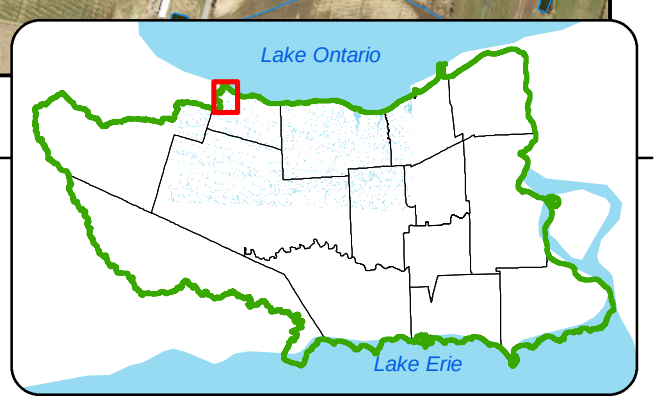
Lake Ontario 44A (Outlet 1)

Lake Ontario 44 (Outlet 2)

Lake Ontario 39 (Outlet 9)

North Service Road
Queen Elizabeth Way
South Service Road
Winston Road
Lakelawn Road
Kelson Avenue North
Kelson Avenue South
Oakes Road North
Hunter Road
Main Street West
Casablanca Boulevard
Livingston Avenue
Brand Road
Bowslaugh Road
Hysert Road
Ridge Road West
Alway Road
Woolverton Road

Meters
0 250 500 1,000



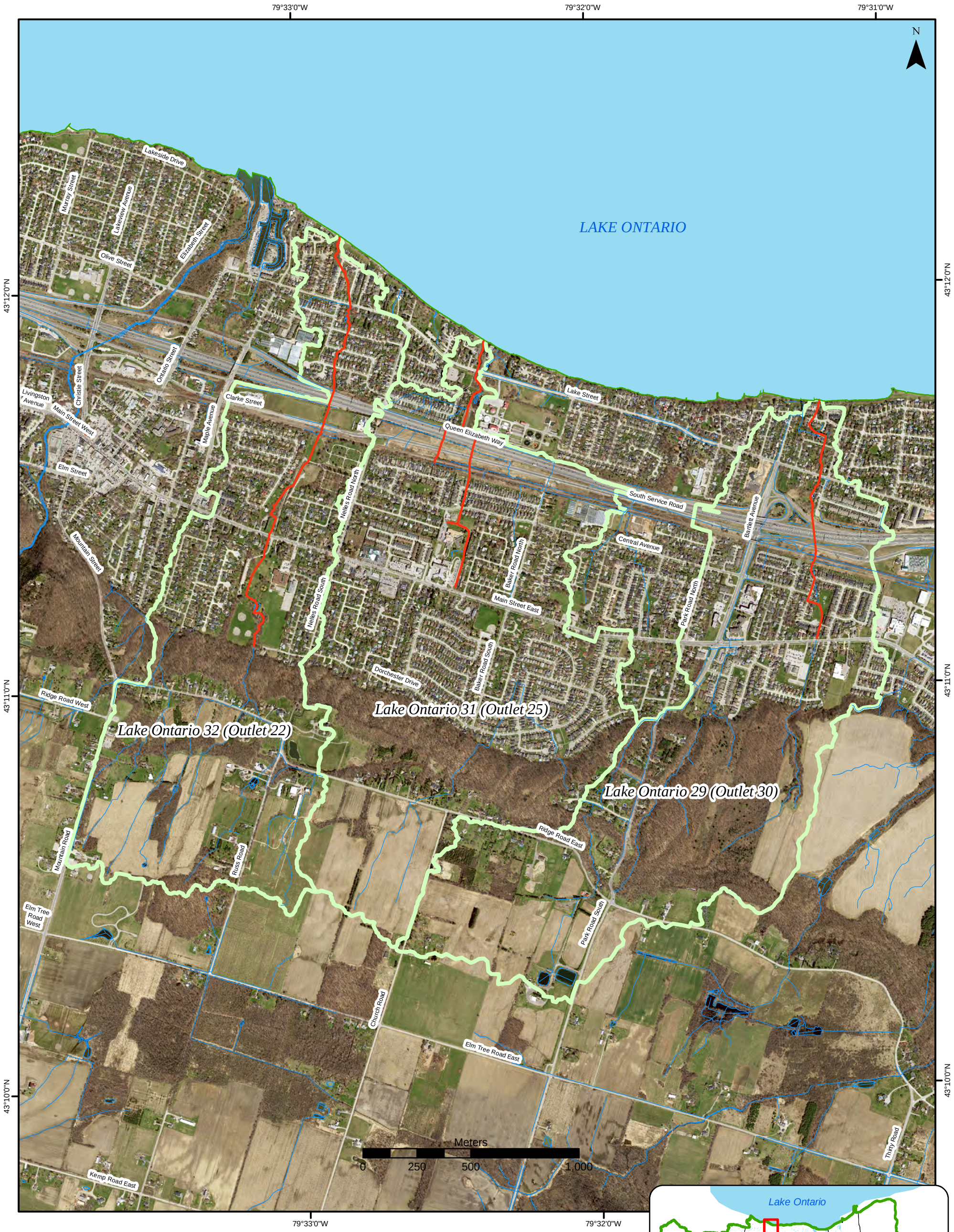
Watercourse
Proposed Floodplain Mapping
Subwatersheds
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 1.2.1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Proposed Floodplain Mapping - Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse

Proposed Floodplain Mapping

Waterbodies

Subwatersheds

NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 1.2.2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Proposed Floodplain Mapping - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse

Proposed Floodplain Mapping

Subwatersheds

Waterbodies

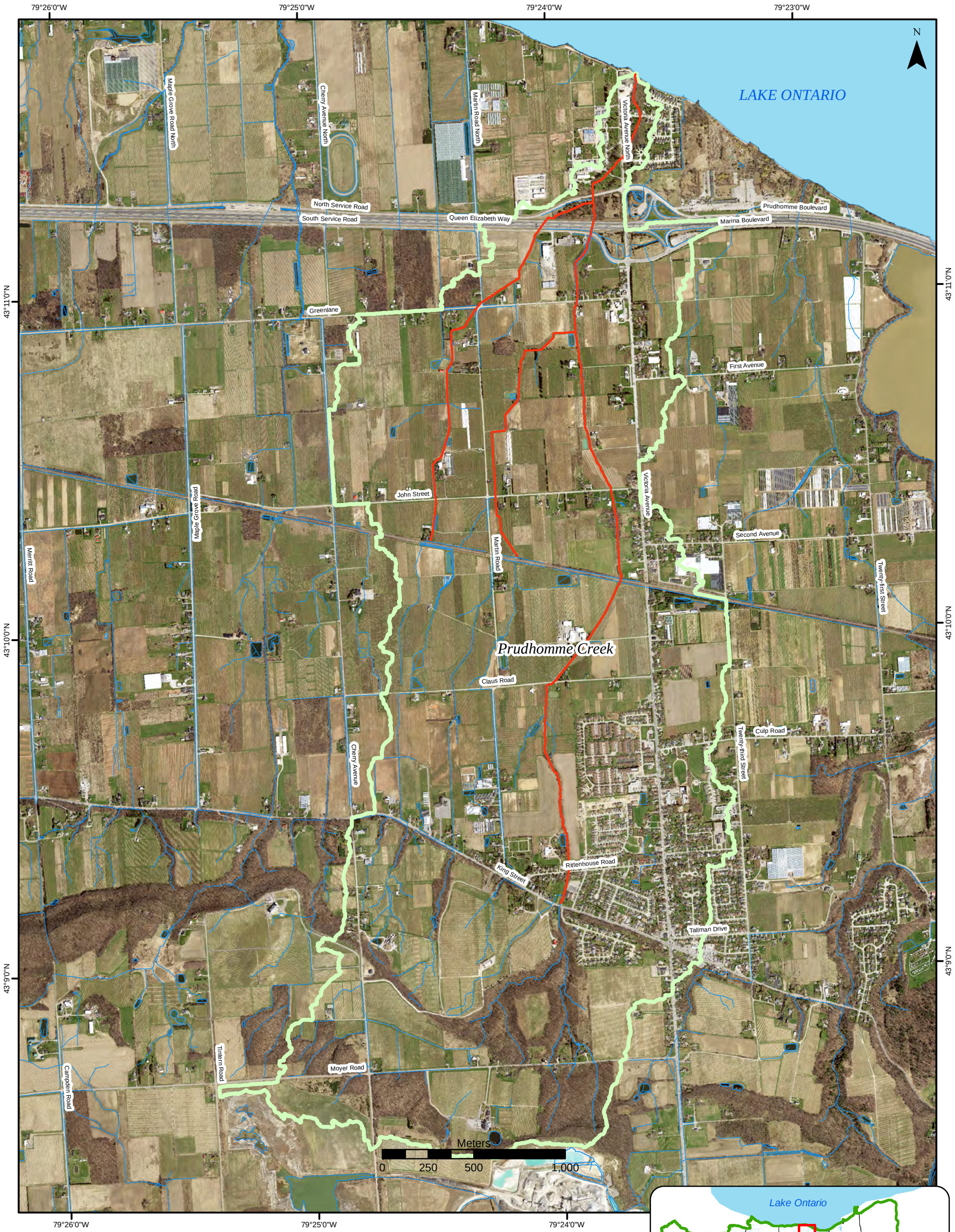
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 1.2.3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Proposed Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse

Proposed Floodplain Mapping

Subwatersheds

Waterbodies

NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 1.2.4

1.3 Study Objectives

The key objectives of the study are as follows:

- Characterization of each watershed;
- The selection and utilization of an appropriate design storm for each watershed;
- The selection and utilization of an appropriate hydrologic model for each watershed;
- The selection and utilization of an appropriate hydraulic model for each watershed;
- The generation of 100-year flood elevations for each watercourse;
- The digital and paper copy mapping of the 100-year flood elevations on a colour air photo base complete with 1.0m contours;
- Identification of roadways which are susceptible to flooding during the 100-year event due to the capacity limitations of the associated culvert or bridge structures;
- The identification of structures and buildings susceptible to flooding during the 100-year event;
- Recommendations to mitigate the impacts of the flood hazards on the identified roads, buildings and structures; and,
- Associated preliminary costs to implement the recommended flood mitigation measures for each watershed.

2 HYDROLOGIC MODEL SETUP

2.1 Model Selection

The hydrologic model selected for application in the study was PCSWMM, SWMM V5.1.012. The model simulates watershed runoff response to individual storm events, and incorporates and updates the older OTTHYMO model utilized in the previous 1989 Drainage Study completed by Philips Planning and Engineering Ltd.

The conveyance infrastructure within the catchment area was assessed using topography and structure data (inverts, obverts, length and material of all pipes, inlets and outlets). Aquafor Beech staff recommended that the hydrologic model PCSWMM SWMM5 engine be used to model the adequacy of the conveyance infrastructure based on current and future projected (including any land intensification) flows from appropriate storm events.

PCSWMM is an advanced modelling software for stormwater, wastewater, watershed, and water distribution systems. It has a scalable and robust spatial decision support system for water management modelling. The stand-alone GIS and effective time series management features help get the best results for all the applications.

PCSWMM consists of several features, which can be used alone or in combination, to simulate a multitude of urban drainage processes:

- GIS: It supports all projection/co-ordinate systems, and consists of a full suite of topological tools, including area-weighting, buffering, clipping, Theissen-polygon generation, watershed delineation, with hydraulic routing.
- Timeseries Management and Analysis: In addition to supporting event and statistical analysis, it can also conduct IDF analysis and integrate timeseries with mapping.
- Hydrologic Modelling: Hydrologic modelling in PCSWMM includes, single event, or continuous modelling of all the components of water cycle. It also supports EPA SWMM5 and EPANET2 engines.

PCSWMM provides innovative tools for fast, accurate flood control, design, modelling and analysis of dual drainage systems (major/minor system). It can be used for the design and analysis of (i) new, (ii) existing and (iii) combined new and old, urban drainage systems where surface flows are routed over the land surface (major system, such as roads, swales, street sags and storage areas) while part of the runoff simultaneously flows in the underground conveyances (minor system, such as sewer pipes and associated infrastructure). The tools automatically dovetail with any or all SWMM5 engines, and with an extraordinarily wide array of established, included design storms (from 1:100 and larger to 1:1 and smaller) and long-term continuous rain data.

2.2 Model Discretization

Nine (9) catchment shapefiles, one for each watercourse, were provided to Aquafor from the NPCA. Aquafor then delineated the existing catchments further using the watershed delineation tool in

PCSWMM in order to provide more accurate flow estimates at key locations in each catchment area. This tool further defined the sub-catchments using the 2015 digital elevation model (DEM) provided by the NPCA with a delineation threshold of 10 hectares. Municipal storm sewer information provided by NPCA was utilized to further delineate the sub-catchments. The information used is provided in **Appendix E.**

As illustrated in **Figures 2.2.1 to 2.2.4**, the nine (9) original catchment areas were further delineated into a total of eighty-nine (89) new sub-catchment areas:

- Prudhomme Creek catchment area was divided into 14 sub-catchments;
- Bartlett Creek catchment area was divided into 18 sub-catchments;
- Beamsville/Konkle Creek catchment area was divided into 20 sub-catchments;
- Lake Ontario Tributary 29 catchment area was divided into 9 sub-catchments;
- Lake Ontario Tributary 31 catchment area was divided into 7 sub-catchments;
- Lake Ontario Tributary 32 catchment area was divided into 7 sub-catchments;
- Lake Ontario Tributary 39 catchment area was divided into 5 sub-catchments;
- Lake Ontario Tributary 44a catchment area was divided into 5 sub-catchments; and,
- Lake Ontario Tributary 44 catchment area was divided into 4 sub-catchments.

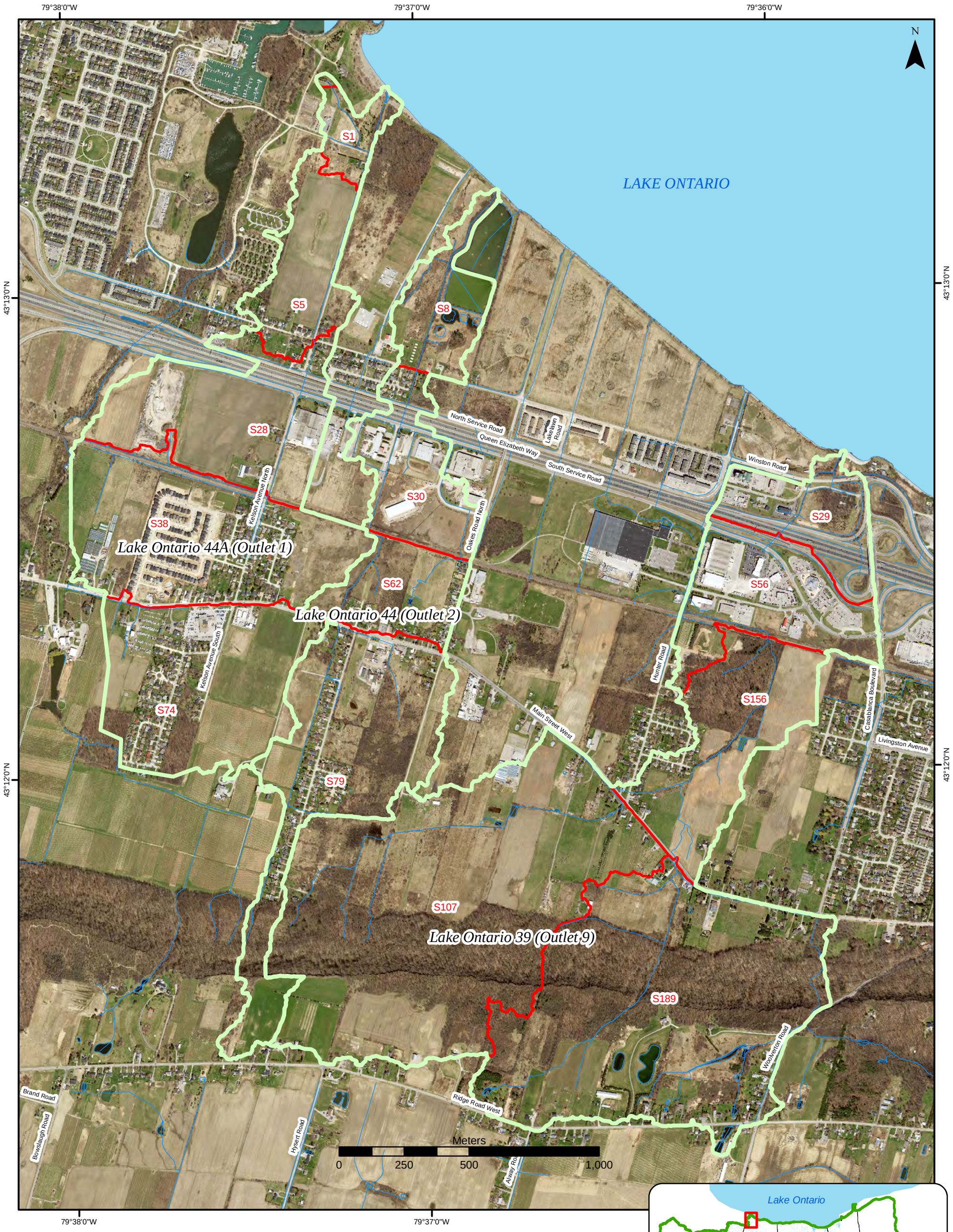
A generalized model schematic representing the model setup is illustrated in **Figures 2.2.5 to 2.2.8**.

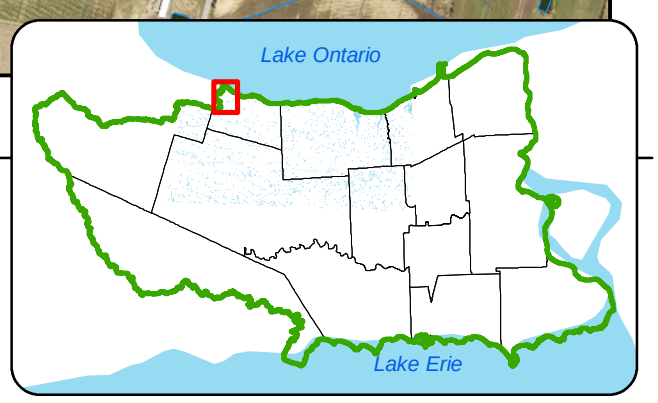
During the delineation process, several factors regarding the sub-catchment delineation were taken into consideration:

- The northern boundaries of sub-catchments S28 and S30 were not aligned with the QEW to be more conservative to account for potential backwater effects.
- Due to a flow change at the QEW, Lake Ontario 31 has an unusual sub-catchment shape. Further delineation of this sub-catchment will result in the same flow therefore sub-catchment was kept as this shape.
- Sub-catchment S238 of Lake Ontario 29 is one large area as this catchment is outside of the study area but contributes to the outfall directly.

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Subcatchment Boundaries - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY





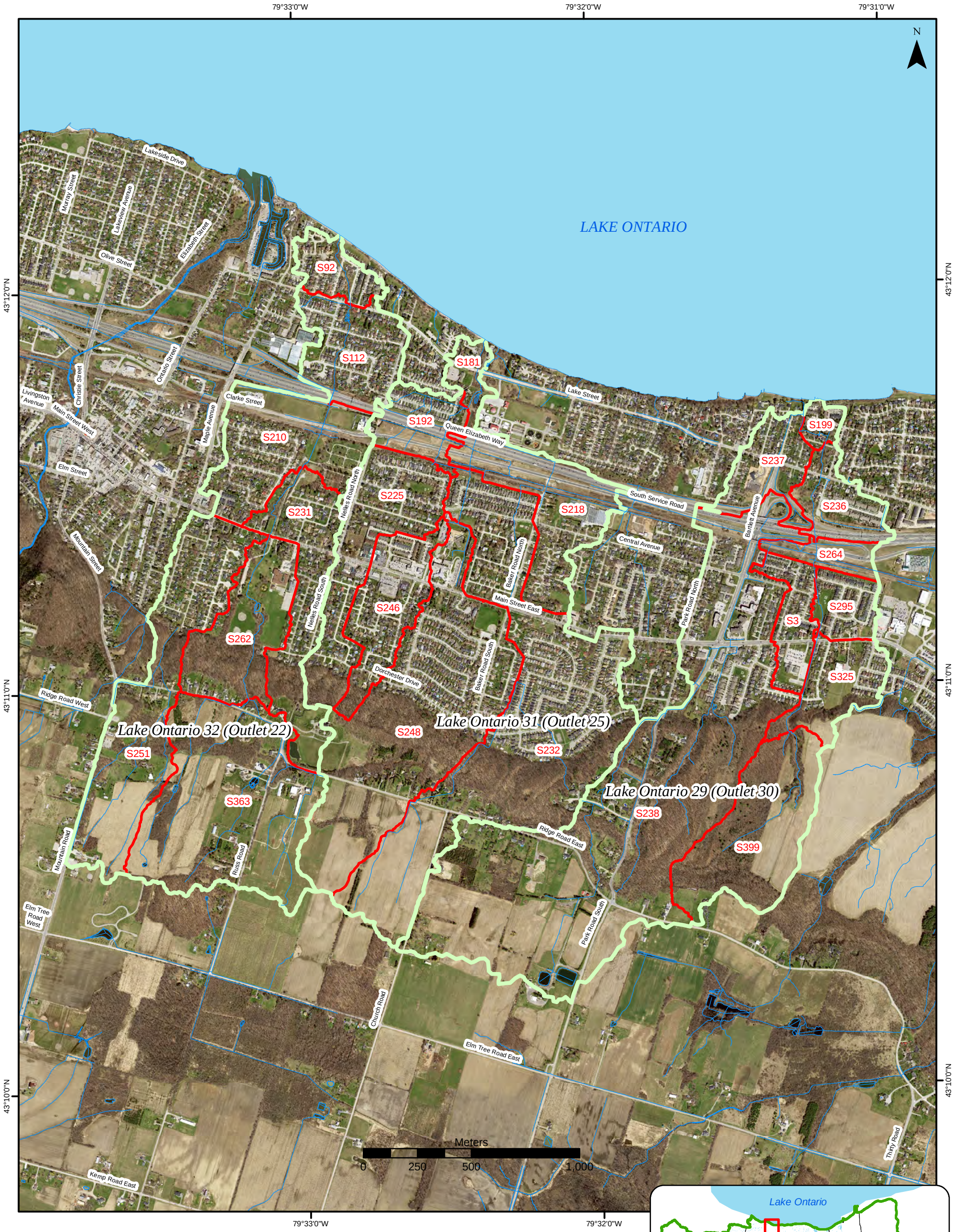
Watercourse
Subwatersheds
Waterbodies
Subcatchment Boundary
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 2.2.1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Subcatchment Boundaries- Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse

Subwatersheds

Waterbodies

Subcatchment Boundary

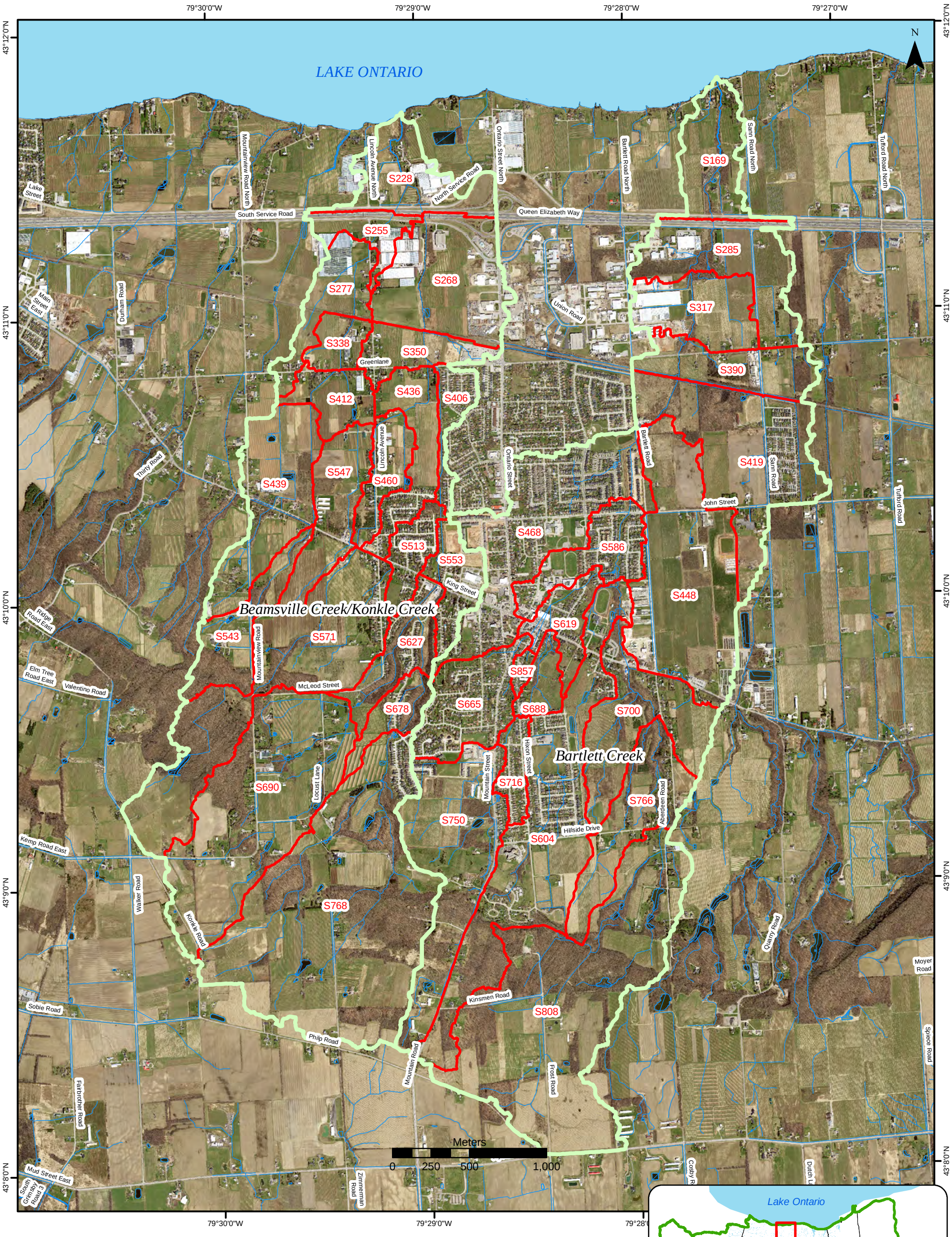
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 2.2.2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Subcatchment Boundaries - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse

Waterbodies

NPCA Jurisdiction

Subwatersheds

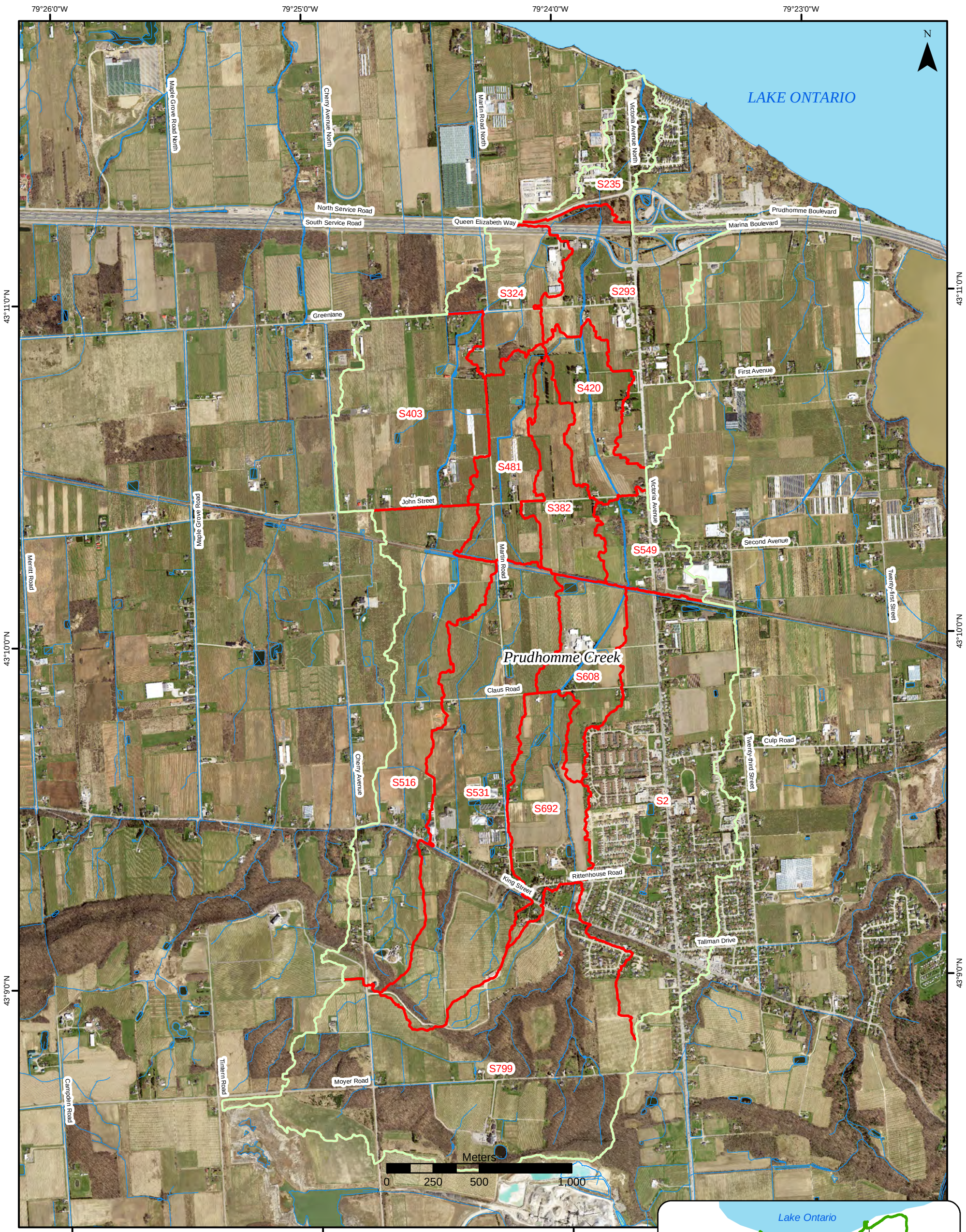
Subcatchment Boundary

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 2.2.3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Subcatchment Boundaries - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse
Subwatersheds
Waterbodies
Subcatchment Boundary
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 2.2.4


Legend
Outfalls
Subwatersheds
Junctions
Conduits
Subcatchments
Lake Ontario
Lake Ontario 44A
Lake Ontario 44
Lake Ontario 39
J1583
J6
J1609
J1542
J12
J24
J1597
J1577
J30
J1567
J1553
J65
J75
J42
J1458
J52
J80
J1562
J1557
J176
J1444
J150
J296
J187
J208
J264
J287
QEW
S Service Rd
Winona Park
Fifty Point Conservation Area
Winston Rd
Main St W
Ridge Rd W
Livingston Ave
N
1 km

Figure 2.2.5

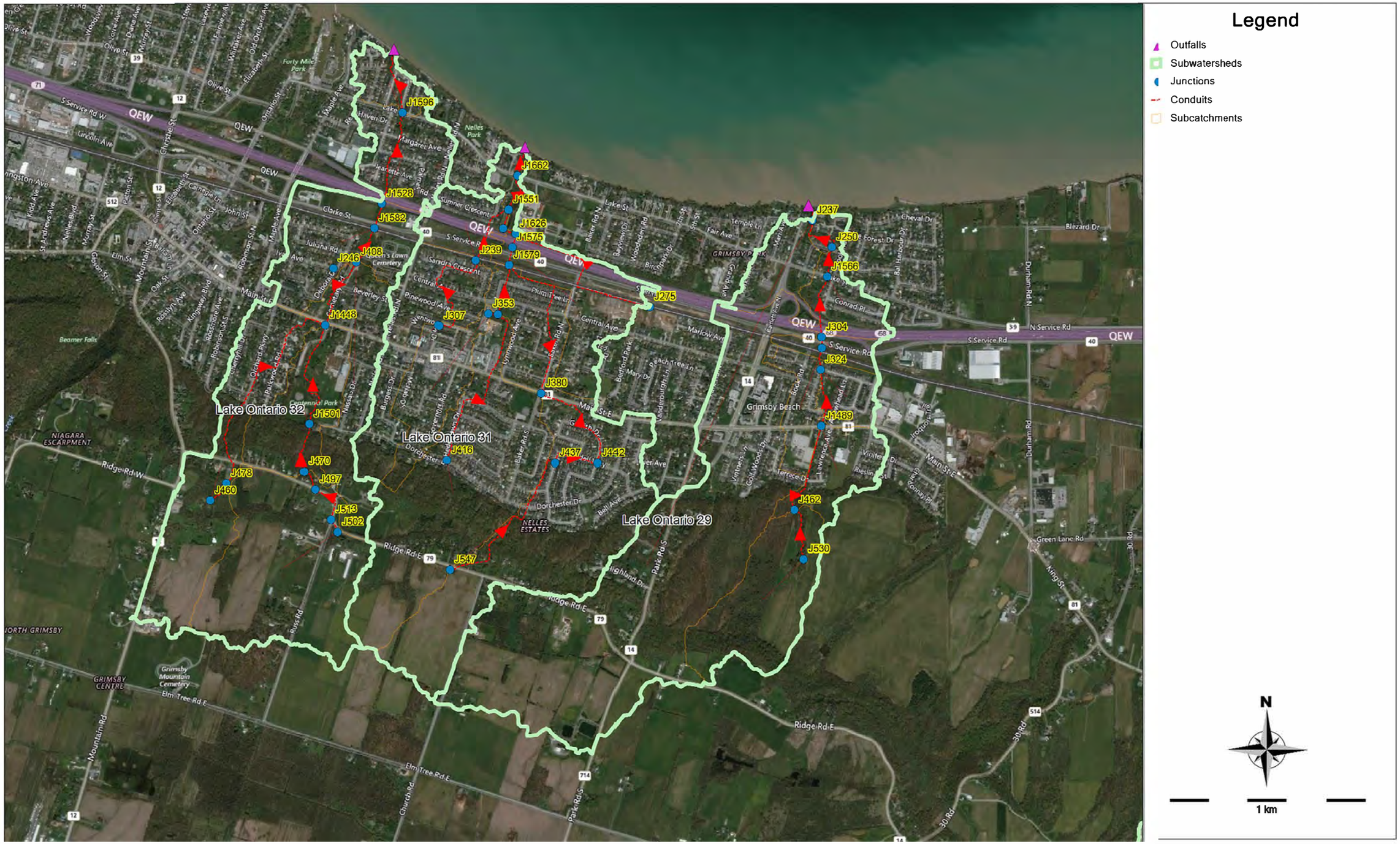

Legend
Outfalls
Subwatersheds
Junctions
Conduits
Subcatchments
Lake Ontario 32
Lake Ontario 31
Lake Ontario 29
J1596
J1662
J1528
J1551
J1582
J1626
J1575
J1579
J239
J246
J408
J1448
J353
J307
J275
J237
J250
J1566
J304
J324
J380
J1489
J1501
J416
J437
J442
J470
J478
J460
J497
J513
J502
J547
J462
J530
QEW
Grimsby Beach
NIAGARA ESCARPMENT
NELLES ESTATES
GRIMSBY CENTRE
Grimsby Mountain Cemetery
Beamer Falls
Forty Mile Park
Nelles Park
Ridge Rd W
Ridge Rd E
Elm Tree Rd E
Main St E
S Service Rd
N Service Rd
Dorchester Dr
Green Lane Rd
Mountain Rd
Church Rd
Park Rd S
Durham Rd
King St
N
1 km

Figure 2.2.6

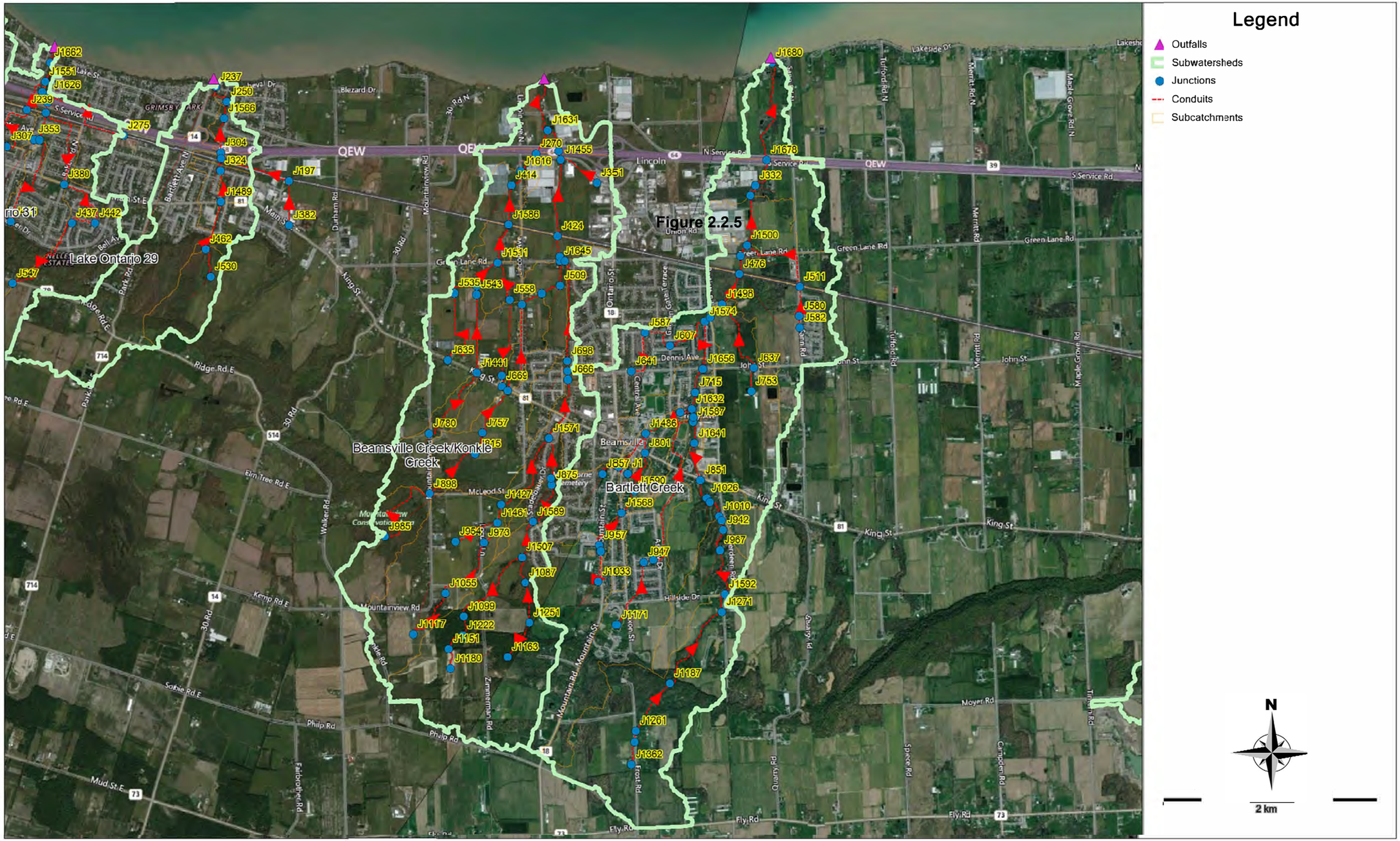

Legend
Outfalls
Subwatersheds
Junctions
Conduits
Subcatchments
Figure 2.2.5
Lake Ontario 29
Beamsville Creek/Konkle Creek
Bartlett Creek
QEW
Lincoln
Green Lane Rd
King St
Ridge Rd E
Kemp Rd E
Sobie Rd E
Philp Rd
Fly Rd
Mud St E
Elm Tree Rd E
Mountainview Rd
Mountain Rd
Beamsville
Hillside Dr
John St
Moyer Rd
Lakeside Dr
Union Rd
Dennis Ave
McLeod St
Bell Ave
Blezard Dr
Durham Rd
Mountainview Conservation
N
2 km

Figure 2.2.7

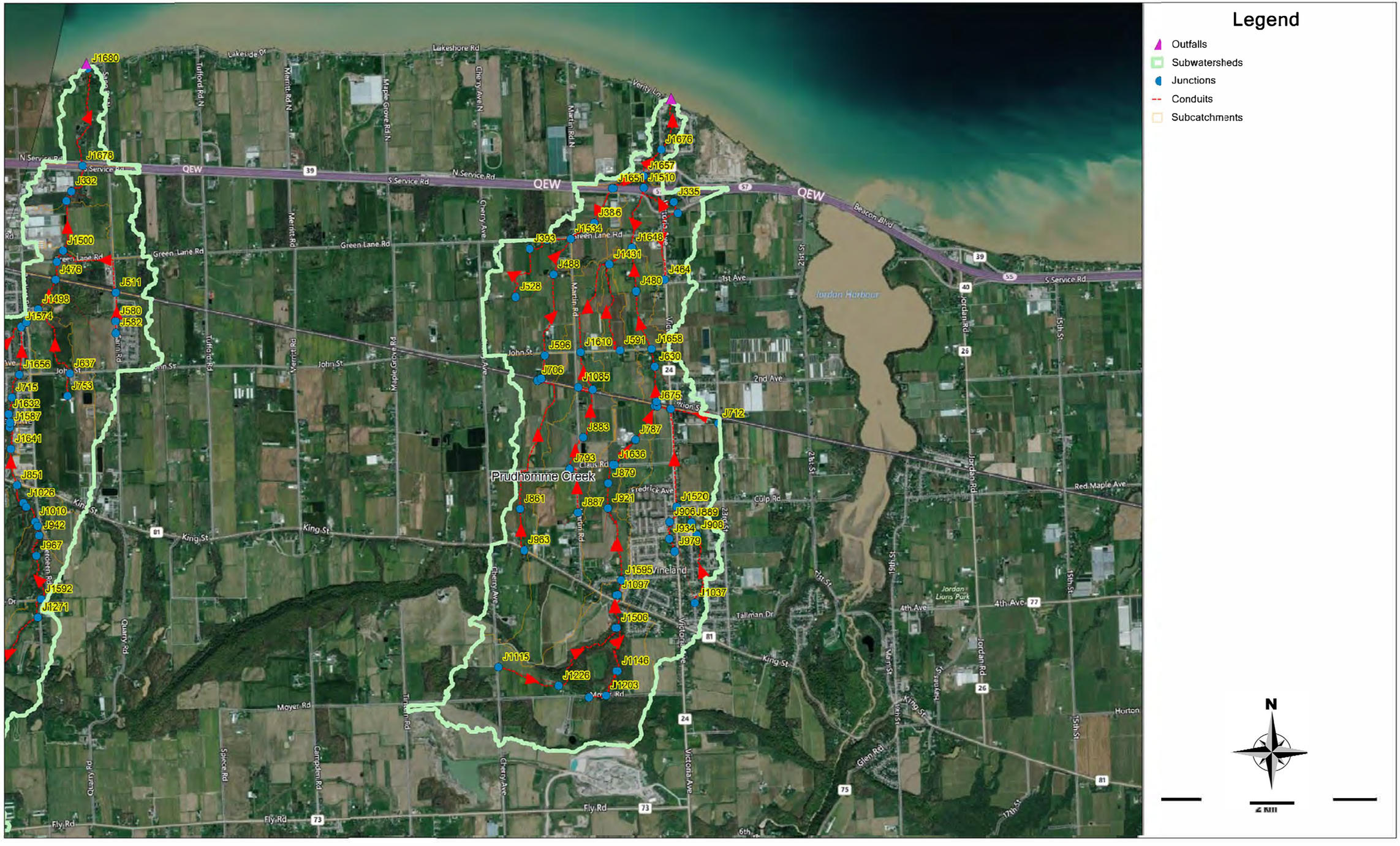

Legend
Outfalls
Subwatersheds
Junctions
Conduits
Subcatchments
Prudhomme Creek
Lakeshore Rd
Lakeside Dr
Turford Rd N
Merritt Rd N
Maple Grove Rd N
Cherry Ave N
Martin Rd N
Verity Ln
N Service Rd
S Service Rd
QEW
Green Lane Rd
John St
Beacon Blvd
1st Ave
2nd Ave
Jordan Harbour
Jordan Rd
21st St
15th St
Red Maple Ave
Culp Rd
Claus Rd
Fredrick Ave
Victoria Ave
Merritt Rd
Martin Rd
Cherry Ave
Maple Grove Rd
Turford Rd
Tirlan Rd
Quarry Rd
Spence Rd
Campden Rd
Moyer Rd
King St
Fly Rd
Tallman Dr
4th Ave
Jordan Lions Park
Glen Rd
Horton
Vineland
J1680
J1678
J332
J1500
J476
J511
J1498
J1574
J580
J582
J1656
J637
J715
J753
J1632
J1587
J1641
J851
J1026
J1010
J942
J967
J1592
J1271
J1680
J1676
J1657
J1651
J1510
J335
J386
J1534
J393
J1648
J1431
J488
J464
J528
J480
J596
J1610
J591
J1658
J630
J706
J1085
J675
J712
J883
J787
J793
J1636
J879
J861
J887
J921
J1520
J906
J689
J908
J934
J979
J963
J1595
J1097
J1037
J1506
J1115
J1146
J1226
J1203
N
2 KM

Figure 2.2.8

2.3 Model Parameters

The following techniques and model parameters were applied with the PCSWMM model to simulate rural and urban rainfall-runoff responses:

- Soil Conservation Service (SCS) curve numbers, estimated using the Ontario Flow Assessment Technique Model (OFAT);
- Percent impervious, as determined from land use;
- Overland flow lengths and slopes, as determined from the NPCA's GIS mapping;
- Initial rainfall losses, estimated to be 3.5mm for pervious surfaces, and 1.25mm for impervious surfaces
- Manning's "n" roughness values were estimated to be 0.025 for impervious areas and 0.35 for pervious areas
- Unit hydrograph time-to-peak values were estimated to be:

$$T_p = 0.6T_c$$

- Where T_c is the time of concentration

$$T_c = L/V$$

- Where L is the flow length and V is the flow velocity.

The model parameters for each sub catchment are summarized in **Appendix A**.

2.4 Model Calibration and Design Storms

Peak flows were established at key locations in the study area for the existing and projected future conditions. A design storm approach was used to estimate the 100-year peak flow using the current IDF curves for the Town of Lincoln and Town of Grimsby.

With a design storm approach, a rainfall input (i.e. duration, return period, depth, and temporal distribution) is selected and design flows are determined using specified antecedent moisture conditions and a computational technique such as a hydrologic model. It is assumed with this approach that peak flows which are generated are of approximately the same return period as the applied design storm.

While the antecedent conditions present at the time of the storm events used in the calibration process were measurable from recorded data, the antecedent conditions prior to a future storm event or a synthetic design storm event are unknown and therefore assumptions must be made. For the purposes of this study, average antecedent moisture conditions were assumed for the 100-year design storm. The CN parameters within the model were set accordingly for these combinations of design storms and antecedent conditions.

A 100-year 12hr SCS storm with a total precipitation amount of 100.8mm was utilized as the 100-year design storm. This storm was also utilized in the 1989 study as it resulted in the most conservative flow and volume estimates.

2.5 Land use Scenarios

2.5.1 Existing Conditions

Existing land-use in the study area is represented in **Figures 2.5.1-2.5.4**. The landuse information presented in **Figures 2.5.1 and 2.5.2** was obtained from the Municipality of Grimsby while the information presented in **Figures 2.5.3 and 2.5.4** was obtained from the Municipality of Lincoln. The Municipality of Grimsby has a more detailed categorization of land used data than the Municipality of Lincoln, as can be seen in **Figures 2.5.1-2.5.4**.

Figure 2.5.1 shows that the majority of land in the Western end of Grimsby surrounding Lake Ontario Tributaries 44a, 44 and 39 is classified as agricultural land with small amounts of residential commercial and industrial use scattered in the area. In the Eastern end of Grimsby, shown in **Figure 2.5.2**, which surrounds Lake Ontario Tributaries 32, 31, and 29, residential landuse dominates the area with smaller amounts of agricultural land on the southern border.

The municipality of Lincoln splits their landuse classification into two categories: built-up impervious and transportation. As seen in **Figures 2.5.3 and 2.5.4**, the built-up impervious landuse is centered around the communities of Beamsville and Vineland and their residential, commercial and industrial areas.

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Landuse - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°38'0"W 79°37'0"W 79°36'0"W

43°13'0"N 43°12'0"N

N

LAKE ONTARIO

Lake Ontario 44A (Outlet 1)

Lake Ontario 44 (Outlet 2)

Lake Ontario 39 (Outlet 9)

North Service Road
Lakeview Road
Queen Elizabeth Way
Winston Road
Kelson Avenue North
Oakes Road North
Main Street West
Kelson Avenue South
Hunter Road
South Service Road
Casablanca Boulevard
Livingston Avenue
Woolverton Road
Brand Road
Bowslaugh Road
Hysert Road
Ridge Road West
Alway Road

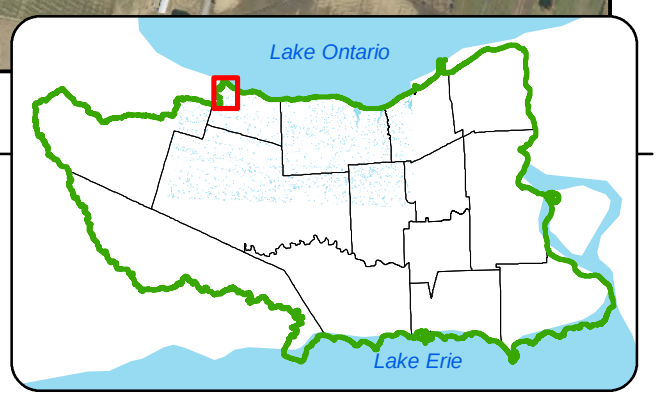
Meters
0 250 500 1,000

79°38'0"W 79°37'0"W

Watercourse (Open Channel)
Watercourse (Piped)
Subwatersheds
Waterbodies
NPCA Jurisdiction

Landuse Classification:

<Null>
Agricultural
Apartments
Built Up Impervious
Commercial
Forest
Idel Land
Industrial
Institutional
Open Space
Pervious
Residential
Transportation

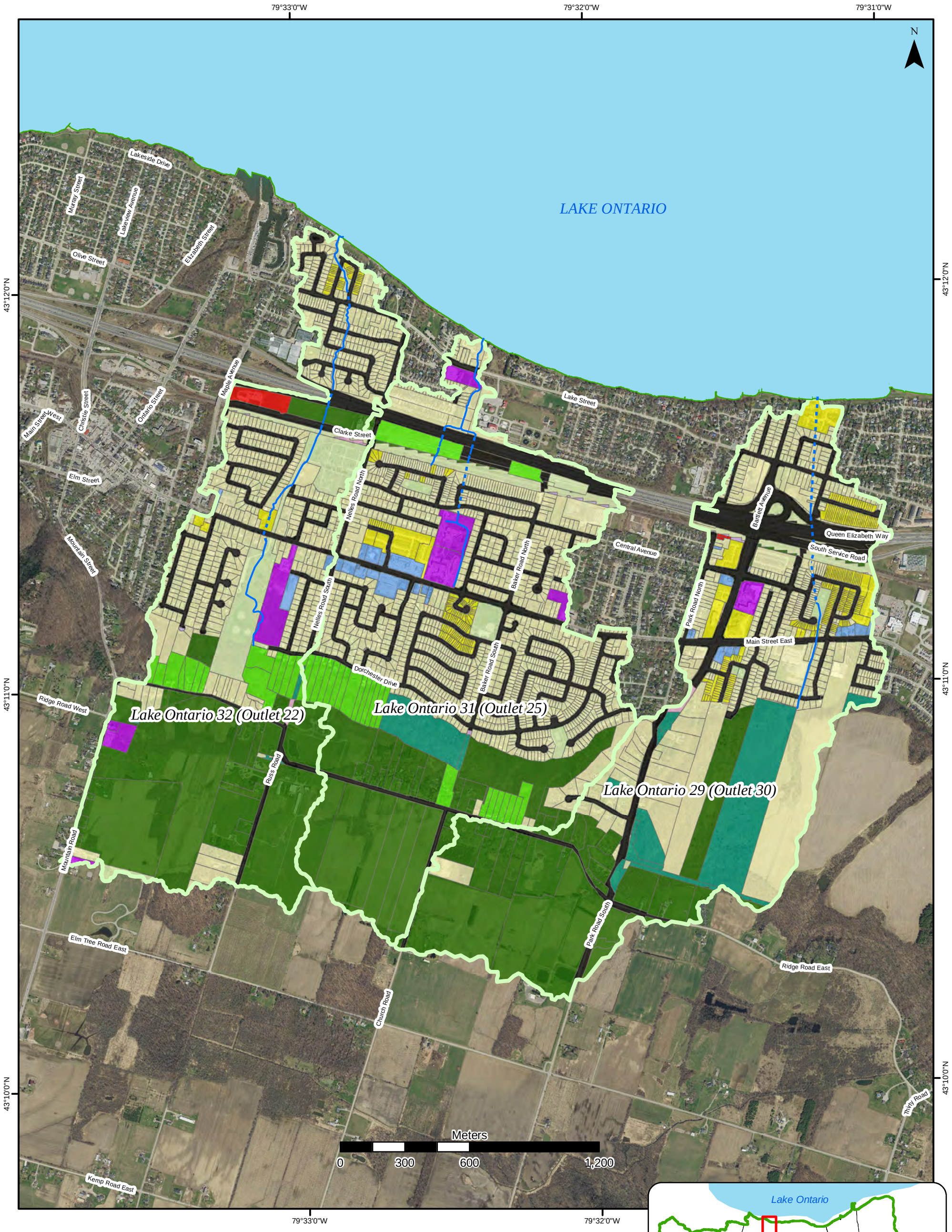


Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Landuse - Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse (Open Channel)
Watercourse (Piped)
Waterbodies
Subwatersheds
NPCA Jurisdiction

Landuse Classification:

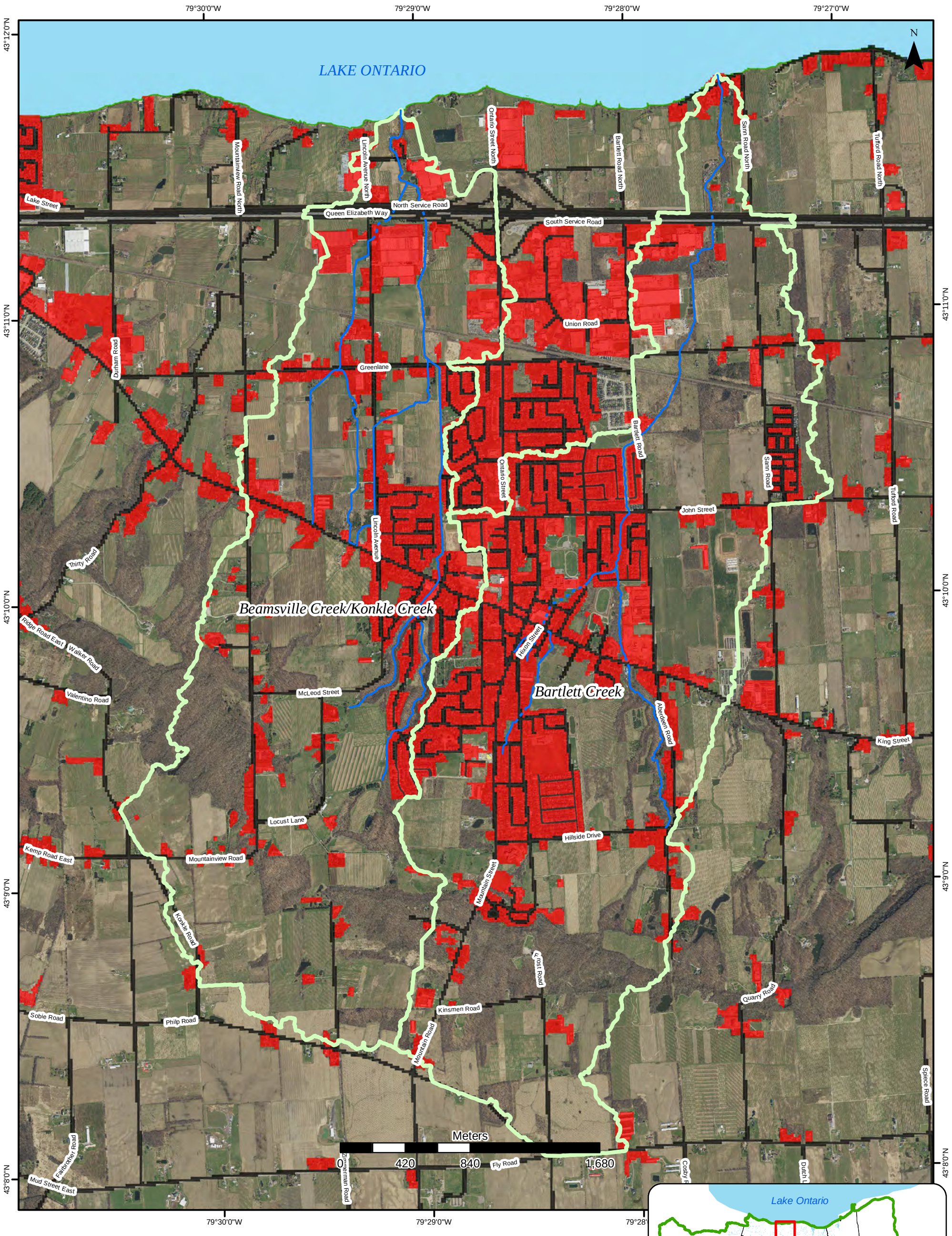
<Null>
Agricultural
Apartments
Built Up Pervious
Commercial
Forest
Industrial
Institutional
Open Space
Parks
Pervious
Residential
Transportation

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Future Landuse - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse (Open Channel)

Watercourse (Piped)

Waterbodies

Subwatersheds

NPCA Jurisdiction

Landuse Classification:

Built Up Impervious

Transportation

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Landuse - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°26'0"W 79°25'0"W 79°24'0"W 79°23'0"W

43°11'0"N 43°10'0"N 43°9'0"N

N

LAKE ONTARIO

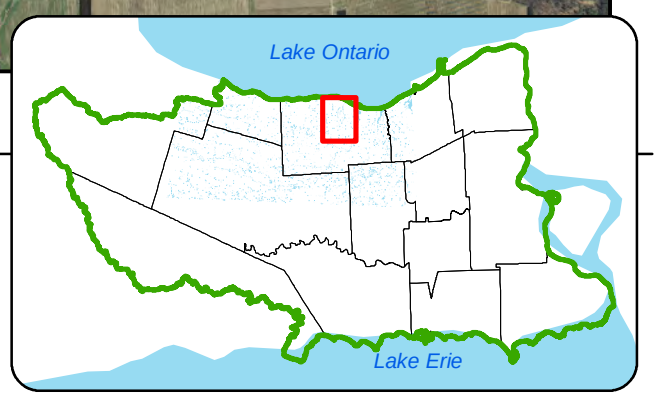
Maple Grove Road North
Cherry Avenue North
Martin Road North
Victoria Avenue North
North Service Road
South Service Road
Queen Elizabeth Way
Prudhomme Boulevard
Marina Boulevard
Maple Grove Road
Greenlane
First Avenue
John Street
Second Avenue
Merritt Road
Claus Road
Martin Road
Cherry Avenue
Prudhomme Creek
Twenty-third Street
Culp Road
King Street
Rittenhouse Road
Twenty-first Street
Tallman Drive
Tintern Road
Moyer Road
Campden Road
Victoria Avenue

Meters
0 355 710 1,420

Figure 2.5.3

Watercourse (Open Channel)
Watercourse (Piped)
Waterbodies
Subwatersheds
NPCA Jurisdiction

Landuse Classification:
Built Up Impervious
Transportation



Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.4

2.5.2 Future Conditions

Future conditions in the Grimsby and Lincoln study areas were determined using the Official Plan for each Town. These official plans are representative of planning conditions proposed up to the year 2031.

Overall, the future landuse conditions in the Grimsby study area, shown in **Figures 2.5.5 and 2.5.6** are not significantly different from the current landuse conditions. The only notable changes are minor conversions of agricultural landuse to institutional landuse in the Lake Ontario Tributary 39 catchment area.

The future landuse conditions for the Lincoln study area, shown in **Figures 2.5.7 and 2.5.8**, show increases in the built-up impervious landuse in the Beamsville area, particularly near the QEW and near the downtown core south of King Street. This is most likely due to the expansion of residential and mixed (i.e. residential/commercial/industrial) landuse areas.

The future land use changes were input into the hydrologic model to determine the effects of these changes on the nine (9) watercourse floodplain extents.

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Future Landuse - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°38'0"W 79°37'0"W 79°36'0"W

43°13'0"N 43°12'0"N

N

LAKE ONTARIO

Lake Ontario 44A (Outlet 1)

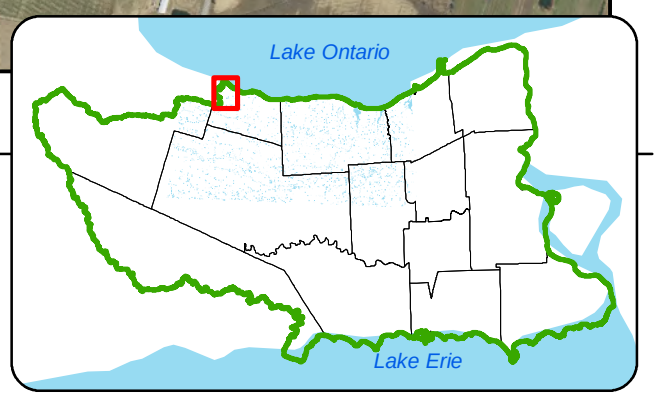
Lake Ontario 44 (Outlet 2)

Lake Ontario 39 (Outlet 9)

North Service Road
Queen Elizabeth Way
Lakelawn Road
Winston Road
Oakes Road North
Kelson Avenue North
Kelson Avenue South
Main Street West
Hunter Road
South Service Road
Casablanca Boulevard
Livingston Avenue
Woolverton Road
Brand Road
Bowslaugh Road
Hysert Road
Alway Road
Ridge Road West

Meters
0 250 500 1,000

79°38'0"W 79°37'0"W



Watercourse (Open Channel)
Watercourse (Piped)
Proposed Future Landuse Changes
Subwatersheds
Waterbodies

NPCA Jurisdiction

Landuse Classification:

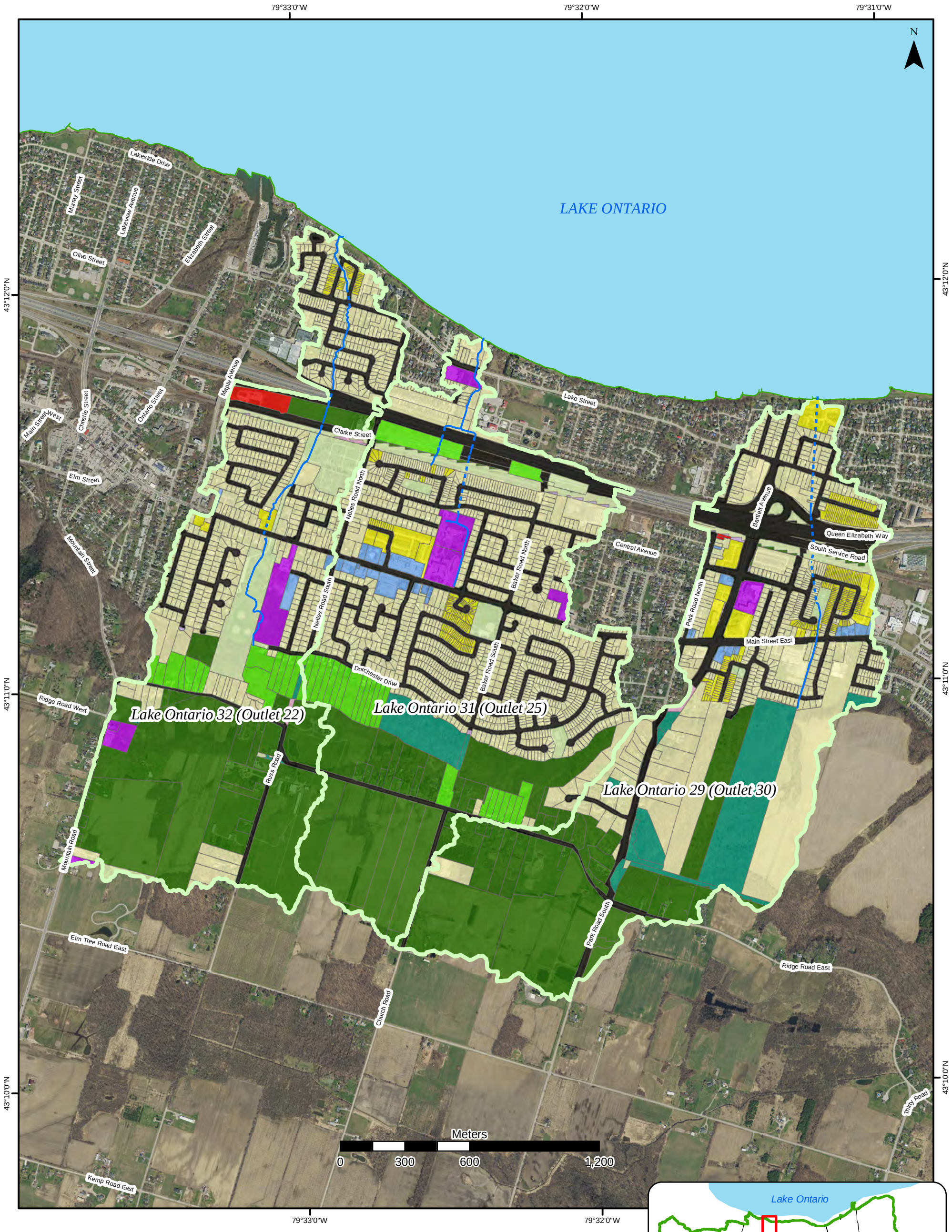
<Null>
Agricultural
Apartments
Built Up Impervious
Commercial
Forest
Idel Land
Industrial
Institutional
Open Space
Pervious
Residential
Transportation

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.5

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Future Landuse - Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Watercourse (Open Channel)
- Watercourse (Piped)
- Waterbodies
- Subwatersheds
- NPCA Jurisdiction

Landuse Classification:

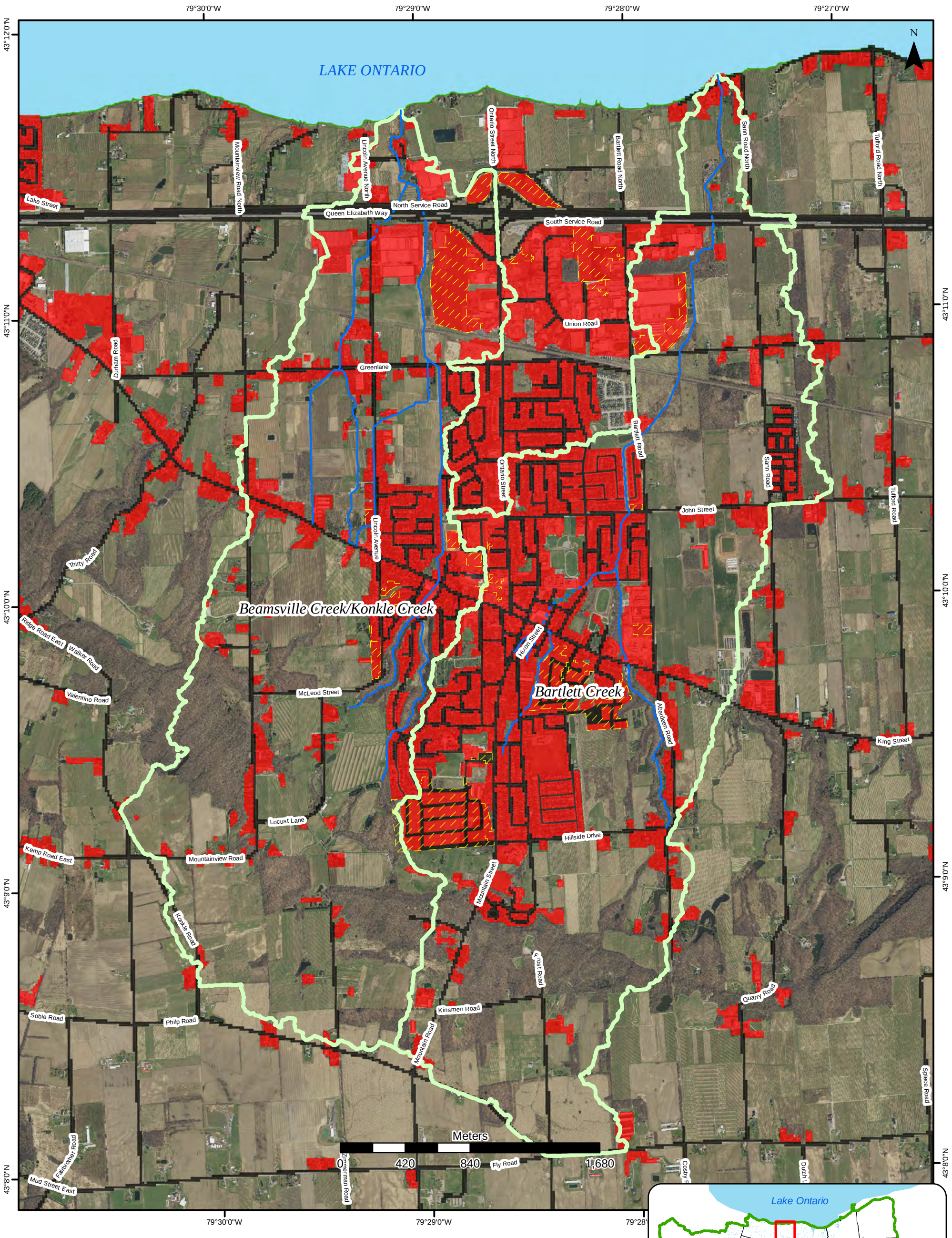
- <Null>
- Agricultural
- Apartments
- Built Up Pervious
- Commercial
- Forest
- Industrial
- Institutional
- Open Space
- Parks
- Pervious
- Residential
- Transportation

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.6

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Future Landuse - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



Watercourse (Open Channel)

Watercourse (Piped)

Proposed Existing Landuse Changes

Waterbodies

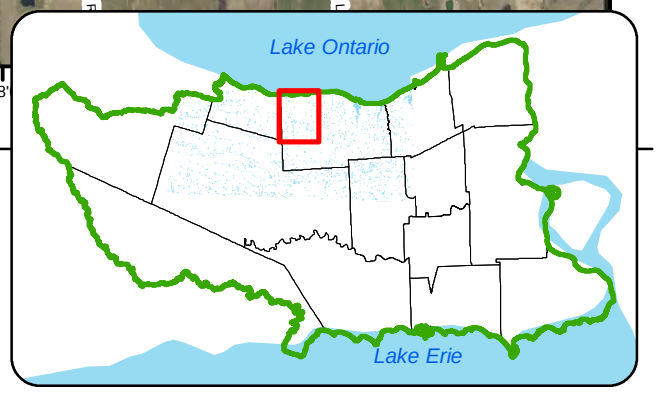
Subwatersheds

NPCA Jurisdiction

Landuse Classification:

Built Up Impervious

Transportation

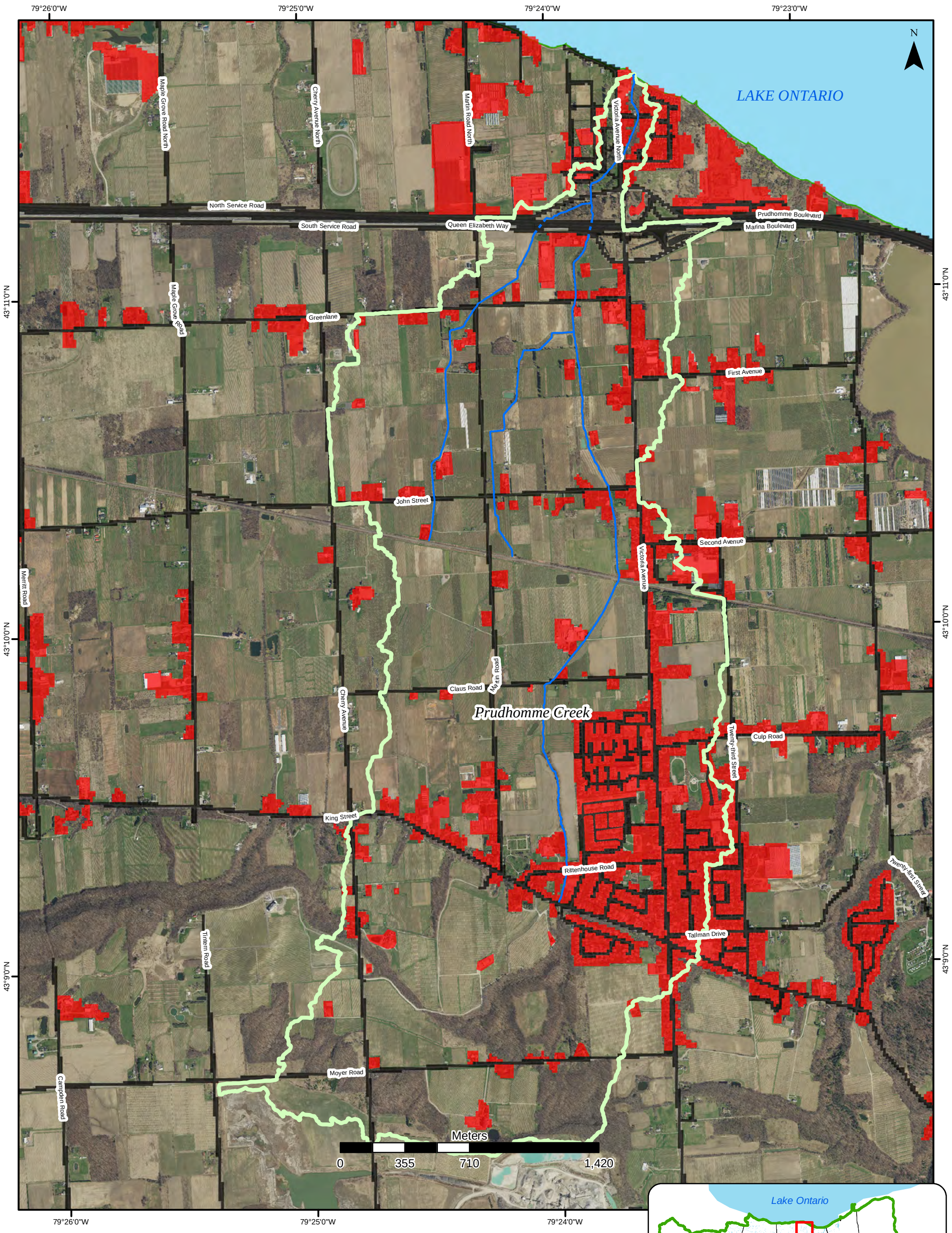


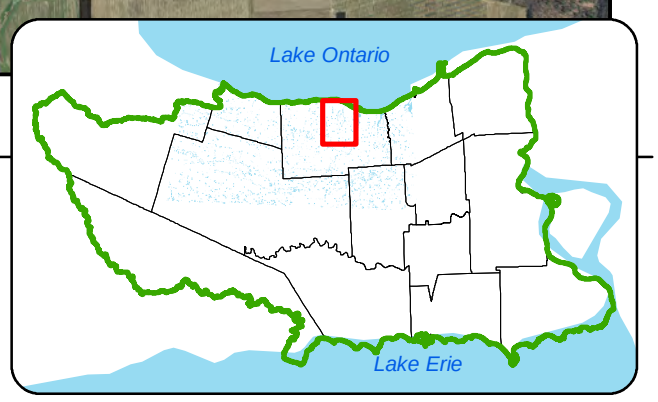
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.7

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Future Landuse - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





Watercourse (Open Channel)
Watercourse (Piped)
Waterbodies
Subwatersheds
NPCA Jurisdiction

Landuse Classification:

Built Up Impervious
Transportation

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: October, 2019

Figure 2.5.8

2.6 Hydrologic Model Results

The PCSWMM model was run using the 100-year design storm to determine the resultant flows in each watercourse for both existing and future land use scenarios. The resultant flows at the Lake Ontario outlets of each watercourse model using the SCS-II 12 hr 100-year design storm are summarized in **Table 2.1.** The full hydrologic model is attached in **Appendix D.**

As demonstrated in **Table 2.1**, the PCSWMM flows for existing and future land uses only differ for Bartlett Creek, Beamsville/Konkle Creek, and Lake Ontario Tributary 39. Intensification around the QEW in Grimsby, as discussed in **Section 2.5**, resulting from the conversion of agricultural land to institutional land results in higher future flows for Lake Ontario Tributary 39. Intensification of the community of Beamsville results in higher future flows for Bartlett Creek and Beamsville/Konkle Creek.

The 1989 Study completed by Phillips modeled 1989 and future land use conditions. The 1989 future study was based on the Official Plan circa 1989 and can provide an approximate comparison to the existing conditions as 30 years have passed since this study. The similar flows resulting from the 1989 future land use and 2019 existing conditions imply that the land use changes have followed past official plans.

The results of both of these analyses are included in **Table 2.1**.

Table 2.1 Comparison of Design Flows at Lake Ontario Outlet

Watershed	100 -Year Design Flow (cms)			
	1989 Study	1989 Study Future	PCSWMM (SCS-II-12HR)	
			Existing Flow	Future Flow
Prudhomme Creek	18.7	n/a	22.7	22.7
Bartlett Creek	25.1	34.6	32.7	35.2
Beamsville/Konkle Creek	21.4	23.7	27.8	29.6
Lake Ontario Tributary 29	10.6	12.1	12.3	12.3
Lake Ontario Tributary 31	19.3	21.8	21.0	21.0
Lake Ontario Tributary 32	9.5	10.0	18.9	18.9
Lake Ontario Tributary 39	n/a	n/a	9.2	10.3
Lake Ontario Tributary 44	n/a	n/a	8.6	8.6
Lake Ontario Tributary 44a	n/a	n/a	16.2	16.2

3 HYDRAULIC MODEL AND FLOODPLAIN MAPPING EXTENSION

Hydraulic modelling was completed to determine the floodplain extents of the nine (9) watercourses. The following section outlines the structure inventory, model setup, and results of the hydraulic model.

3.1 Structure Inventory

Bridge and culvert crossing structures along each of the nine (9) watercourse were identified and indexed from a preliminary review of GIS mapping, air photos, and information provided by the NPCA. A total of 91 culvert/bridge structures were identified.

Topographic surveys using GPS/Total station equipment and field inventories were completed between May and August 2018 for each of the 91 structures, shown in **Figure 3.1** to **Figure 3.4**. These inventories documented the following information:

- Structure Type
- Material
- Opening shape and dimensions
- Upstream and downstream invert elevations
- Structure and site photographs

A structure inventory sheet displaying the data collected during the field investigations is shown below in **Figure 3.5.** The data collected during this structure inventory was incorporated into the hydraulic model for the study, as described in **Section 3.2.2**. The full results of the structure inventory are presented in **Appendix B**.

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°38'0"W 79°37'0"W 79°36'0"W

43°13'0"N 43°12'0"N

N

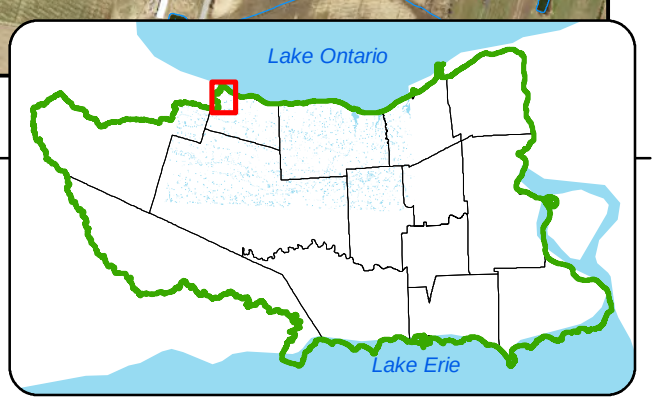
LAKE ONTARIO

LO44A-1
LO44-1
LO44A-2
LO44-2
LO44A-3
LO44-3
LO39-1
LO39-2
LO39-3
LO39-4
LO39-5
LO39-6

Lake Ontario 44A (Outlet 1)
Lake Ontario 44 (Outlet 2)
Lake Ontario 39 (Outlet 9)

North Service Road
Queen Elizabeth Way
South Service Road
Lakelawn Road
Oakes Road North
Winston Road
Kelson Avenue North
Kelson Avenue South
Hunter Road
Main Street West
Casablanca Boulevard
Livingston Avenue
Woolverton Road
Brand Road
Bowslaugh Road
Hysert Road
Ridge Road West
Alway Road

Meters
0 250 500 1,000



- Major Structures
- Watercourse
- Subwatersheds
- Waterbodies
- NPCA Jurisdiction

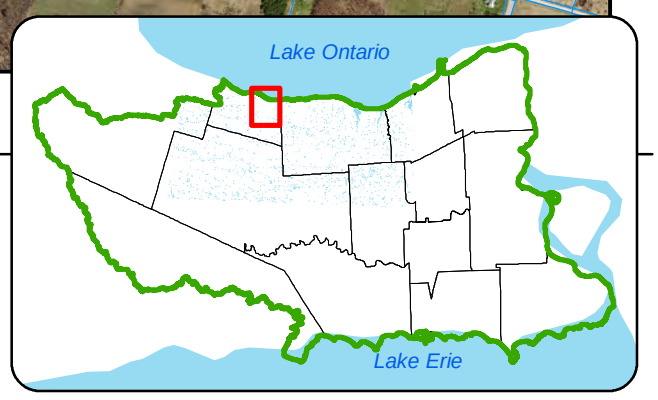
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 3.1.1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY





Major Structures

Watercourse

Subwatersheds

Waterbodies

NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 3.1.2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Major Structures
- Watercourse
- Waterbodies
- Subwatersheds
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 3.1.3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln Major Structures - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°26'0"W 79°25'0"W 79°24'0"W 79°23'0"W

43°11'0"N 43°10'0"N 43°9'0"N

N

LAKE ONTARIO

P-1 (confirm size)
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
PT1-1
PT1-2
PT1-3
PT1-4
PT2-1

Maple Grove Road North
Cherry Avenue North
Martin Road North
Victoria Avenue North
North Service Road
South Service Road
Queen Elizabeth Way
Prudhomme Boulevard
Marina Boulevard
Greenlane
First Avenue
Victoria Avenue
John Street
Maple Grove Road
Second Avenue
Merritt Road
Martin Road
Twenty-first Street
Prudhomme Creek
Claus Road
Culp Road
Cherry Avenue
Twenty-third Street
King Street
Rittenhouse Road
Tallman Drive
Tintern Road
Moyer Road
Campden Road

Meters
0 360 720 1,440

Lake Ontario
Lake Erie

Major Structures
Watercourse
Subwatersheds
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Figure 3.1.4

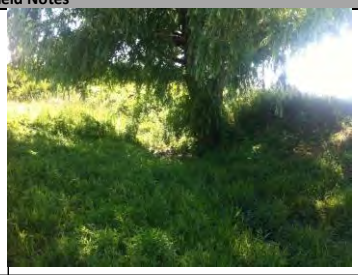
HYDRAULIC STRUCTURE INVENTORY SHEET			
Towns of Lincoln & Grimsby Floodplain Mapping Update			
STRUCTURE: P-8			
Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:		Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.95
Key Map:		Width (m):	3.65
		Diameter (m):	-
		Length (m):	16
		U/S Invert Elevation (m):	92.06
		D/S Invert Elevation (m):	91.81
		Top of Road Elevation (m):	94.42
		Average Slope (%):	0.00271562
		Note:	
Site Photographs and Additional Field Notes			
NOTES:			
	Upstream Inlet	Upstream Channel	
NOTES:			
	Downstream Outlet	Downstream Channel	

Figure 3.5: Sample Structure Inventory Sheet

3.2 Hydraulic Model Setup

GeoHECRAS was utilized to create a hydraulic model of the nine (9) watercourses. The following section outlines the information input into the hydraulic model, including the digital topographic data received from the NPCA and the structure inventories completed by Aquafor staff.

3.2.1 Cross-Sections

A base model was assembled using topographical information from the NPCA digital elevation model (DEM), together with ArcGIS software and the GeoHECRAS. This spatial data was used to define channel cross-sections, stream centrelines, and overbank locations for the watercourse reaches. Cross sections were spaced to account for changes in channel geometry, meanders, bridge/culvert structures, and to account for the narrowest sections of the creeks and tributaries.

Manning's roughness coefficients were assigned to each cross-section based on conditions observed during the field inventory program and from available aerial photography. Manning's "n" values were set according to the Technical Guideline for Flood Hazard Mapping (2017) standards, as displayed in **Table 3.1**.

Table 3.1 Manning's Coefficients Technical Guideline for Flood Hazard Mapping (2017)

Conduit	'n'	Calibration Range	
	Standard	Minimum	Maximum
Concrete	0.013	0.011	0.015
Brick	0.015	0.013	0.017
Plastic	0.013	0.011	0.015
Iron	0.013	0.011	0.015
Corrugated Steel Pipe - 3"x1"	0.024	0.021	0.027
Structural Plate Corrugated Steel Pipe - 6"x2"	0.032	0.026	0.036

Open Channel	'n'	Calibration Range	
	Standard	Minimum	Maximum
Overbank			
Woods	0.080	0.040	0.120
Meadows	0.055	0.035	0.070
Lawns	0.045	0.030	0.055
Channel			
Natural	0.035	0.025	0.045
Grass	0.030	0.025	0.035
Natural Rock	0.035	0.025	0.045
Armour Stone	0.025	0.017	0.030
Concrete	0.015	0.011	0.017
Articulated Block	0.020	0.019	0.032
Gabions	0.025	0.020	0.030
Wood	0.012	0.011	0.013

Overland	'n'	Calibration Range	
	Standard	Minimum	Maximum
Impervious	0.013	0.011	0.015
Lawns	0.250	0.150	0.410
Cultivated	0.300	0.060	0.170
Meadows	0.350	0.025	0.400
Woods	0.600	0.400	0.800

The “low-flow” channel inverts were then refined throughout the base model to match defined invert elevations at the bridge/culvert crossing structures as determined using the structure inventory data. The inverts between structures were also refined to provide a smoother and more consistent stream profile than was defined initially through the DEM. The base model was further refined through the addition of obstructions within the cross-sections to represent buildings which may be within the flow path.

Care was taken to extend cross-sections to an elevation sufficient to contain the flow, wherever feasible, in an effort to prevent the model from assuming artificial vertical extensions. In many locations, this required

extension of the cross-sections to a topographic high point that represents the location where spill out of the channel would begin, possibly into an adjacent tributary system. In some locations, buildings may also be located on the topographic high point that represents the spill location between tributaries. In these situations, levees were inserted into the model to represent the edge of a building located on a high point.

3.2.2 Culvert/Bridge Structures

Each structure, including culverts and bridges, surveyed in the field inventory was input as a road crossing into the GeoHECRAS model. Data from the structure survey (**Section 3.1**), including the structure material, opening dimensions and invert elevations, were input into the model cross-sections containing the bridge/culvert structures. Manning's roughness coefficients for the structures were selected from standard values recommended for use with concrete and corrugated steel pipes. The ineffective flow area option was applied in the model to restrict the flow area to the width of the structure opening until the structure is overtopped and weir flow begins over the road structure.

Four (4) cross sections were coded at each bridge/culvert structure to account for expansion and contraction of the flow at these structures (i.e. two upstream and two downstream of each structure). The spacing of these cross-sections was estimated using flow expansion and contraction ratios recommended in the model manual. In general, the locations for the upstream cross-sections were selected by assuming a typical flow contraction ratio of 1:1, while the downstream cross-section locations were selected based on expansion ratios that were typically in the range of 2:1 (**Figure 3.6**). Expansion and contraction coefficients used in the model were setup using the following recommended values (**Table 3.2**):

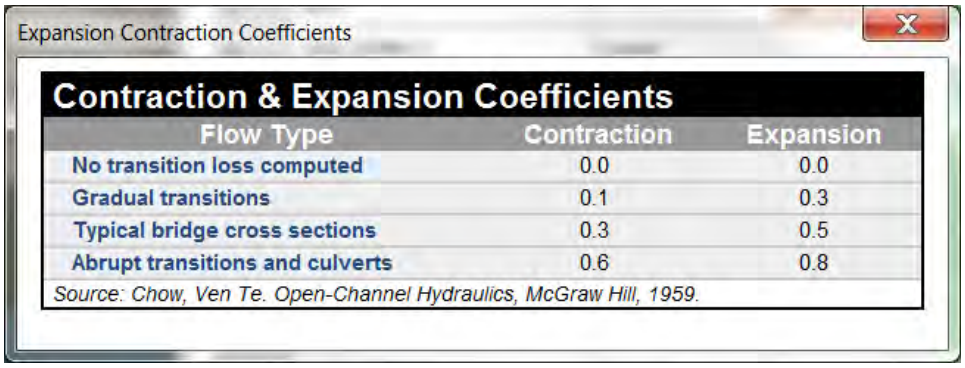


Table 3.2 GeoHECRAS Contraction & Expansion Coefficients

As per discussion with NPCA, the culvert capacity was determined at each crossing of the QEW and the CNR. Manning's equation for a pipe was applied to each structure to determine this flow. If the flow at the crossing was greater than this capacity, the culvert capacity was applied as a flow change downstream of each crossing.

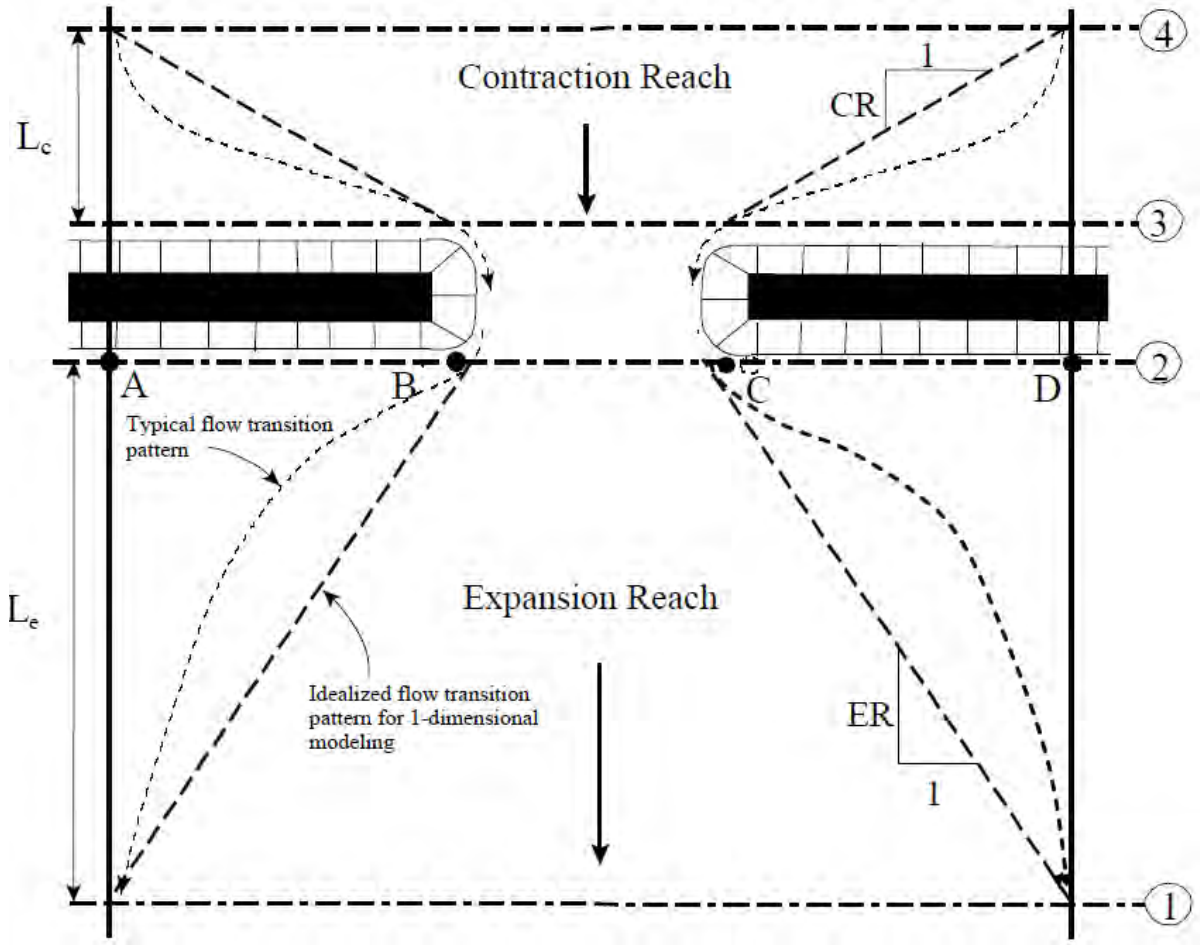


Figure 3.6 Cross section locations at Bridge or Culvert (HEC-RAS User Manual)

3.2.3 Flood Flow Rates and Boundary Conditions

The resultant 100-year design flows from the hydrologic model, included in **Appendix D**, were input into the hydraulic model to determine floodplain extents for both existing and future land use. The flood flow rates applied in the hydraulic model update are included in **Appendix D**.

As each watercourse within this study outlets to Lake Ontario, the downstream boundary condition was assumed to be the Lake Ontario water level elevation set to 75.15m.

3.3 Model Results and Floodplain Mapping

The GeoHEC-RAS hydraulic model was applied to establish water surface profiles for the 100-year design storm flow for the Existing Conditions landuse scenario. In addition, the model was also applied to determine the future uncontrolled landuse scenario. The model was executed using the subcritical flow regime. Model results for each of the nine (9) watercourses are included in **Appendix D**. The 100 year flood profiles of all the watercourses with structures as well as the 100 year water level elevations and flows at each river station are also included in **Appendix D**. Table 4 summarizes the difference in existing and future condition floodplain elevations at major crossings in Bartlett Creek, Beamsville/Konkle Creek, and Lake Ontario 39.

Table 4 Floodplain Elevations Changes

Crossing	*Existing Floodplain Elevation*	*Future Floodplain Elevation*
Bartlett Creek		
QEW - 1025	83.36	83.51
CNR - 2195	90.54	90.56
Greenlane Rd - 2033	88.18	88.23
Bartlett Rd - 2693	92.25	92.44
John St - 3232	94.81	94.85
Adriana Ave - 3433	96.10	95.93
Arejay Ave – 135	99.16	99.22
74	98.54	98.58
King St - 660	106.40	106.59
Beamsville/Konkle		
Acres Trace - 401	78.72	78.58
QEW – 207	82.18	82.16
243	83.98	84.58
CNR – 1013	87.94	87.94
1029	89.64	89.71
Greenlane Rd –1388	90.06	89.89
40	89.75	89.82
79	90.65	90.66
King St - 1512	105.64	105.60
Lake Ontario 39		
N Service Rd - 188	82.11	82.15
Concord Pl - 228	82.41	82.50
QEW - 436	84.04	84.11
Industrial Dr – 742	87.50	87.74
CNR - 875	88.70	88.94

The Regulatory Flood profile for the watercourses are based on the 100 year design storm results. Results from the GeoHEC-RAS model were exported to ArcGIS to plot the resulting floodplain extents onto the supplied topographic base mapping. The preliminary floodplain mapping results were reviewed in conjunction with the model output to verify and refine the floodplain extents. In some locations the DEM resolution was not high enough to clearly define the watercourse channel versus the surrounding topography; in these situations, the floodplain extent is not centered on the watercourse. Spill zones were created for each watercourse by identifying locations of undefined flow from the floodplain extents. These spill zones are included in the floodplain mapping figures.

The resulting Regulatory Floodplain Mapping is included in **Appendix C** of this report.

4 FLOOD HAZARD AREAS

4.1 Identification of Flood Hazard Areas

Following completion of the modelling and mapping components of the study, a flood risk assessment was undertaken with the objective of identifying areas where existing buildings may be susceptible to flooding.

Buildings intersected by the 100 year floodplain were identified from the developed mapping. Flood Hazard Areas were defined around the identified flood susceptible properties, and adjacent properties with similar issues were clustered into single Flood Hazard Areas. Twenty-nine (29) Flood Hazard Areas were identified. The Flood Hazard Areas are indicated on the floodline maps included in **Appendix C**.

4.2 Flood Remediation Alternatives

Flood remediation alternatives were developed for the 29 identified flood hazard areas. Overviews of the considered alternatives are presented below.

4.2.1 Outside of Municipal Authority

General municipal government policies in Ontario infer that the municipality will undertake flood mitigation works on publicly managed City property, but not necessarily on private property where flooding problems are not a municipal responsibility.

In keeping with these policies, flood issues aggravated by private infrastructure or private property management have been identified within this report. However, no municipality action is proposed for flood hazard areas within the Lincoln and Grimsby catchment areas that fall within the following categories:

- Issues caused by private infrastructure (in keeping with municipality and NPCA mandates); and,
- Flood susceptibility caused by proximity of buildings to the floodplain.

The following flood remediation alternatives may be considered by landowners to address flood risk relating to private infrastructure. The alternatives introduced in **Sections 4.2.3** to **4.2.6** were also considered for municipal flood remediation projects.

4.2.2 Structural Floodproofing

Landowners can apply structural treatments to their buildings to reduce or eliminate the possibility of flood damage to the structure and its contents. Residential buildings should be dry-floodproofed to prevent flooding up to and including the 100 Year event, and prevent structural movement as a result of flood flows. Buildings can be floodproofed by sealing or filling low openings which are flood susceptible. Flood proofing is a viable alternative in areas outside of municipal authority and where buildings cannot be feasibly removed from the 100 Year Floodplain.

4.2.3 Culvert Capacity Upgrade

This measure involves increasing the size of an existing culvert to increase conveyance capacity. Increasing conveyance capacity can reduce the frequency with which the crossing structure is overtopped by floodwaters, and reduce upstream flooding conditions. The number of culvert barrels should be minimized while retaining the total flow capacity to reduce the frequency of culvert and creek blockages due to transport of debris. In areas where full replacement of a culvert is infeasible, a relief culvert may be installed adjacent to the existing culvert at a higher elevation to convey flood flows. In sections where a series of culvert upgrades are proposed, it is recommended that replacements be phased from downstream to upstream to maintain upstream flood storage within the existing system. If upstream improvements must be completed first, the

conveyance of upsized culverts should be temporarily restricted until downstream improvements are completed.

4.2.4 Dykes/Berms

Dykes or berms can be constructed adjacent to private property to prevent flood waters from reaching dwellings. Associated risks include increased channel velocities during flood conditions, and downstream erosion. This alternative was considered in several locations where flood risk was attributable to proximity of buildings to the floodplain, but was determined to be infeasible in most locations due to limited space between at-risk buildings and the top of the channel bank.

4.2.5 Watercourse Capacity Re-grading/Enlargement

This alternative includes measures that are designed and implemented based on engineering-based flood mitigation measures that would increase the conveyance capacity of watercourses, thus reducing the flow of water beyond the channel banks during storm events. The measures are generally applied on a stream reach basis and include stream rehabilitation using natural or engineered channel design principles and naturalization of stream riparian zones using native materials. They may also include individual approaches such as streambank re-grading, gradient controls and floodplain contouring to address specific flooding problems. Riparian plantings and open space re-vegetation can be implemented concurrently to improve the function of stream corridors. In addition to reducing overbank flood flows, these approaches improve water quality, slow runoff, moderate stream temperatures, reduce erosion and improve aquatic and terrestrial habitat conditions.

4.2.6 Ditch Works

The municipalities, through their Operations Division, monitors, maintains, repairs and replaces the street system, which includes cleaning and re-grading of ditches. Ditch maintenance and proper grading can prevent obstructions and maintain flow, thereby reducing instances of ponding and sustaining intended conveyance capacity.

4.3 Recommended Flood Remediation Alternatives

The feasibility of the flood remediation alternatives introduced in **Section 4.2** was considered for each of the 29 Flood Hazard Areas, and a solution was proposed where possible within municipal authority. The flooding issues and risks are summarized for each Flood Hazard Area in **Table 5**, including those pertaining to private property. The proposed municipal flood remediation solutions are also summarized in the table. Flood Hazard Area numbers and floodline map references are provided for reference to **Appendix C**.

Remediation projects have not been proposed for issues caused by private infrastructure or proximity of buildings to the floodplain (in keeping with City and NPCA mandates), but the issues have been identified, and flood remediation alternatives (as introduced in **Section 4.2**) may be pursued by landowners. The private remedial works indicated in **Tables 5** and **6** are described in general terms. The individual landowner must consult with the NPCA in order to work out the details of each flood remediation project in order to ensure that adjacent landowners are not negatively impacted. It should be noted that a work permit must be obtained from the NPCA prior to commencing any works within the Regulatory floodplain.

Works identified may be subject to individual Municipal Class Environmental Assessments for Municipal Infrastructure Projects. As well, screening for the presence of Species at Risk and Endangered Species should be undertaken at the time of the Municipal Class EAs.

Table 5 Proposed Remediation Solutions for Flood Hazard Areas

Floodplain Sheet #	Flood Hazard Area #	Description of Issue Identified	Proposed Solution
Bartlett Creek			
1	B-1	Private building in 100 Year floodplain.	Structural floodproofing recommended
2	B-2	Private buildings in 100 Year floodplain due to proximity to watercourse	Structural floodproofing recommended
2	B-3	Commercial storage area in floodplain.	Structural floodproofing recommended
3	Greenlane	Overtopping at Greenlane crossing Existing Structure: 13m 1.2 x 4.5 Concrete Box Culvert	Increase capacity of Greenlane culvert Proposed Structure: 2.7 x 4.2 Concrete Box Culvert
4	B-4	Private Buildings in 100 Year Floodplain CNR Railway culvert restricting flow, current structure: 12.8m 1.6 x 2.7m box culvert	Existing DEM/Survey outdated. 2016 Channel Works potentially addressed flooding, further study required.
4	Bartlett Road	Overtopping at Bartlett Road Crossing Existing Structure: 13.4m 1.35 x 4.5m Concrete Box	Increase capacity of Bartlett Road culvert Proposed Structure: 3.0 x 4.8 Concrete Box Culvert
5	John Street	Overtopping at John Street Crossing Existing Structure: 24 1x4.2m Concrete Box	Increase capacity of John Street culvert Proposed Structure: 3.0 x 4.2 Concrete Box Culvert
5	B-5	Private building in 100 Year floodplain Existing structure: Twin 1.1x2.45 32m Concrete Box	Channel Works Field work identified excessive road sand within the channel, rill erosion, and slumped gabions downstream of channel
10	B-6	Private building in 100 Year floodplain due to proximity to watercourse.	Structural floodproofing recommended

Beamsville/Konkle Creek			
1	BK-1	Private building in 100 Year floodplain.	Structural floodproofing recommended
1	Acres Trace	Overtopping at Acres Trace crossing Existing Structure: 7.40m 1.81x3.05 Concrete Box	Upsize Trace Acres culvert & Channel Works Proposed Structure: 3.0 x 3.0 Concrete Box Culvert
3	BK-2	Flooding of outbuilding on private property due to proximity to floodplain.	Structural floodproofing recommended
5	BK-3	Private buildings in 100 Year floodplain due to proximity to watercourse	Channel works and structural floodproofing recommended
5	BK-4	Private commercial buildings/property in 100 Year floodplain due to proximity to watercourse	Channel works and retaining wall
10	BK-5	Private buildings in 100 Year floodplain	Ditch works
13	Lincoln Avenue	Overtopping along roadway due to shallow ditches	Ditch works
Lake Ontario 31			
2	LO31-1	Private buildings in 100 Year floodplain	Berm at 92.0m along East side of channel
Lake Ontario 44			
2	LO44-1	Private buildings in 100 Year floodplain due to proximity to watercourse	structural floodproofing recommended
2	LO44-2	Private commercial buildings/property in 100 Year floodplain due to proximity to watercourse	structural floodproofing recommended

Lake Ontario 44A			
2	LO44A-1	Private buildings in 100 Year floodplain due to proximity to watercourse Existing Structure: 8.7m 1x1.2m Concrete Box	Channel Works
2	Kelson Avenue North	Overtopping at Kelson Avenue North crossing Existing Structure: 8.7m 1x1.2m Concrete Box	Channel Works
2/3	LO44A-2	Private commercial buildings/property in 100 Year floodplain due to proximity to watercourse	Channel Works
3	LO44A-3	Private buildings in 100 Year floodplain due to proximity to watercourse	Channel Works
Prudhomme Creek			
1	Laurie Ave	Overtopping at Laurie Avenue crossing Existing Structure: Twin 15.60m 2x6 elliptical CSP	Increase capacity of Laurie Ave culvert
1	P1	Private buildings in 100 Year floodplain due to proximity to watercourse Existing Structure: Twin 15.60m 2x6 elliptical CSP	
2	Greenlane	Overtopping at Greenlane crossing Existing Structure: 14m 1.85x5.1m Concrete Box	Increase capacity of Greenlane culvert Proposed Structure: 2.7 x 4.8 Concrete Box Culvert

3	P2	Private building in 100 Year floodplain due to proximity to watercourse	Structural floodproofing recommended
4	P3	Private building in 100 Year floodplain due to proximity to watercourse Existing Structure: 15m 2.5 x 3.65m Concrete Box	Structural floodproofing recommended
7	Rittenhouse Road	Overtopping at Rittenhouse crossing Existing Structure: 12m 0.95x3 m Concrete Box	Upsize/Increase culvert capacity at Rittenhouse Rd Proposed Structure: 1.8 x 3.0 Concrete Box Culvert
7	P4	Private building in 100 Year floodplain due to proximity to watercourse Existing Structure: 12m 0.95x3 m Concrete Box	

4.4 Cost Estimate

Thirteen (13) remediation works have been identified to address nineteen (19) of the identified flood hazard areas. High level cost estimates were prepared for these proposed remediation works. These remediation works include culvert upsizing, channel works, and berm installation. Construction costs were based on values from recently undertaken watercourse remediation works and culvert replacement projects. The total costs are presented in **Table 6**. Although individual EAs will be required to develop all possible remediation alternatives, these cost estimates were based on the likely preferred remediation approach. The costs are in 2019 Canadian dollars. The cost estimates utilized a cost of $1500/m for channel works and $500/m for ditch works. A minimum total cost of $50,000 per project was assumed for project mobilization and demobilization. Each project cost includes 20% for engineering design and approvals and a 15% contingency with values rounded to the nearest $10,000. The total is exclusive of HST.

Table 6 High Level Cost Estimates for Flood Remediation Projects

Flood Hazard Area #	Description of Issue Identified	Proposed Solution	Cost ($)
Bartlett Creek			
Greenlane	Overtopping at Greenlane crossing Existing Structure: 13m 1.2 x 4.5 concrete box culvert	Increase capacity of Greenlane culvert Proposed Structure: 2.7 x 4.2 Concrete Box Culvert	$ 280,000.00
Bartlett Road	Overtopping at Bartlett Road Crossing Existing Structure: 13.4m 1.35 x 4.5m Concrete Box	Increase capacity of Bartlett Road culvert Proposed Structure: 3.0 x 4.8 Concrete Box Culvert	$ 330,000.00
John Street	Overtopping at John Street Crossing Existing Structure: 24 1x4.2m Concrete Box	Increase capacity of John Street culvert Proposed Structure: 3.0 x 4.2 Concrete Box Culvert	$ 540,000.00
B-5	Private building in 100 Year floodplain Existing structure: Twin 1.1x2.45 32m Concrete Box	Channel Works Field work identified excessive road sand within the channel, rill erosion, and slumped gabions downstream of channel	$ 620,000.00
Beamsville/Konkle Creek			
Acres Trace	Overtopping at Acres Trace crossing Existing Structure: 7.40m 1.81x3.05 Concrete Box	Upsize Trace Acres culvert & Channel Works Proposed Structure: 3.0 x 3.0 Concrete Box Culvert	$ 350,000.00
BK-3	Private buildings in 100 Year floodplain due to proximity to watercourse	Channel works and structural floodproofing recommended	$ 410,000.00
BK-4	Private commercial buildings/property in 100 Year floodplain due to proximity to watercourse	Channel works and retaining wall	$ 520,000.00
BK-5	Private buildings in 100 Year floodplain	Ditch works	$ 345,000.00
Lincoln Avenue	Overtopping along roadway due to shallow ditches	Ditch works	

Lake Ontario Tributary 31			
LO31-1	Private buildings in 100 Year floodplain	Berm at 92.0m along East side of channel	$ 50,000.00
Lake Ontario Tributary 44A			
LO44A-1	Private buildings in 100 Year floodplain due to proximity to watercourse Existing Structure: 8.7m 1x1.2m Concrete Box	Channel Works	$ 860,000.00
Kelson Avenue North	Overtopping at Kelson Avenue North crossing Existing Structure: 8.7m 1x1.2m Concrete Box		
LO44A-2	Private commercial buildings/property in 100 Year floodplain due to proximity to watercourse		
LO44A-3	Private buildings in 100 Year floodplain due to proximity to watercourse		
Prudhomme Creek			
Laurie Ave	Overtopping at Laurie Avenue crossing Existing Structure: Twin 15.60m 2x6 elliptical CSP	Increase capacity of Laurie Ave culvert Proposed Structure: 3.0 Reinforced Concrete Pipe	$ 200,000.00
P1	Private buildings in 100 Year floodplain due to proximity to watercourse Existing Structure: Twin 15.60m 2x6 elliptical CSP		

Greenlane	Overtopping at Greenlane crossing Existing Structure: 14m 1.85x5.1m Concrete Box	Increase capacity of Greenlane culvert Proposed Structure: 2.7 x 4.8 Concrete Box Culvert	$ 330,000.00
Rittenhouse Road	Overtopping at Rittenhouse crossing Existing Structure: 12m 0.95x3 m Concrete Box	Upsize/Increase culvert capacity at Rittenhouse Rd	$ 150,000.00
P4	Private building in 100 Year floodplain due to proximity to watercourse Existing Structure: 12m 0.95x3 m Concrete Box		

5 CONCLUSIONS

NPCA retained Aquafor Beech Limited to complete a floodplain mapping update for the Towns of Grimsby and Lincoln, including the main branch and tributaries of Prudhomme Creek, Bartlett Creek, Beamsville/Konkle Creek and Ontario Tributaries 29, 31, 32, 39, 44 and 44a as they flow North into Lake Ontario. The study included:

- Review and update of NPCA's existing HEC-RAS hydraulic model for the study area;
- Extension of the hydraulic model over additional tributary reaches;
- Application of NPCA's updated flood flow estimates for the study area; and
- Regulatory Floodplain Mapping through the Towns of Lincoln and Grimsby.

The hydrologic model was updated to reflect current land usages within the study area and obtain 100 year design storm flow values to input into the hydraulic model. This included:

- Watershed characterization including refined subcatchment delineation and updated subcatchment parameters;
- Design Storm selection: 100 year SCS-II 12 hour storm (100.8mm); and,
- Flow comparisons with previous studies to confirm resulting model flows as no existing flow data existed for calibration purposes.

The hydraulic model was then updated for existing reaches and extended over a number of additional tributary reaches which were previously not covered. This included:

- Structure survey and inventory for culvert/bridge structures;
- Application of standard Manning's "n" roughness values;
- Use of topographic information from NPCA's digital elevation model to define channel cross-sections, stream centerlines, and overbank locations; and,
- Incorporation of the structure inventory into the model.

The resultant flood flow estimates from the hydrologic model were then applied in the hydraulic model. The study concluded with the development of updated Regulatory Floodplain Mapping over the subject reaches in the Towns of Grimsby and Lincoln.

A 100 year flood risk assessment of the buildings, roads, and structures was completed to determine flood susceptibility. This assessment included recommendations to mitigate the impacts of the flood hazards on the identified roads, buildings and structures; complete with associated preliminary costs to implement the recommended flood mitigation measures for each watershed. Thirteen (13) remediation works have been identified to address nineteen (19) of the identified flood hazard areas. Structural floodproofing is recommended for the remaining identified flood hazard areas, as these impacted locations are located in close proximity to the watercourse.

6 REFERENCES

Phillips Planning and Engineering Ltd. January 1990. "Town of Grimsby Storm Drainage Update Outlet No.'s 16, 22, 25, 27, and 30".

US Army Corps of Engineers. January 2010. "HEC-RAS River Analysis System User's Manual, Version 4.1".

Appendix A:

Subcatchment Model Parameters

Existing Condition Sub-catchment Parameters					
Name	**Area (ha)**	**Width (m)**	**Slope (%)**	**Percent Impervious (%)**	**Curve Number**
S1	6.9803	163.397	7.06	2.8	80.502
S5	19.733	194.28	3.02	13.5	80.502
S8	15.149	164.788	5.554	1.5	76.504
S28	37.7992	596.39	5.032	39.2	80.502
S30	21.4175	632.344	5.723	42.5	76.903
S38	51.7442	415.649	5.029	36.5	80.502
S56	28.4205	244.414	5.803	58.3	68.673
S62	16.4068	261.213	3.896	23.4	76.544
S74	45.53	459.528	3.199	25.8	80.502
S79	51.9164	259.699	6.444	21.5	76.504
S92	8.5961	178.047	6.896	56.9	73.14
S107	117.1292	474.765	12.257	1	68.673
S112	20.3481	279.584	6.189	59.5	73.14
S156	33.791	297.692	4.624	7.5	68.673
S169	32.1725	286.258	5.289	16.3	81.262
S181	5.3126	172.936	9.653	57.4	65.194
S189	99.2113	553.882	14.956	5.5	68.723
S192	12.0257	230.997	7.863	43.3	65.706
S199	3.3064	111.028	5.726	65.5	73.45
S210	30.7244	277.046	5.642	44.7	73.123
S218	26.4347	184.342	7.006	51.6	65.194
S225	30.1552	217.979	8.417	51.2	67.058
S228	34.7011	343.916	6.907	36.1	75.401
S231	27.7403	140.216	8.887	39.6	72.863
S232	94.5856	384.291	10.9	36.5	66.048
S235	20.5176	171.667	6.316	44.4	75.173
S236	12.1428	165.976	6.76	64.8	73.45
S246	19.9977	141.327	7.22	58.1	65.194
S248	74.365	302.383	10.225	28.5	65.585
S251	47.1303	191.345	9.964	31.1	73.091
S255	14.5297	192.268	4.509	46.3	75.355
S262	25.131	228.796	15.483	27.6	73.14
S268	58.6747	401.387	4.099	26.9	75.625
S277	25.4192	310.028	3.998	19.1	75.16
S285	46.3342	410.255	3	23.8	81.262
S293	70.7644	403.009	4.405	27.6	73.487
S295	8.6043	146.606	5.407	58.6	73.396
S317	33.3032	383.722	2.768	16.6	81.262
S324	30.0262	431.473	3.521	17.9	75.173
S325	15.1743	188.384	10.683	48.5	73.442
S338	11.7977	218.274	5.192	20.5	75.401
S350	19.782	345.477	4.302	24.8	75.722
S363	60.6985	336.765	7.249	7	73.178
S382	27.6749	170.907	2.704	5.2	75.225
S390	31.1268	456.004	5.037	12.5	81.262

Existing Condition Sub-catchment Parameters					
Name	**Area (ha)**	**Width (m)**	**Slope (%)**	**Percent Impervious (%)**	**Curve Number**
S399	33.8803	141.925	13.32	22.6	73.427
S403	77.506	402.42	2.361	7.3	75.655
S406	12.3724	111.053	6.595	48.6	75.401
S412	18.1747	348.241	4.381	17.5	75.399
S419	78.9287	548.23	3.489	18.3	81.179
S420	29.1035	257.53	4.775	6.2	75.21
S436	28.6144	187.12	3.361	24.1	75.401
S439	52.3117	241.012	5.519	14.2	75.331
S448	94.4189	392.17	3.086	11.4	81.22
S460	18.5019	219.243	3.449	26.8	75.401
S468	81.8536	282.39	4.14	52.5	81.121
S481	33.7191	629.558	3.502	8.2	75.173
S513	15.1782	127.591	5.18	55.4	75.401
S516	93.212	268.344	6.062	8.1	75.249
S531	115.9013	325.913	5.785	11.2	75.608
S543	27.8787	160.011	12.242	11.5	75.365
S547	32.8417	256.796	4.025	8.6	75.401
S571	101.2727	520.174	7.701	6.8	75.065
S586	28.0918	349.357	4.32	53.6	79.352
S604	107.5219	279.328	6.713	29.6	78.654
S619	17.7734	181.047	5.183	47.9	78.732
S627	25.2628	342.872	17.954	30.3	75.47
S665	35.8578	258.92	5.798	55.3	78.739
S678	14.2908	128.746	14.339	17.3	75.408
S688	10.9386	144.595	7.829	22	78.65
S690	110.2303	422.387	8.604	11.8	75.398
S692	38.912	194.065	3.805	10.1	77.561
S700	49.064	218.023	7.047	12.3	79.321
S716	10.6152	64.335	5.301	64.1	78.65
S750	73.7756	227.436	7.986	16.7	77.988
S766	41.0095	202.716	9.769	11.6	78.901
S768	177.869	645.669	8.437	5.5	75.465
S799	179.6252	525.927	10.476	8	77.614
S808	160.3987	437.973	7.519	7.3	78.78
S29	18.3371	148.298	8	61.5	68.673
S857	2.8691	73.042	6.963	64.5	78.65
S553	19.5221	77.995	5.157	50	79.156
S608	30.2182	267.181	3.234	8.9	77.582
S549	22.1096	152.343	4.493	33.3	77.602
S264	6.1666	130.731	14.766	48.4	73.45
S3	10.6925	116.349	4.642	57.4	73.45
S2	148.6969	445.267	4.199	41.5	77.602
S237	13.6952	179.257	5.525	62.1	73.45
S238	146.9795	512.785	10.174	29.3	73.419

Future Condition Sub-catchment Parameters					
Name	**Area (ha)**	**Width (m)**	**Slope (%)**	**Percent Impervious (%)**	**Curve Number**
S1	6.9803	163.397	7.060252713	2.8	80.50162506
S5	19.733	194.28	3.020390801	13.5	80.50162506
S8	15.149	164.788	5.553560239	1.5	76.50428771
S28	37.7992	596.39	5.031981856	39.2	80.50162506
S30	21.4175	632.344	5.722842463	42.5	76.90313344
S38	51.7442	415.649	5.028961502	36.5	80.50162506
S56	28.4205	244.414	5.803030386	64.1	68.67291259
S62	16.4068	261.213	3.896471179	23.4	76.54364811
S74	45.53	459.528	3.199438127	25.8	80.50162506
S79	51.9164	259.699	6.44350425	21.5	76.50428771
S92	8.5961	178.047	6.896189931	56.9	73.14021301
S107	117.1292	474.765	12.25735347	1	68.67291259
S112	20.3481	279.584	6.189369809	59.5	73.14021301
S156	33.791	297.692	4.623912963	18.3	68.67291259
S169	32.1725	286.258	5.289424039	16.3	81.26224517
S181	5.3126	172.936	9.653106667	57.4	65.19422149
S189	99.2113	553.882	14.95567107	5.5	68.72254644
S192	12.0257	230.997	7.863420837	43.3	65.70582206
S199	3.3064	111.028	5.725887507	65.5	73.44992828
S210	30.7244	277.046	5.642262095	44.7	73.1227877
S218	26.4347	184.342	7.005909588	51.6	65.19422149
S225	30.1552	217.979	8.416701055	51.2	67.05761241
S228	34.7011	343.916	6.907476937	39.1	75.40088653
S231	27.7403	140.216	8.887366443	39.6	72.86254165
S232	94.5856	384.291	10.90040792	36.5	66.04769686
S235	20.5176	171.667	6.315512527	44.4	75.1730957
S236	12.1428	165.976	6.759573418	64.8	73.44992828
S246	19.9977	141.327	7.220308942	58.1	65.19422149
S248	74.365	302.383	10.22508837	28.5	65.5847103
S251	47.1303	191.345	9.96375	31.1	73.09086071
S255	14.5297	192.268	4.509451379	46.3	75.35528115
S262	25.131	228.796	15.4833004	27.6	73.14021301
S268	58.6747	401.387	4.098887313	39.2	75.62539557
S277	25.4192	310.028	3.998189328	19.1	75.16019533
S285	46.3342	410.255	3.000155836	24	81.26224517
S293	70.7644	403.009	4.405411318	27.6	73.48712392
S295	8.6043	146.606	5.407470896	58.6	73.39607693
S317	33.3032	383.722	2.767538072	20.3	81.26224517
S324	30.0262	431.473	3.520672635	17.9	75.1730957
S325	15.1743	188.384	10.68345411	48.5	73.441777
S338	11.7977	218.274	5.192207339	20.5	75.40088653
S350	19.782	345.477	4.301844313	24.8	75.72242052
S363	60.6985	336.765	7.249108991	7	73.17760385
S382	27.6749	170.907	2.703521474	5.2	75.22541331
S390	31.1268	456.004	5.036905768	15.2	81.26224517

Future Condition Sub-catchment Parameters					
Name	**Area (ha)**	**Width (m)**	**Slope (%)**	**Percent Impervious (%)**	**Curve Number**
S399	33.8803	141.925	13.32017099	22.6	73.4265227
S403	77.506	402.42	2.360941178	7.3	75.65514564
S406	12.3724	111.053	6.594667505	48.6	75.40088653
S412	18.1747	348.241	4.380851805	17.5	75.3986537
S419	78.9287	548.23	3.488876233	18.3	81.17936485
S420	29.1035	257.53	4.775091032	6.2	75.21012391
S436	28.6144	187.12	3.361059545	24.1	75.40088653
S439	52.3117	241.012	5.518845589	14.2	75.33087122
S448	94.4189	392.17	3.085943315	11.8	81.22018141
S460	18.5019	219.243	3.44883953	28.3	75.40088653
S468	81.8536	282.39	4.139950958	53.3	81.12064668
S481	33.7191	629.558	3.502027249	8.2	75.1730957
S513	15.1782	127.591	5.180324678	58.8	75.40088653
S516	93.212	268.344	6.061679822	8.1	75.24928278
S531	115.9013	325.913	5.785444831	11.2	75.60777449
S543	27.8787	160.011	12.24160654	11.5	75.36520105
S547	32.8417	256.796	4.025144294	8.6	75.40088653
S571	101.2727	520.174	7.700966488	7.4	75.06545596
S586	28.0918	349.357	4.319955023	54	79.35246845
S604	107.5219	279.328	6.712693195	32	78.65356337
S619	17.7734	181.047	5.182738455	54.9	78.73192037
S627	25.2628	342.872	17.95373579	31.9	75.46958371
S665	35.8578	258.92	5.797577365	55.3	78.73903185
S678	14.2908	128.746	14.33850137	17.3	75.40825753
S688	10.9386	144.595	7.828937566	55	78.64990997
S690	110.2303	422.387	8.604231149	11.8	75.39784659
S692	38.912	194.065	3.804755624	10.1	77.56052548
S700	49.064	218.023	7.047025623	18.7	79.32132615
S716	10.6152	64.335	5.301353549	64.1	78.64990997
S750	73.7756	227.436	7.985751612	36	77.98845029
S766	41.0095	202.716	9.769114893	11.6	78.90084897
S768	177.869	645.669	8.437272032	5.5	75.46529959
S799	179.6252	525.927	10.47560076	8	77.61384324
S808	160.3987	437.973	7.518982561	7.3	78.78035105
S29	18.3371	148.298	8.000266704	61.5	68.67291259
S857	2.8691	73.042	6.962592255	64.5	78.64990997
S553	19.5221	77.995	5.157205682	54.7	79.15587986
S608	30.2182	267.181	3.234194667	8.9	77.58204936
S549	22.1096	152.343	4.493322892	33.3	77.60170049
S264	6.1666	130.731	14.76582068	48.4	73.44992828
S3	10.6925	116.349	4.641872975	57.4	73.45
S2	148.6969	445.267	4.19892697	41.5	77.602
S237	13.6952	179.257	5.524574987	62.1	73.44992828
S238	146.9795	512.785	10.17351925	29.3	73.41915274

Appendix B:

2018 Structure Inventory

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: K-1
Road Crossing: Acres Trace

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	May 24 2018	Barrel Shape:	Box
Crew:	CA & BS	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.81
Key Map:		Width (m):	3.05
		Diameter (m):	-
		Length (m):	7.40
		U/S Invert Elevation (m):	76.43
		D/S Invert Elevation (m):	76.34
		Top of Road Elevation (m):	78.54
		Average Slope (%):	0.12%
		NOTE:	Culvert dimension are given for barrels in order from left to right, looking downstream

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET

Towns of Lincoln & Grimsby Floodplain Mapping Update

STRUCTURE: KT1-1

Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.2
Key Map:		Width (m):	1.85
		Diameter (m):	-
		Length (m):	125.00
		U/S Invert Elevation (m):	79.58
		D/S Invert Elevation (m):	78.96
		Top of Road Elevation (m):	84.33
		Average Slope (%):	0.77%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT1-2
Road Crossing: Lincoln Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.75
Key Map:		Width (m):	1.82
		Diameter (m):	-
		Length (m):	12.90
		U/S Invert Elevation (m):	81.63
		D/S Invert Elevation (m):	81.78
		Top of Road Elevation (m):	83.97
		Average Slope (%):	-0.19%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT1-3
Road Crossing: -

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Arch
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Other
		End Treatment (D/S):	Other
		Height (m):	1.85
Key Map:		Width (m):	1.15
		Diameter (m):	-
		Length (m):	14.90
		U/S Invert Elevation (m):	85.54
		D/S Invert Elevation (m):	85.53
		Top of Road Elevation (m):	90.82
		Average Slope (%):	0.01%

Site Photographs and Additional Field Notes

NOTES:
Fence and in-channel vegetation blocking inlet.
No backwater.



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT1-4
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.1
Key Map:		Width (m):	2.45
		Diameter (m):	-
		Length (m):	19.50
		U/S Invert Elevation (m):	88.57
		D/S Invert Elevation (m):	88.54
		Top of Road Elevation (m):	90.65
		Average Slope (%):	0.04%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2-1
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.72
Key Map:		Width (m):	3.05
		Diameter (m):	-
		Length (m):	139.20
		U/S Invert Elevation (m):	79.68
		D/S Invert Elevation (m):	79.11
		Top of Road Elevation (m):	84.99
		Average Slope (%):	0.72%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2A-2
Road Crossing: Lincoln Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	No	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	0.75
Key Map:		Width (m):	1.5
		Diameter (m):	-
		Length (m):	14.30
		U/S Invert Elevation (m):	94.82
		D/S Invert Elevation (m):	94.99
		Top of Road Elevation (m):	96.28
		Average Slope (%):	-0.18%
		NOTE:	Soffit is arched
			US soffit elev, low point = 266.75m
			US soffit elev, high point = 267.06m
			DS soffit elev, low point = 266.70m
			DS soffit elev, high point = 267.07m

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2B-2
Road Crossing: King St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	0	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.2
Key Map:		Width (m):	3.05
		Diameter (m):	-
		Length (m):	17.00
		U/S Invert Elevation (m):	103.61
		D/S Invert Elevation (m):	103.55
		Top of Road Elevation (m):	105.50
		Average Slope (%):	0.06%
		NOTE:	Both CSP have the same diameter and length. Inverts and obverts given for barrels in order from left to right, looking downstream.

Site Photographs and Additional Field Notes

NOTES:
Flow gauge installed at culvert inlet. Flow measured during inspection, Q = 0.245 m^3/s



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2B-3
Road Crossing: Stadelbauer Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.5
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	69.00
		U/S Invert Elevation (m):	106.56
		D/S Invert Elevation (m):	105.74
		Top of Road Elevation (m):	111.90
		Average Slope (%):	0.77%
		NOTE:	Both CSP have the same width and length. Inverts and obverts given for barrels in order from left to right, looking downstream.

Site Photographs and Additional Field Notes

NOTES:
Off-road vechicle fording constructed upstream of inlet. Some bank erosion noted, but channel bed well protected with large roundstone material.



Upstream Inlet



Upstream Channel

NOTES:
Off-road vechicle fording constructed downstream of outlet. Some bank erosion noted, no roundstone protection.



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET

Towns of Lincoln & Grimsby Floodplain Mapping Update

STRUCTURE: KT2B-4

Road Crossing: Stadelbauer Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.5
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	30.00
		U/S Invert Elevation (m):	135.65
		D/S Invert Elevation (m):	135.63
		Top of Road Elevation (m):	138.06
		Average Slope (%):	0.01%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2-2
Road Crossing: -

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Wingwall
		End Treatment (D/S):	Wingwall
		Height (m):	3
Key Map:		Width (m):	2.7
		Diameter (m):	-
		Length (m):	11.80
		U/S Invert Elevation (m):	86.80
		D/S Invert Elevation (m):	86.70
		Top of Road Elevation (m):	90.40
		Average Slope (%):	0.12%
		NOTE:	Both CSP have the same width and length. Inverts and obverts are approximately the same for both culverts. Values here are representative of both barrels.

Site Photographs and Additional Field Notes

NOTES:
Upstream channel approaches at a 45 degree angle. No scour observed around culverts or embankment.



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2A-1
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	No	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	2.1
Key Map:		Width (m):	3.35
		Diameter (m):	-
		Length (m):	9.90
		U/S Invert Elevation (m):	88.07
		D/S Invert Elevation (m):	88.05
		Top of Road Elevation (m):	90.58
		Average Slope (%):	0.03%

Site Photographs and Additional Field Notes

NOTES:
Deep scour pool has formed at inlet. Culvert was backwatered, potentially from downstream beaver dam.



Upstream Inlet



Upstream Channel

NOTES:
Deep scour pool has formed at outlet.



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: KT2B-1
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Konkle	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	3
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	0	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	Headwall
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	2.10
		Length (m):	64.28
		U/S Invert Elevation (m):	87.67
		D/S Invert Elevation (m):	87.57
		Top of Road Elevation (m):	90.47
		Average Slope (%):	0.12%

Site Photographs and Additional Field Notes

NOTES:
Tributary confluences immediately upstream of inlet.



Upstream Inlet



Upstream Channel

NOTES:
Bank slumping and scour pool observed at outlet.



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1-1
Road Crossing: Arejay Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	0.9
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	28.00
		U/S Invert Elevation (m):	97.89
		D/S Invert Elevation (m):	96.37
		Top of Road Elevation (m):	98.78
		Average Slope (%):	1.55%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:
Channel banks are very steep. Hydro-poles are constructed within bank. Could be at risk should channel banks start to slump or erode.



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1-2
Road Crossing: King St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.85
		Length (m):	70.00
		U/S Invert Elevation (m):	104.72
		D/S Invert Elevation (m):	104.30
		Top of Road Elevation (m):	N/a
		Average Slope (%):	0.40%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:
Tributary confluences immediately downstream of outlet.

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1-3
Road Crossing: Hixon St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.70
		Length (m):	112.00
		U/S Invert Elevation (m):	122.49
		D/S Invert Elevation (m):	120.03
		Top of Road Elevation (m):	123.98
		Average Slope (%):	2.01%

Site Photographs and Additional Field Notes

NOTES:
Dense vegetation growth observed in upstream channel. Could cause culvert blockage.



Upstream Inlet



Upstream Channel

NOTES:
The toe of the gabions has rusted out. Some slumping and leaning noted

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1-4
Road Crossing: George St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	No	Open footing (Yes/No):	No
		End Treatment (U/S):	Other
		End Treatment (D/S):	Headwall
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.75
		Length (m):	22.00
		U/S Invert Elevation (m):	125.67
		D/S Invert Elevation (m):	124.98
		Top of Road Elevation (m):	126.79
		Average Slope (%):	0.55%

Site Photographs and Additional Field Notes

NOTES:
Dense vegetation growth observed in upstream channel. Could cause culvert blockage.



Upstream Inlet



Upstream Channel

NOTES:
The toe of the gabions has rusted out. Some slumping and leaning noted



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1A-1_US
Road Crossing: King St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.00
		Length (m):	N/a
		U/S Invert Elevation (m):	110.28
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	113.17
		Average Slope (%):	N/a

Site Photographs and Additional Field Notes

NOTES:
Flow gauge installed at culvert inlet. Flow measured during inspection, Q = 0.046 m^3/s

Embankment treatment above culvert starting to deteriorate.



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1A-2
Road Crossing: King St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Circular
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.80
		Length (m):	58.00
		U/S Invert Elevation (m):	110.28
		D/S Invert Elevation (m):	109.29
		Top of Road Elevation (m):	113.17
		Average Slope (%):	0.90%

Site Photographs and Additional Field Notes

NOTES:
Gabions wing walls at inlet have emptied and are failing.



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B7
Road Crossing: John St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	0
		End Treatment (D/S):	Projecting
		Height (m):	1.08
Key Map:		Width (m):	4.24
		Diameter (m):	-
		Length (m):	24.00
		U/S Invert Elevation (m):	92.50
		D/S Invert Elevation (m):	92.40
		Top of Road Elevation (m):	94.31
		Average Slope (%):	0.11%
		NOTE:	US Soffit elevation = 272.00
			DS Soffit Elevation = 271.89

Site Photographs and Additional Field Notes

NOTES:
Off-road vehicles using embankment over culvert to cross river.

Abandoned culvert from washed-out trail culvert immediately upstream of inlet

Upstream Inlet

Upstream Channel

NOTES:
Gabion embankment above culvert has collasped.

Concrete showing signs of deterioration (i.e., spalling and cracking).





Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: BT1-STM_DS
Road Crossing: 0

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	Projecting
		Height (m):	1.2
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	N/a
		U/S Invert Elevation (m):	N/a
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	N/a
		Average Slope (%):	N/a

Site Photographs and Additional Field Notes

NOTES:

Upstream Inlet

Upstream Channel

NOTES:
Cribwall along embankment at outlet is starting to show signs of slumping.





Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE B6
Road Crossing: Dennis Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	Projecting
		Height (m):	1.1
Key Map:		Width (m):	2.45
		Diameter (m):	-
		Length (m):	32.00
		U/S Invert Elevation (m):	91.96
		D/S Invert Elevation (m):	91.88
		Top of Road Elevation (m):	94.28
		Average Slope (%):	0.09%

Site Photographs and Additional Field Notes

NOTES:
Excessive road sand within the channel

Active rill erosion noted along the road embankment.

Upstream Inlet



Upstream Channel



NOTES:
Slumped gabions observed downstream of outlet

Off-road vechicle fording constructed downstream of outlet. Some bank erosion noted, no roundstone protection.

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B8
Road Crossing: Arejay Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.4
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	28.40
		U/S Invert Elevation (m):	97.19
		D/S Invert Elevation (m):	96.85
		Top of Road Elevation (m):	99.45
		Average Slope (%):	0.35%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B9
Road Crossing: King St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	Projecting
		Height (m):	1.2
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	70.00
		U/S Invert Elevation (m):	104.66
		D/S Invert Elevation (m):	104.51
		Top of Road Elevation (m):	107.92
		Average Slope (%):	0.14%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B5
Road Crossing: Bartlett Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.35
Key Map:		Width (m):	4.5
		Diameter (m):	-
		Length (m):	14.00
		U/S Invert Elevation (m):	89.89
		D/S Invert Elevation (m):	89.85
		Top of Road Elevation (m):	92.01
		Average Slope (%):	0.04%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B4
Road Crossing: -

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.57
Key Map:		Width (m):	2.68
		Diameter (m):	-
		Length (m):	12.50
		U/S Invert Elevation (m):	86.86
		D/S Invert Elevation (m):	86.86
		Top of Road Elevation (m):	90.45
		Average Slope (%):	0.00%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



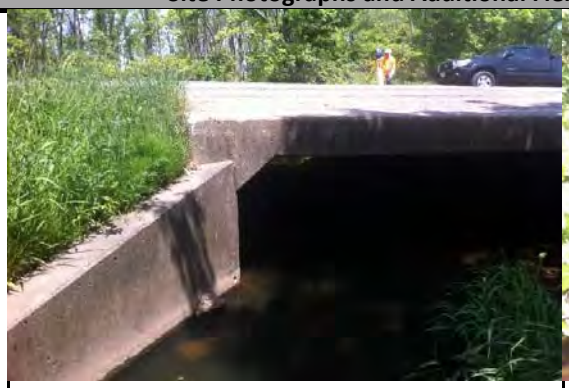
Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B3
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.2
Key Map:		Width (m):	4.5
		Diameter (m):	-
		Length (m):	13.00
		U/S Invert Elevation (m):	85.95
		D/S Invert Elevation (m):	86.03
		Top of Road Elevation (m):	88.10
		Average Slope (%):	-0.09%

Site Photographs and Additional Field Notes

NOTES:
Upstream channel is a maintained grass swale



Upstream Inlet



Upstream Channel

NOTES:
Downstream channel is an unmaintained grass swale



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B2
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.65
Key Map:		Width (m):	5.65
		Diameter (m):	-
		Length (m):	100.00
		U/S Invert Elevation (m):	81.77
		D/S Invert Elevation (m):	81.33
		Top of Road Elevation (m):	84.93
		Average Slope (%):	0.54%

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: B1
Road Crossing: Sandy Cove Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Bartlett	Structure Type:	Culvert
Date Surveyed:	June 7 2017	Barrel Shape:	Box
Crew:	CM & LB	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	2.3
Key Map:		Width (m):	4
		Diameter (m):	-
		Length (m):	13.00
		U/S Invert Elevation (m):	74.47
		D/S Invert Elevation (m):	74.44
		Top of Road Elevation (m):	77.53
		Average Slope (%):	0.04%

Site Photographs and Additional Field Notes

NOTES:
Upstream channel Labine Street ditch.



Upstream Inlet



Upstream Channel

NOTES:
Outlet deformed, potentially obstructing flows.

Downstream channel is an unmaintained grass swale



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-1
Road Crossing: Laurie Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	2
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	2
Key Map:		Width (m):	6
		Diameter (m):	0.00
		Length (m):	15.60
		U/S Invert Elevation (m):	75.73
		D/S Invert Elevation (m):	75.67
		Top of Road Elevation (m):	77.98
		Average Slope (%):	0.07%
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-2
Road Crossing: Victoria Ave N

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Bridge
Date Surveyed:	May 1 2018	Barrel Shape:	Arch
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	Yes	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.96
Key Map:		Width (m):	6.1
		Diameter (m):	0.00
		Length (m):	18.34
		U/S Invert Elevation (m):	77.16
		D/S Invert Elevation (m):	77.58
		Top of Road Elevation (m):	80.00
		Average Slope (%):	-0.54%
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-3
Road Crossing: North Service Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	0
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	2.7
Key Map:		Width (m):	4.87
		Diameter (m):	-
		Length (m):	30
		U/S Invert Elevation (m):	78.25
		D/S Invert Elevation (m):	78.09
		Top of Road Elevation (m):	82.87
		Average Slope (%):	0.002044728
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-4
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Headwall
		Height (m):	1.8
Key Map:		Width (m):	4.9
		Diameter (m):	-
		Length (m):	99
		U/S Invert Elevation (m):	79.31
		D/S Invert Elevation (m):	78.65
		Top of Road Elevation (m):	83.2
		Average Slope (%):	0.008321775
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-5
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.85
Key Map:		Width (m):	5.1
		Diameter (m):	-
		Length (m):	14
		U/S Invert Elevation (m):	81.42
		D/S Invert Elevation (m):	81.35
		Top of Road Elevation (m):	83.78
		Average Slope (%):	0.00085974
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-6
Road Crossing: John St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	2.5
Key Map:		Width (m):	3.65
		Diameter (m):	-
		Length (m):	15
		U/S Invert Elevation (m):	86.02
		D/S Invert Elevation (m):	85.8
		Top of Road Elevation (m):	89.22
		Average Slope (%):	0.002557545
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE P-7_US

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	-
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.8
		Length (m):	10
		U/S Invert Elevation (m):	89
		D/S Invert Elevation (m):	88.7
		Top of Road Elevation (m):	93.11
		Average Slope (%):	0.003370787
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-7_DS

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	0
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	3.2
Key Map:		Width (m):	2.05
		Diameter (m):	-
		Length (m):	10
		U/S Invert Elevation (m):	89
		D/S Invert Elevation (m):	88.7
		Top of Road Elevation (m):	93.11
		Average Slope (%):	0.003370787
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-8
Road Crossing: Claus Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.95
Key Map:		Width (m):	3.65
		Diameter (m):	-
		Length (m):	16
		U/S Invert Elevation (m):	92.06
		D/S Invert Elevation (m):	91.81
		Top of Road Elevation (m):	94.42
		Average Slope (%):	0.00271562
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: P-9
Road Crossing: Rittenhouse Rd

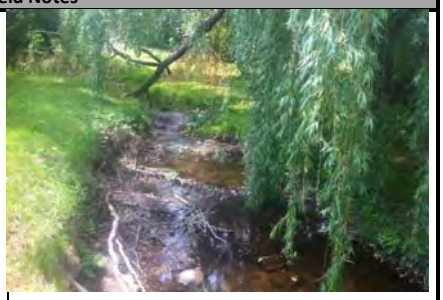
Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	0.95
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	12
		U/S Invert Elevation (m):	101.26
		D/S Invert Elevation (m):	101.21
		Top of Road Elevation (m):	103.2
		Average Slope (%):	0.000493778
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: PT1-1
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	-
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.92
Key Map:		Width (m):	3.06
		Diameter (m):	-
		Length (m):	108
		U/S Invert Elevation (m):	81.7
		D/S Invert Elevation (m):	80.7
		Top of Road Elevation (m):	84.61
		Average Slope (%):	0.012239902
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: PT1-2
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:		Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	1.15
		Diameter (m):	2.1
		Length (m):	19
		U/S Invert Elevation (m):	84.7
		D/S Invert Elevation (m):	84.6
		Top of Road Elevation (m):	86.15
		Average Slope (%):	0.001180638
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: PT1-3
Road Crossing: Greenlane

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	November 8 2019	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	-
		End Treatment (U/S):	Mitered
		End Treatment (D/S):	Mitered
		Height (m):	1.15
Key Map:		Width (m):	2.3
		Diameter (m):	2.3
		Length (m):	22
		U/S Invert Elevation (m):	84.77
		D/S Invert Elevation (m):	84.74
		Top of Road Elevation (m):	86.28
		Average Slope (%):	0.000353899
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: PT1-4
Road Crossing: John St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.9
		Length (m):	15
		U/S Invert Elevation (m):	88.1
		D/S Invert Elevation (m):	87.9
		Top of Road Elevation (m):	89.74
		Average Slope (%):	0.002270148
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: PT2-1
Road Crossing: John St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Prudhomme	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.1
Key Map:		Width (m):	2.45
		Diameter (m):	-
		Length (m):	12
		U/S Invert Elevation (m):	87.16
		D/S Invert Elevation (m):	87.13
		Top of Road Elevation (m):	89.18
		Average Slope (%):	0.000344195
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-1_DS
Road Crossing: Bendamere Dr

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 29	Structure Type:	#N/A
Date Surveyed:	May 1 2018	Barrel Shape:	#N/A
Crew:	AB&	Number of Cells:	#N/A
Current Flow Information		Material:	#N/A
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	#N/A
		End Treatment (U/S):	#N/A
		End Treatment (D/S):	#N/A
		Height (m):	#N/A
Key Map:		Width (m):	#N/A
		Diameter (m):	#N/A
		Length (m):	#N/A
		U/S Invert Elevation (m):	#N/A
		D/S Invert Elevation (m):	#N/A
		Top of Road Elevation (m):	#N/A
		Average Slope (%):	#N/A
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-1_US
Road Crossing: Lake St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	#N/A
Date Surveyed:	May 1 2018	Barrel Shape:	#N/A
Crew:	AB&	Number of Cells:	#N/A
Current Flow Information		Material:	#N/A
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	#N/A
		End Treatment (U/S):	#N/A
		End Treatment (D/S):	#N/A
		Height (m):	#N/A
Key Map:		Width (m):	#N/A
		Diameter (m):	#N/A
		Length (m):	#N/A
		U/S Invert Elevation (m):	#N/A
		D/S Invert Elevation (m):	#N/A
		Top of Road Elevation (m):	#N/A
		Average Slope (%):	#N/A
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-2

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 29	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	-
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.5
		Length (m):	480
		U/S Invert Elevation (m):	86.17
		D/S Invert Elevation (m):	77.14
		Top of Road Elevation (m):	86.53
		Average Slope (%):	0.104792851
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-3_DS

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	0
Date Surveyed:	May 1 2018	Barrel Shape:	0
Crew:	AB&	Number of Cells:	0
Current Flow Information		Material:	0
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	0
		End Treatment (U/S):	0
		End Treatment (D/S):	0
		Height (m):	0
Key Map:		Width (m):	0
		Diameter (m):	0
		Length (m):	158.8
		U/S Invert Elevation (m):	88.29
		D/S Invert Elevation (m):	86.54
		Top of Road Elevation (m):	92.55
		Average Slope (%):	0.019821044
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-3_US

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	-
		Height (m):	1.5
Key Map:		Width (m):	1.8
		Diameter (m):	-
		Length (m):	158.8
		U/S Invert Elevation (m):	88.29
		D/S Invert Elevation (m):	86.54
		Top of Road Elevation (m):	92.55
		Average Slope (%):	0.019821044
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-4

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	2
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.75
		Length (m):	25.2
		U/S Invert Elevation (m):	89.58
		D/S Invert Elevation (m):	88.83
		Top of Road Elevation (m):	93.3
		Average Slope (%):	0.008372405
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-5
Road Crossing: Tomahawk Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	Headwall
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.62
		Length (m):	190
		U/S Invert Elevation (m):	92
		D/S Invert Elevation (m):	89.79
		Top of Road Elevation (m):	94
		Average Slope (%):	0.024021739
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet

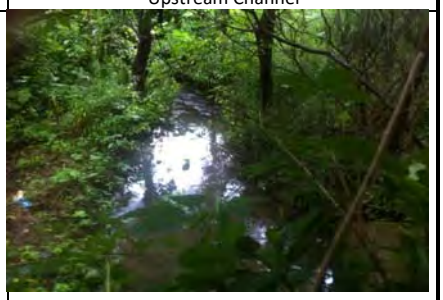


Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO29-6
Road Crossing: Tomahawk Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 29	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	Headwall
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1
		Length (m):	106
		U/S Invert Elevation (m):	97.31
		D/S Invert Elevation (m):	93.94
		Top of Road Elevation (m):	99.08
		Average Slope (%):	0.03463159
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-1
Road Crossing: Lake St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.8
Key Map:		Width (m):	3.05
		Diameter (m):	-
		Length (m):	17.18
		U/S Invert Elevation (m):	79.6
		D/S Invert Elevation (m):	79.31
		Top of Road Elevation (m):	82.78
		Average Slope (%):	0.003643216
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet

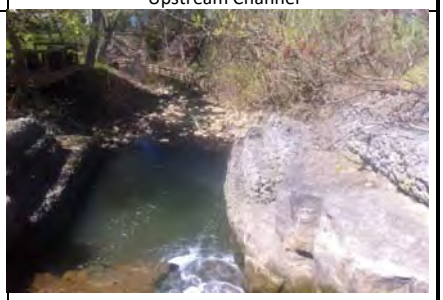


Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-2_DS
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	2
Key Map:		Width (m):	4.2
		Diameter (m):	0
		Length (m):	60
		U/S Invert Elevation (m):	83.39
		D/S Invert Elevation (m):	83.19
		Top of Road Elevation (m):	86.34
		Average Slope (%):	0.002398369
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-2_US
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	`
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	2
Key Map:		Width (m):	4.2
		Diameter (m):	-
		Length (m):	60
		U/S Invert Elevation (m):	83.39
		D/S Invert Elevation (m):	83.19
		Top of Road Elevation (m):	86.34
		Average Slope (%):	0.002398369
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-3_US
Road Crossing: South Service Rd

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 31	Structure Type:	#N/A
Date Surveyed:	May 1 2018	Barrel Shape:	#N/A
Crew:	AB&	Number of Cells:	#N/A
Current Flow Information		Material:	#N/A
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	#N/A
		End Treatment (U/S):	#N/A
		End Treatment (D/S):	#N/A
		Height (m):	#N/A
Key Map:		Width (m):	#N/A
		Diameter (m):	#N/A
		Length (m):	#N/A
		U/S Invert Elevation (m):	#N/A
		D/S Invert Elevation (m):	#N/A
		Top of Road Elevation (m):	#N/A
		Average Slope (%):	#N/A
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-4

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 31	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	0
		End Treatment (D/S):	Projecting
		Height (m):	0
Key Map:		Width (m):	0
		Diameter (m):	2.45
		Length (m):	N/a
		U/S Invert Elevation (m):	83.4518
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	N/a
		Average Slope (%):	N/a
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-5_US
Road Crossing: Central Ave

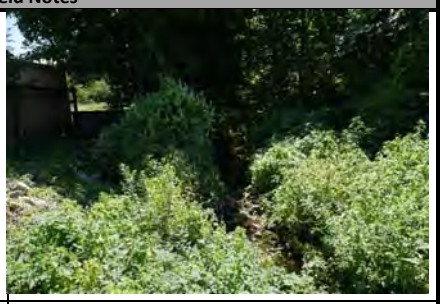
Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	2.4
		Length (m):	235
		U/S Invert Elevation (m):	88.4
		D/S Invert Elevation (m):	83.4
		Top of Road Elevation (m):	91.01
		Average Slope (%):	0.056561086
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31-6

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31	Structure Type:	0
Date Surveyed:	May 1 2018	Barrel Shape:	0
Crew:	AB&	Number of Cells:	0
Current Flow Information		Material:	0
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	0
		End Treatment (U/S):	0
		End Treatment (D/S):	0
		Height (m):	0
Key Map:		Width (m):	0
		Diameter (m):	0
		Length (m):	N/a
		U/S Invert Elevation (m):	88.5
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	N/a
		Average Slope (%):	N/a
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31T-1

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31T	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	
		End Treatment (D/S):	
		Height (m):	1.4
Key Map:		Width (m):	2.7
		Diameter (m):	
		Length (m):	54.48
		U/S Invert Elevation (m):	83.75
		D/S Invert Elevation (m):	83.72
		Top of Road Elevation (m):	86.73
		Average Slope (%):	0
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31T-2

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31T	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.4
Key Map:		Width (m):	2.45
		Diameter (m):	-
		Length (m):	26.73
		U/S Invert Elevation (m):	84.67
		D/S Invert Elevation (m):	84.36
		Top of Road Elevation (m):	87.22
		Average Slope (%):	0.003661273
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet

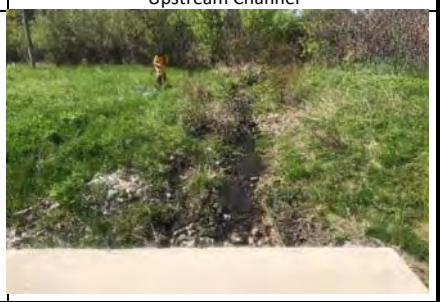


Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO31T-3

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 31T	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Arch
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.2 (bottom)
Key Map:		Width (m):	1.45 (bottom)
		Diameter (m):	1.45 (top)
		Length (m):	12.5
		U/S Invert Elevation (m):	85.84
		D/S Invert Elevation (m):	85.75
		Top of Road Elevation (m):	89.71
		Average Slope (%):	0.001048462
		Note:	

Site Photographs and Additional Field Notes

NOTES:

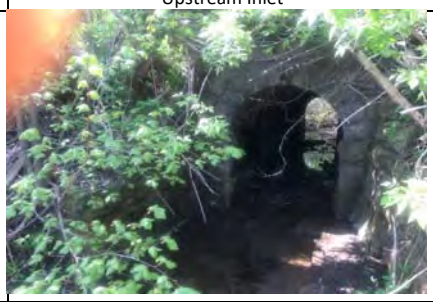


Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-1
Road Crossing: Morrison Cres

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	2
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	38
		U/S Invert Elevation (m):	76.87
		D/S Invert Elevation (m):	76.52
		Top of Road Elevation (m):	81.61
		Average Slope (%):	0.004553142
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-2
Road Crossing: Lake St

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Headwall
		Height (m):	1.5
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	78
		U/S Invert Elevation (m):	79.1
		D/S Invert Elevation (m):	78.27
		Top of Road Elevation (m):	81.67
		Average Slope (%):	0.010493047
		Note:	

Site Photographs and Additional Field Notes

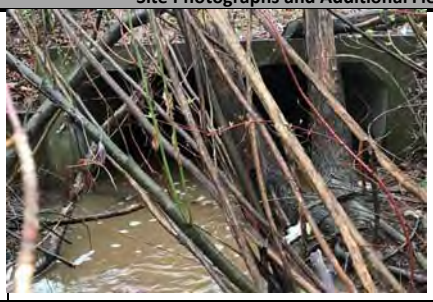
NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-3
Road Crossing: Margaret Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	-
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.3
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	30.28
		U/S Invert Elevation (m):	80.27
		D/S Invert Elevation (m):	80.19
		Top of Road Elevation (m):	82.47
		Average Slope (%):	0.000996636
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-4
Road Crossing: Palmer Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.35
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	35.33
		U/S Invert Elevation (m):	81.03
		D/S Invert Elevation (m):	80.8
		Top of Road Elevation (m):	83.73
		Average Slope (%):	0.002838455
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-5
Road Crossing: Jeanette Ave

Watershed and Location Information		**Structure Configuration and Dimensions**	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Wingwall
		End Treatment (D/S):	Wingwall
		Height (m):	1.3
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	27.6
		U/S Invert Elevation (m):	81.81
		D/S Invert Elevation (m):	81.57
		Top of Road Elevation (m):	84.21
		Average Slope (%):	0.002933627
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-6_DS
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	Projecting
		Height (m):	1.3
Key Map:		Width (m):	1.85
		Diameter (m):	-
		Length (m):	75.63
		U/S Invert Elevation (m):	83.59
		D/S Invert Elevation (m):	83.37
		Top of Road Elevation (m):	86.92
		Average Slope (%):	0.002631894
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-6_US
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.41
Key Map:		Width (m):	1.82
		Diameter (m):	-
		Length (m):	75.63
		U/S Invert Elevation (m):	83.59
		D/S Invert Elevation (m):	83.37
		Top of Road Elevation (m):	86.92
		Average Slope (%):	0.002631894
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-7
Road Crossing: South Service Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.71
Key Map:		Width (m):	2.42
		Diameter (m):	-
		Length (m):	24.07
		U/S Invert Elevation (m):	85
		D/S Invert Elevation (m):	84.85
		Top of Road Elevation (m):	88.55
		Average Slope (%):	0.001764706
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-8
Road Crossing: South Service Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	Headwall
		Height (m):	2.27
Key Map:		Width (m):	1.68
		Diameter (m):	-
		Length (m):	10.13
		U/S Invert Elevation (m):	84.45
		D/S Invert Elevation (m):	85.36
		Top of Road Elevation (m):	88.89
		Average Slope (%):	-0.010775607
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-9
Road Crossing: Central Ave

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	2
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	0.9
Key Map:		Width (m):	1.9
		Diameter (m):	-
		Length (m):	6.77
		U/S Invert Elevation (m):	87
		D/S Invert Elevation (m):	86.95
		Top of Road Elevation (m):	89
		Average Slope (%):	0.000574713
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-10

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.3
		Length (m):	17.45
		U/S Invert Elevation (m):	88.23
		D/S Invert Elevation (m):	88.09
		Top of Road Elevation (m):	89.81
		Average Slope (%):	0.001586762
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-11_DS
Road Crossing: Main St

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.68
		Length (m):	94.61
		U/S Invert Elevation (m):	91.66
		D/S Invert Elevation (m):	90.5
		Top of Road Elevation (m):	94.25
		Average Slope (%):	0.012655466
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-11_US
Road Crossing: Main St

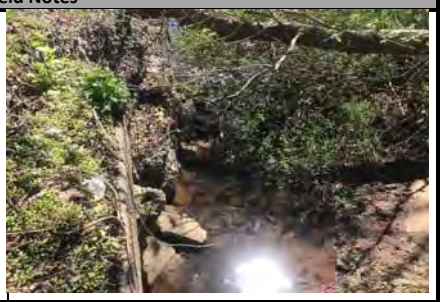
Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	1.42
Key Map:		Width (m):	1.7
		Diameter (m):	-
		Length (m):	94.61
		U/S Invert Elevation (m):	91.66
		D/S Invert Elevation (m):	90.5
		Top of Road Elevation (m):	94.25
		Average Slope (%):	0.012655466
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:

Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO32-12
Road Crossing: Cemetery Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 32	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	-
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	0.9
		Length (m):	24.71
		U/S Invert Elevation (m):	92.39
		D/S Invert Elevation (m):	92.12
		Top of Road Elevation (m):	94.97
		Average Slope (%):	0.002922394
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet

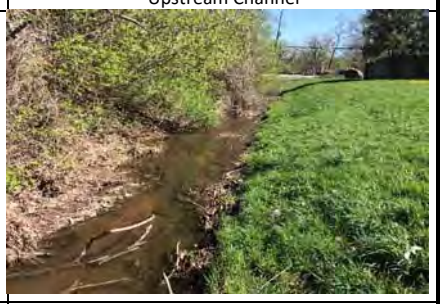


Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-1
Road Crossing: Winston Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.75
Key Map:		Width (m):	3.05
		Diameter (m):	0
		Length (m):	32.5
		U/S Invert Elevation (m):	80.3
		D/S Invert Elevation (m):	80.07
		Top of Road Elevation (m):	83.55
		Average Slope (%):	0.002864259
		Note:	

Site Photographs and Additional Field Notes

NOTES:

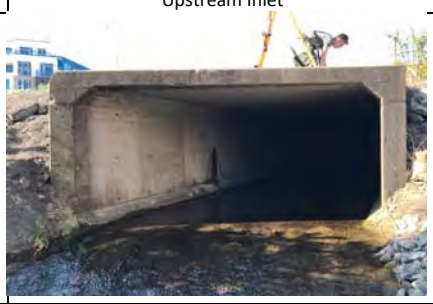


Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-2
Road Crossing: Windward Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.75
Key Map:		Width (m):	3
		Diameter (m):	-
		Length (m):	26.76
		U/S Invert Elevation (m):	80.6
		D/S Invert Elevation (m):	80.5
		Top of Road Elevation (m):	83.4
		Average Slope (%):	0.001240695
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-3
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.32
Key Map:		Width (m):	3.2
		Diameter (m):	-
		Length (m):	109.52
		U/S Invert Elevation (m):	82.47
		D/S Invert Elevation (m):	82.16
		Top of Road Elevation (m):	85.66
		Average Slope (%):	0.003758943
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet

Upstream Channel

NOTES:





Downstream Outlet

Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-4
Road Crossing: South Service Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.85
Key Map:		Width (m):	3.5
		Diameter (m):	-
		Length (m):	28.57
		U/S Invert Elevation (m):	83.06
		D/S Invert Elevation (m):	82.83
		Top of Road Elevation (m):	85.63
		Average Slope (%):	0.002769083
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-5_US
Road Crossing: Industrial Dr

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Other
		End Treatment (D/S):	-
		Height (m):	1.9
Key Map:		Width (m):	1.83
		Diameter (m):	1.9
		Length (m):	296.46
		U/S Invert Elevation (m):	86.06
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	88
		Average Slope (%):	N/a
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO39-6

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 39	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	1.74
Key Map:		Width (m):	2.05
		Diameter (m):	-
		Length (m):	13.16
		U/S Invert Elevation (m):	87.53
		D/S Invert Elevation (m):	87.33
		Top of Road Elevation (m):	89.66
		Average Slope (%):	0.002284931
		Note:	

Site Photographs and Additional Field Notes

NOTES:

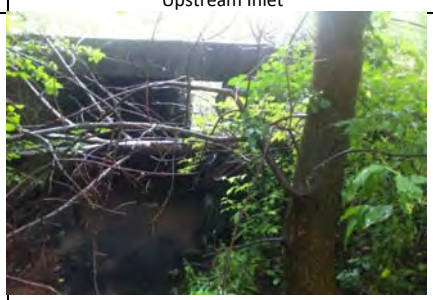


Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44-1
Road Crossing: Winston Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Headwall
		End Treatment (D/S):	Headwall
		Height (m):	1
Key Map:		Width (m):	1.2
		Diameter (m):	-
		Length (m):	8.7
		U/S Invert Elevation (m):	80.88
		D/S Invert Elevation (m):	80.77
		Top of Road Elevation (m):	82.4
		Average Slope (%):	0.00136004
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44-2
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	Projecting
		Height (m):	0.93
Key Map:		Width (m):	2.45
		Diameter (m):	-
		Length (m):	90
		U/S Invert Elevation (m):	81
		D/S Invert Elevation (m):	80.9
		Top of Road Elevation (m):	83.62
		Average Slope (%):	0.001234568
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet

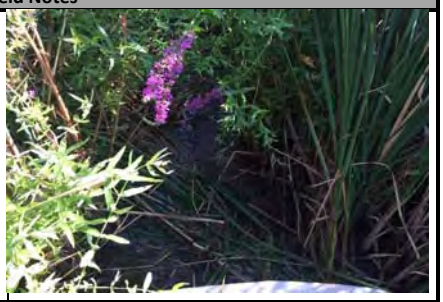


Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44-3

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Circular
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	CSP
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Projecting
		End Treatment (D/S):	-
		Height (m):	-
Key Map:		Width (m):	-
		Diameter (m):	1.5
		Length (m):	19.95
		U/S Invert Elevation (m):	84.1
		D/S Invert Elevation (m):	84
		Top of Road Elevation (m):	86.81
		Average Slope (%):	0.001189061
		Note:	

Site Photographs and Additional Field Notes

NOTES:		
	Upstream Inlet	Upstream Channel
NOTES:		
	Downstream Outlet	Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44A-1
Road Crossing: Winston Rd

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	Wingwall
		End Treatment (D/S):	Wingwall
		Height (m):	1.27
Key Map:		Width (m):	3.1
		Diameter (m):	-
		Length (m):	20
		U/S Invert Elevation (m):	80.2
		D/S Invert Elevation (m):	80
		Top of Road Elevation (m):	81.96
		Average Slope (%):	0.002493766
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44A-2
Road Crossing: Queen Elizabeth Way

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Concrete
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	No
		End Treatment (U/S):	Porjecting
		End Treatment (D/S):	Projecting
		Height (m):	1.1
Key Map:		Width (m):	2.4
		Diameter (m):	-
		Length (m):	97
		U/S Invert Elevation (m):	80.65
		D/S Invert Elevation (m):	80.5
		Top of Road Elevation (m):	83.46
		Average Slope (%):	0.001859888
		Note:	

Site Photographs and Additional Field Notes

NOTES:

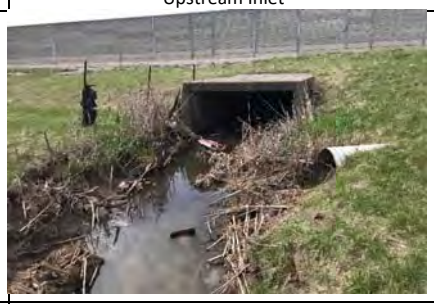


Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

HYDRAULIC STRUCTURE INVENTORY SHEET
Towns of Lincoln & Grimsby Floodplain Mapping Update
STRUCTURE: LO44A-3_US
Road Crossing: Kelson Ave N

Watershed and Location Information		Structure Configuration and Dimensions	
Tributary Name:	Lake Ontario 44	Structure Type:	Culvert
Date Surveyed:	May 1 2018	Barrel Shape:	Box
Crew:	AB&	Number of Cells:	1
Current Flow Information		Material:	Other
Flow Present (Yes/No):	#N/A	Open footing (Yes/No):	Yes
		End Treatment (U/S):	0
		End Treatment (D/S):	0
		Height (m):	1.5
Key Map:		Width (m):	2.35
		Diameter (m):	-
		Length (m):	N/a
		U/S Invert Elevation (m):	83.36
		D/S Invert Elevation (m):	N/a
		Top of Road Elevation (m):	86.38
		Average Slope (%):	N/a
		Note:	

Site Photographs and Additional Field Notes

NOTES:



Upstream Inlet



Upstream Channel

NOTES:



Downstream Outlet



Downstream Channel

Appendix C:

Floodplain Mapping

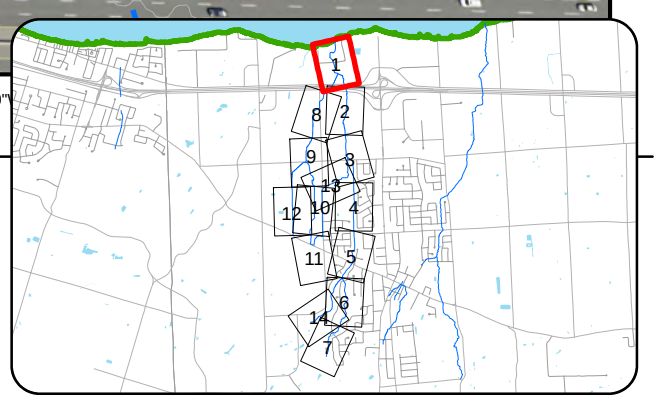
Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W



79°29'0"W



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 1

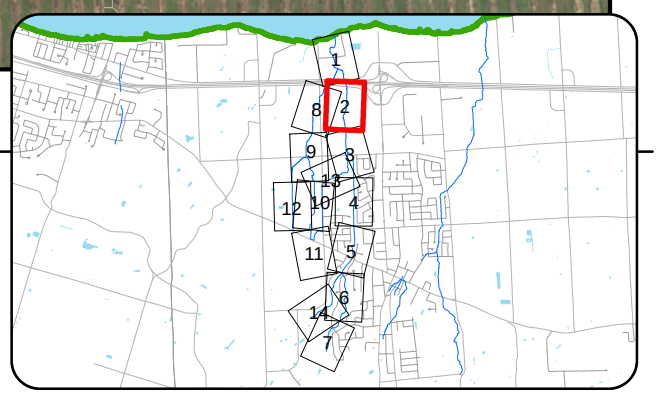
Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W



79°29'0"W



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W

43°11'0"N

N

#970 86.73m
#1021 88.24m
#1043 89.64m
#1094 89.68m
#1135 89.68m
#1159 89.67m
#384 92.36m
#406 92.53m
#367 92.15m
#324 91.82m
#210 90.53m
#48 89.75m
#91 90.18m
#58 89.75m
#107 90.31m
#100 90.65m
#161 91.02m
#227 91.07m
#248 91.09m
#259 90.87m
#312 91.08m
#18 89.68m
#284 91.34m

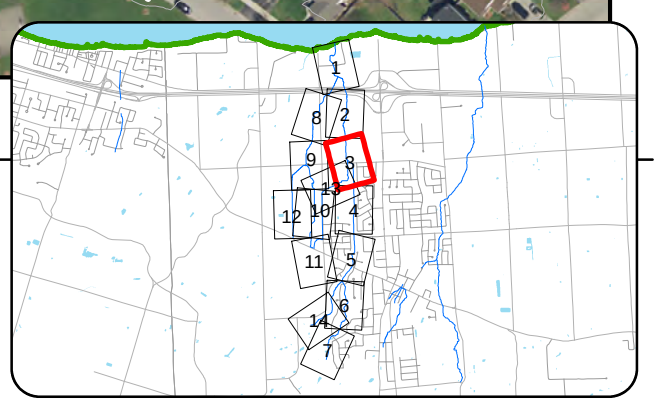
Trib2
Trib2a
Trib2b

BK-2

Greenlane

88m 89m 90m 91m 92m 93m

Meters
0 25 50 100

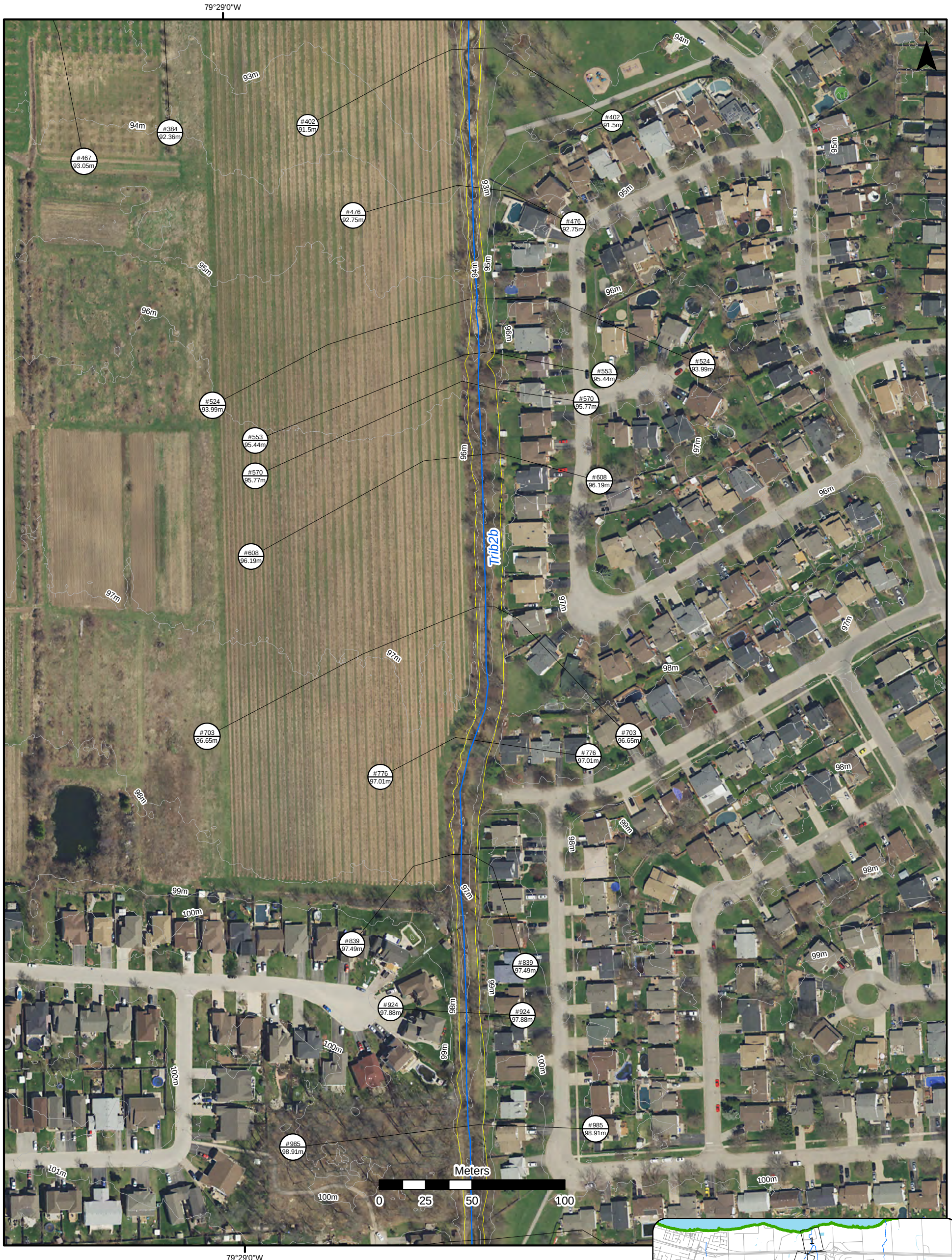


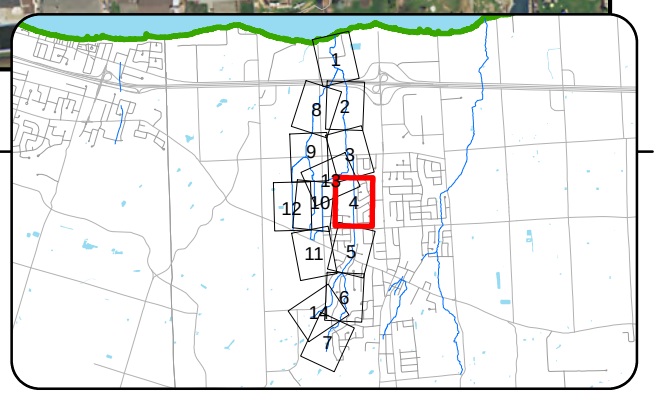
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 3

- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 4

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W

43°10'0"N

Trib2b

Trib2b1

Trib2b2

BK-3

BK-4

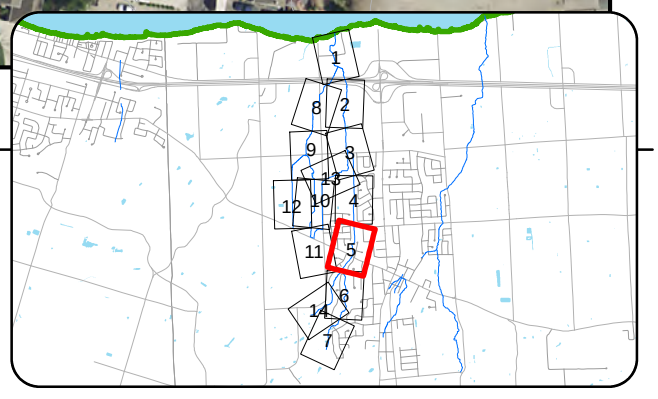
King Street

Meters 0 25 50 100

79°29'0"W

43°10'0"N

- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction



Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 5

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W

N

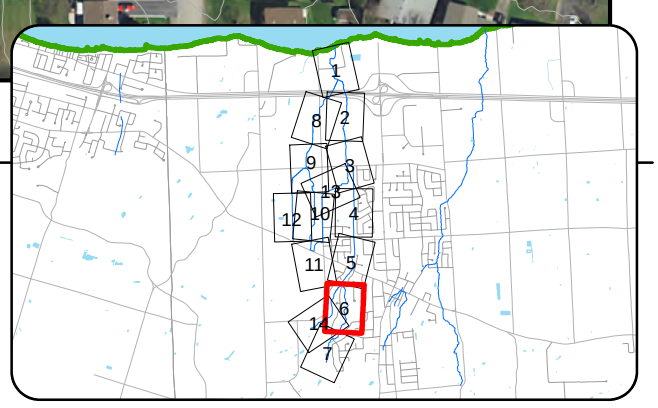
Trib2b1

Trib2b2

Lincoln Avenue

Meters
0 25 50 100

79°29'0"W



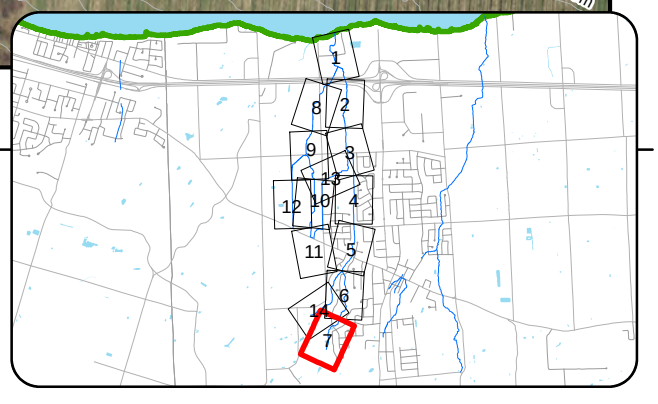
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 6

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

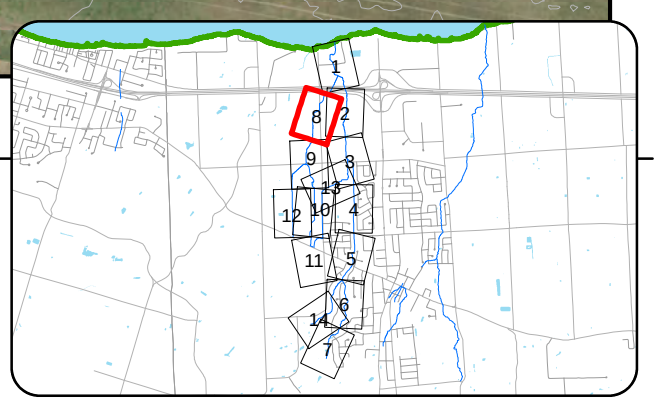
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 7

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction



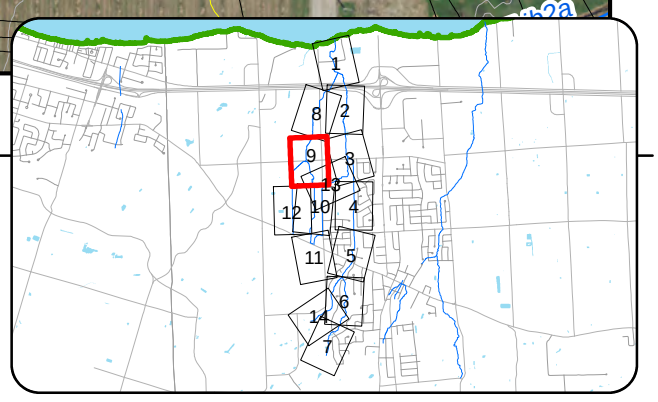
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 8

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

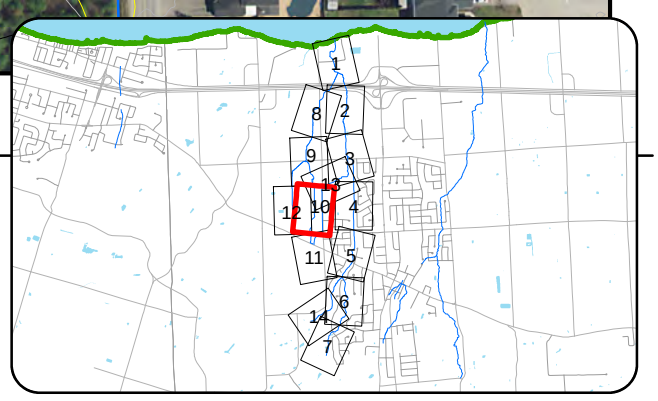


Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 9

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





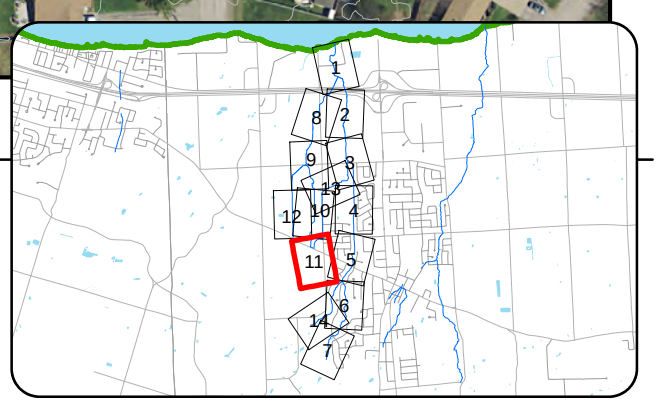
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 10

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





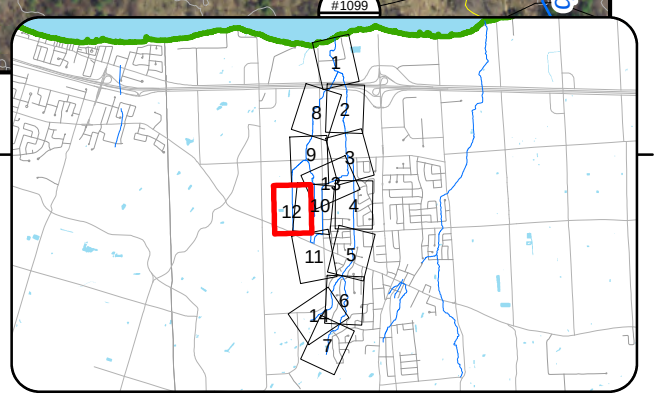
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 11

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

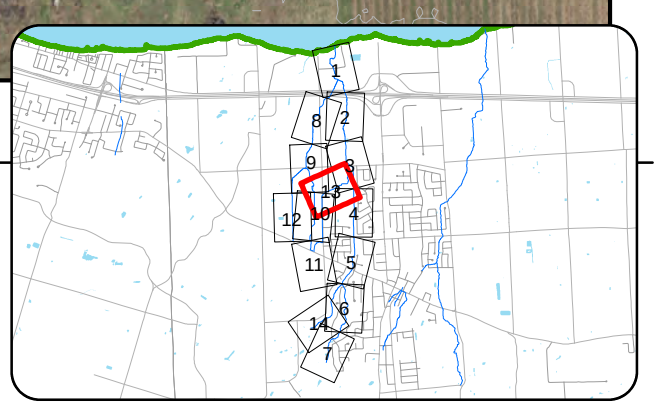
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 12

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°29'0"W





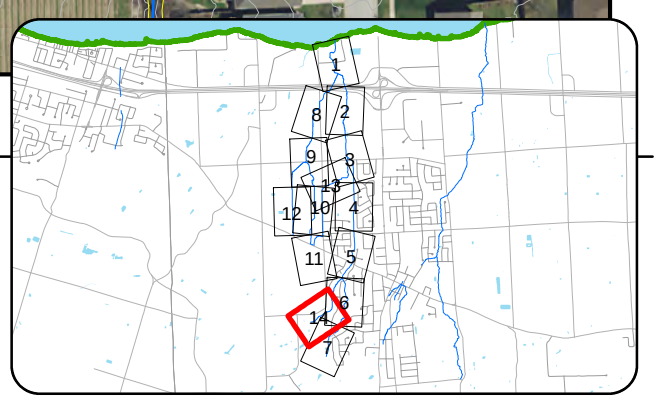
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 13

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Beamsville/Konkle Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY





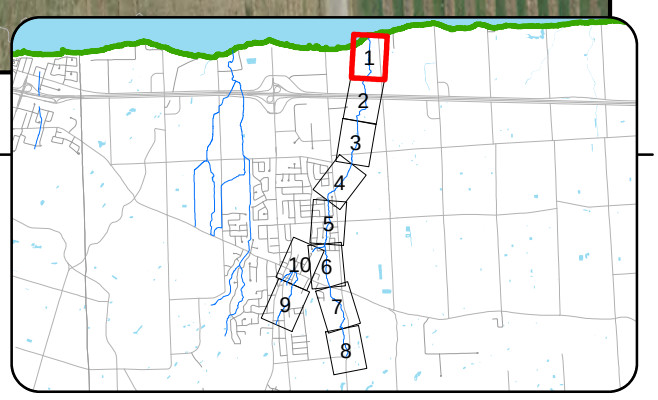
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure - Beamsville/Konkle Creek - 14

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





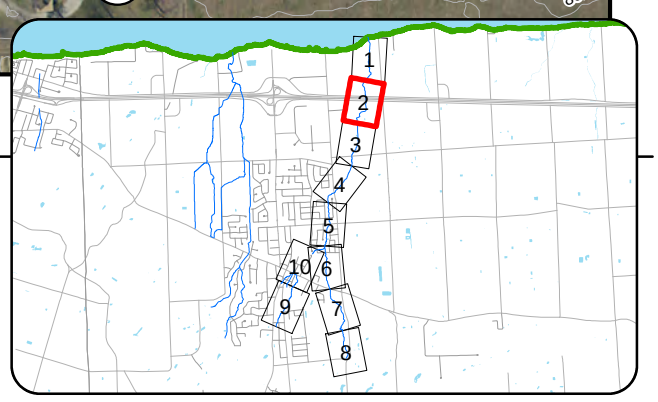
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





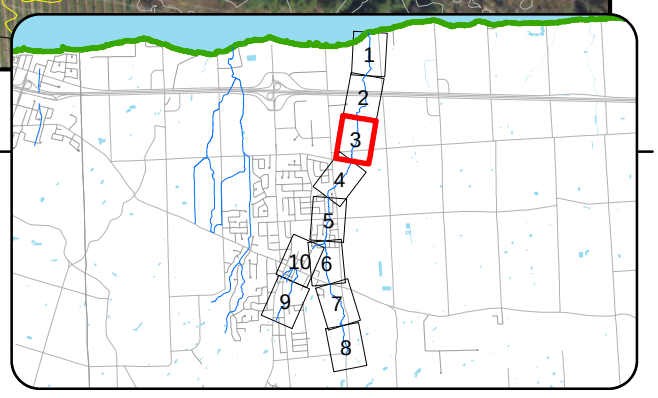
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





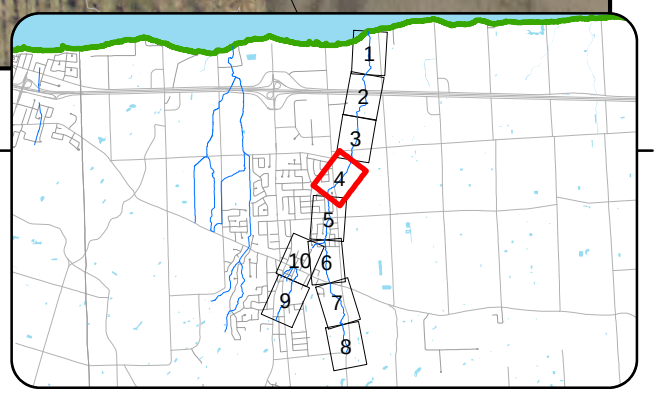
Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 4

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°28'0"W

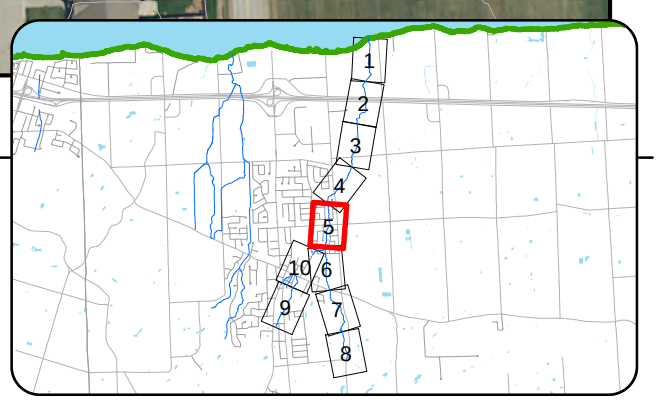
N

#2703 92.25m
#2997 93.18m
#3087 93.74m
#3121 93.83m
#3182 94.57m
#3197 94.66m
#3212 94.67m
#3243 94.81m
#3296 94.94m
#3386 95.22m
#3430 95.84m
#3436 96.1m
#3465 96.44m
#3502 96.44m
#3559 96.8m
#117.6 98.22m

John Street
Barlett Road
Main
B-5

Meters
0 25 50 100

79°28'0"W



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 5

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°28'0"W

43°10'0"N

N

Main

Trib1

Trib2

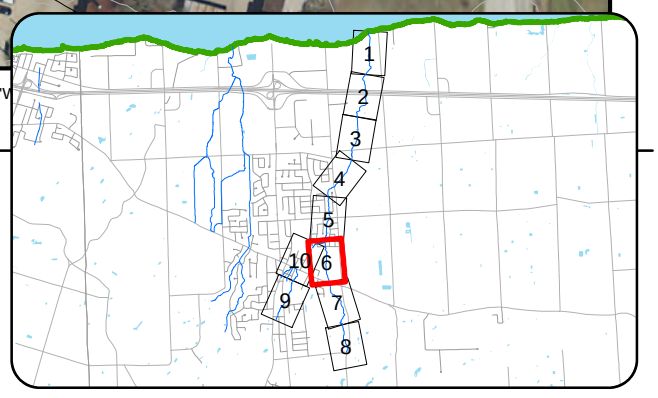
Barlett Road

King Street

#159.56 99.16m
#56.34 97.46m
#41 97.82m
#58 98.13m
#117.6 98.22m
#89 98.54m
#193 99.27m
#106 99.15m
#175 99.68m
#261 100.32m
#323 101.49m
#364 102.02m
#434 102.7m
#506 103.92m
#595 105.39m

98m 99m 100m 101m 102m 103m 104m 105m 106m 107m 108m 109m 110m 111m

Meters
0 25 50 100



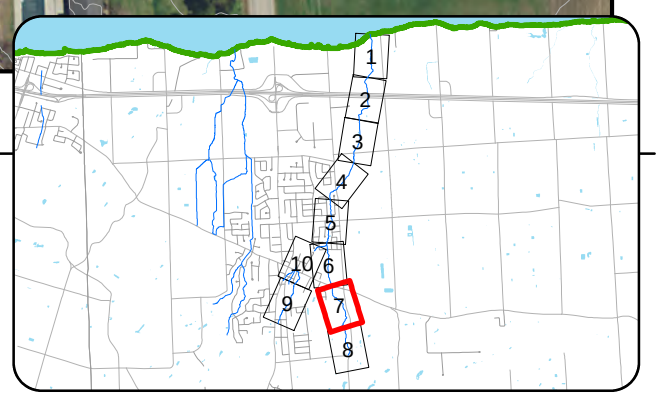
Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 6

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 7

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation

Spill Direction

Watercourse (Open Channel)

Watercourse (Piped)

Cross Sections

Spill Zones

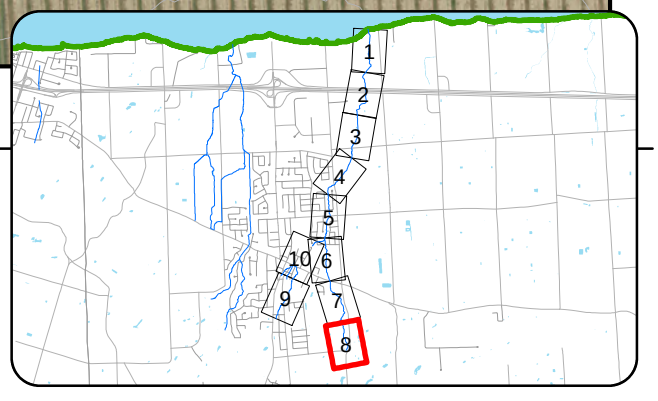
Contours (1m)

Existing Condition Floodlines

Flood Hazard Areas

Waterbodies

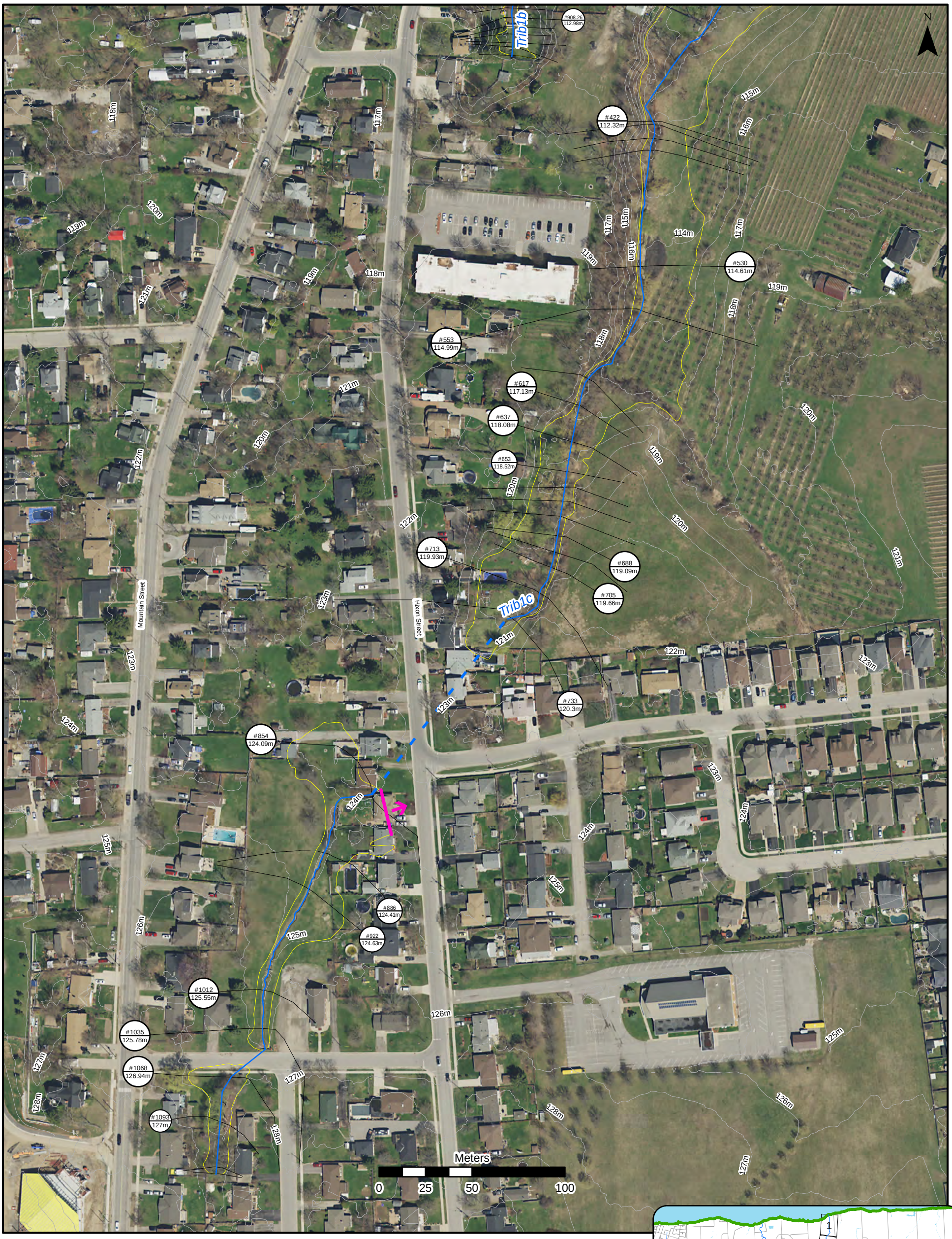
NPCA Jurisdiction

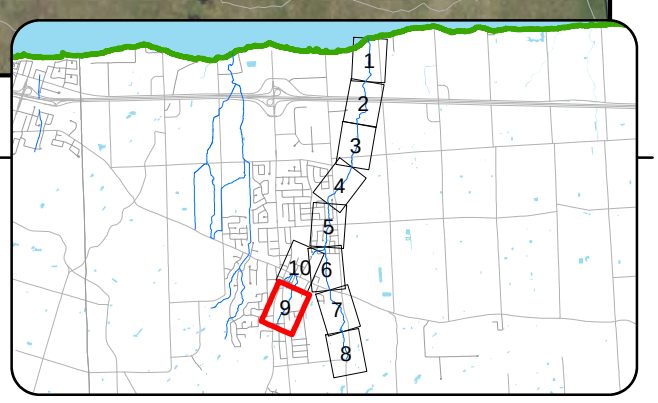


Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 8

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





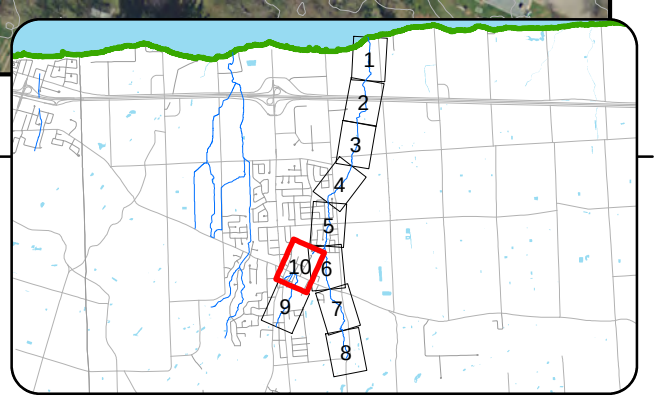
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 9

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Bartlett Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



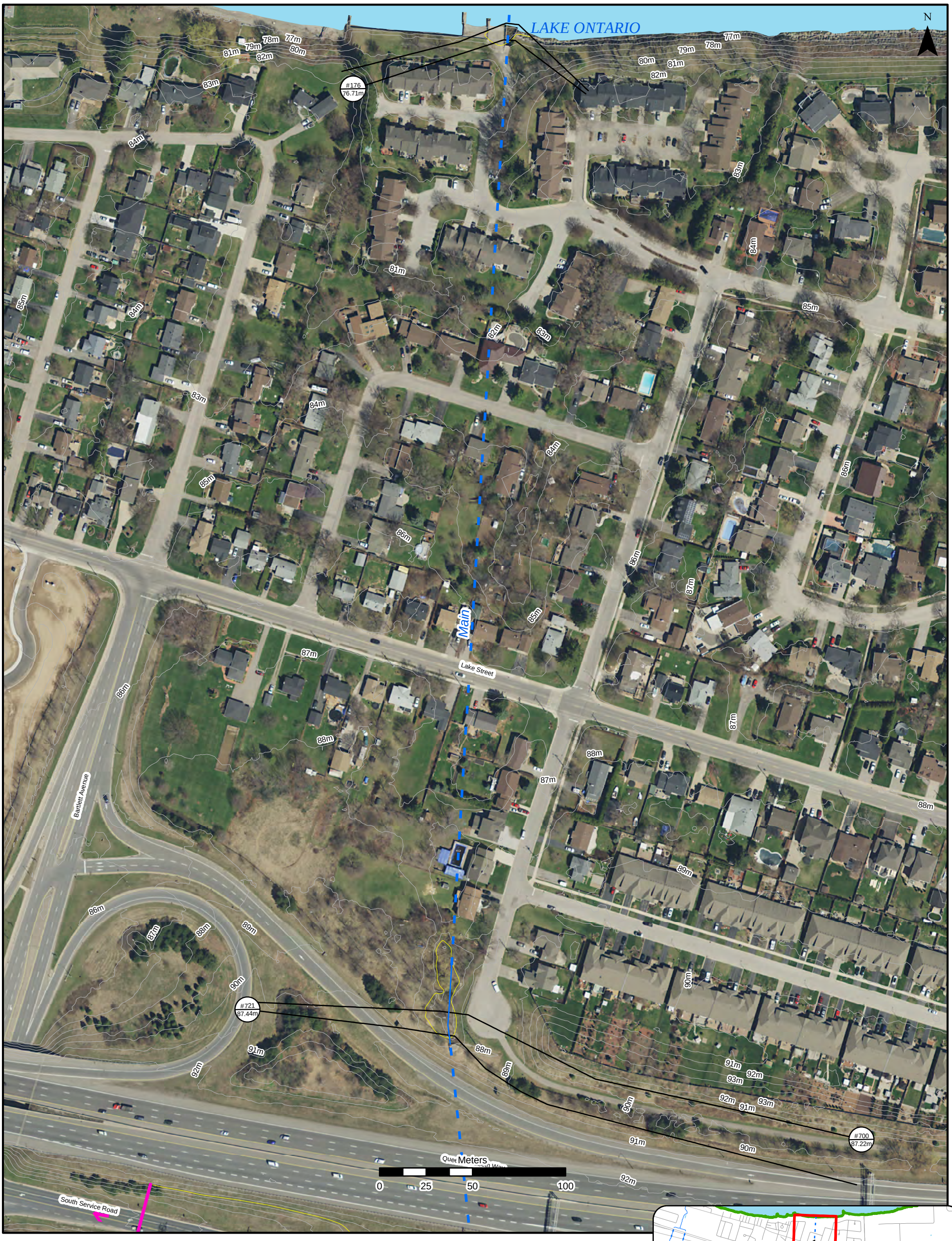


- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

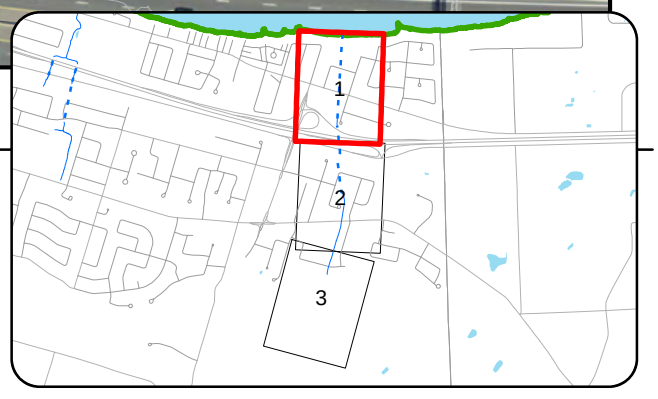
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Bartlett Creek - 10

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 29

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction



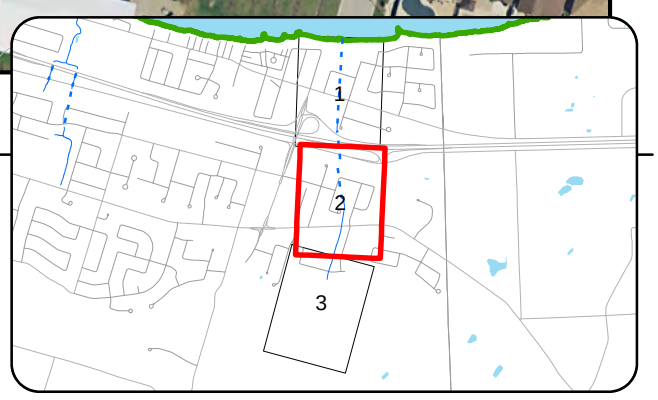
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 29 - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 29

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

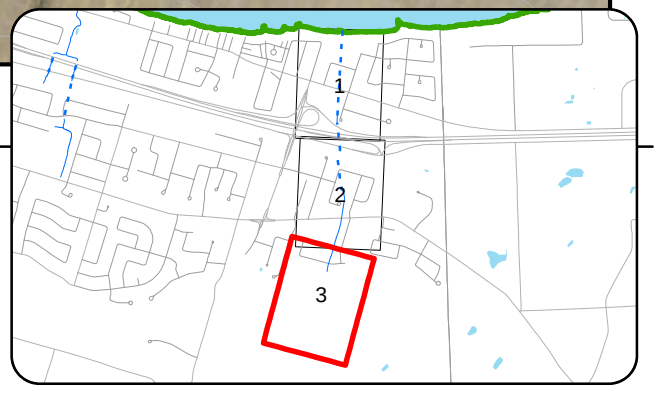


Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 29 - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 29

NIAGARA PENINSULA CONSERVATION AUTHORITY



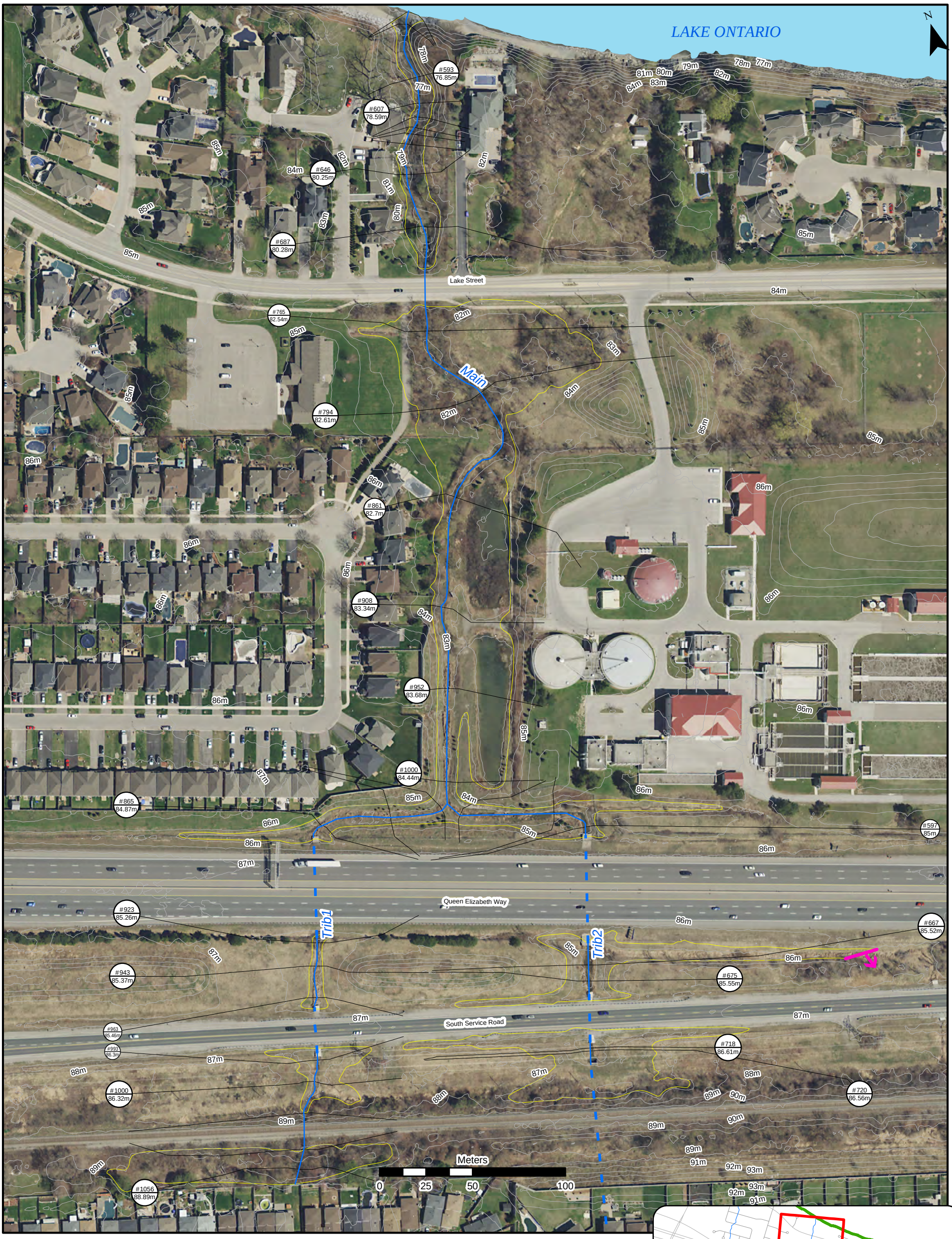


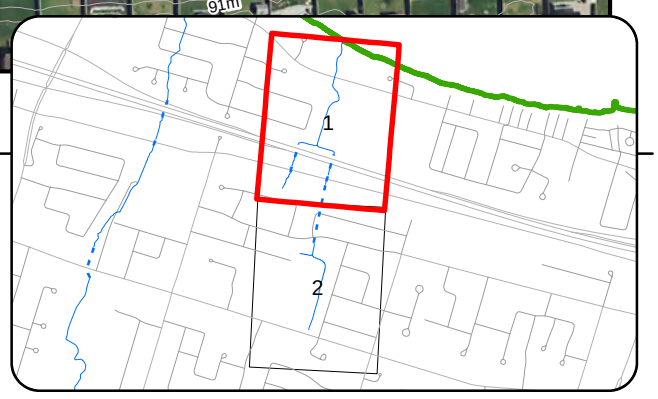
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 29 - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Lake Ontario 31

NIAGARA PENINSULA CONSERVATION AUTHORITY



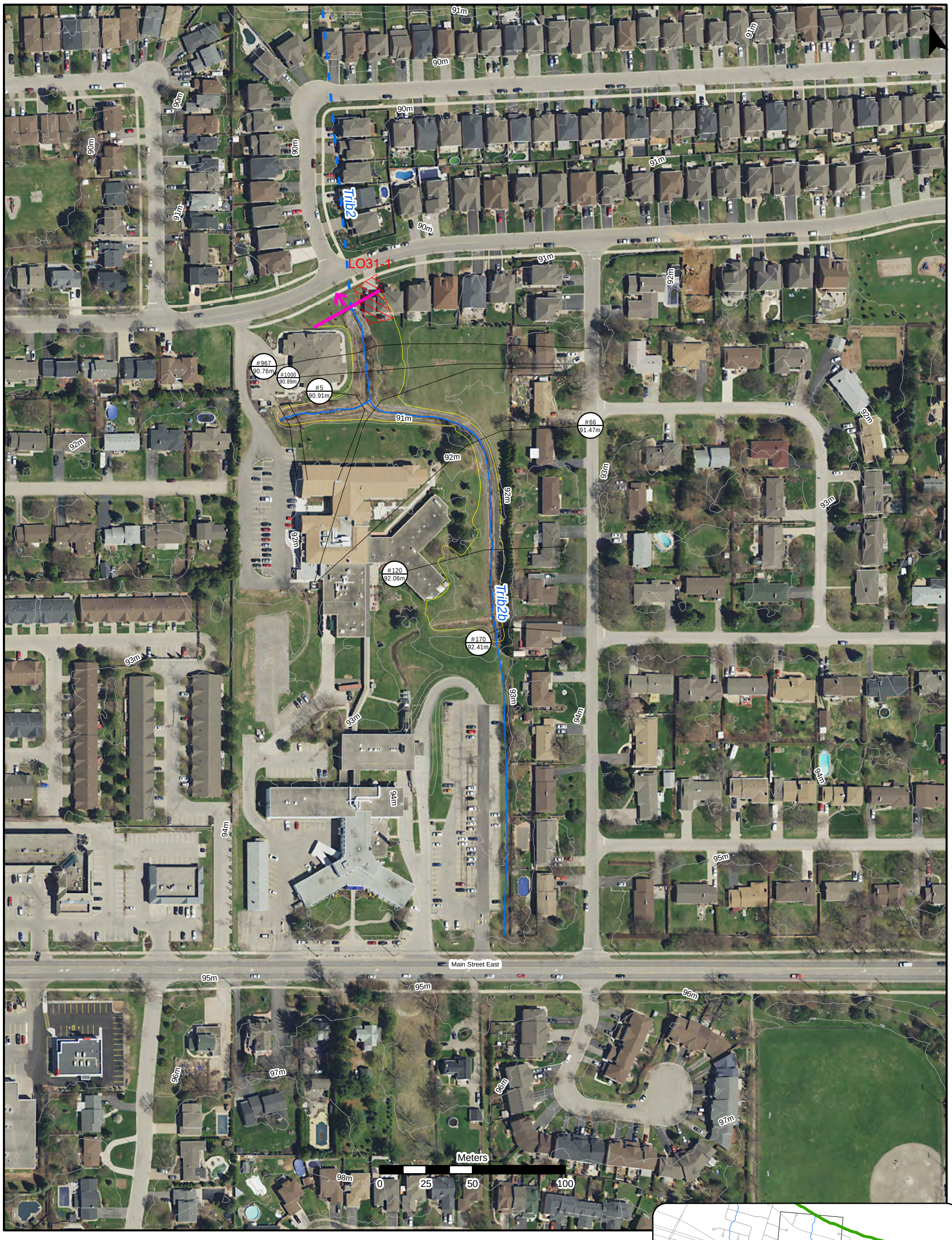


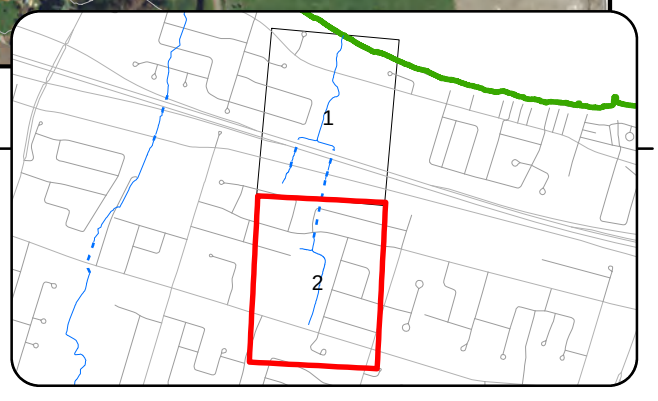
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 31 - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Lake Ontario 31

NIAGARA PENINSULA CONSERVATION AUTHORITY





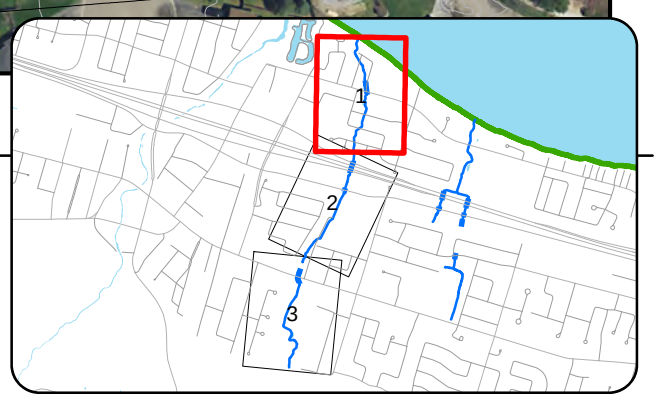
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 31 - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 32

NIAGARA PENINSULA CONSERVATION AUTHORITY





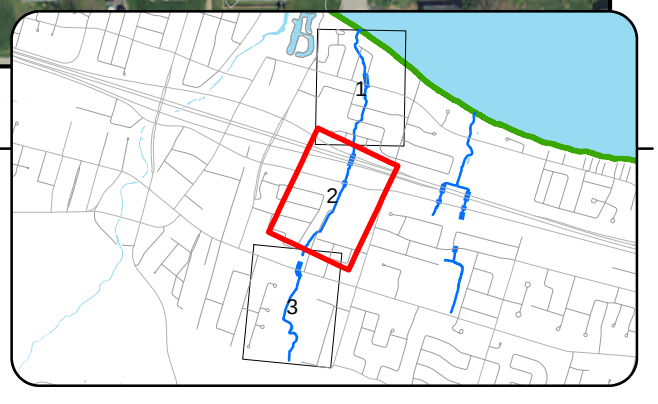
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 32 - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 32

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 32 - 2

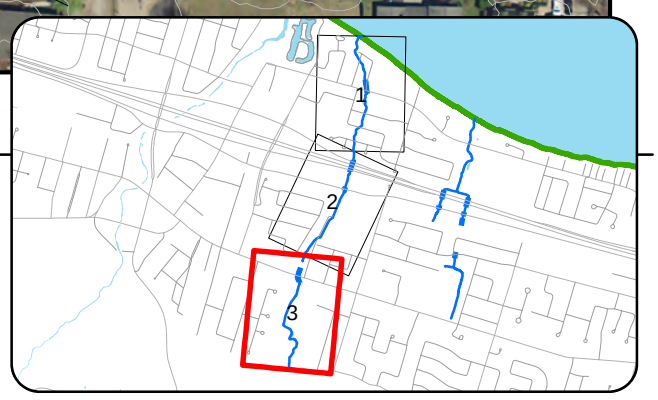
Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 32

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°33'0"W



79°33'0"W



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 32 - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 39

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°36'0"W

N

LAKE ONTARIO

Winston Road

North Service Road

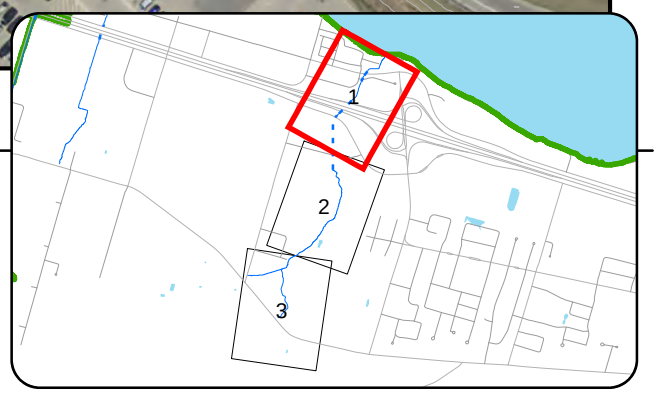
Main

Queen Elizabeth Way

South Service Road

#37 77.89m
#45 78.12m
#61 78.16m
#125 79.6m
#164 80.19m
#107 78.69m
#92 78.7m
#210 82.11m
#252 82.41m
#277 82.55m
#293 82.85m
#359 83.49m
#315 82.89m
#490 84.04m
#529 84.32m

Meters
0 25 50 100



79°36'0"W

Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Spill Zones
Cross Sections
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 39 - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 39

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°36'0"W

N

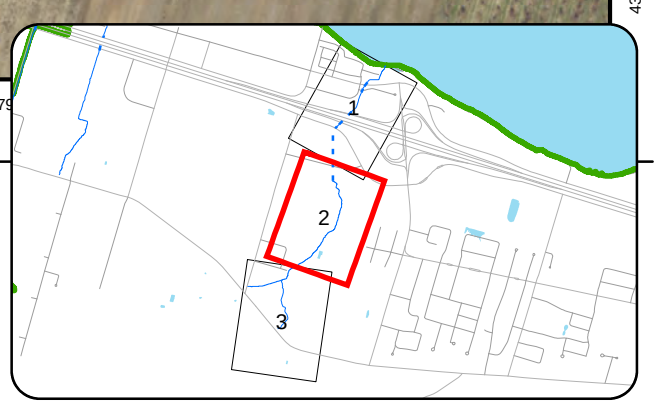
South Service Road

#834 87.5m
#864 87.8m
#883 88.7m
#888 88.73m
#931 88.73m
#1031 88.77m
#1103 89.32m
#1151 89.56m
#1204 90.04m
#1247 90.34m
#1281 90.77m
#1314 90.82m
#1331 91.25m
#1370 91.53m
#1339 91.36m
#1413 91.65m
#1438 91.7m
#1470 91.91m
#1361 91.4m
#1513 92.16m
#1499 92.04m
#851 87.55m

Main

Meters
0 25 50 100

43°12'0"N



Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Spill Zones
Cross Sections
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 39 - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Lake Ontario 39

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation

Spill Direction

Watercourse (Open Channel)

Watercourse (Piped)

Spill Zones

Cross Sections

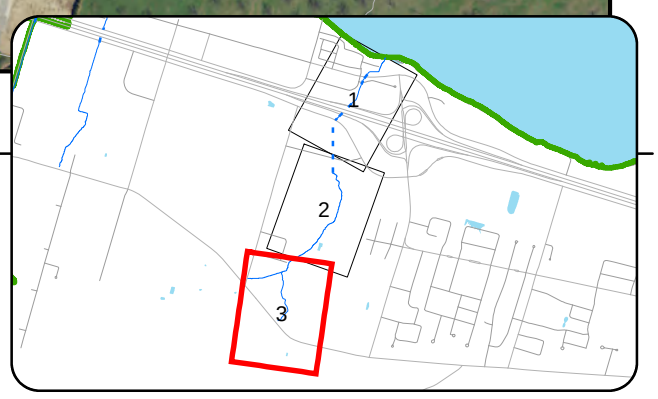
Contours (1m)

Existing Condition Floodlines

Flood Hazard Areas

Waterbodies

NPCA Jurisdiction



Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 39 - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing & Future Condition Floodplain Mapping - Lake Ontario 44

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation

Spill Direction

Watercourse (Open Channel)

Watercourse (Piped)

Spill Zones

Cross Sections

Contours (1m)

Existing Condition Floodlines

Flood Hazard Areas

Waterbodies

NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44 - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing & Future Condition Floodplain Mapping - Lake Ontario 44

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°37'0"W

#659 81.24m
#719 81.54m
#934 81.13m
#758 81.72m
#782 82.19m
#871 82.21m
#901 82.31m
#926 82.32m
#1248 83.45m
#1077 83.32m
#1301 83.45m
#1327 83.45m
#1457 83.45m
#1506 83.46m
#1275 83.85m
#1303 84.11m
#1326
#1330 84.4m
#1046 83.29m
#1215 83.38m

82m
83m
84m
85m

North Service Road
Queen Elizabeth Way
South Service Road
Main

LO44-1
LO44-2

Meters
0 25 50 100

Lake Ontario
1
2
3

- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Spill Zones
- Cross Sections
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44 - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing & Future Condition Floodplain Mapping - Lake Ontario 44

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°37'0"W

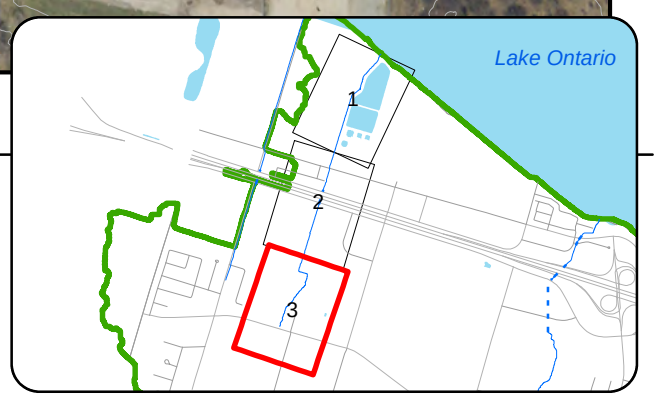
N

#1409 84.67m
#1514 86.44m
#1534 86.44m
#1571 86.76m
#1708 88.13m
#1780 88.69m
#1870 89.28m
#1887 89.98m

Main

Main Street West

Meters
0 25 50 100

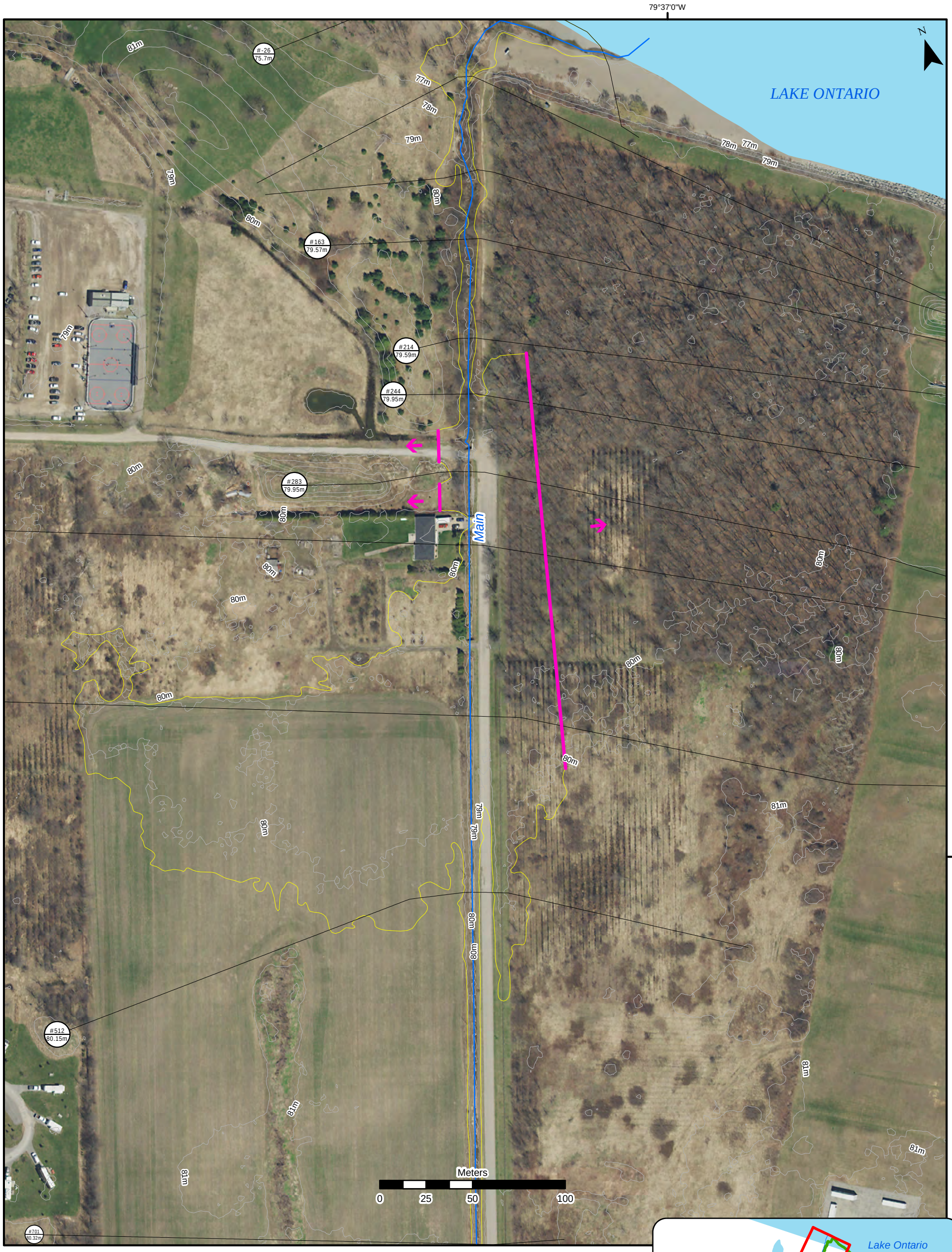


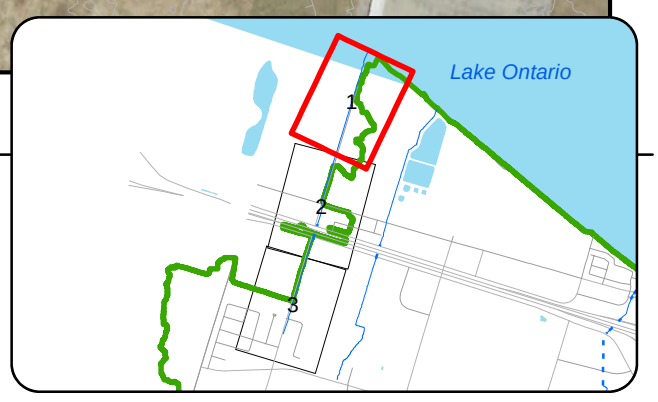
Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Spill Zones
Cross Sections
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44 - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Lake Ontario 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY



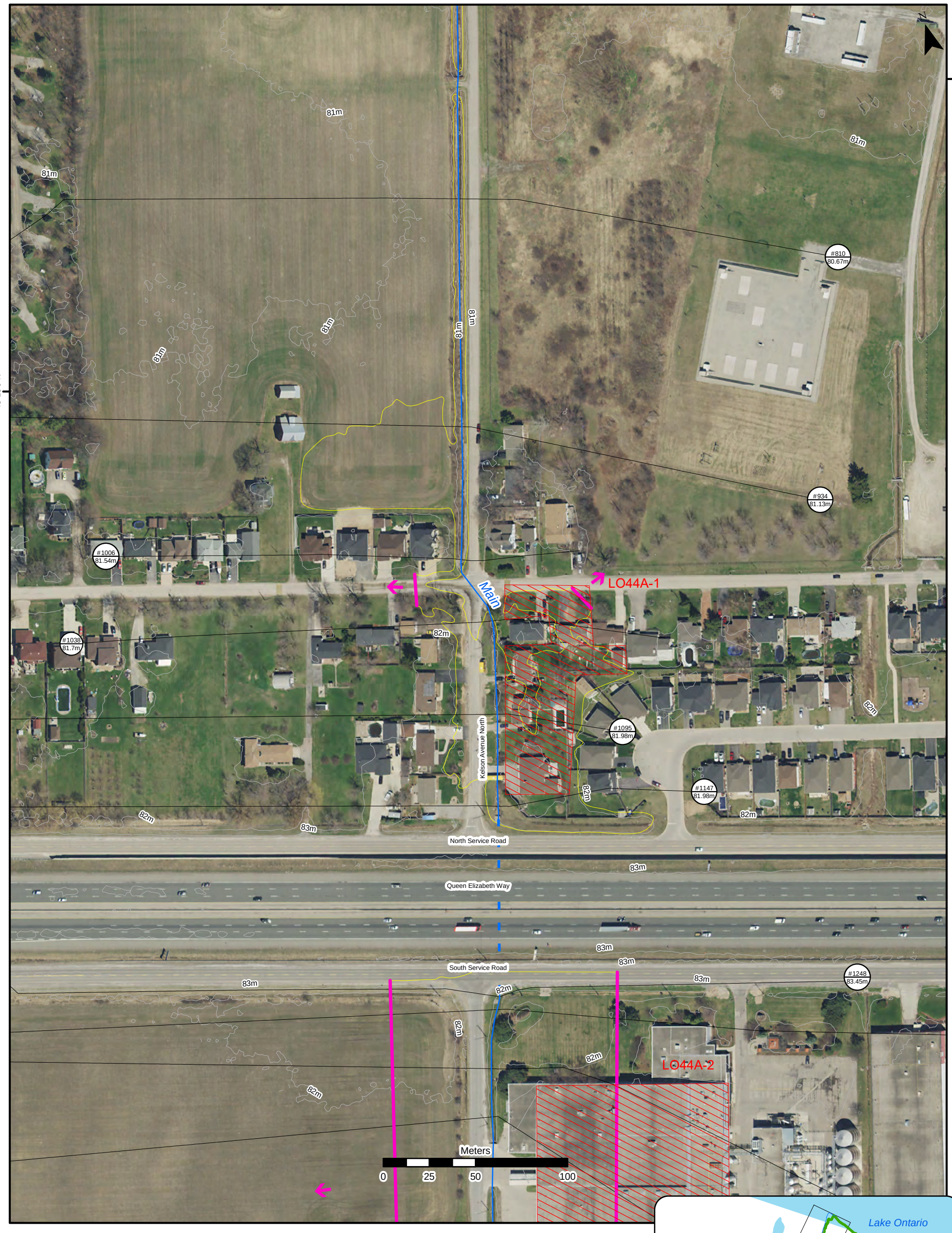


- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Spill Zones
- Cross Sections
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44A - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Lake Ontario 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

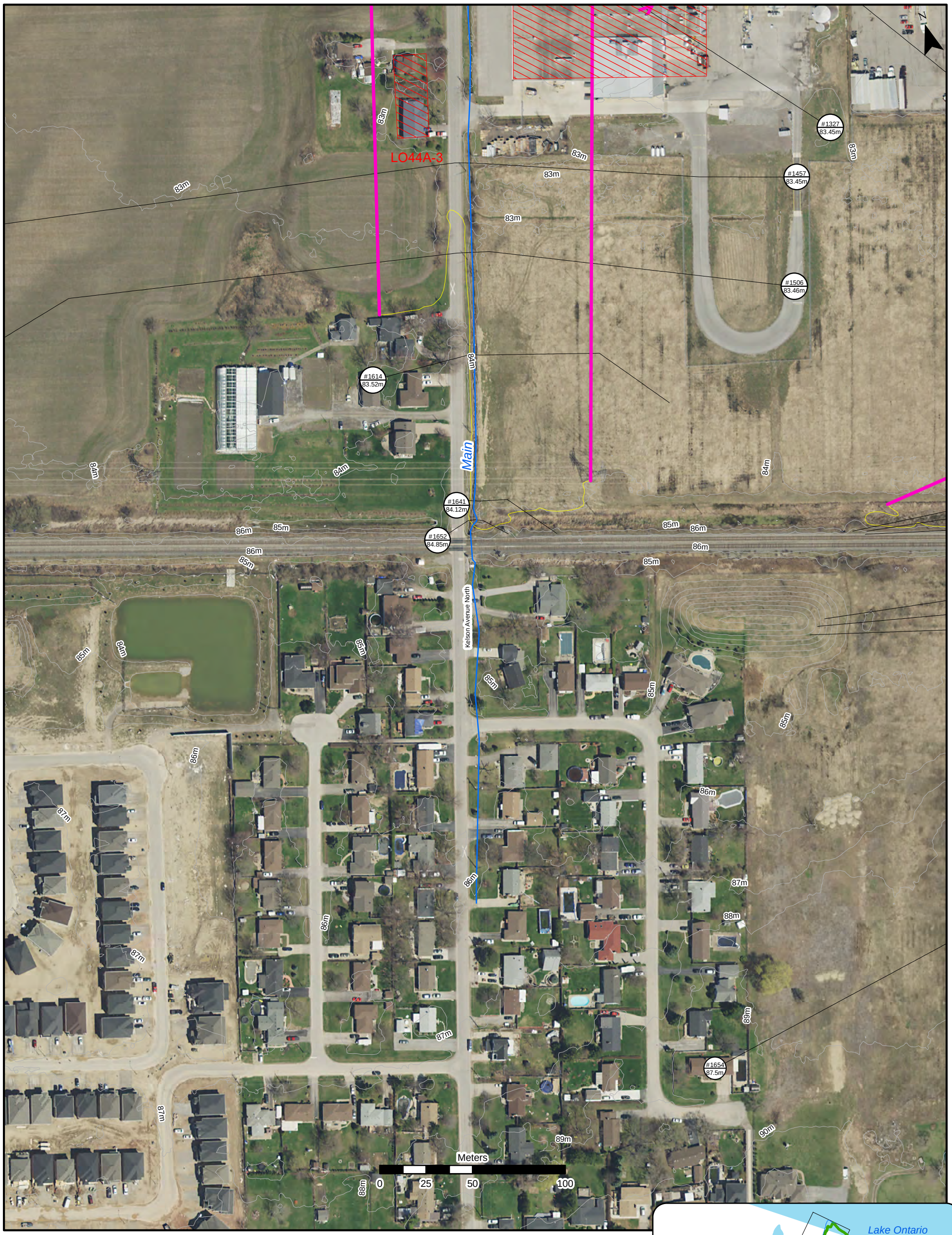


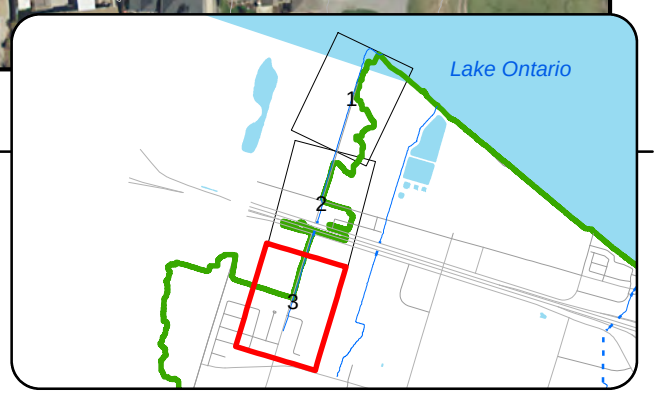
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Spill Zones
- Cross Sections
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44A - 2

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Floodplain Mapping - Lake Ontario 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY





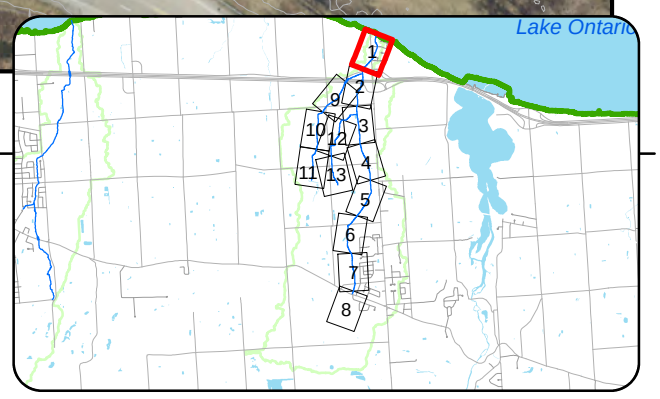
- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Spill Zones
- Cross Sections
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Lake Ontario 44A - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 1

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°24'0"W

43°11'0"N

N

Main

Trib1

Trib2

North Service Road

South Service Road

Queen Elizabeth Way

Victoria Avenue North

Victoria Avenue

Marina Boulevard

#203 81.58m
#806 81.47m
#812 81.61m
#11 81.61m
#748 80.17m
#768 80.13m
#57 81.61m
#103 81.61m
#97 81.6m
#268 81.74m
#200 82.24m
#381 82.98m
#334 82.35m
#464 83.4m
#461 82.33m
#544 84.07m
#562 84.11m
#580 84.16m
#536 83.68m

Meters
0 25 50 100

Lake Ontario

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 2

- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°24'0"W

N

P-2

Trib2

Trib2a

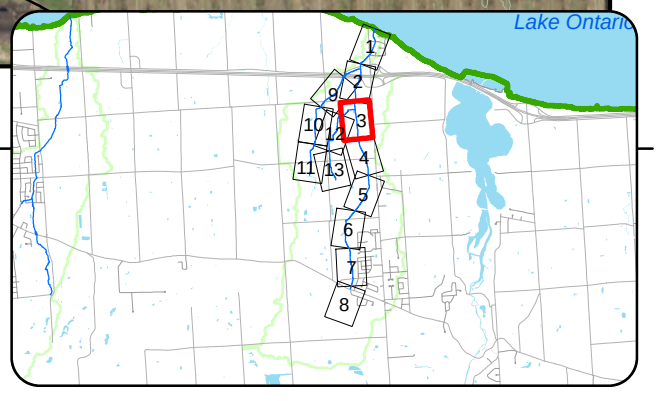
Trib2b

#612 84.17m
#736 84.18m
#101 84.23m
#147 84.57m
#230 84.8m
#58 84.18m
#24 84.18m
#86 84.38m
#37 84.11m
#146 84.66m
#191 84.89m
#207 85.73m
#219 85.83m
#237 85.84m
#292 85.89m
#515 86.2m

Meters
0 25 50 100

79°24'0"W

Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction



Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 3

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

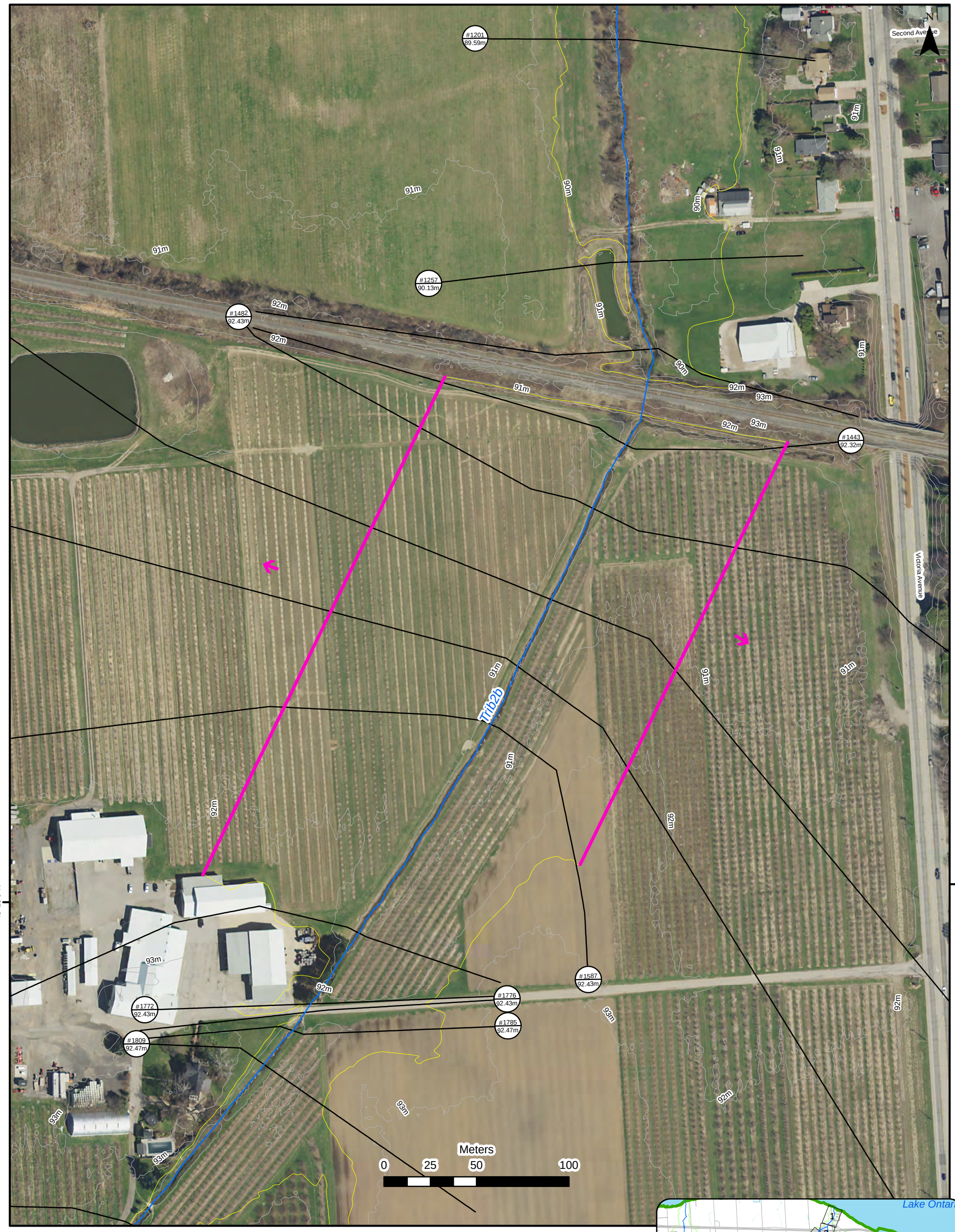


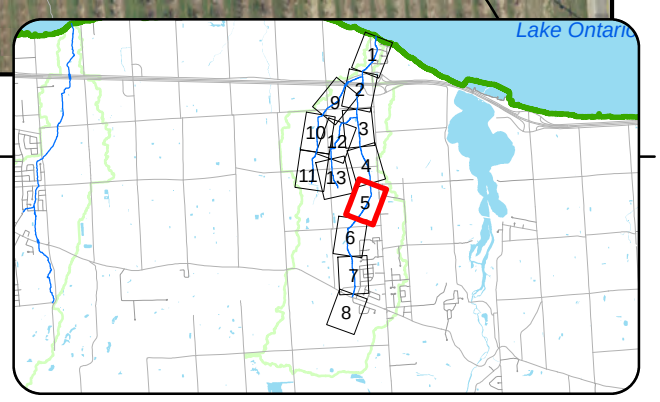
Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 4

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 5

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation

Spill Direction

Watercourse (Open Channel)

Watercourse (Piped)

Cross Sections

Spill Zones

Contours (1m)

Existing Condition Floodlines

Flood Hazard Areas

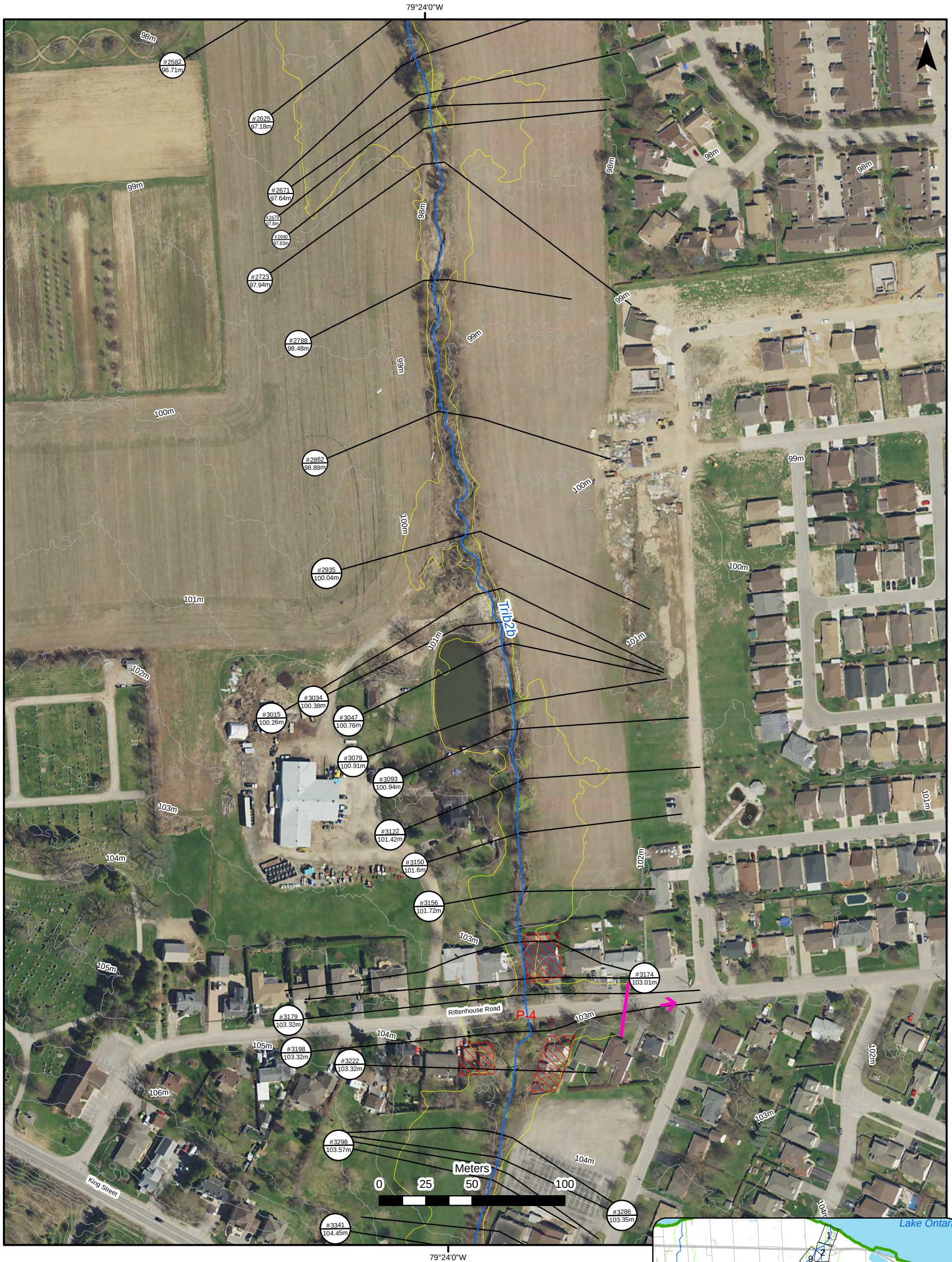
Waterbodies

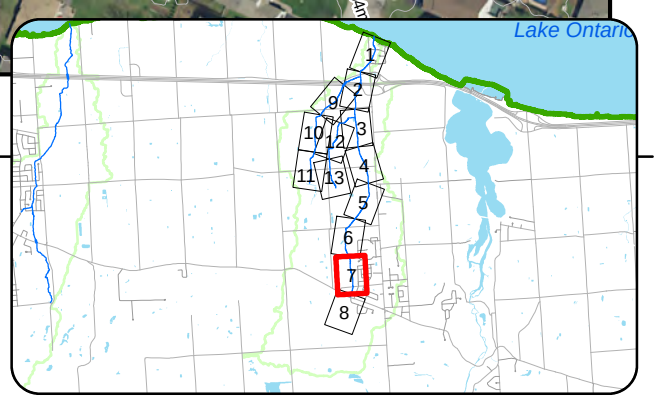
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 6

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 7

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



Cross Section ID / Max Water Surface Elevation

Spill Direction

Watercourse (Open Channel)

Watercourse (Piped)

Cross Sections

Spill Zones

Contours (1m)

Existing Condition Floodlines

Flood Hazard Areas

Waterbodies

NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 8

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°24'0"W

43°11'0"N

Queen Elizabeth Way

South Service Road

Martin Road

Greenlane

Trib1

Trib2a

#544 84.07m
#464 83.4m
#381 82.98m
#675 84.67m
#822 85.28m
#901 85.82m
#908 85.88m
#879 85.51m
#938 86.09m
#1010 86.12m
#1069 86.13m
#101 84.23m
#147 84.57m

Meters
0 25 50 100

Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

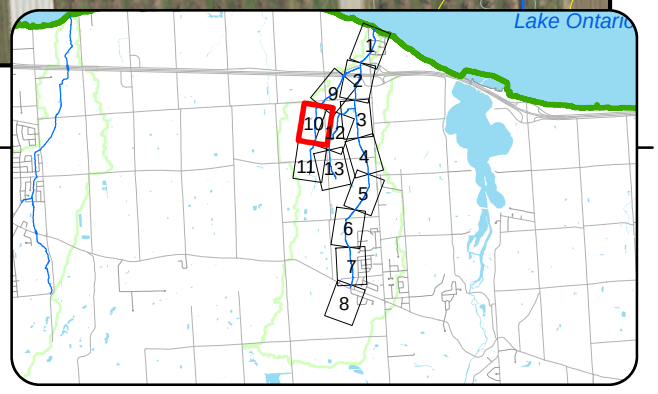
Lake Ontario

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 9

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY





- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 10

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 11

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

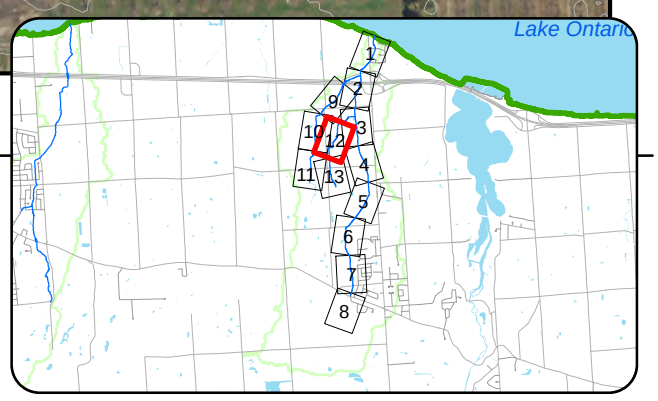
79°24'0"W

N

#333 85.34m
#230 84.8m
#390 85.47m
#288 85.21m
#427 85.89m
#435 85.94m
#448 85.96m
#1360 87.03m
#1370 87.24m
#519 86.05m
#1455 87.25m
#600 86.37m
#613 87.07m
#623 87.16m
#1536 87.4m
Trib2a
Martin Road
#711 87.17m
#746 87.17m
#808 87.18m
#788 87.18m
#871 87.21m
#954 87.4m
#1787 87.88m
#1848 88.07m
#1853 88.16m

85m 86m 87m 88m 89m

Meters
0 25 50 100



Cross Section ID / Max Water Surface Elevation
Spill Direction
Watercourse (Open Channel)
Watercourse (Piped)
Cross Sections
Spill Zones
Contours (1m)
Existing Condition Floodlines
Flood Hazard Areas
Waterbodies
NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 12

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Existing Condition Floodplain Mapping - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Cross Section ID / Max Water Surface Elevation
- Spill Direction
- Watercourse (Open Channel)
- Watercourse (Piped)
- Cross Sections
- Spill Zones
- Contours (1m)
- Existing Condition Floodlines
- Flood Hazard Areas
- Waterbodies
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: November, 2019
Figure: Prudhomme Creek - 13

Appendix D:

Hydrologic & Hydraulic Models

*Digital files included in electronic submission

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.012)

WARNING 02: maximum depth increased for Node J1551
WARNING 02: maximum depth increased for Node J1662

****
Element Count
****
Number of rain gages 12
Number of subcatchments ... 89
Number of nodes 237
Number of links 225
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
100yr_SCS_100.8mm_12hr	SCS_Type_II_100.8mm_12hr	INTENSITY	6 min.
100yr_SCS_102mm_12hr_Future	100yr_SCS_102mm_12hr_Future	INTENSITY	6 min.
100yr_SCS_Type_II_124.8mm	100yr_SCS_Type_II_124.8mm	VOLUME	6 min.
10yr_SCS_Type_II_86.4mm	10yr_SCS_Type_II_86.4mm	VOLUME	6 min.
25yr_SCS_Type_II_100.8mm	25yr_SCS_Type_II_100.8mm	VOLUME	6 min.
2yr_SCS_Type_II_57.6mm	2yr_SCS_Type_II_57.6mm	VOLUME	6 min.
50yr_SCS_Type_II_112.8mm	50yr_SCS_Type_II_112.8mm	VOLUME	6 min.
5yr_SCS_Type_II_74.4mm	5yr_SCS_Type_II_74.4mm	VOLUME	6 min.
AES_Southern_Ontario_100.8mm	AES_Southern_Ontario_100.8mm	INTENSITY	5 min.
Chicago_24h_NPCA	Chicago_24h_NPCA	INTENSITY	5 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.
SCS_Type_II_81.6mm	SCS_Type_II_81.6mm	INTENSITY	6 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S1	6.98	163.40	2.80	7.0603	100yr_SCS_100.8mm_12hr	J1583
S107	117.13	474.76	1.00	12.2574	100yr_SCS_100.8mm_12hr	J150
S112	20.35	279.58	59.50	6.1894	100yr_SCS_100.8mm_12hr	J1528

S156	33.79	297.69	7.50	4.6239	100yr_SCS_100.8mm_12hr	J1557
S169	32.17	286.26	16.30	5.2894	100yr_SCS_100.8mm_12hr	J1680
S181	5.31	172.94	57.40	9.6531	100yr_SCS_100.8mm_12hr	J1662
S189	99.21	553.88	5.50	14.9557	100yr_SCS_100.8mm_12hr	J287
S192	12.03	231.00	43.30	7.8634	100yr_SCS_100.8mm_12hr	J239
S199	3.31	111.03	65.50	5.7259	100yr_SCS_100.8mm_12hr	J250
S2	148.70	445.27	41.50	4.1989	100yr_SCS_100.8mm_12hr	J1037
S210	30.72	277.05	44.70	5.6423	100yr_SCS_100.8mm_12hr	J1582
S218	26.43	184.34	51.60	7.0059	100yr_SCS_100.8mm_12hr	J1575
S225	30.16	217.98	51.20	8.4167	100yr_SCS_100.8mm_12hr	J307
S228	34.70	343.92	36.10	6.9075	100yr_SCS_100.8mm_12hr	J1631
S231	27.74	140.22	39.60	8.8874	100yr_SCS_100.8mm_12hr	J408
S232	94.59	384.29	36.50	10.9004	100yr_SCS_100.8mm_12hr	J547
S235	20.52	171.67	44.40	6.3155	100yr_SCS_100.8mm_12hr	J1676
S236	12.14	165.98	64.80	6.7596	100yr_SCS_100.8mm_12hr	J1566
S237	13.70	179.26	62.10	5.5246	100yr_SCS_100.8mm_12hr	J237
S238	146.98	512.78	29.30	10.1735	100yr_SCS_100.8mm_12hr	S237
S246	20.00	141.33	58.10	7.2203	100yr_SCS_100.8mm_12hr	J353
S248	74.36	302.38	28.50	10.2251	100yr_SCS_100.8mm_12hr	J416
S251	47.13	191.35	31.10	9.9638	100yr_SCS_100.8mm_12hr	J460
S255	14.53	192.27	46.30	4.5095	100yr_SCS_100.8mm_12hr	J270
S262	25.13	228.80	27.60	15.4833	100yr_SCS_100.8mm_12hr	J1501
S264	6.17	130.73	48.40	14.7658	100yr_SCS_100.8mm_12hr	J304
S268	58.67	401.39	26.90	4.0989	100yr_SCS_100.8mm_12hr	J351
S277	25.42	310.03	19.10	3.9982	100yr_SCS_100.8mm_12hr	J414
S28	37.80	596.39	39.20	5.0320	100yr_SCS_100.8mm_12hr	J24
S285	46.33	410.26	23.80	3.0002	100yr_SCS_100.8mm_12hr	J332
S29	18.34	148.30	61.50	8.0003	100yr_SCS_100.8mm_12hr	J1458
S293	70.76	403.01	27.60	4.4054	100yr_SCS_100.8mm_12hr	J464
S295	8.60	146.61	58.60	5.4075	100yr_SCS_100.8mm_12hr	J324
S3	10.69	116.35	57.40	4.6419	100yr_SCS_100.8mm_12hr	J1513
S30	21.42	632.34	42.50	5.7228	100yr_SCS_100.8mm_12hr	J1577
S317	33.30	383.72	16.60	2.7675	100yr_SCS_100.8mm_12hr	J357
S324	30.03	431.47	17.90	3.5207	100yr_SCS_100.8mm_12hr	J386
S325	15.17	188.38	48.50	10.6835	100yr_SCS_100.8mm_12hr	J1489
S338	11.80	218.27	20.50	5.1922	100yr_SCS_100.8mm_12hr	J1586
S350	19.78	345.48	24.80	4.3018	100yr_SCS_100.8mm_12hr	J424
S363	60.70	336.76	7.00	7.2491	100yr_SCS_100.8mm_12hr	J502
S38	51.74	415.65	36.50	5.0290	100yr_SCS_100.8mm_12hr	J30
S382	27.67	170.91	5.20	2.7035	100yr_SCS_100.8mm_12hr	J591
S390	31.13	456.00	12.50	5.0369	100yr_SCS_100.8mm_12hr	J1670
S399	33.88	141.93	22.60	13.3202	100yr_SCS_100.8mm_12hr	J530
S403	77.51	402.42	7.30	2.3609	100yr_SCS_100.8mm_12hr	J488
S406	12.37	111.05	48.60	6.5947	100yr_SCS_100.8mm_12hr	J1650
S412	18.17	348.24	17.50	4.3809	100yr_SCS_100.8mm_12hr	J1511
S419	78.93	548.23	18.30	3.4889	100yr_SCS_100.8mm_12hr	J476

S420	29.10	257.53	6.20	4.7751	100yr_SCS_100.8mm_12hr	J480
S436	28.61	187.12	24.10	3.3611	100yr_SCS_100.8mm_12hr	J509
S439	52.31	241.01	14.20	5.5188	100yr_SCS_100.8mm_12hr	J635
S448	94.42	392.17	11.40	3.0859	100yr_SCS_100.8mm_12hr	J753
S460	18.50	219.24	26.80	3.4488	100yr_SCS_100.8mm_12hr	J1606
S468	81.85	282.39	52.50	4.1400	100yr_SCS_100.8mm_12hr	J641
S481	33.72	629.56	8.20	3.5020	100yr_SCS_100.8mm_12hr	J1610
S5	19.73	194.28	13.50	3.0204	100yr_SCS_100.8mm_12hr	J6
S513	15.18	127.59	55.40	5.1803	100yr_SCS_100.8mm_12hr	J698
S516	93.21	268.34	8.10	6.0617	100yr_SCS_100.8mm_12hr	J963
S531	115.90	325.91	11.20	5.7854	100yr_SCS_100.8mm_12hr	J887
S543	27.88	160.01	11.50	12.2416	100yr_SCS_100.8mm_12hr	J780
S547	32.84	256.80	8.60	4.0251	100yr_SCS_100.8mm_12hr	J1426
S549	22.11	152.34	33.30	4.4933	100yr_SCS_100.8mm_12hr	J630
S553	19.52	78.00	50.00	5.1572	100yr_SCS_100.8mm_12hr	J666
S56	28.42	244.41	58.30	5.8030	100yr_SCS_100.8mm_12hr	J52
S571	101.27	520.17	6.80	7.7010	100yr_SCS_100.8mm_12hr	J985
S586	28.09	349.36	53.60	4.3200	100yr_SCS_100.8mm_12hr	J1632
S604	107.52	279.33	29.60	6.7127	100yr_SCS_100.8mm_12hr	J1171
S608	30.22	267.18	8.90	3.2342	100yr_SCS_100.8mm_12hr	J787
S619	17.77	181.05	47.90	5.1827	100yr_SCS_100.8mm_12hr	J1486
S62	16.41	261.21	23.40	3.8965	100yr_SCS_100.8mm_12hr	J1553
S627	25.26	342.87	30.30	17.9537	100yr_SCS_100.8mm_12hr	J1571
S665	35.86	258.92	55.30	5.7976	100yr_SCS_100.8mm_12hr	J857
S678	14.29	128.75	17.30	14.3385	100yr_SCS_100.8mm_12hr	J875
S688	10.94	144.60	22.00	7.8289	100yr_SCS_100.8mm_12hr	J1590
S690	110.23	422.39	11.80	8.6042	100yr_SCS_100.8mm_12hr	J1117
S692	38.91	194.07	10.10	3.8048	100yr_SCS_100.8mm_12hr	J921
S700	49.06	218.02	12.30	7.0470	100yr_SCS_100.8mm_12hr	J1026
S716	10.62	64.33	64.10	5.3014	100yr_SCS_100.8mm_12hr	J1568
S74	45.53	459.53	25.80	3.1994	100yr_SCS_100.8mm_12hr	J65
S750	73.78	227.44	16.70	7.9858	100yr_SCS_100.8mm_12hr	J1033
S766	41.01	202.72	11.60	9.7691	100yr_SCS_100.8mm_12hr	J967
S768	177.87	645.67	5.50	8.4373	100yr_SCS_100.8mm_12hr	J1180
S79	51.92	259.70	21.50	6.4435	100yr_SCS_100.8mm_12hr	J75
S799	179.63	525.93	8.00	10.4756	100yr_SCS_100.8mm_12hr	J1115
S8	15.15	164.79	1.50	5.5536	100yr_SCS_100.8mm_12hr	J1609
S808	160.40	437.97	7.30	7.5190	100yr_SCS_100.8mm_12hr	J1362
S857	2.87	73.04	64.50	6.9626	100yr_SCS_100.8mm_12hr	J1
S92	8.60	178.05	56.90	6.8962	100yr_SCS_100.8mm_12hr	J1596

****
Node Summary
****

	Invert	Max.	Ponded	External

Name	Type	Elev.	Depth	Area	Inflow
J1	JUNCTION	113.63	2.00	0.0	
J1010	JUNCTION	110.42	2.00	0.0	
J1026	JUNCTION	107.95	2.00	0.0	
J1033	JUNCTION	138.53	2.00	0.0	
J1037	JUNCTION	103.00	2.00	0.0	
J1055	JUNCTION	171.50	2.00	0.0	
J1061	JUNCTION	130.89	2.00	0.0	
J1085	JUNCTION	89.68	2.00	0.0	
J1087	JUNCTION	146.14	2.00	0.0	
J1097	JUNCTION	104.26	2.00	0.0	
J1099	JUNCTION	171.46	2.00	0.0	
J1115	JUNCTION	160.79	2.00	0.0	
J1117	JUNCTION	189.13	2.00	0.0	
J1146	JUNCTION	122.34	2.00	0.0	
J1151	JUNCTION	185.76	2.00	0.0	
J1163	JUNCTION	189.10	2.00	0.0	
J1171	JUNCTION	149.73	2.00	0.0	
J1180	JUNCTION	189.95	2.00	0.0	
J1187	JUNCTION	181.58	2.00	0.0	
J12	JUNCTION	82.65	2.00	0.0	
J1203	JUNCTION	138.41	2.00	0.0	
J1222	JUNCTION	174.31	2.00	0.0	
J1226	JUNCTION	157.16	2.00	0.0	
J1232	JUNCTION	149.74	2.00	0.0	
J1251	JUNCTION	169.15	2.00	0.0	
J1261	JUNCTION	189.54	2.00	0.0	
J1271	JUNCTION	135.10	2.00	0.0	
J1335	JUNCTION	190.05	2.00	0.0	
J1362	JUNCTION	192.22	2.00	0.0	
J1426	JUNCTION	105.21	2.00	0.0	
J1427	JUNCTION	138.03	2.00	0.0	
J1431	JUNCTION	84.12	2.00	0.0	
J1433	JUNCTION	83.75	2.00	0.0	
J1441	JUNCTION	109.10	2.00	0.0	
J1444	JUNCTION	97.46	2.00	0.0	
J1448	JUNCTION	92.34	2.00	0.0	
J1455	JUNCTION	84.93	2.00	0.0	
J1456	JUNCTION	90.47	2.00	0.0	
J1458	JUNCTION	83.30	2.00	0.0	
J1460	JUNCTION	113.80	2.00	0.0	
J1461	JUNCTION	140.43	2.00	0.0	
J1469	JUNCTION	89.34	2.00	0.0	
J1486	JUNCTION	103.02	2.00	0.0	
J1489	JUNCTION	98.02	2.00	0.0	

J1498	JUNCTION	89.76	2.00	0.0
J150	JUNCTION	99.28	2.00	0.0
J1500	JUNCTION	86.63	2.00	0.0
J1501	JUNCTION	105.00	2.00	0.0
J1506	JUNCTION	108.63	2.00	0.0
J1507	JUNCTION	140.21	2.00	0.0
J1510	JUNCTION	83.22	2.50	0.0
J1511	JUNCTION	90.55	2.00	0.0
J1513	JUNCTION	90.99	2.00	0.0
J1520	JUNCTION	95.22	2.00	0.0
J1528	JUNCTION	86.56	2.00	0.0
J1534	JUNCTION	85.21	2.00	0.0
J1542	JUNCTION	81.96	2.00	0.0
J1543	JUNCTION	92.99	2.00	0.0
J1551	JUNCTION	82.44	3.00	0.0
J1553	JUNCTION	86.38	2.00	0.0
J1554	JUNCTION	97.87	2.00	0.0
J1557	JUNCTION	92.55	2.00	0.0
J1562	JUNCTION	97.28	2.00	0.0
J1566	JUNCTION	86.46	2.00	0.0
J1567	JUNCTION	86.80	2.00	0.0
J1568	JUNCTION	122.53	2.00	0.0
J1571	JUNCTION	106.43	2.00	0.0
J1574	JUNCTION	91.47	2.00	0.0
J1575	JUNCTION	85.20	2.00	0.0
J1577	JUNCTION	83.58	2.00	0.0
J1579	JUNCTION	89.96	2.00	0.0
J1582	JUNCTION	87.11	2.00	0.0
J1583	JUNCTION	78.77	2.00	0.0
J1586	JUNCTION	90.65	2.00	0.0
J1587	JUNCTION	99.83	2.00	0.0
J1589	JUNCTION	137.95	2.00	0.0
J1590	JUNCTION	115.20	2.00	0.0
J1592	JUNCTION	132.33	2.00	0.0
J1595	JUNCTION	103.06	2.00	0.0
J1596	JUNCTION	81.71	2.00	0.0
J1597	JUNCTION	82.46	2.00	0.0
J1599	JUNCTION	89.06	2.00	0.0
J1600	JUNCTION	89.28	2.00	0.0
J1602	JUNCTION	89.45	2.00	0.0
J1606	JUNCTION	96.27	2.00	0.0
J1609	JUNCTION	79.61	2.00	0.0
J1610	JUNCTION	89.18	2.00	0.0
J1616	JUNCTION	83.92	2.00	0.0
J1618	JUNCTION	113.48	2.00	0.0
J1621	JUNCTION	98.51	2.00	0.0

J1624	JUNCTION	110.49	2.00	0.0
J1626	JUNCTION	83.86	2.00	0.0
J1629	JUNCTION	107.82	2.00	0.0
J1631	JUNCTION	77.67	2.00	0.0
J1632	JUNCTION	96.13	2.00	0.0
J1634	JUNCTION	85.79	2.00	0.0
J1636	JUNCTION	93.92	2.00	0.0
J1638	JUNCTION	83.15	2.00	0.0
J1639	JUNCTION	92.93	2.00	0.0
J1641	JUNCTION	101.71	2.00	0.0
J1645	JUNCTION	90.57	2.00	0.0
J1647	JUNCTION	98.61	2.00	0.0
J1648	JUNCTION	83.42	2.50	0.0
J1649	JUNCTION	88.19	2.00	0.0
J1650	JUNCTION	90.40	2.00	0.0
J1651	JUNCTION	84.40	2.00	0.0
J1653	JUNCTION	99.42	2.00	0.0
J1656	JUNCTION	94.42	2.00	0.0
J1657	JUNCTION	82.33	2.00	0.0
J1658	JUNCTION	87.96	2.00	0.0
J1659	JUNCTION	83.28	2.00	0.0
J1662	JUNCTION	82.82	3.00	0.0
J1664	JUNCTION	91.83	2.00	0.0
J1670	JUNCTION	88.09	2.00	0.0
J1674	JUNCTION	84.79	2.00	0.0
J1676	JUNCTION	79.76	2.00	0.0
J1678	JUNCTION	81.76	2.00	0.0
J1680	JUNCTION	77.15	2.00	0.0
J176	JUNCTION	96.60	2.00	0.0
J187	JUNCTION	98.31	2.00	0.0
J197	JUNCTION	93.12	2.00	0.0
J208	JUNCTION	102.97	2.00	0.0
J237	JUNCTION	80.42	2.00	0.0
J239	JUNCTION	87.41	2.00	0.0
J24	JUNCTION	83.10	2.00	0.0
J246	JUNCTION	91.08	2.00	0.0
J250	JUNCTION	83.69	2.00	0.0
J264	JUNCTION	193.47	2.00	0.0
J270	JUNCTION	82.19	2.00	0.0
J275	JUNCTION	89.87	2.00	0.0
J287	JUNCTION	195.74	2.00	0.0
J296	JUNCTION	97.36	2.00	0.0
J30	JUNCTION	84.53	2.00	0.0
J304	JUNCTION	90.82	2.00	0.0
J307	JUNCTION	92.71	2.00	0.0
J324	JUNCTION	91.89	2.00	0.0

J332	JUNCTION	83.21	2.00	0.0
J335	JUNCTION	83.96	2.00	0.0
J351	JUNCTION	85.75	2.00	0.0
J353	JUNCTION	90.22	2.00	0.0
J357	JUNCTION	83.81	2.00	0.0
J380	JUNCTION	95.10	2.00	0.0
J382	JUNCTION	100.68	2.00	0.0
J386	JUNCTION	84.30	2.00	0.0
J393	JUNCTION	86.61	2.00	0.0
J395	JUNCTION	83.79	2.00	0.0
J408	JUNCTION	87.93	2.00	0.0
J414	JUNCTION	83.43	2.00	0.0
J416	JUNCTION	102.21	2.00	0.0
J418	JUNCTION	86.05	2.00	0.0
J42	JUNCTION	77.42	2.00	0.0
J424	JUNCTION	88.32	2.00	0.0
J437	JUNCTION	100.54	2.00	0.0
J442	JUNCTION	98.76	2.00	0.0
J460	JUNCTION	172.59	2.00	0.0
J462	JUNCTION	112.89	2.00	0.0
J464	JUNCTION	86.79	2.00	0.0
J470	JUNCTION	150.57	2.00	0.0
J476	JUNCTION	88.94	2.00	0.0
J478	JUNCTION	170.04	2.00	0.0
J480	JUNCTION	84.89	2.00	0.0
J488	JUNCTION	87.00	2.00	0.0
J497	JUNCTION	168.22	2.00	0.0
J502	JUNCTION	176.65	2.00	0.0
J509	JUNCTION	90.48	2.00	0.0
J511	JUNCTION	89.61	2.00	0.0
J513	JUNCTION	175.01	2.00	0.0
J52	JUNCTION	84.99	2.00	0.0
J528	JUNCTION	87.40	2.00	0.0
J530	JUNCTION	124.16	2.00	0.0
J535	JUNCTION	95.21	2.00	0.0
J543	JUNCTION	94.37	2.00	0.0
J547	JUNCTION	188.21	2.00	0.0
J558	JUNCTION	94.65	2.00	0.0
J580	JUNCTION	90.23	2.00	0.0
J582	JUNCTION	90.83	2.00	0.0
J587	JUNCTION	94.64	2.00	0.0
J591	JUNCTION	89.64	2.00	0.0
J596	JUNCTION	88.63	2.00	0.0
J6	JUNCTION	78.55	2.00	0.0
J607	JUNCTION	94.13	2.00	0.0
J630	JUNCTION	88.51	2.00	0.0

J635	JUNCTION	109.44	2.00	0.0
J637	JUNCTION	93.79	2.00	0.0
J641	JUNCTION	96.96	2.00	0.0
J65	JUNCTION	90.16	2.00	0.0
J666	JUNCTION	99.20	2.00	0.0
J669	JUNCTION	108.95	2.00	0.0
J675	JUNCTION	90.54	2.00	0.0
J698	JUNCTION	98.27	2.00	0.0
J706	JUNCTION	89.84	2.00	0.0
J712	JUNCTION	91.99	2.00	0.0
J715	JUNCTION	94.72	2.00	0.0
J731	JUNCTION	89.83	2.00	0.0
J75	JUNCTION	90.90	2.00	0.0
J753	JUNCTION	95.19	2.00	0.0
J757	JUNCTION	123.12	2.00	0.0
J780	JUNCTION	133.86	2.00	0.0
J782	JUNCTION	109.86	2.00	0.0
J787	JUNCTION	92.43	2.00	0.0
J793	JUNCTION	93.39	2.00	0.0
J80	JUNCTION	87.35	2.00	0.0
J801	JUNCTION	106.47	2.00	0.0
J815	JUNCTION	128.34	2.00	0.0
J851	JUNCTION	105.71	2.00	0.0
J857	JUNCTION	116.38	2.00	0.0
J861	JUNCTION	99.65	2.00	0.0
J875	JUNCTION	113.01	2.00	0.0
J879	JUNCTION	94.14	2.00	0.0
J883	JUNCTION	91.22	2.00	0.0
J887	JUNCTION	97.10	2.00	0.0
J889	JUNCTION	96.07	2.00	0.0
J898	JUNCTION	156.26	2.00	0.0
J906	JUNCTION	95.11	2.00	0.0
J908	JUNCTION	96.70	2.00	0.0
J921	JUNCTION	95.27	2.00	0.0
J934	JUNCTION	96.55	2.00	0.0
J942	JUNCTION	112.00	2.00	0.0
J947	JUNCTION	132.11	2.00	0.0
J954	JUNCTION	153.74	2.00	0.0
J957	JUNCTION	130.01	2.00	0.0
J963	JUNCTION	109.31	2.00	0.0
J967	JUNCTION	116.21	2.00	0.0
J973	JUNCTION	145.29	2.00	0.0
J977	JUNCTION	126.43	2.00	0.0
J979	JUNCTION	97.57	2.00	0.0
J981	JUNCTION	132.14	2.00	0.0
J985	JUNCTION	190.00	2.00	0.0

J1601	OUTFALL	74.48	2.00	0.0
J1617	OUTFALL	75.28	2.00	0.0
J1623	OUTFALL	74.98	2.00	0.0
J1642	OUTFALL	74.26	2.00	0.0
J1663	OUTFALL	74.78	3.00	0.0
J1677	OUTFALL	74.76	2.00	0.0
J1679	OUTFALL	74.64	2.00	0.0
J1682	OUTFALL	74.98	2.00	0.0
J2	OUTFALL	76.14	2.00	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	J1486	CONDUIT	399.4	2.6572	0.0300
C102	J1653	J1632	CONDUIT	76.7	4.2916	0.0300
C105	J1587	J1653	CONDUIT	46.2	0.8966	0.0300
C106	J1600	J630	CONDUIT	316.5	0.2433	0.0300
C109	J386	J1651	CONDUIT	362.5	-0.0276	0.0300
C110	J675	J1600	CONDUIT	40.1	3.1437	0.0300
C111	J698	J1650	CONDUIT	926.9	0.8491	0.0300
C112	J1645	J1649	CONDUIT	38.9	6.1244	0.0300
C113	J1647	J698	CONDUIT	89.7	0.3792	0.0300
C117	J1641	J1587	CONDUIT	209.0	0.8978	0.0300
C119	J1431	J1648	CONDUIT	293.6	0.2384	0.0300
C120	J666	J1647	CONDUIT	79.5	0.7426	0.0300
C123	J509	J1645	CONDUIT	228.5	-0.0394	0.0300
C125	J275	J1626	CONDUIT	909.4	0.6609	0.0300
C126	J787	J675	CONDUIT	359.4	0.5260	0.0300
C134	J1639	J509	CONDUIT	200.9	1.2196	0.0300
C136	J42	J1642	CONDUIT	88.4	3.5779	0.0300
C142	J1638	J42	CONDUIT	97.2	5.9029	0.0300
C143	J1636	J787	CONDUIT	298.7	0.4989	0.0300
C144	J488	J1534	CONDUIT	395.0	0.4531	0.0300
C145	J1606	J1639	CONDUIT	216.2	1.5450	0.0300
C147	J1026	J851	CONDUIT	201.1	1.1142	0.0300
C148	J1458	J1638	CONDUIT	187.0	0.0802	0.0300
C150	J1629	J1026	CONDUIT	49.7	-0.2617	0.0300
C151	J879	J1636	CONDUIT	180.6	0.1218	0.0300
C154	J1634	J1458	CONDUIT	61.8	4.0300	0.0300
C155	J1571	J666	CONDUIT	610.0	1.1853	0.0300
C162	J1621	J1632	CONDUIT	118.4	2.0109	0.0300
C163	J1010	J1629	CONDUIT	179.1	1.4521	0.0300
C168	J1624	J1010	CONDUIT	45.7	0.1533	0.0300

C172	J921	J879	CONDUIT	238.8	0.4732	0.0300
C174	J942	J1624	CONDUIT	91.1	1.6573	0.0300
C177	J1609	J1623	CONDUIT	356.0	1.3005	0.0300
C178	J1616	J270	CONDUIT	229.3	0.7544	0.0300
C181	J1618	J1571	CONDUIT	380.3	1.8540	0.0300
C183	J1610	J1431	CONDUIT	982.1	0.5152	0.0300
C187	J875	J1618	CONDUIT	62.6	-0.7507	0.0300
C190	J1596	J1617	CONDUIT	344.4	1.8675	0.0300
C192	J967	J942	CONDUIT	249.8	1.6853	0.0300
C193	J414	J1616	CONDUIT	184.0	-0.2663	0.0300
C2	J1583	J2	CONDUIT	268.0	0.9812	0.0300
C211	J1599	J1610	CONDUIT	370.1	-0.0324	0.0300
C212	J1597	J1609	CONDUIT	432.5	0.6590	0.0300
C219	J1602	J596	CONDUIT	210.9	0.3888	0.0300
C223	J706	J1602	CONDUIT	49.2	0.7926	0.0300
C224	J237	J1601	CONDUIT	83.9	7.0982	0.0300
C226	J1085	J1599	CONDUIT	135.7	0.4570	0.0300
C227	J1586	J414	CONDUIT	358.1	2.0165	0.0300
C228	J1595	J921	CONDUIT	697.0	1.1178	0.0300
C229	J1592	J967	CONDUIT	443.3	3.6390	0.0300
C230	J1577	J1597	CONDUIT	184.7	0.6063	0.0300
C234	J1590	J1486	CONDUIT	565.1	2.1560	0.0300
C235	J1528	J1596	CONDUIT	514.2	0.9433	0.0300
C236	J1456	J731	CONDUIT	125.9	0.5107	0.0300
C237	J1097	J1595	CONDUIT	141.1	0.8503	0.0300
C243	J1582	J1528	CONDUIT	132.5	0.4127	0.0300
C244	J1579	J1575	CONDUIT	94.5	5.0408	0.0300
C246	J1271	J1592	CONDUIT	200.0	1.3850	0.0300
C247	J250	J237	CONDUIT	277.6	1.1779	0.0300
C251	J1568	J1590	CONDUIT	241.9	3.0320	0.0300
C253	J1061	J1587	CONDUIT	1583.0	1.9622	0.0300
C254	J757	J782	CONDUIT	491.8	2.6970	0.0300
C257	J1511	J1586	CONDUIT	382.0	-0.0262	0.0300
C263	J6	J1583	CONDUIT	155.4	-0.1415	0.0300
C264	J1566	J250	CONDUIT	158.8	1.7445	0.0300
C266	J408	J1582	CONDUIT	199.6	0.4124	0.0300
C269	J947	J1061	CONDUIT	95.5	1.2779	0.0300
C274	J1469	J1579	CONDUIT	258.0	-0.2403	0.0300
C275	J1506	J1097	CONDUIT	341.0	1.2817	0.0300
C276	J1562	J1557	CONDUIT	287.9	1.6431	0.0300
C280	J1567	J1577	CONDUIT	461.4	0.6978	0.0300
C284	J380	J1579	CONDUIT	858.7	0.5986	0.0300
C287	J1087	J1507	CONDUIT	263.3	2.2524	0.0300
C290	J815	J757	CONDUIT	223.2	2.3393	0.0300
C293	J607	J1574	CONDUIT	449.1	0.5923	0.0300
C296	J1427	J1571	CONDUIT	835.9	3.7830	0.0300

C300	J957	J1568	CONDUIT	412.3	1.8146	0.0300
C302	J1553	J1567	CONDUIT	179.7	-0.2337	0.0300
C305	J543	J1543	CONDUIT	76.8	1.7973	0.0300
C306	J304	J1566	CONDUIT	326.6	1.3350	0.0300
C310	J981	J957	CONDUIT	73.4	2.9034	0.0300
C312	J1513	J304	CONDUIT	56.3	0.3075	0.0300
C315	J1461	J1427	CONDUIT	174.1	1.3790	0.0300
C316	J176	J1562	CONDUIT	328.1	-0.2073	0.0300
C329	J1554	J1557	CONDUIT	338.1	1.5737	0.0300
C334	J296	J1554	CONDUIT	54.5	-0.9360	0.0300
C337	J1251	J1087	CONDUIT	378.4	6.0925	0.0300
C340	J587	J607	CONDUIT	355.1	0.1436	0.0300
C348	J1542	J6	CONDUIT	598.5	0.5698	0.0300
C35	J1678	J1680	CONDUIT	983.6	0.4684	0.0300
C351	J973	J1461	CONDUIT	225.3	2.1580	0.0300
C355	J1187	J1271	CONDUIT	882.0	5.2771	0.0300
C356	J1033	J981	CONDUIT	285.6	2.2382	0.0300
C357	J1171	J947	CONDUIT	694.5	2.5379	0.0300
C358	J535	J1543	CONDUIT	256.1	0.8668	0.0300
C359	J898	J815	CONDUIT	598.5	4.6701	0.0300
C36	J1676	J1679	CONDUIT	499.0	1.0261	0.0300
C364	J1520	J1456	CONDUIT	929.4	0.5108	0.0300
C365	J442	J380	CONDUIT	584.4	0.6263	0.0300
C366	J12	J1542	CONDUIT	122.5	0.5641	0.0300
C368	J883	J1085	CONDUIT	581.0	0.2651	0.0300
C370	J1444	J176	CONDUIT	378.0	0.2275	0.0300
C38	J332	J1678	CONDUIT	310.3	0.4683	0.0300
C382	J418	J1534	CONDUIT	220.3	0.3813	0.0300
C395	J889	J1520	CONDUIT	211.7	0.4016	0.0300
C40	J357	J332	CONDUIT	128.2	0.4680	0.0300
C403	J1226	J1506	CONDUIT	896.9	5.4188	0.0300
C408	J1501	J1448	CONDUIT	603.9	2.0969	0.0300
C41	J1631	J1677	CONDUIT	590.2	0.4930	0.0300
C418	J906	J1520	CONDUIT	179.6	-0.0612	0.0300
C42	J1657	J1676	CONDUIT	317.8	0.8084	0.0300
C420	J437	J442	CONDUIT	292.0	0.6097	0.0300
C423	J416	J1469	CONDUIT	934.5	1.3773	0.0300
C424	J908	J889	CONDUIT	135.7	0.4644	0.0300
C433	J1441	J543	CONDUIT	708.7	2.0790	0.0300
C434	J641	J587	CONDUIT	500.5	0.4635	0.0300
C439	J197	J1513	CONDUIT	691.6	0.3076	0.0300
C440	J793	J883	CONDUIT	335.0	0.6478	0.0300
C441	J393	J418	CONDUIT	257.0	0.2179	0.0300
C443	J1261	J1187	CONDUIT	534.5	1.4894	0.0300
C445	J558	J1511	CONDUIT	401.3	1.0219	0.0300
C447	J335	J1510	CONDUIT	456.6	0.1621	0.0300

C455	J1099	J1507	CONDUIT	839.8	3.7235	0.0300
C456	J1146	J1506	CONDUIT	419.7	3.2686	0.0300
C457	J934	J906	CONDUIT	181.7	0.7924	0.0300
C46	J1510	J1657	CONDUIT	110.3	0.8078	0.0300
C462	J307	J239	CONDUIT	672.2	0.7885	0.0300
C464	J187	J296	CONDUIT	127.3	0.7461	0.0300
C467	J470	J1501	CONDUIT	259.2	17.8596	0.0300
C468	J1335	J1261	CONDUIT	107.1	0.4760	0.0300
C469	J511	J1500	CONDUIT	818.9	0.3639	0.0300
C470	J395	J335	CONDUIT	106.0	-0.1603	0.0300
C475	J1433	J24	CONDUIT	426.7	0.1523	0.0300
C48	J1674	J1631	CONDUIT	240.4	2.9631	0.0300
C49	J1455	J1674	CONDUIT	79.4	0.1813	0.0300
C494	J462	J1489	CONDUIT	474.7	3.1343	0.0300
C496	J1055	J973	CONDUIT	701.1	3.7408	0.0300
C497	J979	J934	CONDUIT	141.0	0.7233	0.0300
C501	J497	J470	CONDUIT	119.7	14.9066	0.0300
C509	J1222	J1099	CONDUIT	189.0	1.5083	0.0300
C51	J1500	J357	CONDUIT	468.0	0.6026	0.0300
C521	J208	J187	CONDUIT	183.2	2.5450	0.0300
C524	J963	J861	CONDUIT	405.1	2.3850	0.0300
C528	J1203	J1146	CONDUIT	263.3	6.1146	0.0300
C540	J1362	J1335	CONDUIT	232.0	0.9352	0.0300
C542	J353	J1469	CONDUIT	52.4	1.6783	0.0300
C551	J580	J511	CONDUIT	268.3	0.2311	0.0300
C562	J1115	J1226	CONDUIT	593.4	0.6118	0.0300
C567	J954	J1461	CONDUIT	437.0	3.0471	0.0300
C568	J513	J497	CONDUIT	219.1	3.1006	0.0300
C569	J635	J535	CONDUIT	847.3	1.6797	0.0300
C57	J1670	J1500	CONDUIT	121.2	1.2045	0.0300
C571	J857	J1460	CONDUIT	205.8	1.2535	0.0300
C573	J1151	J1222	CONDUIT	203.0	5.6498	0.0300
C574	J985	J898	CONDUIT	920.5	3.6678	0.0300
C575	J887	J793	CONDUIT	452.8	0.8193	0.0300
C578	J530	J462	CONDUIT	279.7	4.0324	0.0300
C584	J1232	J1203	CONDUIT	164.4	6.9077	0.0300
C588	J582	J580	CONDUIT	104.7	0.5733	0.0300
C590	J502	J513	CONDUIT	73.0	2.2476	0.0300
C596	J712	J1456	CONDUIT	484.6	0.3130	0.0300
C599	J351	J1455	CONDUIT	451.8	0.1806	0.0300
C608	J382	J197	CONDUIT	396.5	1.9068	0.0300
C613	J478	J1448	CONDUIT	1244.9	6.2535	0.0300
C62	J1498	J476	CONDUIT	318.5	0.2574	0.0300
C621	J264	J208	CONDUIT	349.0	26.8530	0.0300
C624	J150	J1444	CONDUIT	401.9	0.4529	0.0300
C628	J1180	J1151	CONDUIT	193.1	2.1706	0.0300

C630	J528	J393	CONDUIT	646.7	0.1222	0.0300
C631	J1037	J908	CONDUIT	728.1	0.8653	0.0300
C632	J780	J1441	CONDUIT	762.6	3.2487	0.0300
C644	J460	J478	CONDUIT	127.2	2.0047	0.0300
C647	J1117	J1055	CONDUIT	543.1	3.2480	0.0300
C661	J1426	J558	CONDUIT	731.4	1.4440	0.0300
C662	J65	J30	CONDUIT	525.2	1.0721	0.0300
C663	J547	J437	CONDUIT	921.2	9.5601	0.0300
C665	J591	J1431	CONDUIT	926.0	0.5961	0.0300
C669	J1163	J1251	CONDUIT	385.4	5.1829	0.0300
C677	J669	J1426	CONDUIT	102.7	3.6435	0.0300
C679	J464	J395	CONDUIT	744.6	0.4029	0.0300
C68	J480	J1648	CONDUIT	413.2	0.3558	0.0300
C683	J287	J264	CONDUIT	341.5	0.6647	0.0300
C685	J1680	J1682	CONDUIT	50.0	4.3482	0.0300
C686	J1648	J1510	CONDUIT	575.0	0.0348	0.0300
C687	J476	J1670	CONDUIT	174.1	0.4881	0.0300
C69	J1664	J1498	CONDUIT	164.6	1.2575	0.0300
C690	J424	J1455	CONDUIT	720.7	0.4699	0.0300
C691	J1649	J424	CONDUIT	193.1	-0.0673	0.0300
C694	J1650	J1649	CONDUIT	60.5	3.6549	0.0300
C699	J1534	J386	CONDUIT	260.8	0.3489	0.0300
C700	J851	J1641	CONDUIT	349.6	1.1441	0.0300
C701	J52	J1634	CONDUIT	89.4	-0.8951	0.0300
C702	J270	J1631	CONDUIT	241.8	1.8697	0.0300
C703	J1575	J1626	CONDUIT	72.7	1.8432	0.0300
C704	J1486	J1621	CONDUIT	390.8	1.1542	0.0300
C705	J80	J52	CONDUIT	364.4	0.6476	0.0300
C706	J596	J488	CONDUIT	770.2	0.2116	0.0300
C708	J782	J1606	CONDUIT	883.3	1.5388	0.0300
C709	J1589	J875	CONDUIT	429.0	5.8240	0.0300
C710	J731	J675	CONDUIT	26.3	-2.7038	0.0300
C711	J1557	J80	CONDUIT	738.6	0.7040	0.0300
C712	J1507	J1589	CONDUIT	378.4	0.5973	0.0300
C714	J1543	J1511	CONDUIT	314.6	0.7757	0.0300
C717	J1448	J408	CONDUIT	412.2	1.0700	0.0300
C719	J324	J1513	CONDUIT	113.7	0.7891	0.0300
C72	J1574	J1664	CONDUIT	59.4	-0.6058	0.0300
C720	J75	J1553	CONDUIT	302.6	1.4939	0.0300
C721	J239	J1551	CONDUIT	336.1	1.4791	0.0300
C723	J24	J12	CONDUIT	79.7	0.5633	0.0300
C725	J1489	J324	CONDUIT	293.6	2.0881	0.0300
C726	J861	J706	CONDUIT	1422.8	0.6895	0.0300
C73	J1662	J1663	CONDUIT	154.2	5.2226	0.0300
C731	J637	J1498	CONDUIT	793.3	0.5080	0.0300
C732	J753	J637	CONDUIT	222.6	0.6289	0.0300

C734	J1460	J1486	CONDUIT	399.2	2.7017	0.0300
C735	J30	J1433	CONDUIT	110.0	0.7094	0.0300
C76	J1551	J1662	CONDUIT	208.8	-0.1820	0.0300
C78	J1659	J1551	CONDUIT	98.6	0.8520	0.0300
C81	J1626	J1659	CONDUIT	72.5	0.8001	0.0300
C83	J1656	J1574	CONDUIT	442.4	0.6668	0.0300
C85	J1658	J480	CONDUIT	557.2	0.5510	0.0300
C91	J630	J1658	CONDUIT	169.3	0.3248	0.0300
C95	J1651	J1657	CONDUIT	315.3	0.6568	0.0300
C96	J715	J1656	CONDUIT	233.9	0.1283	0.0300
C99	J1632	J715	CONDUIT	173.8	0.8114	0.0300

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	114.52
C102	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	145.54
C105	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.52
C106	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.65
C109	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	11.67
C110	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	124.56
C111	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.74
C112	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.86
C113	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.26
C117	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.57
C119	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.30
C120	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.54
C123	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	13.94
C125	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.11
C126	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.95
C134	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	77.59
C136	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	132.89
C142	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	170.69
C143	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.62
C144	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.29
C145	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	87.32
C147	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	74.16
C148	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	19.90
C150	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	35.94
C151	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	24.52
C154	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	141.03
C155	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	76.49

C162	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.63
C163	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	84.66
C168	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	27.50
C172	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.33
C174	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	90.44
C177	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	80.12
C178	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	61.02
C181	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	95.66
C183	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.43
C187	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.87
C190	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	96.01
C192	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.20
C193	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	36.25
C2	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	69.59
C211	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	12.65
C212	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.03
C219	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.80
C223	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.55
C224	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	187.17
C226	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.49
C227	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.76
C228	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	74.28
C229	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.02
C230	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.70
C234	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.16
C235	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	68.23
C236	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.21
C237	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.78
C243	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	45.13
C244	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	157.73
C246	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.68
C247	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	76.25
C251	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	122.33
C253	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	98.41
C254	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.38
C257	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	11.37
C263	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	26.43
C264	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	92.79
C266	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	45.12
C269	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	79.42
C274	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.44
C275	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	79.54
C276	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	90.05
C280	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.69
C284	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.36
C287	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.44

C290	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	107.45
C293	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.07
C296	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	136.64
C300	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	94.64
C302	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.96
C305	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	94.18
C306	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	81.17
C310	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	119.71
C312	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	38.96
C315	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.50
C316	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	31.99
C329	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	88.13
C334	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	67.97
C337	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.41
C340	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	26.62
C348	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	53.03
C35	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.08
C351	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.20
C355	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	161.39
C356	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.10
C357	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	111.92
C358	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	65.41
C359	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	151.82
C36	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	71.17
C364	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.21
C365	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	55.60
C366	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.76
C368	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	36.17
C370	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.51
C38	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.08
C382	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.38
C395	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	44.52
C40	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.06
C403	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	163.54
C408	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.73
C41	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.33
C418	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	17.38
C42	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.17
C420	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.86
C423	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.45
C424	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.88
C433	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.30
C434	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.83
C439	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	38.96
C440	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.55
C441	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	32.79

C443	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.74
C445	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	71.02
C447	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	28.28
C455	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	135.57
C456	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	127.01
C457	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.54
C46	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.14
C462	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.38
C464	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.68
C467	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	296.90
C468	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.47
C469	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	42.38
C470	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	28.13
C475	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	27.42
C48	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	120.93
C49	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	29.92
C494	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	124.38
C496	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	135.88
C497	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	59.75
C501	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	271.24
C509	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	86.28
C51	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.54
C521	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	112.08
C524	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	108.50
C528	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.72
C540	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	67.94
C542	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.01
C551	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.77
C562	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.95
C567	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	122.64
C568	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	123.71
C569	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.05
C57	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	77.10
C571	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	78.66
C573	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	166.99
C574	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.55
C575	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.59
C578	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	141.08
C584	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	184.65
C588	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	53.20
C590	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.33
C596	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	39.31
C599	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	29.86
C608	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	97.01
C613	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	175.68
C62	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	35.64

C621	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	364.06
C624	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.28
C628	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.50
C630	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	24.56
C631	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	65.35
C632	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	126.63
C644	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.47
C647	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	126.61
C661	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	84.42
C662	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	72.74
C663	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	217.22
C665	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.24
C669	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	159.94
C677	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.10
C679	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	44.59
C68	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	41.91
C683	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.28
C685	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	146.50
C686	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	13.10
C687	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.08
C69	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	78.78
C690	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.16
C691	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	18.23
C694	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.31
C699	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	41.50
C700	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	75.15
C701	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.47
C702	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	96.06
C703	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	95.38
C704	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	75.48
C705	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.53
C706	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	32.32
C708	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	87.15
C709	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	169.54
C710	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.52
C711	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.95
C712	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.30
C714	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	61.88
C717	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	72.67
C719	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.41
C72	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.68
C720	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.87
C721	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.44
C723	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.73
C725	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.52
C726	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.34

C73	TRAPEZOIDAL	3.00	45.00	1.62	27.00	1	473.36
C731	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.07
C732	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	55.71
C734	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.48
C735	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	59.17
C76	TRAPEZOIDAL	3.00	45.00	1.62	27.00	1	88.37
C78	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.85
C81	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.84
C83	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.37
C85	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.15
C91	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	40.04
C95	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.94
C96	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	25.16
C99	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.28

****
Transect Summary
****

Transect Transect
Area:

0.0010	0.0040	0.0089	0.0159	0.0246
0.0348	0.0466	0.0598	0.0746	0.0909
0.1081	0.1256	0.1433	0.1614	0.1797
0.1983	0.2172	0.2364	0.2558	0.2756
0.2956	0.3159	0.3365	0.3574	0.3786
0.4000	0.4217	0.4437	0.4661	0.4886
0.5115	0.5347	0.5581	0.5818	0.6058
0.6301	0.6547	0.6795	0.7047	0.7301
0.7558	0.7818	0.8081	0.8347	0.8615
0.8886	0.9161	0.9437	0.9717	1.0000

Hrad:

0.0208	0.0415	0.0623	0.0830	0.1075
0.1308	0.1534	0.1755	0.1972	0.2187
0.2512	0.2822	0.3119	0.3403	0.3676
0.3939	0.4193	0.4438	0.4675	0.4905
0.5128	0.5345	0.5557	0.5762	0.5963
0.6159	0.6351	0.6539	0.6723	0.6903
0.7080	0.7254	0.7425	0.7593	0.7758
0.7921	0.8081	0.8240	0.8396	0.8550
0.8702	0.8853	0.9001	0.9148	0.9294
0.9438	0.9580	0.9722	0.9861	1.0000

Width:

0.0700	0.1400	0.2100	0.2800	0.3333

```
            0.3867     0.4400     0.4933     0.5467     0.6000
            0.6100     0.6200     0.6300     0.6400     0.6500
            0.6600     0.6700     0.6800     0.6900     0.7000
            0.7100     0.7200     0.7300     0.7400     0.7500
            0.7600     0.7700     0.7800     0.7900     0.8000
            0.8100     0.8200     0.8300     0.8400     0.8500
            0.8600     0.8700     0.8800     0.8900     0.9000
            0.9100     0.9200     0.9300     0.9400     0.9500
            0.9600     0.9700     0.9800     0.9900     1.0000


**********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
**********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 04/19/2018 00:00:00
Ending Date .............. 04/20/2018 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 2
Head Tolerance ........... 0.001500 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m           mm
```

**************************	---------	-------
Total Precipitation	400.248	100.800
Evaporation Loss	0.000	0.000
Infiltration Loss	155.147	39.073
Surface Runoff	215.123	54.177
Final Storage	30.150	7.593
Continuity Error (%)	-0.043	

**************************	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
**************************	---------	---------
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	215.218	2152.203
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	210.489	2104.907
Flooding Loss	1.467	14.671
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.005
Final Stored Volume	3.454	34.545
Continuity Error (%)	-0.089	

****
Highest Continuity Errors
****
Node J906 (8.10%)
Node J1469 (3.43%)
Node J176 (3.12%)
Node J1431 (1.13%)
Node J395 (1.13%)

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
Link C542 (3)

Link C102 (1)
Link C105 (1)

****
Routing Time Step Summary
****

Minimum Time Step	:	4.50 sec
Average Time Step	:	5.00 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.00
Percent Not Converging	:	0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	100.80	0.00	0.00	40.77	56.83	3.97	0.43	0.564
S107	100.80	0.00	0.00	60.74	32.40	37.95	1.23	0.321
S112	100.80	0.00	0.00	21.94	77.88	15.85	4.43	0.773
S156	100.80	0.00	0.00	56.75	39.07	13.20	1.30	0.388
S169	100.80	0.00	0.00	33.95	60.96	19.61	2.55	0.605
S181	100.80	0.00	0.00	26.43	73.50	3.90	1.41	0.729
S189	100.80	0.00	0.00	57.91	38.39	38.09	3.07	0.381
S192	100.80	0.00	0.00	35.74	64.06	7.70	2.27	0.635
S199	100.80	0.00	0.00	17.98	81.97	2.71	0.96	0.813
S2	100.80	0.00	0.00	27.53	65.08	96.77	15.31	0.646
S210	100.80	0.00	0.00	30.13	68.47	21.04	4.82	0.679
S218	100.80	0.00	0.00	32.13	67.51	17.85	4.38	0.670
S225	100.80	0.00	0.00	31.10	68.55	20.67	5.13	0.680
S228	100.80	0.00	0.00	32.45	65.79	22.83	4.98	0.653
S231	100.80	0.00	0.00	33.16	64.16	17.80	3.67	0.636
S232	100.80	0.00	0.00	41.39	56.23	53.18	11.19	0.558
S235	100.80	0.00	0.00	28.44	69.87	14.34	3.22	0.693
S236	100.80	0.00	0.00	18.79	81.05	9.84	2.83	0.804
S237	100.80	607.14	0.00	20.45	682.05	93.41	13.05	0.963
S238	100.80	0.00	0.00	38.19	56.51	83.05	14.43	0.561
S246	100.80	0.00	0.00	27.62	72.14	14.43	3.65	0.716
S248	100.80	0.00	0.00	47.07	49.72	36.98	7.17	0.493

S251	100.80	0.00	0.00	37.58	58.14	27.40	4.99	0.577
S255	100.80	0.00	0.00	27.31	71.64	10.41	2.53	0.711
S262	100.80	0.00	0.00	39.43	59.42	14.93	3.18	0.589
S264	100.80	0.00	0.00	27.15	72.71	4.48	1.43	0.721
S268	100.80	0.00	0.00	36.85	58.30	34.21	5.71	0.578
S277	100.80	0.00	0.00	41.40	55.44	14.09	2.25	0.550
S28	100.80	0.00	0.00	25.50	72.90	27.56	6.45	0.723
S285	100.80	0.00	0.00	30.91	63.50	29.42	4.37	0.630
S29	100.80	0.00	0.00	23.42	76.34	14.00	3.68	0.757
S293	100.80	0.00	0.00	39.03	55.80	39.49	6.74	0.554
S295	100.80	0.00	0.00	22.17	77.66	6.68	1.94	0.770
S3	100.80	0.00	0.00	22.99	76.38	8.17	2.08	0.758
S30	100.80	0.00	0.00	27.73	72.10	15.44	4.49	0.715
S317	100.80	0.00	0.00	33.83	60.79	20.25	2.62	0.603
S324	100.80	0.00	0.00	42.00	55.10	16.55	2.59	0.547
S325	100.80	0.00	0.00	27.78	72.03	10.93	3.01	0.715
S338	100.80	0.00	0.00	40.37	58.13	6.86	1.25	0.577
S350	100.80	0.00	0.00	37.78	60.53	11.97	2.35	0.600
S363	100.80	0.00	0.00	50.59	42.67	25.90	2.19	0.423
S38	100.80	0.00	0.00	26.63	70.06	36.25	6.95	0.695
S382	100.80	0.00	0.00	48.41	40.78	11.28	0.74	0.405
S390	100.80	0.00	0.00	35.49	60.94	18.97	2.33	0.605
S399	100.80	0.00	0.00	41.80	53.67	18.18	2.96	0.532
S403	100.80	0.00	0.00	46.68	40.40	31.31	2.54	0.401
S406	100.80	0.00	0.00	26.10	72.62	8.98	2.12	0.720
S412	100.80	0.00	0.00	41.90	56.32	10.24	1.70	0.559
S419	100.80	0.00	0.00	33.26	59.25	46.77	5.91	0.588
S420	100.80	0.00	0.00	47.93	46.47	13.53	1.05	0.461
S436	100.80	0.00	0.00	38.54	55.44	15.86	2.48	0.550
S439	100.80	0.00	0.00	43.67	47.90	25.06	3.01	0.475
S448	100.80	0.00	0.00	36.01	49.47	46.70	4.26	0.491
S460	100.80	0.00	0.00	37.17	59.93	11.09	2.05	0.595
S468	100.80	0.00	0.00	19.39	75.71	61.98	10.29	0.751
S481	100.80	0.00	0.00	46.96	50.31	16.96	1.74	0.499
S5	100.80	0.00	0.00	36.28	57.40	11.33	1.29	0.569
S513	100.80	0.00	0.00	22.65	76.13	11.55	2.76	0.755
S516	100.80	0.00	0.00	46.90	39.24	36.58	3.18	0.389
S531	100.80	0.00	0.00	44.79	41.56	48.17	4.90	0.412
S543	100.80	0.00	0.00	44.99	50.22	14.00	1.61	0.498
S547	100.80	0.00	0.00	46.41	46.95	15.42	1.43	0.466
S549	100.80	0.00	0.00	31.39	64.53	14.27	2.60	0.640
S553	100.80	0.00	0.00	22.17	73.83	14.41	2.64	0.732
S56	100.80	0.00	0.00	25.58	74.13	21.07	5.36	0.735
S571	100.80	0.00	0.00	47.84	44.62	45.19	3.61	0.443
S586	100.80	0.00	0.00	20.42	78.36	22.01	5.43	0.777
S604	100.80	0.00	0.00	31.84	58.44	62.83	9.37	0.580

S608	100.80	0.00	0.00	42.90	50.15	15.15	1.39	0.498
S619	100.80	0.00	0.00	23.49	74.87	13.31	3.07	0.743
S62	100.80	0.00	0.00	37.43	60.32	9.90	1.82	0.598
S627	100.80	0.00	0.00	35.31	64.18	16.21	3.88	0.637
S665	100.80	0.00	0.00	20.15	78.18	28.03	6.44	0.776
S678	100.80	0.00	0.00	41.98	55.78	7.97	1.27	0.553
S688	100.80	0.00	0.00	35.29	62.48	6.83	1.23	0.620
S690	100.80	0.00	0.00	44.79	46.61	51.38	5.61	0.462
S692	100.80	0.00	0.00	42.37	46.86	18.23	1.72	0.465
S700	100.80	0.00	0.00	38.64	52.38	25.70	2.68	0.520
S716	100.80	0.00	0.00	16.24	82.33	8.74	1.96	0.817
S74	100.80	0.00	0.00	31.12	64.43	29.34	4.76	0.639
S750	100.80	0.00	0.00	38.64	50.95	37.59	4.54	0.505
S766	100.80	0.00	0.00	39.60	53.42	21.91	2.30	0.530
S768	100.80	0.00	0.00	47.89	41.67	74.11	5.04	0.413
S79	100.80	0.00	0.00	38.41	55.32	28.72	4.19	0.549
S799	100.80	0.00	0.00	43.28	45.19	81.18	6.67	0.448
S8	100.80	0.00	0.00	48.20	46.97	7.12	0.37	0.466
S808	100.80	0.00	0.00	41.73	43.62	69.96	5.28	0.433
S857	100.80	0.00	0.00	15.99	83.93	2.41	0.81	0.833
S92	100.80	0.00	0.00	23.00	76.86	6.61	2.06	0.763

****
Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.02	0.19	113.82	0 05:57	0.19
J1010	JUNCTION	0.23	0.60	111.02	0 06:12	0.60
J1026	JUNCTION	0.28	0.69	108.64	0 06:13	0.69
J1033	JUNCTION	0.13	0.50	139.03	0 06:00	0.50
J1037	JUNCTION	0.25	1.05	104.05	0 06:01	1.05
J1055	JUNCTION	0.13	0.47	171.97	0 06:00	0.47
J1061	JUNCTION	0.16	0.67	131.56	0 06:06	0.67
J1085	JUNCTION	0.22	0.66	90.34	0 06:13	0.66
J1087	JUNCTION	0.00	0.00	146.14	0 00:00	0.00
J1097	JUNCTION	0.25	0.68	104.94	0 06:07	0.68
J1099	JUNCTION	0.16	0.44	171.90	0 06:00	0.44
J1115	JUNCTION	0.31	0.84	161.63	0 05:57	0.84
J1117	JUNCTION	0.13	0.51	189.64	0 05:55	0.50
J1146	JUNCTION	0.00	0.00	122.34	0 00:00	0.00

J1151	JUNCTION	0.14	0.41	186.17	0	05:55	0.41
J1163	JUNCTION	0.00	0.00	189.10	0	00:00	0.00
J1171	JUNCTION	0.15	0.66	150.39	0	06:00	0.66
J1180	JUNCTION	0.19	0.54	190.49	0	05:54	0.54
J1187	JUNCTION	0.14	0.41	181.99	0	06:03	0.41
J12	JUNCTION	0.26	1.20	83.85	0	06:02	1.20
J1203	JUNCTION	0.00	0.00	138.41	0	00:00	0.00
J1222	JUNCTION	0.21	0.58	174.89	0	05:56	0.58
J1226	JUNCTION	0.15	0.46	157.62	0	06:01	0.46
J1232	JUNCTION	0.00	0.00	149.74	0	00:00	0.00
J1251	JUNCTION	0.00	0.00	169.15	0	00:00	0.00
J1261	JUNCTION	0.21	0.61	190.15	0	06:00	0.61
J1271	JUNCTION	0.21	0.57	135.67	0	06:06	0.57
J1335	JUNCTION	0.29	0.77	190.82	0	05:57	0.77
J1362	JUNCTION	0.23	0.64	192.86	0	05:55	0.64
J1426	JUNCTION	0.08	0.30	105.51	0	05:58	0.30
J1427	JUNCTION	0.13	0.44	138.47	0	06:07	0.44
J1431	JUNCTION	0.43	1.43	85.55	0	06:51	1.43
J1433	JUNCTION	0.33	1.38	85.13	0	06:03	1.38
J1441	JUNCTION	0.07	0.27	109.37	0	06:02	0.27
J1444	JUNCTION	0.22	0.45	97.91	0	07:37	0.45
J1448	JUNCTION	0.20	0.77	93.11	0	06:05	0.77
J1455	JUNCTION	0.60	1.35	86.28	0	06:20	1.35
J1456	JUNCTION	0.37	1.19	91.67	0	06:21	1.19
J1458	JUNCTION	0.56	1.25	84.55	0	06:00	1.25
J1460	JUNCTION	0.08	0.55	114.35	0	06:01	0.55
J1461	JUNCTION	0.17	0.60	141.03	0	06:04	0.60
J1469	JUNCTION	0.77	1.72	91.06	0	06:07	1.72
J1486	JUNCTION	0.23	1.04	104.06	0	06:04	1.04
J1489	JUNCTION	0.10	0.55	98.57	0	06:00	0.55
J1498	JUNCTION	0.69	1.80	91.56	0	06:19	1.80
J150	JUNCTION	0.19	0.41	99.69	0	06:00	0.41
J1500	JUNCTION	0.60	1.55	88.18	0	06:25	1.55
J1501	JUNCTION	0.13	0.52	105.52	0	05:58	0.52
J1506	JUNCTION	0.22	0.61	109.24	0	06:06	0.61
J1507	JUNCTION	0.29	0.67	140.88	0	06:06	0.67
J1510	JUNCTION	0.49	1.20	84.42	0	06:50	1.20
J1511	JUNCTION	0.56	1.30	91.85	0	06:16	1.30
J1513	JUNCTION	0.21	1.00	91.99	0	06:02	0.99
J1520	JUNCTION	0.28	1.14	96.36	0	06:11	1.14
J1528	JUNCTION	0.28	1.14	87.70	0	06:02	1.14
J1534	JUNCTION	0.28	0.58	85.79	0	06:35	0.58
J1542	JUNCTION	0.25	1.17	83.13	0	06:05	1.17
J1543	JUNCTION	0.16	0.57	93.56	0	06:07	0.57
J1551	JUNCTION	0.72	2.14	84.58	0	06:16	2.14
J1553	JUNCTION	0.61	1.40	87.78	0	06:01	1.40

J1554	JUNCTION	0.13	0.42	98.29	0	06:05	0.42
J1557	JUNCTION	0.25	0.57	93.12	0	06:08	0.57
J1562	JUNCTION	0.12	0.27	97.55	0	07:56	0.27
J1566	JUNCTION	0.14	0.83	87.29	0	06:02	0.83
J1567	JUNCTION	0.16	0.69	87.49	0	06:04	0.69
J1568	JUNCTION	0.12	0.54	123.07	0	06:01	0.54
J1571	JUNCTION	0.30	0.81	107.24	0	06:13	0.81
J1574	JUNCTION	0.94	2.00	93.47	0	06:05	2.00
J1575	JUNCTION	0.21	0.97	86.17	0	06:11	0.97
J1577	JUNCTION	0.19	0.88	84.46	0	06:01	0.88
J1579	JUNCTION	0.15	0.73	90.69	0	06:12	0.73
J1582	JUNCTION	0.32	1.22	88.33	0	06:03	1.22
J1583	JUNCTION	0.25	1.04	79.81	0	06:10	1.04
J1586	JUNCTION	0.17	0.52	91.17	0	06:19	0.52
J1587	JUNCTION	0.35	0.97	100.80	0	06:15	0.97
J1589	JUNCTION	0.14	0.35	138.30	0	06:09	0.35
J1590	JUNCTION	0.15	0.62	115.82	0	06:02	0.62
J1592	JUNCTION	0.15	0.43	132.76	0	06:08	0.43
J1595	JUNCTION	0.23	0.61	103.67	0	06:11	0.61
J1596	JUNCTION	0.23	0.99	82.70	0	06:04	0.99
J1597	JUNCTION	0.20	0.90	83.36	0	06:04	0.90
J1599	JUNCTION	0.52	1.17	90.23	0	06:18	1.17
J1600	JUNCTION	0.51	1.49	90.77	0	06:23	1.49
J1602	JUNCTION	0.20	0.53	89.98	0	06:11	0.53
J1606	JUNCTION	0.17	0.47	96.74	0	06:12	0.47
J1609	JUNCTION	0.17	0.74	80.35	0	06:06	0.74
J1610	JUNCTION	0.24	0.67	89.85	0	06:25	0.67
J1616	JUNCTION	0.25	0.71	84.63	0	06:25	0.71
J1618	JUNCTION	0.19	0.49	113.97	0	06:13	0.49
J1621	JUNCTION	0.19	0.90	99.41	0	06:05	0.89
J1624	JUNCTION	0.38	0.83	111.32	0	06:11	0.83
J1626	JUNCTION	0.26	1.16	85.02	0	06:14	1.16
J1629	JUNCTION	0.50	1.05	108.87	0	06:13	1.05
J1631	JUNCTION	0.65	1.64	79.31	0	06:23	1.64
J1632	JUNCTION	0.46	1.46	97.59	0	06:07	1.45
J1634	JUNCTION	0.18	0.48	86.27	0	06:03	0.48
J1636	JUNCTION	0.31	0.76	94.68	0	06:19	0.76
J1638	JUNCTION	0.17	0.55	83.70	0	06:01	0.55
J1639	JUNCTION	0.18	0.50	93.43	0	06:14	0.50
J1641	JUNCTION	0.29	0.72	102.43	0	06:16	0.72
J1645	JUNCTION	0.13	0.38	90.95	0	06:11	0.38
J1647	JUNCTION	0.42	1.11	99.72	0	06:14	1.11
J1648	JUNCTION	0.95	2.12	85.54	0	06:48	2.12
J1649	JUNCTION	0.85	1.89	90.08	0	06:18	1.89
J1650	JUNCTION	0.25	0.72	91.12	0	06:17	0.72
J1651	JUNCTION	0.26	0.57	84.97	0	06:40	0.57

J1653	JUNCTION	0.24	0.69	100.11	0	06:15	0.69
J1656	JUNCTION	0.48	1.48	95.90	0	06:13	1.48
J1657	JUNCTION	0.55	1.29	83.62	0	06:51	1.29
J1658	JUNCTION	0.43	1.26	89.22	0	06:28	1.26
J1659	JUNCTION	0.26	1.34	84.62	0	06:15	1.34
J1662	JUNCTION	0.15	0.74	83.56	0	06:16	0.74
J1664	JUNCTION	0.44	1.21	93.04	0	06:06	1.21
J1670	JUNCTION	0.51	1.34	89.43	0	06:19	1.34
J1674	JUNCTION	0.33	0.93	85.72	0	06:21	0.93
J1676	JUNCTION	0.53	1.23	80.99	0	06:53	1.23
J1678	JUNCTION	0.75	1.77	83.53	0	06:32	1.77
J1680	JUNCTION	0.40	1.05	78.20	0	06:34	1.05
J176	JUNCTION	0.71	1.11	97.71	0	07:53	1.11
J187	JUNCTION	0.16	0.51	98.82	0	06:01	0.51
J197	JUNCTION	0.00	0.00	93.12	0	00:00	0.00
J208	JUNCTION	0.11	0.38	103.35	0	05:59	0.38
J237	JUNCTION	0.18	0.85	81.27	0	06:03	0.85
J239	JUNCTION	0.09	0.65	88.06	0	06:01	0.65
J24	JUNCTION	0.25	1.20	84.30	0	06:02	1.20
J246	JUNCTION	0.00	0.00	91.08	0	00:00	0.00
J250	JUNCTION	0.16	0.94	84.63	0	06:03	0.94
J264	JUNCTION	0.06	0.21	193.68	0	05:57	0.21
J270	JUNCTION	0.20	0.59	82.78	0	06:25	0.59
J275	JUNCTION	0.00	0.00	89.87	0	00:00	0.00
J287	JUNCTION	0.19	0.59	196.33	0	05:56	0.59
J296	JUNCTION	0.63	1.08	98.44	0	06:03	1.08
J30	JUNCTION	0.20	0.99	85.52	0	06:00	0.98
J304	JUNCTION	0.14	0.80	91.62	0	06:02	0.80
J307	JUNCTION	0.10	0.67	93.38	0	06:00	0.67
J324	JUNCTION	0.14	0.79	92.68	0	06:00	0.79
J332	JUNCTION	0.67	1.69	84.90	0	06:27	1.69
J335	JUNCTION	0.24	0.95	84.91	0	06:09	0.95
J351	JUNCTION	0.22	0.97	86.72	0	06:00	0.97
J353	JUNCTION	0.08	0.84	91.06	0	06:08	0.84
J357	JUNCTION	0.65	1.65	85.46	0	06:27	1.65
J380	JUNCTION	0.21	0.98	96.08	0	06:10	0.98
J382	JUNCTION	0.00	0.00	100.68	0	00:00	0.00
J386	JUNCTION	0.63	1.14	85.44	0	06:09	1.14
J393	JUNCTION	0.00	0.00	86.61	0	00:00	0.00
J395	JUNCTION	0.44	1.21	85.00	0	06:08	1.21
J408	JUNCTION	0.28	1.07	89.00	0	06:05	1.07
J414	JUNCTION	0.78	1.47	84.90	0	06:23	1.47
J416	JUNCTION	0.13	0.67	102.88	0	06:00	0.67
J418	JUNCTION	0.00	0.00	86.05	0	00:00	0.00
J42	JUNCTION	0.20	0.62	78.04	0	06:02	0.62
J424	JUNCTION	0.49	1.32	89.64	0	06:20	1.32

J437	JUNCTION	0.19	0.99	101.53	0	06:02	0.99
J442	JUNCTION	0.19	0.99	99.75	0	06:04	0.99
J460	JUNCTION	0.10	0.55	173.14	0	06:00	0.55
J462	JUNCTION	0.07	0.36	113.25	0	06:00	0.36
J464	JUNCTION	0.19	0.86	87.65	0	06:01	0.86
J470	JUNCTION	0.05	0.19	150.76	0	05:56	0.19
J476	JUNCTION	0.65	1.59	90.53	0	06:19	1.59
J478	JUNCTION	0.07	0.39	170.43	0	06:01	0.39
J480	JUNCTION	0.50	1.39	86.28	0	06:32	1.39
J488	JUNCTION	0.27	0.57	87.57	0	06:01	0.57
J497	JUNCTION	0.06	0.21	168.43	0	05:55	0.21
J502	JUNCTION	0.10	0.34	176.99	0	05:54	0.34
J509	JUNCTION	0.56	1.26	91.74	0	06:10	1.26
J511	JUNCTION	0.00	0.00	89.61	0	00:00	0.00
J513	JUNCTION	0.10	0.33	175.34	0	05:55	0.33
J52	JUNCTION	0.98	1.58	86.57	0	06:02	1.58
J528	JUNCTION	0.00	0.00	87.40	0	00:00	0.00
J530	JUNCTION	0.07	0.34	124.50	0	05:54	0.34
J535	JUNCTION	0.13	0.47	95.68	0	06:03	0.47
J543	JUNCTION	0.07	0.27	94.64	0	06:06	0.27
J547	JUNCTION	0.09	0.53	188.74	0	06:00	0.53
J558	JUNCTION	0.09	0.29	94.94	0	06:05	0.29
J580	JUNCTION	0.00	0.00	90.23	0	00:00	0.00
J582	JUNCTION	0.00	0.00	90.83	0	00:00	0.00
J587	JUNCTION	0.35	1.37	96.01	0	06:06	1.37
J591	JUNCTION	0.09	0.24	89.88	0	06:01	0.24
J596	JUNCTION	0.23	0.56	89.19	0	06:25	0.56
J6	JUNCTION	0.60	1.79	80.34	0	06:09	1.79
J607	JUNCTION	0.21	0.90	95.03	0	06:11	0.90
J630	JUNCTION	0.52	1.42	89.93	0	06:25	1.42
J635	JUNCTION	0.11	0.42	109.86	0	06:00	0.42
J637	JUNCTION	0.21	0.64	94.43	0	06:02	0.64
J641	JUNCTION	0.22	1.01	97.97	0	06:01	1.01
J65	JUNCTION	0.12	0.59	90.75	0	06:00	0.59
J666	JUNCTION	0.35	0.96	100.16	0	06:14	0.96
J669	JUNCTION	0.00	0.00	108.95	0	00:00	0.00
J675	JUNCTION	0.27	0.84	91.38	0	06:22	0.84
J698	JUNCTION	0.38	1.03	99.30	0	06:16	1.03
J706	JUNCTION	0.16	0.42	90.26	0	06:14	0.42
J712	JUNCTION	0.00	0.00	91.99	0	00:00	0.00
J715	JUNCTION	0.75	2.00	96.72	0	06:06	2.00
J731	JUNCTION	0.94	1.77	91.60	0	06:21	1.77
J75	JUNCTION	0.11	0.52	91.42	0	06:00	0.52
J753	JUNCTION	0.20	0.68	95.87	0	05:55	0.68
J757	JUNCTION	0.13	0.39	123.51	0	06:05	0.39
J780	JUNCTION	0.06	0.26	134.12	0	05:56	0.26

J782	JUNCTION	0.15	0.42	110.28	0	06:10	0.42
J787	JUNCTION	0.36	0.78	93.21	0	06:22	0.78
J793	JUNCTION	0.20	0.67	94.06	0	06:01	0.67
J80	JUNCTION	0.26	0.55	87.90	0	07:32	0.55
J801	JUNCTION	0.00	0.00	106.47	0	00:00	0.00
J815	JUNCTION	0.13	0.41	128.75	0	06:03	0.41
J851	JUNCTION	0.27	0.69	106.40	0	06:15	0.69
J857	JUNCTION	0.11	0.68	117.06	0	06:00	0.68
J861	JUNCTION	0.18	0.52	100.17	0	06:04	0.52
J875	JUNCTION	0.69	1.20	114.21	0	06:12	1.20
J879	JUNCTION	0.46	1.04	95.18	0	06:16	1.04
J883	JUNCTION	0.28	0.89	92.11	0	06:06	0.89
J887	JUNCTION	0.19	0.66	97.76	0	05:56	0.66
J889	JUNCTION	0.31	1.25	97.32	0	06:05	1.25
J898	JUNCTION	0.11	0.34	156.60	0	06:01	0.34
J906	JUNCTION	0.38	1.26	96.37	0	06:11	1.26
J908	JUNCTION	0.29	1.18	97.88	0	06:04	1.18
J921	JUNCTION	0.31	0.78	96.05	0	06:14	0.78
J934	JUNCTION	0.00	0.00	96.55	0	00:00	0.00
J942	JUNCTION	0.22	0.58	112.58	0	06:10	0.58
J947	JUNCTION	0.19	0.78	132.89	0	06:02	0.78
J954	JUNCTION	0.00	0.00	153.74	0	00:00	0.00
J957	JUNCTION	0.13	0.51	130.52	0	06:01	0.51
J963	JUNCTION	0.12	0.40	109.71	0	05:55	0.40
J967	JUNCTION	0.22	0.58	116.79	0	06:09	0.58
J973	JUNCTION	0.15	0.52	145.81	0	06:02	0.52
J977	JUNCTION	0.00	0.00	126.43	0	00:00	0.00
J979	JUNCTION	0.00	0.00	97.57	0	00:00	0.00
J981	JUNCTION	0.12	0.46	132.60	0	06:00	0.46
J985	JUNCTION	0.12	0.39	190.39	0	05:56	0.39
J1601	OUTFALL	0.18	0.85	75.33	0	06:03	0.85
J1617	OUTFALL	0.23	0.99	76.27	0	06:04	0.99
J1623	OUTFALL	0.16	0.74	75.72	0	06:06	0.74
J1642	OUTFALL	0.20	0.62	74.88	0	06:02	0.62
J1663	OUTFALL	0.15	0.74	75.52	0	06:16	0.74
J1677	OUTFALL	0.48	1.35	76.11	0	06:24	1.35
J1679	OUTFALL	0.50	1.23	75.87	0	06:54	1.23
J1682	OUTFALL	0.40	1.05	76.03	0	06:34	1.05
J2	OUTFALL	0.21	1.02	77.16	0	06:10	1.02

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.814	0.814	0	05:54	2.41	2.41	-0.879	
J1010	JUNCTION	0.000	5.508	0	06:11	0	91.1	0.046	
J1026	JUNCTION	2.676	6.603	0	06:12	25.7	117	0.039	
J1033	JUNCTION	4.542	4.542	0	06:00	37.6	37.6	0.039	
J1037	JUNCTION	15.312	15.312	0	06:00	96.8	96.8	0.003	
J1055	JUNCTION	0.000	5.535	0	05:56	0	51.4	0.137	
J1061	JUNCTION	0.000	8.917	0	06:02	0	62.7	-0.101	
J1085	JUNCTION	0.000	4.141	0	06:08	0	47.9	0.362	
J1087	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1097	JUNCTION	0.000	5.379	0	06:06	0	80.7	0.105	
J1099	JUNCTION	0.000	4.904	0	05:57	0	74	0.077	
J1115	JUNCTION	6.674	6.674	0	05:54	81.2	81.2	0.145	
J1117	JUNCTION	5.609	5.609	0	05:54	51.4	51.4	0.034	
J1146	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1151	JUNCTION	0.000	5.006	0	05:54	0	74.1	0.042	
J1163	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1171	JUNCTION	9.372	9.372	0	06:00	62.9	62.9	0.048	
J1180	JUNCTION	5.036	5.036	0	05:54	74.1	74.1	0.026	
J1187	JUNCTION	0.000	5.059	0	06:01	0	69.8	0.191	
J12	JUNCTION	0.000	15.804	0	06:02	0	93.1	-0.002	
J1203	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1222	JUNCTION	0.000	4.944	0	05:55	0	74.1	0.061	
J1226	JUNCTION	0.000	6.367	0	05:58	0	81.1	0.152	
J1232	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1251	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1261	JUNCTION	0.000	5.099	0	05:57	0	69.8	0.125	
J1271	JUNCTION	0.000	4.822	0	06:03	0	69.6	0.279	
J1335	JUNCTION	0.000	5.186	0	05:55	0	69.9	0.126	
J1362	JUNCTION	5.276	5.276	0	05:54	70	70	0.050	
J1426	JUNCTION	1.434	1.434	0	05:54	15.4	15.4	0.066	
J1427	JUNCTION	0.000	4.981	0	06:05	0	51.2	0.101	
J1431	JUNCTION	0.000	5.557	0	06:25	0	76.2	1.147	
J1433	JUNCTION	0.000	11.403	0	06:00	0	65.6	0.171	
J1441	JUNCTION	0.000	1.537	0	05:58	0	14	0.205	
J1444	JUNCTION	0.000	1.247	0	06:03	0	37.9	0.092	
J1448	JUNCTION	0.000	9.725	0	06:00	0	68.3	0.379	
J1455	JUNCTION	0.000	20.417	0	06:17	0	300	0.301	
J1456	JUNCTION	0.000	13.115	0	06:14	0	96.5	0.731	
J1458	JUNCTION	3.681	9.244	0	06:00	14	122	0.060	
J1460	JUNCTION	0.000	6.403	0	06:00	0	28.1	-0.094	
J1461	JUNCTION	0.000	5.111	0	06:02	0	51.2	0.140	

J1469	JUNCTION	0.000	10.468	0	06:00	0	51.8	3.556
J1486	JUNCTION	3.074	16.974	0	06:00	13.3	96.9	0.208
J1489	JUNCTION	3.014	5.699	0	05:57	10.9	29.1	0.040
J1498	JUNCTION	0.000	27.767	0	06:06	0	389	0.267
J150	JUNCTION	1.228	1.228	0	07:24	38	38	0.031
J1500	JUNCTION	0.000	29.841	0	06:20	0	453	0.149
J1501	JUNCTION	3.177	5.163	0	05:56	14.9	40.8	-0.021
J1506	JUNCTION	0.000	6.101	0	06:01	0	81	0.333
J1507	JUNCTION	0.000	4.677	0	06:00	0	74	0.502
J1510	JUNCTION	0.000	19.010	0	06:48	0	348	0.175
J1511	JUNCTION	1.695	5.496	0	06:06	10.2	64.5	0.894
J1513	JUNCTION	2.079	9.436	0	06:00	8.17	44	0.108
J1520	JUNCTION	0.000	13.887	0	06:05	0	97.9	-0.041
J1528	JUNCTION	4.426	17.663	0	06:01	15.9	123	0.025
J1534	JUNCTION	0.000	2.596	0	06:30	0	67	0.379
J1542	JUNCTION	0.000	15.806	0	06:02	0	93.1	-0.075
J1543	JUNCTION	0.000	3.773	0	06:04	0	38.9	0.074
J1551	JUNCTION	0.000	21.024	0	06:13	0	149	0.397
J1553	JUNCTION	1.817	5.878	0	05:56	9.9	38.6	1.053
J1554	JUNCTION	0.000	2.778	0	06:03	0	37.9	-0.001
J1557	JUNCTION	1.299	3.526	0	06:02	13.2	87.8	0.092
J1562	JUNCTION	0.000	1.223	0	07:52	0	36.7	0.201
J1566	JUNCTION	2.833	12.342	0	06:01	9.85	58.2	0.011
J1567	JUNCTION	0.000	5.421	0	06:01	0	38.2	0.203
J1568	JUNCTION	1.964	6.441	0	06:00	8.74	46.3	0.076
J1571	JUNCTION	3.877	10.177	0	06:08	16.2	148	0.232
J1574	JUNCTION	0.000	36.741	0	06:12	0	358	0.399
J1575	JUNCTION	4.380	17.630	0	06:11	17.9	121	-0.001
J1577	JUNCTION	4.488	8.554	0	06:00	15.5	53.6	-0.006
J1579	JUNCTION	0.000	15.843	0	06:10	0	103	0.075
J1582	JUNCTION	4.817	14.091	0	06:02	21.1	107	0.022
J1583	JUNCTION	0.433	15.149	0	06:09	3.97	108	0.037
J1586	JUNCTION	1.255	4.840	0	06:16	6.86	70.8	0.074
J1587	JUNCTION	0.000	13.771	0	06:07	0	179	0.409
J1589	JUNCTION	0.000	3.885	0	06:07	0	73.6	0.112
J1590	JUNCTION	1.227	7.399	0	06:00	6.84	53.1	0.094
J1592	JUNCTION	0.000	4.535	0	06:07	0	69.4	0.127
J1595	JUNCTION	0.000	5.311	0	06:07	0	80.6	0.174
J1596	JUNCTION	2.064	18.879	0	06:02	6.61	129	0.056
J1597	JUNCTION	0.000	8.295	0	06:02	0	53.6	0.027
J1599	JUNCTION	0.000	3.865	0	06:13	0	47.7	0.738
J1600	JUNCTION	0.000	16.921	0	06:22	0	209	0.081
J1602	JUNCTION	0.000	2.016	0	06:14	0	36.1	0.069
J1606	JUNCTION	2.048	3.616	0	06:09	11.1	56	0.084
J1609	JUNCTION	0.368	8.452	0	06:04	7.12	60.7	0.119
J1610	JUNCTION	1.741	4.539	0	06:19	17	64.3	-0.018

J1616	JUNCTION	0.000	5.455	0	06:23	0	84.2	0.092	
J1618	JUNCTION	0.000	4.181	0	06:12	0	80.9	0.094	
J1621	JUNCTION	0.000	15.618	0	06:04	0	96.7	0.041	
J1624	JUNCTION	0.000	5.517	0	06:10	0	91.1	0.055	
J1626	JUNCTION	0.000	17.625	0	06:11	0	121	0.046	
J1629	JUNCTION	0.000	5.497	0	06:12	0	91	0.150	
J1631	JUNCTION	4.975	27.899	0	06:21	22.8	416	0.128	
J1632	JUNCTION	5.435	29.999	0	06:07	22	297	0.036	
J1634	JUNCTION	0.000	5.902	0	06:02	0	108	0.016	
J1636	JUNCTION	0.000	5.452	0	06:17	0	98.3	0.131	
J1638	JUNCTION	0.000	9.244	0	06:01	0	122	0.015	
J1639	JUNCTION	0.000	3.505	0	06:12	0	55.9	0.076	
J1641	JUNCTION	0.000	6.558	0	06:15	0	116	0.112	
J1645	JUNCTION	0.000	4.565	0	06:10	0	71.6	0.024	
J1647	JUNCTION	0.000	11.111	0	06:14	0	162	0.033	
J1648	JUNCTION	0.000	18.185	0	06:38	0	311	0.612	
J1649	JUNCTION	0.000	17.452	0	06:16	0	254	0.106	
J1650	JUNCTION	2.124	12.985	0	06:15	8.99	182	0.069	
J1651	JUNCTION	0.000	3.348	0	06:37	0	82.8	0.171	
J1653	JUNCTION	0.000	13.443	0	06:15	0	178	0.012	
J1656	JUNCTION	0.000	28.424	0	06:07	0	296	0.073	
J1657	JUNCTION	0.000	22.121	0	06:50	0	430	0.097	
J1658	JUNCTION	0.000	17.662	0	06:25	0	223	0.094	
J1659	JUNCTION	0.000	17.344	0	06:14	0	121	0.007	
J1662	JUNCTION	1.406	21.006	0	06:16	3.91	153	0.010	
J1664	JUNCTION	0.000	24.493	0	06:05	0	342	0.014	
J1670	JUNCTION	2.332	29.846	0	06:19	19	453	0.025	
J1674	JUNCTION	0.000	20.315	0	06:20	0	299	0.025	
J1676	JUNCTION	3.218	22.694	0	06:51	14.3	444	0.086	
J1678	JUNCTION	0.000	31.949	0	06:27	0	502	0.208	
J1680	JUNCTION	2.547	32.670	0	06:32	19.6	520	0.062	
J176	JUNCTION	0.000	1.226	0	07:37	0	37.9	3.226	
J187	JUNCTION	0.000	2.876	0	05:59	0	38.1	0.015	
J197	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J208	JUNCTION	0.000	2.928	0	05:57	0	38.1	0.023	
J237	JUNCTION	13.053	25.857	0	06:03	93.4	154	0.017	
J239	JUNCTION	2.270	7.036	0	06:00	7.71	28.4	-0.287	
J24	JUNCTION	6.455	16.169	0	06:00	27.6	93.1	-0.011	
J246	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J250	JUNCTION	0.963	12.907	0	06:01	2.71	60.9	0.011	
J264	JUNCTION	0.000	2.951	0	05:56	0	38.1	0.015	
J270	JUNCTION	2.529	6.146	0	06:23	10.4	94.6	0.011	
J275	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J287	JUNCTION	3.072	3.072	0	05:54	38.1	38.1	0.031	
J296	JUNCTION	0.000	2.841	0	06:01	0	38.1	0.476	
J30	JUNCTION	6.953	11.597	0	06:00	36.3	65.6	0.031	

J304	JUNCTION	1.434	10.001	0	06:01	4.49	48.4	0.027	
J307	JUNCTION	5.129	5.129	0	06:00	20.7	20.7	-0.102	
J324	JUNCTION	1.940	7.476	0	06:00	6.69	35.8	0.016	
J332	JUNCTION	4.369	31.975	0	06:26	29.4	502	0.041	
J335	JUNCTION	0.000	4.697	0	06:05	0	39.2	-0.281	
J351	JUNCTION	5.708	5.708	0	06:00	34.2	34.2	-0.392	
J353	JUNCTION	3.650	3.650	0	06:00	14.4	14.4	-0.044	
J357	JUNCTION	2.622	30.575	0	06:25	20.3	473	0.074	
J380	JUNCTION	0.000	10.290	0	06:06	0	53.3	0.247	
J382	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J386	JUNCTION	2.593	3.804	0	06:00	16.6	83.3	0.550	
J393	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J395	JUNCTION	0.000	6.332	0	06:01	0	39.6	1.145	
J408	JUNCTION	3.669	10.771	0	06:02	17.8	85.9	0.069	
J414	JUNCTION	2.250	5.574	0	06:19	14.1	84.9	0.736	
J416	JUNCTION	7.173	7.173	0	06:00	37	37	-0.466	
J418	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J42	JUNCTION	0.000	9.222	0	06:01	0	122	0.012	
J424	JUNCTION	2.353	18.230	0	06:17	12	266	0.128	
J437	JUNCTION	0.000	11.081	0	06:00	0	53.3	0.095	
J442	JUNCTION	0.000	10.562	0	06:02	0	53.2	-0.094	
J460	JUNCTION	4.995	4.995	0	06:00	27.4	27.4	-0.002	
J462	JUNCTION	0.000	2.961	0	05:55	0	18.2	0.086	
J464	JUNCTION	6.743	6.743	0	06:00	39.5	39.5	-0.252	
J470	JUNCTION	0.000	2.147	0	05:56	0	25.9	0.031	
J476	JUNCTION	5.908	28.650	0	06:18	46.8	435	0.062	
J478	JUNCTION	0.000	4.987	0	06:00	0	27.4	-0.183	
J480	JUNCTION	1.045	18.028	0	06:28	13.5	236	0.115	
J488	JUNCTION	2.537	2.739	0	05:54	31.3	67.2	0.279	
J497	JUNCTION	0.000	2.152	0	05:55	0	25.9	0.026	
J502	JUNCTION	2.191	2.191	0	05:54	25.9	25.9	0.009	
J509	JUNCTION	2.475	4.864	0	06:00	15.9	71.8	0.251	
J511	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J513	JUNCTION	0.000	2.188	0	05:54	0	25.9	0.036	
J52	JUNCTION	5.357	6.401	0	06:00	21.1	109	0.780	
J528	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J530	JUNCTION	2.962	2.962	0	05:54	18.2	18.2	0.006	
J535	JUNCTION	0.000	2.884	0	06:00	0	25.1	0.321	
J543	JUNCTION	0.000	1.341	0	06:03	0	14	0.151	
J547	JUNCTION	11.192	11.192	0	06:00	53.2	53.2	-0.090	
J558	JUNCTION	0.000	1.329	0	06:00	0	15.4	0.228	
J580	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J582	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J587	JUNCTION	0.000	9.835	0	06:01	0	62	0.233	
J591	JUNCTION	0.742	0.742	0	05:54	11.3	11.3	-0.073	
J596	JUNCTION	0.000	2.093	0	06:16	0	36.1	0.689	

J6	JUNCTION	1.289	15.928	0	06:04	11.3	104	0.451	
J607	JUNCTION	0.000	9.016	0	06:07	0	61.9	0.042	
J630	JUNCTION	2.598	17.732	0	06:23	14.3	223	0.080	
J635	JUNCTION	3.006	3.006	0	05:54	25.1	25.1	0.045	
J637	JUNCTION	0.000	4.311	0	05:57	0	46.7	0.006	
J641	JUNCTION	10.293	10.293	0	06:00	62	62	-0.059	
J65	JUNCTION	4.757	4.757	0	05:54	29.4	29.4	0.031	
J666	JUNCTION	2.645	11.195	0	06:12	14.4	162	0.087	
J669	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J675	JUNCTION	0.000	16.935	0	06:21	0	209	0.032	
J698	JUNCTION	2.761	12.320	0	06:13	11.6	174	0.151	
J706	JUNCTION	0.000	2.351	0	06:05	0	36.4	0.682	
J712	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J715	JUNCTION	0.000	29.775	0	06:07	0	297	0.093	
J731	JUNCTION	0.000	11.082	0	06:20	0	95.9	0.319	
J75	JUNCTION	4.192	4.192	0	05:54	28.7	28.7	-0.037	
J753	JUNCTION	4.262	4.262	0	05:54	46.7	46.7	0.027	
J757	JUNCTION	0.000	3.145	0	06:04	0	45	0.062	
J780	JUNCTION	1.608	1.608	0	05:54	14	14	0.002	
J782	JUNCTION	0.000	3.144	0	06:06	0	45	0.299	
J787	JUNCTION	1.388	6.010	0	06:19	15.2	113	0.183	
J793	JUNCTION	0.000	4.960	0	05:59	0	48.1	0.230	
J80	JUNCTION	0.000	3.216	0	06:10	0	87.7	0.273	
J801	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J815	JUNCTION	0.000	3.220	0	06:02	0	45.1	0.113	
J851	JUNCTION	0.000	6.600	0	06:13	0	117	0.091	
J857	JUNCTION	6.437	6.437	0	06:00	28.1	28.1	-0.012	
J861	JUNCTION	0.000	3.120	0	05:55	0	36.6	0.476	
J875	JUNCTION	1.273	4.393	0	06:08	7.98	81.5	0.681	
J879	JUNCTION	0.000	5.522	0	06:14	0	98.5	0.186	
J883	JUNCTION	0.000	4.642	0	06:01	0	48	0.352	
J887	JUNCTION	4.896	4.896	0	05:54	48.2	48.2	0.066	
J889	JUNCTION	0.000	13.854	0	06:04	0	96.6	0.007	
J898	JUNCTION	0.000	3.441	0	05:57	0	45.2	0.176	
J906	JUNCTION	0.000	1.413	0	06:01	0	1.44	8.814	
J908	JUNCTION	0.000	14.666	0	06:01	0	96.8	0.197	
J921	JUNCTION	1.724	5.838	0	06:10	18.2	98.7	0.214	
J934	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J942	JUNCTION	0.000	5.540	0	06:09	0	91.2	0.060	
J947	JUNCTION	0.000	9.137	0	06:00	0	62.8	0.144	
J954	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J957	JUNCTION	0.000	4.518	0	06:00	0	37.6	0.088	
J963	JUNCTION	3.180	3.180	0	05:54	36.6	36.6	0.043	
J967	JUNCTION	2.301	5.600	0	06:08	21.9	91.3	0.105	
J973	JUNCTION	0.000	5.279	0	06:00	0	51.3	0.145	
J977	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr

J979	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J981	JUNCTION	0.000	4.527	0	06:00	0	37.6	0.061	
J985	JUNCTION	3.605	3.605	0	05:54	45.2	45.2	0.057	
J1601	OUTFALL	0.000	25.850	0	06:03	0	154	0.000	
J1617	OUTFALL	0.000	18.625	0	06:04	0	129	0.000	
J1623	OUTFALL	0.000	8.250	0	06:06	0	60.7	0.000	
J1642	OUTFALL	0.000	9.219	0	06:02	0	122	0.000	
J1663	OUTFALL	0.000	20.998	0	06:16	0	153	0.000	
J1677	OUTFALL	0.000	27.810	0	06:24	0	415	0.000	
J1679	OUTFALL	0.000	22.669	0	06:54	0	443	0.000	
J1682	OUTFALL	0.000	32.646	0	06:34	0	520	0.000	
J2	OUTFALL	0.000	15.101	0	06:10	0	108	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J1574	JUNCTION	0.50	0.000	0.000
J1648	JUNCTION	0.52	0.120	0.380
J246	JUNCTION	24.00	0.000	2.000
J715	JUNCTION	0.12	0.000	0.000
J801	JUNCTION	24.00	0.000	2.000
J977	JUNCTION	24.00	0.000	2.000

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days	hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
J1574	0.49	12.492	0	06:12	14.270	0.000
J715	0.11	1.352	0	06:07	0.401	0.000

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
J1601	99.41	1.797	25.850	154.331
J1617	98.87	1.512	18.625	129.196
J1623	97.39	0.721	8.250	60.656
J1642	97.18	1.448	9.219	121.574
J1663	99.37	1.776	20.998	152.504
J1677	98.85	4.865	27.810	415.467
J1679	98.77	5.195	22.669	443.340
J1682	99.13	6.071	32.646	519.891
J2	97.85	1.277	15.101	107.939
System	98.54	24.662	144.370	2104.898

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.763	0	05:57	0.37	0.01	0.30
C102	CONDUIT	12.988	0	06:16	2.10	0.09	0.53
C105	CONDUIT	13.443	0	06:15	3.04	0.20	0.42
C106	CONDUIT	16.898	0	06:24	1.48	0.49	0.73
C109	CONDUIT	3.348	0	06:37	0.74	0.29	0.43
C110	CONDUIT	16.921	0	06:22	2.19	0.14	0.58
C111	CONDUIT	12.190	0	06:16	2.55	0.19	0.44
C112	CONDUIT	4.565	0	06:11	0.66	0.03	0.57
C113	CONDUIT	11.106	0	06:15	1.66	0.26	0.53
C117	CONDUIT	6.510	0	06:16	1.44	0.10	0.42
C119	CONDUIT	4.549	0	07:07	0.32	0.13	0.86
C120	CONDUIT	11.111	0	06:14	1.74	0.18	0.52
C123	CONDUIT	4.565	0	06:10	1.06	0.33	0.41
C125	CONDUIT	0.000	0	00:00	0.00	0.00	0.29

C126	CONDUIT	5.895	0	06:22	1.38	0.12	0.41
C134	CONDUIT	3.485	0	06:14	0.72	0.04	0.44
C136	CONDUIT	9.219	0	06:02	3.36	0.07	0.31
C142	CONDUIT	9.222	0	06:01	3.67	0.05	0.29
C143	CONDUIT	5.400	0	06:19	1.40	0.11	0.38
C144	CONDUIT	2.596	0	06:30	1.14	0.05	0.28
C145	CONDUIT	3.505	0	06:12	1.84	0.04	0.24
C147	CONDUIT	6.600	0	06:13	2.02	0.09	0.34
C148	CONDUIT	9.244	0	06:01	1.85	0.46	0.45
C150	CONDUIT	5.467	0	06:13	1.14	0.15	0.44
C151	CONDUIT	5.452	0	06:17	1.09	0.22	0.45
C154	CONDUIT	5.899	0	06:03	1.27	0.04	0.43
C155	CONDUIT	9.635	0	06:13	1.96	0.13	0.44
C162	CONDUIT	15.513	0	06:05	2.00	0.16	0.59
C163	CONDUIT	5.497	0	06:12	1.26	0.06	0.41
C168	CONDUIT	5.508	0	06:11	1.59	0.20	0.36
C172	CONDUIT	5.522	0	06:14	1.09	0.11	0.45
C174	CONDUIT	5.517	0	06:10	1.62	0.06	0.35
C177	CONDUIT	8.250	0	06:06	2.24	0.10	0.37
C178	CONDUIT	5.444	0	06:25	1.81	0.09	0.33
C181	CONDUIT	4.155	0	06:13	1.38	0.04	0.33
C183	CONDUIT	4.162	0	06:25	1.14	0.08	0.50
C187	CONDUIT	4.181	0	06:12	0.92	0.07	0.42
C190	CONDUIT	18.625	0	06:04	3.17	0.19	0.49
C192	CONDUIT	5.540	0	06:09	2.22	0.06	0.29
C193	CONDUIT	5.455	0	06:23	0.79	0.15	0.55
C2	CONDUIT	15.101	0	06:10	2.40	0.22	0.51
C211	CONDUIT	3.520	0	06:19	0.69	0.28	0.45
C212	CONDUIT	8.122	0	06:04	1.91	0.14	0.41
C219	CONDUIT	2.093	0	06:16	1.03	0.05	0.26
C223	CONDUIT	2.016	0	06:14	1.11	0.03	0.24
C224	CONDUIT	25.850	0	06:03	5.65	0.14	0.42
C226	CONDUIT	3.865	0	06:13	0.82	0.08	0.45
C227	CONDUIT	4.795	0	06:19	0.82	0.05	0.49
C228	CONDUIT	5.077	0	06:11	1.58	0.07	0.35
C229	CONDUIT	4.471	0	06:08	2.21	0.03	0.25
C230	CONDUIT	8.295	0	06:02	1.69	0.15	0.44
C234	CONDUIT	7.178	0	06:02	1.66	0.07	0.41
C235	CONDUIT	17.455	0	06:03	2.63	0.26	0.53
C236	CONDUIT	11.082	0	06:20	0.95	0.22	0.74
C237	CONDUIT	5.311	0	06:07	1.87	0.08	0.32
C243	CONDUIT	14.019	0	06:03	1.77	0.31	0.59
C244	CONDUIT	15.614	0	06:12	3.42	0.10	0.42
C246	CONDUIT	4.535	0	06:07	2.28	0.05	0.25
C247	CONDUIT	12.823	0	06:03	2.58	0.17	0.45
C251	CONDUIT	6.342	0	06:01	2.59	0.05	0.29

C253	CONDUIT	8.096	0	06:06	2.14	0.08	0.40
C254	CONDUIT	3.144	0	06:06	2.34	0.03	0.20
C257	CONDUIT	4.356	0	06:17	0.86	0.38	0.45
C263	CONDUIT	14.773	0	06:09	1.37	0.56	0.71
C264	CONDUIT	12.237	0	06:02	2.51	0.13	0.44
C266	CONDUIT	10.487	0	06:05	1.41	0.23	0.57
C269	CONDUIT	8.917	0	06:02	2.65	0.11	0.36
C274	CONDUIT	7.198	0	06:07	0.89	0.21	0.61
C275	CONDUIT	5.379	0	06:06	1.86	0.07	0.32
C276	CONDUIT	1.222	0	07:56	0.85	0.01	0.20
C280	CONDUIT	5.152	0	06:04	1.30	0.09	0.39
C284	CONDUIT	8.842	0	06:11	1.92	0.16	0.43
C287	CONDUIT	0.000	0	00:00	0.00	0.00	0.17
C290	CONDUIT	3.145	0	06:04	2.20	0.03	0.20
C293	CONDUIT	8.603	0	06:11	0.76	0.16	0.73
C296	CONDUIT	4.789	0	06:07	1.78	0.04	0.31
C300	CONDUIT	4.496	0	06:01	2.12	0.05	0.26
C302	CONDUIT	5.421	0	06:01	0.85	0.16	0.52
C305	CONDUIT	1.257	0	06:06	0.82	0.01	0.21
C306	CONDUIT	9.932	0	06:02	2.31	0.12	0.41
C310	CONDUIT	4.518	0	06:00	2.42	0.04	0.24
C312	CONDUIT	8.993	0	06:02	1.79	0.23	0.45
C315	CONDUIT	4.981	0	06:05	2.40	0.06	0.26
C316	CONDUIT	1.223	0	07:52	0.37	0.04	0.34
C329	CONDUIT	2.743	0	06:05	1.43	0.03	0.25
C334	CONDUIT	2.778	0	06:03	0.75	0.04	0.37
C337	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C340	CONDUIT	9.016	0	06:07	1.25	0.34	0.56
C348	CONDUIT	15.189	0	06:05	1.36	0.29	0.74
C35	CONDUIT	31.751	0	06:33	2.94	0.66	0.71
C351	CONDUIT	5.111	0	06:02	2.22	0.05	0.28
C355	CONDUIT	4.822	0	06:03	2.69	0.03	0.24
C356	CONDUIT	4.527	0	06:00	2.44	0.04	0.24
C357	CONDUIT	9.137	0	06:00	2.62	0.08	0.36
C358	CONDUIT	2.570	0	06:03	1.35	0.04	0.26
C359	CONDUIT	3.220	0	06:02	2.52	0.02	0.19
C36	CONDUIT	22.669	0	06:54	2.66	0.32	0.61
C364	CONDUIT	13.115	0	06:14	1.82	0.26	0.57
C365	CONDUIT	10.290	0	06:06	1.91	0.19	0.48
C366	CONDUIT	15.806	0	06:02	2.02	0.30	0.59
C368	CONDUIT	4.141	0	06:08	1.09	0.11	0.38
C370	CONDUIT	1.226	0	07:37	0.54	0.04	0.39
C38	CONDUIT	31.949	0	06:27	2.11	0.66	0.86
C382	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C395	CONDUIT	13.887	0	06:05	1.87	0.31	0.59
C40	CONDUIT	30.538	0	06:27	2.11	0.64	0.84

C403	CONDUIT	6.101	0	06:01	3.12	0.04	0.26
C408	CONDUIT	4.947	0	05:58	2.02	0.05	0.31
C41	CONDUIT	27.810	0	06:24	2.33	0.56	0.75
C418	CONDUIT	1.413	0	06:01	0.28	0.08	0.60
C42	CONDUIT	22.097	0	06:52	2.49	0.35	0.63
C420	CONDUIT	10.562	0	06:02	1.82	0.19	0.49
C423	CONDUIT	6.844	0	06:00	0.96	0.08	0.58
C424	CONDUIT	13.854	0	06:04	1.67	0.29	0.61
C433	CONDUIT	1.341	0	06:03	1.67	0.01	0.13
C434	CONDUIT	9.835	0	06:01	1.33	0.21	0.59
C439	CONDUIT	0.000	0	00:00	0.00	0.00	0.25
C440	CONDUIT	4.642	0	06:01	1.35	0.08	0.38
C441	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C443	CONDUIT	5.059	0	06:01	2.55	0.06	0.25
C445	CONDUIT	1.088	0	06:05	0.33	0.02	0.39
C447	CONDUIT	4.631	0	06:12	0.94	0.16	0.46
C455	CONDUIT	4.677	0	06:00	2.37	0.03	0.27
C456	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C457	CONDUIT	0.000	0	00:00	0.00	0.00	0.31
C46	CONDUIT	18.857	0	06:50	2.18	0.30	0.62
C462	CONDUIT	5.069	0	06:00	1.66	0.08	0.33
C464	CONDUIT	2.841	0	06:01	0.70	0.05	0.40
C467	CONDUIT	2.135	0	05:56	1.78	0.01	0.18
C468	CONDUIT	5.099	0	05:57	1.61	0.11	0.34
C469	CONDUIT	0.000	0	00:00	0.00	0.00	0.39
C470	CONDUIT	4.697	0	06:05	0.77	0.17	0.54
C475	CONDUIT	10.707	0	06:03	1.17	0.39	0.64
C48	CONDUIT	20.312	0	06:21	2.23	0.17	0.64
C49	CONDUIT	20.315	0	06:20	2.72	0.68	0.57
C494	CONDUIT	2.867	0	06:00	1.65	0.02	0.23
C496	CONDUIT	5.279	0	06:00	2.82	0.04	0.25
C497	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C501	CONDUIT	2.147	0	05:56	3.84	0.01	0.10
C509	CONDUIT	4.904	0	05:57	2.46	0.06	0.25
C51	CONDUIT	29.591	0	06:25	2.20	0.54	0.80
C521	CONDUIT	2.876	0	05:59	1.77	0.03	0.22
C524	CONDUIT	3.120	0	05:55	2.16	0.03	0.22
C528	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C540	CONDUIT	5.186	0	05:55	1.57	0.08	0.35
C542	CONDUIT	3.678	0	05:59	0.67	0.04	0.64
C551	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C562	CONDUIT	6.367	0	05:58	2.20	0.12	0.32
C567	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C568	CONDUIT	2.152	0	05:55	2.59	0.02	0.13
C569	CONDUIT	2.884	0	06:00	1.88	0.03	0.22
C57	CONDUIT	29.841	0	06:20	2.76	0.39	0.72

C571	CONDUIT	6.403	0	06:00	2.34	0.08	0.31
C573	CONDUIT	4.944	0	05:55	2.56	0.03	0.25
C574	CONDUIT	3.441	0	05:57	2.88	0.03	0.18
C575	CONDUIT	4.960	0	05:59	1.71	0.08	0.33
C578	CONDUIT	2.961	0	05:55	2.61	0.02	0.17
C584	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C588	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C590	CONDUIT	2.188	0	05:54	1.96	0.02	0.17
C596	CONDUIT	0.000	0	00:00	0.00	0.00	0.30
C599	CONDUIT	5.509	0	06:00	0.90	0.18	0.54
C608	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C613	CONDUIT	4.824	0	06:01	2.24	0.03	0.28
C62	CONDUIT	26.398	0	06:20	1.78	0.74	0.85
C621	CONDUIT	2.928	0	05:57	3.28	0.01	0.15
C624	CONDUIT	1.247	0	06:03	0.94	0.03	0.21
C628	CONDUIT	5.006	0	05:54	2.74	0.05	0.24
C630	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C631	CONDUIT	14.666	0	06:01	2.13	0.22	0.55
C632	CONDUIT	1.537	0	05:58	2.09	0.01	0.13
C644	CONDUIT	4.987	0	06:00	2.84	0.05	0.23
C647	CONDUIT	5.535	0	05:56	3.05	0.04	0.24
C661	CONDUIT	1.329	0	06:00	1.56	0.02	0.14
C662	CONDUIT	4.646	0	06:00	1.16	0.06	0.39
C663	CONDUIT	11.081	0	06:00	3.20	0.05	0.38
C665	CONDUIT	0.577	0	06:02	0.59	0.01	0.40
C669	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C677	CONDUIT	0.000	0	00:00	0.00	0.00	0.08
C679	CONDUIT	6.332	0	06:01	1.14	0.14	0.50
C68	CONDUIT	17.596	0	06:32	1.31	0.42	0.84
C683	CONDUIT	2.951	0	05:56	2.06	0.05	0.20
C685	CONDUIT	32.646	0	06:34	5.01	0.22	0.53
C686	CONDUIT	16.961	0	06:48	1.27	1.29	0.80
C687	CONDUIT	28.636	0	06:19	2.49	0.58	0.73
C69	CONDUIT	24.292	0	06:06	2.34	0.31	0.75
C690	CONDUIT	18.088	0	06:20	1.84	0.38	0.67
C691	CONDUIT	17.414	0	06:18	1.29	0.96	0.80
C694	CONDUIT	12.939	0	06:17	1.37	0.10	0.65
C699	CONDUIT	2.558	0	06:35	0.54	0.06	0.43
C700	CONDUIT	6.558	0	06:15	1.94	0.09	0.35
C701	CONDUIT	5.902	0	06:02	0.94	0.09	0.52
C702	CONDUIT	6.138	0	06:25	0.97	0.06	0.56
C703	CONDUIT	17.625	0	06:11	2.71	0.18	0.53
C704	CONDUIT	15.618	0	06:04	2.77	0.21	0.48
C705	CONDUIT	3.109	0	07:32	0.54	0.05	0.52
C706	CONDUIT	1.782	0	06:26	0.77	0.06	0.28
C708	CONDUIT	2.730	0	06:10	1.62	0.03	0.22

C709	CONDUIT	3.808	0	06:09	0.98	0.02	0.39
C710	CONDUIT	11.052	0	06:21	1.17	0.10	0.65
C711	CONDUIT	3.216	0	06:10	1.49	0.05	0.27
C712	CONDUIT	3.885	0	06:07	1.90	0.07	0.25
C714	CONDUIT	3.598	0	06:07	0.75	0.06	0.46
C717	CONDUIT	8.041	0	06:05	1.54	0.11	0.46
C719	CONDUIT	7.387	0	06:00	1.52	0.12	0.45
C72	CONDUIT	24.493	0	06:05	1.82	0.45	0.80
C720	CONDUIT	4.165	0	06:00	0.81	0.05	0.48
C721	CONDUIT	6.649	0	06:01	0.82	0.08	0.65
C723	CONDUIT	15.804	0	06:02	1.94	0.30	0.60
C725	CONDUIT	5.621	0	06:00	1.79	0.06	0.34
C726	CONDUIT	2.351	0	06:05	1.43	0.04	0.23
C73	CONDUIT	20.998	0	06:16	4.71	0.04	0.25
C731	CONDUIT	3.763	0	06:02	0.74	0.08	0.58
C732	CONDUIT	4.311	0	05:57	1.60	0.08	0.32
C734	CONDUIT	6.306	0	06:01	1.73	0.05	0.39
C735	CONDUIT	11.403	0	06:00	1.56	0.19	0.59
C76	CONDUIT	20.696	0	06:16	1.64	0.23	0.48
C78	CONDUIT	17.280	0	06:15	1.20	0.27	0.83
C81	CONDUIT	17.344	0	06:14	2.00	0.28	0.62
C83	CONDUIT	28.156	0	06:13	1.80	0.49	0.87
C85	CONDUIT	17.476	0	06:28	1.88	0.34	0.66
C91	CONDUIT	17.662	0	06:25	1.81	0.44	0.67
C95	CONDUIT	3.340	0	06:40	0.95	0.06	0.46
C96	CONDUIT	28.424	0	06:07	1.86	1.13	0.87
C99	CONDUIT	29.775	0	06:07	1.93	0.47	0.86

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C102	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C105	1.00	0.04	0.00	0.00	0.18	0.78	0.00	0.00	0.00	0.00
C106	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.65	0.00
C109	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C110	1.00	0.01	0.00	0.00	0.96	0.02	0.00	0.00	0.94	0.00
C111	1.00	0.00	0.00	0.00	0.68	0.32	0.00	0.00	0.01	0.00
C112	1.00	0.01	0.04	0.00	0.95	0.00	0.00	0.00	0.95	0.00

C113	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.10	0.00
C117	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C119	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.50	0.00
C120	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C123	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.00	0.00
C125	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C126	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15	0.00
C134	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	1.00	0.00
C136	1.00	0.01	0.00	0.00	0.04	0.95	0.00	0.00	0.03	0.00
C142	1.00	0.01	0.00	0.00	0.01	0.98	0.00	0.00	0.96	0.00
C143	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.95	0.00
C144	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
C145	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.89	0.00
C147	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C148	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C150	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C151	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C154	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.87	0.00
C155	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C162	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C163	1.00	0.01	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C168	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C172	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C174	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.96	0.00
C177	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.03	0.00
C178	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.03	0.00
C181	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.87	0.00
C183	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
C187	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.00	0.00
C190	1.00	0.00	0.00	0.00	0.37	0.62	0.00	0.00	0.47	0.00
C192	1.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.74	0.00
C193	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C211	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C212	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C219	1.00	0.05	0.00	0.00	0.95	0.00	0.00	0.00	0.84	0.00
C223	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.91	0.00
C224	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.02	0.00
C226	1.00	0.02	0.03	0.00	0.95	0.00	0.00	0.00	0.92	0.00
C227	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C228	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.94	0.00
C229	1.00	0.00	0.05	0.00	0.20	0.75	0.00	0.00	0.95	0.00
C230	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C234	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C235	1.00	0.00	0.00	0.00	0.97	0.02	0.00	0.00	0.00	0.00
C236	1.00	0.01	0.05	0.00	0.94	0.00	0.00	0.00	0.06	0.00

C237	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C243	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C244	1.00	0.00	0.06	0.00	0.10	0.84	0.00	0.00	0.94	0.00
C246	1.00	0.04	0.00	0.00	0.16	0.80	0.00	0.00	0.00	0.00
C247	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.76	0.00
C251	1.00	0.00	0.00	0.00	0.10	0.90	0.00	0.00	1.00	0.00
C253	1.00	0.02	0.00	0.00	0.94	0.04	0.00	0.00	0.92	0.00
C254	1.00	0.02	0.00	0.00	0.41	0.57	0.00	0.00	0.89	0.00
C257	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.08	0.00
C263	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07	0.00
C264	1.00	0.00	0.00	0.00	0.96	0.04	0.00	0.00	0.96	0.00
C266	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C269	1.00	0.01	0.00	0.00	0.84	0.15	0.00	0.00	0.01	0.00
C274	1.00	0.01	0.05	0.00	0.94	0.00	0.00	0.00	0.08	0.00
C275	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.92	0.00
C276	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.74	0.00
C280	1.00	0.00	0.09	0.00	0.91	0.00	0.00	0.00	0.91	0.00
C284	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C287	1.00	0.03	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C290	1.00	0.02	0.00	0.00	0.10	0.88	0.00	0.00	0.01	0.00
C293	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.94	0.00
C296	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C300	1.00	0.00	0.01	0.00	0.39	0.59	0.00	0.00	0.24	0.00
C302	1.00	0.00	0.09	0.00	0.91	0.00	0.00	0.00	0.00	0.00
C305	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C306	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.47	0.00
C310	1.00	0.01	0.00	0.00	0.25	0.74	0.00	0.00	0.95	0.00
C312	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04	0.00
C315	1.00	0.03	0.00	0.00	0.36	0.61	0.00	0.00	0.00	0.00
C316	1.00	0.04	0.22	0.00	0.74	0.00	0.00	0.00	0.00	0.00
C329	1.00	0.00	0.10	0.00	0.90	0.00	0.00	0.00	0.90	0.00
C334	1.00	0.03	0.07	0.00	0.90	0.00	0.00	0.00	0.00	0.00
C337	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C340	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C348	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C35	1.00	0.00	0.01	0.00	0.93	0.05	0.00	0.00	0.04	0.00
C351	1.00	0.02	0.00	0.00	0.73	0.25	0.00	0.00	0.92	0.00
C355	1.00	0.03	0.00	0.00	0.04	0.93	0.00	0.00	0.93	0.00
C356	1.00	0.00	0.00	0.00	0.06	0.94	0.00	0.00	0.00	0.00
C357	1.00	0.00	0.00	0.00	0.63	0.37	0.00	0.00	0.95	0.00
C358	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.91	0.00
C359	1.00	0.00	0.00	0.00	0.02	0.98	0.00	0.00	0.94	0.00
C36	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.02	0.00
C364	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.85	0.00
C365	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.89	0.00
C366	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.75	0.00

C368	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C370	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C38	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C382	1.00	0.02	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C395	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.04	0.00
C40	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C403	1.00	0.01	0.00	0.00	0.01	0.98	0.00	0.00	0.94	0.00
C408	1.00	0.00	0.00	0.00	0.95	0.05	0.00	0.00	0.94	0.00
C41	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C418	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C42	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.19	0.00
C420	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.72	0.00
C423	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C424	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C433	1.00	0.01	0.00	0.00	0.75	0.24	0.00	0.00	0.84	0.00
C434	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C439	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C440	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93	0.00
C441	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C443	1.00	0.02	0.00	0.00	0.05	0.93	0.00	0.00	0.00	0.00
C445	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C447	1.00	0.06	0.02	0.00	0.92	0.00	0.00	0.00	0.82	0.00
C455	1.00	0.02	0.00	0.00	0.93	0.06	0.00	0.00	0.94	0.00
C456	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C457	1.00	0.06	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C46	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.93	0.00
C462	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.46	0.00
C464	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C467	1.00	0.00	0.01	0.00	0.23	0.76	0.00	0.00	0.99	0.00
C468	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C469	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C470	1.00	0.01	0.06	0.00	0.92	0.00	0.00	0.00	0.00	0.00
C475	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.04	0.00
C48	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C49	1.00	0.01	0.00	0.00	0.95	0.04	0.00	0.00	0.00	0.00
C494	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.99	0.00
C496	1.00	0.00	0.00	0.00	0.02	0.98	0.00	0.00	0.93	0.00
C497	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C501	1.00	0.01	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00
C509	1.00	0.01	0.00	0.00	0.15	0.84	0.00	0.00	0.00	0.00
C51	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.99	0.00
C521	1.00	0.01	0.00	0.00	0.97	0.03	0.00	0.00	0.95	0.00
C524	1.00	0.00	0.00	0.00	0.93	0.07	0.00	0.00	0.93	0.00
C528	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C540	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C542	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.78	0.00

C551	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C562	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.00	0.00
C567	1.00	0.03	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C568	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.00	0.00
C569	1.00	0.00	0.00	0.00	0.96	0.04	0.00	0.00	0.92	0.00
C57	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.90	0.00
C571	1.00	0.00	0.00	0.00	0.90	0.10	0.00	0.00	0.00	0.00
C573	1.00	0.00	0.00	0.00	0.06	0.94	0.00	0.00	0.97	0.00
C574	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.01	0.00
C575	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C578	1.00	0.00	0.00	0.00	0.06	0.94	0.00	0.00	0.92	0.00
C584	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C588	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C590	1.00	0.00	0.00	0.00	0.42	0.58	0.00	0.00	0.01	0.00
C596	1.00	0.06	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C599	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C608	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C613	1.00	0.01	0.00	0.00	0.93	0.07	0.00	0.00	0.95	0.00
C62	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.10	0.00
C621	1.00	0.01	0.00	0.00	0.01	0.99	0.00	0.00	0.97	0.00
C624	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C628	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.00	0.00
C630	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C631	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C632	1.00	0.00	0.00	0.00	0.45	0.55	0.00	0.00	0.91	0.00
C644	1.00	0.00	0.00	0.00	0.13	0.87	0.00	0.00	0.00	0.00
C647	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.01	0.00
C661	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.87	0.00
C662	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C663	1.00	0.00	0.00	0.00	0.51	0.49	0.00	0.00	0.96	0.00
C665	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C669	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C677	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C679	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C68	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
C683	1.00	0.00	0.00	0.00	0.60	0.40	0.00	0.00	0.00	0.00
C685	1.00	0.00	0.00	0.00	0.03	0.97	0.00	0.00	0.05	0.00
C686	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C687	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.06	0.00
C69	1.00	0.03	0.06	0.00	0.91	0.00	0.00	0.00	0.91	0.00
C690	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C691	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C694	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.97	0.00
C699	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C700	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C701	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.00	0.00

C702	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C703	1.00	0.00	0.00	0.00	0.94	0.06	0.00	0.00	0.93	0.00
C704	1.00	0.00	0.00	0.00	0.85	0.14	0.00	0.00	0.00	0.00
C705	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C706	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.92	0.00
C708	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C709	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.96	0.00
C710	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.07	0.00
C711	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.74	0.00
C712	1.00	0.03	0.00	0.00	0.96	0.01	0.00	0.00	0.00	0.00
C714	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C717	1.00	0.00	0.01	0.00	0.98	0.00	0.00	0.00	0.99	0.00
C719	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C72	1.00	0.04	0.05	0.00	0.91	0.00	0.00	0.00	0.00	0.00
C720	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
C721	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.95	0.00
C723	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C725	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C726	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.03	0.00
C73	1.00	0.00	0.00	0.00	0.02	0.97	0.00	0.00	0.07	0.00
C731	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.90	0.00
C732	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
C734	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C735	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C76	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05	0.00
C78	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.94	0.00
C81	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C83	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C85	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.96	0.00
C91	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C95	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.88	0.00
C96	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C99	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00

****
Conduit Surcharge Summary
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Conduit	Hours Full			Hours Above Full Normal Flow	Hours Capacity Limited
	Both Ends	Upstream	Dnstream		
C119	0.01	0.01	0.52	0.01	0.01
C68	0.01	0.01	0.52	0.01	0.01

C686	0.01	0.52	0.01	0.97	0.01
C721	0.01	0.01	0.36	0.01	0.01
C78	0.01	0.01	0.36	0.01	0.01
C96	0.01	0.01	0.01	0.28	0.01

Analysis begun on: Mon Sep 09 16:28:20 2019
Analysis ended on: Mon Sep 09 16:28:33 2019
Total elapsed time: 00:00:13

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.012)

WARNING 02: maximum depth increased for Node J1551
WARNING 02: maximum depth increased for Node J1662

****
Element Count
****
Number of rain gages 12
Number of subcatchments ... 89
Number of nodes 237
Number of links 225
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
100yr_SCS_100.8mm_12hr	SCS_Type_II_100.8mm_12hr	INTENSITY	6 min.
100yr_SCS_102mm_12hr_Future	100yr_SCS_102mm_12hr_Future	INTENSITY	6 min.
100yr_SCS_Type_II_124.8mm	100yr_SCS_Type_II_124.8mm	VOLUME	6 min.
10yr_SCS_Type_II_86.4mm	10yr_SCS_Type_II_86.4mm	VOLUME	6 min.
25yr_SCS_Type_II_100.8mm	25yr_SCS_Type_II_100.8mm	VOLUME	6 min.
2yr_SCS_Type_II_57.6mm	2yr_SCS_Type_II_57.6mm	VOLUME	6 min.
50yr_SCS_Type_II_112.8mm	50yr_SCS_Type_II_112.8mm	VOLUME	6 min.
5yr_SCS_Type_II_74.4mm	5yr_SCS_Type_II_74.4mm	VOLUME	6 min.
AES_Southern_Ontario_100.8mm	AES_Southern_Ontario_100.8mm	INTENSITY	5 min.
Chicago_24h_NPCA	Chicago_24h_NPCA	INTENSITY	5 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.
SCS_Type_II_81.6mm	SCS_Type_II_81.6mm	INTENSITY	6 min.

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Subcatchment Summary
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Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S1	6.98	163.40	2.80	7.0603	100yr_SCS_100.8mm_12hr	J1583
S107	117.13	474.76	1.00	12.2574	100yr_SCS_100.8mm_12hr	J150
S112	20.35	279.58	59.50	6.1894	100yr_SCS_100.8mm_12hr	J1528

S156	33.79	297.69	18.30	4.6239	100yr_SCS_100.8mm_12hr	J1557
S169	32.17	286.26	16.30	5.2894	100yr_SCS_100.8mm_12hr	J1680
S181	5.31	172.94	57.40	9.6531	100yr_SCS_100.8mm_12hr	J1662
S189	99.21	553.88	5.50	14.9557	100yr_SCS_100.8mm_12hr	J287
S192	12.03	231.00	43.30	7.8634	100yr_SCS_100.8mm_12hr	J239
S199	3.31	111.03	65.50	5.7259	100yr_SCS_100.8mm_12hr	J250
S2	148.70	445.27	41.50	4.1989	100yr_SCS_100.8mm_12hr	J1037
S210	30.72	277.05	44.70	5.6423	100yr_SCS_100.8mm_12hr	J1582
S218	26.43	184.34	51.60	7.0059	100yr_SCS_100.8mm_12hr	J1575
S225	30.16	217.98	51.20	8.4167	100yr_SCS_100.8mm_12hr	J307
S228	34.70	343.92	39.10	6.9075	100yr_SCS_100.8mm_12hr	J1631
S231	27.74	140.22	39.60	8.8874	100yr_SCS_100.8mm_12hr	J408
S232	94.59	384.29	36.50	10.9004	100yr_SCS_100.8mm_12hr	J547
S235	20.52	171.67	44.40	6.3155	100yr_SCS_100.8mm_12hr	J1676
S236	12.14	165.98	64.80	6.7596	100yr_SCS_100.8mm_12hr	J1566
S237	13.70	179.26	62.10	5.5246	100yr_SCS_100.8mm_12hr	J237
S238	146.98	512.78	29.30	10.1735	100yr_SCS_100.8mm_12hr	S237
S246	20.00	141.33	58.10	7.2203	100yr_SCS_100.8mm_12hr	J353
S248	74.36	302.38	28.50	10.2251	100yr_SCS_100.8mm_12hr	J416
S251	47.13	191.35	31.10	9.9638	100yr_SCS_100.8mm_12hr	J460
S255	14.53	192.27	46.30	4.5095	100yr_SCS_100.8mm_12hr	J270
S262	25.13	228.80	27.60	15.4833	100yr_SCS_100.8mm_12hr	J1501
S264	6.17	130.73	48.40	14.7658	100yr_SCS_100.8mm_12hr	J304
S268	58.67	401.39	39.20	4.0989	100yr_SCS_100.8mm_12hr	J351
S277	25.42	310.03	19.10	3.9982	100yr_SCS_100.8mm_12hr	J414
S28	37.80	596.39	39.20	5.0320	100yr_SCS_100.8mm_12hr	J24
S285	46.33	410.26	24.00	3.0002	100yr_SCS_100.8mm_12hr	J332
S29	18.34	148.30	61.50	8.0003	100yr_SCS_100.8mm_12hr	J1458
S293	70.76	403.01	27.60	4.4054	100yr_SCS_100.8mm_12hr	J464
S295	8.60	146.61	58.60	5.4075	100yr_SCS_100.8mm_12hr	J324
S3	10.69	116.35	57.40	4.6419	100yr_SCS_100.8mm_12hr	J1513
S30	21.42	632.34	42.50	5.7228	100yr_SCS_100.8mm_12hr	J1577
S317	33.30	383.72	20.30	2.7675	100yr_SCS_100.8mm_12hr	J357
S324	30.03	431.47	17.90	3.5207	100yr_SCS_100.8mm_12hr	J386
S325	15.17	188.38	48.50	10.6835	100yr_SCS_100.8mm_12hr	J1489
S338	11.80	218.27	20.50	5.1922	100yr_SCS_100.8mm_12hr	J1586
S350	19.78	345.48	24.80	4.3018	100yr_SCS_100.8mm_12hr	J424
S363	60.70	336.76	7.00	7.2491	100yr_SCS_100.8mm_12hr	J502
S38	51.74	415.65	36.50	5.0290	100yr_SCS_100.8mm_12hr	J30
S382	27.67	170.91	5.20	2.7035	100yr_SCS_100.8mm_12hr	J591
S390	31.13	456.00	15.20	5.0369	100yr_SCS_100.8mm_12hr	J1670
S399	33.88	141.93	22.60	13.3202	100yr_SCS_100.8mm_12hr	J530
S403	77.51	402.42	7.30	2.3609	100yr_SCS_100.8mm_12hr	J488
S406	12.37	111.05	48.60	6.5947	100yr_SCS_100.8mm_12hr	J1650
S412	18.17	348.24	17.50	4.3809	100yr_SCS_100.8mm_12hr	J1511
S419	78.93	548.23	18.30	3.4889	100yr_SCS_100.8mm_12hr	J476

S420	29.10	257.53	6.20	4.7751	100yr_SCS_100.8mm_12hr	J480
S436	28.61	187.12	24.10	3.3611	100yr_SCS_100.8mm_12hr	J509
S439	52.31	241.01	14.20	5.5188	100yr_SCS_100.8mm_12hr	J635
S448	94.42	392.17	11.80	3.0859	100yr_SCS_100.8mm_12hr	J753
S460	18.50	219.24	28.30	3.4488	100yr_SCS_100.8mm_12hr	J1606
S468	81.85	282.39	53.30	4.1400	100yr_SCS_100.8mm_12hr	J641
S481	33.72	629.56	8.20	3.5020	100yr_SCS_100.8mm_12hr	J1610
S5	19.73	194.28	13.50	3.0204	100yr_SCS_100.8mm_12hr	J6
S513	15.18	127.59	58.80	5.1803	100yr_SCS_100.8mm_12hr	J698
S516	93.21	268.34	8.10	6.0617	100yr_SCS_100.8mm_12hr	J963
S531	115.90	325.91	11.20	5.7854	100yr_SCS_100.8mm_12hr	J887
S543	27.88	160.01	11.50	12.2416	100yr_SCS_100.8mm_12hr	J780
S547	32.84	256.80	8.60	4.0251	100yr_SCS_100.8mm_12hr	J1426
S549	22.11	152.34	33.30	4.4933	100yr_SCS_100.8mm_12hr	J630
S553	19.52	78.00	54.70	5.1572	100yr_SCS_100.8mm_12hr	J666
S56	28.42	244.41	64.10	5.8030	100yr_SCS_100.8mm_12hr	J52
S571	101.27	520.17	7.40	7.7010	100yr_SCS_100.8mm_12hr	J985
S586	28.09	349.36	54.00	4.3200	100yr_SCS_100.8mm_12hr	J1632
S604	107.52	279.33	32.00	6.7127	100yr_SCS_100.8mm_12hr	J1171
S608	30.22	267.18	8.90	3.2342	100yr_SCS_100.8mm_12hr	J787
S619	17.77	181.05	54.90	5.1827	100yr_SCS_100.8mm_12hr	J1486
S62	16.41	261.21	23.40	3.8965	100yr_SCS_100.8mm_12hr	J1553
S627	25.26	342.87	31.90	17.9537	100yr_SCS_100.8mm_12hr	J1571
S665	35.86	258.92	55.30	5.7976	100yr_SCS_100.8mm_12hr	J857
S678	14.29	128.75	17.30	14.3385	100yr_SCS_100.8mm_12hr	J875
S688	10.94	144.60	55.00	7.8289	100yr_SCS_100.8mm_12hr	J1590
S690	110.23	422.39	11.80	8.6042	100yr_SCS_100.8mm_12hr	J1117
S692	38.91	194.07	10.10	3.8048	100yr_SCS_100.8mm_12hr	J921
S700	49.06	218.02	18.70	7.0470	100yr_SCS_100.8mm_12hr	J1026
S716	10.62	64.33	64.10	5.3014	100yr_SCS_100.8mm_12hr	J1568
S74	45.53	459.53	25.80	3.1994	100yr_SCS_100.8mm_12hr	J65
S750	73.78	227.44	36.00	7.9858	100yr_SCS_100.8mm_12hr	J1033
S766	41.01	202.72	11.60	9.7691	100yr_SCS_100.8mm_12hr	J967
S768	177.87	645.67	5.50	8.4373	100yr_SCS_100.8mm_12hr	J1180
S79	51.92	259.70	21.50	6.4435	100yr_SCS_100.8mm_12hr	J75
S799	179.63	525.93	8.00	10.4756	100yr_SCS_100.8mm_12hr	J1115
S8	15.15	164.79	1.50	5.5536	100yr_SCS_100.8mm_12hr	J1609
S808	160.40	437.97	7.30	7.5190	100yr_SCS_100.8mm_12hr	J1362
S857	2.87	73.04	64.50	6.9626	100yr_SCS_100.8mm_12hr	J1
S92	8.60	178.05	56.90	6.8962	100yr_SCS_100.8mm_12hr	J1596

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Node Summary
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	Invert	Max.	Ponded	External

Name	Type	Elev.	Depth	Area	Inflow
J1	JUNCTION	113.63	2.00	0.0	
J1010	JUNCTION	110.42	2.00	0.0	
J1026	JUNCTION	107.95	2.00	0.0	
J1033	JUNCTION	138.53	2.00	0.0	
J1037	JUNCTION	103.00	2.00	0.0	
J1055	JUNCTION	171.50	2.00	0.0	
J1061	JUNCTION	130.89	2.00	0.0	
J1085	JUNCTION	89.68	2.00	0.0	
J1087	JUNCTION	146.14	2.00	0.0	
J1097	JUNCTION	104.26	2.00	0.0	
J1099	JUNCTION	171.46	2.00	0.0	
J1115	JUNCTION	160.79	2.00	0.0	
J1117	JUNCTION	189.13	2.00	0.0	
J1146	JUNCTION	122.34	2.00	0.0	
J1151	JUNCTION	185.76	2.00	0.0	
J1163	JUNCTION	189.10	2.00	0.0	
J1171	JUNCTION	149.73	2.00	0.0	
J1180	JUNCTION	189.95	2.00	0.0	
J1187	JUNCTION	181.58	2.00	0.0	
J12	JUNCTION	82.65	2.00	0.0	
J1203	JUNCTION	138.41	2.00	0.0	
J1222	JUNCTION	174.31	2.00	0.0	
J1226	JUNCTION	157.16	2.00	0.0	
J1232	JUNCTION	149.74	2.00	0.0	
J1251	JUNCTION	169.15	2.00	0.0	
J1261	JUNCTION	189.54	2.00	0.0	
J1271	JUNCTION	135.10	2.00	0.0	
J1335	JUNCTION	190.05	2.00	0.0	
J1362	JUNCTION	192.22	2.00	0.0	
J1426	JUNCTION	105.21	2.00	0.0	
J1427	JUNCTION	138.03	2.00	0.0	
J1431	JUNCTION	84.12	2.00	0.0	
J1433	JUNCTION	83.75	2.00	0.0	
J1441	JUNCTION	109.10	2.00	0.0	
J1444	JUNCTION	97.46	2.00	0.0	
J1448	JUNCTION	92.34	2.00	0.0	
J1455	JUNCTION	84.93	2.00	0.0	
J1456	JUNCTION	90.47	2.00	0.0	
J1458	JUNCTION	83.30	2.00	0.0	
J1460	JUNCTION	113.80	2.00	0.0	
J1461	JUNCTION	140.43	2.00	0.0	
J1469	JUNCTION	89.34	2.00	0.0	
J1486	JUNCTION	103.02	2.00	0.0	
J1489	JUNCTION	98.02	2.00	0.0	

J1498	JUNCTION	89.76	2.00	0.0
J150	JUNCTION	99.28	2.00	0.0
J1500	JUNCTION	86.63	2.00	0.0
J1501	JUNCTION	105.00	2.00	0.0
J1506	JUNCTION	108.63	2.00	0.0
J1507	JUNCTION	140.21	2.00	0.0
J1510	JUNCTION	83.22	2.50	0.0
J1511	JUNCTION	90.55	2.00	0.0
J1513	JUNCTION	90.99	2.00	0.0
J1520	JUNCTION	95.22	2.00	0.0
J1528	JUNCTION	86.56	2.00	0.0
J1534	JUNCTION	85.21	2.00	0.0
J1542	JUNCTION	81.96	2.00	0.0
J1543	JUNCTION	92.99	2.00	0.0
J1551	JUNCTION	82.44	3.00	0.0
J1553	JUNCTION	86.38	2.00	0.0
J1554	JUNCTION	97.87	2.00	0.0
J1557	JUNCTION	92.55	2.00	0.0
J1562	JUNCTION	97.28	2.00	0.0
J1566	JUNCTION	86.46	2.00	0.0
J1567	JUNCTION	86.80	2.00	0.0
J1568	JUNCTION	122.53	2.00	0.0
J1571	JUNCTION	106.43	2.00	0.0
J1574	JUNCTION	91.47	2.00	0.0
J1575	JUNCTION	85.20	2.00	0.0
J1577	JUNCTION	83.58	2.00	0.0
J1579	JUNCTION	89.96	2.00	0.0
J1582	JUNCTION	87.11	2.00	0.0
J1583	JUNCTION	78.77	2.00	0.0
J1586	JUNCTION	90.65	2.00	0.0
J1587	JUNCTION	99.83	2.00	0.0
J1589	JUNCTION	137.95	2.00	0.0
J1590	JUNCTION	115.20	2.00	0.0
J1592	JUNCTION	132.33	2.00	0.0
J1595	JUNCTION	103.06	2.00	0.0
J1596	JUNCTION	81.71	2.00	0.0
J1597	JUNCTION	82.46	2.00	0.0
J1599	JUNCTION	89.06	2.00	0.0
J1600	JUNCTION	89.28	2.00	0.0
J1602	JUNCTION	89.45	2.00	0.0
J1606	JUNCTION	96.27	2.00	0.0
J1609	JUNCTION	79.61	2.00	0.0
J1610	JUNCTION	89.18	2.00	0.0
J1616	JUNCTION	83.92	2.00	0.0
J1618	JUNCTION	113.48	2.00	0.0
J1621	JUNCTION	98.51	2.00	0.0

J1624	JUNCTION	110.49	2.00	0.0
J1626	JUNCTION	83.86	2.00	0.0
J1629	JUNCTION	107.82	2.00	0.0
J1631	JUNCTION	77.67	2.00	0.0
J1632	JUNCTION	96.13	2.00	0.0
J1634	JUNCTION	85.79	2.00	0.0
J1636	JUNCTION	93.92	2.00	0.0
J1638	JUNCTION	83.15	2.00	0.0
J1639	JUNCTION	92.93	2.00	0.0
J1641	JUNCTION	101.71	2.00	0.0
J1645	JUNCTION	90.57	2.00	0.0
J1647	JUNCTION	98.61	2.00	0.0
J1648	JUNCTION	83.42	2.50	0.0
J1649	JUNCTION	88.19	2.00	0.0
J1650	JUNCTION	90.40	2.00	0.0
J1651	JUNCTION	84.40	2.00	0.0
J1653	JUNCTION	99.42	2.00	0.0
J1656	JUNCTION	94.42	2.00	0.0
J1657	JUNCTION	82.33	2.00	0.0
J1658	JUNCTION	87.96	2.00	0.0
J1659	JUNCTION	83.28	2.00	0.0
J1662	JUNCTION	82.82	3.00	0.0
J1664	JUNCTION	91.83	2.00	0.0
J1670	JUNCTION	88.09	2.00	0.0
J1674	JUNCTION	84.79	2.00	0.0
J1676	JUNCTION	79.76	2.00	0.0
J1678	JUNCTION	81.76	2.00	0.0
J1680	JUNCTION	77.15	2.00	0.0
J176	JUNCTION	96.60	2.00	0.0
J187	JUNCTION	98.31	2.00	0.0
J197	JUNCTION	93.12	2.00	0.0
J208	JUNCTION	102.97	2.00	0.0
J237	JUNCTION	80.42	2.00	0.0
J239	JUNCTION	87.41	2.00	0.0
J24	JUNCTION	83.10	2.00	0.0
J246	JUNCTION	91.08	2.00	0.0
J250	JUNCTION	83.69	2.00	0.0
J264	JUNCTION	193.47	2.00	0.0
J270	JUNCTION	82.19	2.00	0.0
J275	JUNCTION	89.87	2.00	0.0
J287	JUNCTION	195.74	2.00	0.0
J296	JUNCTION	97.36	2.00	0.0
J30	JUNCTION	84.53	2.00	0.0
J304	JUNCTION	90.82	2.00	0.0
J307	JUNCTION	92.71	2.00	0.0
J324	JUNCTION	91.89	2.00	0.0

J332	JUNCTION	83.21	2.00	0.0
J335	JUNCTION	83.96	2.00	0.0
J351	JUNCTION	85.75	2.00	0.0
J353	JUNCTION	90.22	2.00	0.0
J357	JUNCTION	83.81	2.00	0.0
J380	JUNCTION	95.10	2.00	0.0
J382	JUNCTION	100.68	2.00	0.0
J386	JUNCTION	84.30	2.00	0.0
J393	JUNCTION	86.61	2.00	0.0
J395	JUNCTION	83.79	2.00	0.0
J408	JUNCTION	87.93	2.00	0.0
J414	JUNCTION	83.43	2.00	0.0
J416	JUNCTION	102.21	2.00	0.0
J418	JUNCTION	86.05	2.00	0.0
J42	JUNCTION	77.42	2.00	0.0
J424	JUNCTION	88.32	2.00	0.0
J437	JUNCTION	100.54	2.00	0.0
J442	JUNCTION	98.76	2.00	0.0
J460	JUNCTION	172.59	2.00	0.0
J462	JUNCTION	112.89	2.00	0.0
J464	JUNCTION	86.79	2.00	0.0
J470	JUNCTION	150.57	2.00	0.0
J476	JUNCTION	88.94	2.00	0.0
J478	JUNCTION	170.04	2.00	0.0
J480	JUNCTION	84.89	2.00	0.0
J488	JUNCTION	87.00	2.00	0.0
J497	JUNCTION	168.22	2.00	0.0
J502	JUNCTION	176.65	2.00	0.0
J509	JUNCTION	90.48	2.00	0.0
J511	JUNCTION	89.61	2.00	0.0
J513	JUNCTION	175.01	2.00	0.0
J52	JUNCTION	84.99	2.00	0.0
J528	JUNCTION	87.40	2.00	0.0
J530	JUNCTION	124.16	2.00	0.0
J535	JUNCTION	95.21	2.00	0.0
J543	JUNCTION	94.37	2.00	0.0
J547	JUNCTION	188.21	2.00	0.0
J558	JUNCTION	94.65	2.00	0.0
J580	JUNCTION	90.23	2.00	0.0
J582	JUNCTION	90.83	2.00	0.0
J587	JUNCTION	94.64	2.00	0.0
J591	JUNCTION	89.64	2.00	0.0
J596	JUNCTION	88.63	2.00	0.0
J6	JUNCTION	78.55	2.00	0.0
J607	JUNCTION	94.13	2.00	0.0
J630	JUNCTION	88.51	2.00	0.0

J635	JUNCTION	109.44	2.00	0.0
J637	JUNCTION	93.79	2.00	0.0
J641	JUNCTION	96.96	2.00	0.0
J65	JUNCTION	90.16	2.00	0.0
J666	JUNCTION	99.20	2.00	0.0
J669	JUNCTION	108.95	2.00	0.0
J675	JUNCTION	90.54	2.00	0.0
J698	JUNCTION	98.27	2.00	0.0
J706	JUNCTION	89.84	2.00	0.0
J712	JUNCTION	91.99	2.00	0.0
J715	JUNCTION	94.72	2.00	0.0
J731	JUNCTION	89.83	2.00	0.0
J75	JUNCTION	90.90	2.00	0.0
J753	JUNCTION	95.19	2.00	0.0
J757	JUNCTION	123.12	2.00	0.0
J780	JUNCTION	133.86	2.00	0.0
J782	JUNCTION	109.86	2.00	0.0
J787	JUNCTION	92.43	2.00	0.0
J793	JUNCTION	93.39	2.00	0.0
J80	JUNCTION	87.35	2.00	0.0
J801	JUNCTION	106.47	2.00	0.0
J815	JUNCTION	128.34	2.00	0.0
J851	JUNCTION	105.71	2.00	0.0
J857	JUNCTION	116.38	2.00	0.0
J861	JUNCTION	99.65	2.00	0.0
J875	JUNCTION	113.01	2.00	0.0
J879	JUNCTION	94.14	2.00	0.0
J883	JUNCTION	91.22	2.00	0.0
J887	JUNCTION	97.10	2.00	0.0
J889	JUNCTION	96.07	2.00	0.0
J898	JUNCTION	156.26	2.00	0.0
J906	JUNCTION	95.11	2.00	0.0
J908	JUNCTION	96.70	2.00	0.0
J921	JUNCTION	95.27	2.00	0.0
J934	JUNCTION	96.55	2.00	0.0
J942	JUNCTION	112.00	2.00	0.0
J947	JUNCTION	132.11	2.00	0.0
J954	JUNCTION	153.74	2.00	0.0
J957	JUNCTION	130.01	2.00	0.0
J963	JUNCTION	109.31	2.00	0.0
J967	JUNCTION	116.21	2.00	0.0
J973	JUNCTION	145.29	2.00	0.0
J977	JUNCTION	126.43	2.00	0.0
J979	JUNCTION	97.57	2.00	0.0
J981	JUNCTION	132.14	2.00	0.0
J985	JUNCTION	190.00	2.00	0.0

J1601	OUTFALL	74.48	2.00	0.0
J1617	OUTFALL	75.28	2.00	0.0
J1623	OUTFALL	74.98	2.00	0.0
J1642	OUTFALL	74.26	2.00	0.0
J1663	OUTFALL	74.78	3.00	0.0
J1677	OUTFALL	74.76	2.00	0.0
J1679	OUTFALL	74.64	2.00	0.0
J1682	OUTFALL	74.98	2.00	0.0
J2	OUTFALL	76.14	2.00	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	J1486	CONDUIT	399.4	2.6572	0.0300
C102	J1653	J1632	CONDUIT	76.7	4.2916	0.0300
C105	J1587	J1653	CONDUIT	46.2	0.8966	0.0300
C106	J1600	J630	CONDUIT	316.5	0.2433	0.0300
C109	J386	J1651	CONDUIT	362.5	-0.0276	0.0300
C110	J675	J1600	CONDUIT	40.1	3.1437	0.0300
C111	J698	J1650	CONDUIT	926.9	0.8491	0.0300
C112	J1645	J1649	CONDUIT	38.9	6.1244	0.0300
C113	J1647	J698	CONDUIT	89.7	0.3792	0.0300
C117	J1641	J1587	CONDUIT	209.0	0.8978	0.0300
C119	J1431	J1648	CONDUIT	293.6	0.2384	0.0300
C120	J666	J1647	CONDUIT	79.5	0.7426	0.0300
C123	J509	J1645	CONDUIT	228.5	-0.0394	0.0300
C125	J275	J1626	CONDUIT	909.4	0.6609	0.0300
C126	J787	J675	CONDUIT	359.4	0.5260	0.0300
C134	J1639	J509	CONDUIT	200.9	1.2196	0.0300
C136	J42	J1642	CONDUIT	88.4	3.5779	0.0300
C142	J1638	J42	CONDUIT	97.2	5.9029	0.0300
C143	J1636	J787	CONDUIT	298.7	0.4989	0.0300
C144	J488	J1534	CONDUIT	395.0	0.4531	0.0300
C145	J1606	J1639	CONDUIT	216.2	1.5450	0.0300
C147	J1026	J851	CONDUIT	201.1	1.1142	0.0300
C148	J1458	J1638	CONDUIT	187.0	0.0802	0.0300
C150	J1629	J1026	CONDUIT	49.7	-0.2617	0.0300
C151	J879	J1636	CONDUIT	180.6	0.1218	0.0300
C154	J1634	J1458	CONDUIT	61.8	4.0300	0.0300
C155	J1571	J666	CONDUIT	610.0	1.1853	0.0300
C162	J1621	J1632	CONDUIT	118.4	2.0109	0.0300
C163	J1010	J1629	CONDUIT	179.1	1.4521	0.0300
C168	J1624	J1010	CONDUIT	45.7	0.1533	0.0300

C172	J921	J879	CONDUIT	238.8	0.4732	0.0300
C174	J942	J1624	CONDUIT	91.1	1.6573	0.0300
C177	J1609	J1623	CONDUIT	356.0	1.3005	0.0300
C178	J1616	J270	CONDUIT	229.3	0.7544	0.0300
C181	J1618	J1571	CONDUIT	380.3	1.8540	0.0300
C183	J1610	J1431	CONDUIT	982.1	0.5152	0.0300
C187	J875	J1618	CONDUIT	62.6	-0.7507	0.0300
C190	J1596	J1617	CONDUIT	344.4	1.8675	0.0300
C192	J967	J942	CONDUIT	249.8	1.6853	0.0300
C193	J414	J1616	CONDUIT	184.0	-0.2663	0.0300
C2	J1583	J2	CONDUIT	268.0	0.9812	0.0300
C211	J1599	J1610	CONDUIT	370.1	-0.0324	0.0300
C212	J1597	J1609	CONDUIT	432.5	0.6590	0.0300
C219	J1602	J596	CONDUIT	210.9	0.3888	0.0300
C223	J706	J1602	CONDUIT	49.2	0.7926	0.0300
C224	J237	J1601	CONDUIT	83.9	7.0982	0.0300
C226	J1085	J1599	CONDUIT	135.7	0.4570	0.0300
C227	J1586	J414	CONDUIT	358.1	2.0165	0.0300
C228	J1595	J921	CONDUIT	697.0	1.1178	0.0300
C229	J1592	J967	CONDUIT	443.3	3.6390	0.0300
C230	J1577	J1597	CONDUIT	184.7	0.6063	0.0300
C234	J1590	J1486	CONDUIT	565.1	2.1560	0.0300
C235	J1528	J1596	CONDUIT	514.2	0.9433	0.0300
C236	J1456	J731	CONDUIT	125.9	0.5107	0.0300
C237	J1097	J1595	CONDUIT	141.1	0.8503	0.0300
C243	J1582	J1528	CONDUIT	132.5	0.4127	0.0300
C244	J1579	J1575	CONDUIT	94.5	5.0408	0.0300
C246	J1271	J1592	CONDUIT	200.0	1.3850	0.0300
C247	J250	J237	CONDUIT	277.6	1.1779	0.0300
C251	J1568	J1590	CONDUIT	241.9	3.0320	0.0300
C253	J1061	J1587	CONDUIT	1583.0	1.9622	0.0300
C254	J757	J782	CONDUIT	491.8	2.6970	0.0300
C257	J1511	J1586	CONDUIT	382.0	-0.0262	0.0300
C263	J6	J1583	CONDUIT	155.4	-0.1415	0.0300
C264	J1566	J250	CONDUIT	158.8	1.7445	0.0300
C266	J408	J1582	CONDUIT	199.6	0.4124	0.0300
C269	J947	J1061	CONDUIT	95.5	1.2779	0.0300
C274	J1469	J1579	CONDUIT	258.0	-0.2403	0.0300
C275	J1506	J1097	CONDUIT	341.0	1.2817	0.0300
C276	J1562	J1557	CONDUIT	287.9	1.6431	0.0300
C280	J1567	J1577	CONDUIT	461.4	0.6978	0.0300
C284	J380	J1579	CONDUIT	858.7	0.5986	0.0300
C287	J1087	J1507	CONDUIT	263.3	2.2524	0.0300
C290	J815	J757	CONDUIT	223.2	2.3393	0.0300
C293	J607	J1574	CONDUIT	449.1	0.5923	0.0300
C296	J1427	J1571	CONDUIT	835.9	3.7830	0.0300

C300	J957	J1568	CONDUIT	412.3	1.8146	0.0300
C302	J1553	J1567	CONDUIT	179.7	-0.2337	0.0300
C305	J543	J1543	CONDUIT	76.8	1.7973	0.0300
C306	J304	J1566	CONDUIT	326.6	1.3350	0.0300
C310	J981	J957	CONDUIT	73.4	2.9034	0.0300
C312	J1513	J304	CONDUIT	56.3	0.3075	0.0300
C315	J1461	J1427	CONDUIT	174.1	1.3790	0.0300
C316	J176	J1562	CONDUIT	328.1	-0.2073	0.0300
C329	J1554	J1557	CONDUIT	338.1	1.5737	0.0300
C334	J296	J1554	CONDUIT	54.5	-0.9360	0.0300
C337	J1251	J1087	CONDUIT	378.4	6.0925	0.0300
C340	J587	J607	CONDUIT	355.1	0.1436	0.0300
C348	J1542	J6	CONDUIT	598.5	0.5698	0.0300
C35	J1678	J1680	CONDUIT	983.6	0.4684	0.0300
C351	J973	J1461	CONDUIT	225.3	2.1580	0.0300
C355	J1187	J1271	CONDUIT	882.0	5.2771	0.0300
C356	J1033	J981	CONDUIT	285.6	2.2382	0.0300
C357	J1171	J947	CONDUIT	694.5	2.5379	0.0300
C358	J535	J1543	CONDUIT	256.1	0.8668	0.0300
C359	J898	J815	CONDUIT	598.5	4.6701	0.0300
C36	J1676	J1679	CONDUIT	499.0	1.0261	0.0300
C364	J1520	J1456	CONDUIT	929.4	0.5108	0.0300
C365	J442	J380	CONDUIT	584.4	0.6263	0.0300
C366	J12	J1542	CONDUIT	122.5	0.5641	0.0300
C368	J883	J1085	CONDUIT	581.0	0.2651	0.0300
C370	J1444	J176	CONDUIT	378.0	0.2275	0.0300
C38	J332	J1678	CONDUIT	310.3	0.4683	0.0300
C382	J418	J1534	CONDUIT	220.3	0.3813	0.0300
C395	J889	J1520	CONDUIT	211.7	0.4016	0.0300
C40	J357	J332	CONDUIT	128.2	0.4680	0.0300
C403	J1226	J1506	CONDUIT	896.9	5.4188	0.0300
C408	J1501	J1448	CONDUIT	603.9	2.0969	0.0300
C41	J1631	J1677	CONDUIT	590.2	0.4930	0.0300
C418	J906	J1520	CONDUIT	179.6	-0.0612	0.0300
C42	J1657	J1676	CONDUIT	317.8	0.8084	0.0300
C420	J437	J442	CONDUIT	292.0	0.6097	0.0300
C423	J416	J1469	CONDUIT	934.5	1.3773	0.0300
C424	J908	J889	CONDUIT	135.7	0.4644	0.0300
C433	J1441	J543	CONDUIT	708.7	2.0790	0.0300
C434	J641	J587	CONDUIT	500.5	0.4635	0.0300
C439	J197	J1513	CONDUIT	691.6	0.3076	0.0300
C440	J793	J883	CONDUIT	335.0	0.6478	0.0300
C441	J393	J418	CONDUIT	257.0	0.2179	0.0300
C443	J1261	J1187	CONDUIT	534.5	1.4894	0.0300
C445	J558	J1511	CONDUIT	401.3	1.0219	0.0300
C447	J335	J1510	CONDUIT	456.6	0.1621	0.0300

C455	J1099	J1507	CONDUIT	839.8	3.7235	0.0300
C456	J1146	J1506	CONDUIT	419.7	3.2686	0.0300
C457	J934	J906	CONDUIT	181.7	0.7924	0.0300
C46	J1510	J1657	CONDUIT	110.3	0.8078	0.0300
C462	J307	J239	CONDUIT	672.2	0.7885	0.0300
C464	J187	J296	CONDUIT	127.3	0.7461	0.0300
C467	J470	J1501	CONDUIT	259.2	17.8596	0.0300
C468	J1335	J1261	CONDUIT	107.1	0.4760	0.0300
C469	J511	J1500	CONDUIT	818.9	0.3639	0.0300
C470	J395	J335	CONDUIT	106.0	-0.1603	0.0300
C475	J1433	J24	CONDUIT	426.7	0.1523	0.0300
C48	J1674	J1631	CONDUIT	240.4	2.9631	0.0300
C49	J1455	J1674	CONDUIT	79.4	0.1813	0.0300
C494	J462	J1489	CONDUIT	474.7	3.1343	0.0300
C496	J1055	J973	CONDUIT	701.1	3.7408	0.0300
C497	J979	J934	CONDUIT	141.0	0.7233	0.0300
C501	J497	J470	CONDUIT	119.7	14.9066	0.0300
C509	J1222	J1099	CONDUIT	189.0	1.5083	0.0300
C51	J1500	J357	CONDUIT	468.0	0.6026	0.0300
C521	J208	J187	CONDUIT	183.2	2.5450	0.0300
C524	J963	J861	CONDUIT	405.1	2.3850	0.0300
C528	J1203	J1146	CONDUIT	263.3	6.1146	0.0300
C540	J1362	J1335	CONDUIT	232.0	0.9352	0.0300
C542	J353	J1469	CONDUIT	52.4	1.6783	0.0300
C551	J580	J511	CONDUIT	268.3	0.2311	0.0300
C562	J1115	J1226	CONDUIT	593.4	0.6118	0.0300
C567	J954	J1461	CONDUIT	437.0	3.0471	0.0300
C568	J513	J497	CONDUIT	219.1	3.1006	0.0300
C569	J635	J535	CONDUIT	847.3	1.6797	0.0300
C57	J1670	J1500	CONDUIT	121.2	1.2045	0.0300
C571	J857	J1460	CONDUIT	205.8	1.2535	0.0300
C573	J1151	J1222	CONDUIT	203.0	5.6498	0.0300
C574	J985	J898	CONDUIT	920.5	3.6678	0.0300
C575	J887	J793	CONDUIT	452.8	0.8193	0.0300
C578	J530	J462	CONDUIT	279.7	4.0324	0.0300
C584	J1232	J1203	CONDUIT	164.4	6.9077	0.0300
C588	J582	J580	CONDUIT	104.7	0.5733	0.0300
C590	J502	J513	CONDUIT	73.0	2.2476	0.0300
C596	J712	J1456	CONDUIT	484.6	0.3130	0.0300
C599	J351	J1455	CONDUIT	451.8	0.1806	0.0300
C608	J382	J197	CONDUIT	396.5	1.9068	0.0300
C613	J478	J1448	CONDUIT	1244.9	6.2535	0.0300
C62	J1498	J476	CONDUIT	318.5	0.2574	0.0300
C621	J264	J208	CONDUIT	349.0	26.8530	0.0300
C624	J150	J1444	CONDUIT	401.9	0.4529	0.0300
C628	J1180	J1151	CONDUIT	193.1	2.1706	0.0300

C630	J528	J393	CONDUIT	646.7	0.1222	0.0300
C631	J1037	J908	CONDUIT	728.1	0.8653	0.0300
C632	J780	J1441	CONDUIT	762.6	3.2487	0.0300
C644	J460	J478	CONDUIT	127.2	2.0047	0.0300
C647	J1117	J1055	CONDUIT	543.1	3.2480	0.0300
C661	J1426	J558	CONDUIT	731.4	1.4440	0.0300
C662	J65	J30	CONDUIT	525.2	1.0721	0.0300
C663	J547	J437	CONDUIT	921.2	9.5601	0.0300
C665	J591	J1431	CONDUIT	926.0	0.5961	0.0300
C669	J1163	J1251	CONDUIT	385.4	5.1829	0.0300
C677	J669	J1426	CONDUIT	102.7	3.6435	0.0300
C679	J464	J395	CONDUIT	744.6	0.4029	0.0300
C68	J480	J1648	CONDUIT	413.2	0.3558	0.0300
C683	J287	J264	CONDUIT	341.5	0.6647	0.0300
C685	J1680	J1682	CONDUIT	50.0	4.3482	0.0300
C686	J1648	J1510	CONDUIT	575.0	0.0348	0.0300
C687	J476	J1670	CONDUIT	174.1	0.4881	0.0300
C69	J1664	J1498	CONDUIT	164.6	1.2575	0.0300
C690	J424	J1455	CONDUIT	720.7	0.4699	0.0300
C691	J1649	J424	CONDUIT	193.1	-0.0673	0.0300
C694	J1650	J1649	CONDUIT	60.5	3.6549	0.0300
C699	J1534	J386	CONDUIT	260.8	0.3489	0.0300
C700	J851	J1641	CONDUIT	349.6	1.1441	0.0300
C701	J52	J1634	CONDUIT	89.4	-0.8951	0.0300
C702	J270	J1631	CONDUIT	241.8	1.8697	0.0300
C703	J1575	J1626	CONDUIT	72.7	1.8432	0.0300
C704	J1486	J1621	CONDUIT	390.8	1.1542	0.0300
C705	J80	J52	CONDUIT	364.4	0.6476	0.0300
C706	J596	J488	CONDUIT	770.2	0.2116	0.0300
C708	J782	J1606	CONDUIT	883.3	1.5388	0.0300
C709	J1589	J875	CONDUIT	429.0	5.8240	0.0300
C710	J731	J675	CONDUIT	26.3	-2.7038	0.0300
C711	J1557	J80	CONDUIT	738.6	0.7040	0.0300
C712	J1507	J1589	CONDUIT	378.4	0.5973	0.0300
C714	J1543	J1511	CONDUIT	314.6	0.7757	0.0300
C717	J1448	J408	CONDUIT	412.2	1.0700	0.0300
C719	J324	J1513	CONDUIT	113.7	0.7891	0.0300
C72	J1574	J1664	CONDUIT	59.4	-0.6058	0.0300
C720	J75	J1553	CONDUIT	302.6	1.4939	0.0300
C721	J239	J1551	CONDUIT	336.1	1.4791	0.0300
C723	J24	J12	CONDUIT	79.7	0.5633	0.0300
C725	J1489	J324	CONDUIT	293.6	2.0881	0.0300
C726	J861	J706	CONDUIT	1422.8	0.6895	0.0300
C73	J1662	J1663	CONDUIT	154.2	5.2226	0.0300
C731	J637	J1498	CONDUIT	793.3	0.5080	0.0300
C732	J753	J637	CONDUIT	222.6	0.6289	0.0300

C734	J1460	J1486	CONDUIT	399.2	2.7017	0.0300
C735	J30	J1433	CONDUIT	110.0	0.7094	0.0300
C76	J1551	J1662	CONDUIT	208.8	-0.1820	0.0300
C78	J1659	J1551	CONDUIT	98.6	0.8520	0.0300
C81	J1626	J1659	CONDUIT	72.5	0.8001	0.0300
C83	J1656	J1574	CONDUIT	442.4	0.6668	0.0300
C85	J1658	J480	CONDUIT	557.2	0.5510	0.0300
C91	J630	J1658	CONDUIT	169.3	0.3248	0.0300
C95	J1651	J1657	CONDUIT	315.3	0.6568	0.0300
C96	J715	J1656	CONDUIT	233.9	0.1283	0.0300
C99	J1632	J715	CONDUIT	173.8	0.8114	0.0300

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	114.52
C102	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	145.54
C105	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.52
C106	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.65
C109	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	11.67
C110	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	124.56
C111	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.74
C112	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.86
C113	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.26
C117	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.57
C119	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.30
C120	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.54
C123	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	13.94
C125	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.11
C126	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.95
C134	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	77.59
C136	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	132.89
C142	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	170.69
C143	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.62
C144	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.29
C145	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	87.32
C147	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	74.16
C148	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	19.90
C150	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	35.94
C151	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	24.52
C154	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	141.03
C155	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	76.49

C162	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.63
C163	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	84.66
C168	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	27.50
C172	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.33
C174	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	90.44
C177	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	80.12
C178	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	61.02
C181	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	95.66
C183	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.43
C187	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.87
C190	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	96.01
C192	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.20
C193	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	36.25
C2	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	69.59
C211	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	12.65
C212	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.03
C219	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.80
C223	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.55
C224	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	187.17
C226	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.49
C227	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.76
C228	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	74.28
C229	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.02
C230	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.70
C234	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.16
C235	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	68.23
C236	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.21
C237	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.78
C243	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	45.13
C244	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	157.73
C246	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.68
C247	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	76.25
C251	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	122.33
C253	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	98.41
C254	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.38
C257	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	11.37
C263	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	26.43
C264	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	92.79
C266	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	45.12
C269	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	79.42
C274	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	34.44
C275	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	79.54
C276	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	90.05
C280	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.69
C284	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.36
C287	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.44

C290	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	107.45
C293	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.07
C296	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	136.64
C300	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	94.64
C302	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.96
C305	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	94.18
C306	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	81.17
C310	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	119.71
C312	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	38.96
C315	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.50
C316	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	31.99
C329	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	88.13
C334	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	67.97
C337	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.41
C340	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	26.62
C348	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	53.03
C35	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.08
C351	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.20
C355	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	161.39
C356	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.10
C357	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	111.92
C358	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	65.41
C359	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	151.82
C36	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	71.17
C364	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.21
C365	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	55.60
C366	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.76
C368	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	36.17
C370	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.51
C38	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.08
C382	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	43.38
C395	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	44.52
C40	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.06
C403	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	163.54
C408	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.73
C41	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.33
C418	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	17.38
C42	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.17
C420	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.86
C423	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	82.45
C424	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.88
C433	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.30
C434	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.83
C439	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	38.96
C440	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.55
C441	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	32.79

C443	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.74
C445	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	71.02
C447	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	28.28
C455	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	135.57
C456	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	127.01
C457	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.54
C46	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.14
C462	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.38
C464	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	60.68
C467	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	296.90
C468	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.47
C469	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	42.38
C470	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	28.13
C475	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	27.42
C48	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	120.93
C49	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	29.92
C494	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	124.38
C496	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	135.88
C497	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	59.75
C501	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	271.24
C509	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	86.28
C51	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.54
C521	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	112.08
C524	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	108.50
C528	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	173.72
C540	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	67.94
C542	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.01
C551	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	33.77
C562	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.95
C567	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	122.64
C568	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	123.71
C569	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	91.05
C57	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	77.10
C571	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	78.66
C573	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	166.99
C574	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.55
C575	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.59
C578	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	141.08
C584	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	184.65
C588	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	53.20
C590	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	105.33
C596	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	39.31
C599	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	29.86
C608	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	97.01
C613	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	175.68
C62	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	35.64

C621	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	364.06
C624	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	47.28
C628	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	103.50
C630	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	24.56
C631	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	65.35
C632	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	126.63
C644	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	99.47
C647	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	126.61
C661	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	84.42
C662	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	72.74
C663	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	217.22
C665	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.24
C669	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	159.94
C677	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.10
C679	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	44.59
C68	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	41.91
C683	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.28
C685	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	146.50
C686	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	13.10
C687	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	49.08
C69	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	78.78
C690	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	48.16
C691	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	18.23
C694	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	134.31
C699	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	41.50
C700	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	75.15
C701	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	66.47
C702	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	96.06
C703	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	95.38
C704	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	75.48
C705	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.53
C706	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	32.32
C708	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	87.15
C709	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	169.54
C710	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.52
C711	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.95
C712	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.30
C714	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	61.88
C717	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	72.67
C719	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.41
C72	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	54.68
C720	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.87
C721	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	85.44
C723	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.73
C725	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	101.52
C726	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	58.34

C73	TRAPEZOIDAL	3.00	45.00	1.62	27.00	1	473.36
C731	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	50.07
C732	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	55.71
C734	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	115.48
C735	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	59.17
C76	TRAPEZOIDAL	3.00	45.00	1.62	27.00	1	88.37
C78	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	64.85
C81	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	62.84
C83	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	57.37
C85	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	52.15
C91	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	40.04
C95	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	56.94
C96	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	25.16
C99	TRAPEZOIDAL	2.00	20.00	1.08	18.00	1	63.28

****
Transect Summary
****

Transect Transect
Area:

0.0010	0.0040	0.0089	0.0159	0.0246
0.0348	0.0466	0.0598	0.0746	0.0909
0.1081	0.1256	0.1433	0.1614	0.1797
0.1983	0.2172	0.2364	0.2558	0.2756
0.2956	0.3159	0.3365	0.3574	0.3786
0.4000	0.4217	0.4437	0.4661	0.4886
0.5115	0.5347	0.5581	0.5818	0.6058
0.6301	0.6547	0.6795	0.7047	0.7301
0.7558	0.7818	0.8081	0.8347	0.8615
0.8886	0.9161	0.9437	0.9717	1.0000

Hrad:

0.0208	0.0415	0.0623	0.0830	0.1075
0.1308	0.1534	0.1755	0.1972	0.2187
0.2512	0.2822	0.3119	0.3403	0.3676
0.3939	0.4193	0.4438	0.4675	0.4905
0.5128	0.5345	0.5557	0.5762	0.5963
0.6159	0.6351	0.6539	0.6723	0.6903
0.7080	0.7254	0.7425	0.7593	0.7758
0.7921	0.8081	0.8240	0.8396	0.8550
0.8702	0.8853	0.9001	0.9148	0.9294
0.9438	0.9580	0.9722	0.9861	1.0000

Width:

0.0700	0.1400	0.2100	0.2800	0.3333

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            0.3867     0.4400     0.4933     0.5467     0.6000
            0.6100     0.6200     0.6300     0.6400     0.6500
            0.6600     0.6700     0.6800     0.6900     0.7000
            0.7100     0.7200     0.7300     0.7400     0.7500
            0.7600     0.7700     0.7800     0.7900     0.8000
            0.8100     0.8200     0.8300     0.8400     0.8500
            0.8600     0.8700     0.8800     0.8900     0.9000
            0.9100     0.9200     0.9300     0.9400     0.9500
            0.9600     0.9700     0.9800     0.9900     1.0000


**********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
**********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Starting Date ............ 04/19/2018 00:00:00
Ending Date .............. 04/20/2018 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m           mm
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**************************	---------	-------
Total Precipitation	400.248	100.800
Evaporation Loss	0.000	0.000
Infiltration Loss	152.998	38.532
Surface Runoff	217.923	54.882
Final Storage	29.501	7.430
Continuity Error (%)	-0.043	

**************************	Volume	Volume
Flow Routing Continuity	hectare-m	10^6 ltr
**************************	---------	---------
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	218.022	2180.247
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	212.437	2124.389
Flooding Loss	2.365	23.655
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.005
Final Stored Volume	3.413	34.126
Continuity Error (%)	-0.088	

****
Highest Continuity Errors
****
Node J906 (8.10%)
Node J1469 (3.43%)
Node J176 (3.12%)
Node J1431 (1.13%)
Node J395 (1.13%)

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
Link C542 (3)

Link C105 (2)
Link C102 (2)

****
Routing Time Step Summary
****

Minimum Time Step	:	0.29 sec
Average Time Step	:	5.00 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	-0.00
Average Iterations per Step	:	2.00
Percent Not Converging	:	0.00

****
Subcatchment Runoff Summary
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Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
S1	100.80	0.00	0.00	40.77	56.83	3.97	0.43	0.564
S107	100.80	0.00	0.00	60.74	32.40	37.95	1.23	0.321
S112	100.80	0.00	0.00	21.94	77.88	15.85	4.43	0.773
S156	100.80	0.00	0.00	50.12	46.76	15.80	2.63	0.464
S169	100.80	0.00	0.00	33.95	60.96	19.61	2.55	0.605
S181	100.80	0.00	0.00	26.43	73.50	3.90	1.41	0.729
S189	100.80	0.00	0.00	57.91	38.39	38.09	3.07	0.381
S192	100.80	0.00	0.00	35.74	64.06	7.70	2.27	0.635
S199	100.80	0.00	0.00	17.98	81.97	2.71	0.96	0.813
S2	100.80	0.00	0.00	27.53	65.08	96.77	15.31	0.646
S210	100.80	0.00	0.00	30.13	68.47	21.04	4.82	0.679
S218	100.80	0.00	0.00	32.13	67.51	17.85	4.38	0.670
S225	100.80	0.00	0.00	31.10	68.55	20.67	5.13	0.680
S228	100.80	0.00	0.00	30.92	67.49	23.42	5.26	0.670
S231	100.80	0.00	0.00	33.16	64.16	17.80	3.67	0.636
S232	100.80	0.00	0.00	41.39	56.23	53.18	11.19	0.558
S235	100.80	0.00	0.00	28.44	69.87	14.34	3.22	0.693
S236	100.80	0.00	0.00	18.79	81.05	9.84	2.83	0.804
S237	100.80	607.14	0.00	20.45	682.05	93.41	13.05	0.963
S238	100.80	0.00	0.00	38.19	56.51	83.05	14.43	0.561
S246	100.80	0.00	0.00	27.62	72.14	14.43	3.65	0.716
S248	100.80	0.00	0.00	47.07	49.72	36.98	7.17	0.493

S251	100.80	0.00	0.00	37.58	58.14	27.40	4.99	0.577
S255	100.80	0.00	0.00	27.31	71.64	10.41	2.53	0.711
S262	100.80	0.00	0.00	39.43	59.42	14.93	3.18	0.589
S264	100.80	0.00	0.00	27.15	72.71	4.48	1.43	0.721
S268	100.80	0.00	0.00	30.65	65.99	38.72	7.63	0.655
S277	100.80	0.00	0.00	41.40	55.44	14.09	2.25	0.550
S28	100.80	0.00	0.00	25.50	72.90	27.56	6.45	0.723
S285	100.80	0.00	0.00	30.83	63.61	29.47	4.39	0.631
S29	100.80	0.00	0.00	23.42	76.34	14.00	3.68	0.757
S293	100.80	0.00	0.00	39.03	55.80	39.49	6.74	0.554
S295	100.80	0.00	0.00	22.17	77.66	6.68	1.94	0.770
S3	100.80	0.00	0.00	22.99	76.38	8.17	2.08	0.758
S30	100.80	0.00	0.00	27.73	72.10	15.44	4.49	0.715
S317	100.80	0.00	0.00	32.33	62.75	20.90	3.02	0.622
S324	100.80	0.00	0.00	42.00	55.10	16.55	2.59	0.547
S325	100.80	0.00	0.00	27.78	72.03	10.93	3.01	0.715
S338	100.80	0.00	0.00	40.37	58.13	6.86	1.25	0.577
S350	100.80	0.00	0.00	37.78	60.53	11.97	2.35	0.600
S363	100.80	0.00	0.00	50.59	42.67	25.90	2.19	0.423
S38	100.80	0.00	0.00	26.63	70.06	36.25	6.95	0.695
S382	100.80	0.00	0.00	48.41	40.78	11.28	0.74	0.405
S390	100.80	0.00	0.00	34.40	62.25	19.38	2.67	0.618
S399	100.80	0.00	0.00	41.80	53.67	18.18	2.96	0.532
S403	100.80	0.00	0.00	46.68	40.40	31.31	2.54	0.401
S406	100.80	0.00	0.00	26.10	72.62	8.98	2.12	0.720
S412	100.80	0.00	0.00	41.90	56.32	10.24	1.70	0.559
S419	100.80	0.00	0.00	33.26	59.25	46.77	5.91	0.588
S420	100.80	0.00	0.00	47.93	46.47	13.53	1.05	0.461
S436	100.80	0.00	0.00	38.54	55.44	15.86	2.48	0.550
S439	100.80	0.00	0.00	43.67	47.90	25.06	3.01	0.475
S448	100.80	0.00	0.00	35.84	49.75	46.97	4.37	0.494
S460	100.80	0.00	0.00	36.41	60.81	11.25	2.13	0.603
S468	100.80	0.00	0.00	19.06	76.18	62.36	10.38	0.756
S481	100.80	0.00	0.00	46.96	50.31	16.96	1.74	0.499
S5	100.80	0.00	0.00	36.28	57.40	11.33	1.29	0.569
S513	100.80	0.00	0.00	20.92	78.04	11.84	2.88	0.774
S516	100.80	0.00	0.00	46.90	39.24	36.58	3.18	0.389
S531	100.80	0.00	0.00	44.79	41.56	48.17	4.90	0.412
S543	100.80	0.00	0.00	44.99	50.22	14.00	1.61	0.498
S547	100.80	0.00	0.00	46.41	46.95	15.42	1.43	0.466
S549	100.80	0.00	0.00	31.39	64.53	14.27	2.60	0.640
S553	100.80	0.00	0.00	20.09	76.56	14.95	2.79	0.759
S56	100.80	0.00	0.00	21.88	77.88	22.13	5.75	0.773
S571	100.80	0.00	0.00	47.54	45.03	45.60	3.84	0.447
S586	100.80	0.00	0.00	20.24	78.56	22.07	5.47	0.779
S604	100.80	0.00	0.00	30.76	60.11	64.63	9.85	0.596

S608	100.80	0.00	0.00	42.90	50.15	15.15	1.39	0.498
S619	100.80	0.00	0.00	20.34	78.41	13.94	3.41	0.778
S62	100.80	0.00	0.00	37.43	60.32	9.90	1.82	0.598
S627	100.80	0.00	0.00	34.50	65.04	16.43	4.03	0.645
S665	100.80	0.00	0.00	20.15	78.18	28.03	6.44	0.776
S678	100.80	0.00	0.00	41.98	55.78	7.97	1.27	0.553
S688	100.80	0.00	0.00	20.36	78.97	8.64	2.36	0.783
S690	100.80	0.00	0.00	44.79	46.61	51.38	5.61	0.462
S692	100.80	0.00	0.00	42.37	46.86	18.23	1.72	0.465
S700	100.80	0.00	0.00	35.82	56.42	27.68	3.57	0.560
S716	100.80	0.00	0.00	16.24	82.33	8.74	1.96	0.817
S74	100.80	0.00	0.00	31.12	64.43	29.34	4.76	0.639
S750	100.80	0.00	0.00	29.69	63.95	47.18	7.96	0.634
S766	100.80	0.00	0.00	39.60	53.42	21.91	2.30	0.530
S768	100.80	0.00	0.00	47.89	41.67	74.11	5.04	0.413
S79	100.80	0.00	0.00	38.41	55.32	28.72	4.19	0.549
S799	100.80	0.00	0.00	43.28	45.19	81.18	6.67	0.448
S8	100.80	0.00	0.00	48.20	46.97	7.12	0.37	0.466
S808	100.80	0.00	0.00	41.73	43.62	69.96	5.28	0.433
S857	100.80	0.00	0.00	15.99	83.93	2.41	0.81	0.833
S92	100.80	0.00	0.00	23.00	76.86	6.61	2.06	0.763

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.02	0.19	113.82	0 05:57	0.19
J1010	JUNCTION	0.23	0.60	111.02	0 06:12	0.60
J1026	JUNCTION	0.28	0.71	108.66	0 06:12	0.71
J1033	JUNCTION	0.13	0.65	139.18	0 06:00	0.65
J1037	JUNCTION	0.25	1.05	104.05	0 06:01	1.05
J1055	JUNCTION	0.13	0.47	171.97	0 06:00	0.47
J1061	JUNCTION	0.17	0.68	131.57	0 06:06	0.68
J1085	JUNCTION	0.22	0.66	90.34	0 06:13	0.66
J1087	JUNCTION	0.00	0.00	146.14	0 00:00	0.00
J1097	JUNCTION	0.25	0.68	104.94	0 06:07	0.68
J1099	JUNCTION	0.16	0.44	171.90	0 06:00	0.44
J1115	JUNCTION	0.31	0.84	161.63	0 05:57	0.84
J1117	JUNCTION	0.13	0.51	189.64	0 05:55	0.50
J1146	JUNCTION	0.00	0.00	122.34	0 00:00	0.00

J1151	JUNCTION	0.14	0.41	186.17	0	05:55	0.41
J1163	JUNCTION	0.00	0.00	189.10	0	00:00	0.00
J1171	JUNCTION	0.16	0.68	150.41	0	06:00	0.68
J1180	JUNCTION	0.19	0.54	190.49	0	05:54	0.54
J1187	JUNCTION	0.14	0.41	181.99	0	06:03	0.41
J12	JUNCTION	0.26	1.20	83.85	0	06:02	1.20
J1203	JUNCTION	0.00	0.00	138.41	0	00:00	0.00
J1222	JUNCTION	0.21	0.58	174.89	0	05:56	0.58
J1226	JUNCTION	0.15	0.46	157.62	0	06:01	0.46
J1232	JUNCTION	0.00	0.00	149.74	0	00:00	0.00
J1251	JUNCTION	0.00	0.00	169.15	0	00:00	0.00
J1261	JUNCTION	0.21	0.61	190.15	0	06:00	0.61
J1271	JUNCTION	0.21	0.57	135.67	0	06:06	0.57
J1335	JUNCTION	0.29	0.77	190.82	0	05:57	0.77
J1362	JUNCTION	0.23	0.64	192.86	0	05:55	0.64
J1426	JUNCTION	0.08	0.30	105.51	0	05:58	0.30
J1427	JUNCTION	0.13	0.44	138.47	0	06:07	0.44
J1431	JUNCTION	0.43	1.43	85.55	0	06:51	1.43
J1433	JUNCTION	0.33	1.38	85.13	0	06:03	1.38
J1441	JUNCTION	0.07	0.27	109.37	0	06:02	0.27
J1444	JUNCTION	0.22	0.45	97.91	0	07:37	0.45
J1448	JUNCTION	0.20	0.77	93.11	0	06:05	0.77
J1455	JUNCTION	0.61	1.39	86.33	0	06:18	1.39
J1456	JUNCTION	0.37	1.19	91.67	0	06:21	1.19
J1458	JUNCTION	0.56	1.28	84.58	0	06:01	1.28
J1460	JUNCTION	0.08	0.55	114.35	0	06:01	0.55
J1461	JUNCTION	0.17	0.60	141.03	0	06:04	0.60
J1469	JUNCTION	0.77	1.72	91.06	0	06:07	1.72
J1486	JUNCTION	0.24	1.15	104.17	0	06:04	1.15
J1489	JUNCTION	0.10	0.55	98.57	0	06:00	0.55
J1498	JUNCTION	0.69	1.80	91.56	0	06:18	1.80
J150	JUNCTION	0.19	0.41	99.69	0	06:00	0.41
J1500	JUNCTION	0.60	1.55	88.18	0	06:23	1.55
J1501	JUNCTION	0.13	0.52	105.52	0	05:58	0.52
J1506	JUNCTION	0.22	0.61	109.24	0	06:06	0.61
J1507	JUNCTION	0.29	0.67	140.88	0	06:06	0.67
J1510	JUNCTION	0.49	1.20	84.42	0	06:50	1.20
J1511	JUNCTION	0.56	1.30	91.85	0	06:16	1.30
J1513	JUNCTION	0.21	1.00	91.99	0	06:02	0.99
J1520	JUNCTION	0.28	1.14	96.36	0	06:11	1.14
J1528	JUNCTION	0.28	1.14	87.70	0	06:02	1.14
J1534	JUNCTION	0.28	0.58	85.79	0	06:35	0.58
J1542	JUNCTION	0.25	1.17	83.13	0	06:05	1.17
J1543	JUNCTION	0.16	0.57	93.56	0	06:07	0.57
J1551	JUNCTION	0.72	2.14	84.58	0	06:16	2.14
J1553	JUNCTION	0.61	1.40	87.78	0	06:01	1.40

J1554	JUNCTION	0.13	0.42	98.29	0	06:05	0.42
J1557	JUNCTION	0.26	0.65	93.20	0	06:04	0.65
J1562	JUNCTION	0.12	0.27	97.55	0	07:56	0.27
J1566	JUNCTION	0.14	0.83	87.29	0	06:02	0.83
J1567	JUNCTION	0.16	0.69	87.49	0	06:04	0.69
J1568	JUNCTION	0.13	0.65	123.18	0	06:02	0.65
J1571	JUNCTION	0.30	0.81	107.24	0	06:13	0.81
J1574	JUNCTION	0.94	2.00	93.47	0	06:03	2.00
J1575	JUNCTION	0.21	0.97	86.17	0	06:11	0.97
J1577	JUNCTION	0.19	0.88	84.46	0	06:01	0.88
J1579	JUNCTION	0.15	0.73	90.69	0	06:12	0.73
J1582	JUNCTION	0.32	1.22	88.33	0	06:03	1.22
J1583	JUNCTION	0.25	1.04	79.81	0	06:10	1.04
J1586	JUNCTION	0.17	0.52	91.17	0	06:19	0.52
J1587	JUNCTION	0.36	1.01	100.84	0	06:14	1.01
J1589	JUNCTION	0.14	0.35	138.30	0	06:09	0.35
J1590	JUNCTION	0.15	0.76	115.96	0	06:02	0.76
J1592	JUNCTION	0.15	0.43	132.76	0	06:08	0.43
J1595	JUNCTION	0.23	0.61	103.67	0	06:11	0.61
J1596	JUNCTION	0.23	0.99	82.70	0	06:04	0.99
J1597	JUNCTION	0.20	0.90	83.36	0	06:04	0.90
J1599	JUNCTION	0.52	1.17	90.23	0	06:18	1.17
J1600	JUNCTION	0.51	1.49	90.77	0	06:23	1.49
J1602	JUNCTION	0.20	0.53	89.98	0	06:11	0.53
J1606	JUNCTION	0.17	0.49	96.76	0	06:11	0.49
J1609	JUNCTION	0.17	0.74	80.35	0	06:06	0.74
J1610	JUNCTION	0.24	0.67	89.85	0	06:25	0.67
J1616	JUNCTION	0.25	0.71	84.63	0	06:25	0.71
J1618	JUNCTION	0.19	0.49	113.97	0	06:13	0.49
J1621	JUNCTION	0.20	1.00	99.51	0	06:05	1.00
J1624	JUNCTION	0.38	0.83	111.32	0	06:11	0.83
J1626	JUNCTION	0.26	1.16	85.02	0	06:14	1.16
J1629	JUNCTION	0.50	1.06	108.88	0	06:13	1.06
J1631	JUNCTION	0.66	1.68	79.35	0	06:21	1.68
J1632	JUNCTION	0.46	1.56	97.69	0	06:07	1.56
J1634	JUNCTION	0.18	0.53	86.32	0	06:04	0.53
J1636	JUNCTION	0.31	0.76	94.68	0	06:19	0.76
J1638	JUNCTION	0.17	0.58	83.73	0	06:02	0.58
J1639	JUNCTION	0.18	0.52	93.45	0	06:13	0.52
J1641	JUNCTION	0.29	0.75	102.46	0	06:15	0.75
J1645	JUNCTION	0.13	0.39	90.96	0	06:13	0.39
J1647	JUNCTION	0.42	1.12	99.73	0	06:14	1.12
J1648	JUNCTION	0.95	2.12	85.54	0	06:48	2.12
J1649	JUNCTION	0.85	1.91	90.10	0	06:17	1.91
J1650	JUNCTION	0.25	0.73	91.13	0	06:17	0.73
J1651	JUNCTION	0.26	0.57	84.97	0	06:40	0.57

J1653	JUNCTION	0.24	0.72	100.14	0	06:14	0.72
J1656	JUNCTION	0.48	1.48	95.90	0	06:20	1.48
J1657	JUNCTION	0.55	1.29	83.62	0	06:51	1.29
J1658	JUNCTION	0.43	1.26	89.22	0	06:28	1.26
J1659	JUNCTION	0.26	1.34	84.62	0	06:15	1.34
J1662	JUNCTION	0.15	0.74	83.56	0	06:16	0.74
J1664	JUNCTION	0.44	1.21	93.04	0	06:05	1.21
J1670	JUNCTION	0.51	1.34	89.43	0	06:17	1.34
J1674	JUNCTION	0.33	0.96	85.75	0	06:19	0.96
J1676	JUNCTION	0.53	1.23	80.99	0	06:53	1.23
J1678	JUNCTION	0.75	1.78	83.54	0	06:30	1.78
J1680	JUNCTION	0.40	1.06	78.21	0	06:32	1.06
J176	JUNCTION	0.71	1.11	97.71	0	07:53	1.11
J187	JUNCTION	0.16	0.51	98.82	0	06:01	0.51
J197	JUNCTION	0.00	0.00	93.12	0	00:00	0.00
J208	JUNCTION	0.11	0.38	103.35	0	05:59	0.38
J237	JUNCTION	0.18	0.85	81.27	0	06:03	0.85
J239	JUNCTION	0.09	0.65	88.06	0	06:01	0.65
J24	JUNCTION	0.25	1.20	84.30	0	06:02	1.20
J246	JUNCTION	0.00	0.00	91.08	0	00:00	0.00
J250	JUNCTION	0.16	0.94	84.63	0	06:03	0.94
J264	JUNCTION	0.06	0.21	193.68	0	05:57	0.21
J270	JUNCTION	0.20	0.59	82.78	0	06:25	0.59
J275	JUNCTION	0.00	0.00	89.87	0	00:00	0.00
J287	JUNCTION	0.19	0.59	196.33	0	05:56	0.59
J296	JUNCTION	0.63	1.08	98.44	0	06:03	1.08
J30	JUNCTION	0.20	0.99	85.52	0	06:00	0.98
J304	JUNCTION	0.14	0.80	91.62	0	06:02	0.80
J307	JUNCTION	0.10	0.67	93.38	0	06:00	0.67
J324	JUNCTION	0.14	0.79	92.68	0	06:00	0.79
J332	JUNCTION	0.67	1.69	84.90	0	06:25	1.69
J335	JUNCTION	0.24	0.95	84.91	0	06:09	0.95
J351	JUNCTION	0.22	1.10	86.85	0	06:00	1.10
J353	JUNCTION	0.08	0.84	91.06	0	06:08	0.84
J357	JUNCTION	0.65	1.66	85.47	0	06:25	1.66
J380	JUNCTION	0.21	0.98	96.08	0	06:10	0.98
J382	JUNCTION	0.00	0.00	100.68	0	00:00	0.00
J386	JUNCTION	0.63	1.14	85.44	0	06:09	1.14
J393	JUNCTION	0.00	0.00	86.61	0	00:00	0.00
J395	JUNCTION	0.44	1.21	85.00	0	06:08	1.21
J408	JUNCTION	0.28	1.07	89.00	0	06:05	1.07
J414	JUNCTION	0.78	1.47	84.90	0	06:23	1.47
J416	JUNCTION	0.13	0.67	102.88	0	06:00	0.67
J418	JUNCTION	0.00	0.00	86.05	0	00:00	0.00
J42	JUNCTION	0.20	0.65	78.07	0	06:02	0.65
J424	JUNCTION	0.49	1.34	89.66	0	06:20	1.34

J437	JUNCTION	0.19	0.99	101.53	0	06:02	0.99
J442	JUNCTION	0.19	0.99	99.75	0	06:04	0.99
J460	JUNCTION	0.10	0.55	173.14	0	06:00	0.55
J462	JUNCTION	0.07	0.36	113.25	0	06:00	0.36
J464	JUNCTION	0.19	0.86	87.65	0	06:01	0.86
J470	JUNCTION	0.05	0.19	150.76	0	05:56	0.19
J476	JUNCTION	0.65	1.60	90.54	0	06:17	1.60
J478	JUNCTION	0.07	0.39	170.43	0	06:01	0.39
J480	JUNCTION	0.50	1.39	86.28	0	06:32	1.39
J488	JUNCTION	0.27	0.57	87.57	0	06:01	0.57
J497	JUNCTION	0.06	0.21	168.43	0	05:55	0.21
J502	JUNCTION	0.10	0.34	176.99	0	05:54	0.34
J509	JUNCTION	0.56	1.28	91.76	0	06:12	1.28
J511	JUNCTION	0.00	0.00	89.61	0	00:00	0.00
J513	JUNCTION	0.10	0.33	175.34	0	05:55	0.33
J52	JUNCTION	0.99	1.67	86.66	0	06:03	1.67
J528	JUNCTION	0.00	0.00	87.40	0	00:00	0.00
J530	JUNCTION	0.07	0.34	124.50	0	05:54	0.34
J535	JUNCTION	0.13	0.47	95.68	0	06:03	0.47
J543	JUNCTION	0.07	0.27	94.64	0	06:06	0.27
J547	JUNCTION	0.09	0.53	188.74	0	06:00	0.53
J558	JUNCTION	0.09	0.29	94.94	0	06:05	0.29
J580	JUNCTION	0.00	0.00	90.23	0	00:00	0.00
J582	JUNCTION	0.00	0.00	90.83	0	00:00	0.00
J587	JUNCTION	0.35	1.37	96.01	0	06:06	1.37
J591	JUNCTION	0.09	0.24	89.88	0	06:01	0.24
J596	JUNCTION	0.23	0.56	89.19	0	06:25	0.56
J6	JUNCTION	0.60	1.79	80.34	0	06:09	1.79
J607	JUNCTION	0.21	0.91	95.04	0	06:11	0.91
J630	JUNCTION	0.52	1.42	89.93	0	06:25	1.42
J635	JUNCTION	0.11	0.42	109.86	0	06:00	0.42
J637	JUNCTION	0.21	0.65	94.44	0	06:02	0.65
J641	JUNCTION	0.22	1.02	97.98	0	06:01	1.02
J65	JUNCTION	0.12	0.59	90.75	0	06:00	0.59
J666	JUNCTION	0.35	0.97	100.17	0	06:14	0.97
J669	JUNCTION	0.00	0.00	108.95	0	00:00	0.00
J675	JUNCTION	0.27	0.84	91.38	0	06:22	0.84
J698	JUNCTION	0.38	1.04	99.31	0	06:16	1.04
J706	JUNCTION	0.16	0.42	90.26	0	06:14	0.42
J712	JUNCTION	0.00	0.00	91.99	0	00:00	0.00
J715	JUNCTION	0.75	2.00	96.72	0	06:02	2.00
J731	JUNCTION	0.94	1.77	91.60	0	06:21	1.77
J75	JUNCTION	0.11	0.52	91.42	0	06:00	0.52
J753	JUNCTION	0.20	0.68	95.87	0	05:55	0.68
J757	JUNCTION	0.13	0.40	123.52	0	06:05	0.40
J780	JUNCTION	0.06	0.26	134.12	0	05:56	0.26

J782	JUNCTION	0.15	0.43	110.29	0	06:10	0.43
J787	JUNCTION	0.36	0.78	93.21	0	06:22	0.78
J793	JUNCTION	0.20	0.67	94.06	0	06:01	0.67
J80	JUNCTION	0.26	0.61	87.96	0	06:12	0.61
J801	JUNCTION	0.00	0.00	106.47	0	00:00	0.00
J815	JUNCTION	0.13	0.42	128.76	0	06:03	0.42
J851	JUNCTION	0.28	0.71	106.42	0	06:14	0.71
J857	JUNCTION	0.11	0.68	117.06	0	06:00	0.68
J861	JUNCTION	0.18	0.52	100.17	0	06:04	0.52
J875	JUNCTION	0.69	1.20	114.21	0	06:12	1.20
J879	JUNCTION	0.46	1.04	95.18	0	06:16	1.04
J883	JUNCTION	0.28	0.89	92.11	0	06:06	0.89
J887	JUNCTION	0.19	0.66	97.76	0	05:56	0.66
J889	JUNCTION	0.31	1.25	97.32	0	06:05	1.25
J898	JUNCTION	0.11	0.36	156.62	0	06:01	0.35
J906	JUNCTION	0.38	1.26	96.37	0	06:11	1.26
J908	JUNCTION	0.29	1.18	97.88	0	06:04	1.18
J921	JUNCTION	0.31	0.78	96.05	0	06:14	0.78
J934	JUNCTION	0.00	0.00	96.55	0	00:00	0.00
J942	JUNCTION	0.22	0.58	112.58	0	06:10	0.58
J947	JUNCTION	0.19	0.80	132.91	0	06:02	0.80
J954	JUNCTION	0.00	0.00	153.74	0	00:00	0.00
J957	JUNCTION	0.14	0.67	130.68	0	06:01	0.67
J963	JUNCTION	0.12	0.40	109.71	0	05:55	0.40
J967	JUNCTION	0.22	0.58	116.79	0	06:09	0.58
J973	JUNCTION	0.15	0.52	145.81	0	06:02	0.52
J977	JUNCTION	0.00	0.00	126.43	0	00:00	0.00
J979	JUNCTION	0.00	0.00	97.57	0	00:00	0.00
J981	JUNCTION	0.12	0.60	132.74	0	06:00	0.60
J985	JUNCTION	0.12	0.40	190.40	0	05:56	0.40
J1601	OUTFALL	0.18	0.85	75.33	0	06:03	0.85
J1617	OUTFALL	0.23	0.99	76.27	0	06:04	0.99
J1623	OUTFALL	0.16	0.74	75.72	0	06:06	0.74
J1642	OUTFALL	0.20	0.65	74.91	0	06:02	0.65
J1663	OUTFALL	0.15	0.74	75.52	0	06:16	0.74
J1677	OUTFALL	0.48	1.39	76.15	0	06:22	1.39
J1679	OUTFALL	0.50	1.23	75.87	0	06:54	1.23
J1682	OUTFALL	0.40	1.06	76.04	0	06:32	1.06
J2	OUTFALL	0.21	1.02	77.16	0	06:10	1.02

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
J1	JUNCTION	0.814	0.814	0	05:54	2.41	2.41	-0.939	
J1010	JUNCTION	0.000	5.508	0	06:11	0	91.1	0.048	
J1026	JUNCTION	3.572	7.039	0	06:12	27.7	119	0.036	
J1033	JUNCTION	7.964	7.964	0	06:00	47.2	47.2	0.019	
J1037	JUNCTION	15.312	15.312	0	06:00	96.8	96.8	0.003	
J1055	JUNCTION	0.000	5.535	0	05:56	0	51.4	0.137	
J1061	JUNCTION	0.000	9.370	0	06:02	0	64.5	-0.098	
J1085	JUNCTION	0.000	4.141	0	06:08	0	47.9	0.362	
J1087	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1097	JUNCTION	0.000	5.379	0	06:06	0	80.7	0.105	
J1099	JUNCTION	0.000	4.904	0	05:57	0	74	0.077	
J1115	JUNCTION	6.674	6.674	0	05:54	81.2	81.2	0.145	
J1117	JUNCTION	5.609	5.609	0	05:54	51.4	51.4	0.034	
J1146	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1151	JUNCTION	0.000	5.006	0	05:54	0	74.1	0.042	
J1163	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1171	JUNCTION	9.855	9.855	0	06:00	64.7	64.7	0.043	
J1180	JUNCTION	5.036	5.036	0	05:54	74.1	74.1	0.026	
J1187	JUNCTION	0.000	5.059	0	06:01	0	69.8	0.191	
J12	JUNCTION	0.000	15.804	0	06:02	0	93.1	-0.002	
J1203	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1222	JUNCTION	0.000	4.944	0	05:55	0	74.1	0.061	
J1226	JUNCTION	0.000	6.367	0	05:58	0	81.1	0.152	
J1232	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1251	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J1261	JUNCTION	0.000	5.099	0	05:57	0	69.8	0.125	
J1271	JUNCTION	0.000	4.822	0	06:03	0	69.6	0.279	
J1335	JUNCTION	0.000	5.186	0	05:55	0	69.9	0.126	
J1362	JUNCTION	5.276	5.276	0	05:54	70	70	0.050	
J1426	JUNCTION	1.434	1.434	0	05:54	15.4	15.4	0.066	
J1427	JUNCTION	0.000	4.981	0	06:05	0	51.2	0.104	
J1431	JUNCTION	0.000	5.557	0	06:25	0	76.2	1.147	
J1433	JUNCTION	0.000	11.403	0	06:00	0	65.6	0.171	
J1441	JUNCTION	0.000	1.537	0	05:58	0	14	0.205	
J1444	JUNCTION	0.000	1.247	0	06:03	0	37.9	0.092	
J1448	JUNCTION	0.000	9.725	0	06:00	0	68.3	0.379	
J1455	JUNCTION	0.000	22.083	0	06:15	0	306	0.296	
J1456	JUNCTION	0.000	13.115	0	06:14	0	96.5	0.731	
J1458	JUNCTION	3.681	10.263	0	06:01	14	125	0.057	
J1460	JUNCTION	0.000	6.403	0	06:00	0	28.1	-0.097	
J1461	JUNCTION	0.000	5.111	0	06:02	0	51.2	0.140	

J1469	JUNCTION	0.000	10.468	0	06:00	0	51.8	3.556
J1486	JUNCTION	3.410	21.285	0	06:01	13.9	109	0.162
J1489	JUNCTION	3.014	5.699	0	05:57	10.9	29.1	0.040
J1498	JUNCTION	0.000	28.034	0	06:04	0	397	0.247
J150	JUNCTION	1.228	1.228	0	07:24	38	38	0.031
J1500	JUNCTION	0.000	30.145	0	06:17	0	461	0.141
J1501	JUNCTION	3.177	5.163	0	05:56	14.9	40.8	-0.021
J1506	JUNCTION	0.000	6.101	0	06:01	0	81	0.333
J1507	JUNCTION	0.000	4.677	0	06:00	0	74	0.502
J1510	JUNCTION	0.000	19.011	0	06:48	0	348	0.175
J1511	JUNCTION	1.695	5.496	0	06:06	10.2	64.5	0.894
J1513	JUNCTION	2.079	9.436	0	06:00	8.17	44	0.108
J1520	JUNCTION	0.000	13.887	0	06:05	0	97.9	-0.041
J1528	JUNCTION	4.426	17.663	0	06:01	15.9	123	0.025
J1534	JUNCTION	0.000	2.596	0	06:30	0	67	0.379
J1542	JUNCTION	0.000	15.806	0	06:02	0	93.1	-0.075
J1543	JUNCTION	0.000	3.773	0	06:04	0	38.9	0.074
J1551	JUNCTION	0.000	21.024	0	06:13	0	149	0.397
J1553	JUNCTION	1.817	5.878	0	05:56	9.9	38.6	1.053
J1554	JUNCTION	0.000	2.778	0	06:03	0	37.9	0.026
J1557	JUNCTION	2.630	4.639	0	06:00	15.8	90.4	0.064
J1562	JUNCTION	0.000	1.223	0	07:52	0	36.7	0.207
J1566	JUNCTION	2.833	12.342	0	06:01	9.85	58.2	0.011
J1567	JUNCTION	0.000	5.421	0	06:01	0	38.2	0.203
J1568	JUNCTION	1.964	9.598	0	06:01	8.74	55.9	0.052
J1571	JUNCTION	4.031	10.222	0	06:08	16.4	148	0.230
J1574	JUNCTION	0.000	36.850	0	06:12	0	370	0.371
J1575	JUNCTION	4.380	17.630	0	06:11	17.9	121	-0.001
J1577	JUNCTION	4.488	8.554	0	06:00	15.5	53.6	-0.006
J1579	JUNCTION	0.000	15.843	0	06:10	0	103	0.075
J1582	JUNCTION	4.817	14.091	0	06:02	21.1	107	0.022
J1583	JUNCTION	0.433	15.149	0	06:09	3.97	108	0.037
J1586	JUNCTION	1.255	4.840	0	06:16	6.86	70.8	0.074
J1587	JUNCTION	0.000	15.074	0	06:07	0	183	0.398
J1589	JUNCTION	0.000	3.885	0	06:07	0	73.6	0.112
J1590	JUNCTION	2.363	11.523	0	06:00	8.64	64.5	0.032
J1592	JUNCTION	0.000	4.535	0	06:07	0	69.4	0.127
J1595	JUNCTION	0.000	5.311	0	06:07	0	80.6	0.174
J1596	JUNCTION	2.064	18.879	0	06:02	6.61	129	0.056
J1597	JUNCTION	0.000	8.295	0	06:02	0	53.6	0.027
J1599	JUNCTION	0.000	3.865	0	06:13	0	47.7	0.738
J1600	JUNCTION	0.000	16.921	0	06:22	0	209	0.081
J1602	JUNCTION	0.000	2.016	0	06:14	0	36.1	0.069
J1606	JUNCTION	2.128	3.868	0	06:09	11.3	56.6	0.081
J1609	JUNCTION	0.368	8.452	0	06:04	7.12	60.7	0.119
J1610	JUNCTION	1.741	4.539	0	06:19	17	64.3	-0.018

J1616	JUNCTION	0.000	5.455	0	06:23	0	84.2	0.092	
J1618	JUNCTION	0.000	4.181	0	06:12	0	80.9	0.095	
J1621	JUNCTION	0.000	19.803	0	06:04	0	109	0.027	
J1624	JUNCTION	0.000	5.517	0	06:10	0	91.1	0.055	
J1626	JUNCTION	0.000	17.625	0	06:11	0	121	0.046	
J1629	JUNCTION	0.000	5.497	0	06:12	0	91	0.149	
J1631	JUNCTION	5.258	29.642	0	06:19	23.4	423	0.124	
J1632	JUNCTION	5.465	35.192	0	06:07	22.1	313	0.032	
J1634	JUNCTION	0.000	7.164	0	06:04	0	111	0.015	
J1636	JUNCTION	0.000	5.452	0	06:17	0	98.3	0.131	
J1638	JUNCTION	0.000	10.291	0	06:01	0	125	0.015	
J1639	JUNCTION	0.000	3.750	0	06:12	0	56.5	0.074	
J1641	JUNCTION	0.000	7.010	0	06:14	0	118	0.106	
J1645	JUNCTION	0.000	4.806	0	06:12	0	72.2	0.024	
J1647	JUNCTION	0.000	11.309	0	06:14	0	163	0.033	
J1648	JUNCTION	0.000	18.185	0	06:38	0	311	0.612	
J1649	JUNCTION	0.000	18.009	0	06:16	0	255	0.105	
J1650	JUNCTION	2.124	13.289	0	06:15	8.99	183	0.069	
J1651	JUNCTION	0.000	3.348	0	06:37	0	82.8	0.171	
J1653	JUNCTION	0.000	14.708	0	06:14	0	182	0.009	
J1656	JUNCTION	0.000	28.646	0	06:03	0	308	0.063	
J1657	JUNCTION	0.000	22.122	0	06:50	0	430	0.097	
J1658	JUNCTION	0.000	17.662	0	06:25	0	223	0.094	
J1659	JUNCTION	0.000	17.344	0	06:14	0	121	0.007	
J1662	JUNCTION	1.406	21.006	0	06:16	3.91	153	0.010	
J1664	JUNCTION	0.000	24.522	0	06:04	0	350	0.013	
J1670	JUNCTION	2.672	30.151	0	06:17	19.4	462	0.024	
J1674	JUNCTION	0.000	21.974	0	06:18	0	305	0.024	
J1676	JUNCTION	3.218	22.695	0	06:52	14.3	444	0.086	
J1678	JUNCTION	0.000	32.371	0	06:25	0	511	0.197	
J1680	JUNCTION	2.547	33.088	0	06:30	19.6	529	0.059	
J176	JUNCTION	0.000	1.226	0	07:37	0	37.9	3.226	
J187	JUNCTION	0.000	2.876	0	05:59	0	38.1	0.015	
J197	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J208	JUNCTION	0.000	2.928	0	05:57	0	38.1	0.023	
J237	JUNCTION	13.053	25.857	0	06:03	93.4	154	0.017	
J239	JUNCTION	2.270	7.036	0	06:00	7.71	28.4	-0.287	
J24	JUNCTION	6.455	16.169	0	06:00	27.6	93.1	-0.011	
J246	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J250	JUNCTION	0.963	12.907	0	06:01	2.71	60.9	0.011	
J264	JUNCTION	0.000	2.951	0	05:56	0	38.1	0.015	
J270	JUNCTION	2.529	6.146	0	06:23	10.4	94.6	0.015	
J275	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J287	JUNCTION	3.072	3.072	0	05:54	38.1	38.1	0.031	
J296	JUNCTION	0.000	2.841	0	06:01	0	38.1	0.476	
J30	JUNCTION	6.953	11.597	0	06:00	36.3	65.6	0.031	

J304	JUNCTION	1.434	10.001	0	06:01	4.49	48.4	0.027	
J307	JUNCTION	5.129	5.129	0	06:00	20.7	20.7	-0.102	
J324	JUNCTION	1.940	7.476	0	06:00	6.69	35.8	0.016	
J332	JUNCTION	4.393	32.398	0	06:24	29.5	511	0.039	
J335	JUNCTION	0.000	4.697	0	06:05	0	39.2	-0.281	
J351	JUNCTION	7.629	7.629	0	06:00	38.7	38.7	-0.467	
J353	JUNCTION	3.650	3.650	0	06:00	14.4	14.4	-0.044	
J357	JUNCTION	3.021	30.949	0	06:23	20.9	482	0.069	
J380	JUNCTION	0.000	10.290	0	06:06	0	53.3	0.247	
J382	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J386	JUNCTION	2.593	3.804	0	06:00	16.6	83.3	0.550	
J393	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J395	JUNCTION	0.000	6.332	0	06:01	0	39.6	1.145	
J408	JUNCTION	3.669	10.771	0	06:02	17.8	85.9	0.069	
J414	JUNCTION	2.250	5.574	0	06:19	14.1	84.9	0.736	
J416	JUNCTION	7.173	7.173	0	06:00	37	37	-0.466	
J418	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J42	JUNCTION	0.000	10.271	0	06:02	0	125	0.011	
J424	JUNCTION	2.353	18.790	0	06:17	12	267	0.136	
J437	JUNCTION	0.000	11.081	0	06:00	0	53.3	0.095	
J442	JUNCTION	0.000	10.562	0	06:02	0	53.2	-0.094	
J460	JUNCTION	4.995	4.995	0	06:00	27.4	27.4	-0.002	
J462	JUNCTION	0.000	2.961	0	05:55	0	18.2	0.086	
J464	JUNCTION	6.743	6.743	0	06:00	39.5	39.5	-0.252	
J470	JUNCTION	0.000	2.147	0	05:56	0	25.9	0.031	
J476	JUNCTION	5.908	28.903	0	06:15	46.8	442	0.059	
J478	JUNCTION	0.000	4.987	0	06:00	0	27.4	-0.183	
J480	JUNCTION	1.045	18.028	0	06:28	13.5	236	0.115	
J488	JUNCTION	2.537	2.739	0	05:54	31.3	67.2	0.279	
J497	JUNCTION	0.000	2.152	0	05:55	0	25.9	0.026	
J502	JUNCTION	2.191	2.191	0	05:54	25.9	25.9	0.009	
J509	JUNCTION	2.475	5.017	0	06:00	15.9	72.3	0.248	
J511	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J513	JUNCTION	0.000	2.188	0	05:54	0	25.9	0.036	
J52	JUNCTION	5.751	7.683	0	06:00	22.2	112	0.759	
J528	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J530	JUNCTION	2.962	2.962	0	05:54	18.2	18.2	0.006	
J535	JUNCTION	0.000	2.884	0	06:00	0	25.1	0.321	
J543	JUNCTION	0.000	1.341	0	06:03	0	14	0.151	
J547	JUNCTION	11.192	11.192	0	06:00	53.2	53.2	-0.090	
J558	JUNCTION	0.000	1.329	0	06:00	0	15.4	0.228	
J580	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J582	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J587	JUNCTION	0.000	9.916	0	06:01	0	62.4	0.228	
J591	JUNCTION	0.742	0.742	0	05:54	11.3	11.3	-0.073	
J596	JUNCTION	0.000	2.093	0	06:16	0	36.1	0.689	

J6	JUNCTION	1.289	15.928	0	06:04	11.3	104	0.451	
J607	JUNCTION	0.000	9.103	0	06:07	0	62.3	0.067	
J630	JUNCTION	2.598	17.732	0	06:23	14.3	223	0.080	
J635	JUNCTION	3.006	3.006	0	05:54	25.1	25.1	0.045	
J637	JUNCTION	0.000	4.418	0	05:58	0	47	0.033	
J641	JUNCTION	10.377	10.377	0	06:00	62.4	62.4	-0.060	
J65	JUNCTION	4.757	4.757	0	05:54	29.4	29.4	0.031	
J666	JUNCTION	2.790	11.391	0	06:12	15	163	0.086	
J669	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J675	JUNCTION	0.000	16.935	0	06:21	0	209	0.032	
J698	JUNCTION	2.884	12.606	0	06:13	11.9	175	0.149	
J706	JUNCTION	0.000	2.351	0	06:05	0	36.4	0.682	
J712	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J715	JUNCTION	0.000	34.985	0	06:07	0	313	0.080	
J731	JUNCTION	0.000	11.082	0	06:20	0	95.9	0.319	
J75	JUNCTION	4.192	4.192	0	05:54	28.7	28.7	-0.037	
J753	JUNCTION	4.371	4.371	0	06:00	47	47	0.026	
J757	JUNCTION	0.000	3.361	0	06:04	0	45.5	0.060	
J780	JUNCTION	1.608	1.608	0	05:54	14	14	0.002	
J782	JUNCTION	0.000	3.359	0	06:05	0	45.4	0.297	
J787	JUNCTION	1.388	6.010	0	06:19	15.2	113	0.183	
J793	JUNCTION	0.000	4.960	0	05:59	0	48.1	0.230	
J80	JUNCTION	0.000	4.182	0	06:07	0	90.3	0.262	
J801	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J815	JUNCTION	0.000	3.438	0	06:01	0	45.5	0.111	
J851	JUNCTION	0.000	7.037	0	06:12	0	119	0.088	
J857	JUNCTION	6.437	6.437	0	06:00	28.1	28.1	-0.013	
J861	JUNCTION	0.000	3.120	0	05:55	0	36.6	0.476	
J875	JUNCTION	1.273	4.393	0	06:08	7.98	81.5	0.681	
J879	JUNCTION	0.000	5.522	0	06:14	0	98.5	0.186	
J883	JUNCTION	0.000	4.642	0	06:01	0	48	0.352	
J887	JUNCTION	4.896	4.896	0	05:54	48.2	48.2	0.066	
J889	JUNCTION	0.000	13.854	0	06:04	0	96.6	0.007	
J898	JUNCTION	0.000	3.671	0	05:57	0	45.6	0.174	
J906	JUNCTION	0.000	1.413	0	06:01	0	1.44	8.814	
J908	JUNCTION	0.000	14.666	0	06:01	0	96.8	0.197	
J921	JUNCTION	1.724	5.838	0	06:10	18.2	98.7	0.214	
J934	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J942	JUNCTION	0.000	5.540	0	06:09	0	91.2	0.060	
J947	JUNCTION	0.000	9.599	0	06:00	0	64.6	0.136	
J954	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J957	JUNCTION	0.000	7.847	0	06:00	0	47.2	0.047	
J963	JUNCTION	3.180	3.180	0	05:54	36.6	36.6	0.043	
J967	JUNCTION	2.301	5.600	0	06:08	21.9	91.3	0.105	
J973	JUNCTION	0.000	5.279	0	06:00	0	51.3	0.145	
J977	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr

J979	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J981	JUNCTION	0.000	7.902	0	06:00	0	47.2	0.037	
J985	JUNCTION	3.844	3.844	0	05:54	45.6	45.6	0.053	
J1601	OUTFALL	0.000	25.850	0	06:03	0	154	0.000	
J1617	OUTFALL	0.000	18.625	0	06:04	0	129	0.000	
J1623	OUTFALL	0.000	8.250	0	06:06	0	60.7	0.000	
J1642	OUTFALL	0.000	10.269	0	06:02	0	125	0.000	
J1663	OUTFALL	0.000	20.998	0	06:16	0	153	0.000	
J1677	OUTFALL	0.000	29.571	0	06:22	0	422	0.000	
J1679	OUTFALL	0.000	22.669	0	06:54	0	443	0.000	
J1682	OUTFALL	0.000	33.061	0	06:32	0	529	0.000	
J2	OUTFALL	0.000	15.101	0	06:10	0	108	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J1574	JUNCTION	0.59	0.000	0.000
J1648	JUNCTION	0.52	0.120	0.380
J246	JUNCTION	24.00	0.000	2.000
J715	JUNCTION	0.30	0.000	0.000
J801	JUNCTION	24.00	0.000	2.000
J977	JUNCTION	24.00	0.000	2.000

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days	hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
J1574	0.59	12.601	0	06:12	18.806	0.000
J715	0.30	6.785	0	06:08	4.849	0.000

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
J1601	99.41	1.797	25.850	154.332
J1617	98.87	1.512	18.625	129.196
J1623	97.39	0.721	8.250	60.657
J1642	97.18	1.492	10.269	125.253
J1663	99.37	1.776	20.998	152.505
J1677	98.86	4.944	29.571	422.234
J1679	98.77	5.195	22.669	443.342
J1682	99.13	6.176	33.061	528.921
J2	97.85	1.277	15.101	107.939
System	98.54	24.890	149.950	2124.379

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.761	0	05:57	0.33	0.01	0.33
C102	CONDUIT	14.190	0	06:14	2.04	0.10	0.57
C105	CONDUIT	14.708	0	06:14	3.11	0.22	0.43
C106	CONDUIT	16.898	0	06:24	1.48	0.49	0.73
C109	CONDUIT	3.348	0	06:37	0.74	0.29	0.43
C110	CONDUIT	16.921	0	06:22	2.19	0.14	0.58
C111	CONDUIT	12.483	0	06:16	2.56	0.19	0.44
C112	CONDUIT	4.805	0	06:13	0.67	0.03	0.58
C113	CONDUIT	11.305	0	06:14	1.66	0.26	0.54
C117	CONDUIT	6.978	0	06:15	1.56	0.10	0.44
C119	CONDUIT	4.549	0	07:07	0.32	0.13	0.86
C120	CONDUIT	11.309	0	06:14	1.75	0.19	0.52
C123	CONDUIT	4.806	0	06:12	1.07	0.34	0.42
C125	CONDUIT	0.000	0	00:00	0.00	0.00	0.29

C126	CONDUIT	5.895	0	06:22	1.38	0.12	0.41
C134	CONDUIT	3.727	0	06:13	0.74	0.05	0.45
C136	CONDUIT	10.269	0	06:02	3.45	0.08	0.32
C142	CONDUIT	10.271	0	06:02	3.78	0.06	0.31
C143	CONDUIT	5.400	0	06:19	1.40	0.11	0.38
C144	CONDUIT	2.596	0	06:30	1.14	0.05	0.28
C145	CONDUIT	3.750	0	06:12	1.87	0.04	0.25
C147	CONDUIT	7.037	0	06:12	2.05	0.09	0.36
C148	CONDUIT	10.291	0	06:01	1.94	0.52	0.46
C150	CONDUIT	5.474	0	06:13	1.12	0.15	0.44
C151	CONDUIT	5.452	0	06:17	1.09	0.22	0.45
C154	CONDUIT	7.161	0	06:04	1.43	0.05	0.45
C155	CONDUIT	9.689	0	06:13	1.95	0.13	0.45
C162	CONDUIT	19.691	0	06:05	2.19	0.20	0.64
C163	CONDUIT	5.497	0	06:12	1.26	0.06	0.41
C168	CONDUIT	5.508	0	06:11	1.59	0.20	0.36
C172	CONDUIT	5.522	0	06:14	1.09	0.11	0.45
C174	CONDUIT	5.517	0	06:10	1.62	0.06	0.35
C177	CONDUIT	8.250	0	06:06	2.24	0.10	0.37
C178	CONDUIT	5.444	0	06:25	1.81	0.09	0.33
C181	CONDUIT	4.155	0	06:13	1.38	0.04	0.33
C183	CONDUIT	4.162	0	06:25	1.14	0.08	0.50
C187	CONDUIT	4.181	0	06:12	0.92	0.07	0.42
C190	CONDUIT	18.625	0	06:04	3.17	0.19	0.49
C192	CONDUIT	5.540	0	06:09	2.22	0.06	0.29
C193	CONDUIT	5.455	0	06:23	0.79	0.15	0.55
C2	CONDUIT	15.101	0	06:10	2.40	0.22	0.51
C211	CONDUIT	3.520	0	06:19	0.69	0.28	0.45
C212	CONDUIT	8.122	0	06:04	1.91	0.14	0.41
C219	CONDUIT	2.093	0	06:16	1.03	0.05	0.26
C223	CONDUIT	2.016	0	06:14	1.11	0.03	0.24
C224	CONDUIT	25.850	0	06:03	5.65	0.14	0.42
C226	CONDUIT	3.865	0	06:13	0.82	0.08	0.45
C227	CONDUIT	4.795	0	06:19	0.82	0.05	0.49
C228	CONDUIT	5.077	0	06:11	1.58	0.07	0.35
C229	CONDUIT	4.471	0	06:08	2.21	0.03	0.25
C230	CONDUIT	8.295	0	06:02	1.69	0.15	0.44
C234	CONDUIT	11.293	0	06:02	2.06	0.11	0.48
C235	CONDUIT	17.455	0	06:03	2.63	0.26	0.53
C236	CONDUIT	11.082	0	06:20	0.95	0.22	0.74
C237	CONDUIT	5.311	0	06:07	1.87	0.08	0.32
C243	CONDUIT	14.019	0	06:03	1.77	0.31	0.59
C244	CONDUIT	15.614	0	06:12	3.42	0.10	0.42
C246	CONDUIT	4.535	0	06:07	2.28	0.05	0.25
C247	CONDUIT	12.823	0	06:03	2.58	0.17	0.45
C251	CONDUIT	9.509	0	06:02	2.80	0.08	0.35

C253	CONDUIT	8.522	0	06:06	2.10	0.09	0.41
C254	CONDUIT	3.359	0	06:05	2.38	0.03	0.20
C257	CONDUIT	4.356	0	06:17	0.86	0.38	0.45
C263	CONDUIT	14.773	0	06:09	1.37	0.56	0.71
C264	CONDUIT	12.237	0	06:02	2.51	0.13	0.44
C266	CONDUIT	10.487	0	06:05	1.41	0.23	0.57
C269	CONDUIT	9.370	0	06:02	2.68	0.12	0.37
C274	CONDUIT	7.198	0	06:07	0.89	0.21	0.61
C275	CONDUIT	5.379	0	06:06	1.86	0.07	0.32
C276	CONDUIT	1.222	0	07:56	0.85	0.01	0.20
C280	CONDUIT	5.152	0	06:04	1.30	0.09	0.39
C284	CONDUIT	8.842	0	06:11	1.92	0.16	0.43
C287	CONDUIT	0.000	0	00:00	0.00	0.00	0.17
C290	CONDUIT	3.361	0	06:04	2.24	0.03	0.21
C293	CONDUIT	8.686	0	06:11	0.76	0.16	0.73
C296	CONDUIT	4.788	0	06:07	1.77	0.04	0.31
C300	CONDUIT	7.773	0	06:01	2.54	0.08	0.33
C302	CONDUIT	5.421	0	06:01	0.85	0.16	0.52
C305	CONDUIT	1.257	0	06:06	0.82	0.01	0.21
C306	CONDUIT	9.932	0	06:02	2.31	0.12	0.41
C310	CONDUIT	7.847	0	06:00	2.73	0.07	0.32
C312	CONDUIT	8.993	0	06:02	1.79	0.23	0.45
C315	CONDUIT	4.981	0	06:05	2.40	0.06	0.26
C316	CONDUIT	1.223	0	07:52	0.37	0.04	0.34
C329	CONDUIT	2.740	0	06:05	1.25	0.03	0.27
C334	CONDUIT	2.778	0	06:03	0.75	0.04	0.37
C337	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C340	CONDUIT	9.103	0	06:07	1.25	0.34	0.56
C348	CONDUIT	15.189	0	06:05	1.36	0.29	0.74
C35	CONDUIT	32.154	0	06:30	2.95	0.67	0.71
C351	CONDUIT	5.111	0	06:02	2.22	0.05	0.28
C355	CONDUIT	4.822	0	06:03	2.69	0.03	0.24
C356	CONDUIT	7.902	0	06:00	2.82	0.08	0.31
C357	CONDUIT	9.599	0	06:00	2.65	0.09	0.37
C358	CONDUIT	2.570	0	06:03	1.35	0.04	0.26
C359	CONDUIT	3.438	0	06:01	2.57	0.02	0.19
C36	CONDUIT	22.669	0	06:54	2.66	0.32	0.61
C364	CONDUIT	13.115	0	06:14	1.82	0.26	0.57
C365	CONDUIT	10.290	0	06:06	1.91	0.19	0.48
C366	CONDUIT	15.806	0	06:02	2.02	0.30	0.59
C368	CONDUIT	4.141	0	06:08	1.09	0.11	0.38
C370	CONDUIT	1.226	0	07:37	0.54	0.04	0.39
C38	CONDUIT	32.371	0	06:25	2.12	0.67	0.87
C382	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C395	CONDUIT	13.887	0	06:05	1.87	0.31	0.59
C40	CONDUIT	30.910	0	06:25	2.11	0.64	0.84

C403	CONDUIT	6.101	0	06:01	3.12	0.04	0.26
C408	CONDUIT	4.947	0	05:58	2.02	0.05	0.31
C41	CONDUIT	29.571	0	06:22	2.37	0.60	0.77
C418	CONDUIT	1.413	0	06:01	0.28	0.08	0.60
C42	CONDUIT	22.097	0	06:52	2.49	0.35	0.63
C420	CONDUIT	10.562	0	06:02	1.82	0.19	0.49
C423	CONDUIT	6.844	0	06:00	0.96	0.08	0.58
C424	CONDUIT	13.854	0	06:04	1.67	0.29	0.61
C433	CONDUIT	1.341	0	06:03	1.67	0.01	0.13
C434	CONDUIT	9.916	0	06:01	1.34	0.21	0.59
C439	CONDUIT	0.000	0	00:00	0.00	0.00	0.25
C440	CONDUIT	4.642	0	06:01	1.35	0.08	0.38
C441	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C443	CONDUIT	5.059	0	06:01	2.55	0.06	0.25
C445	CONDUIT	1.088	0	06:05	0.33	0.02	0.39
C447	CONDUIT	4.631	0	06:12	0.94	0.16	0.46
C455	CONDUIT	4.677	0	06:00	2.37	0.03	0.27
C456	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C457	CONDUIT	0.000	0	00:00	0.00	0.00	0.31
C46	CONDUIT	18.857	0	06:50	2.18	0.30	0.62
C462	CONDUIT	5.069	0	06:00	1.66	0.08	0.33
C464	CONDUIT	2.841	0	06:01	0.70	0.05	0.40
C467	CONDUIT	2.135	0	05:56	1.78	0.01	0.18
C468	CONDUIT	5.099	0	05:57	1.61	0.11	0.34
C469	CONDUIT	0.000	0	00:00	0.00	0.00	0.39
C470	CONDUIT	4.697	0	06:05	0.77	0.17	0.54
C475	CONDUIT	10.707	0	06:03	1.17	0.39	0.64
C48	CONDUIT	21.971	0	06:19	2.30	0.18	0.66
C49	CONDUIT	21.974	0	06:18	2.79	0.73	0.59
C494	CONDUIT	2.867	0	06:00	1.65	0.02	0.23
C496	CONDUIT	5.279	0	06:00	2.82	0.04	0.25
C497	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C501	CONDUIT	2.147	0	05:56	3.84	0.01	0.10
C509	CONDUIT	4.904	0	05:57	2.46	0.06	0.25
C51	CONDUIT	29.869	0	06:23	2.21	0.55	0.80
C521	CONDUIT	2.876	0	05:59	1.77	0.03	0.22
C524	CONDUIT	3.120	0	05:55	2.16	0.03	0.22
C528	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C540	CONDUIT	5.186	0	05:55	1.57	0.08	0.35
C542	CONDUIT	3.678	0	05:59	0.67	0.04	0.64
C551	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C562	CONDUIT	6.367	0	05:58	2.20	0.12	0.32
C567	CONDUIT	0.000	0	00:00	0.00	0.00	0.15
C568	CONDUIT	2.152	0	05:55	2.59	0.02	0.13
C569	CONDUIT	2.884	0	06:00	1.88	0.03	0.22
C57	CONDUIT	30.145	0	06:17	2.76	0.39	0.72

C571	CONDUIT	6.403	0	06:00	2.34	0.08	0.31
C573	CONDUIT	4.944	0	05:55	2.56	0.03	0.25
C574	CONDUIT	3.671	0	05:57	2.93	0.03	0.19
C575	CONDUIT	4.960	0	05:59	1.71	0.08	0.33
C578	CONDUIT	2.961	0	05:55	2.61	0.02	0.17
C584	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C588	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C590	CONDUIT	2.188	0	05:54	1.96	0.02	0.17
C596	CONDUIT	0.000	0	00:00	0.00	0.00	0.30
C599	CONDUIT	7.317	0	06:00	1.02	0.25	0.58
C608	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C613	CONDUIT	4.824	0	06:01	2.24	0.03	0.28
C62	CONDUIT	26.566	0	06:18	1.78	0.75	0.85
C621	CONDUIT	2.928	0	05:57	3.28	0.01	0.15
C624	CONDUIT	1.247	0	06:03	0.94	0.03	0.21
C628	CONDUIT	5.006	0	05:54	2.74	0.05	0.24
C630	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C631	CONDUIT	14.666	0	06:01	2.13	0.22	0.55
C632	CONDUIT	1.537	0	05:58	2.09	0.01	0.13
C644	CONDUIT	4.987	0	06:00	2.84	0.05	0.23
C647	CONDUIT	5.535	0	05:56	3.05	0.04	0.24
C661	CONDUIT	1.329	0	06:00	1.56	0.02	0.14
C662	CONDUIT	4.646	0	06:00	1.16	0.06	0.39
C663	CONDUIT	11.081	0	06:00	3.20	0.05	0.38
C665	CONDUIT	0.577	0	06:02	0.59	0.01	0.40
C669	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C677	CONDUIT	0.000	0	00:00	0.00	0.00	0.08
C679	CONDUIT	6.332	0	06:01	1.14	0.14	0.50
C68	CONDUIT	17.596	0	06:32	1.31	0.42	0.84
C683	CONDUIT	2.951	0	05:56	2.06	0.05	0.20
C685	CONDUIT	33.061	0	06:32	5.02	0.23	0.53
C686	CONDUIT	16.961	0	06:48	1.27	1.29	0.80
C687	CONDUIT	28.880	0	06:17	2.49	0.59	0.74
C69	CONDUIT	24.297	0	06:05	2.36	0.31	0.75
C690	CONDUIT	18.642	0	06:20	1.83	0.39	0.68
C691	CONDUIT	17.969	0	06:17	1.30	0.99	0.81
C694	CONDUIT	13.245	0	06:17	1.38	0.10	0.66
C699	CONDUIT	2.558	0	06:35	0.54	0.06	0.43
C700	CONDUIT	7.010	0	06:14	1.98	0.09	0.36
C701	CONDUIT	7.164	0	06:04	1.02	0.11	0.55
C702	CONDUIT	6.138	0	06:25	0.93	0.06	0.57
C703	CONDUIT	17.625	0	06:11	2.71	0.18	0.53
C704	CONDUIT	19.803	0	06:04	2.94	0.26	0.54
C705	CONDUIT	3.800	0	06:12	0.55	0.07	0.56
C706	CONDUIT	1.782	0	06:26	0.77	0.06	0.28
C708	CONDUIT	2.924	0	06:10	1.66	0.03	0.23

C709	CONDUIT	3.808	0	06:09	0.98	0.02	0.39
C710	CONDUIT	11.052	0	06:21	1.17	0.10	0.65
C711	CONDUIT	4.182	0	06:07	1.59	0.07	0.31
C712	CONDUIT	3.885	0	06:07	1.90	0.07	0.25
C714	CONDUIT	3.598	0	06:07	0.75	0.06	0.46
C717	CONDUIT	8.041	0	06:05	1.54	0.11	0.46
C719	CONDUIT	7.387	0	06:00	1.52	0.12	0.45
C72	CONDUIT	24.522	0	06:04	1.83	0.45	0.80
C720	CONDUIT	4.165	0	06:00	0.81	0.05	0.48
C721	CONDUIT	6.649	0	06:01	0.82	0.08	0.65
C723	CONDUIT	15.804	0	06:02	1.94	0.30	0.60
C725	CONDUIT	5.621	0	06:00	1.79	0.06	0.34
C726	CONDUIT	2.351	0	06:05	1.43	0.04	0.23
C73	CONDUIT	20.998	0	06:16	4.71	0.04	0.25
C731	CONDUIT	3.854	0	06:02	0.71	0.08	0.59
C732	CONDUIT	4.418	0	05:58	1.61	0.08	0.32
C734	CONDUIT	6.304	0	06:01	1.57	0.05	0.42
C735	CONDUIT	11.403	0	06:00	1.56	0.19	0.59
C76	CONDUIT	20.696	0	06:16	1.64	0.23	0.48
C78	CONDUIT	17.280	0	06:15	1.20	0.27	0.83
C81	CONDUIT	17.344	0	06:14	2.00	0.28	0.62
C83	CONDUIT	28.168	0	06:20	1.80	0.49	0.87
C85	CONDUIT	17.476	0	06:28	1.88	0.34	0.66
C91	CONDUIT	17.662	0	06:25	1.81	0.44	0.67
C95	CONDUIT	3.340	0	06:40	0.95	0.06	0.46
C96	CONDUIT	28.646	0	06:03	1.90	1.14	0.87
C99	CONDUIT	34.985	0	06:07	2.16	0.55	0.89

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C102	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C105	1.00	0.02	0.00	0.00	0.20	0.78	0.00	0.00	0.01	0.00
C106	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.65	0.00
C109	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.00	0.00
C110	1.00	0.01	0.00	0.00	0.96	0.02	0.00	0.00	0.94	0.00
C111	1.00	0.00	0.00	0.00	0.68	0.32	0.00	0.00	0.00	0.00
C112	1.00	0.01	0.04	0.00	0.95	0.00	0.00	0.00	0.95	0.00

C113	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.10	0.00
C117	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C119	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.50	0.00
C120	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C123	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.00	0.00
C125	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C126	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15	0.00
C134	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	1.00	0.00
C136	1.00	0.01	0.00	0.00	0.04	0.95	0.00	0.00	0.04	0.00
C142	1.00	0.01	0.00	0.00	0.01	0.98	0.00	0.00	0.96	0.00
C143	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.95	0.00
C144	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
C145	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.89	0.00
C147	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C148	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C150	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C151	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C154	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.88	0.00
C155	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C162	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C163	1.00	0.01	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C168	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C172	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C174	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.96	0.00
C177	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.03	0.00
C178	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.03	0.00
C181	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.87	0.00
C183	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.82	0.00
C187	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	0.00	0.00
C190	1.00	0.00	0.00	0.00	0.37	0.62	0.00	0.00	0.47	0.00
C192	1.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.74	0.00
C193	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C211	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C212	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C219	1.00	0.05	0.00	0.00	0.95	0.00	0.00	0.00	0.84	0.00
C223	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.91	0.00
C224	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.02	0.00
C226	1.00	0.02	0.03	0.00	0.95	0.00	0.00	0.00	0.92	0.00
C227	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C228	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.94	0.00
C229	1.00	0.00	0.05	0.00	0.20	0.75	0.00	0.00	0.95	0.00
C230	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C234	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C235	1.00	0.00	0.00	0.00	0.97	0.02	0.00	0.00	0.00	0.00
C236	1.00	0.01	0.05	0.00	0.94	0.00	0.00	0.00	0.06	0.00

C237	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C243	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C244	1.00	0.00	0.06	0.00	0.10	0.84	0.00	0.00	0.94	0.00
C246	1.00	0.04	0.00	0.00	0.16	0.80	0.00	0.00	0.00	0.00
C247	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.76	0.00
C251	1.00	0.00	0.00	0.00	0.17	0.82	0.00	0.00	1.00	0.00
C253	1.00	0.02	0.00	0.00	0.95	0.03	0.00	0.00	0.92	0.00
C254	1.00	0.04	0.00	0.00	0.40	0.57	0.00	0.00	0.89	0.00
C257	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.08	0.00
C263	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07	0.00
C264	1.00	0.00	0.00	0.00	0.96	0.04	0.00	0.00	0.96	0.00
C266	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C269	1.00	0.01	0.00	0.00	0.83	0.16	0.00	0.00	0.01	0.00
C274	1.00	0.01	0.05	0.00	0.94	0.00	0.00	0.00	0.08	0.00
C275	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.92	0.00
C276	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.74	0.00
C280	1.00	0.00	0.09	0.00	0.91	0.00	0.00	0.00	0.91	0.00
C284	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C287	1.00	0.03	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C290	1.00	0.02	0.00	0.00	0.09	0.89	0.00	0.00	0.01	0.00
C293	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.94	0.00
C296	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C300	1.00	0.00	0.01	0.00	0.46	0.53	0.00	0.00	0.03	0.00
C302	1.00	0.00	0.09	0.00	0.91	0.00	0.00	0.00	0.00	0.00
C305	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C306	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.47	0.00
C310	1.00	0.01	0.00	0.00	0.30	0.70	0.00	0.00	0.95	0.00
C312	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04	0.00
C315	1.00	0.03	0.00	0.00	0.36	0.61	0.00	0.00	0.00	0.00
C316	1.00	0.04	0.22	0.00	0.74	0.00	0.00	0.00	0.00	0.00
C329	1.00	0.00	0.10	0.00	0.90	0.00	0.00	0.00	0.90	0.00
C334	1.00	0.03	0.07	0.00	0.90	0.00	0.00	0.00	0.00	0.00
C337	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C340	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C348	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C35	1.00	0.00	0.01	0.00	0.93	0.06	0.00	0.00	0.03	0.00
C351	1.00	0.02	0.00	0.00	0.73	0.25	0.00	0.00	0.92	0.00
C355	1.00	0.03	0.00	0.00	0.04	0.93	0.00	0.00	0.93	0.00
C356	1.00	0.00	0.00	0.00	0.14	0.86	0.00	0.00	0.00	0.00
C357	1.00	0.00	0.00	0.00	0.63	0.37	0.00	0.00	0.95	0.00
C358	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.91	0.00
C359	1.00	0.00	0.00	0.00	0.02	0.98	0.00	0.00	0.94	0.00
C36	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.02	0.00
C364	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.85	0.00
C365	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.89	0.00
C366	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.75	0.00

C368	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C370	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C38	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C382	1.00	0.02	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C395	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.04	0.00
C40	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C403	1.00	0.01	0.00	0.00	0.01	0.98	0.00	0.00	0.94	0.00
C408	1.00	0.00	0.00	0.00	0.95	0.05	0.00	0.00	0.94	0.00
C41	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C418	1.00	0.04	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00
C42	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.19	0.00
C420	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.72	0.00
C423	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C424	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C433	1.00	0.01	0.00	0.00	0.75	0.24	0.00	0.00	0.84	0.00
C434	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C439	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C440	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93	0.00
C441	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C443	1.00	0.02	0.00	0.00	0.05	0.93	0.00	0.00	0.00	0.00
C445	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C447	1.00	0.06	0.02	0.00	0.92	0.00	0.00	0.00	0.82	0.00
C455	1.00	0.02	0.00	0.00	0.93	0.06	0.00	0.00	0.94	0.00
C456	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C457	1.00	0.06	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C46	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.93	0.00
C462	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.46	0.00
C464	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C467	1.00	0.00	0.01	0.00	0.23	0.76	0.00	0.00	0.99	0.00
C468	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C469	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C470	1.00	0.01	0.06	0.00	0.92	0.00	0.00	0.00	0.00	0.00
C475	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.04	0.00
C48	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C49	1.00	0.01	0.00	0.00	0.94	0.04	0.00	0.00	0.00	0.00
C494	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.99	0.00
C496	1.00	0.00	0.00	0.00	0.02	0.98	0.00	0.00	0.93	0.00
C497	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C501	1.00	0.01	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.00
C509	1.00	0.01	0.00	0.00	0.15	0.84	0.00	0.00	0.00	0.00
C51	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.99	0.00
C521	1.00	0.01	0.00	0.00	0.97	0.03	0.00	0.00	0.95	0.00
C524	1.00	0.00	0.00	0.00	0.93	0.07	0.00	0.00	0.93	0.00
C528	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C540	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
C542	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.78	0.00

C551	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C562	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.00	0.00
C567	1.00	0.03	0.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C568	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.00	0.00
C569	1.00	0.00	0.00	0.00	0.96	0.04	0.00	0.00	0.92	0.00
C57	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.90	0.00
C571	1.00	0.00	0.00	0.00	0.90	0.10	0.00	0.00	0.00	0.00
C573	1.00	0.00	0.00	0.00	0.06	0.94	0.00	0.00	0.97	0.00
C574	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.01	0.00
C575	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C578	1.00	0.00	0.00	0.00	0.06	0.94	0.00	0.00	0.92	0.00
C584	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C588	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C590	1.00	0.00	0.00	0.00	0.42	0.58	0.00	0.00	0.01	0.00
C596	1.00	0.06	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C599	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
C608	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C613	1.00	0.01	0.00	0.00	0.93	0.07	0.00	0.00	0.95	0.00
C62	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.09	0.00
C621	1.00	0.01	0.00	0.00	0.01	0.99	0.00	0.00	0.97	0.00
C624	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C628	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.00	0.00
C630	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C631	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C632	1.00	0.00	0.00	0.00	0.45	0.55	0.00	0.00	0.91	0.00
C644	1.00	0.00	0.00	0.00	0.13	0.87	0.00	0.00	0.00	0.00
C647	1.00	0.00	0.00	0.00	0.01	0.99	0.00	0.00	0.01	0.00
C661	1.00	0.00	0.00	0.00	0.97	0.03	0.00	0.00	0.87	0.00
C662	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C663	1.00	0.00	0.00	0.00	0.51	0.49	0.00	0.00	0.96	0.00
C665	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C669	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C677	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C679	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
C68	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.89	0.00
C683	1.00	0.00	0.00	0.00	0.60	0.40	0.00	0.00	0.00	0.00
C685	1.00	0.00	0.00	0.00	0.03	0.97	0.00	0.00	0.05	0.00
C686	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C687	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.06	0.00
C69	1.00	0.03	0.06	0.00	0.91	0.00	0.00	0.00	0.91	0.00
C690	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C691	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C694	1.00	0.00	0.00	0.00	0.98	0.02	0.00	0.00	0.97	0.00
C699	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C700	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.92	0.00
C701	1.00	0.00	0.12	0.00	0.88	0.00	0.00	0.00	0.00	0.00

C702	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C703	1.00	0.00	0.00	0.00	0.94	0.06	0.00	0.00	0.93	0.00
C704	1.00	0.00	0.00	0.00	0.84	0.16	0.00	0.00	0.00	0.00
C705	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C706	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.92	0.00
C708	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.95	0.00
C709	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.96	0.00
C710	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.07	0.00
C711	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.74	0.00
C712	1.00	0.03	0.00	0.00	0.96	0.01	0.00	0.00	0.00	0.00
C714	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C717	1.00	0.00	0.01	0.00	0.98	0.00	0.00	0.00	0.99	0.00
C719	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C72	1.00	0.04	0.05	0.00	0.91	0.00	0.00	0.00	0.00	0.00
C720	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
C721	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.95	0.00
C723	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C725	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C726	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.03	0.00
C73	1.00	0.00	0.00	0.00	0.02	0.97	0.00	0.00	0.07	0.00
C731	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.90	0.00
C732	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
C734	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C735	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
C76	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05	0.00
C78	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.94	0.00
C81	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C83	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C85	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.96	0.00
C91	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C95	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.88	0.00
C96	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C99	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full			Hours Above Full Normal Flow	Hours Capacity Limited
	Both Ends	Upstream	Dnstream		
C119	0.01	0.01	0.52	0.01	0.01
C68	0.01	0.01	0.52	0.01	0.01

C686	0.01	0.52	0.01	0.97	0.01
C721	0.01	0.01	0.36	0.01	0.01
C78	0.01	0.01	0.36	0.01	0.01
C96	0.01	0.01	0.01	0.42	0.01

Analysis begun on: Mon Sep 09 16:23:25 2019
Analysis ended on: Mon Sep 09 16:23:54 2019
Total elapsed time: 00:00:29

Existing Condition

HEC-RAS Plan: Default Scenario Profile: 100-Year

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Prudhomme	Trib2a	1612	100-Year	89.72	89.63	0.09	0.11	0.00	0.60	2.89	0.41	24.21
Prudhomme	Trib2a	1595	100-Year	89.59	89.51	0.08	0.18	0.02	1.39	2.40	0.11	20.94
Prudhomme	Trib2a	1554	100-Year	89.39	89.38	0.02	0.47	0.00	2.51	0.85	0.53	36.38
Prudhomme	Trib2a	1421	100-Year	88.93	88.88	0.05	0.22	0.01	0.45	2.15	1.30	30.79
Prudhomme	Trib2a	1343	100-Year	88.70	88.68	0.02	0.04	0.01	0.43	1.85	1.62	35.05
Prudhomme	Trib2a	1241	100-Year	88.66	88.66	0.00	0.00	0.03	3.32	0.83	0.35	51.47
Prudhomme	Trib2a	1229	100-Year	88.63	88.58	0.05			0.96	2.72	0.81	41.63
Prudhomme	Trib2a	1221 PT2-1		Culvert								
Prudhomme	Trib2a	1213	100-Year	88.44	88.37	0.07	0.08	0.04	0.18	4.00	0.32	33.53
Prudhomme	Trib2a	1202	100-Year	88.32	88.30	0.02	0.07	0.00	4.17	0.32	0.00	27.00
Prudhomme	Trib2a	1186	100-Year	88.24	88.22	0.02	0.05	0.00	0.28	2.98	1.24	29.06
Prudhomme	Trib2a	1176	100-Year	88.19	88.16	0.03	0.25	0.00		0.03	4.47	28.33
Prudhomme	Trib2a	1144	100-Year	87.94	87.87	0.08	0.20	0.01	0.00	3.60	0.90	32.16
Prudhomme	Trib2a	1108	100-Year	87.74	87.69	0.04	0.30	0.00	1.08	1.93	1.49	39.68
Prudhomme	Trib2a	954	100-Year	87.43	87.40	0.03	0.18	0.00	1.75	2.51	0.24	34.81
Prudhomme	Trib2a	871	100-Year	87.25	87.21	0.04	0.05	0.01	0.13	3.13	1.24	28.42
Prudhomme	Trib2a	808	100-Year	87.19	87.18	0.00	0.00	0.00	3.52	0.98		61.13
Prudhomme	Trib2a	803	100-Year	87.18	87.18	0.00	0.00	0.00	4.49	0.01		56.14
Prudhomme	Trib2a	788	100-Year	87.18	87.18	0.00	0.01	0.00	3.33	0.77	0.40	56.68
Prudhomme	Trib2a	746	100-Year	87.17	87.17	0.00	0.00	0.00	0.29	1.22	2.98	61.61
Prudhomme	Trib2a	711	100-Year	87.17	87.17	0.00	0.00	0.00	0.65	1.20	2.65	60.73
Prudhomme	Trib2a	623	100-Year	87.17	87.16	0.00	0.00	0.01	0.03	1.53	2.94	24.93
Prudhomme	Trib2a	613	100-Year	87.15	87.07	0.09	0.25	0.01		1.32	3.18	22.79
Prudhomme	Trib2a	600	100-Year	86.56	86.37	0.19	0.15	0.05	0.39	4.07	0.03	7.18
Prudhomme	Trib2a	519	100-Year	86.06	86.05	0.01	0.08	0.00	0.05	2.41	2.04	29.63
Prudhomme	Trib2a	448	100-Year	85.98	85.96	0.03	0.02	0.00	0.19	1.39	2.92	24.09
Prudhomme	Trib2a	435	100-Year	85.95	85.94	0.01	0.02	0.00	1.33	1.48	1.69	43.72
Prudhomme	Trib2a	427	100-Year	85.93	85.89	0.04	0.35	0.01	0.21	1.29	3.00	35.90
Prudhomme	Trib2a	390	100-Year	85.57	85.47	0.10	0.16	0.03	0.38	3.46	0.67	29.90
Prudhomme	Trib2a	333	100-Year	85.35	85.34	0.01	0.11	0.00	0.08	0.98	3.44	34.41
Prudhomme	Trib2a	288	100-Year	85.24	85.21	0.02	0.32	0.01	4.49	0.01		23.58
Prudhomme	Trib2a	230	100-Year	84.91	84.80	0.11	0.28	0.02	0.11	4.16	0.23	12.90
Prudhomme	Trib2a	147	100-Year	84.61	84.57	0.05	0.16	0.02	1.08	3.26	0.17	16.93
Prudhomme	Trib2a	101	100-Year	84.43	84.23	0.20	0.03	0.06	0.00	4.34	0.16	6.55
Prudhomme	Trib2a	58	100-Year	84.19	84.18	0.00	0.00	0.00	3.24	1.26	0.00	30.38
Prudhomme	Trib2a	24	100-Year	84.18	84.18	0.00	0.00	0.00	3.97	0.42	0.11	60.53
Prudhomme	Trib2b	3392	100-Year	105.86	105.74	0.12	0.08	0.03	0.12	3.23	2.05	21.53
Prudhomme	Trib2b	3369	100-Year	104.89	104.86	0.03	0.07	0.01	0.92	3.74	0.74	12.37
Prudhomme	Trib2b	3347	100-Year	104.80	104.65	0.15	0.16	0.03	3.54	1.86	0.00	10.98
Prudhomme	Trib2b	3341	100-Year	104.50	104.45	0.05	0.26	0.00	3.51	1.89	0.00	43.08
Prudhomme	Trib2b	3326	100-Year	103.98	103.90	0.08	0.20	0.02	2.23	3.17		28.49
Prudhomme	Trib2b	3298	100-Year	103.59	103.57	0.02	0.05	0.00	3.16	2.22	0.02	45.40
Prudhomme	Trib2b	3292	100-Year	103.53	103.48	0.06	0.11	0.00	5.40			29.50
Prudhomme	Trib2b	3286	100-Year	103.42	103.35	0.07	0.03	0.02	2.26	3.13	0.01	31.69
Prudhomme	Trib2b	3273	100-Year	103.34	103.32	0.01	0.01	0.01	1.60	1.68	2.12	49.54

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Prudhomme	Trib2b	3222	100-Year	103.32	103.32	0.00	0.00	0.00	0.45	1.85	3.10	37.14
Prudhomme	Trib2b	3198	100-Year	103.32	103.32	0.00			1.29	0.82	3.28	129.16
Prudhomme	Trib2b	3189 P-9		Culvert								
Prudhomme	Trib2b	3179	100-Year	103.32	103.32	0.00	0.00	0.11	0.13	1.63	3.64	125.66
Prudhomme	Trib2b	3174	100-Year	103.20	103.01	0.19	0.33	0.02	1.14	4.22	0.05	8.42
Prudhomme	Trib2b	3161	100-Year	102.36	102.23	0.14	0.55	0.03	0.60	3.37	1.43	16.06
Prudhomme	Trib2b	3156	100-Year	101.75	101.72	0.03	0.13	0.00	2.19	0.98	2.22	53.19
Prudhomme	Trib2b	3150	100-Year	101.61	101.60	0.01	0.15	0.00	0.25	2.02	3.13	73.21
Prudhomme	Trib2b	3122	100-Year	101.46	101.42	0.05	0.44	0.01	0.92	0.98	3.50	88.20
Prudhomme	Trib2b	3093	100-Year	100.96	100.94	0.02	0.04	0.01	5.26	0.13	0.01	27.89
Prudhomme	Trib2b	3079	100-Year	100.92	100.91	0.01	0.10	0.00	5.04	0.34	0.02	44.07
Prudhomme	Trib2b	3047	100-Year	100.81	100.76	0.05	0.20	0.02	2.96	2.40	0.05	32.33
Prudhomme	Trib2b	3034	100-Year	100.60	100.38	0.22	0.13	0.04		4.79	0.61	6.63
Prudhomme	Trib2b	3015	100-Year	100.35	100.26	0.09	0.25	0.01	0.54	4.13	0.73	8.85
Prudhomme	Trib2b	2935	100-Year	100.09	100.04	0.06	0.46	0.00	3.62	1.78		38.39
Prudhomme	Trib2b	2862	100-Year	98.95	98.89	0.06	0.37	0.00	1.50	3.61	0.30	11.59
Prudhomme	Trib2b	2788	100-Year	98.58	98.48	0.10	0.54	0.00	0.20	3.81	1.39	12.35
Prudhomme	Trib2b	2723	100-Year	98.04	97.94	0.10	0.09	0.02	0.26	4.20	0.93	26.72
Prudhomme	Trib2b	2690	100-Year	97.88	97.83	0.05	0.05	0.01	0.86	3.75	0.79	70.20
Prudhomme	Trib2b	2679	100-Year	97.82	97.80	0.01	0.12	0.00	4.64		0.76	113.83
Prudhomme	Trib2b	2671	100-Year	97.69	97.64	0.05	0.21	0.00	5.34		0.06	70.06
Prudhomme	Trib2b	2651	100-Year	97.49	97.44	0.04	0.26	0.00	2.18	2.88	0.34	79.78
Prudhomme	Trib2b	2625	100-Year	97.23	97.18	0.05	0.15	0.00	4.21	1.19		60.93
Prudhomme	Trib2b	2582	100-Year	96.75	96.71	0.04	0.05	0.01	0.16	4.97	0.28	15.76
Prudhomme	Trib2b	2530	100-Year	96.70	96.69	0.02	0.01	0.00	2.64	2.54	0.22	51.58
Prudhomme	Trib2b	2524	100-Year	96.69	96.68	0.01	0.03	0.00	4.79	0.57	0.04	54.91
Prudhomme	Trib2b	2516	100-Year	96.66	96.65	0.01	0.04	0.00	5.40			43.66
Prudhomme	Trib2b	2509	100-Year	96.63	96.61	0.02	0.05	0.00	5.40			39.48
Prudhomme	Trib2b	2499	100-Year	96.58	96.56	0.01	0.10	0.01	5.40			45.89
Prudhomme	Trib2b	2485	100-Year	96.46	96.39	0.07	0.09	0.01	3.70	1.61	0.09	42.18
Prudhomme	Trib2b	2465	100-Year	95.96	95.91	0.05	0.05	0.01	0.94	4.22	0.23	12.60
Prudhomme	Trib2b	2450	100-Year	95.90	95.74	0.16	0.10	0.02	0.09	5.28	0.04	6.71
Prudhomme	Trib2b	2429	100-Year	95.78	95.69	0.09	0.26	0.01	0.06	5.25	0.09	6.91
Prudhomme	Trib2b	2384	100-Year	95.51	95.32	0.19	0.06	0.03	0.06	4.69	0.65	8.51
Prudhomme	Trib2b	2375	100-Year	94.86	94.77	0.09	0.86	0.00		5.21	0.19	6.52
Prudhomme	Trib2b	2239	100-Year	94.00	93.86	0.14	0.30	0.03	0.21	4.91	0.28	9.29
Prudhomme	Trib2b	2139	100-Year	93.66	93.62	0.05	0.03	0.02	0.10	5.16	0.23	8.89
Prudhomme	Trib2b	2081	100-Year	93.61	93.59	0.02			0.35	5.11	0.04	15.76
Prudhomme	Trib2b	2069 P-8		Culvert								
Prudhomme	Trib2b	2058	100-Year	93.56	93.51	0.05	0.03	0.01	0.02	5.33	0.15	11.96
Prudhomme	Trib2b	2046	100-Year	93.52	93.45	0.07	0.14	0.01	2.60	2.50	0.40	37.80
Prudhomme	Trib2b	2029	100-Year	92.97	92.79	0.18	0.39	0.03	0.24	5.17	0.10	5.84
Prudhomme	Trib2b	1922	100-Year	92.54	92.46	0.08	0.05	0.02	0.04	5.43	0.03	12.85
Prudhomme	Trib2b	1809	100-Year	92.47	92.47	0.01	0.00	0.00	0.17	3.51	1.82	46.35
Prudhomme	Trib2b	1785	100-Year	92.47	92.47	0.00	0.00	0.00	0.28	2.12	3.10	89.08

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Prudhomme	Trib2b	1776	100-Year	92.46	92.43	0.03	0.02	0.01			5.50	54.61
Prudhomme	Trib2b	1772	100-Year	92.44	92.43	0.01	0.00	0.00	0.07		5.43	85.45
Prudhomme	Trib2b	1734	100-Year	92.43	92.43	0.00	0.00	0.00	0.75	1.57	3.17	104.27
Prudhomme	Trib2b	1587	100-Year	92.43	92.43	0.00	0.00	0.00	3.70	0.60	1.20	528.37
Prudhomme	Trib2b	1578	100-Year	92.43	92.43	0.00	0.00	0.00	4.06	0.21	1.23	907.51
Prudhomme	Trib2b	1537	100-Year	92.43	92.43	0.00	0.00	0.00	1.80	0.35	3.36	552.67
Prudhomme	Trib2b	1482	100-Year	92.43	92.43	0.00	0.00	0.04	4.67	1.34	10.89	447.05
Prudhomme	Trib2b	1443	100-Year	92.39	92.32	0.07			2.91	11.49	2.50	248.93
Prudhomme	Trib2b	1410 P-7		Culvert								
Prudhomme	Trib2b	1382	100-Year	90.61	90.41	0.20	0.30	0.07		16.90		47.64
Prudhomme	Trib2b	1257	100-Year	90.24	90.13	0.11			0.00	10.73	6.17	51.70
Prudhomme	Trib2b	1201	100-Year	89.66	89.59	0.07	0.30	0.01	2.60	5.57	8.73	88.38
Prudhomme	Trib2b	1119	100-Year	89.34	89.31	0.03	0.07	0.01	1.50	6.21	9.19	96.28
Prudhomme	Trib2b	1092	100-Year	89.27	89.26	0.00	0.01	0.01	0.29	2.09	14.52	128.48
Prudhomme	Trib2b	1084	100-Year	89.25	89.17	0.07	0.07	0.02			16.90	97.41
Prudhomme	Trib2b	1074	100-Year	88.92	88.90	0.02	0.08	0.00	0.04	0.90	15.96	108.17
Prudhomme	Trib2b	1028	100-Year	88.83	88.82	0.01	0.12	0.05	2.42	5.07	10.20	147.54
Prudhomme	Trib2b	947	100-Year	88.66	88.56	0.10	0.16	0.03	4.50	4.05	9.15	60.63
Prudhomme	Trib2b	939	100-Year	88.40	87.96	0.44			0.02	17.62	0.05	5.23
Prudhomme	Trib2b	909 P-6		Culvert								
Prudhomme	Trib2b	870	100-Year	87.72	87.39	0.33	0.22	0.09	1.62	12.40	3.68	11.64
Prudhomme	Trib2b	678	100-Year	87.40	87.19	0.22	0.25	0.06	2.32	12.79	2.59	14.62
Prudhomme	Trib2b	599	100-Year	87.10	87.07	0.03	0.01	0.00	9.94	7.02	0.74	95.88
Prudhomme	Trib2b	597	100-Year	87.09	87.07	0.01	0.59	0.01	17.58	0.10	0.02	112.73
Prudhomme	Trib2b	555	100-Year	86.49	86.40	0.09	0.23	0.01	17.70			56.51
Prudhomme	Trib2b	515	100-Year	86.25	86.20	0.05	0.30	0.00	8.15	9.18	0.38	59.83
Prudhomme	Trib2b	292	100-Year	85.95	85.89	0.06	0.09	0.02	10.22	5.20	2.28	91.82
Prudhomme	Trib2b	237	100-Year	85.84	85.84	0.01	0.01	0.00	5.17	3.10	9.43	91.98
Prudhomme	Trib2b	219	100-Year	85.84	85.83	0.00	0.01	0.01	7.10	0.95	9.65	98.36
Prudhomme	Trib2b	207	100-Year	85.82	85.73	0.09	0.23	0.00	2.45	6.11	9.14	94.98
Prudhomme	Trib2b	191	100-Year	84.99	84.89	0.10	0.27	0.01	1.38	4.84	11.48	63.17
Prudhomme	Trib2b	146	100-Year	84.71	84.66	0.05	0.21	0.01	1.06	6.62	10.01	56.95
Prudhomme	Trib2b	86	100-Year	84.50	84.38	0.11	0.28	0.00	2.44	8.78	6.48	40.22
Prudhomme	Trib2b	37	100-Year	84.22	84.11	0.11	0.00	0.03	2.39	11.13	4.19	34.26
Prudhomme	Trib1	2359	100-Year	90.16	90.15	0.00	0.01	0.00	0.52	1.27	0.31	19.10
Prudhomme	Trib1	2344	100-Year	90.15	90.13	0.01	0.02	0.00	0.93	0.68	0.49	32.88
Prudhomme	Trib1	2339	100-Year	90.13	90.11	0.02	0.02	0.00	0.31	1.11	0.68	20.69
Prudhomme	Trib1	2335	100-Year	90.11	90.10	0.01	0.25	0.00	0.61	0.66	0.83	29.14
Prudhomme	Trib1	2258	100-Year	89.86	89.81	0.05	0.02	0.01	0.18	1.28	0.64	25.66
Prudhomme	Trib1	2153	100-Year	89.72	89.72	0.00	0.00	0.00	0.43	0.54	1.13	256.33
Prudhomme	Trib1	2132	100-Year	89.72	89.72	0.00	0.00	0.00	0.97	0.24	0.89	343.48
Prudhomme	Trib1	2112	100-Year	89.72	89.72	0.00	0.00	0.00	0.79	0.25	1.06	283.87
Prudhomme	Trib1	2100	100-Year	89.72	89.72	0.00			0.70	0.20	1.19	148.37
Prudhomme	Trib1	2091 PT1-4		Culvert								
Prudhomme	Trib1	2080	100-Year	88.80	88.76	0.04	0.07	0.00	0.14	1.82	0.13	8.06

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Prudhomme	Trib1	2041	100-Year	88.73	88.69	0.04	0.24	0.00	0.12	1.92	0.06	10.75
Prudhomme	Trib1	1879	100-Year	88.49	88.46	0.04	0.27	0.01	0.25	1.70	0.15	12.37
Prudhomme	Trib1	1876	100-Year	88.22	88.20	0.01	0.03	0.00	0.62	1.48	0.00	29.11
Prudhomme	Trib1	1859	100-Year	88.19	88.18	0.01	0.02	0.00	1.16	0.94	0.00	86.38
Prudhomme	Trib1	1853	100-Year	88.17	88.16	0.01	0.05	0.00	2.10			69.23
Prudhomme	Trib1	1848	100-Year	88.12	88.07	0.04	0.16	0.01	0.81	1.29		40.06
Prudhomme	Trib1	1787	100-Year	87.89	87.88	0.01	0.44	0.00	1.25	0.85		71.17
Prudhomme	Trib1	1536	100-Year	87.44	87.40	0.04	0.17	0.01	0.22	1.62	0.26	33.73
Prudhomme	Trib1	1455	100-Year	87.27	87.26	0.01	0.03	0.00	0.37	1.22	0.51	46.05
Prudhomme	Trib1	1370	100-Year	87.24	87.24	0.00	0.00	0.00	0.79	0.63	0.67	124.56
Prudhomme	Trib1	1366	100-Year	87.23	87.21	0.02	0.04	0.00	0.11	0.03	1.96	52.72
Prudhomme	Trib1	1360	100-Year	87.08	87.03	0.05	0.19	0.01	0.15	1.79	0.16	7.96
Prudhomme	Trib1	1338	100-Year	86.88	86.86	0.03	0.45	0.01	0.07	1.34	0.69	26.45
Prudhomme	Trib1	1191	100-Year	86.43	86.42	0.01	0.03	0.00	0.58	0.18	1.33	50.96
Prudhomme	Trib1	1183	100-Year	86.40	86.38	0.02	0.08	0.00	0.07	0.01	2.02	34.86
Prudhomme	Trib1	1172	100-Year	86.31	86.30	0.01	0.08	0.00		0.29	1.81	27.02
Prudhomme	Trib1	1164	100-Year	86.23	86.18	0.05	0.07	0.01	0.34	0.95	0.80	26.07
Prudhomme	Trib1	1069	100-Year	86.13	86.13	0.00	0.01	0.00	0.64	0.80	0.65	47.24
Prudhomme	Trib1	1010	100-Year	86.12	86.12	0.00	0.00	0.01	0.85	0.18	1.57	60.78
Prudhomme	Trib1	938	100-Year	86.11	86.09	0.02			0.31	2.24	0.06	124.82
Prudhomme	Trib1	926 PT1-3		Culvert								
Prudhomme	Trib1	913	100-Year	85.88	85.88	0.00	0.00	0.00	2.12	0.43	0.05	62.14
Prudhomme	Trib1	908	100-Year	85.88	85.88	0.00	0.00	0.02	1.34	1.07	0.19	36.85
Prudhomme	Trib1	901	100-Year	85.86	85.82	0.04			0.03	2.41	0.17	34.93
Prudhomme	Trib1	890 PT1-2		Culvert								
Prudhomme	Trib1	879	100-Year	85.67	85.51	0.15	0.26	0.11	0.20	2.39	0.01	50.98
Prudhomme	Trib1	822	100-Year	85.30	85.28	0.02	0.59	0.00	0.97	1.36	0.26	27.26
Prudhomme	Trib1	675	100-Year	84.71	84.67	0.04	0.58	0.00	0.18	1.81	0.61	23.28
Prudhomme	Trib1	544	100-Year	84.13	84.07	0.05	0.60	0.01	0.07	2.48	0.05	7.43
Prudhomme	Trib1	464	100-Year	83.52	83.40	0.12	0.37	0.02	0.09	3.28	0.03	8.69
Prudhomme	Trib1	381	100-Year	83.13	82.98	0.15			0.00	3.39	0.00	7.22
Prudhomme	Trib1	315 PT1-1		Culvert								
Prudhomme	Trib1	268	100-Year	81.78	81.74	0.03	0.12	0.02	0.10	3.17	0.12	7.45
Prudhomme	Trib1	203	100-Year	81.64	81.58	0.06	0.01	0.02	0.68	2.54	0.18	9.23
Prudhomme	Trib1	103	100-Year	81.61	81.61	0.00	0.00	0.00	1.83	1.04	0.53	31.66
Prudhomme	Trib1	11	100-Year	81.61	81.61	0.00	0.00	0.00	1.87	0.51	1.02	66.34
Prudhomme	Trib2	736	100-Year	84.18	84.18	0.00	0.01	0.00	13.14	4.10	0.95	90.45
Prudhomme	Trib2	612	100-Year	84.17	84.17	0.00	0.00	0.00	11.03	4.86	2.31	86.52
Prudhomme	Trib2	580	100-Year	84.17	84.16	0.01			5.81	8.39	3.99	89.50
Prudhomme	Trib2	573 P-5		Culvert								
Prudhomme	Trib2	562	100-Year	84.15	84.11	0.04	0.03	0.15	1.18	16.76	0.27	24.00
Prudhomme	Trib2	536	100-Year	83.97	83.68	0.29	0.37	0.06	3.68	13.58	0.94	16.32
Prudhomme	Trib2	461	100-Year	82.41	82.33	0.08	0.04	0.02	3.92	11.77	2.51	60.01
Prudhomme	Trib2	334	100-Year	82.35	82.35	0.00	0.01	0.04	2.95	7.19	8.86	70.52
Prudhomme	Trib2	200	100-Year	82.31	82.24	0.07			5.61	10.60	2.79	59.34

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Prudhomme	Trib2	131 P-4		Culvert								
Prudhomme	Trib2	97	100-Year	81.67	81.60	0.06	0.00	0.05	4.45	11.86	2.68	48.98
Prudhomme	Trib2	57	100-Year	81.61	81.61	0.00	0.00	0.00	1.53	4.02	13.45	68.27
Prudhomme	Main	812	100-Year	81.61	81.61	0.00	0.00	0.05	13.88	6.38	1.84	70.76
Prudhomme	Main	806	100-Year	81.56	81.47	0.09				18.15	3.95	44.87
Prudhomme	Main	786 P-3		Culvert								
Prudhomme	Main	768	100-Year	80.32	80.13	0.19	0.00	0.15	3.07	13.89	5.14	135.62
Prudhomme	Main	748	100-Year	80.17	80.17	0.00	0.01	0.00	2.33	3.40	16.37	117.65
Prudhomme	Main	642	100-Year	80.17	80.16	0.00	0.00	0.00	2.74	5.00	14.37	68.26
Prudhomme	Main	622	100-Year	80.16	80.16	0.01			1.94	4.80	15.36	68.10
Prudhomme	Main	614 Entrance road		Inl Struct								
Prudhomme	Main	605	100-Year	80.13	80.12	0.01	0.01	0.00	2.16	6.53	13.41	64.59
Prudhomme	Main	571	100-Year	80.13	80.12	0.01	0.01	0.00	3.74	6.25	12.72	70.50
Prudhomme	Main	520	100-Year	80.12	80.11	0.01	0.01	0.12	8.70	6.78	7.23	73.25
Prudhomme	Main	506 P-2		Bridge								
Prudhomme	Main	493	100-Year	79.36	78.94	0.43	0.49	0.11	2.16	18.39	2.14	19.30
Prudhomme	Main	454	100-Year	78.63	78.43	0.20	0.12	0.05	11.47	9.60	1.63	29.64
Prudhomme	Main	363	100-Year	78.46	78.42	0.03	0.03	0.01	6.73	8.60	7.38	49.51
Prudhomme	Main	292	100-Year	78.42	78.41	0.01	0.01	0.01	6.75	8.40	7.56	63.33
Prudhomme	Main	260	100-Year	78.40	78.36	0.04			3.24	14.91	4.54	58.75
Prudhomme	Main	250 P-1		Culvert								
Prudhomme	Main	239	100-Year	78.37	77.99	0.38	0.24	0.06	1.61	16.70	4.39	15.16
Prudhomme	Main	209	100-Year	77.50	77.19	0.31	0.24	0.07	5.05	14.25	3.40	11.72
Prudhomme	Main	141	100-Year	77.19	77.11	0.08	0.45	0.03	5.09	11.15	6.46	41.19
Prudhomme	Main	27	100-Year	76.70	76.27	0.43	0.19	0.09	3.74	13.69	5.27	32.93
Prudhomme	Main	18	100-Year	75.60	75.49	0.11				3.97	18.73	69.68
Lake Ontario 44A	Main-DS-0	1652	100-Year	85.41	84.85	0.56	0.12	0.34	2.71	6.10	2.59	14.71
Lake Ontario 44A	Main-DS-0	1641	100-Year	84.26	84.12	0.13			0.00	8.09	3.31	32.26
Lake Ontario 44A	Main-DS-0	1614	100-Year	83.58	83.52	0.06	0.08	0.02	0.08	4.52	6.81	98.46
Lake Ontario 44A	Main-DS-0	1506	100-Year	83.46	83.46	0.00	0.01	0.00	0.15	1.04	10.21	173.22
Lake Ontario 44A	Main-DS-0	1457	100-Year	83.46	83.45	0.00	0.00	0.00	8.98	1.28	1.14	490.72
Lake Ontario 44A	Main-DS-0	1327	100-Year	83.45	83.45	0.00	0.00	0.00	10.02	0.25	1.13	631.10
Lake Ontario 44A	Main-DS-0	1301	100-Year	83.45	83.45	0.00	0.00	0.00	13.45	0.60	2.15	720.24
Lake Ontario 44A	Main-DS-0	1255	100-Year	83.45	83.45	0.00	0.00	0.00	14.13	0.38	1.69	686.76
Lake Ontario 44A	Main-DS-0	1248	100-Year	83.45	83.45	0.00			10.82	1.83	3.55	455.44
Lake Ontario 44A	Main-DS-0	1212 LO44A-2		Culvert								
Lake Ontario 44A	Main-DS-0	1147	100-Year	81.99	81.98	0.01	0.01	0.01	0.00	4.10	0.07	23.66
Lake Ontario 44A	Main-DS-0	1095	100-Year	81.98	81.98	0.00	0.01	0.10	2.73	1.15	0.28	265.89
Lake Ontario 44A	Main-DS-0	1038	100-Year	81.86	81.70	0.17				4.17		13.65
Lake Ontario 44A	Main-DS-0	1020 LO44A-2		Culvert								
Lake Ontario 44A	Main-DS-0	1006	100-Year	81.71	81.54	0.18	0.26	0.12		4.17		6.28
Lake Ontario 44A	Main-DS-0	934	100-Year	81.16	81.13	0.02	0.36	0.01	0.81	3.36		89.35
Lake Ontario 44A	Main-DS-0	810	100-Year	80.79	80.67	0.12	0.40	0.02		4.17		5.14
Lake Ontario 44A	Main-DS-0	701	100-Year	80.37	80.32	0.05	0.19	0.01		4.17		6.00
Lake Ontario 44A	Main-DS-0	512	100-Year	80.16	80.15	0.02	0.09	0.00	0.07	4.10		52.53

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 44A	Main-DS-0	354	100-Year	80.08	80.06	0.01	0.09	0.00	8.42	5.75	2.03	307.62
Lake Ontario 44A	Main-DS-0	323	100-Year	79.99	79.96	0.03	0.02	0.02	0.01	9.39	6.80	248.65
Lake Ontario 44A	Main-DS-0	283	100-Year	79.96	79.95	0.00	0.01	0.00	0.18	3.24	12.78	236.73
Lake Ontario 44A	Main-DS-0	244	100-Year	79.95	79.95	0.00	0.01	0.03		0.03	16.17	242.80
Lake Ontario 44A	Main-DS-0	214	100-Year	79.91	79.59	0.32	0.14	0.10	0.00	16.20	0.00	10.40
Lake Ontario 44A	Main-DS-0	163	100-Year	79.57	79.57	0.00	0.06	0.00	0.07	0.65	15.48	205.25
Lake Ontario 44A	Main-DS-0	126	100-Year	79.51	79.50	0.01	0.25	0.02	0.41	4.04	11.75	210.58
Lake Ontario 44A	Main-DS-0	70	100-Year	77.00	76.80	0.20	1.13	0.01	0.31	15.88	0.01	16.71
Lake Ontario 44A	Main-DS-0	-26	100-Year	75.85	75.70	0.15			7.12	9.08		35.33
Lake Ontario 44	Main	1887	100-Year	90.07	89.98	0.09	0.39	0.00	3.32	0.56	0.32	19.81
Lake Ontario 44	Main	1870	100-Year	89.39	89.28	0.11	0.57	0.03	0.30	3.89	0.00	16.82
Lake Ontario 44	Main	1780	100-Year	88.70	88.69	0.01	0.50	0.01	2.66	1.32	0.22	60.01
Lake Ontario 44	Main	1708	100-Year	88.20	88.13	0.08	0.41	0.02	0.75	2.72	0.73	27.79
Lake Ontario 44	Main	1654	100-Year	87.53	87.50	0.02	0.65	0.01	1.02	3.16	0.02	31.43
Lake Ontario 44	Main	1571	100-Year	86.87	86.76	0.12	0.00	0.04	0.20	5.32	0.38	25.64
Lake Ontario 44	Main	1534	100-Year	86.44	86.44	0.00	0.00	0.00	5.86	0.04	0.00	286.90
Lake Ontario 44	Main	1514	100-Year	86.44	86.44	0.00	0.00	0.00	5.88	0.02	0.00	280.03
Lake Ontario 44	Main	1446	100-Year	86.44	86.44	0.00			5.71	0.19		311.86
Lake Ontario 44	Main	1435 LO44-3		Culvert								
Lake Ontario 44	Main	1423	100-Year	85.35	85.21	0.14	0.05	0.11	1.26	4.20	0.44	113.49
Lake Ontario 44	Main	1409	100-Year	84.68	84.67	0.00	0.01	0.00	5.86	0.03	0.00	154.13
Lake Ontario 44	Main	1392	100-Year	84.67	84.67	0.00	0.02	0.00	5.47	0.09	0.34	215.56
Lake Ontario 44	Main	1358	100-Year	84.64	84.63	0.02	0.17	0.00	0.58	1.21	4.10	41.81
Lake Ontario 44	Main	1330	100-Year	84.46	84.40	0.06	0.12	0.01	0.59	2.21	3.10	27.77
Lake Ontario 44	Main	1326	100-Year	84.33	84.30	0.03	0.18	0.00	0.15	1.30	4.45	28.44
Lake Ontario 44	Main	1303	100-Year	84.15	84.11	0.04	0.27	0.00	0.09	1.55	4.27	33.21
Lake Ontario 44	Main	1275	100-Year	83.87	83.85	0.03	0.48	0.00	0.13	1.02	4.74	46.95
Lake Ontario 44	Main	1215	100-Year	83.40	83.38	0.03	0.07	0.01	0.04	1.69	4.17	66.54
Lake Ontario 44	Main	1077	100-Year	83.32	83.32	0.00	0.03	0.00	0.03	0.72	7.86	162.70
Lake Ontario 44	Main	1046	100-Year	83.30	83.29	0.01			1.19	3.34	4.07	173.22
Lake Ontario 44	Main	980 LO44-2		Culvert								
Lake Ontario 44	Main	926	100-Year	82.33	82.32	0.01	0.02	0.00		2.83		205.50
Lake Ontario 44	Main	901	100-Year	82.31	82.31	0.00	0.03	0.01	0.43	1.69	0.71	128.26
Lake Ontario 44	Main	871	100-Year	82.27	82.21	0.06	0.03	0.03	0.14	2.40	0.29	19.14
Lake Ontario 44	Main	782	100-Year	82.20	82.19	0.01			0.03	1.80	1.00	26.69
Lake Ontario 44	Main	771 LO44-1		Culvert								
Lake Ontario 44	Main	758	100-Year	81.84	81.72	0.12	0.26	0.03	0.00	2.74	0.09	6.71
Lake Ontario 44	Main	719	100-Year	81.55	81.54	0.01	0.30	0.00	2.20	0.63		43.77
Lake Ontario 44	Main	659	100-Year	81.24	81.24	0.01	0.28	0.00	2.34	0.49		84.26
Lake Ontario 44	Main	531	100-Year	80.98	80.97	0.01	0.20	0.01	1.75	1.07	0.01	140.29
Lake Ontario 44	Main	459	100-Year	80.77	80.67	0.10	0.04	0.03	0.30	2.51	0.02	17.32
Lake Ontario 44	Main	375	100-Year	80.53	80.52	0.00	0.00	0.00	1.70	0.69	0.44	161.71
Lake Ontario 44	Main	350	100-Year	80.52	80.52	0.00	0.06	0.00	7.10	1.42	0.08	140.03
Lake Ontario 44	Main	261	100-Year	80.46	80.43	0.02	0.18	0.00	1.17	7.30	0.12	22.49
Lake Ontario 44	Main	144	100-Year	80.28	80.23	0.05	0.56	0.01	0.87	7.57	0.16	29.53

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 44	Main	77	100-Year	79.71	79.58	0.13	0.48	0.01	5.24	3.36		19.28
Lake Ontario 44	Main	57	100-Year	79.23	79.03	0.20	0.30	0.01	2.34	5.22	1.04	12.16
Lake Ontario 44	Main	41	100-Year	78.90	78.64	0.26	0.34	0.00	0.34	8.17	0.09	8.41
Lake Ontario 44	Main	22	100-Year	76.39	76.14	0.25				8.60		7.88
Lake Ontario 39	Main	1828	100-Year	94.98	94.91	0.06	0.05	0.01	0.04	0.76		6.11
Lake Ontario 39	Main	1820	100-Year	94.30	94.27	0.04	0.02	0.00	0.04	0.67	0.09	4.05
Lake Ontario 39	Main	1816	100-Year	94.28	94.26	0.02	0.01	0.01		0.79	0.01	5.41
Lake Ontario 39	Main	1808	100-Year	94.27	94.26	0.01	0.01	0.00	0.00	0.72	0.08	7.14
Lake Ontario 39	Main	1797	100-Year	94.27	94.26	0.01	0.01	0.00	0.02	0.64	0.14	7.26
Lake Ontario 39	Main	1791	100-Year	94.25	94.21	0.04	0.01	0.01	0.05	0.47	0.28	13.17
Lake Ontario 39	Main	1781	100-Year	94.01	94.01	0.01	0.01	0.00	0.06	0.73	0.01	5.95
Lake Ontario 39	Main	1771	100-Year	94.01	94.00	0.01	0.02	0.01	0.08	0.70	0.02	5.90
Lake Ontario 39	Main	1760	100-Year	93.98	93.92	0.06	0.17	0.00		0.72	0.08	6.38
Lake Ontario 39	Main	1751	100-Year	93.71	93.63	0.08	0.04	0.02	0.01	0.73	0.06	4.40
Lake Ontario 39	Main	1741	100-Year	93.63	93.61	0.01	0.02	0.00	0.02	0.78	0.00	6.53
Lake Ontario 39	Main	1731	100-Year	93.61	93.59	0.02	0.04	0.00	0.10	0.69	0.01	7.25
Lake Ontario 39	Main	1720	100-Year	93.56	93.50	0.06	0.16	0.00	0.03	0.77		6.16
Lake Ontario 39	Main	1711	100-Year	93.40	93.33	0.07	0.22	0.00		0.80	0.00	4.04
Lake Ontario 39	Main	1699	100-Year	93.18	93.12	0.06	0.06	0.01	0.00	0.69	0.11	6.34
Lake Ontario 39	Main	1687	100-Year	93.05	93.04	0.02	0.05	0.00		0.77	0.03	6.29
Lake Ontario 39	Main	1674	100-Year	93.00	92.97	0.04	0.06	0.01	0.01	0.77	0.02	6.14
Lake Ontario 39	Main	1656	100-Year	92.94	92.92	0.02	0.01	0.00	0.01	0.72	0.07	7.67
Lake Ontario 39	Main	1638	100-Year	92.92	92.92	0.00	0.05	0.00	0.06	0.50	0.24	24.75
Lake Ontario 39	Main	1609	100-Year	92.86	92.83	0.03	0.17	0.00	0.88	2.12	0.50	28.74
Lake Ontario 39	Main	1567	100-Year	92.69	92.64	0.05	0.02	0.01	0.19	2.45	0.86	15.94
Lake Ontario 39	Main	1551	100-Year	92.66	92.65	0.01	0.02	0.01	0.39	1.49	1.62	25.07
Lake Ontario 39	Main	1531	100-Year	92.63	92.56	0.07	0.36	0.00	1.12	1.46	0.91	28.64
Lake Ontario 39	Main	1513	100-Year	92.26	92.16	0.10	0.07	0.03	3.50			12.67
Lake Ontario 39	Main	1499	100-Year	92.06	92.04	0.02	0.11	0.00	1.03	2.17	0.30	42.10
Lake Ontario 39	Main	1470	100-Year	91.94	91.91	0.03	0.16	0.00			3.50	21.48
Lake Ontario 39	Main	1459	100-Year	91.78	91.76	0.02	0.07	0.00			3.50	30.70
Lake Ontario 39	Main	1438	100-Year	91.71	91.70	0.01	0.05	0.00	0.47	1.61	1.42	46.15
Lake Ontario 39	Main	1413	100-Year	91.66	91.65	0.01	0.06	0.00	0.00	1.85	1.65	35.44
Lake Ontario 39	Main	1388	100-Year	91.60	91.58	0.02	0.05	0.00	0.32	1.62	1.56	29.01
Lake Ontario 39	Main	1370	100-Year	91.55	91.53	0.02	0.07	0.01	0.97	1.09	1.44	28.66
Lake Ontario 39	Main	1361	100-Year	91.47	91.40	0.07	0.02	0.02	0.75	1.32	1.42	27.29
Lake Ontario 39	Main	1354	100-Year	91.38	91.36	0.01	0.01	0.00	0.32	1.82	1.35	39.40
Lake Ontario 39	Main	1339	100-Year	91.37	91.36	0.01	0.01	0.01	0.58	1.54	1.38	46.51
Lake Ontario 39	Main	1331	100-Year	91.35	91.25	0.10	0.02	0.03	1.13	2.11	0.27	15.27
Lake Ontario 39	Main	1314	100-Year	90.83	90.82	0.01	0.03	0.00	0.08	3.34	0.08	13.45
Lake Ontario 39	Main	1281	100-Year	90.80	90.77	0.03	0.05	0.00	1.03	2.05	0.42	44.78
Lake Ontario 39	Main	1274	100-Year	90.74	90.68	0.07	0.18	0.00	0.76	1.48	1.26	38.14
Lake Ontario 39	Main	1247	100-Year	90.40	90.34	0.05	0.22	0.01	0.13	2.86	0.51	8.33
Lake Ontario 39	Main	1204	100-Year	90.17	90.04	0.13	0.51	0.01	0.03	3.44	0.03	9.71
Lake Ontario 39	Main	1151	100-Year	89.65	89.56	0.09	0.25	0.01	0.17	2.31	1.02	7.51

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 39	Main	1103	100-Year	89.38	89.32	0.06	0.54	0.00	0.21	3.20	0.09	14.07
Lake Ontario 39	Main	1031	100-Year	88.85	88.77	0.08	0.01	0.02	1.31	2.19		34.39
Lake Ontario 39	Main	931	100-Year	88.73	88.73	0.00	0.00	0.00	1.75	0.77	0.98	81.67
Lake Ontario 39	Main	888	100-Year	88.73	88.73	0.00	0.00	0.01	1.63	0.90	0.98	78.44
Lake Ontario 39	Main	883	100-Year	88.72	88.70	0.02				3.50		123.92
Lake Ontario 39	Main	875 LO39-6		Culvert								
Lake Ontario 39	Main	864	100-Year	87.95	87.80	0.15	0.15	0.10		3.50		7.55
Lake Ontario 39	Main	851	100-Year	87.57	87.55	0.02	0.05	0.00	2.37	1.10	0.02	41.30
Lake Ontario 39	Main	834	100-Year	87.52	87.50	0.02			0.04	3.45	0.01	
Lake Ontario 39	Main	742 LO39-5		Culvert								
Lake Ontario 39	Main	529	100-Year	84.39	84.32	0.06				6.40		9.66
Lake Ontario 39	Main	511 LO39-4		Culvert								
Lake Ontario 39	Main	490	100-Year	84.30	84.04	0.27			0.02	6.32	0.07	5.75
Lake Ontario 39	Main	436 LO39-3		Culvert								
Lake Ontario 39	Main	359	100-Year	83.62	83.49	0.13	0.44	0.06	0.36	5.34	0.70	24.61
Lake Ontario 39	Main	315	100-Year	83.12	82.89	0.23	0.06	0.06	0.31	5.54	0.55	7.70
Lake Ontario 39	Main	293	100-Year	82.88	82.85	0.03	0.06	0.02	0.97	4.74	0.69	8.74
Lake Ontario 39	Main	277	100-Year	82.80	82.55	0.26	0.16	0.13		9.20		8.03
Lake Ontario 39	Main	252	100-Year	82.51	82.41	0.09			1.11	6.29	1.80	10.43
Lake Ontario 39	Main	228 LO39-2		Culvert								
Lake Ontario 39	Main	210	100-Year	82.40	82.11	0.29				9.20		10.49
Lake Ontario 39	Main	188 LO39-1		Culvert								
Lake Ontario 39	Main	164	100-Year	80.32	80.19	0.14	0.32	0.10	0.01	9.15	0.04	7.08
Lake Ontario 39	Main	125	100-Year	79.91	79.60	0.30	0.30	0.00	0.20	8.69	0.31	8.05
Lake Ontario 39	Main	107	100-Year	79.04	78.69	0.35	0.09	0.07	0.24	8.65	0.31	6.75
Lake Ontario 39	Main	92	100-Year	78.81	78.70	0.11	0.10	0.02	0.42	8.39	0.39	8.69
Lake Ontario 39	Main	75	100-Year	78.69	78.35	0.34	0.17	0.04	0.13	9.06	0.01	6.04
Lake Ontario 39	Main	61	100-Year	78.36	78.16	0.20	0.09	0.02	0.33	8.58	0.30	7.25
Lake Ontario 39	Main	45	100-Year	78.25	78.12	0.13	0.06	0.02	0.69	8.42	0.10	7.87
Lake Ontario 39	Main	37	100-Year	78.17	77.89	0.28	0.22	0.00	0.14	8.47	0.60	8.39
Lake Ontario 39	Main	23	100-Year	77.18	76.89	0.29	0.17	0.03	0.17	8.52	0.50	7.60
Lake Ontario 39	Main	12	100-Year	75.48	75.31	0.18			2.67	5.22	1.31	15.24
Lake Ontario 32	Main	2206	100-Year	104.48	104.31	0.18	0.73	0.04	0.29	4.63	0.28	11.94
Lake Ontario 32	Main	2158	100-Year	101.35	101.30	0.05	0.52	0.01	2.24	2.96		74.04
Lake Ontario 32	Main	2114	100-Year	99.80	99.66	0.14	0.93	0.00	1.06	4.04	0.10	15.26
Lake Ontario 32	Main	2054	100-Year	98.53	98.34	0.19	0.32	0.05	0.02	5.06	0.13	9.58
Lake Ontario 32	Main	2044	100-Year	98.16	98.14	0.02	1.24	0.01	4.76	0.44	0.00	32.51
Lake Ontario 32	Main	1967	100-Year	96.90	96.74	0.16	0.88	0.02	0.33	4.87	0.00	17.00
Lake Ontario 32	Main	1903	100-Year	95.06	94.96	0.10	0.16	0.00	1.06	2.53	1.61	21.54
Lake Ontario 32	Main	1892	100-Year	94.75	94.63	0.12	0.03	0.03	0.27	4.78	0.16	17.47
Lake Ontario 32	Main	1805	100-Year	94.56	94.56	0.00	0.00	0.00	0.05	2.53	2.62	33.08
Lake Ontario 32	Main	1730	100-Year	94.56	94.56	0.00	0.00	0.00	0.09	1.60	3.52	39.56
Lake Ontario 32	Main	1691	100-Year	94.55	94.55	0.01				3.73	1.47	56.27
Lake Ontario 32	Main	1683 LO32-12		Culvert								
Lake Ontario 32	Main	1655	100-Year	94.26	94.24	0.01	0.01	0.00		4.88	0.32	21.06

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 32	Main	1639	100-Year	94.24	94.22	0.02	0.01	0.01	2.48	6.72	0.51	48.20
Lake Ontario 32	Main	1592	100-Year	94.22	94.22	0.00				3.63	6.07	69.00
Lake Ontario 32	Main	1591 LO32-11		Culvert								
Lake Ontario 32	Main	1554	100-Year	92.19	91.95	0.24	0.14	0.02	0.52	8.29	0.89	42.72
Lake Ontario 32	Main	1472	100-Year	91.56	91.35	0.21	0.18	0.01	0.02	7.00	2.68	16.38
Lake Ontario 32	Main	1459	100-Year	91.25	91.08	0.18	0.28	0.03	0.01	7.85	1.84	19.50
Lake Ontario 32	Main	1427	100-Year	90.64	90.58	0.06	0.56	0.00		4.26	5.44	36.56
Lake Ontario 32	Main	1356	100-Year	90.08	90.00	0.09	0.04	0.07	2.02	5.57	2.10	32.93
Lake Ontario 32	Main	1319	100-Year	89.98	89.97	0.01			4.59	2.85	2.26	90.37
Lake Ontario 32	Main	1302 LO32-10		Culvert								
Lake Ontario 32	Main	1291	100-Year	89.74	89.38	0.36	0.10	0.28		9.70		74.21
Lake Ontario 32	Main	1265	100-Year	89.20	89.19	0.01	0.02	0.00	3.71	1.32	4.66	98.84
Lake Ontario 32	Main	1224	100-Year	89.18	89.17	0.00	0.00	0.00	0.11	2.22	7.37	76.31
Lake Ontario 32	Main	1181	100-Year	89.17	89.17	0.00	0.00	0.00	0.78	1.61	7.32	103.92
Lake Ontario 32	Main	1158	100-Year	89.17	89.17	0.00			1.36	5.78	2.56	81.85
Lake Ontario 32	Main	1151 LO32-9		Culvert								
Lake Ontario 32	Main	1134	100-Year	88.91	88.87	0.04	0.00	0.03	1.67	8.03		68.09
Lake Ontario 32	Main	1106	100-Year	88.88	88.88	0.00	0.00	0.00	2.38	3.31	8.41	80.93
Lake Ontario 32	Main	1006	100-Year	88.88	88.88	0.00			3.09	3.85	7.16	100.50
Lake Ontario 32	Main	997 LO32-8		Culvert								
Lake Ontario 32	Main	989	100-Year	87.71	87.68	0.02				14.08	0.02	67.65
Lake Ontario 32	Main	974 LO32-7		Culvert								
Lake Ontario 32	Main	957	100-Year	86.55	86.34	0.21	0.11	0.15		14.10	0.00	19.39
Lake Ontario 32	Main	912	100-Year	86.30	86.27	0.03	0.02	0.00	5.53	7.62	0.96	39.34
Lake Ontario 32	Main	871	100-Year	86.28	86.26	0.03			0.07	13.99	0.04	19.19
Lake Ontario 32	Main	836 LO32-6		Culvert								
Lake Ontario 32	Main	796	100-Year	85.20	85.16	0.04	0.03	0.01		9.72	0.43	12.30
Lake Ontario 32	Main	756	100-Year	85.17	85.12	0.05	0.03	0.01	0.71	7.34	2.09	19.38
Lake Ontario 32	Main	728	100-Year	85.13	85.11	0.02	0.06	0.05	1.56	4.70	3.89	28.39
Lake Ontario 32	Main	713	100-Year	85.02	84.93	0.10	0.02	0.02	4.61	1.05	4.49	39.73
Lake Ontario 32	Main	703	100-Year	84.39	84.35	0.04			0.22	9.46	0.47	13.50
Lake Ontario 32	Main	690 LO32-5		Culvert								
Lake Ontario 32	Main	670	100-Year	83.62	83.58	0.04	0.02	0.00		10.15		12.45
Lake Ontario 32	Main	644	100-Year	83.59	83.55	0.04	0.01	0.01	0.50	9.60	0.05	22.51
Lake Ontario 32	Main	622	100-Year	83.57	83.53	0.04				10.15		11.84
Lake Ontario 32	Main	596 LO32-4		Culvert								
Lake Ontario 32	Main	578	100-Year	82.67	82.64	0.03	0.01	0.01		10.15		17.22
Lake Ontario 32	Main	545	100-Year	82.66	82.63	0.02	0.01	0.01	1.31	7.46	1.38	28.11
Lake Ontario 32	Main	518	100-Year	82.63	82.59	0.04			0.58	7.90	1.67	13.49
Lake Ontario 32	Main	502 LO32-3		Culvert								
Lake Ontario 32	Main	484	100-Year	81.93	81.86	0.07	0.01	0.05		10.15		10.29
Lake Ontario 32	Main	426	100-Year	81.87	81.87	0.00	0.01	0.01	1.60	8.68	4.67	78.16
Lake Ontario 32	Main	368	100-Year	81.85	81.83	0.02			3.06	9.93	1.96	31.84
Lake Ontario 32	Main	352 LO32-2		Culvert								
Lake Ontario 32	Main	286	100-Year	79.87	79.69	0.18	0.28	0.02		14.94	0.01	18.34

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 32	Main	234	100-Year	79.57	79.41	0.15	0.10	0.06	1.27	12.10	1.58	14.58
Lake Ontario 32	Main	186	100-Year	79.41	79.33	0.08				14.95		22.66
Lake Ontario 32	Main	164 LO32-1		Culvert								
Lake Ontario 32	Main	137	100-Year	78.84	78.80	0.04	0.07	0.18		14.95	0.00	15.23
Lake Ontario 32	Main	105	100-Year	78.59	78.25	0.34	0.48	0.01	1.36	13.18	0.41	12.04
Lake Ontario 32	Main	68	100-Year	77.48	77.17	0.31	0.60	0.01	0.02	14.89	0.04	10.16
Lake Ontario 32	Main	18	100-Year	76.87	76.59	0.28	0.17	0.03	0.37	14.58		13.55
Lake Ontario 32	Main	3	100-Year	76.08	75.90	0.18			5.33	7.38	2.24	26.91
Lake Ontario 31	Trib2a	48	100-Year	90.93	90.91	0.02	0.00	0.00	0.48	2.16	1.06	10.51
Lake Ontario 31	Trib2a	42	100-Year	90.93	90.91	0.01	0.01	0.00	0.55	2.22	0.93	12.04
Lake Ontario 31	Trib2a	5	100-Year	90.92	90.91	0.00	0.00	0.00	0.78	2.32	0.59	21.13
Lake Ontario 31	Trib2b	170	100-Year	92.73	92.41	0.32	0.23	0.07	1.05	8.48	0.77	8.64
Lake Ontario 31	Trib2b	120	100-Year	92.14	92.06	0.07	0.31	0.03	1.53	7.80	0.97	19.59
Lake Ontario 31	Trib2b	66	100-Year	91.80	91.47	0.33	0.11	0.09	0.75	9.13	0.43	7.57
Lake Ontario 31	Trib2b	6	100-Year	90.93	90.89	0.03	0.01	0.00	0.42	8.02	1.86	25.25
Lake Ontario 31	Trib1	1056	100-Year	88.89	88.89	0.00	0.00	0.01	3.69	1.55	1.76	92.45
Lake Ontario 31	Trib1	1045	100-Year	88.88	88.87	0.01			0.04	6.96		81.23
Lake Ontario 31	Trib1	1033 LO31T-3		Culvert								
Lake Ontario 31	Trib1	1025	100-Year	86.82	86.48	0.34	0.08	0.22	0.06	6.93	0.01	7.24
Lake Ontario 31	Trib1	1000	100-Year	86.37	86.32	0.06	0.02	0.01	0.14	6.53	0.34	18.93
Lake Ontario 31	Trib1	993	100-Year	86.34	86.30	0.05			0.01	6.99		48.05
Lake Ontario 31	Trib1	974 LO31T-2		Culvert								
Lake Ontario 31	Trib1	963	100-Year	85.52	85.46	0.06	0.05	0.02		7.00		9.17
Lake Ontario 31	Trib1	943	100-Year	85.45	85.37	0.09	0.05	0.02	0.00	6.94	0.06	8.28
Lake Ontario 31	Trib1	923	100-Year	85.38	85.26	0.12				7.00	0.00	10.96
Lake Ontario 31	Trib1	893 LO31T-1		Culvert								
Lake Ontario 31	Trib1	865	100-Year	84.91	84.87	0.04	0.12	0.04		7.00	0.00	11.86
Lake Ontario 31	Trib1	828	100-Year	84.75	84.64	0.11	0.05	0.02	0.85	5.70	0.45	10.66
Lake Ontario 31	Trib1	792	100-Year	84.68	84.65	0.02	0.00	0.02	1.05	4.71	1.24	14.79
Lake Ontario 31	Trib2	1000	100-Year	90.91	90.89	0.02	0.01	0.05	0.42	7.88	2.20	28.18
Lake Ontario 31	Trib2	967	100-Year	90.85	90.76	0.09			0.00	10.49	0.00	
Lake Ontario 31	Trib2	925 LO31-5		Culvert								
Lake Ontario 31	Trib2	720	100-Year	86.84	86.56	0.28	0.00	0.22	0.18	15.62		
Lake Ontario 31	Trib2	718	100-Year	86.62	86.61	0.01			4.84	8.06	2.90	68.34
Lake Ontario 31	Trib2	699 LO31-3		Culvert								
Lake Ontario 31	Trib2	675	100-Year	85.58	85.55	0.03	0.00	0.01	0.99	15.28	1.33	22.47
Lake Ontario 31	Trib2	667	100-Year	85.57	85.52	0.04				17.60		108.09
Lake Ontario 31	Trib2	629		Culvert								
Lake Ontario 31	Trib2	597	100-Year	85.12	85.00	0.12	0.06	0.08	1.34	15.68	0.58	30.02
Lake Ontario 31	Trib2	581	100-Year	84.98	84.73	0.25	0.30	0.02	3.03	13.78	0.79	20.74
Lake Ontario 31	Trib2	522	100-Year	84.66	84.47	0.19	0.00	0.00	2.62	11.46	3.52	14.54
Lake Ontario 31	Main	1000	100-Year	84.66	84.44	0.22	0.55	0.02	0.90	14.79	1.61	29.03
Lake Ontario 31	Main	952	100-Year	84.09	83.68	0.41			0.39	16.23	0.67	34.89
Lake Ontario 31	Main	908	100-Year	83.54	83.34	0.20	0.35	0.04	0.77	11.38	5.15	36.73
Lake Ontario 31	Main	861	100-Year	82.75	82.70	0.06	0.11	0.01	0.15	8.22	8.93	38.12

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Lake Ontario 31	Main	794	100-Year	82.63	82.61	0.02	0.04	0.01	4.92	7.67	8.42	87.85
Lake Ontario 31	Main	765	100-Year	82.58	82.54	0.04			0.06	15.89	5.05	96.85
Lake Ontario 31	Main	733 LO31-1		Culvert								
Lake Ontario 31	Main	687	100-Year	80.34	80.28	0.06	0.02	0.00	0.09	20.81	0.10	21.93
Lake Ontario 31	Main	646	100-Year	80.32	80.25	0.06	0.04	0.02	2.46	16.05	2.49	21.79
Lake Ontario 31	Main	632	100-Year	80.26	80.03	0.23	0.05	0.01	2.72	14.30	3.97	18.62
Lake Ontario 31	Main	626	100-Year	80.20	79.87	0.33	0.04	0.00	3.09	14.93	2.97	17.76
Lake Ontario 31	Main	622	100-Year	79.88	79.53	0.36	0.04	0.06	3.22	15.21	2.57	15.75
Lake Ontario 31	Main	616	100-Year	79.04	78.90	0.14	0.05	0.02	2.06	13.11	5.83	16.12
Lake Ontario 31	Main	607	100-Year	78.97	78.59	0.38	0.18	0.01	0.39	12.24	8.36	13.40
Lake Ontario 31	Main	593	100-Year	77.35	76.85	0.51	0.31	0.03	2.50	16.37	2.13	9.06
Lake Ontario 31	Main	563	100-Year	76.71	76.30	0.40	0.09	0.04	1.89	17.23	1.88	12.33
Lake Ontario 31	Main	556	100-Year	75.93	75.66	0.27			5.46	8.16	7.39	20.00
Lake Ontario 29	Main-DS-0	1224	100-Year	95.09	94.87	0.22	0.18	0.01	0.87	4.10	0.72	7.63
Lake Ontario 29	Main-DS-0	1212	100-Year	94.55	94.37	0.18	0.23	0.04		5.70		8.32
Lake Ontario 29	Main-DS-0	1180	100-Year	94.09	94.04	0.05	0.01	0.04	0.29	5.24	0.16	12.70
Lake Ontario 29	Main-DS-0	1141	100-Year	94.05	94.05	0.00			0.38	1.67	3.65	121.78
Lake Ontario 29	Main-DS-0	1014 LO29-5		Culvert								
Lake Ontario 29	Main-DS-0	932	100-Year	93.37	93.37	0.00	0.00	0.00	3.97	1.20	4.23	325.78
Lake Ontario 29	Main-DS-0	931	100-Year	93.37	93.37	0.00			2.18	1.90	5.32	178.22
Lake Ontario 29	Main-DS-0	912 LO29-4		Culvert								
Lake Ontario 29	Main-DS-0	901	100-Year	91.42	91.42	0.00	0.00	0.00	0.31	7.33	1.76	151.91
Lake Ontario 29	Main-DS-0	891	100-Year	91.42	91.41	0.01			0.20	9.20		114.94
Lake Ontario 29	Main-DS-0	803 LO29-3		Culvert								
Lake Ontario 29	Main-DS-0	721	100-Year	87.66	87.44	0.22	0.18	0.00		9.40		13.90
Lake Ontario 29	Main-DS-0	700	100-Year	87.43	87.22	0.22			1.08	11.22	0.00	16.57
Lake Ontario 29	Main-DS-0	517 LO29-2		Culvert								
Lake Ontario 29	Main-DS-0	176	100-Year	76.96	76.71	0.25	0.05	0.16	5.53	5.58	1.20	13.11
Lake Ontario 29	Main-DS-0	167	100-Year	75.20	75.15	0.05			1.49	4.72	6.09	26.10
Beamsville	Trib2b1	851	100-Year	138.44	138.43	0.01	0.03	0.03	0.23	1.66	3.12	41.30
Beamsville	Trib2b1	842	100-Year	138.39	138.12	0.27	0.20	0.06		3.13	1.87	16.15
Beamsville	Trib2b1	832	100-Year	138.03	137.95	0.07	0.09	0.00		2.32	2.68	32.04
Beamsville	Trib2b1	822	100-Year	137.83	137.71	0.12	0.15	0.00	0.58	3.28	1.14	30.18
Beamsville	Trib2b1	807	100-Year	137.48	137.36	0.12	0.27	0.00		2.80	2.20	15.06
Beamsville	Trib2b1	788	100-Year	137.16	137.04	0.12	0.00	0.03	1.07	3.41	0.51	23.65
Beamsville	Trib2b1	772	100-Year	136.75	136.75	0.00	0.00	0.01	0.58	4.34	0.09	20.51
Beamsville	Trib2b1	763	100-Year	136.75	136.65	0.09	0.09	0.01	0.01	1.02	3.98	22.58
Beamsville	Trib2b1	760	100-Year	136.63	136.46	0.17	0.11	0.00		1.77	3.23	11.46
Beamsville	Trib2b1	755	100-Year	136.16	135.96	0.20	0.11	0.01		3.74	1.26	7.73
Beamsville	Trib2b1	747	100-Year	134.33	134.17	0.16	0.10	0.00	0.21	4.40	0.38	11.11
Beamsville	Trib2b1	739	100-Year	132.49	132.31	0.19	0.20	0.00	1.09	3.89	0.01	8.45
Beamsville	Trib2b1	726	100-Year	129.96	129.76	0.20	0.16	0.03	0.00	4.32	0.68	7.15
Beamsville	Trib2b1	722	100-Year	127.45	127.34	0.11	0.18	0.01	0.01	3.27	1.73	17.93
Beamsville	Trib2b1	718	100-Year	124.42	124.21	0.22	0.15	0.01	0.24	4.22	0.54	11.48
Beamsville	Trib2b1	708	100-Year	121.00	120.80	0.20	0.08	0.00	0.52	4.48	0.00	7.07

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib2b1	702	100-Year	119.97	119.73	0.23	0.23	0.00	0.01	4.99		5.20
Beamsville	Trib2b1	685	100-Year	118.50	118.28	0.22	0.22	0.00	0.11	4.89	0.00	6.04
Beamsville	Trib2b1	668	100-Year	117.65	117.45	0.21	0.20	0.00		4.75	0.25	6.55
Beamsville	Trib2b1	652	100-Year	117.31	117.10	0.21	0.31	0.00	0.02	4.95	0.04	6.72
Beamsville	Trib2b1	628	100-Year	116.92	116.69	0.22	0.14	0.05	0.06	4.94	0.00	5.92
Beamsville	Trib2b1	603	100-Year	116.39	116.34	0.05	0.14	0.01	1.14	3.84	0.02	10.91
Beamsville	Trib2b1	576	100-Year	116.24	116.08	0.16	0.05	0.04	0.58	4.07	0.35	8.53
Beamsville	Trib2b1	558	100-Year	116.15	116.12	0.04	0.01	0.01	0.27	4.60	0.12	16.05
Beamsville	Trib2b1	544	100-Year	116.14	116.13	0.01	0.00	0.00	0.53	4.35	0.12	21.05
Beamsville	Trib2b1	535	100-Year	116.13	116.12	0.01	0.02	0.00	1.47	2.91	0.63	23.94
Beamsville	Trib2b1	526	100-Year	116.12	116.09	0.03	0.11	0.01	4.65	0.35		21.31
Beamsville	Trib2b1	520	100-Year	116.01	115.91	0.10	0.39	0.01	4.65	0.35		18.96
Beamsville	Trib2b1	509	100-Year	115.52	115.34	0.18	0.13	0.03	0.89	4.03	0.08	8.89
Beamsville	Trib2b1	493	100-Year	114.38	114.31	0.07	0.08	0.01	0.76	4.24		6.71
Beamsville	Trib2b1	453	100-Year	114.29	114.26	0.03	0.07	0.01	0.08	4.92	0.00	7.59
Beamsville	Trib2b1	432	100-Year	114.21	114.07	0.14	0.23	0.00	0.52	1.19	3.29	14.46
Beamsville	Trib2b1	427	100-Year	113.92	113.74	0.18	0.94	0.01		2.22	2.78	8.02
Beamsville	Trib2b1	384	100-Year	112.82	112.66	0.15	0.25	0.04	0.08	4.92		6.81
Beamsville	Trib2b1	333	100-Year	112.53	112.50	0.03	0.15	0.02	2.17	2.44	0.39	19.93
Beamsville	Trib2b1	307	100-Year	112.36	112.10	0.27	0.47	0.07	0.25	4.68	0.07	7.24
Beamsville	Trib2b1	249	100-Year	111.53	111.50	0.04	0.10	0.00	1.49	2.98	0.53	29.10
Beamsville	Trib2b1	238	100-Year	111.43	111.34	0.09	0.05	0.01	3.80	1.20		22.02
Beamsville	Trib2b1	228	100-Year	111.11	111.06	0.05	0.02	0.01	0.39	4.55	0.06	9.42
Beamsville	Trib2b1	217	100-Year	111.08	111.05	0.04	0.01	0.00	0.81	3.48	0.71	16.51
Beamsville	Trib2b1	215	100-Year	111.07	111.02	0.05	0.07	0.00	3.17	1.18	0.65	21.56
Beamsville	Trib2b1	213	100-Year	111.00	110.91	0.09	0.10	0.02	4.72	0.28		21.14
Beamsville	Trib2b1	158	100-Year	110.19	110.17	0.02	0.01	0.00	0.97	3.93	0.10	18.50
Beamsville	Trib2b1	152	100-Year	110.18	110.15	0.03	0.04	0.01	2.34	2.65	0.01	14.85
Beamsville	Trib2b1	145	100-Year	110.13	109.99	0.14	0.57	0.00	1.62	3.38		12.34
Beamsville	Trib2b1	117	100-Year	109.01	108.82	0.19	0.12	0.04	0.71	3.49	0.80	9.33
Beamsville	Trib2b1	83	100-Year	108.78	108.74	0.04	0.04	0.00	0.98	3.71	0.31	23.14
Beamsville	Trib2b1	65	100-Year	108.73	108.70	0.04	0.05	0.00	3.16	1.77	0.07	16.90
Beamsville	Trib2b1	56	100-Year	108.68	108.64	0.04	0.01	0.01	2.70	2.08	0.22	13.87
Beamsville	Trib2b1	49	100-Year	108.66	108.65	0.01	0.00	0.00	1.97	2.91	0.12	14.86
Beamsville	Trib2b1	40	100-Year	108.66	108.64	0.02	0.01	0.00	0.93	4.00	0.08	16.08
Beamsville	Trib2b1	34	100-Year	108.65	108.61	0.04	0.03	0.00	1.79	2.60	0.62	15.80
Beamsville	Trib2b1	28	100-Year	108.62	108.54	0.07	0.04	0.01	0.95	3.80	0.25	13.90
Beamsville	Trib2b1	26	100-Year	108.57	108.41	0.16	0.16	0.01	1.78	3.22	0.01	10.22
Beamsville	Trib2b1	21	100-Year	108.37	108.24	0.13	0.06	0.02	1.35	2.33	1.32	14.58
Beamsville	Trib2b1	16	100-Year	107.56	107.50	0.06	0.01	0.01	0.00	3.65	1.35	9.34
Beamsville	Trib2b1	10	100-Year	107.54	107.51	0.02	0.00	0.00	0.66	2.35	1.99	13.90
Beamsville	Trib2b2	1254	100-Year	140.85	140.73	0.12	0.06	0.01	1.38	3.32		15.49
Beamsville	Trib2b2	1247	100-Year	140.78	140.70	0.08	1.88	0.01	1.16	3.54	0.00	15.95
Beamsville	Trib2b2	1038	100-Year	138.89	138.70	0.19	1.18	0.02	0.01	4.67	0.02	6.95
Beamsville	Trib2b2	980	100-Year	137.69	137.59	0.11	0.74	0.01	0.00	4.26	0.44	8.94

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib2b2	919	100-Year	136.94	136.82	0.13			0.11	3.93	0.67	14.89
Beamsville	Trib2b2	895 KT2b-4		Culvert								
Beamsville	Trib2b2	877	100-Year	135.89	135.67	0.22	0.54	0.00		4.69	0.01	7.95
Beamsville	Trib2b2	847	100-Year	132.26	132.04	0.22	0.89	0.00	0.13	4.57		5.56
Beamsville	Trib2b2	806	100-Year	129.21	129.00	0.21	0.19	0.01	0.16	4.39	0.14	6.60
Beamsville	Trib2b2	799	100-Year	128.16	127.98	0.18	0.15	0.00	0.33	4.26	0.11	8.75
Beamsville	Trib2b2	791	100-Year	126.75	126.55	0.20	0.26	0.00	0.11	4.52	0.07	7.00
Beamsville	Trib2b2	778	100-Year	123.75	123.56	0.19	0.33	0.00	0.35	4.28	0.07	7.32
Beamsville	Trib2b2	762	100-Year	120.20	120.00	0.20	1.61	0.00		4.70	0.00	13.95
Beamsville	Trib2b2	683	100-Year	116.78	116.60	0.19	1.51	0.03		4.70		6.73
Beamsville	Trib2b2	555	100-Year	114.70	114.60	0.09	0.96	0.01	0.03	4.65	0.02	7.58
Beamsville	Trib2b2	466	100-Year	113.73	113.55	0.18	0.11	0.05		4.70		6.99
Beamsville	Trib2b2	435	100-Year	113.40	113.38	0.02	0.03	0.00	0.80	3.24	0.65	40.69
Beamsville	Trib2b2	423	100-Year	113.37	113.34	0.02	0.57	0.01		0.04	4.66	36.82
Beamsville	Trib2b2	384	100-Year	112.79	112.70	0.09	1.24	0.00	0.84	2.74	1.11	24.46
Beamsville	Trib2b2	298	100-Year	111.40	111.28	0.12	0.42	0.00	1.14	2.79	0.77	21.42
Beamsville	Trib2b2	265	100-Year	110.97	110.83	0.14	0.22	0.04	0.82	3.64	0.25	18.92
Beamsville	Trib2b2	221	100-Year	110.41	110.40	0.01	0.18	0.01	0.32	0.58	3.81	38.58
Beamsville	Trib2b2	197	100-Year	110.22	110.09	0.13	0.40	0.01		0.82	3.88	11.73
Beamsville	Trib2b2	184	100-Year	109.60	109.41	0.20	0.90	0.03		4.70		6.07
Beamsville	Trib2b2	133	100-Year	108.51	108.42	0.09	0.18	0.02	0.05	2.66	1.99	21.32
Beamsville	Trib2b2	88	100-Year	107.76	107.69	0.06			0.20	4.25	0.25	9.54
Beamsville	Trib2b2	51 KT2b-3		Culvert								
Beamsville	Trib2b2	15	100-Year	107.56	107.53	0.03	0.00	0.02	0.11	4.59		70.96
Beamsville	Trib2b2	10	100-Year	107.54	107.54	0.00	0.00	0.00	0.99	1.88	1.83	76.08
Beamsville	Trib1a	1091	100-Year	108.79	108.67	0.12	0.46	0.01	0.06	1.30	0.14	5.10
Beamsville	Trib1a	1070	100-Year	107.96	107.86	0.10	0.24	0.00		1.50	0.00	5.11
Beamsville	Trib1a	1061	100-Year	107.21	107.07	0.14	0.63	0.02	0.01	1.49	0.00	3.32
Beamsville	Trib1a	1027	100-Year	106.13	106.07	0.06	0.17	0.00	0.04	0.79	0.67	8.69
Beamsville	Trib1a	1019	100-Year	105.96	105.91	0.05	0.80	0.00	0.47	0.70	0.33	17.87
Beamsville	Trib1a	992	100-Year	105.16	105.12	0.04	0.58	0.01	0.40	0.39	0.71	19.42
Beamsville	Trib1a	963	100-Year	104.39	104.38	0.01	0.20	0.00	0.71	0.39	0.40	54.82
Beamsville	Trib1a	939	100-Year	103.91	103.90	0.01	0.09	0.00		0.06	1.44	36.21
Beamsville	Trib1a	915	100-Year	103.53	103.53	0.00	0.03	0.00		0.05	1.45	60.17
Beamsville	Trib1a	895	100-Year	103.25	103.25	0.00	0.05	0.00		0.00	1.50	45.73
Beamsville	Trib1a	868	100-Year	102.82	102.80	0.02	0.28	0.00	0.89	0.59	0.01	24.26
Beamsville	Trib1a	848	100-Year	102.54	102.49	0.05	0.31	0.01	1.44	0.06		9.43
Beamsville	Trib1a	826	100-Year	102.22	102.21	0.01	0.23	0.00	0.95	0.55	0.00	24.79
Beamsville	Trib1a	812	100-Year	101.98	101.92	0.06	0.24	0.01	0.80	0.70	0.01	13.69
Beamsville	Trib1a	796	100-Year	101.68	101.66	0.01	0.30	0.00	0.93	0.57	0.00	24.75
Beamsville	Trib1a	778	100-Year	101.38	101.34	0.04	0.23	0.01	0.02	0.37	1.11	24.98
Beamsville	Trib1a	769	100-Year	101.14	101.14	0.01	0.28	0.00		0.09	1.41	39.41
Beamsville	Trib1a	756	100-Year	100.85	100.83	0.02	0.71	0.00	0.01	0.26	1.23	43.22
Beamsville	Trib1a	722	100-Year	100.13	100.13	0.00	0.48	0.00		0.00	1.50	43.01
Beamsville	Trib1a	675	100-Year	99.65	99.61	0.04	0.35	0.01		1.12	0.38	45.91

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib1a	651	100-Year	99.30	99.16	0.14	0.16	0.02		1.30	0.20	3.96
Beamsville	Trib1a	643	100-Year	99.12	99.04	0.08	0.10	0.01		1.23	0.27	4.99
Beamsville	Trib1a	634	100-Year	99.01	98.96	0.05	0.04	0.01		1.27	0.23	7.56
Beamsville	Trib1a	627	100-Year	98.97	98.94	0.03	0.07	0.00	0.00	1.40	0.10	25.19
Beamsville	Trib1a	620	100-Year	98.90	98.86	0.03	0.11	0.00	1.01	0.05	0.44	36.80
Beamsville	Trib1a	615	100-Year	98.69	98.66	0.03	0.44	0.00	0.49	1.01		19.88
Beamsville	Trib1a	590	100-Year	98.24	98.15	0.08	0.19	0.02	0.02	0.96	0.52	20.00
Beamsville	Trib1a	580	100-Year	97.92	97.90	0.02	0.23	0.00	0.01	0.33	1.16	28.51
Beamsville	Trib1a	564	100-Year	97.66	97.63	0.03	0.38	0.00		0.78	0.72	24.03
Beamsville	Trib1a	537	100-Year	97.22	97.19	0.03	0.29	0.00	0.03	0.62	0.85	36.38
Beamsville	Trib1a	517	100-Year	96.87	96.85	0.02	0.44	0.00		0.34	1.16	33.90
Beamsville	Trib1a	491	100-Year	96.42	96.38	0.04	1.04	0.00	0.15	0.96	0.39	32.33
Beamsville	Trib1a	426	100-Year	95.38	95.36	0.02	0.39	0.01	0.93	0.57		22.25
Beamsville	Trib1a	402	100-Year	94.98	94.90	0.09	1.21	0.01	0.28	0.97	0.25	10.82
Beamsville	Trib1a	334	100-Year	93.77	93.71	0.06	0.16	0.02	0.03	1.30	0.17	10.36
Beamsville	Trib1a	253	100-Year	92.60	92.59	0.01	0.15	0.00	3.52	0.28	0.00	39.76
Beamsville	Trib1a	193	100-Year	91.87	91.85	0.02	0.18	0.00	2.30	1.47	0.04	57.27
Beamsville	Trib1a	173	100-Year	91.69	91.68	0.01	0.22	0.00	3.77	0.02	0.00	68.95
Beamsville	Trib1a	149	100-Year	91.46	91.42	0.05	0.31	0.01	1.61	1.57	0.63	49.81
Beamsville	Trib1a	114	100-Year	91.15	91.00	0.15	0.76	0.01	0.59	2.62	0.59	7.79
Beamsville	Trib1a	60	100-Year	90.38	90.16	0.23	0.16	0.06	0.49	2.89	0.42	4.95
Beamsville	Trib1a	25	100-Year	90.14	90.10	0.04	0.05	0.00	0.01	3.79	0.00	9.95
Beamsville	Trib1a	1	100-Year	90.09	90.04	0.05	0.00	0.01	0.15	3.65	0.00	13.14
Beamsville	Trib1b	1270	100-Year	109.01	108.92	0.09	0.07	0.00	0.27	1.13		6.40
Beamsville	Trib1b	1266	100-Year	108.77	108.67	0.10	0.14	0.00	0.01	1.39	0.00	5.75
Beamsville	Trib1b	1257	100-Year	108.39	108.28	0.11	0.37	0.00	0.08	1.06	0.25	5.35
Beamsville	Trib1b	1233	100-Year	107.58	107.47	0.11	0.05	0.00	0.00	1.40		4.73
Beamsville	Trib1b	1230	100-Year	107.47	107.38	0.10	0.06	0.00	0.01	1.39		5.58
Beamsville	Trib1b	1226	100-Year	107.30	107.19	0.10	0.25	0.00	0.08	1.07	0.25	5.53
Beamsville	Trib1b	1210	100-Year	106.78	106.69	0.09	0.31	0.00	0.13	1.19	0.09	7.09
Beamsville	Trib1b	1194	100-Year	106.28	106.20	0.07	0.28	0.00	0.07	1.09	0.25	9.85
Beamsville	Trib1b	1163	100-Year	105.76	105.69	0.07	0.22	0.00	0.06	0.83	0.51	11.19
Beamsville	Trib1b	1155	100-Year	105.18	105.10	0.08	0.37	0.01	0.10	1.11	0.18	9.70
Beamsville	Trib1b	1140	100-Year	104.73	104.67	0.05	0.40	0.01	0.47	0.90	0.04	14.29
Beamsville	Trib1b	1109	100-Year	104.31	104.30	0.01	0.13	0.00	0.09	0.00	1.31	33.11
Beamsville	Trib1b	1099	100-Year	104.17	104.16	0.02	0.62	0.00	0.11	0.24	1.05	36.83
Beamsville	Trib1b	1066	100-Year	103.54	103.49	0.05	0.26	0.01	0.04	1.33	0.03	10.43
Beamsville	Trib1b	1012	100-Year	103.27	103.27	0.01	0.55	0.00	1.29	0.06	0.05	58.81
Beamsville	Trib1b	972	100-Year	102.71	102.67	0.04	0.54	0.01	0.50	0.74	0.16	26.74
Beamsville	Trib1b	927	100-Year	102.08	102.07	0.01	0.10	0.00	0.08	0.26	1.07	61.11
Beamsville	Trib1b	924	100-Year	101.98	101.98	0.00	0.13	0.00	0.00	0.15	1.25	76.10
Beamsville	Trib1b	921	100-Year	101.84	101.83	0.01	0.09	0.00	0.31	0.18	0.91	54.83
Beamsville	Trib1b	918	100-Year	101.74	101.72	0.02	0.48	0.00	0.40	0.00	1.00	42.55
Beamsville	Trib1b	901	100-Year	101.27	101.23	0.04	0.69	0.00	0.55	0.51	0.33	27.00
Beamsville	Trib1b	842	100-Year	100.26	100.22	0.04	0.45	0.00	0.62	0.58	0.20	23.41

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib1b	809	100-Year	99.68	99.64	0.04	0.32	0.01	0.05	0.26	1.09	22.70
Beamsville	Trib1b	790	100-Year	99.34	99.33	0.01	0.18	0.00	0.07	0.05	1.28	36.55
Beamsville	Trib1b	771	100-Year	99.17	99.16	0.01	0.24	0.00	0.04	0.12	1.24	42.37
Beamsville	Trib1b	747	100-Year	98.94	98.93	0.01	0.09	0.00	0.00	0.00	1.40	28.75
Beamsville	Trib1b	738	100-Year	98.85	98.84	0.01	0.17	0.00			1.40	30.05
Beamsville	Trib1b	724	100-Year	98.67	98.64	0.04	0.27	0.01	0.10	0.88	0.42	35.69
Beamsville	Trib1b	609	100-Year	97.67	97.67	0.00	0.17	0.00		0.07	1.33	67.90
Beamsville	Trib1b	605	100-Year	96.76	96.72	0.04	0.60	0.01	0.22	0.30	0.87	50.40
Beamsville	Trib1b	566	100-Year	96.12	96.11	0.01	0.27	0.00	0.20	0.17	1.04	43.60
Beamsville	Trib1b	544	100-Year	95.84	95.83	0.02	0.18	0.00	1.31	0.08	0.01	49.17
Beamsville	Trib1b	535	100-Year	95.66	95.65	0.01	0.50	0.00	1.13	0.27		56.22
Beamsville	Trib1b	450	100-Year	94.52	94.50	0.02	0.04	0.00	0.04	1.14	0.22	18.70
Beamsville	Trib1b	421	100-Year	94.48	94.44	0.05	0.12	0.00	0.69		0.71	15.81
Beamsville	Trib1b	418	100-Year	94.34	94.31	0.04	0.09	0.00	1.35		0.05	16.53
Beamsville	Trib1b	416	100-Year	94.26	94.22	0.04	0.06	0.01	1.40			12.74
Beamsville	Trib1b	412	100-Year	94.19	94.18	0.01	0.28	0.00	1.40		0.00	18.88
Beamsville	Trib1b	396	100-Year	93.90	93.85	0.05	0.04	0.01	0.02	0.07	1.31	11.61
Beamsville	Trib1b	383	100-Year	93.72	93.72	0.01	0.02	0.01	1.35	0.05		13.48
Beamsville	Trib1b	376	100-Year	93.70	93.64	0.06	0.01	0.02	1.19	0.21	0.00	9.54
Beamsville	Trib1b	364	100-Year	93.63	93.63	0.00	0.01	0.00	0.08	0.13	1.18	22.23
Beamsville	Trib1b	316	100-Year	93.63	93.62	0.00	0.02	0.00	0.49	0.63	0.28	33.72
Beamsville	Trib1b	302	100-Year	93.60	93.58	0.03	0.59	0.00			1.40	15.25
Beamsville	Trib1b	286	100-Year	93.00	92.95	0.05	0.31	0.00		0.06	1.34	13.27
Beamsville	Trib1b	266	100-Year	92.41	92.36	0.05	0.27	0.00	0.01	1.25	0.14	10.37
Beamsville	Trib1b	224	100-Year	92.14	92.09	0.04	0.08	0.00	0.33	0.78	0.29	11.82
Beamsville	Trib1b	209	100-Year	92.05	92.00	0.05			0.04	1.36		8.42
Beamsville	Trib1b	207		Inl Struct								
Beamsville	Trib1b	203	100-Year	91.41	91.39	0.02	0.04	0.00	0.01	1.39		6.26
Beamsville	Trib1b	202	100-Year	91.38	91.34	0.04	0.13	0.00	0.40	0.88	0.12	9.06
Beamsville	Trib1b	179	100-Year	91.24	91.18	0.06	0.40	0.00	0.03	1.37	0.00	9.86
Beamsville	Trib1b	121	100-Year	90.85	90.80	0.06	0.56	0.01	0.52	0.77	0.12	8.87
Beamsville	Trib1b	77	100-Year	90.29	90.18	0.11	0.07	0.03		1.40		4.59
Beamsville	Trib1b	48	100-Year	90.10	90.08	0.01	0.01	0.00	0.45	0.82	0.13	14.39
Beamsville	Trib1b	15	100-Year	90.08	90.08	0.00	0.00	0.00	0.02	1.38	0.00	11.18
Beamsville	Trib2a	1554	100-Year	109.17	109.04	0.13	0.07	0.03		3.07	0.03	5.52
Beamsville	Trib2a	1545	100-Year	109.08	109.03	0.05	0.17	0.01	1.35	1.49	0.25	7.93
Beamsville	Trib2a	1526	100-Year	108.90	108.79	0.11	0.06	0.02		1.67	1.43	9.49
Beamsville	Trib2a	1516	100-Year	108.64	108.60	0.04	0.03	0.01	0.14	2.67	0.29	11.27
Beamsville	Trib2a	1511	100-Year	108.61	108.51	0.10	0.23	0.01	0.02	1.92	1.16	15.45
Beamsville	Trib2a	1502	100-Year	108.02	107.85	0.17	0.22	0.04	0.34	2.35	0.41	6.98
Beamsville	Trib2a	1485	100-Year	107.49	107.44	0.05	0.07	0.01	0.00	1.76	1.33	11.64
Beamsville	Trib2a	1481	100-Year	107.41	107.25	0.16	0.21	0.01	0.01	3.00	0.09	7.04
Beamsville	Trib2a	1474	100-Year	107.00	106.86	0.14	0.74	0.03	0.17	2.51	0.42	7.83
Beamsville	Trib2a	1447	100-Year	106.07	106.01	0.06	0.08	0.01	2.54	0.21	0.35	24.97
Beamsville	Trib2a	1432	100-Year	105.66	105.64	0.02	0.02	0.01	1.69	1.07	0.34	23.78

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib2a	1426	100-Year	105.63	105.54	0.09	0.06	0.00	0.11	2.40	0.59	19.79
Beamsville	Trib2a	1422	100-Year	104.88	104.81	0.08	0.08	0.01	0.58	2.24	0.27	21.57
Beamsville	Trib2a	1418	100-Year	104.78	104.74	0.05	0.13	0.01	2.56	0.54	0.00	28.92
Beamsville	Trib2a	1404	100-Year	104.56	104.55	0.01	0.63	0.00	1.84	0.44	0.82	34.10
Beamsville	Trib2a	1349	100-Year	103.93	103.91	0.02	0.92	0.01	3.10	0.00		51.90
Beamsville	Trib2a	1302	100-Year	103.01	102.93	0.08	0.78	0.00	0.30	2.63	0.17	10.39
Beamsville	Trib2a	1227	100-Year	102.24	102.16	0.08	0.43	0.02	0.00	2.14	0.95	15.66
Beamsville	Trib2a	1192	100-Year	101.75	101.73	0.03	0.45	0.00		0.49	2.61	18.77
Beamsville	Trib2a	1162	100-Year	101.30	101.23	0.07	0.32	0.01		0.61	2.49	18.31
Beamsville	Trib2a	1138	100-Year	100.94	100.91	0.03	0.62	0.01	0.00	1.59	1.51	23.98
Beamsville	Trib2a	1094	100-Year	100.31	100.19	0.12	0.46	0.03	0.63	2.37	0.10	21.87
Beamsville	Trib2a	1055	100-Year	99.73	99.71	0.02	0.34	0.00	0.57	1.43	1.10	54.14
Beamsville	Trib2a	1018	100-Year	99.37	99.31	0.06	0.05	0.01	0.07	0.23	2.80	23.54
Beamsville	Trib2a	1010	100-Year	99.31	99.30	0.01	0.01	0.00	0.25	1.16	1.69	46.50
Beamsville	Trib2a	1004	100-Year	99.30	99.29	0.01	0.02	0.00	1.02	1.22	0.86	44.37
Beamsville	Trib2a	997	100-Year	99.28	99.25	0.03	0.19	0.00	0.52	0.82	1.76	28.51
Beamsville	Trib2a	979	100-Year	99.09	99.04	0.05	0.05	0.01	0.00	1.16	1.93	21.31
Beamsville	Trib2a	968	100-Year	99.02	99.01	0.01	0.07	0.01	0.12	1.13	1.85	32.90
Beamsville	Trib2a	955	100-Year	98.94	98.81	0.14	0.14	0.04	0.40	2.56	0.14	8.07
Beamsville	Trib2a	940	100-Year	98.61	98.59	0.02	0.08	0.00	0.01	1.38	1.70	32.77
Beamsville	Trib2a	928	100-Year	98.53	98.50	0.03	0.11	0.00	0.23	1.49	1.38	27.95
Beamsville	Trib2a	914	100-Year	98.41	98.39	0.03	0.21	0.00	0.11	0.82	2.16	37.06
Beamsville	Trib2a	895	100-Year	98.20	98.18	0.02	0.26	0.00		0.15	2.95	42.60
Beamsville	Trib2a	879	100-Year	97.93	97.89	0.05	0.15	0.01	0.00	0.72	2.38	31.96
Beamsville	Trib2a	861	100-Year	97.63	97.62	0.01	0.03	0.00		0.25	2.85	38.48
Beamsville	Trib2a	853	100-Year	97.60	97.59	0.01	0.04	0.00	0.10	1.40	1.60	44.61
Beamsville	Trib2a	845	100-Year	97.56	97.53	0.03	0.21	0.00	0.20	0.53	2.37	37.72
Beamsville	Trib2a	834	100-Year	97.34	97.28	0.07	0.08	0.01	0.39	1.88	0.84	24.31
Beamsville	Trib2a	827	100-Year	97.21	97.19	0.02	0.06	0.00	1.76	0.78	0.56	38.76
Beamsville	Trib2a	819	100-Year	97.14	97.12	0.02	0.08	0.00	2.44	0.60	0.05	40.09
Beamsville	Trib2a	810	100-Year	97.06	97.04	0.02	0.05	0.00	1.88	1.03	0.20	56.12
Beamsville	Trib2a	805	100-Year	97.01	96.98	0.02	0.07	0.00	1.77	1.03	0.30	57.85
Beamsville	Trib2a	798	100-Year	96.92	96.87	0.05	0.20	0.00	1.45	1.58	0.06	39.46
Beamsville	Trib2a	773	100-Year	96.72	96.68	0.04	0.19	0.01	2.71	0.37	0.02	44.00
Beamsville	Trib2a	743	100-Year	96.45	96.44	0.01	0.24	0.00	2.78	0.30	0.01	55.61
Beamsville	Trib2a	711	100-Year	96.21	96.16	0.05	0.00	0.04	3.60			39.73
Beamsville	Trib2a	692	100-Year	96.02	96.02	0.00			3.47	0.13	0.00	110.77
Beamsville	Trib2a	682 KT2a-2		Culvert								
Beamsville	Trib2a	673	100-Year	95.94	95.90	0.03	0.01	0.02	0.00	3.60	0.00	79.12
Beamsville	Trib2a	669	100-Year	95.90	95.89	0.01	0.01	0.00	0.12	1.76	1.72	79.85
Beamsville	Trib2a	660	100-Year	95.89	95.89	0.00	0.05	0.00	0.07	0.32	3.20	85.33
Beamsville	Trib2a	653	100-Year	95.84	95.80	0.04	0.17	0.00		0.46	3.14	75.87
Beamsville	Trib2a	647	100-Year	95.52	95.48	0.03	0.17	0.00	3.60			29.86
Beamsville	Trib2a	639	100-Year	95.35	95.29	0.06	0.30	0.00	2.76	0.84		26.62
Beamsville	Trib2a	624	100-Year	95.04	94.98	0.07	0.11	0.01	1.20	1.88	0.52	26.94

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib2a	607	100-Year	94.88	94.85	0.03	0.11	0.01	0.65	2.51	0.44	29.97
Beamsville	Trib2a	586	100-Year	94.77	94.66	0.11	0.39	0.01	0.77	2.69	0.14	15.27
Beamsville	Trib2a	561	100-Year	94.29	94.20	0.09	0.32	0.01	0.24	3.25	0.11	18.35
Beamsville	Trib2a	519	100-Year	93.82	93.78	0.04	0.22	0.00	0.89	2.45	0.26	16.40
Beamsville	Trib2a	494	100-Year	93.60	93.51	0.08	0.43	0.00	2.90	0.70	0.00	18.29
Beamsville	Trib2a	467	100-Year	93.15	93.05	0.10	0.45	0.01	0.59	2.91	0.10	20.94
Beamsville	Trib2a	406	100-Year	92.61	92.53	0.08	0.16	0.01	0.01	2.75	0.84	26.28
Beamsville	Trib2a	384	100-Year	92.40	92.36	0.04	0.15	0.00	0.00	2.62	0.98	33.69
Beamsville	Trib2a	367	100-Year	92.24	92.15	0.08	0.09	0.01		2.37	1.23	20.12
Beamsville	Trib2a	342	100-Year	91.93	91.89	0.04	0.08	0.00	0.47	2.85	0.27	23.07
Beamsville	Trib2a	324	100-Year	91.86	91.82	0.04	0.44	0.00	1.67	1.15	0.78	44.32
Beamsville	Trib2a	284	100-Year	91.41	91.34	0.07	0.15	0.01	1.26	2.06	0.28	47.45
Beamsville	Trib2a	259	100-Year	90.90	90.87	0.03	0.29	0.00	0.69	1.41	1.50	17.02
Beamsville	Trib2a	210	100-Year	90.60	90.53	0.07	0.16	0.02	1.18	2.22	0.20	38.96
Beamsville	Trib2a	107	100-Year	90.33	90.31	0.01	0.03	0.01	1.07	2.14	0.39	45.39
Beamsville	Trib2a	91	100-Year	90.29	90.18	0.10	0.04	0.02	1.80	1.68	0.12	13.15
Beamsville	Trib2a	58	100-Year	89.78	89.75	0.03	0.00	0.01	0.17	3.97	0.46	7.30
Beamsville	Trib2a	48	100-Year	89.76	89.75	0.02				4.60		7.00
Beamsville	Trib2a	40 KT2a-1		Culvert								
Beamsville	Trib2a	33	100-Year	89.70	89.70	0.01	0.00	0.00		4.60		38.19
Beamsville	Trib2a	15	100-Year	89.70	89.69	0.00	0.00	0.00	0.41	3.05	1.15	61.63
Beamsville	Trib2b	1748	100-Year	107.54	107.51	0.03	0.06	0.01	0.32	5.81	4.07	75.91
Beamsville	Trib2b	1743	100-Year	107.47	107.47	0.01	0.09	0.00		0.77	9.43	66.48
Beamsville	Trib2b	1731	100-Year	107.38	107.36	0.02	0.10	0.00		1.00	9.20	57.30
Beamsville	Trib2b	1717	100-Year	107.27	107.26	0.01	0.04	0.00		0.29	9.91	49.72
Beamsville	Trib2b	1706	100-Year	107.23	107.22	0.01	0.02	0.00		0.40	9.80	57.22
Beamsville	Trib2b	1697	100-Year	107.21	107.20	0.00	0.03	0.00		0.34	9.86	60.12
Beamsville	Trib2b	1683	100-Year	107.18	107.17	0.00	0.04	0.00		0.61	9.59	51.58
Beamsville	Trib2b	1670	100-Year	107.13	107.12	0.01	0.25	0.01		0.67	9.53	43.07
Beamsville	Trib2b	1653	100-Year	106.88	106.77	0.11	0.04	0.03	0.01	4.14	6.05	53.24
Beamsville	Trib2b	1639	100-Year	106.81	106.80	0.01	0.02	0.00	0.57	1.70	7.93	63.96
Beamsville	Trib2b	1603	100-Year	106.79	106.78	0.01	0.02	0.00	0.00	0.30	9.90	53.51
Beamsville	Trib2b	1585	100-Year	106.77	106.77	0.01	0.05	0.01		0.93	9.27	52.93
Beamsville	Trib2b	1552	100-Year	106.71	106.69	0.02	0.10	0.00		1.08	9.12	53.85
Beamsville	Trib2b	1542	100-Year	106.61	106.56	0.05	0.27	0.01	0.02	2.98	7.20	54.96
Beamsville	Trib2b	1529	100-Year	106.33	106.20	0.13	0.02	0.02	0.04	2.85	7.31	35.47
Beamsville	Trib2b	1523	100-Year	105.72	105.64	0.08			0.52	9.68	0.00	8.39
Beamsville	Trib2b	1512 KT2b-2		Culvert								
Beamsville	Trib2b	1502	100-Year	105.26	105.05	0.21	0.19	0.16	0.01	10.19		21.18
Beamsville	Trib2b	1493	100-Year	104.91	104.90	0.01	0.21	0.01	7.75	0.38	2.07	85.60
Beamsville	Trib2b	1482	100-Year	104.69	104.60	0.09	0.52	0.01	5.62	1.41	3.16	64.71
Beamsville	Trib2b	1458	100-Year	103.94	103.78	0.17	0.16	0.04	0.91	9.10	0.19	23.64
Beamsville	Trib2b	1402	100-Year	103.53	103.48	0.04	0.26	0.01	5.61	4.43	0.16	50.90
Beamsville	Trib2b	1351	100-Year	103.25	103.09	0.17	2.74	0.00	1.28	8.13	0.78	27.93
Beamsville	Trib2b	1215	100-Year	100.52	100.36	0.16	0.56	0.03		2.43	7.77	18.68

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib2b	1157	100-Year	99.83	99.76	0.07	0.37	0.00	0.21	5.15	4.84	20.37
Beamsville	Trib2b	1029	100-Year	99.45	99.33	0.12	0.30	0.01	0.03	10.77	0.29	10.31
Beamsville	Trib2b	985	100-Year	99.13	98.91	0.23	0.59	0.00	1.49	7.85	1.76	14.45
Beamsville	Trib2b	924	100-Year	98.14	97.88	0.27	0.49	0.04	0.57	9.51	1.02	10.41
Beamsville	Trib2b	839	100-Year	97.61	97.49	0.12	0.42	0.01	0.44	9.70	0.96	12.98
Beamsville	Trib2b	776	100-Year	97.18	97.01	0.17	0.42	0.02	0.10	6.79	4.20	13.12
Beamsville	Trib2b	703	100-Year	96.74	96.65	0.09	0.40	0.01	0.20	10.39	0.50	14.48
Beamsville	Trib2b	608	100-Year	96.33	96.19	0.14	0.38	0.00	1.03	7.70	2.37	24.45
Beamsville	Trib2b	570	100-Year	95.94	95.77	0.18	0.29	0.00	0.23	7.16	3.71	27.04
Beamsville	Trib2b	553	100-Year	95.65	95.44	0.21	0.61	0.01	1.36	6.41	3.33	15.64
Beamsville	Trib2b	524	100-Year	94.29	93.99	0.30	1.09	0.00		11.10		7.36
Beamsville	Trib2b	476	100-Year	93.08	92.75	0.34	0.66	0.05	0.90	10.12	0.07	7.27
Beamsville	Trib2b	402	100-Year	91.66	91.50	0.16	0.44	0.01	0.16	10.44	0.50	9.38
Beamsville	Trib2b	312	100-Year	91.21	91.08	0.13	0.07	0.03	0.75	9.52	0.83	11.55
Beamsville	Trib2b	248	100-Year	91.11	91.09	0.03	0.01	0.00	2.87	7.26	0.98	17.42
Beamsville	Trib2b	227	100-Year	91.10	91.07	0.03	0.04	0.00	1.16	8.86	1.07	15.33
Beamsville	Trib2b	161	100-Year	91.06	91.02	0.04	0.11	0.10	1.82	8.83	2.35	32.90
Beamsville	Trib2b	100	100-Year	90.85	90.65	0.20			4.81	7.37	0.82	29.76
Beamsville	Trib2b	79 KT2b-1		Culvert								
Beamsville	Trib2b	27	100-Year	89.70	89.68	0.02	0.00	0.00		12.96	0.04	24.93
Beamsville	Trib2b	18	100-Year	89.70	89.68	0.01	0.00	0.00	0.96	11.56	0.48	29.44
Beamsville	Trib1	1399	100-Year	90.08	90.06	0.03	0.00	0.06	0.64	1.99	2.87	20.55
Beamsville	Trib1	1398	100-Year	90.02	89.89	0.13			0.00	5.50		4.09
Beamsville	Trib1	1388 KT1-4		Culvert								
Beamsville	Trib1	1376	100-Year	89.66	89.55	0.10	0.16	0.04		5.50		39.25
Beamsville	Trib1	1367	100-Year	89.45	89.40	0.05	0.24	0.01	3.76	1.66	0.09	57.69
Beamsville	Trib1	1347	100-Year	89.20	89.19	0.02	0.36	0.00	4.74	0.76		45.35
Beamsville	Trib1	1291	100-Year	88.83	88.77	0.06	0.21	0.00	0.17	3.11	2.22	19.90
Beamsville	Trib1	1255	100-Year	88.62	88.57	0.05	0.47	0.00	0.03	4.82	0.65	15.78
Beamsville	Trib1	1162	100-Year	88.14	88.05	0.09	0.14	0.02		3.28	2.22	25.61
Beamsville	Trib1	1091	100-Year	87.96	87.95	0.01	0.01	0.01	0.62	3.02	1.86	43.53
Beamsville	Trib1	1044	100-Year	87.95	87.95	0.00	0.00	0.00	0.09	2.29	3.12	64.78
Beamsville	Trib1	1033	100-Year	87.95	87.94	0.00	0.00	0.00	0.22	2.16	3.12	69.79
Beamsville	Trib1	1025	100-Year	87.94	87.94	0.01			0.07	5.25	0.17	82.37
Beamsville	Trib1	1013 KT1-3		Culvert								
Beamsville	Trib1	1005	100-Year	86.84	86.81	0.03	0.04	0.01	0.03	5.47	0.00	42.43
Beamsville	Trib1	1000	100-Year	86.79	86.73	0.05	0.12	0.00	0.08	1.65	3.77	52.17
Beamsville	Trib1	994	100-Year	86.39	86.34	0.05	0.12	0.00	0.20	4.14	1.16	49.70
Beamsville	Trib1	963	100-Year	86.27	86.22	0.05	0.22	0.01	0.23	4.58	0.68	44.21
Beamsville	Trib1	917	100-Year	86.05	85.94	0.11	0.16	0.03	0.31	4.63	0.57	32.42
Beamsville	Trib1	854	100-Year	85.82	85.81	0.02	0.03	0.00	1.25	2.68	1.57	49.39
Beamsville	Trib1	841	100-Year	85.79	85.73	0.06	0.17	0.00	4.23		1.27	42.59
Beamsville	Trib1	822	100-Year	85.34	85.27	0.07	0.07	0.01	0.51	4.43	0.56	24.39
Beamsville	Trib1	794	100-Year	85.26	85.23	0.02	0.19	0.01	0.65	3.36	1.48	31.68
Beamsville	Trib1	745	100-Year	85.06	84.97	0.09	0.14	0.00		1.46	4.04	27.40

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Trib1	736	100-Year	84.86	84.74	0.13	0.62	0.01	0.53	4.46	0.51	21.14
Beamsville	Trib1	659	100-Year	84.22	84.14	0.08	0.20	0.02	1.11	3.88	0.50	35.39
Beamsville	Trib1	591	100-Year	83.92	83.90	0.02	0.03	0.00	2.89	2.57	0.04	54.18
Beamsville	Trib1	566	100-Year	83.89	83.88	0.01	0.12	0.01	3.58	1.88	0.04	50.28
Beamsville	Trib1	512	100-Year	83.75	83.67	0.08	0.04	0.01	1.37	0.68	3.45	25.92
Beamsville	Trib1	505	100-Year	83.60	83.55	0.05	0.02	0.02	0.65	4.50	0.35	12.33
Beamsville	Trib1	480	100-Year	83.55	83.53	0.02			0.14	5.36		27.13
Beamsville	Trib1	472 KT1-2		Culvert								
Beamsville	Trib1	464	100-Year	83.11	83.09	0.02	0.00	0.00		5.50		15.50
Beamsville	Trib1	462	100-Year	83.10	83.08	0.02	0.05	0.00	1.20	3.84	0.45	26.67
Beamsville	Trib1	404	100-Year	83.05	83.03	0.02	0.12	0.01	1.29	4.05	0.15	19.66
Beamsville	Trib1	366	100-Year	82.92	82.80	0.12	0.14	0.02	3.87	1.45	0.18	18.71
Beamsville	Trib1	353	100-Year	82.63	82.59	0.04	0.22	0.01	2.05	3.23	0.23	17.04
Beamsville	Trib1	330	100-Year	82.40	82.23	0.17	0.01	0.05	0.02	3.58	1.90	13.87
Beamsville	Trib1	281	100-Year	82.19	82.19	0.00	0.00	0.00	1.79	3.96	0.45	54.08
Beamsville	Trib1	271	100-Year	82.19	82.18	0.01			0.01	6.19		69.83
Beamsville	Trib1	207 KT1-1		Culvert								
Beamsville	Trib1	143	100-Year	80.30	80.26	0.04	0.05	0.01		6.19	0.01	17.84
Beamsville	Trib1	117	100-Year	80.25	80.19	0.06	0.21	0.00	1.28	4.48	0.45	31.49
Beamsville	Trib1	101	100-Year	80.04	79.97	0.07	0.27	0.00	5.24	0.87	0.09	34.59
Beamsville	Trib1	83	100-Year	79.77	79.66	0.10	0.07	0.03	0.60	5.57	0.04	34.98
Beamsville	Trib1	42	100-Year	79.67	79.65	0.02	0.02	0.00	2.81	2.95	0.45	67.52
Beamsville	Trib1	11	100-Year	79.65	79.64	0.01	0.00	0.01	2.86	2.89	0.45	112.51
Beamsville	Trib2	1227	100-Year	89.70	89.68	0.02	0.01	0.00	3.10	12.01	2.39	141.52
Beamsville	Trib2	1159	100-Year	89.68	89.67	0.01	0.00	0.00	7.13	7.00	3.37	157.57
Beamsville	Trib2	1135	100-Year	89.68	89.68	0.00	0.00	0.00	7.72	3.32	6.47	204.01
Beamsville	Trib2	1094	100-Year	89.68	89.68	0.00	0.00	0.01	8.35	2.69	7.16	240.65
Beamsville	Trib2	1043	100-Year	89.66	89.64	0.02				18.20		256.97
Beamsville	Trib2	1029 KT2-2		Culvert								
Beamsville	Trib2	1021	100-Year	88.67	88.24	0.43	0.57	0.11	0.21	15.75	2.24	110.42
Beamsville	Trib2	970	100-Year	87.03	86.73	0.30	1.05	0.05	1.36	15.96	0.88	20.06
Beamsville	Trib2	813	100-Year	85.68	85.54	0.13	0.62	0.02	2.24	15.25	0.71	29.30
Beamsville	Trib2	748	100-Year	85.03	84.66	0.37	0.69	0.07	0.21	14.04	3.95	10.95
Beamsville	Trib2	624	100-Year	84.12	83.99	0.13	0.05	0.04	0.98	15.64	1.58	18.26
Beamsville	Trib2	554	100-Year	84.04	84.03	0.01	0.02	0.00	1.20	9.02	7.98	86.09
Beamsville	Trib2	436	100-Year	84.02	84.01	0.01	0.01	0.01	5.60	10.14	4.56	57.30
Beamsville	Trib2	320	100-Year	84.00	83.98	0.02			0.02	20.20	0.07	131.24
Beamsville	Trib2	243 KT2-1		Culvert								
Beamsville	Trib2	177	100-Year	81.16	80.80	0.35	0.31	0.04		20.21	0.09	21.45
Beamsville	Trib2	141	100-Year	80.80	80.50	0.30	0.58	0.05	2.77	12.31	5.22	19.37
Beamsville	Trib2	84	100-Year	80.09	79.96	0.12	0.18	0.02	4.13	9.27	6.90	51.16
Beamsville	Trib2	41	100-Year	79.89	79.84	0.05	0.10	0.02	7.72	8.05	4.53	73.62
Beamsville	Trib2	19	100-Year	79.78	79.58	0.20	0.00	0.03	5.78	11.35	3.17	49.83
Beamsville	Main	600	100-Year	79.64	79.54	0.10	0.26	0.01	6.77	18.82	2.31	89.31
Beamsville	Main	551	100-Year	79.37	79.16	0.21	0.19	0.04	3.07	17.87	6.96	65.19

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Beamsville	Main	511	100-Year	78.99	78.91	0.09	0.11	0.00	18.86	8.66	0.39	31.41
Beamsville	Main	483	100-Year	78.88	78.77	0.11	0.07	0.03	11.02	15.61	1.28	43.18
Beamsville	Main	442	100-Year	78.78	78.70	0.07	0.01	0.02	11.85	13.52	2.53	75.86
Beamsville	Main	429	100-Year	78.75	78.73	0.02	0.01	0.00	16.57	8.76	2.56	135.14
Beamsville	Main	408	100-Year	78.73	78.72	0.02			16.11	11.17	0.62	120.51
Beamsville	Main	401 K-1		Culvert								
Beamsville	Main	395	100-Year	78.61	78.50	0.11	0.04	0.06	2.83	24.69	0.38	63.56
Beamsville	Main	370	100-Year	78.51	78.47	0.04	0.16	0.02	6.88	13.74	7.28	88.93
Beamsville	Main	318	100-Year	78.33	78.08	0.25	0.66	0.04		3.25	24.65	26.29
Beamsville	Main	260	100-Year	77.64	77.51	0.13	0.47	0.01	0.64	20.96	6.29	41.53
Beamsville	Main	161	100-Year	77.16	76.95	0.21	0.16	0.03	7.04	17.94	2.92	54.96
Beamsville	Main	118	100-Year	76.82	76.72	0.11	0.18	0.01	8.34	17.34	2.22	51.83
Beamsville	Main	88	100-Year	76.63	76.46	0.17	0.10	0.02	7.43	11.86	8.61	31.29
Beamsville	Main	67	100-Year	76.52	76.41	0.11	0.27	0.01	2.21	24.14	1.55	50.02
Beamsville	Main	16	100-Year	76.24	75.99	0.25			6.44	14.68	6.78	46.12
Bartlett	Trib1c	1121	100-Year	128.06	127.95	0.12	0.06	0.00	2.23	2.19	0.07	14.80
Bartlett	Trib1c	1117	100-Year	127.98	127.86	0.12	0.15	0.02	1.45	3.01	0.05	14.02
Bartlett	Trib1c	1093	100-Year	127.04	127.00	0.04	0.05	0.01	0.30	3.56	0.63	12.55
Bartlett	Trib1c	1068	100-Year	126.98	126.94	0.03			0.95	3.29	0.25	34.32
Bartlett	Trib1c	1055 BT1-4		Culvert								
Bartlett	Trib1c	1035	100-Year	125.98	125.78	0.20	0.24	0.02		4.49	0.01	7.41
Bartlett	Trib1c	1012	100-Year	125.72	125.55	0.18	0.16	0.05	0.29	3.89	0.32	9.40
Bartlett	Trib1c	922	100-Year	124.64	124.63	0.01	0.07	0.01	0.25	1.48	2.77	27.03
Bartlett	Trib1c	886	100-Year	124.56	124.41	0.15	0.17	0.10	0.35	5.00	1.05	18.09
Bartlett	Trib1c	854	100-Year	124.11	124.09	0.02			1.25	3.35	1.80	98.45
Bartlett	Trib1c	816 BT1-3		Culvert								
Bartlett	Trib1c	733	100-Year	120.53	120.30	0.24	0.23	0.16		6.40	0.00	24.90
Bartlett	Trib1c	713	100-Year	119.96	119.93	0.03	0.20	0.01	3.86	2.52	0.02	37.90
Bartlett	Trib1c	705	100-Year	119.76	119.66	0.10	0.26	0.01	4.75	1.65		24.49
Bartlett	Trib1c	697	100-Year	119.25	119.20	0.05	0.13	0.01	6.21	0.19		24.28
Bartlett	Trib1c	688	100-Year	119.12	119.09	0.03	0.11	0.00	6.31	0.09		22.72
Bartlett	Trib1c	677	100-Year	119.01	118.97	0.04	0.16	0.01	6.01	0.39		20.22
Bartlett	Trib1c	669	100-Year	118.85	118.74	0.11	0.04	0.03	3.97	1.98	0.45	23.52
Bartlett	Trib1c	661	100-Year	118.64	118.62	0.02	0.04	0.01	4.59	1.76	0.05	21.72
Bartlett	Trib1c	653	100-Year	118.59	118.52	0.07	0.42	0.00	3.34	2.43	0.63	24.57
Bartlett	Trib1c	637	100-Year	118.16	118.08	0.09	0.27	0.01	2.25	2.01	2.14	30.13
Bartlett	Trib1c	617	100-Year	117.19	117.13	0.07	0.23	0.00		3.70	2.70	18.39
Bartlett	Trib1c	602	100-Year	116.96	116.87	0.10	0.98	0.00		0.28	6.12	24.24
Bartlett	Trib1c	553	100-Year	115.11	114.99	0.12	0.32	0.00	0.29	5.36	1.75	32.08
Bartlett	Trib1c	530	100-Year	114.74	114.61	0.12	0.35	0.02	0.02	4.44	2.94	24.92
Bartlett	Trib1c	467	100-Year	112.88	112.84	0.04	0.04	0.01	0.04	4.20	3.16	24.25
Bartlett	Trib1c	460	100-Year	112.83	112.71	0.12	0.09	0.01	0.01	1.10	6.29	21.41
Bartlett	Trib1c	453	100-Year	112.48	112.39	0.10	0.02	0.00	0.08	6.72	0.60	18.44
Bartlett	Trib1c	422	100-Year	112.46	112.32	0.14	2.09	0.00	0.33	5.79	1.28	20.90
Bartlett	Trib1c	285	100-Year	109.12	108.99	0.14	1.51	0.01	1.07	3.65	2.68	18.72

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Bartlett	Trib1c	216	100-Year	107.54	107.26	0.27	0.14	0.05	0.59	6.68	0.13	10.44
Bartlett	Trib1c	191	100-Year	107.25	107.14	0.10	0.01	0.02	0.04	7.32	0.05	10.57
Bartlett	Trib1c	186	100-Year	107.22	107.17	0.04	0.01	0.01	0.26	6.66	0.48	35.76
Bartlett	Trib1c	185	100-Year	107.20	107.18	0.02	0.03	0.01	0.56	1.92	4.92	70.02
Bartlett	Trib1c	175	100-Year	107.17	107.17	0.00	0.04	0.01	0.47	0.95	5.98	93.38
Bartlett	Trib1c	148	100-Year	107.12	106.98	0.14	0.00	0.03	2.66	2.93	1.81	15.52
Bartlett	Trib2	1927	100-Year	132.85	132.71	0.14	0.39	0.00	0.40	3.84	0.25	11.71
Bartlett	Trib2	1910	100-Year	131.24	131.05	0.19	0.60	0.01	0.35	4.15	0.00	6.98
Bartlett	Trib2	1889	100-Year	128.22	128.06	0.17	1.09	0.03	0.00	4.50	0.00	7.66
Bartlett	Trib2	1815	100-Year	123.37	123.31	0.06	0.61	0.00	1.05	3.10	0.35	31.52
Bartlett	Trib2	1775	100-Year	122.76	122.69	0.07	0.55	0.01	3.64	0.86		27.39
Bartlett	Trib2	1733	100-Year	122.02	121.99	0.03	0.47	0.00	2.57	1.93		18.63
Bartlett	Trib2	1691	100-Year	121.54	121.46	0.08	0.08	0.02	1.89	0.88	1.72	26.42
Bartlett	Trib2	1655	100-Year	120.54	120.51	0.02	0.01	0.00	0.20	3.69	0.61	17.23
Bartlett	Trib2	1649	100-Year	120.52	120.45	0.07	1.41	0.00	0.15	2.25	2.10	28.84
Bartlett	Trib2	1587	100-Year	119.11	119.03	0.08	0.10	0.01		0.42	4.08	21.55
Bartlett	Trib2	1570	100-Year	118.70	118.65	0.04	0.18	0.01	0.51	3.70	0.29	16.42
Bartlett	Trib2	1533	100-Year	118.51	118.41	0.11	0.60	0.00	0.26	2.94	1.30	19.15
Bartlett	Trib2	1484	100-Year	117.01	116.85	0.16	1.71	0.01	0.38	3.88	0.23	17.65
Bartlett	Trib2	1370	100-Year	115.28	115.16	0.13	0.58	0.02	0.27	4.18	0.06	16.05
Bartlett	Trib2	1282	100-Year	113.64	113.59	0.05	0.17	0.00	0.21	3.93	0.37	25.37
Bartlett	Trib2	1257	100-Year	113.46	113.43	0.03	1.50	0.02	4.27	0.23		38.23
Bartlett	Trib2	1196	100-Year	111.95	111.75	0.21	0.34	0.05	0.07	4.41	0.03	6.35
Bartlett	Trib2	1144	100-Year	111.24	111.22	0.03	0.34	0.00	1.08	2.60	0.82	26.80
Bartlett	Trib2	1091	100-Year	110.91	110.86	0.05	0.21	0.00	3.90	0.60		21.65
Bartlett	Trib2	1084	100-Year	110.69	110.62	0.08	0.32	0.01	3.97	0.53		19.38
Bartlett	Trib2	1068	100-Year	110.28	110.13	0.15	0.89	0.01	0.26	5.22	0.02	13.73
Bartlett	Trib2	993	100-Year	109.39	109.27	0.12	0.75	0.01	0.14	4.70	0.66	21.97
Bartlett	Trib2	937	100-Year	108.63	108.44	0.19	0.66	0.05	0.17	5.12	0.21	10.62
Bartlett	Trib2	853	100-Year	107.61	107.60	0.02	0.17	0.00	0.00	1.44	4.06	38.07
Bartlett	Trib2	812	100-Year	107.45	107.43	0.02	0.12	0.02		1.20	4.30	38.44
Bartlett	Trib2	796	100-Year	107.32	107.13	0.18	0.19	0.03		4.43	1.07	8.11
Bartlett	Trib2	779	100-Year	106.98	106.88	0.10	0.47	0.01	0.03	5.16	0.31	16.69
Bartlett	Trib2	707	100-Year	106.50	106.43	0.07	0.04	0.02	0.09	3.84	2.67	18.86
Bartlett	Trib2	681	100-Year	106.44	106.40	0.05			0.08	6.27	0.25	28.57
Bartlett	Trib2	660 B-9		Culvert								
Bartlett	Trib2	595	100-Year	105.66	105.39	0.27	1.50	0.09	0.01	6.55	0.04	4.90
Bartlett	Trib2	506	100-Year	104.07	103.92	0.15	1.26	0.01	0.01	6.59		10.83
Bartlett	Trib2	434	100-Year	102.81	102.70	0.11	0.57	0.01	0.13	6.40	0.08	12.51
Bartlett	Trib2	364	100-Year	102.23	102.02	0.20	0.53	0.03	0.11	5.84	0.64	13.93
Bartlett	Trib2	323	100-Year	101.58	101.49	0.09	0.75	0.00	2.81	3.61	0.17	30.66
Bartlett	Trib2	261	100-Year	100.42	100.32	0.10	0.36	0.01	2.17	4.05	0.37	30.58
Bartlett	Trib2	175	100-Year	99.75	99.68	0.06	0.42	0.01	0.04	6.52	0.05	11.78
Bartlett	Trib2	106	100-Year	99.32	99.15	0.17	0.30	0.12	0.90	10.68	1.82	27.78
Bartlett	Trib2	89	100-Year	98.90	98.54	0.37			1.03	10.65	1.73	13.25

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

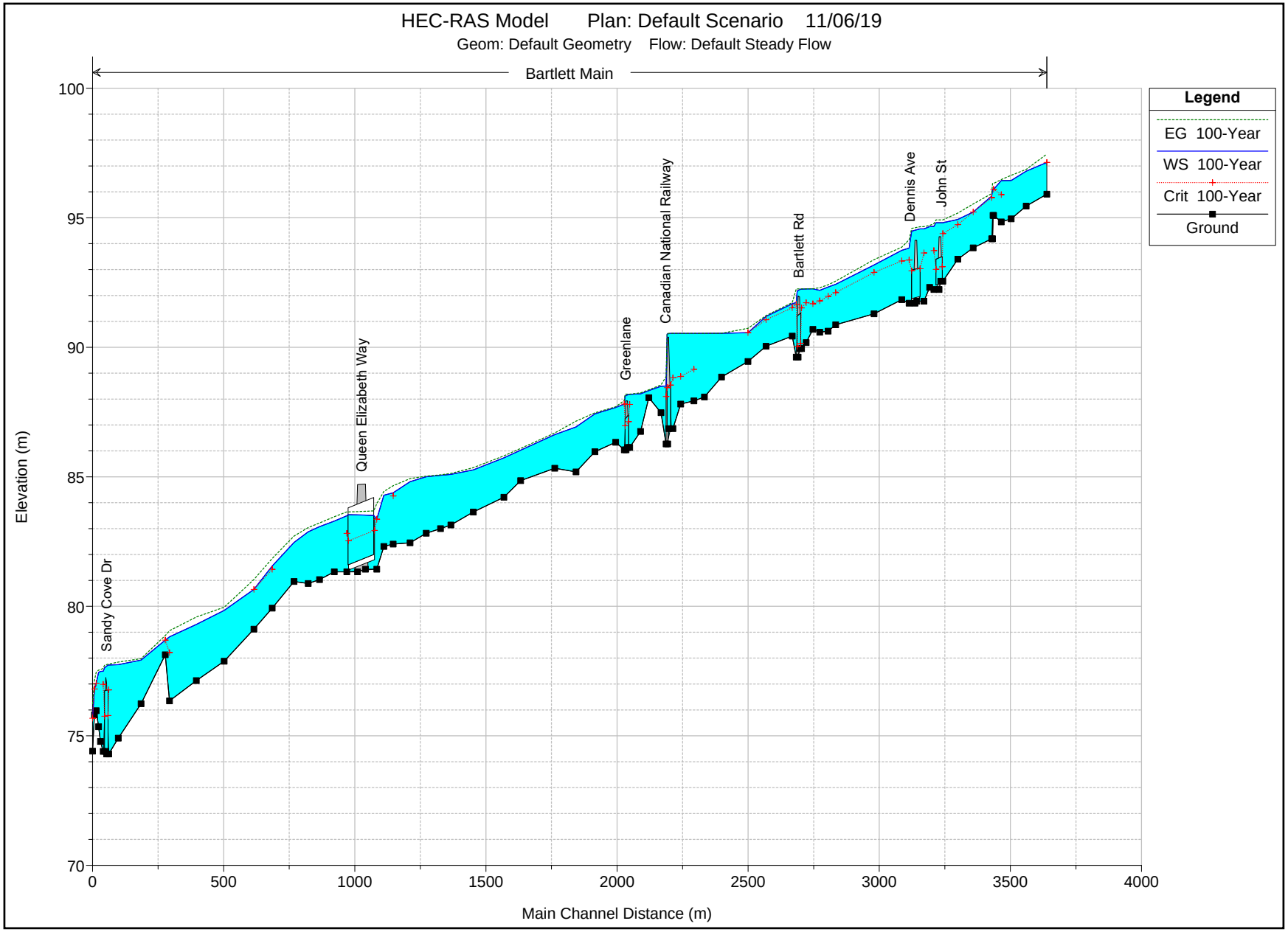
River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Bartlett	Trib2	74 B-8		Culvert								
Bartlett	Trib2	58	100-Year	98.49	98.13	0.36	0.32	0.07	0.37	12.46	0.57	10.74
Bartlett	Trib2	41	100-Year	98.10	97.82	0.28	0.08	0.07	2.96	9.90	0.54	14.19
Bartlett	Trib2	22	100-Year	97.61	97.58	0.03	0.12	0.03	7.92	3.98	1.50	28.65
Bartlett	Trib1a	399	100-Year	114.09	113.87	0.22	0.01	0.05	0.16	5.78	0.47	9.17
Bartlett	Trib1a	397	100-Year	113.65	113.59	0.06	0.04	0.02	0.66	5.37	0.36	8.63
Bartlett	Trib1a	388	100-Year	113.58	113.30	0.28	0.08	0.05	0.09	6.31		5.30
Bartlett	Trib1a	376	100-Year	112.86	112.76	0.10	0.01	0.06	0.31	5.72	0.37	6.59
Bartlett	Trib1a	364	100-Year	112.78	112.76	0.02	0.02	0.01	0.27	4.16	1.97	13.09
Bartlett	Trib1a	355	100-Year	112.76	112.63	0.12	0.01	0.01		2.78	3.62	15.14
Bartlett	Trib1a	353	100-Year	112.40	112.32	0.09				6.33	0.07	8.05
Bartlett	Trib1a	319 BT1a-1		Culvert								
Bartlett	Trib1a	283	100-Year	110.02	109.65	0.37	0.06	0.28	0.03	6.37		10.19
Bartlett	Trib1a	260	100-Year	109.55	109.52	0.03	0.02	0.00	0.07	4.86	1.47	13.28
Bartlett	Trib1a	242	100-Year	109.53	109.50	0.03	0.01	0.01	1.11	4.86	0.43	23.85
Bartlett	Trib1a	238	100-Year	109.52	109.42	0.09	1.55	0.01	2.57	2.86	0.97	24.23
Bartlett	Trib1a	160	100-Year	107.21	107.16	0.05	0.00	0.00	4.07	1.74	0.59	61.11
Bartlett	Trib1b	929	100-Year	113.62	113.58	0.04	0.11	0.00	0.02	0.18	0.80	12.04
Bartlett	Trib1b	924	100-Year	113.24	113.18	0.06	0.02	0.01	0.24	0.76	0.00	8.63
Bartlett	Trib1b	922	100-Year	113.14	113.11	0.03	0.01	0.00	0.06	0.94	0.01	10.13
Bartlett	Trib1b	917	100-Year	113.12	113.11	0.02	0.02	0.01	0.12	0.85	0.03	15.00
Bartlett	Trib1b	913	100-Year	113.10	113.02	0.08	0.01	0.02	0.01	0.99		4.75
Bartlett	Trib1b	908.26	100-Year	112.99	112.98	0.01	0.01	0.01	0.13	0.72	0.14	7.59
Bartlett	Trib1b	897	100-Year	112.98	112.92	0.06	0.09	0.01	0.13	0.87		7.47
Bartlett	Trib1b	890	100-Year	112.65	112.62	0.03	0.04	0.00	0.55	0.45		5.83
Bartlett	Trib1b	883	100-Year	112.61	112.58	0.03	0.05	0.00	0.18	0.82		6.28
Bartlett	Trib1b	878	100-Year	112.55	112.48	0.07	0.03	0.02	0.23	0.77		6.39
Bartlett	Trib1b	872	100-Year	112.33	112.32	0.01	0.02	0.00	0.10	0.65	0.25	9.16
Bartlett	Trib1b	867	100-Year	112.31	112.29	0.02	0.06	0.01	0.14	0.85	0.01	8.03
Bartlett	Trib1b	862	100-Year	112.24	112.17	0.07	0.08	0.01	0.27	0.73		5.79
Bartlett	Trib1b	860	100-Year	111.36	111.22	0.14	0.09	0.01		1.00		2.14
Bartlett	Trib1b	855.59	100-Year	110.70	110.47	0.23	0.01	0.07		1.00		1.00
Bartlett	Trib1b	819	100-Year	107.63	107.63	0.00	0.65	0.00	0.36	0.10	0.54	31.07
Bartlett	Trib1	656	100-Year	106.97	106.93	0.05	2.30	0.00	3.90	3.93	9.17	182.71
Bartlett	Trib1	478	100-Year	103.26	103.20	0.06	0.24	0.03	2.36	4.98	9.66	130.37
Bartlett	Trib1	474.42	100-Year	102.36	101.99	0.37	0.25	0.10	2.09	13.83	1.08	10.88
Bartlett	Trib1	400	100-Year	101.77	101.75	0.02	0.57	0.00	2.72	2.55	11.74	46.91
Bartlett	Trib1	242	100-Year	101.19	101.15	0.05	0.05	0.02	7.37	4.11	5.52	173.54
Bartlett	Trib1	236	100-Year	99.81	99.58	0.22	0.03	0.04	2.08	14.64	0.27	17.25
Bartlett	Trib1	227.62	100-Year	99.74	99.66	0.08	0.17	0.02	4.19	11.87	0.95	22.41
Bartlett	Trib1	193	100-Year	99.55	99.27	0.27	0.16	0.17	2.28	13.99	0.73	20.90
Bartlett	Trib1	159.56	100-Year	99.22	99.16	0.06			3.31	8.82	4.87	31.50
Bartlett	Trib1	135 BT1-1		Culvert								
Bartlett	Trib1	117.6	100-Year	98.63	98.22	0.41	0.78	0.08		17.00		12.62
Bartlett	Trib1	56.34	100-Year	97.77	97.46	0.31	0.05	0.09	2.20	12.79	2.01	15.28

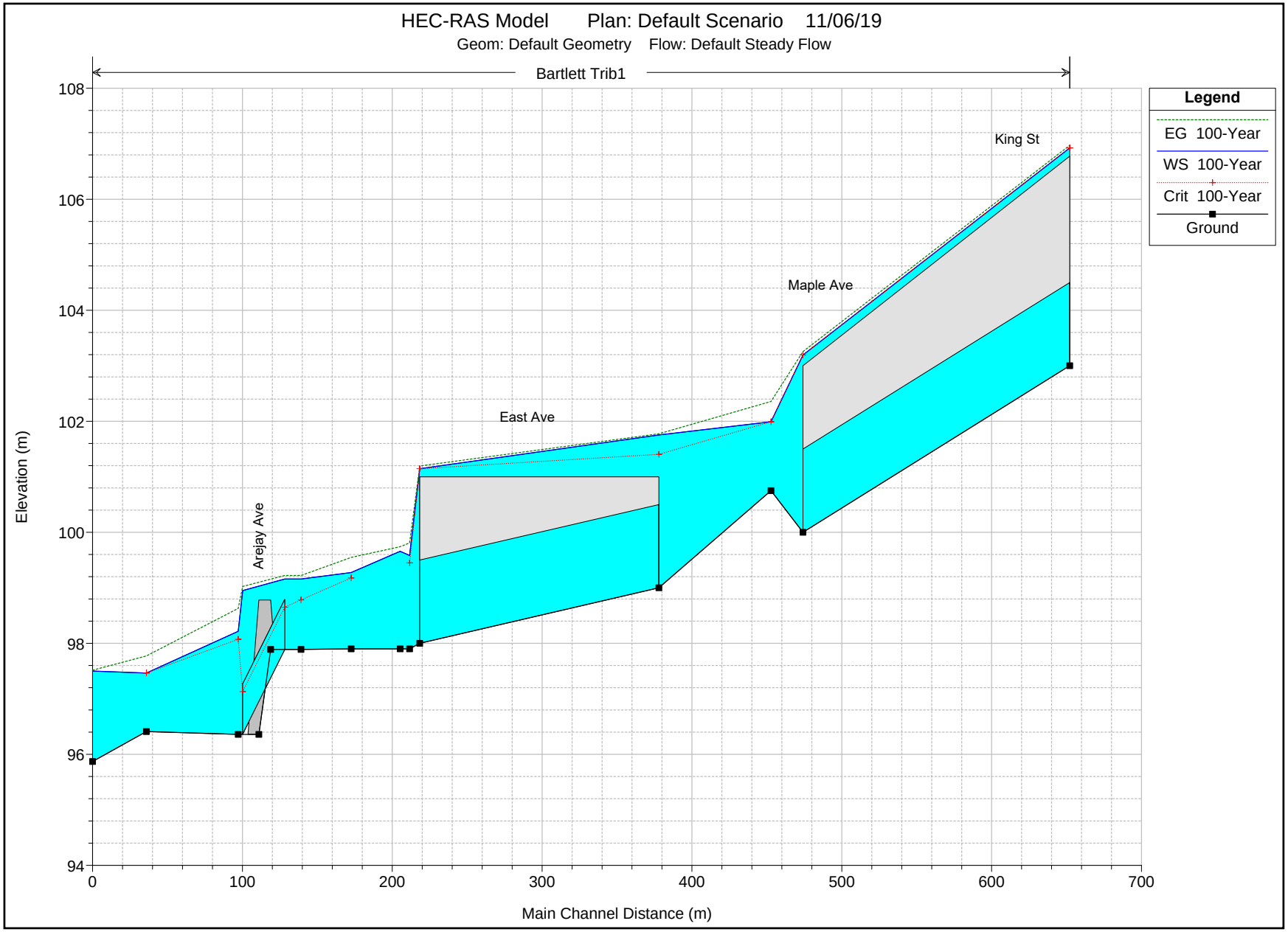
HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

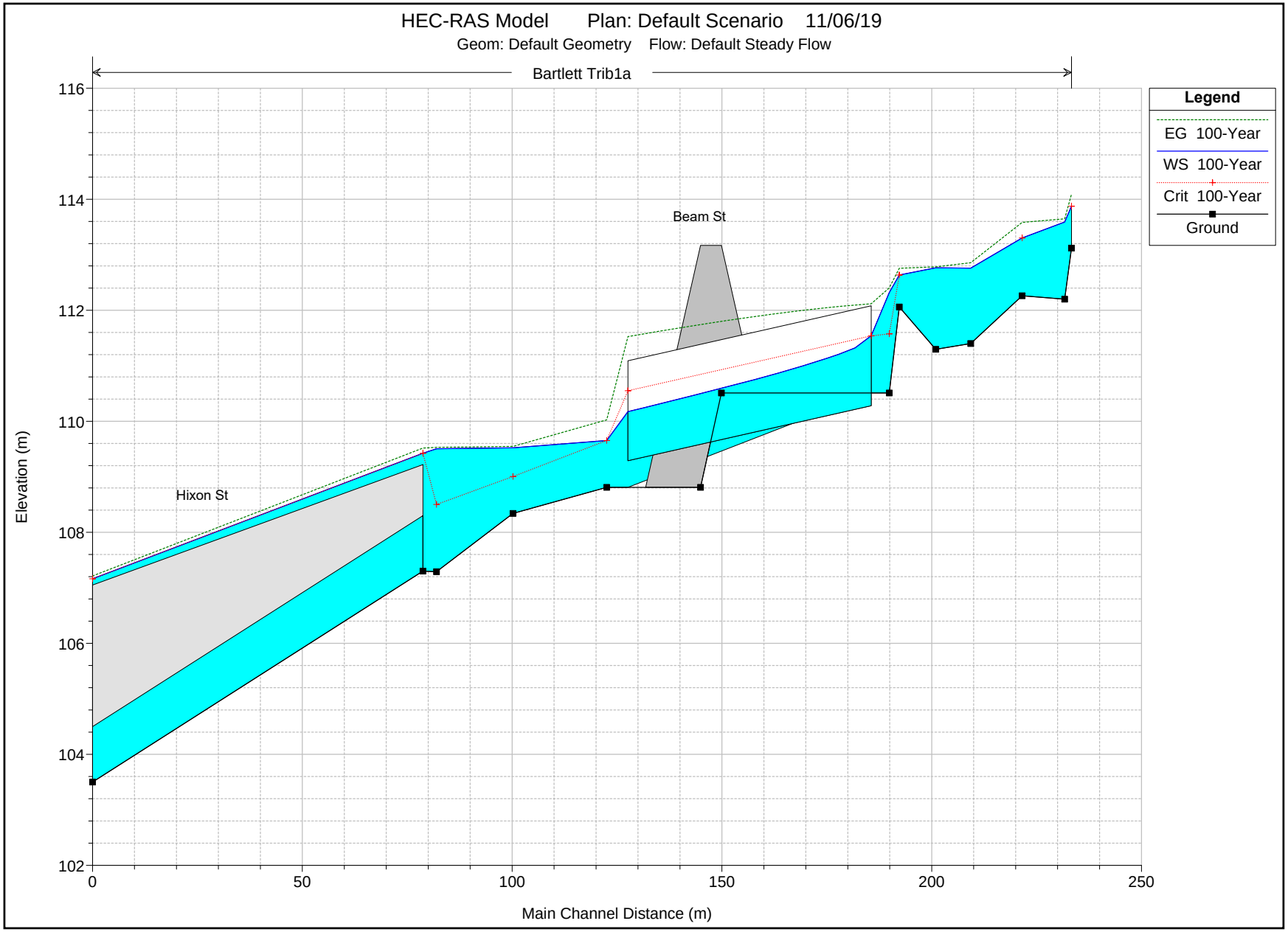
River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Bartlett	Trib1	14	100-Year	97.51	97.50	0.01	0.03	0.03	2.42	7.18	7.40	40.86
Bartlett	Main	3633	100-Year	97.46	97.14	0.32	0.44	0.08	5.10	17.50	7.40	22.99
Bartlett	Main	3559	100-Year	96.87	96.80	0.07	0.21	0.01	20.51	7.91	1.58	30.96
Bartlett	Main	3502	100-Year	96.64	96.44	0.20	0.12	0.05	8.25	17.46	4.30	26.04
Bartlett	Main	3465	100-Year	96.47	96.44	0.04	0.13	0.02	1.93	11.25	16.82	72.84
Bartlett	Main	3436	100-Year	96.32	96.10	0.23			6.95	14.65	8.40	38.81
Bartlett	Main	3433		Inl Struct								
Bartlett	Main	3430	100-Year	95.93	95.84	0.09	0.38	0.02	4.69	12.18	13.12	121.35
Bartlett	Main	3386	100-Year	95.53	95.22	0.31	0.32	0.02	4.99	16.17	8.84	27.70
Bartlett	Main	3296	100-Year	95.18	94.94	0.25	0.15	0.11	2.29	23.93	3.78	30.85
Bartlett	Main	3243	100-Year	94.92	94.81	0.11			3.47	25.73	0.80	66.69
Bartlett	Main	3232 B-7		Culvert								
Bartlett	Main	3212	100-Year	94.77	94.67	0.10	0.02	0.04	3.17	23.95	2.88	37.15
Bartlett	Main	3197	100-Year	94.70	94.66	0.05	0.02	0.02	7.07	10.90	12.03	94.39
Bartlett	Main	3182	100-Year	94.66	94.57	0.09			6.56	16.98	6.46	41.68
Bartlett	Main	3149 B-6		Culvert								
Bartlett	Main	3121	100-Year	94.15	93.83	0.32	0.13	0.16	1.33	26.36	2.31	26.15
Bartlett	Main	3087	100-Year	93.87	93.74	0.13	0.48	0.01	6.60	15.23	8.17	34.73
Bartlett	Main	2997	100-Year	93.38	93.18	0.20	0.80	0.02	5.76	14.60	9.64	30.06
Bartlett	Main	2847	100-Year	92.55	92.43	0.12	0.13	0.01	10.69	9.96	9.35	37.05
Bartlett	Main	2803	100-Year	92.41	92.33	0.09	0.11	0.00	10.78	14.02	5.19	69.93
Bartlett	Main	2771	100-Year	92.30	92.20	0.10	0.01	0.03	5.65	20.00	4.35	30.16
Bartlett	Main	2745	100-Year	92.26	92.26	0.00	0.00	0.00	25.65	2.90	1.45	99.73
Bartlett	Main	2721	100-Year	92.26	92.25	0.01	0.00	0.00	22.35	4.57	3.08	96.83
Bartlett	Main	2703	100-Year	92.25	92.25	0.01			6.26	4.43	19.31	204.61
Bartlett	Main	2693		Culvert								
Bartlett	Main	2683	100-Year	92.25	91.73	0.52	0.15	0.38	0.03	29.97		105.04
Bartlett	Main	2642	100-Year	91.73	91.68	0.05	0.50	0.01	0.08	6.96	22.96	78.31
Bartlett	Main	2609	100-Year	91.22	91.19	0.03	0.47	0.01	0.65	7.20	22.15	202.94
Bartlett	Main	2478	100-Year	90.73	90.56	0.17	0.06	0.05	14.39	14.65	0.96	67.91
Bartlett	Main	2384	100-Year	90.54	90.54	0.00	0.00	0.00	23.94	5.36	0.70	213.11
Bartlett	Main	2343	100-Year	90.54	90.54	0.00	0.00	0.00	25.77	2.01	2.21	335.89
Bartlett	Main	2303	100-Year	90.54	90.54	0.00	0.00	0.00	21.48	0.89	7.63	689.04
Bartlett	Main	2244	100-Year	90.54	90.54	0.00	0.00	0.00	12.30	0.91	16.79	997.68
Bartlett	Main	2214	100-Year	90.54	90.54	0.00			12.69	0.82	16.49	841.29
Bartlett	Main	2195 B-4		Culvert								
Bartlett	Main	2186	100-Year	88.87	88.51	0.36	0.07	0.25	0.47	28.75	0.79	45.81
Bartlett	Main	2173	100-Year	88.54	88.50	0.05	0.18	0.00	11.61	8.06	10.33	198.87
Bartlett	Main	2142	100-Year	88.36	88.33	0.03	0.12	0.00	20.27	0.77	8.96	131.01
Bartlett	Main	2111	100-Year	88.24	88.20	0.04	0.03	0.02	13.57	11.28	5.15	152.18
Bartlett	Main	2045	100-Year	88.19	88.18	0.01			10.57	7.94	11.49	223.46
Bartlett	Main	2033 B-3		Culvert								
Bartlett	Main	2024	100-Year	87.95	87.81	0.14	0.12	0.09	1.93	16.55	11.52	109.09
Bartlett	Main	1997	100-Year	87.70	87.68	0.02	0.23	0.00	1.00	7.50	21.50	154.34
Bartlett	Main	1902	100-Year	87.47	87.43	0.04	0.30	0.02	13.05	10.31	6.64	90.22

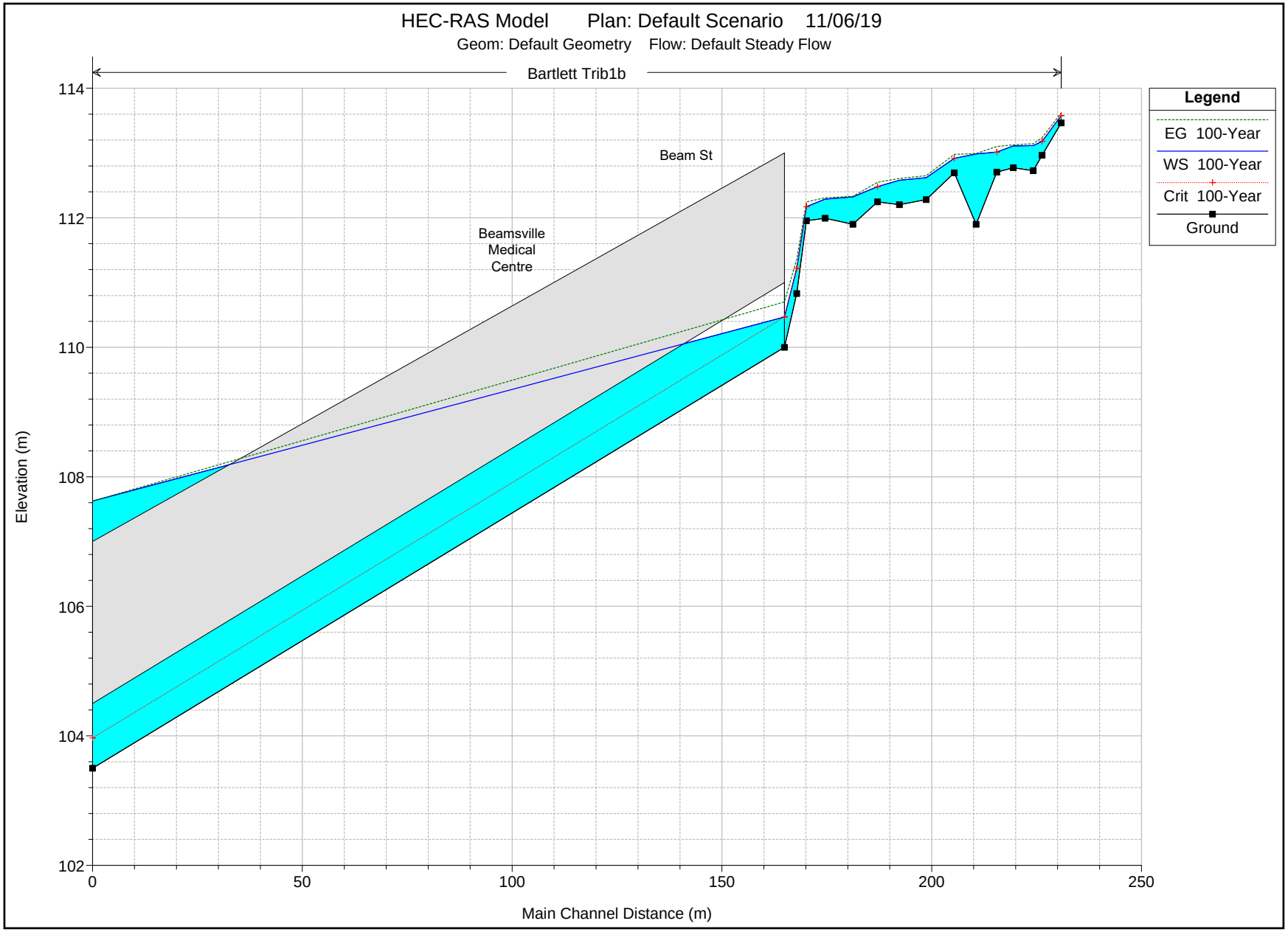
HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

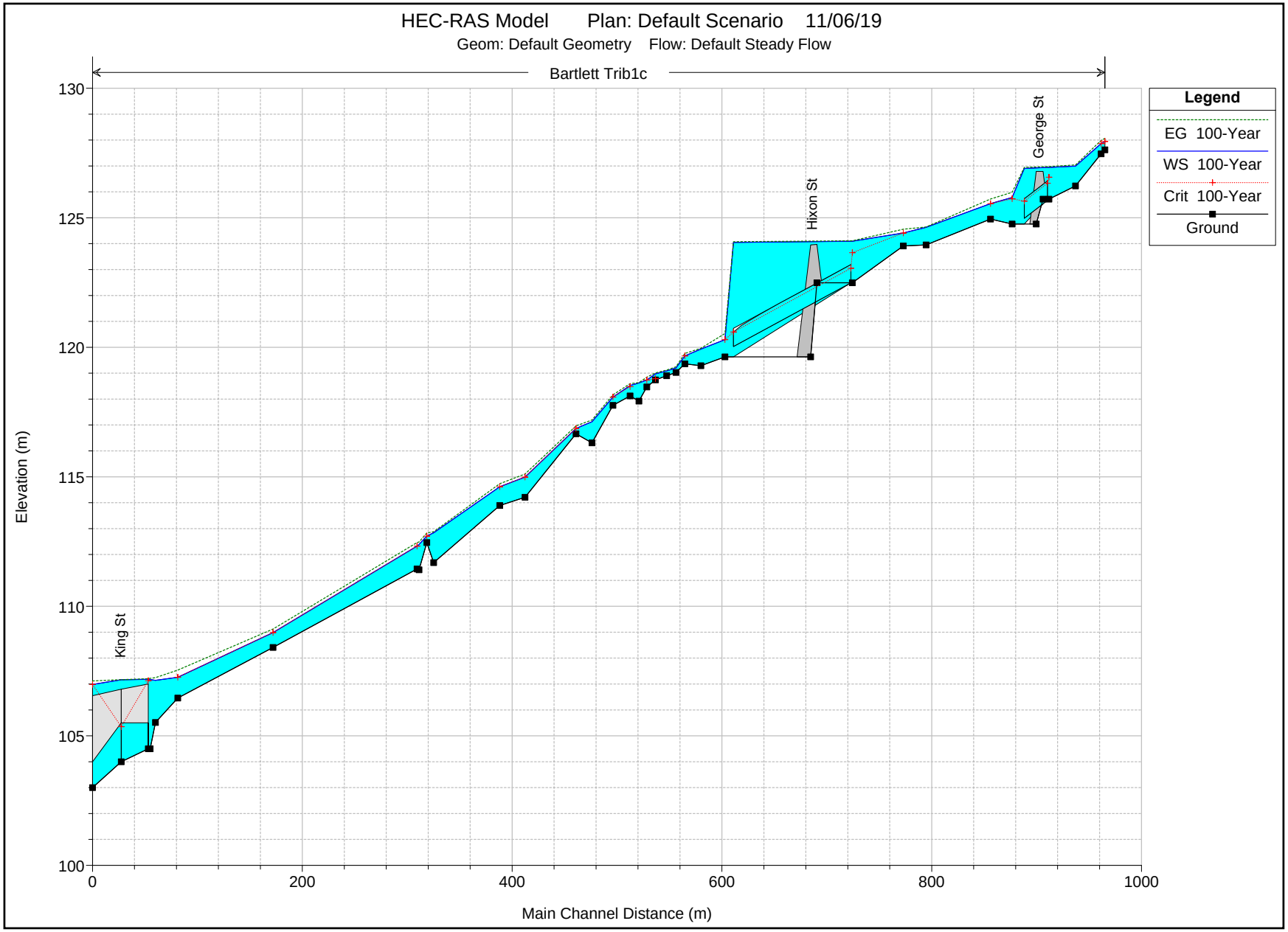
River	Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(m)	(m)	(m)	(m)	(m)	(m3/s)	(m3/s)	(m3/s)	(m)
Bartlett	Main	1828	100-Year	87.15	86.93	0.22	0.41	0.05	2.60	24.04	3.36	33.75
Bartlett	Main	1766	100-Year	86.69	86.63	0.07	0.60	0.00	12.27	14.18	3.55	82.48
Bartlett	Main	1623	100-Year	86.10	86.03	0.07	0.29	0.00	6.36	9.21	14.43	80.62
Bartlett	Main	1554	100-Year	85.81	85.73	0.08	0.46	0.00	2.18	9.56	18.26	91.11
Bartlett	Main	1447	100-Year	85.35	85.26	0.09	0.21	0.02	1.35	17.67	10.98	143.93
Bartlett	Main	1361	100-Year	85.13	85.09	0.04	0.05	0.01	10.36	12.13	7.51	134.04
Bartlett	Main	1326	100-Year	85.07	85.05	0.02	0.05	0.00	7.19	9.14	13.67	130.88
Bartlett	Main	1271	100-Year	85.03	85.00	0.02	0.08	0.01	7.86	11.21	10.94	85.85
Bartlett	Main	1209	100-Year	84.93	84.81	0.12	0.26	0.02	8.55	19.77	1.67	54.33
Bartlett	Main	1146	100-Year	84.66	84.38	0.27	0.18	0.04	3.67	20.30	6.03	45.12
Bartlett	Main	1103	100-Year	84.43	84.29	0.14	0.19	0.27	1.63	20.85	9.52	39.08
Bartlett	Main	1076	100-Year	83.97	83.36	0.60			0.93	29.75	1.32	20.05
Bartlett	Main	1025 B-2		Culvert								
Bartlett	Main	973	100-Year	83.64	83.49	0.15	0.17	0.01		29.70	2.30	44.18
Bartlett	Main	912	100-Year	83.46	83.29	0.17	0.23	0.01	5.27	19.88	6.84	26.26
Bartlett	Main	880	100-Year	83.21	83.07	0.14	0.17	0.00	2.84	19.25	9.91	33.80
Bartlett	Main	837	100-Year	83.04	82.88	0.16	0.32	0.01	3.27	20.50	8.22	35.43
Bartlett	Main	783	100-Year	82.71	82.46	0.25	0.86	0.00	3.88	19.70	8.42	20.75
Bartlett	Main	685	100-Year	81.85	81.55	0.29	0.80	0.01	8.90	13.00	10.10	22.61
Bartlett	Main	615	100-Year	81.03	80.65	0.38	0.48	0.08	2.73	22.50	6.77	20.54
Bartlett	Main	542	100-Year	79.97	79.84	0.12	0.36	0.02	7.54	23.66	0.80	24.13
Bartlett	Main	436	100-Year	79.59	79.30	0.29	0.51	0.01	3.93	23.57	4.51	13.80
Bartlett	Main	334	100-Year	79.06	78.82	0.24	0.17	0.02	5.18	21.81	5.01	44.17
Bartlett	Main	324	100-Year	78.87	78.69	0.18	0.51	0.04	1.95	7.19	22.86	54.53
Bartlett	Main	263	100-Year	77.98	77.92	0.06	0.13	0.00	0.60	16.24	15.17	67.94
Bartlett	Main	98	100-Year	77.85	77.75	0.10	0.03	0.05	5.06	27.64	0.00	44.96
Bartlett	Main	62	100-Year	77.77	77.73	0.04			7.54	9.80	15.35	47.40
Bartlett	Main	52 B-1		Culvert								
Bartlett	Main	42	100-Year	77.60	77.49	0.11	0.01	0.04	11.58	19.12	2.00	47.38
Bartlett	Main	26	100-Year	77.55	77.49	0.06	0.01	0.00	6.85	20.27	5.57	39.25
Bartlett	Main	18	100-Year	77.54	77.45	0.09	0.05	0.03	7.33	15.96	9.41	43.59
Bartlett	Main	9	100-Year	77.46	77.03	0.43	0.14	0.03	5.91	16.89	9.90	19.06
Bartlett	Main	2	100-Year	77.14	76.81	0.33	0.14	0.02	4.21	15.50	12.99	21.14
Bartlett	Main	-5	100-Year	76.23	75.68	0.55			5.63	23.19	3.88	18.31

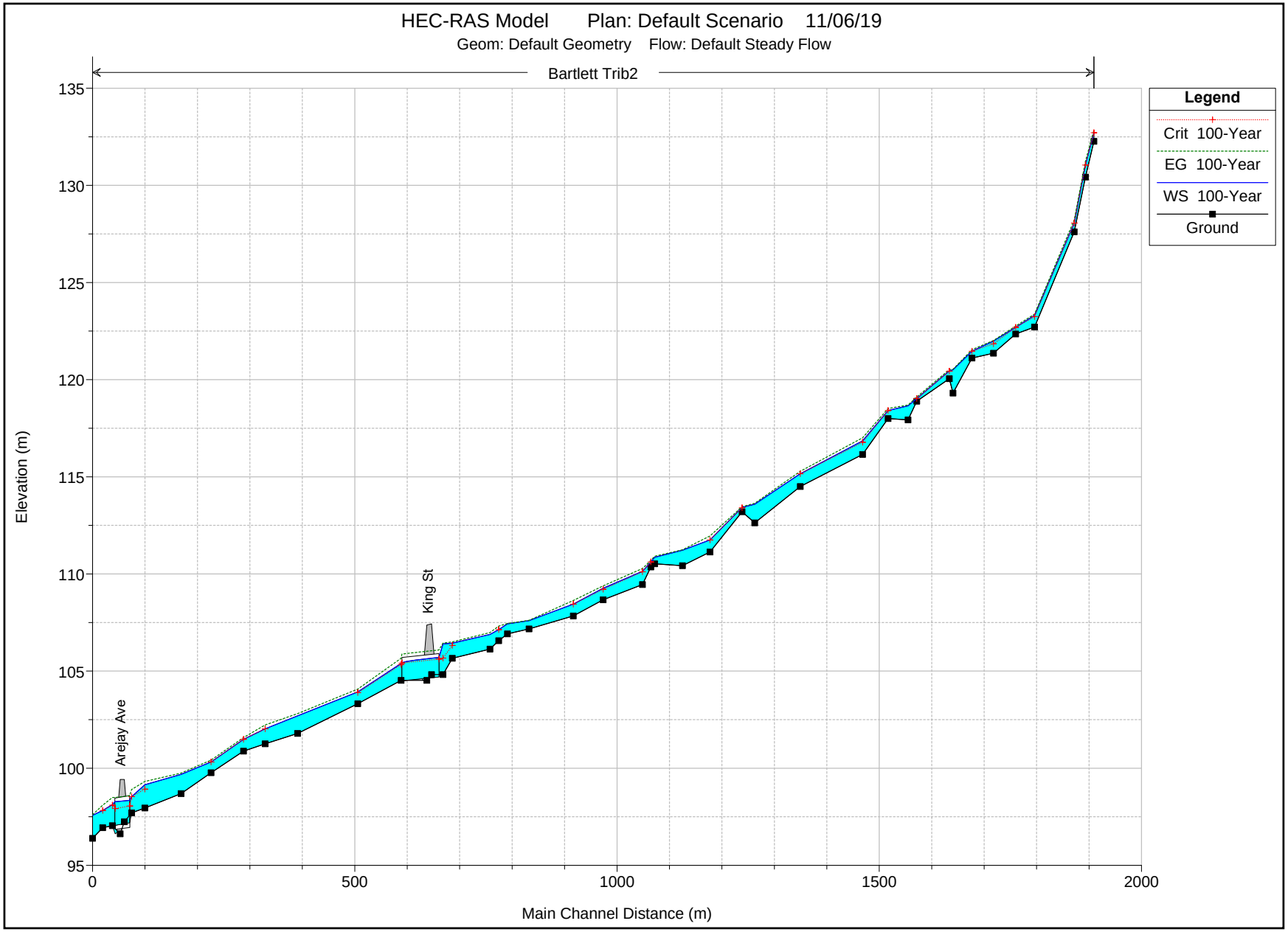

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Main
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Sandy Cove Dr
Queen Elizabeth Way
Greenlane
Canadian National Railway
Bartlett Rd
Dennis Ave
John St
Elevation (m)
Main Channel Distance (m)
100
95
90
85
80
75
70
0
500
1000
1500
2000
2500
3000
3500
4000

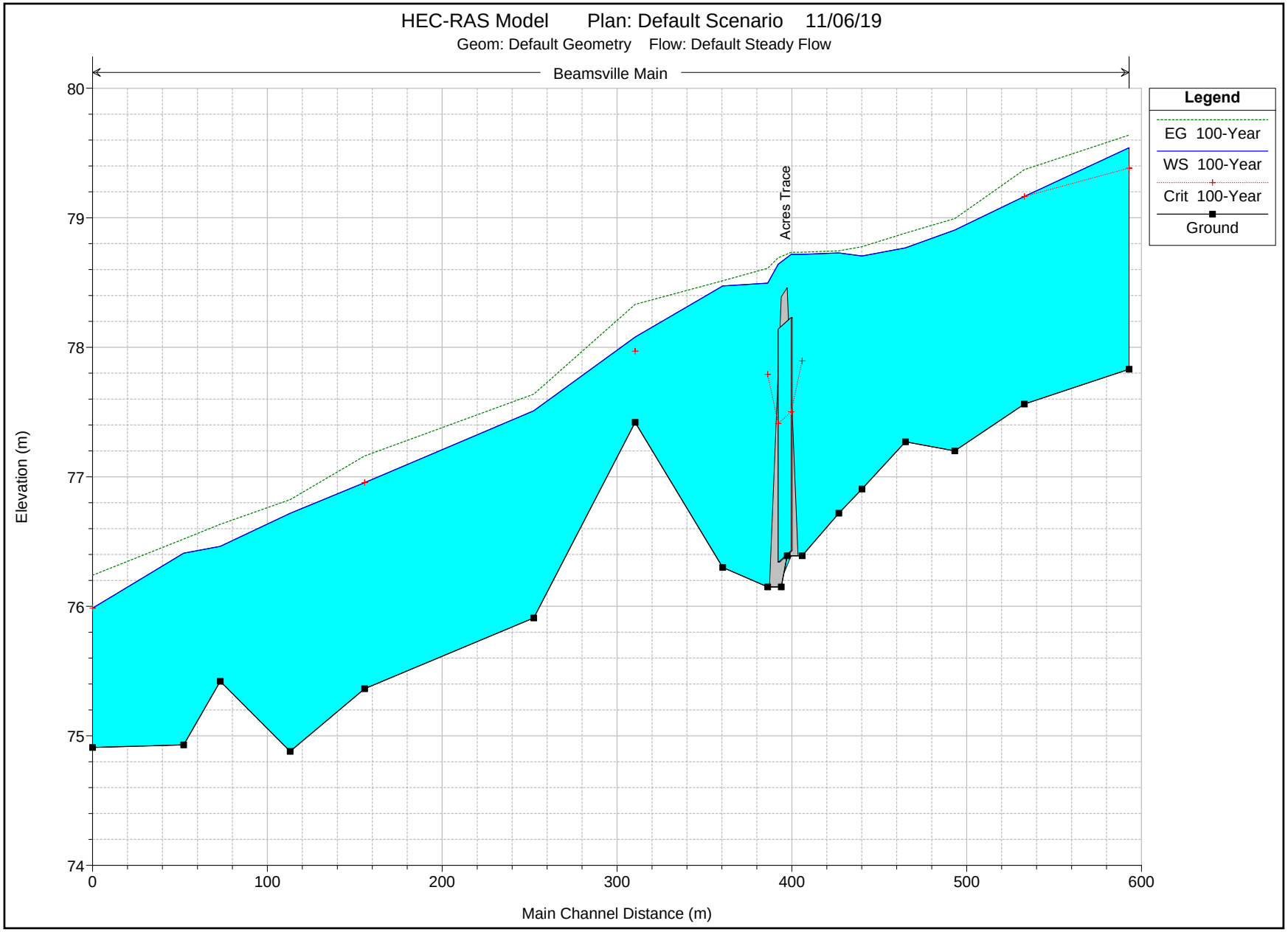

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Trib1
King St
Maple Ave
East Ave
Arejay Ave
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
108
106
104
102
100
98
96
94
0
100
200
300
400
500
600
700

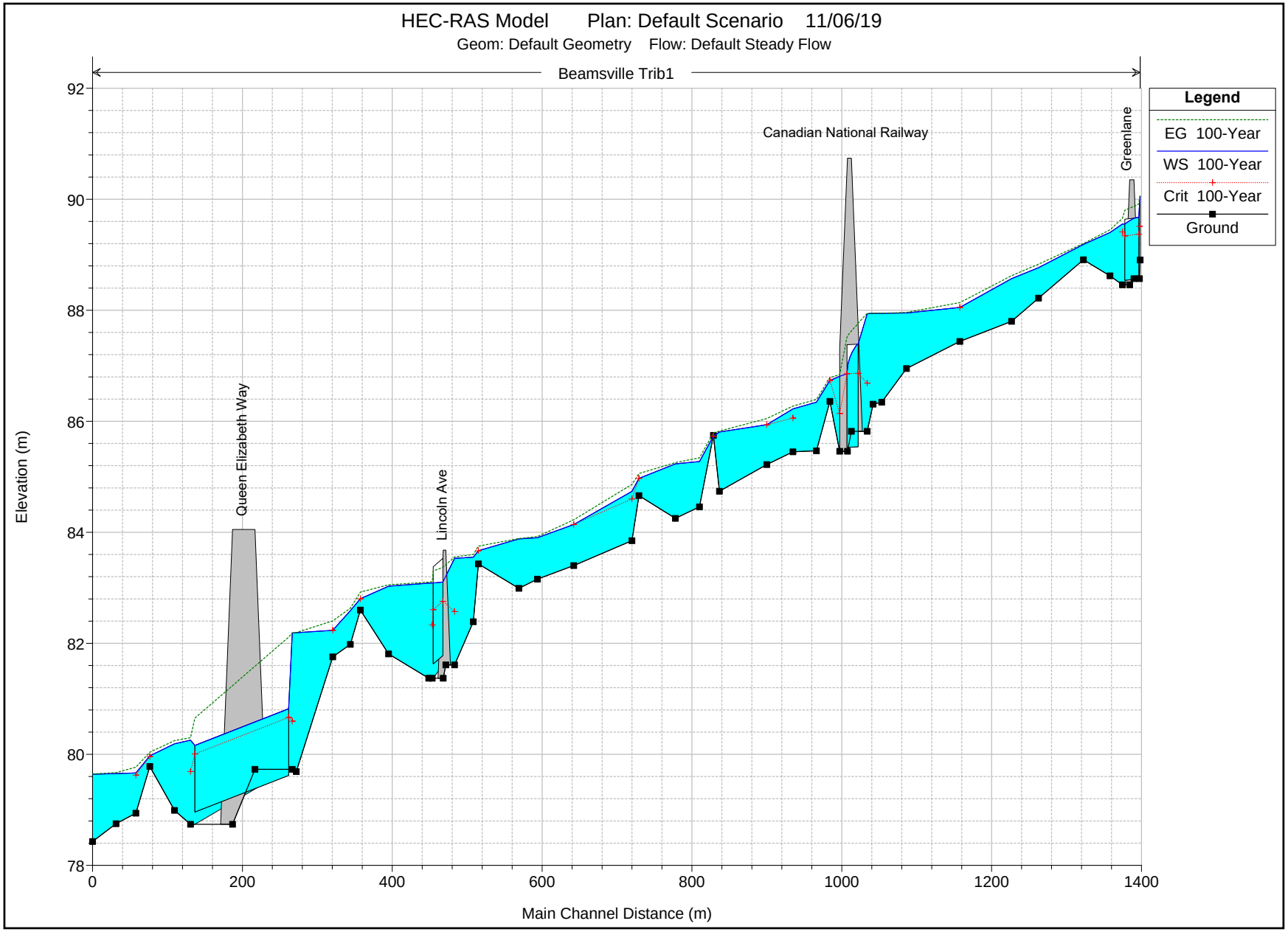

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Trib1a
Beam St
Hixon St
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
116
114
112
110
108
106
104
102
0
50
100
150
200
250

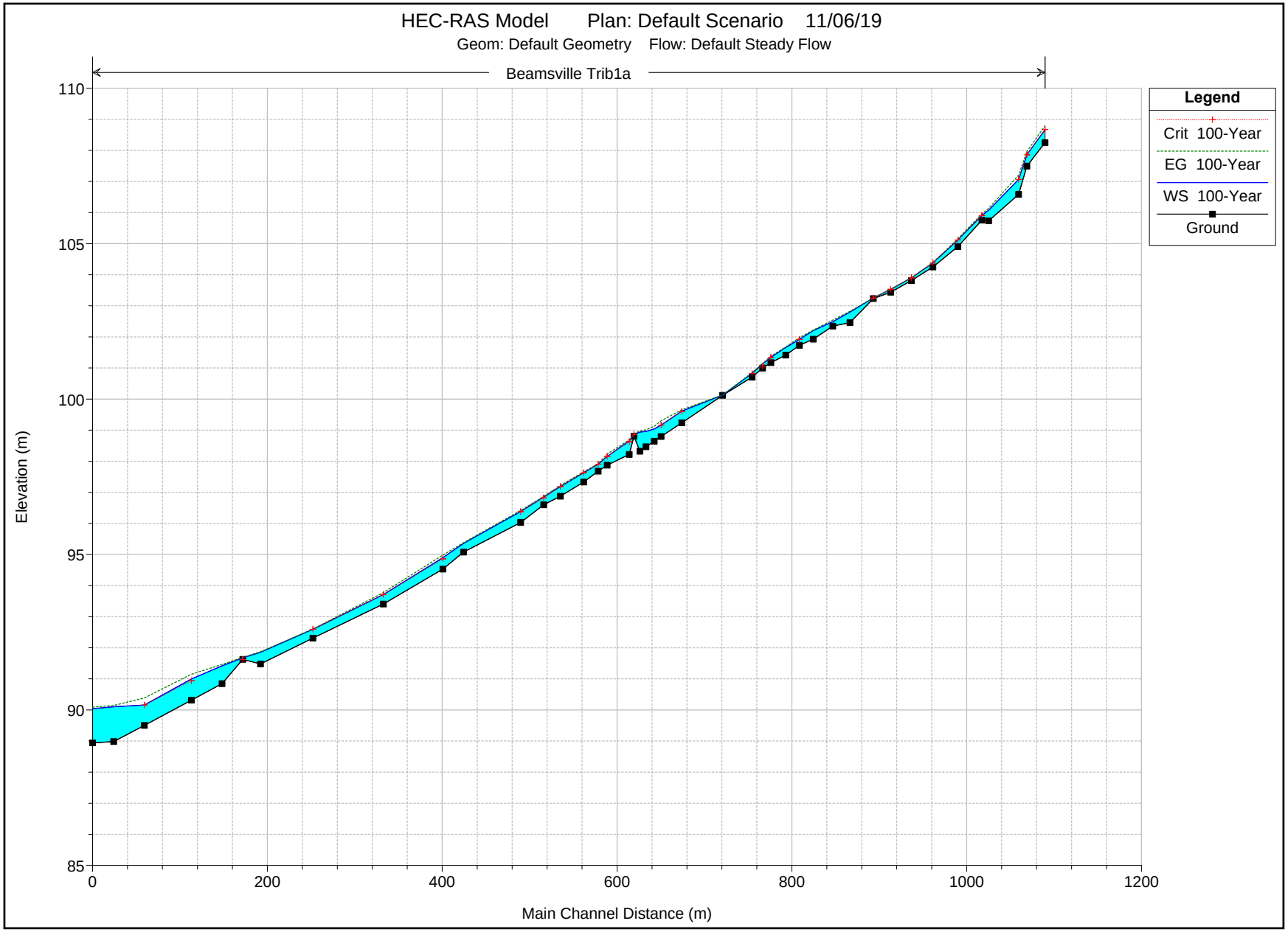

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Trib1b
Beam St
Beamsville
Medical
Centre
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
114
112
110
108
106
104
102
0
50
100
150
200
250

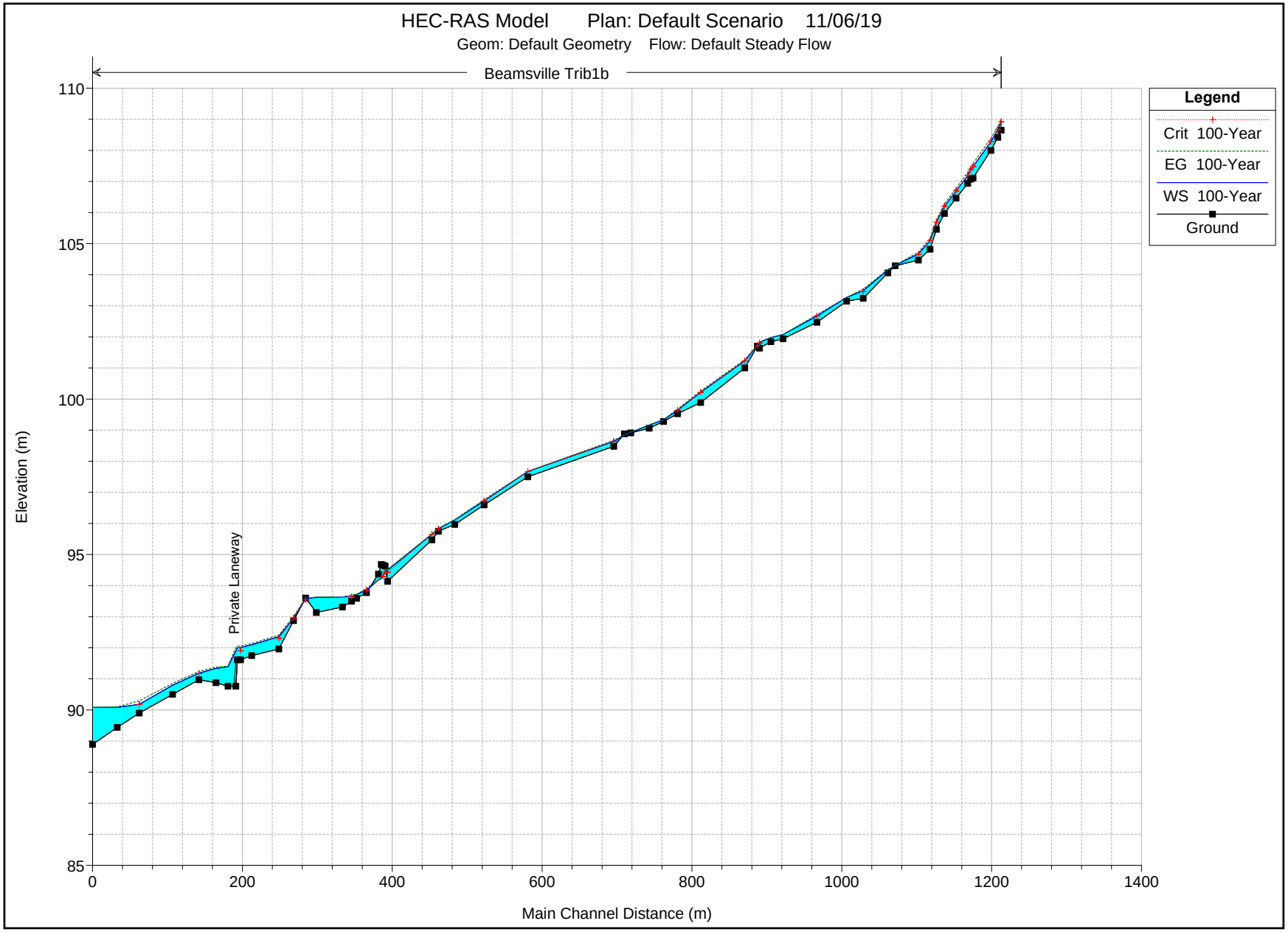

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Trib1c
King St
Hixon St
George St
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
100
105
110
115
120
125
130
0
200
400
600
800
1000

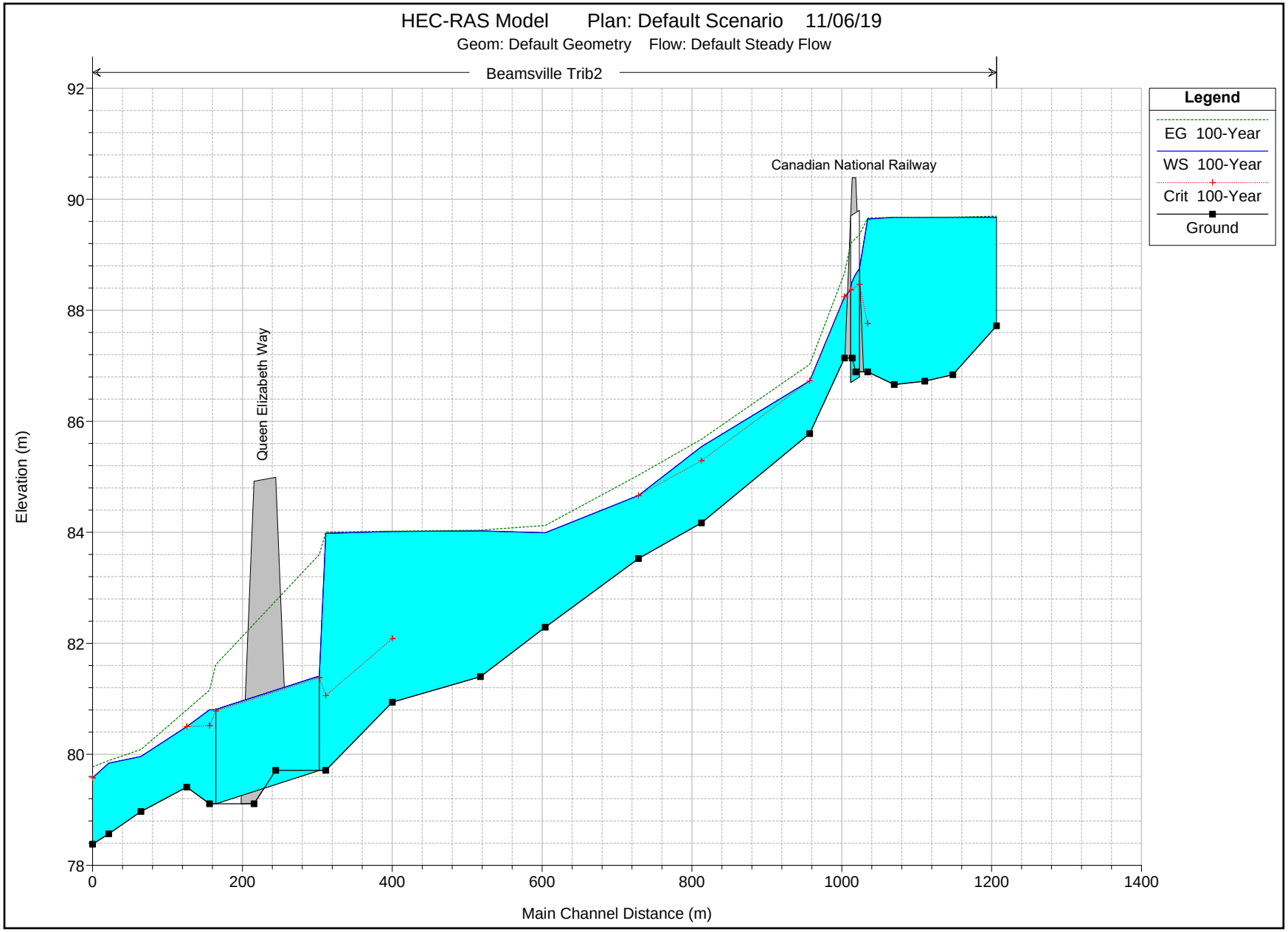

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Bartlett Trib2
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
King St
Arejay Ave
135
130
125
120
115
110
105
100
95
0
500
1000
1500
2000

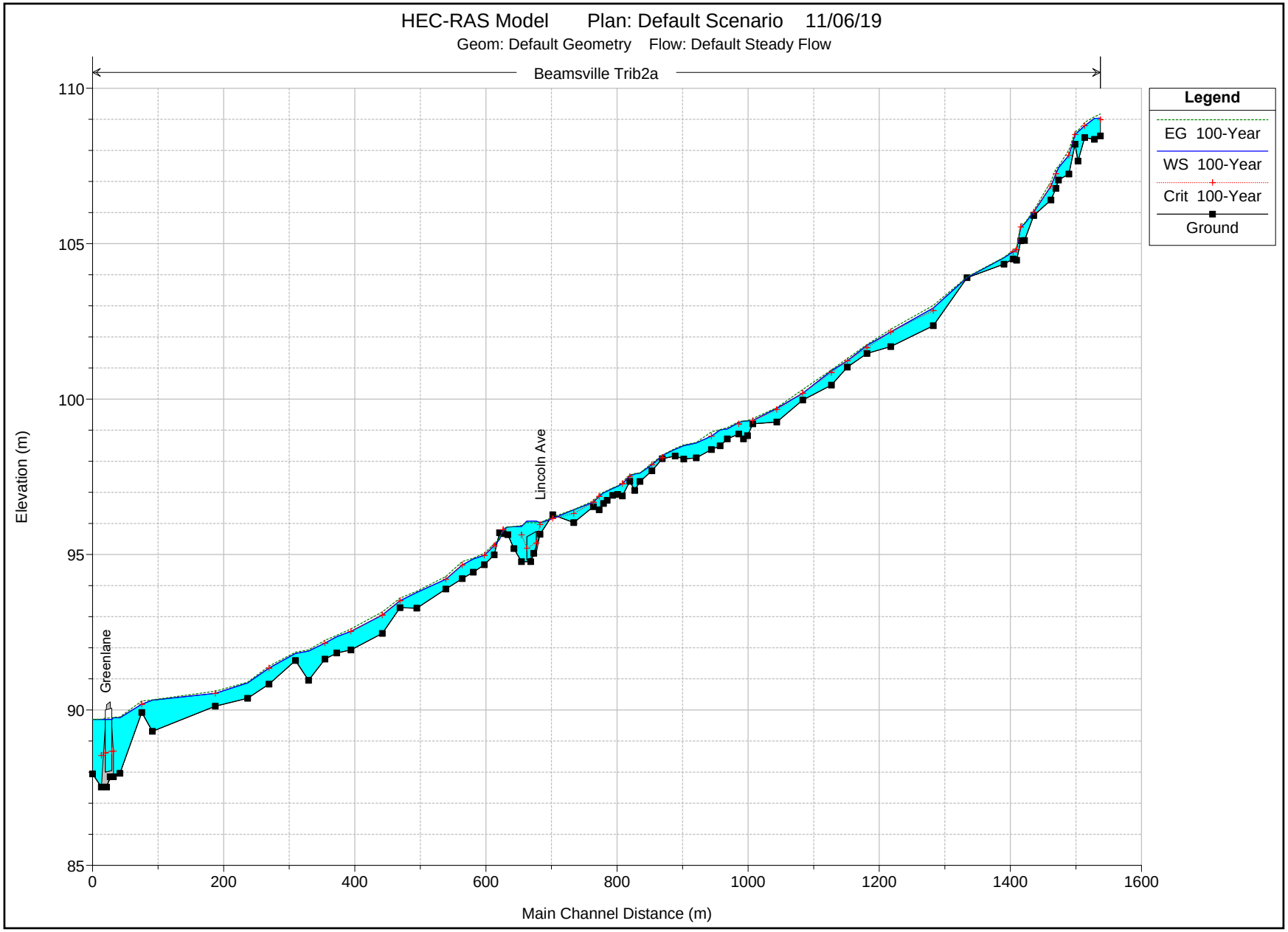

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Main
Acres Trace
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
80
79
78
77
76
75
74
0
100
200
300
400
500
600

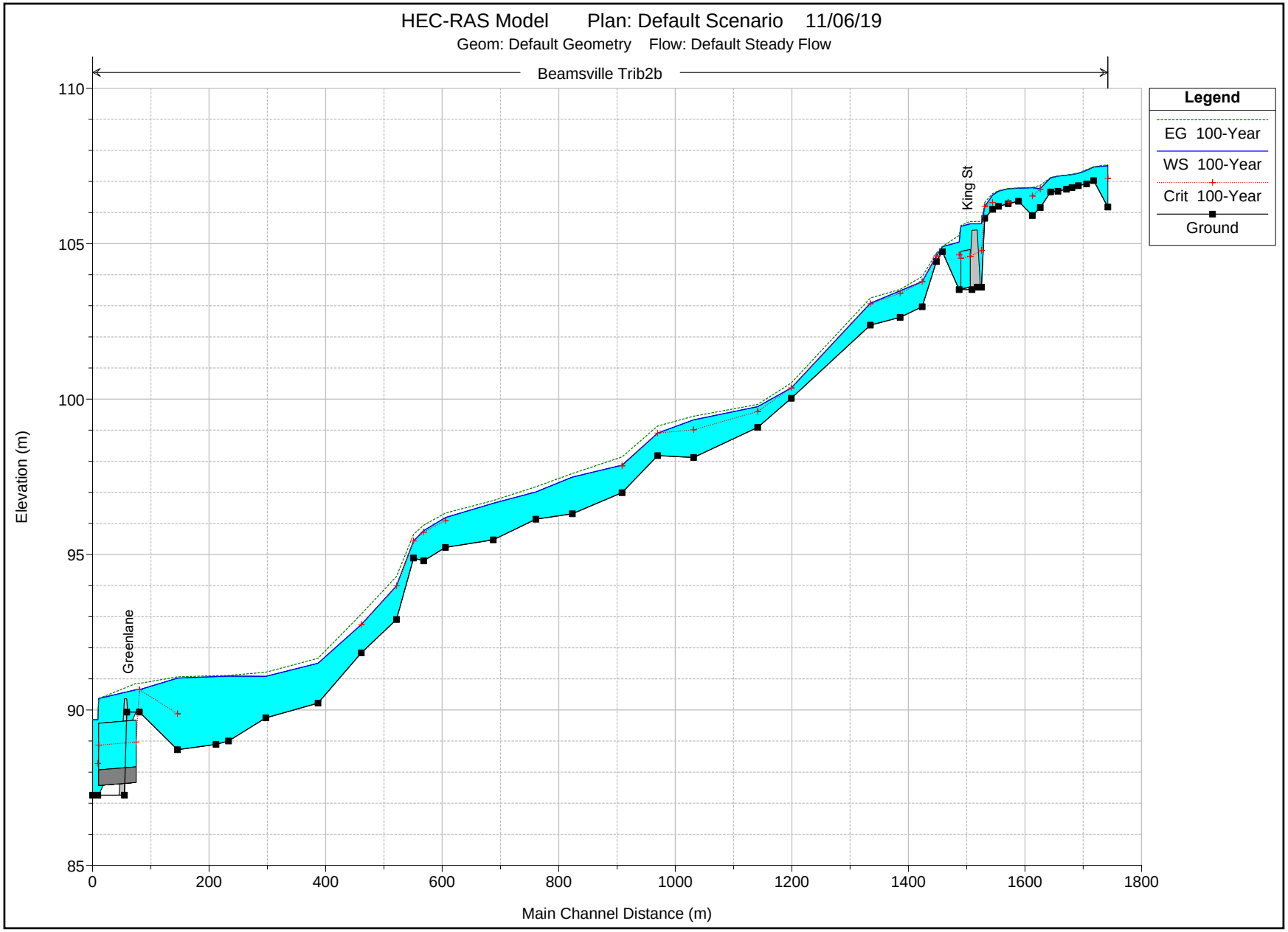

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib1
Canadian National Railway
Queen Elizabeth Way
Lincoln Ave
Greenlane
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
92
90
88
86
84
82
80
78
0
200
400
600
800
1000
1200
1400

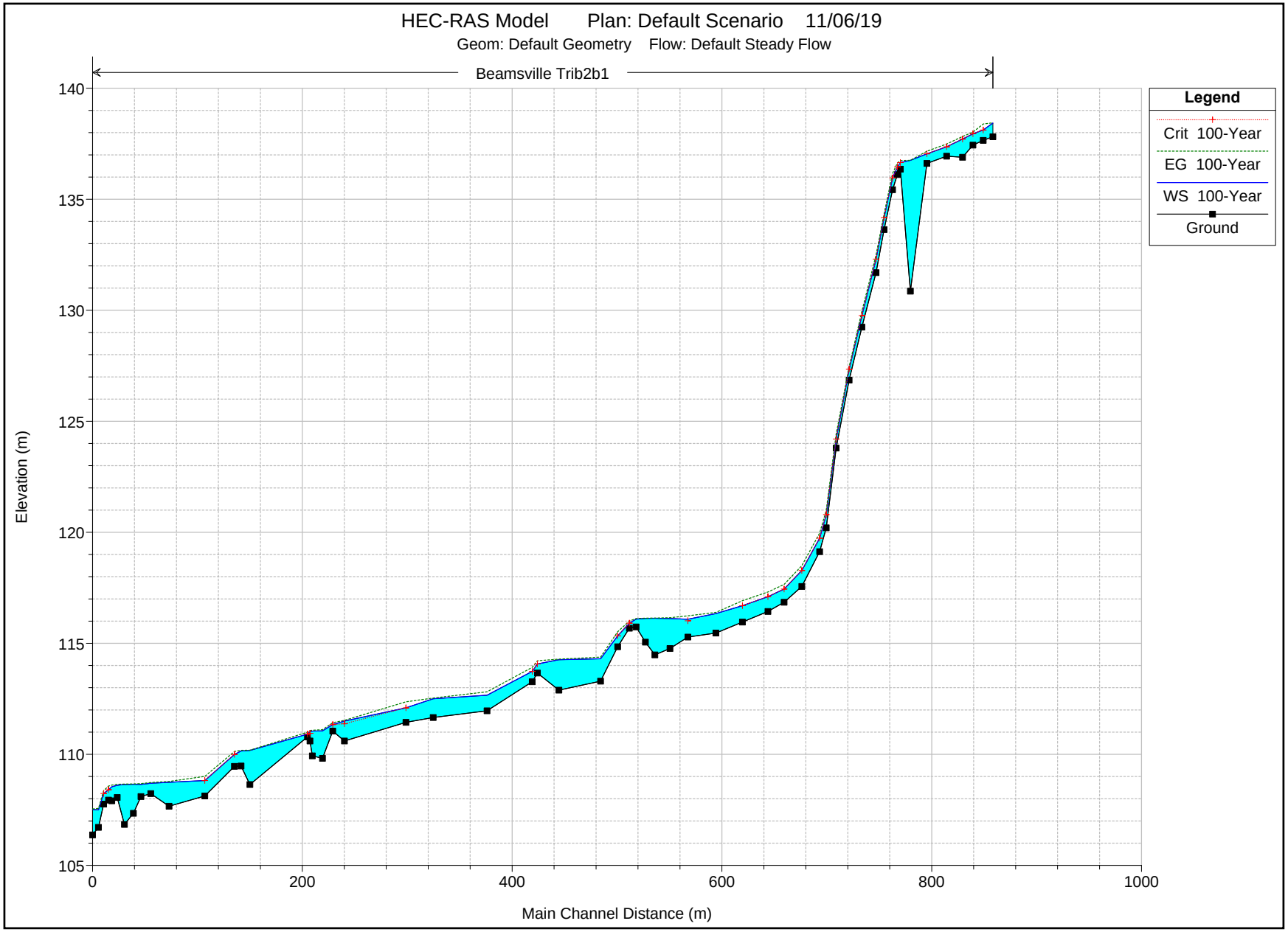

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib1a
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
110
105
100
95
90
85
0
200
400
600
800
1000
1200
Main Channel Distance (m)

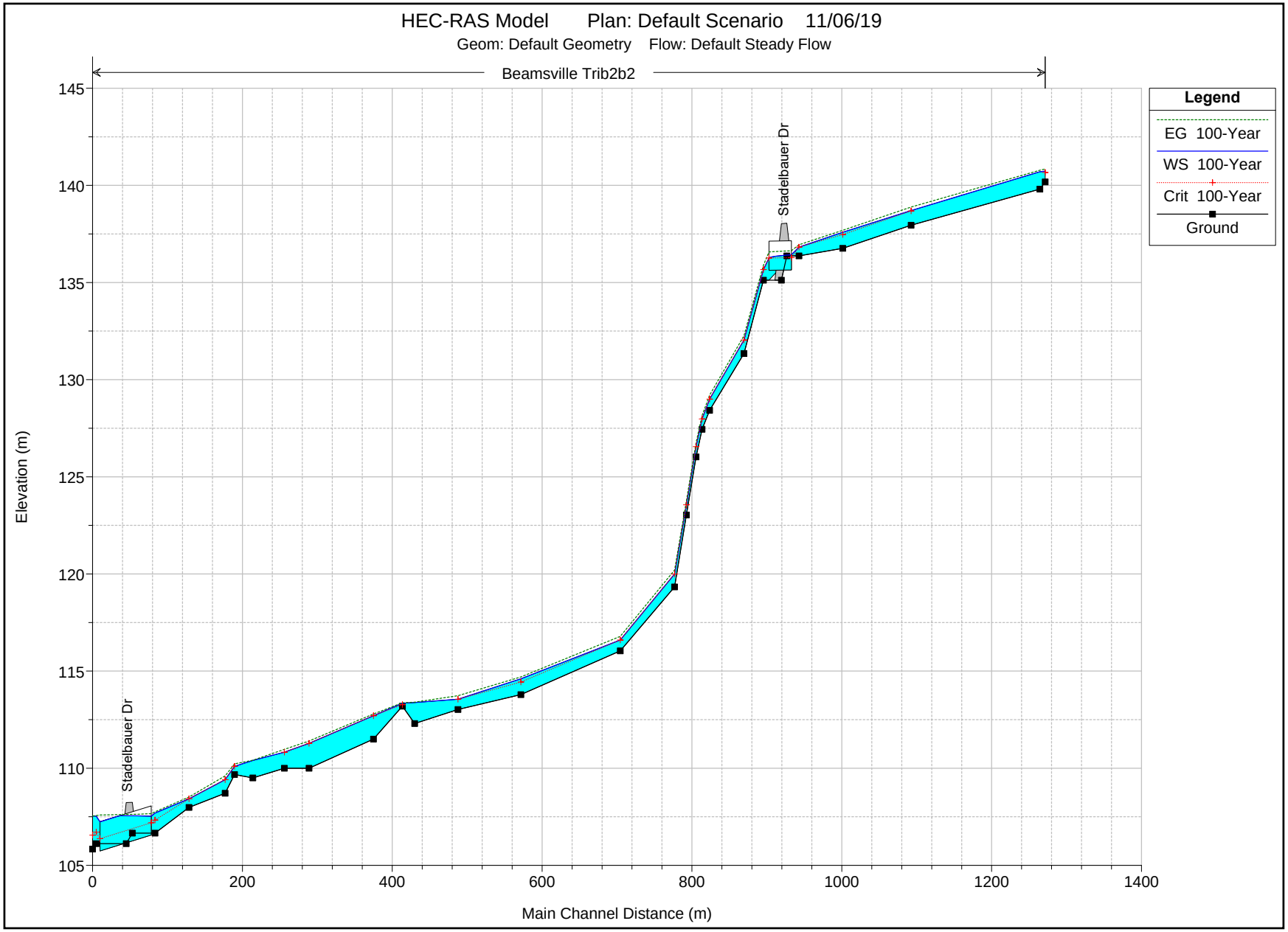

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib1b
Private Laneway
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
110
105
100
95
90
85
0
200
400
600
800
1000
1200
1400

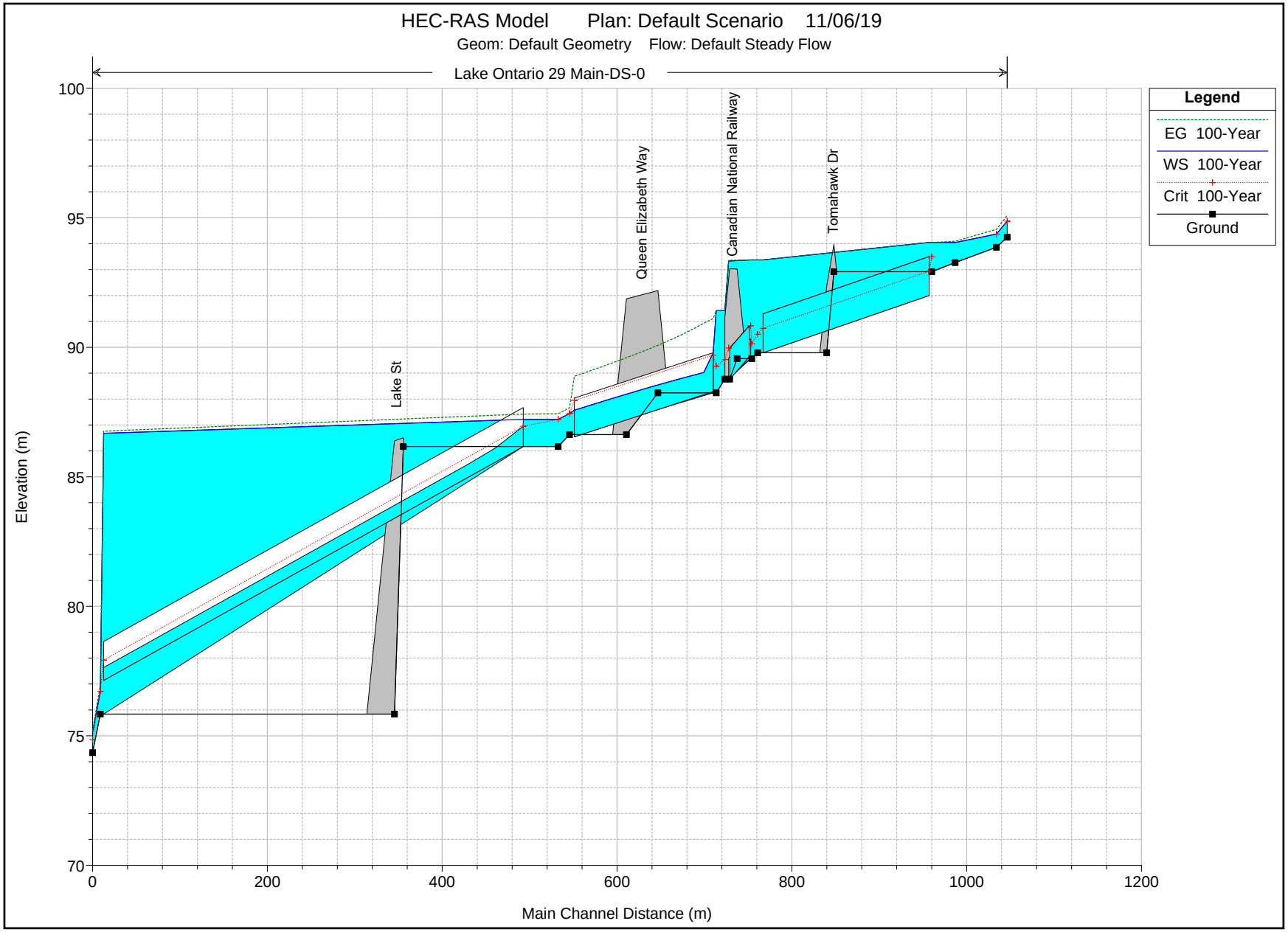

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib2
Canadian National Railway
Queen Elizabeth Way
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
92
90
88
86
84
82
80
78
0
200
400
600
800
1000
1200
1400

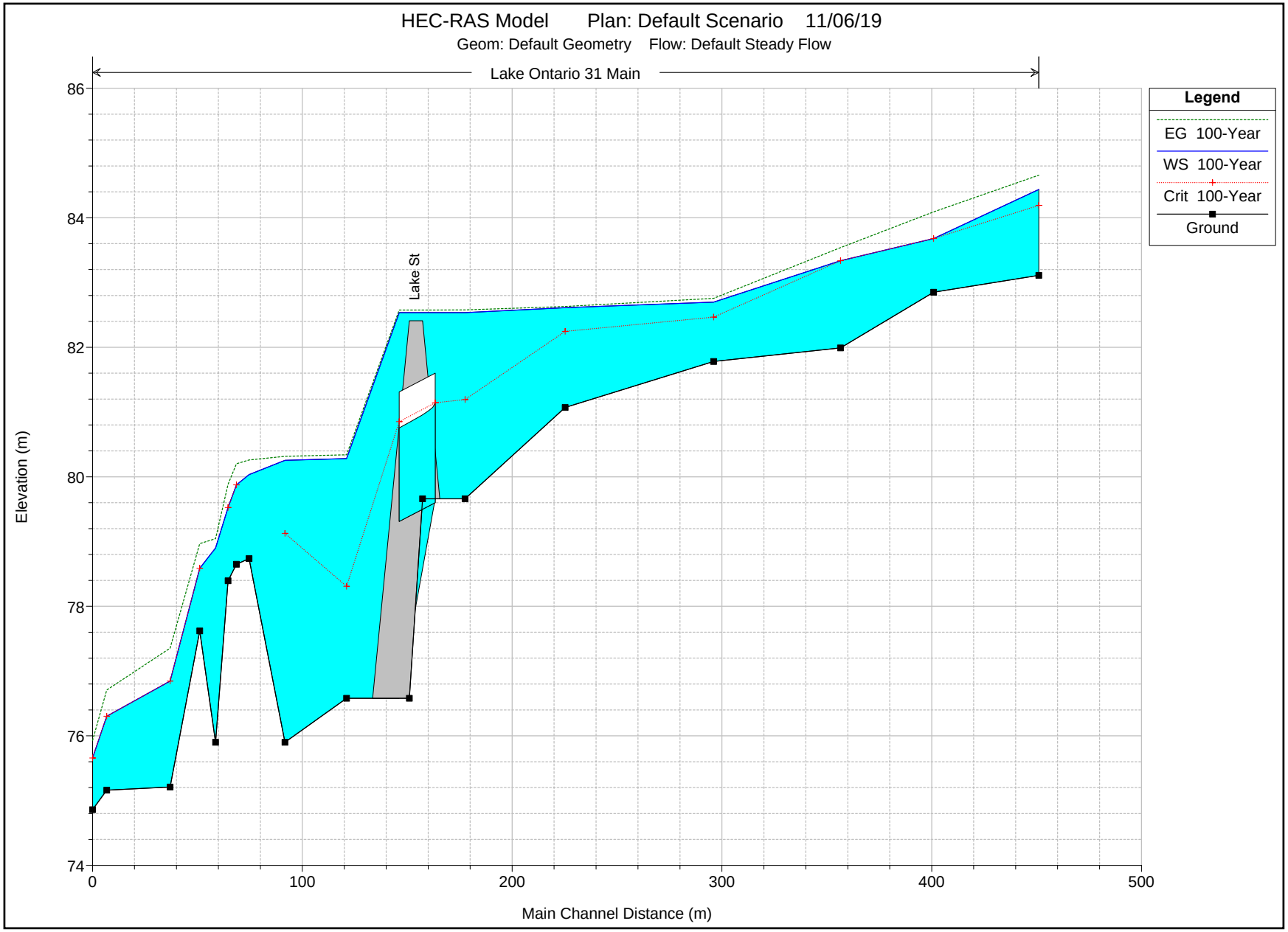

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib2a
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
Greenlane
Lincoln Ave
110
105
100
95
90
85
0
200
400
600
800
1000
1200
1400
1600

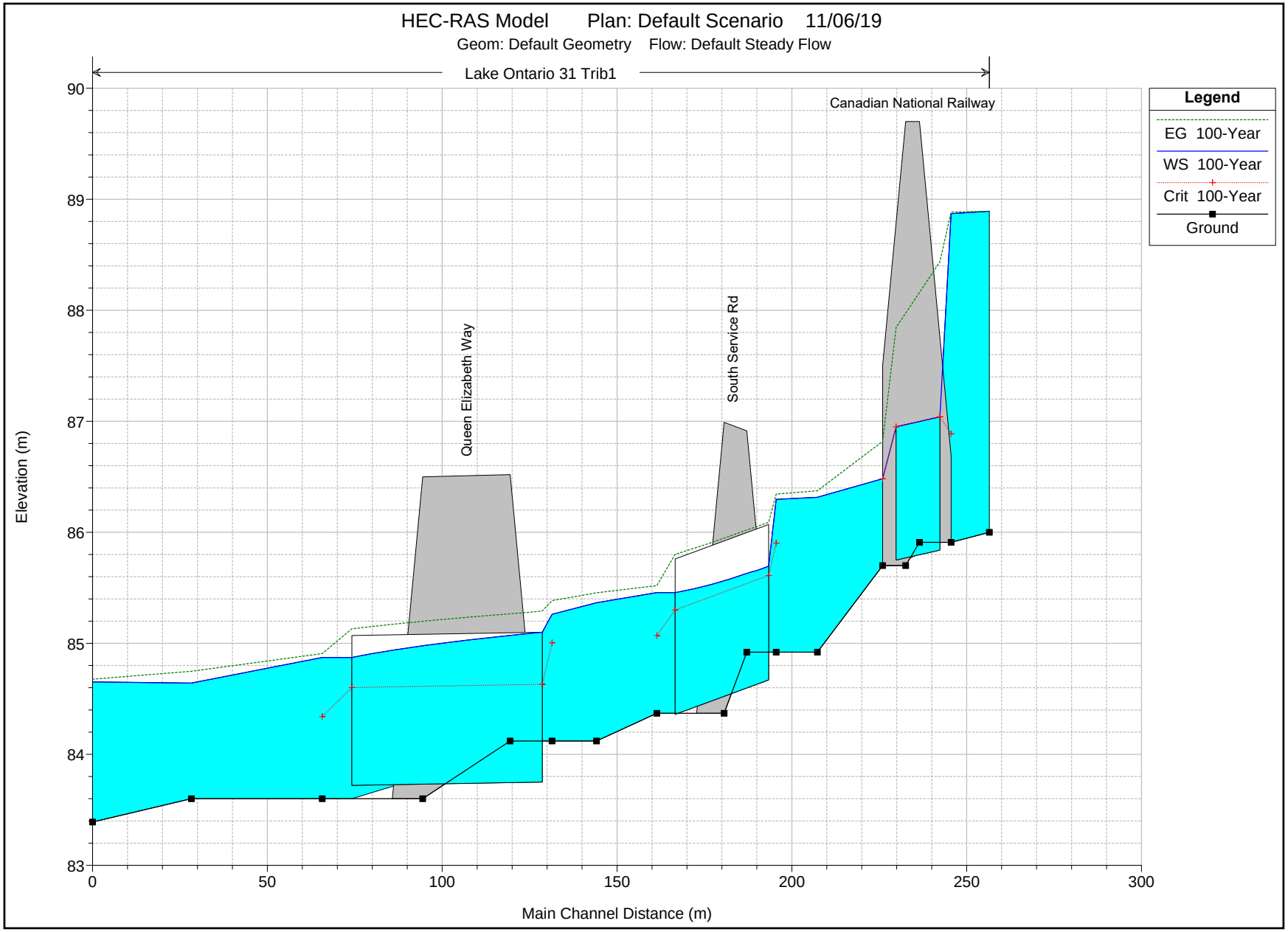

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib2b
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
King St
Greenlane
Elevation (m)
Main Channel Distance (m)
110
105
100
95
90
85
0
200
400
600
800
1000
1200
1400
1600
1800

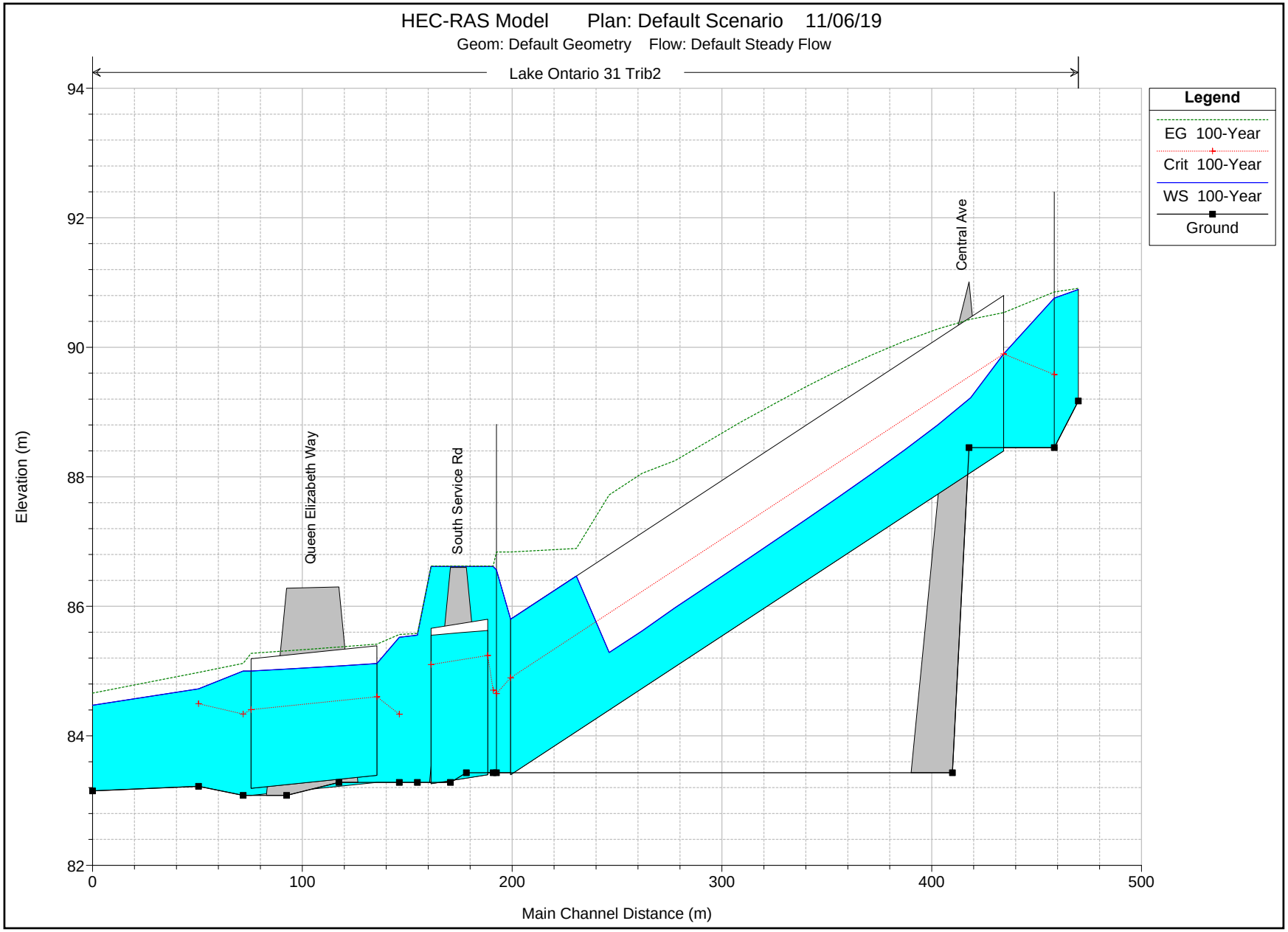

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib2b1
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
140
135
130
125
120
115
110
105
0
200
400
600
800
1000
Main Channel Distance (m)

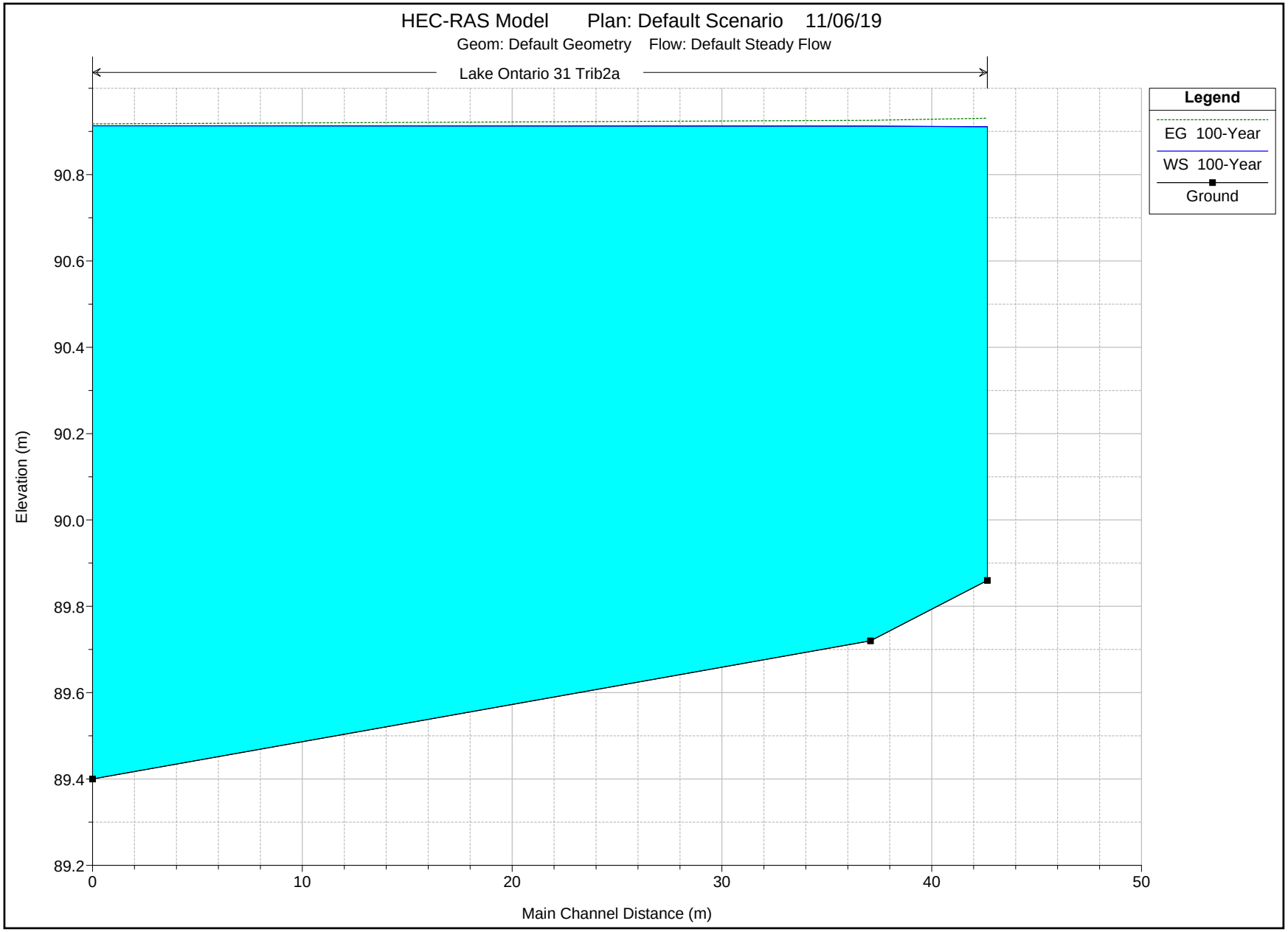

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Beamsville Trib2b2
Stadelbauer Dr
Stadelbauer Dr
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
145
140
135
130
125
120
115
110
105
0
200
400
600
800
1000
1200
1400

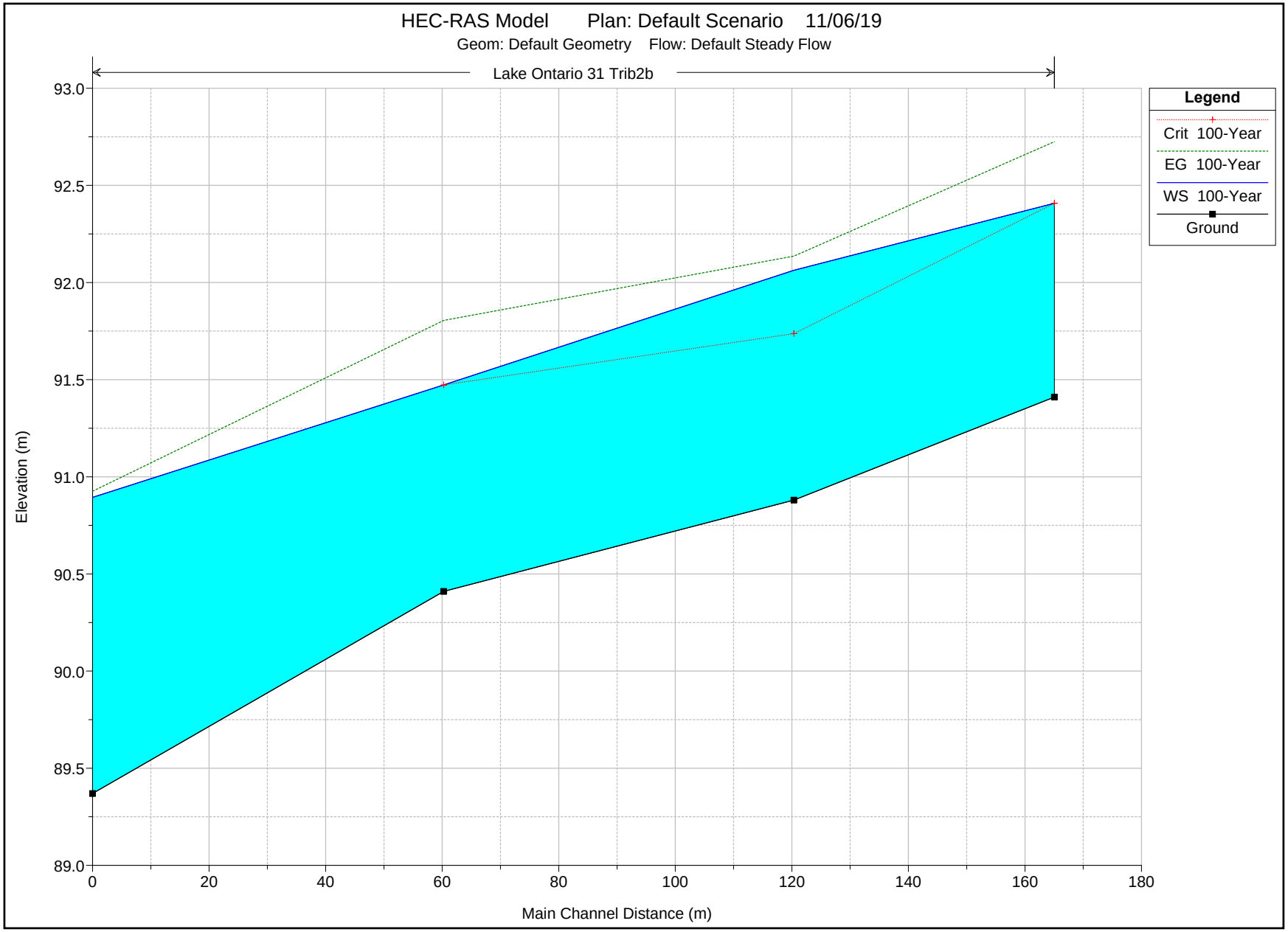

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 29 Main-DS-0
Lake St
Queen Elizabeth Way
Canadian National Railway
Tomahawk Dr
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
100
95
90
85
80
75
70
0
200
400
600
800
1000
1200

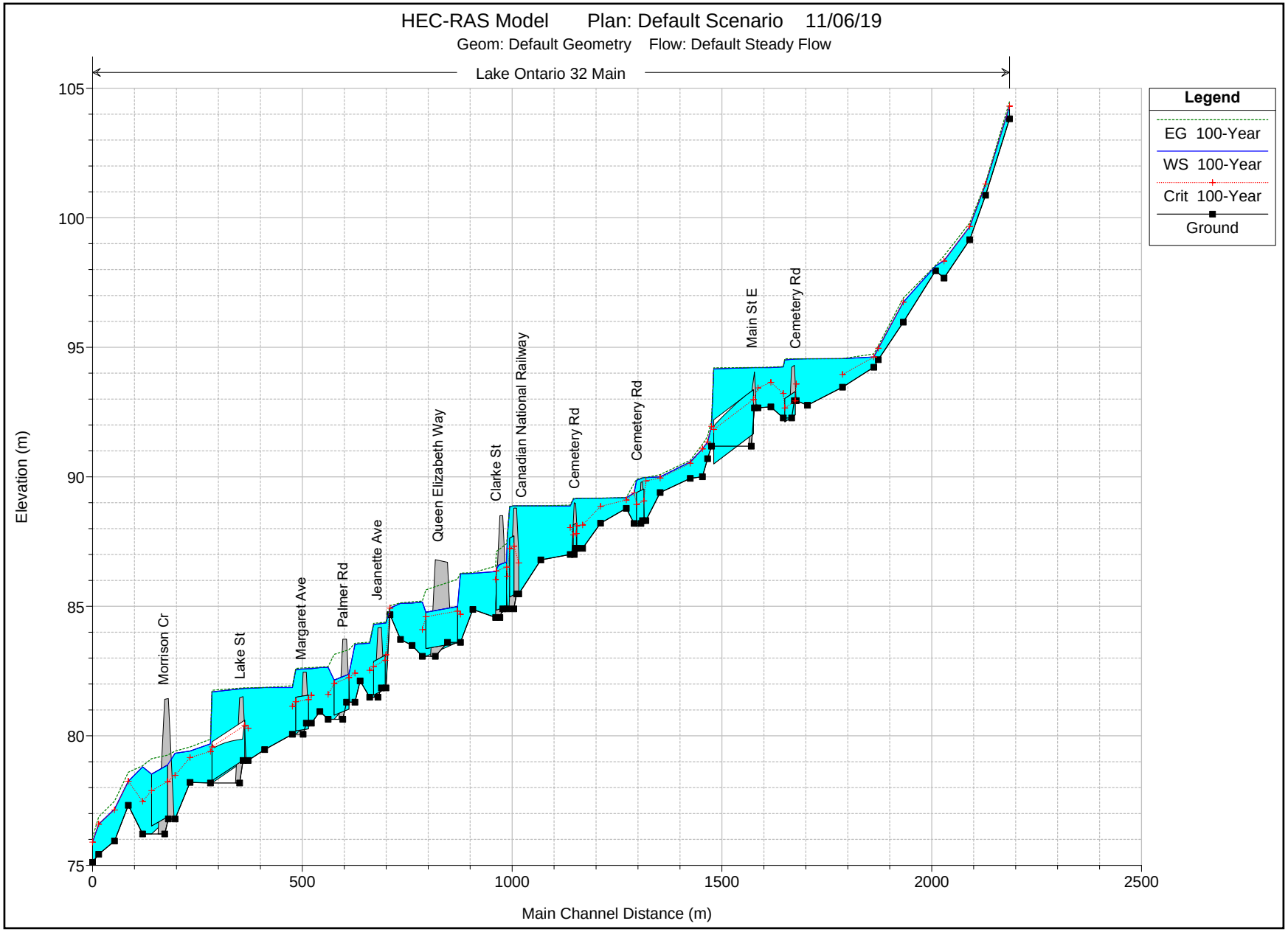

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 31 Main
Lake St
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
86
84
82
80
78
76
74
0
100
200
300
400
500

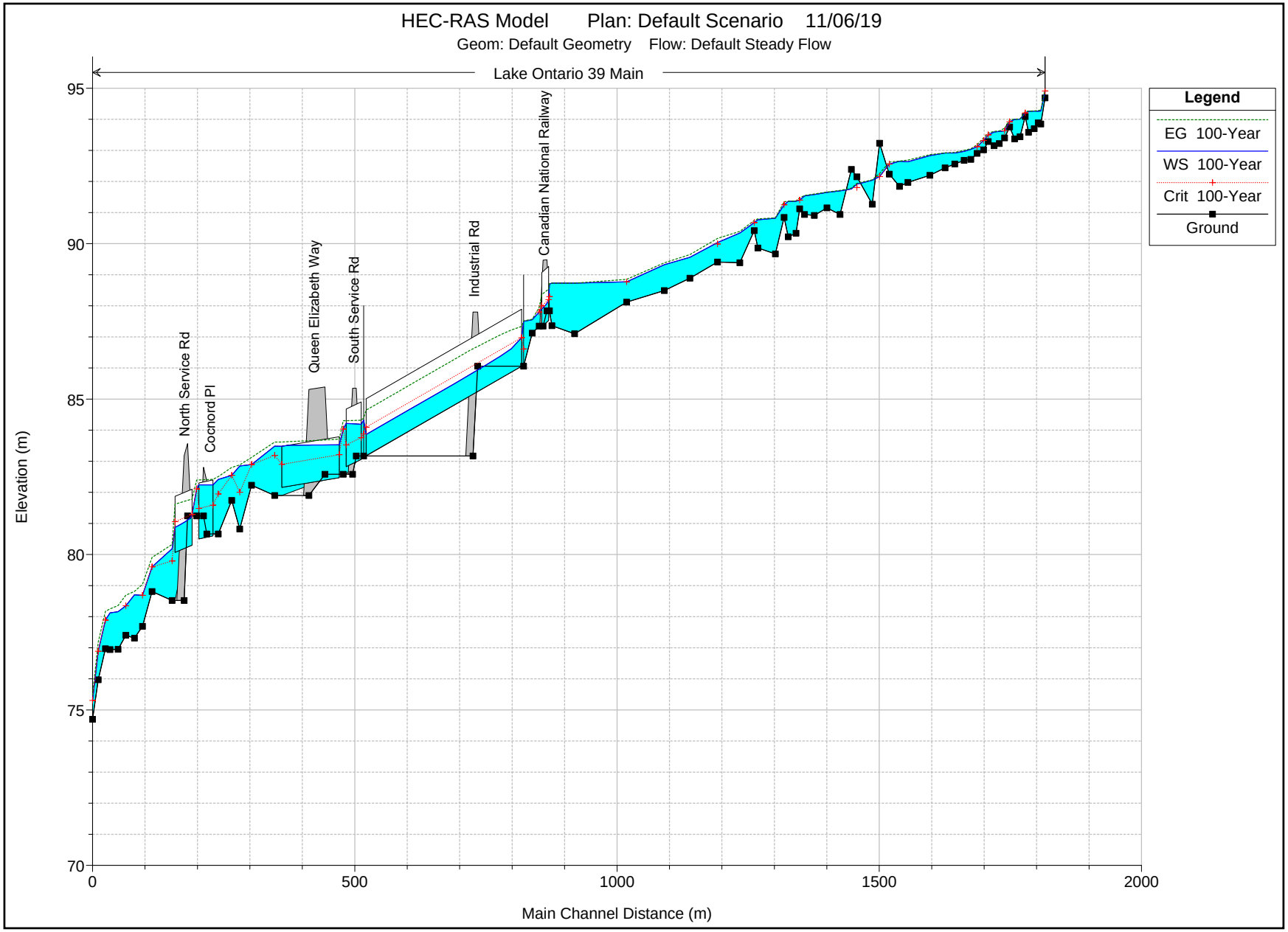

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 31 Trib1
Canadian National Railway
Queen Elizabeth Way
South Service Rd
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
90
89
88
87
86
85
84
83
0
50
100
150
200
250
300

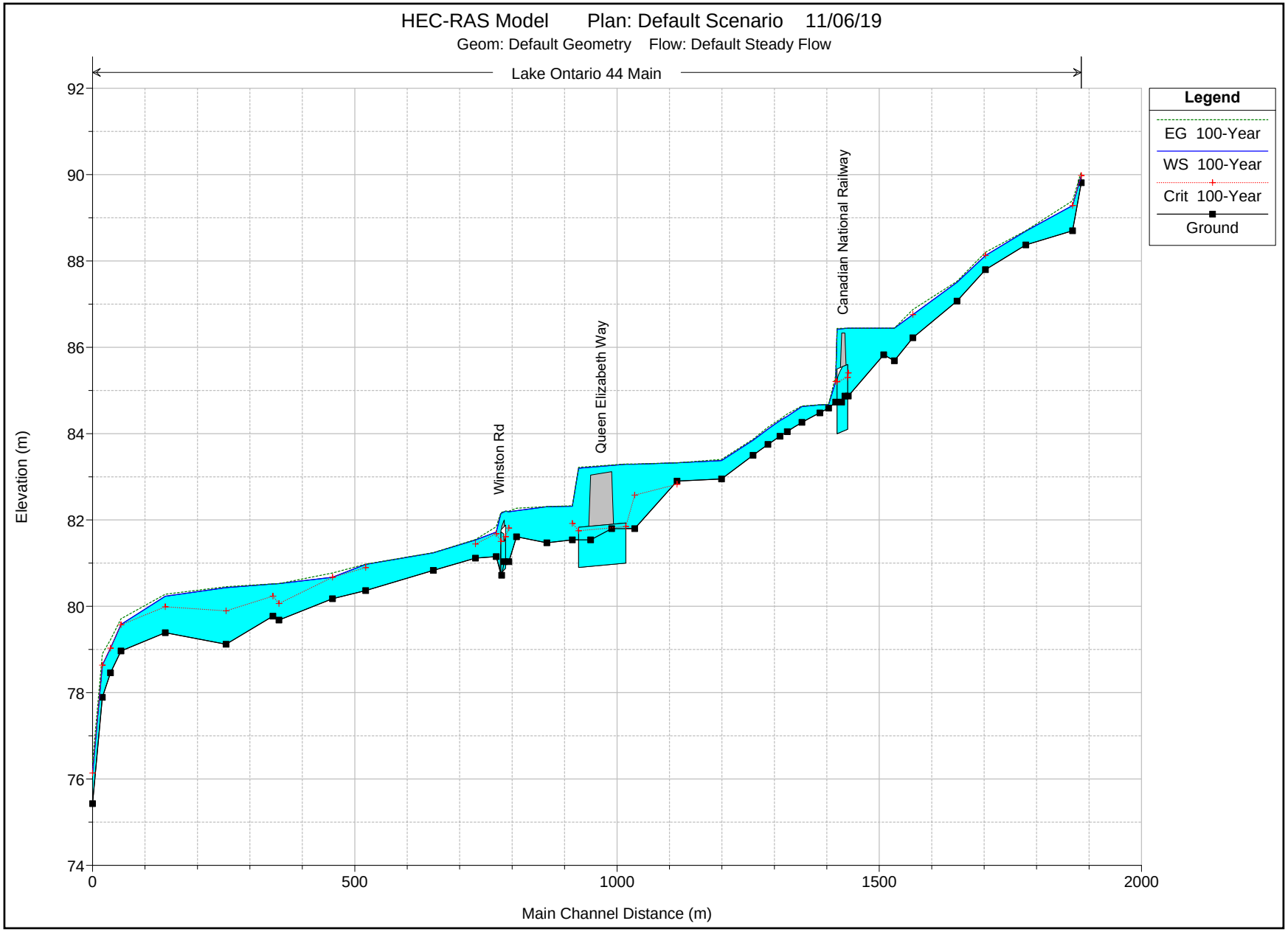

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 31 Trib2
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Queen Elizabeth Way
South Service Rd
Central Ave
Elevation (m)
Main Channel Distance (m)
94
92
90
88
86
84
82
0
100
200
300
400
500

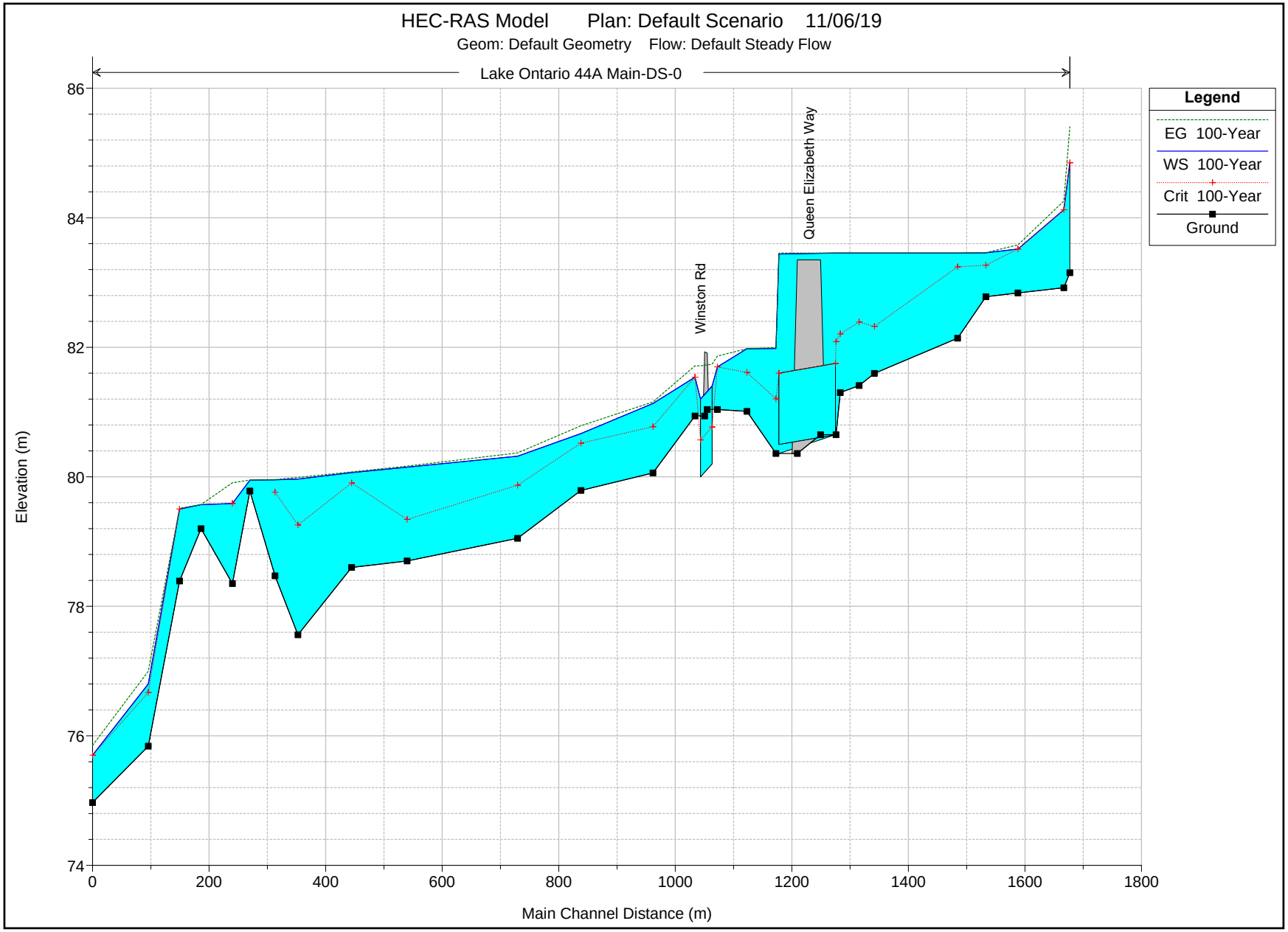

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 31 Trib2a
Legend
EG 100-Year
WS 100-Year
Ground
Elevation (m)
90.8
90.6
90.4
90.2
90.0
89.8
89.6
89.4
89.2
0
10
20
30
40
50
Main Channel Distance (m)

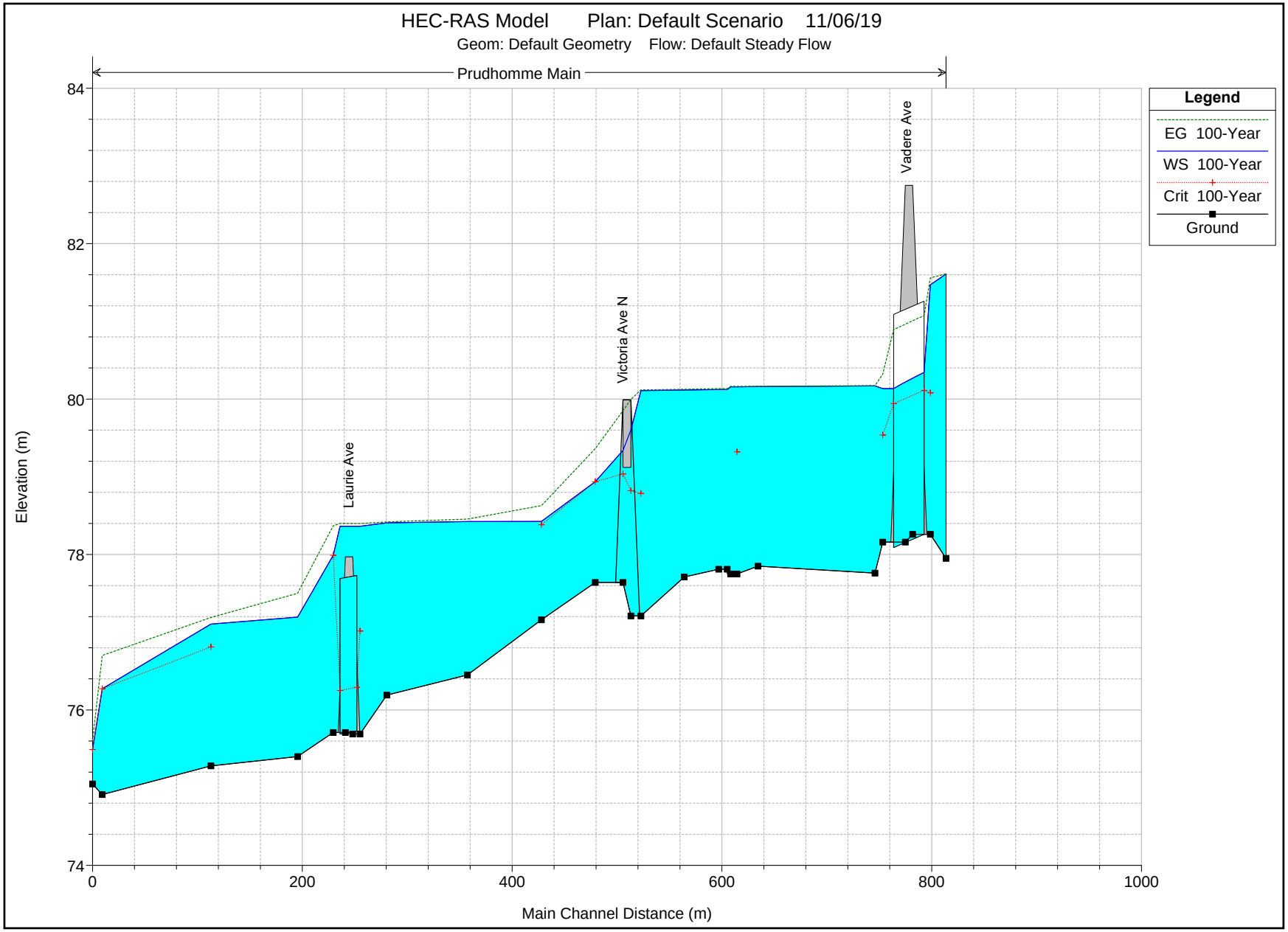

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 31 Trib2b
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
93.0
92.5
92.0
91.5
91.0
90.5
90.0
89.5
89.0
0
20
40
60
80
100
120
140
160
180
Main Channel Distance (m)

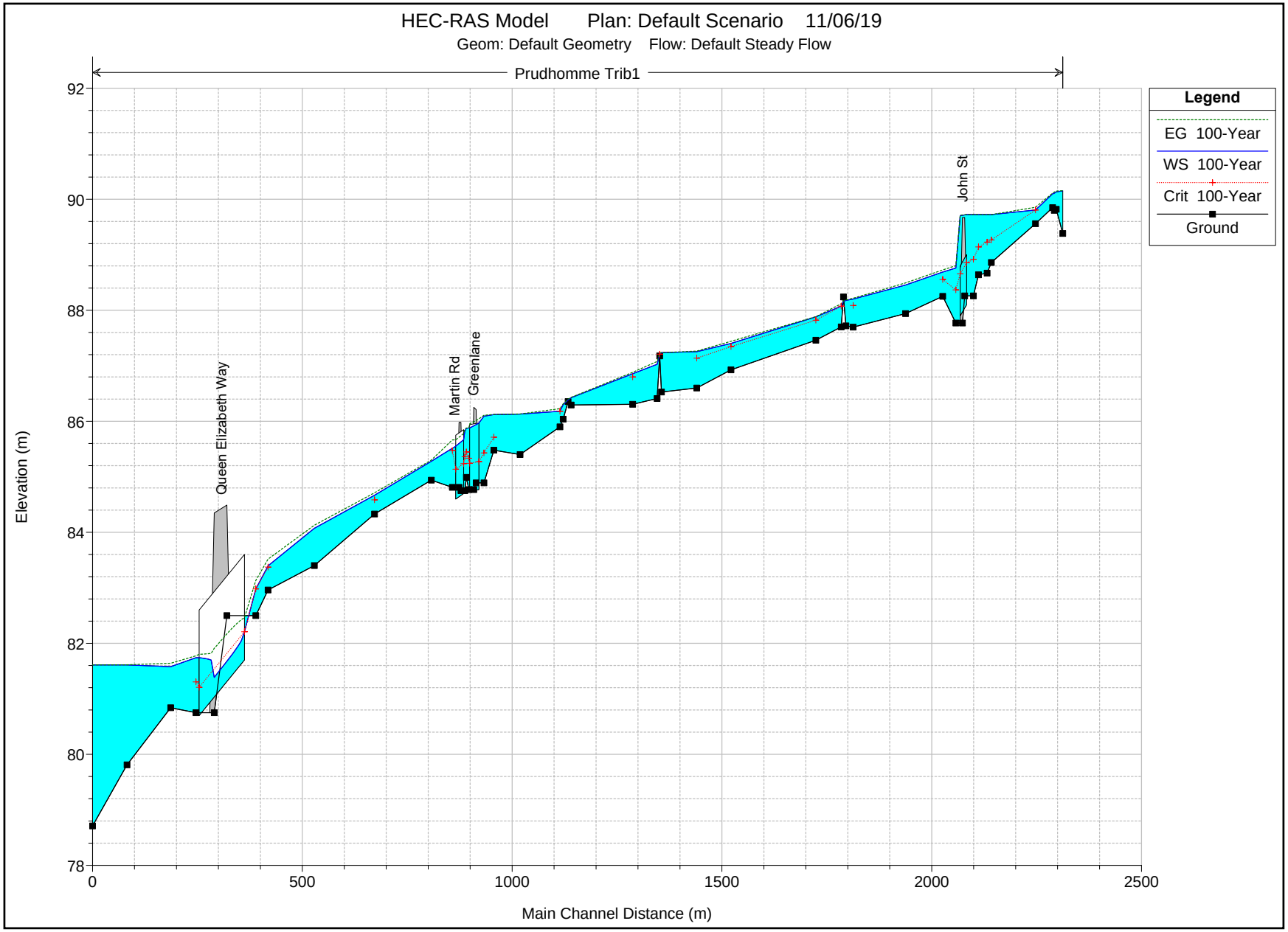

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 32 Main
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
105
100
95
90
85
80
75
0
500
1000
1500
2000
2500
Morrison Cr
Lake St
Margaret Ave
Palmer Rd
Jeanette Ave
Queen Elizabeth Way
Clarke St
Canadian National Railway
Cemetery Rd
Cemetery Rd
Main St E
Cemetery Rd

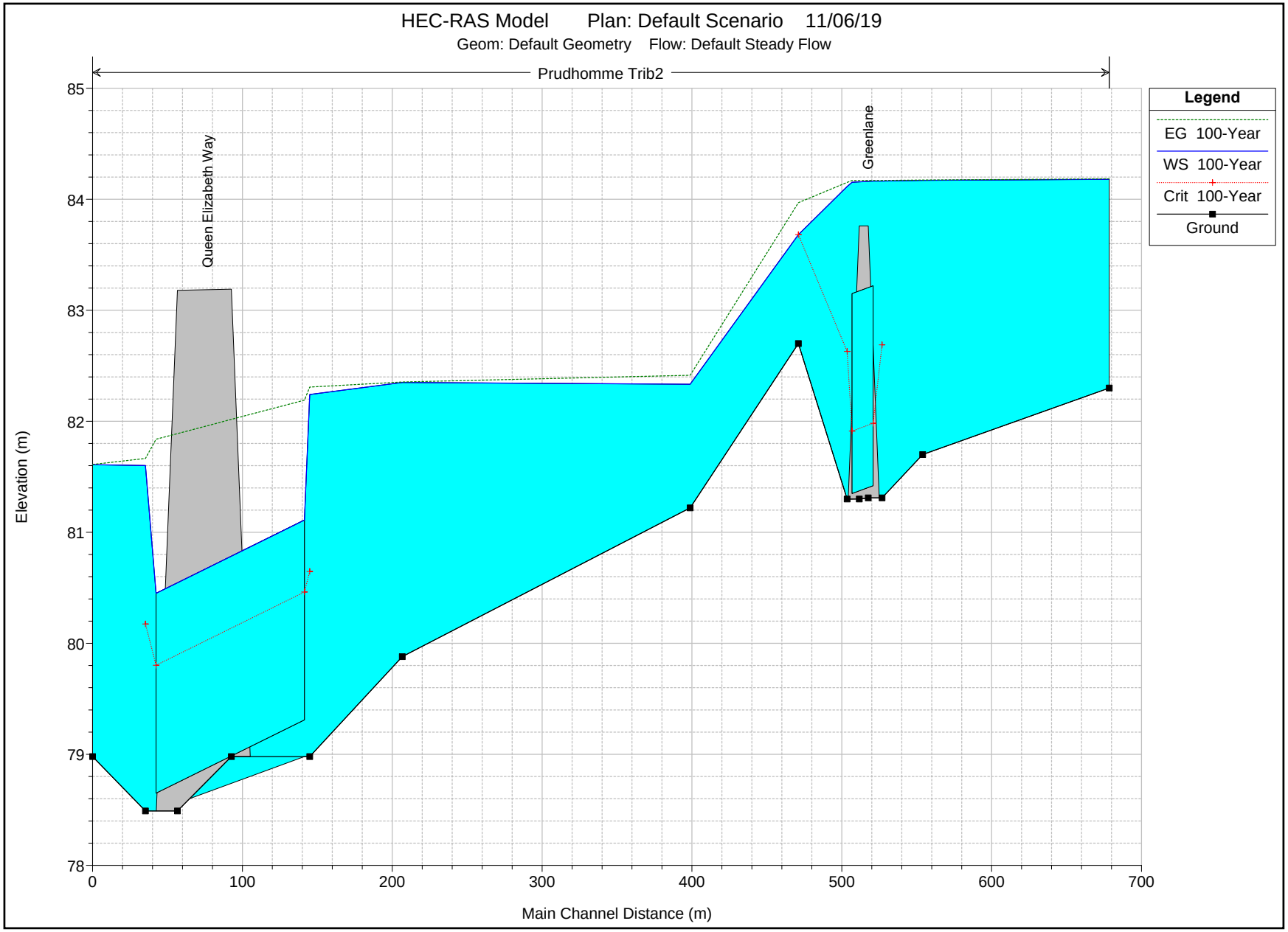

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 39 Main
North Service Rd
Coconrd Pl
Queen Elizabeth Way
South Service Rd
Industrial Rd
Canadian National Railway
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
95
90
85
80
75
70
0
500
1000
1500
2000
Main Channel Distance (m)

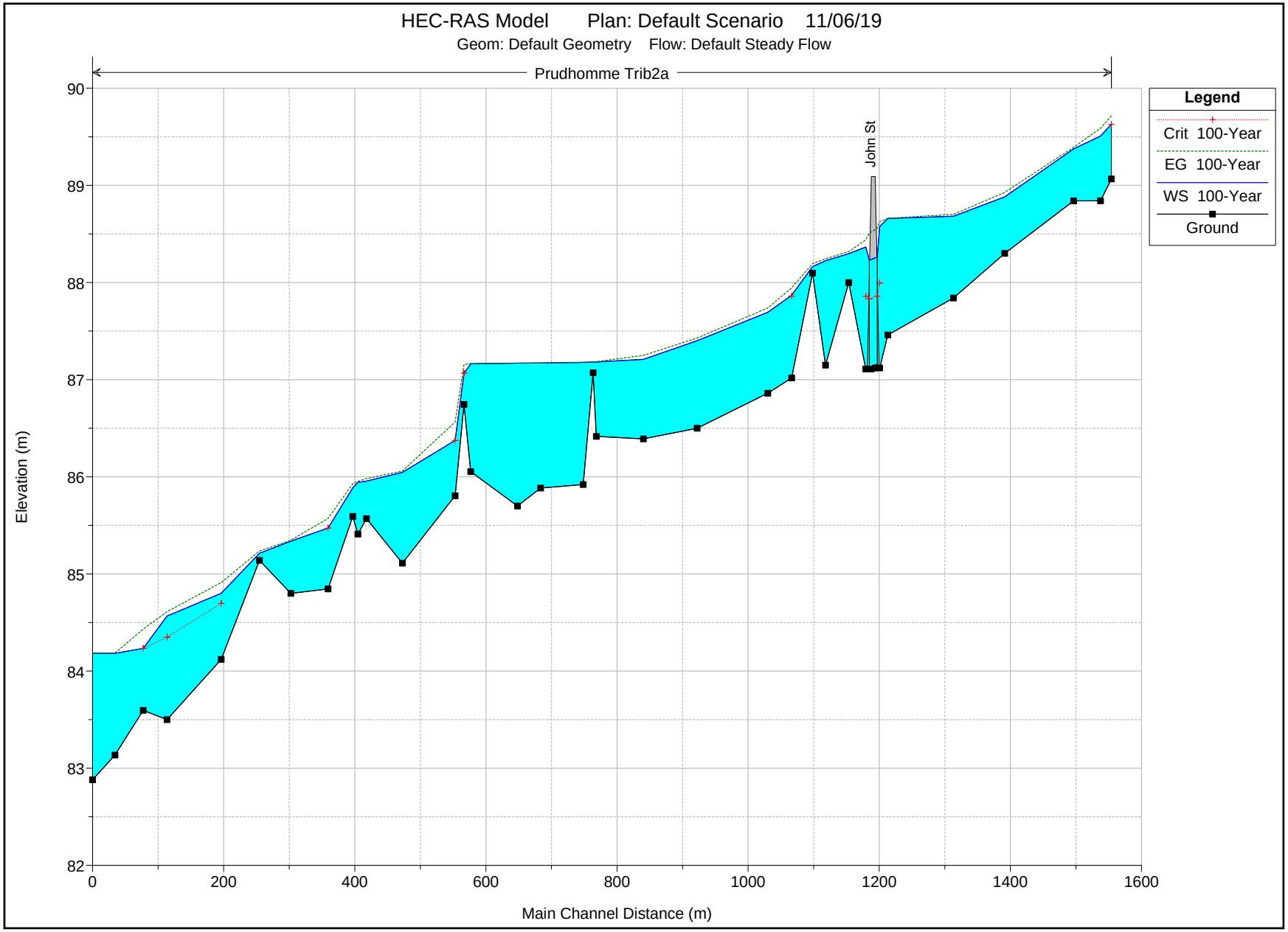

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 44 Main
Winston Rd
Queen Elizabeth Way
Canadian National Railway
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
92
90
88
86
84
82
80
78
76
74
0
500
1000
1500
2000

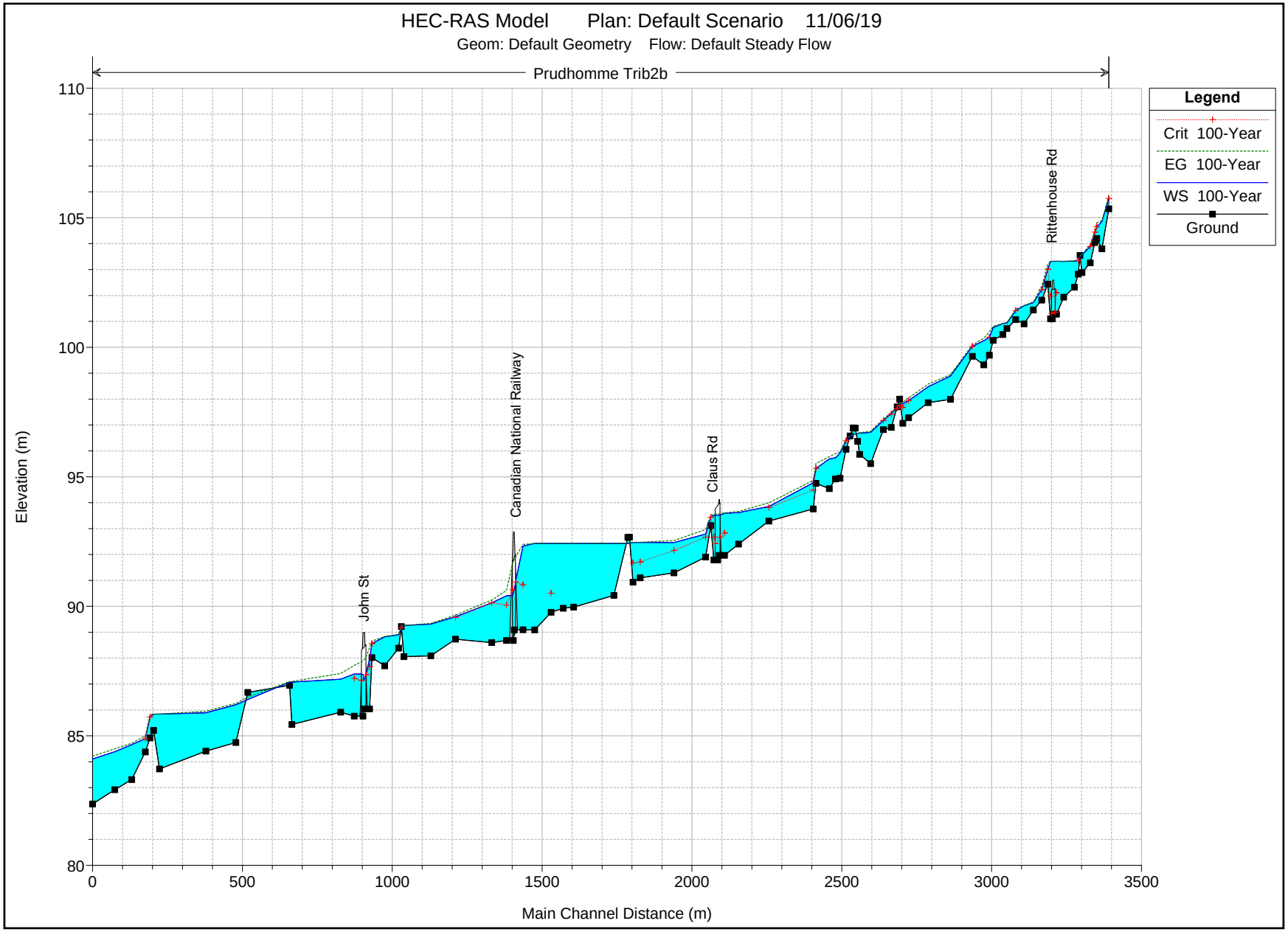

HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Lake Ontario 44A Main-DS-0
Queen Elizabeth Way
Winston Rd
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
86
84
82
80
78
76
74
0
200
400
600
800
1000
1200
1400
1600
1800


HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Prudhomme Main
Laurie Ave
Victoria Ave N
Vadere Ave
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
84
82
80
78
76
74
0
200
400
600
800
1000


HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Prudhomme Trib1
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Queen Elizabeth Way
Martin Rd
Greenlane
John St
Elevation (m)
Main Channel Distance (m)
92
90
88
86
84
82
80
78
0
500
1000
1500
2000
2500


HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Prudhomme Trib2
Queen Elizabeth Way
Greenlane
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
85
84
83
82
81
80
79
78
0
100
200
300
400
500
600
700


HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Prudhomme Trib2a
John St
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
Elevation (m)
Main Channel Distance (m)
90
89
88
87
86
85
84
83
82
0
200
400
600
800
1000
1200
1400
1600


HEC-RAS Model Plan: Default Scenario 11/06/19
Geom: Default Geometry Flow: Default Steady Flow
Prudhomme Trib2b
Legend
Crit 100-Year
EG 100-Year
WS 100-Year
Ground
John St
Canadian National Railway
Claus Rd
Rittenhouse Rd
Elevation (m)
Main Channel Distance (m)
110
105
100
95
90
85
80
0
500
1000
1500
2000
2500
3000
3500

Future Condition

HEC-RAS Plan: Default Scenario Profile: 100-Year

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Prudhomme	Trib2a	1595	100-Year	3.90	88.84	89.51		89.59	0.005395	1.52	4.64	21.07	0.65
Prudhomme	Trib2a	1554	100-Year	3.90	88.84	89.36		89.38	0.003981	0.91	7.26	35.93	0.44
Prudhomme	Trib2a	1421	100-Year	3.90	88.30	88.91		88.94	0.004519	1.08	6.28	32.62	0.48
Prudhomme	Trib2a	1343	100-Year	3.90	87.84	88.61		88.65	0.003126	1.11	6.46	29.63	0.42
Prudhomme	Trib2a	1241	100-Year	4.50	87.46	88.57		88.58	0.000276	0.43	21.37	47.89	0.13
Prudhomme	Trib2a	1229	100-Year	4.50	87.12	88.47	87.99	88.53	0.002060	1.29	4.42	35.43	0.37
Prudhomme	Trib2a	1221 PT2-1		Culvert									
Prudhomme	Trib2a	1213	100-Year	4.50	87.11	88.27	87.86	88.36	0.002982	1.40	3.64	31.46	0.44
Prudhomme	Trib2a	1186	100-Year	4.50	87.15	88.06		88.13	0.004079	1.20	5.18	22.39	0.47
Prudhomme	Trib2a	1108	100-Year	4.50	86.86	87.69	87.60	87.73	0.004758	1.38	7.15	39.34	0.52
Prudhomme	Trib2a	954	100-Year	4.50	86.50	87.42		87.45	0.001616	0.87	9.35	35.38	0.34
Prudhomme	Trib2a	871	100-Year	4.50	86.39	87.12	87.05	87.21	0.005847	1.48	4.37	24.51	0.63
Prudhomme	Trib2a	788	100-Year	4.50	85.92	86.80		86.83	0.002806	1.12	8.48	39.22	0.40
Prudhomme	Trib2a	711	100-Year	4.50	85.70	86.51	86.42	86.56	0.002696	1.12	6.93	28.47	0.47
Prudhomme	Trib2a	519	100-Year	4.50	85.11	85.82	85.78	85.90	0.005376	1.38	5.02	25.88	0.64
Prudhomme	Trib2a	333	100-Year	4.50	84.80	85.29		85.30	0.002273	0.69	9.30	33.20	0.37
Prudhomme	Trib2a	147	100-Year	4.50	83.50	84.35	84.35	84.52	0.009583	1.89	2.99	12.00	0.79
Prudhomme	Trib2a	24	100-Year	4.50	82.88	84.18		84.18	0.000020	0.13	49.80	60.53	0.04
Prudhomme	Trib2b	3369	100-Year	5.40	103.80	104.45	104.39	104.59	0.014173	1.82	3.39	8.31	0.77
Prudhomme	Trib2b	3273	100-Year	5.40	102.32	102.93	102.93	103.10	0.018758	1.94	3.15	10.00	0.86
Prudhomme	Trib2b	3198	100-Year	5.40	101.28	102.69	102.11	102.74	0.001654	1.05	6.60	41.84	0.29
Prudhomme	Trib2b	3189 P-9		Culvert									
Prudhomme	Trib2b	3179	100-Year	5.40	101.10	102.43	101.98	102.51	0.002164	1.26	4.29	5.06	0.43
Prudhomme	Trib2b	3161	100-Year	5.40	101.82	102.27	102.22	102.37	0.013543	1.69	5.01	17.12	0.81
Prudhomme	Trib2b	3015	100-Year	5.40	99.32	100.08	100.02	100.26	0.008933	2.04	3.29	7.35	0.80
Prudhomme	Trib2b	2723	100-Year	5.40	97.28	97.94	97.94	98.04	0.008488	1.58	4.88	26.72	0.73
Prudhomme	Trib2b	2582	100-Year	5.40	95.51	96.25	96.25	96.47	0.015583	2.04	2.70	6.82	0.98
Prudhomme	Trib2b	2375	100-Year	5.40	93.76	94.71		94.82	0.004915	1.50	3.79	6.28	0.58
Prudhomme	Trib2b	2239	100-Year	5.40	93.29	93.93		94.03	0.005899	1.45	4.21	9.73	0.63
Prudhomme	Trib2b	2139	100-Year	5.50	92.40	93.33		93.44	0.005595	1.53	3.77	7.30	0.62
Prudhomme	Trib2b	2081	100-Year	5.50	91.97	93.20	92.83	93.25	0.001931	1.04	5.40	9.14	0.39
Prudhomme	Trib2b	2069 P-8		Culvert									
Prudhomme	Trib2b	2058	100-Year	5.50	91.79	93.00	92.67	93.14	0.004974	1.67	3.29	3.78	0.57
Prudhomme	Trib2b	2029	100-Year	5.50	91.90	92.80	92.67	92.97	0.005734	1.89	3.30	5.89	0.70
Prudhomme	Trib2b	1922	100-Year	5.50	91.29	92.43	92.15	92.51	0.003008	1.29	4.40	10.64	0.50
Prudhomme	Trib2b	1809	100-Year	5.50	91.10	92.43	91.71	92.44	0.000180	0.44	21.04	43.18	0.13
Prudhomme	Trib2b	1785	100-Year	5.50	90.93	92.43	91.67	92.43	0.000116	0.40	33.88	86.74	0.11
Prudhomme	Trib2b	1734	100-Year	5.50	90.42	92.43		92.43	0.000018	0.19	66.94	104.27	0.05
Prudhomme	Trib2b	1587	100-Year	5.50	89.97	92.43		92.43	0.000001	0.05	319.82	528.37	0.01
Prudhomme	Trib2b	1537	100-Year	5.50	89.77	92.43	90.51	92.43	0.000000	0.02	571.16	552.67	0.00
Prudhomme	Trib2b	1482	100-Year	16.90	89.09	92.43		92.43	0.000001	0.05	617.50	447.05	0.01
Prudhomme	Trib2b	1443	100-Year	16.90	89.09	92.32	90.83	92.39	0.000526	1.29	15.97	248.93	0.24
Prudhomme	Trib2b	1410 P-7		Culvert									
Prudhomme	Trib2b	1382	100-Year	16.90	88.68	90.41	90.05	90.61	0.003456	2.00	8.46	47.65	0.58
Prudhomme	Trib2b	1257	100-Year	16.90	88.60	90.13	90.13	90.24	0.013084	1.74	13.72	51.70	0.71
Prudhomme	Trib2b	1201	100-Year	16.90	88.73	89.58	89.57	89.66	0.010697	1.82	17.73	83.66	0.69
Prudhomme	Trib2b	1119	100-Year	16.90	88.09	89.49	89.18	89.50	0.000572	0.63	49.14	106.41	0.18
Prudhomme	Trib2b	1084	100-Year	16.90	87.84	88.87	88.87	89.29	0.019640	2.99	6.12	7.44	0.98

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Prudhomme	Trib2b	1028	100-Year	17.70	87.70	88.81		88.82	0.001223	0.77	44.78	146.58	0.25
Prudhomme	Trib2b	939	100-Year	17.70	86.04	87.96	87.67	88.40	0.018354	2.95	6.09	5.23	0.74
Prudhomme	Trib2b	909 P-6		Culvert									
Prudhomme	Trib2b	870	100-Year	17.70	85.76	87.46	87.22	87.75	0.004482	2.69	8.35	12.37	0.68
Prudhomme	Trib2b	678	100-Year	17.70	85.91	87.33		87.49	0.002802	2.01	12.93	16.55	0.55
Prudhomme	Trib2b	599	100-Year	17.70	85.44	86.85	86.85	86.98	0.003366	2.02	19.89	83.48	0.58
Prudhomme	Trib2b	515	100-Year	17.70	84.74	86.18		86.24	0.002894	1.42	22.26	59.37	0.42
Prudhomme	Trib2b	292	100-Year	17.70	84.41	85.95	85.84	85.98	0.002172	1.39	31.35	93.44	0.38
Prudhomme	Trib2b	237	100-Year	17.70	83.72	84.98	84.95	85.28	0.012863	3.03	8.86	16.29	0.91
Prudhomme	Trib2b	146	100-Year	17.70	83.31	84.66		84.71	0.002892	1.48	23.13	56.95	0.44
Prudhomme	Trib2b	86	100-Year	17.70	82.92	84.38		84.50	0.005029	1.97	16.35	40.22	0.57
Prudhomme	Trib2b	37	100-Year	17.70	82.37	84.11		84.22	0.002959	1.78	17.07	34.26	0.46
Prudhomme	Trib1	2321	100-Year	2.10	89.35	89.71	89.66	89.77	0.007548	1.09	2.14	15.07	0.69
Prudhomme	Trib1	2153	100-Year	2.10	88.86	89.72	89.27	89.72	0.000080	0.17	25.15	118.65	0.08
Prudhomme	Trib1	2132	100-Year	2.10	88.67	89.72	89.23	89.72	0.000032	0.16	33.65	132.81	0.05
Prudhomme	Trib1	2112	100-Year	2.10	88.64	89.72	89.14	89.72	0.000006	0.06	83.04	283.08	0.02
Prudhomme	Trib1	2100	100-Year	2.10	88.26	89.72	88.92	89.72	0.000006	0.08	63.05	148.16	0.02
Prudhomme	Trib1	2091 PT1-4		Culvert									
Prudhomme	Trib1	2080	100-Year	2.10	87.77	88.76	88.37	88.80	0.001829	0.98	2.55	8.07	0.34
Prudhomme	Trib1	2041	100-Year	2.10	88.25	88.69	88.55	88.73	0.002999	0.90	2.80	10.79	0.46
Prudhomme	Trib1	1879	100-Year	2.10	87.94	88.44		88.48	0.002676	0.97	2.97	10.88	0.45
Prudhomme	Trib1	1876	100-Year	2.10	87.70	88.23	88.09	88.24	0.001295	0.53	6.18	64.82	0.30
Prudhomme	Trib1	1787	100-Year	2.10	87.46	87.82	87.82	87.94	0.017086	1.52	1.38	6.05	1.01
Prudhomme	Trib1	1455	100-Year	2.10	86.60	87.26	87.14	87.27	0.001108	0.54	7.21	48.42	0.28
Prudhomme	Trib1	1360	100-Year	2.10	86.41	87.11	86.86	87.14	0.001730	0.90	3.77	23.15	0.38
Prudhomme	Trib1	1164	100-Year	2.10	85.90	86.18	86.18	86.23	0.016375	1.31	2.90	26.07	0.82
Prudhomme	Trib1	1069	100-Year	2.10	85.40	86.13		86.13	0.000240	0.33	12.33	47.24	0.13
Prudhomme	Trib1	1010	100-Year	2.60	85.48	86.12	85.71	86.12	0.000094	0.22	22.52	60.78	0.09
Prudhomme	Trib1	938	100-Year	2.60	84.89	86.09	85.43	86.11	0.000428	0.62	4.71	124.82	0.19
Prudhomme	Trib1	926 PT1-3		Culvert									
Prudhomme	Trib1	913	100-Year	2.60	84.77	85.88	85.33	85.88	0.000044	0.17	27.58	62.14	0.06
Prudhomme	Trib1	908	100-Year	2.60	84.99	85.88	85.45	85.88	0.000141	0.30	15.04	36.85	0.11
Prudhomme	Trib1	901	100-Year	2.60	84.75	85.82	85.36	85.86	0.001000	0.87	3.23	34.93	0.29
Prudhomme	Trib1	890 PT1-2		Culvert									
Prudhomme	Trib1	879	100-Year	2.60	84.81	85.51	85.47	85.67	0.009725	1.78	1.56	50.98	0.83
Prudhomme	Trib1	822	100-Year	2.60	84.94	85.28		85.30	0.003246	0.81	5.11	27.26	0.47
Prudhomme	Trib1	675	100-Year	2.60	84.33	84.67	84.59	84.71	0.006056	1.07	3.84	23.28	0.63
Prudhomme	Trib1	544	100-Year	2.60	83.40	84.07		84.13	0.002920	1.06	2.72	7.43	0.48
Prudhomme	Trib1	464	100-Year	3.40	82.96	83.40	83.37	83.52	0.010647	1.57	2.33	8.69	0.86
Prudhomme	Trib1	381	100-Year	3.40	82.50	82.98	82.98	83.13	0.014885	1.74	1.98	7.22	0.99
Prudhomme	Trib1	315 PT1-1		Culvert									
Prudhomme	Trib1	268	100-Year	3.40	80.75	81.74	81.30	81.78	0.001011	0.84	4.57	7.45	0.30
Prudhomme	Trib1	203	100-Year	3.40	80.84	81.58		81.64	0.004897	1.25	3.58	9.23	0.51
Prudhomme	Trib1	103	100-Year	3.40	79.81	81.61		81.61	0.000028	0.17	32.01	31.66	0.04
Prudhomme	Trib1	11	100-Year	3.40	78.71	81.61		81.61	0.000001	0.04	116.84	66.34	0.01
Prudhomme	Trib2	736	100-Year	18.20	82.30	84.18		84.18	0.000153	0.46	70.95	90.45	0.12
Prudhomme	Trib2	612	100-Year	18.20	81.70	84.17		84.17	0.000050	0.36	98.13	86.52	0.08
Prudhomme	Trib2	580	100-Year	18.20	81.31	84.16	82.69	84.17	0.000082	0.47	77.77	89.50	0.10

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Prudhomme	Trib2	573 P-5		Culvert									
Prudhomme	Trib2	562	100-Year	18.20	81.30	84.11	82.63	84.15	0.000336	0.88	26.13	24.00	0.19
Prudhomme	Trib2	536	100-Year	18.20	82.70	83.68	83.68	83.97	0.009978	2.66	8.98	16.32	0.95
Prudhomme	Trib2	461	100-Year	18.20	81.22	82.33		82.41	0.003118	1.52	20.50	60.01	0.53
Prudhomme	Trib2	334	100-Year	19.00	79.88	82.35		82.35	0.000064	0.41	83.21	70.52	0.09
Prudhomme	Trib2	200	100-Year	19.00	78.98	82.24	80.65	82.31	0.000457	1.37	18.46	59.34	0.25
Prudhomme	Trib2	131 P-4		Culvert									
Prudhomme	Trib2	97	100-Year	19.00	78.49	81.60	80.17	81.67	0.000529	1.27	18.35	48.98	0.24
Prudhomme	Trib2	57	100-Year	19.00	78.98	81.61		81.61	0.000063	0.31	97.02	68.27	0.06
Prudhomme	Main	812	100-Year	22.10	77.95	81.61		81.61	0.000059	0.34	107.82	70.76	0.06
Prudhomme	Main	806	100-Year	22.10	78.26	81.47	80.08	81.56	0.000642	1.39	17.45	44.87	0.28
Prudhomme	Main	786 P-3		Culvert									
Prudhomme	Main	768	100-Year	22.10	78.16	80.13	79.54	80.32	0.002166	2.19	12.65	135.62	0.51
Prudhomme	Main	748	100-Year	22.10	77.76	80.17		80.17	0.000069	0.40	113.57	117.65	0.09
Prudhomme	Main	642	100-Year	22.10	77.85	80.16		80.17	0.000066	0.42	92.23	68.26	0.09
Prudhomme	Main	622	100-Year	22.10	77.75	80.16	79.32	80.16	0.000102	0.56	80.08	68.10	0.12
Prudhomme	Main	614 Entrance road		Inl Struct									
Prudhomme	Main	605	100-Year	22.10	77.81	80.12		80.13	0.000306	0.75	56.59	64.59	0.16
Prudhomme	Main	571	100-Year	22.70	77.71	80.12		80.13	0.000192	0.61	68.62	70.50	0.13
Prudhomme	Main	520	100-Year	22.70	77.21	80.11	78.79	80.12	0.000183	0.62	70.42	73.25	0.12
Prudhomme	Main	506 P-2		Bridge									
Prudhomme	Main	493	100-Year	22.70	77.64	78.94	78.94	79.36	0.014381	3.07	8.23	19.30	0.95
Prudhomme	Main	454	100-Year	22.70	77.16	78.43	78.38	78.63	0.006807	2.77	15.41	29.64	0.83
Prudhomme	Main	363	100-Year	22.70	76.45	78.42		78.46	0.000761	1.17	41.35	49.51	0.28
Prudhomme	Main	292	100-Year	22.70	76.19	78.41		78.42	0.000248	0.72	64.55	63.33	0.16
Prudhomme	Main	260	100-Year	22.70	75.69	78.36	77.02	78.40	0.000382	1.00	42.28	58.75	0.20
Prudhomme	Main	250 P-1		Culvert									
Prudhomme	Main	239	100-Year	22.70	75.71	77.99	77.99	78.37	0.012937	3.11	10.63	15.16	0.73
Prudhomme	Main	209	100-Year	22.70	75.40	77.19		77.50	0.004490	2.96	11.96	11.72	0.72
Prudhomme	Main	141	100-Year	22.70	75.28	77.11		77.19	0.002071	1.74	26.68	41.20	0.44
Prudhomme	Main	27	100-Year	22.70	74.91	76.27	76.27	76.70	0.014608	3.55	10.44	32.93	1.00
Prudhomme	Main	18	100-Year	22.70	75.05	75.72	75.49	75.75	0.003302	0.91	32.40	70.75	0.40
Lake Ontario 44A	Main	1879	100-Year	11.40	85.94	86.43	86.43	86.89	0.067286	3.88	4.84	19.82	1.82
Lake Ontario 44A	Main	1798	100-Year	11.40	84.88	86.19	85.29	86.19	0.000040	0.18	109.66	133.87	0.05
Lake Ontario 44A	Main	1775	100-Year	11.40	84.81	86.19	85.26	86.19	0.000011	0.10	208.35	264.30	0.03
Lake Ontario 44A	Main	1742	100-Year	11.40	84.46	86.19	84.86	86.19	0.000006	0.10	277.53	276.24	0.02
Lake Ontario 44A	Main	1675	100-Year	11.40	84.07	85.54	85.40	85.95	0.009152	3.43	4.31	12.14	0.91
Lake Ontario 44A	Main	1666 LO44A-3		Culvert									
Lake Ontario 44A	Main	1652	100-Year	11.40	83.15	84.85	84.85	85.41	0.018691	3.62	3.52	14.71	1.01
Lake Ontario 44A	Main	1641	100-Year	11.40	82.92	84.12	84.12	84.26	0.007333	1.88	9.47	32.26	0.70
Lake Ontario 44A	Main	1614	100-Year	11.40	82.84	83.52	83.52	83.58	0.009661	1.62	13.89	98.44	0.78
Lake Ontario 44A	Main	1506	100-Year	11.40	82.78	83.46	83.24	83.46	0.000296	0.34	72.73	300.63	0.14
Lake Ontario 44A	Main	1457	100-Year	11.40	82.14	83.46	83.14	83.46	0.000041	0.18	217.13	610.86	0.06
Lake Ontario 44A	Main	1327	100-Year	11.40	81.60	83.46	82.32	83.46	0.000001	0.05	588.03	631.11	0.01
Lake Ontario 44A	Main	1301	100-Year	16.20	81.41	83.46	82.39	83.46	0.000001	0.04	771.50	720.24	0.01
Lake Ontario 44A	Main	1255	100-Year	16.20	81.30	83.46	82.21	83.46	0.000001	0.05	739.94	686.80	0.01
Lake Ontario 44A	Main	1248	100-Year	16.20	80.65	83.46	82.09	83.46	0.000007	0.10	318.54	455.51	0.02
Lake Ontario 44A	Main	1212 LO44A-2		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 44A	Main	1147	100-Year	16.20	80.36	82.10	81.84	82.25	0.004434	1.72	11.18	28.65	0.57
Lake Ontario 44A	Main	1095	100-Year	16.20	81.01	82.09	81.80	82.09	0.000361	0.41	96.69	298.51	0.16
Lake Ontario 44A	Main	1038	100-Year	16.20	81.04	82.07	81.81	82.08	0.000218	0.31	91.55	291.68	0.12
Lake Ontario 44A	Main	1020 LO44A-2		Culvert									
Lake Ontario 44A	Main	1006	100-Year	16.20	80.94	81.94	81.94	82.07	0.008505	1.95	22.87	93.05	0.77
Lake Ontario 44A	Main	934	100-Year	16.20	80.06	81.28	81.24	81.31	0.003059	1.15	32.17	175.47	0.46
Lake Ontario 44A	Main	810	100-Year	16.20	79.79	81.14	80.98	81.14	0.000704	0.55	61.15	239.95	0.22
Lake Ontario 44A	Main	701	100-Year	16.20	79.05	81.01	80.73	81.04	0.001391	0.99	33.42	157.71	0.32
Lake Ontario 44A	Main	512	100-Year	16.20	78.70	80.02	80.02	80.39	0.014588	2.67	6.08	8.61	1.00
Lake Ontario 44A	Main	354	100-Year	16.20	78.60	80.14	79.91	80.15	0.000406	0.50	82.19	374.40	0.17
Lake Ontario 44A	Main	323	100-Year	16.20	77.56	80.10	79.26	80.11	0.000409	0.67	75.34	294.70	0.18
Lake Ontario 44A	Main	283	100-Year	16.20	78.47	80.09	79.76	80.09	0.000083	0.26	125.73	314.97	0.08
Lake Ontario 44A	Main	214	100-Year	16.20	78.35	79.77	79.59	79.96	0.008113	1.94	8.73	14.16	0.68
Lake Ontario 44A	Main	126	100-Year	16.20	78.39	79.50	79.50	79.51	0.002700	0.84	52.19	210.58	0.37
Lake Ontario 44A	Main	70	100-Year	16.20	75.84	76.78	76.67	76.99	0.010744	2.05	8.34	16.24	0.77
Lake Ontario 44A	Main	-26	100-Year	16.20	74.97	75.72	75.70	75.85	0.012563	1.96	11.62	35.96	0.90
Lake Ontario 44	Main	1870	100-Year	4.20	88.70	89.41		89.45	0.004583	0.98	5.40	18.26	0.47
Lake Ontario 44	Main	1780	100-Year	4.20	88.37	88.59	88.58	88.63	0.026399	1.17	5.42	49.35	0.95
Lake Ontario 44	Main	1654	100-Year	4.20	87.07	87.50		87.53	0.004181	0.76	6.95	31.43	0.43
Lake Ontario 44	Main	1571	100-Year	5.90	86.22	86.76	86.76	86.87	0.014027	1.59	4.72	25.64	0.81
Lake Ontario 44	Main	1544	100-Year	5.90	85.87	86.44		86.44	0.000001	0.01	346.09	374.10	0.01
Lake Ontario 44	Main	1534	100-Year	5.90	85.68	86.44		86.44	0.000001	0.01	324.03	285.99	0.01
Lake Ontario 44	Main	1446	100-Year	5.90	84.87	86.44	85.41	86.44	0.000000	0.02	358.41	311.86	0.00
Lake Ontario 44	Main	1435 LO44-3		Culvert									
Lake Ontario 44	Main	1423	100-Year	5.90	84.73	85.21	85.21	85.35	0.021146	1.85	3.90	113.49	0.98
Lake Ontario 44	Main	1372	100-Year	5.90	84.13	84.66		84.67	0.002851	0.84	13.55	86.72	0.38
Lake Ontario 44	Main	1330	100-Year	5.90	84.05	84.40		84.46	0.012420	1.29	6.04	27.77	0.73
Lake Ontario 44	Main	1326	100-Year	5.90	83.94	84.30		84.33	0.006057	0.95	7.79	28.41	0.52
Lake Ontario 44	Main	1303	100-Year	5.90	83.75	84.11		84.15	0.010582	1.20	6.96	33.40	0.68
Lake Ontario 44	Main	1275	100-Year	5.90	83.50	83.84		83.87	0.009472	1.14	8.29	46.79	0.64
Lake Ontario 44	Main	1215	100-Year	5.90	82.95	83.39		83.41	0.006424	0.98	10.29	69.04	0.53
Lake Ontario 44	Main	1077	100-Year	8.60	82.90	83.34	82.83	83.34	0.000358	0.23	80.14	167.28	0.13
Lake Ontario 44	Main	1046	100-Year	8.60	81.80	83.31	82.57	83.31	0.000259	0.50	61.63	176.34	0.14
Lake Ontario 44	Main	980 LO44-2		Culvert									
Lake Ontario 44	Main	926	100-Year	8.60	81.54	82.55	82.15	82.61	0.002454	1.09	7.87	238.69	0.38
Lake Ontario 44	Main	901	100-Year	8.60	81.47	82.57		82.57	0.000142	0.28	64.46	186.48	0.09
Lake Ontario 44	Main	871	100-Year	8.60	81.61	82.46		82.54	0.005928	1.59	9.28	26.41	0.58
Lake Ontario 44	Main	782	100-Year	8.60	81.03	82.44	82.18	82.45	0.001132	0.76	22.49	57.12	0.25
Lake Ontario 44	Main	771 LO44-1		Culvert									
Lake Ontario 44	Main	758	100-Year	8.60	80.72	81.91	81.91	82.02	0.006327	1.74	9.66	44.42	0.60
Lake Ontario 44	Main	719	100-Year	8.60	81.20	81.70	81.54	81.71	0.004570	0.84	15.21	61.43	0.45
Lake Ontario 44	Main	659	100-Year	8.60	80.96	81.37		81.37	0.003962	0.55	21.16	103.93	0.38
Lake Ontario 44	Main	531	100-Year	8.60	80.19	81.09	80.97	81.10	0.001367	0.53	34.00	171.14	0.25
Lake Ontario 44	Main	459	100-Year	8.60	80.12	80.86	80.86	80.91	0.010143	1.53	12.81	104.76	0.70
Lake Ontario 44	Main	375	100-Year	8.60	79.65	80.51	80.20	80.52	0.000942	0.67	31.16	157.08	0.24
Lake Ontario 44	Main	350	100-Year	8.60	79.59	80.51	80.25	80.51	0.000645	0.52	37.36	135.19	0.19
Lake Ontario 44	Main	261	100-Year	8.60	79.12	80.41	79.89	80.44	0.000985	0.75	13.58	20.41	0.25
Lake Ontario 44	Main	144	100-Year	8.60	79.39	80.10	79.99	80.18	0.007343	1.36	7.05	18.31	0.61

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 44	Main	41	100-Year	8.60	77.89	78.64	78.64	78.90	0.016337	2.32	4.01	8.41	0.93
Lake Ontario 44	Main	22	100-Year	8.60	75.43	76.24	76.14	76.41	0.012116	1.83	4.71	8.46	0.78
Lake Ontario 39	Trib1	1000	100-Year	1.90	93.85	94.30	94.30	94.46	0.012362	1.90	1.25	4.27	0.95
Lake Ontario 39	Trib1	961	100-Year	1.90	93.44	93.94		94.00	0.003958	1.14	1.87	5.46	0.54
Lake Ontario 39	Trib1	904	100-Year	1.90	93.15	93.57	93.57	93.69	0.011266	1.63	1.46	6.89	0.88
Lake Ontario 39	Trib1	853	100-Year	1.90	92.91	93.27		93.33	0.008427	1.26	1.81	7.64	0.74
Lake Ontario 39	Trib1	828	100-Year	1.90	92.68	93.10		93.16	0.005732	1.15	1.96	8.26	0.63
Lake Ontario 39	Trib1	810	100-Year	1.90	92.56	92.93	92.91	93.03	0.010216	1.41	1.62	7.94	0.82
Lake Ontario 39	Trib1	792	100-Year	1.90	92.44	92.92		92.94	0.001787	0.72	4.28	24.89	0.36
Lake Ontario 39	Trib2	309	100-Year	2.80	97.44	97.60	97.60	97.65	0.013622	1.01	3.44	41.27	0.85
Lake Ontario 39	Trib2	255	100-Year	2.80	96.19	96.42	96.42	96.50	0.018019	1.51	2.48	14.31	1.04
Lake Ontario 39	Trib2	223	100-Year	2.80	95.62	95.86	95.84	95.94	0.015753	1.43	2.44	12.36	0.97
Lake Ontario 39	Trib2	190	100-Year	2.80	95.02	95.26	95.26	95.36	0.019765	1.60	2.09	10.19	1.09
Lake Ontario 39	Trib2	144	100-Year	2.80	94.22	94.49		94.53	0.005998	0.96	4.02	22.61	0.61
Lake Ontario 39	Trib2	110	100-Year	2.80	93.44	93.73	93.73	93.82	0.016004	1.36	2.11	12.24	0.97
Lake Ontario 39	Trib2	35	100-Year	2.80	93.00	93.24	93.23	93.29	0.011240	1.22	3.60	25.28	0.82
Lake Ontario 39	Trib2	12	100-Year	2.80	92.72	92.94	92.94	92.98	0.017410	1.31	3.49	33.45	0.99
Lake Ontario 39	Main	1608	100-Year	4.60	92.20	92.91		92.93	0.002823	0.93	8.11	34.19	0.39
Lake Ontario 39	Main	1559	100-Year	4.60	91.97	92.60	92.60	92.72	0.011522	1.73	3.73	15.38	0.77
Lake Ontario 39	Main	1552	100-Year	4.60	91.84	92.44		92.49	0.004192	1.27	5.91	22.23	0.57
Lake Ontario 39	Main	1520	100-Year	4.60	91.53	92.14	92.14	92.29	0.008619	1.84	3.37	13.49	0.82
Lake Ontario 39	Main	1500	100-Year	4.60	91.27	92.07	91.94	92.09	0.002266	0.78	10.27	44.36	0.34
Lake Ontario 39	Main	1413	100-Year	4.60	91.15	91.56	91.56	91.63	0.025481	1.41	4.61	32.57	0.98
Lake Ontario 39	Main	1338	100-Year	4.60	89.67	90.63		90.66	0.001601	0.85	5.98	9.88	0.30
Lake Ontario 39	Main	1239	100-Year	4.60	89.41	90.09	90.08	90.26	0.015122	1.82	3.01	11.40	0.85
Lake Ontario 39	Main	1166	100-Year	4.60	88.89	89.69		89.78	0.005575	1.52	4.16	8.57	0.56
Lake Ontario 39	Main	1099	100-Year	4.60	88.49	89.25	89.18	89.40	0.011120	1.75	3.06	10.25	0.75
Lake Ontario 39	Main	1023	100-Year	4.60	88.12	88.96		88.98	0.003129	0.87	12.27	47.63	0.39
Lake Ontario 39	Main	928	100-Year	4.60	87.10	88.97		88.97	0.000011	0.12	74.27	84.32	0.03
Lake Ontario 39	Main	888	100-Year	4.60	87.36	88.97		88.97	0.000015	0.12	82.79	82.82	0.03
Lake Ontario 39	Main	884	100-Year	4.60	87.84	88.94	88.35	88.96	0.000606	0.57	8.10	133.79	0.19
Lake Ontario 39	Main	875 LO39-6		Culvert									
Lake Ontario 39	Main	867	100-Year	4.60	87.35	87.86	87.86	88.04	0.021799	1.85	2.50	8.61	0.99
Lake Ontario 39	Main	855	100-Year	4.60	87.12	87.80		87.80	0.000655	0.41	18.62	55.55	0.18
Lake Ontario 39	Main	840	100-Year	4.60	86.06	87.74	86.69	87.77	0.003116	0.75	6.24		0.18
Lake Ontario 39	Main	746 LO39-5		Culvert									
Lake Ontario 39	Main	529	100-Year	7.70	83.17	84.44	83.95	84.51	0.002287	1.20	6.42	10.61	0.38
Lake Ontario 39	Main	511 LO39-4		Culvert									
Lake Ontario 39	Main	490	100-Year	7.70	82.58	84.11	84.11	84.41	0.021360	2.44	3.29	6.38	0.94
Lake Ontario 39	Main	437 LO39-3		Culvert									
Lake Ontario 39	Main	372	100-Year	7.70	81.90	83.57	83.28	83.72	0.007167	1.89	4.82	32.29	0.54
Lake Ontario 39	Main	306	100-Year	7.70	82.23	82.96	82.96	83.21	0.015805	2.37	3.88	8.28	0.93
Lake Ontario 39	Main	293	100-Year	7.70	80.82	82.90	82.08	82.95	0.001425	1.06	9.03	9.15	0.27
Lake Ontario 39	Main	282	100-Year	10.30	81.74	82.62	82.60	82.86	0.017581	2.18	4.72	8.59	0.94
Lake Ontario 39	Main	254	100-Year	10.30	80.66	82.50	82.00	82.60	0.002904	1.57	8.19	11.14	0.39
Lake Ontario 39	Main	229 LO39-2		Culvert									
Lake Ontario 39	Main	210	100-Year	10.30	81.24	82.15	82.15	82.46	0.018656	2.47	4.17	11.19	1.00
Lake Ontario 39	Main	189 LO39-1		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 39	Main	166	100-Year	10.30	78.52	80.25	79.86	80.40	0.005055	1.72	6.25	7.40	0.53
Lake Ontario 39	Main	131	100-Year	10.30	78.81	79.65	79.65	79.98	0.016270	2.60	4.67	8.31	0.96
Lake Ontario 39	Main	113	100-Year	10.30	77.69	78.75	78.75	79.12	0.015573	2.78	4.44	7.03	0.96
Lake Ontario 39	Main	73	100-Year	10.30	77.31	78.77		78.89	0.003054	1.60	8.15	8.97	0.45
Lake Ontario 39	Main	66	100-Year	10.30	77.40	78.40	78.40	78.77	0.017831	2.69	4.05	6.21	0.99
Lake Ontario 39	Main	60	100-Year	10.30	76.95	78.22		78.43	0.007679	2.14	5.51	7.49	0.68
Lake Ontario 39	Main	44	100-Year	10.30	76.94	78.18		78.32	0.004476	1.72	6.79	8.06	0.53
Lake Ontario 39	Main	36	100-Year	10.30	76.97	77.92	77.92	78.24	0.016630	2.57	4.60	8.58	0.96
Lake Ontario 39	Main	22	100-Year	10.30	75.97	76.94	76.94	77.25	0.015440	2.56	4.48	7.92	0.93
Lake Ontario 39	Main	11	100-Year	10.30	74.70	75.34	75.34	75.52	0.016383	2.31	6.02	15.55	0.94
Lake Ontario 32	Main	2206	100-Year	5.20	103.82	104.31	104.31	104.48	0.013690	1.96	3.58	11.94	0.93
Lake Ontario 32	Main	2158	100-Year	5.20	100.87	101.30	101.30	101.35	0.011987	1.35	9.36	74.04	0.80
Lake Ontario 32	Main	2114	100-Year	5.20	99.15	99.66	99.66	99.80	0.016188	1.86	3.89	15.26	0.98
Lake Ontario 32	Main	2054	100-Year	5.20	97.67	98.33	98.33	98.53	0.016048	2.03	2.85	9.08	0.99
Lake Ontario 32	Main	1967	100-Year	5.20	95.97	96.74	96.74	96.90	0.014884	1.82	3.45	17.00	0.94
Lake Ontario 32	Main	1903	100-Year	5.20	94.52	94.96	94.96	95.06	0.014463	1.89	4.93	21.54	0.94
Lake Ontario 32	Main	1892	100-Year	5.20	94.23	94.63	94.63	94.75	0.015147	1.58	3.75	17.47	0.92
Lake Ontario 32	Main	1805	100-Year	5.20	93.46	94.56	93.95	94.56	0.000128	0.31	22.85	33.08	0.10
Lake Ontario 32	Main	1730	100-Year	5.20	92.76	94.56		94.56	0.000020	0.16	44.10	39.56	0.04
Lake Ontario 32	Main	1691	100-Year	5.20	92.94	94.55	93.58	94.55	0.000137	0.38	22.83	56.27	0.11
Lake Ontario 32	Main	1683 LO32-12		Culvert									
Lake Ontario 32	Main	1655	100-Year	5.20	92.27	94.24	93.22	94.26	0.000238	0.51	12.29	21.06	0.14
Lake Ontario 32	Main	1639	100-Year	9.70	92.70	94.22	93.65	94.24	0.000617	0.72	19.15	48.20	0.22
Lake Ontario 32	Main	1592	100-Year	9.70	92.66	94.22	93.43	94.22	0.000083	0.33	47.28	69.00	0.09
Lake Ontario 32	Main	1591 LO32-11		Culvert									
Lake Ontario 32	Main	1554	100-Year	9.70	91.18	91.95	91.95	92.19	0.012279	2.31	4.86	42.72	0.93
Lake Ontario 32	Main	1472	100-Year	9.70	90.70	91.35	91.35	91.56	0.018486	2.30	5.58	16.38	1.08
Lake Ontario 32	Main	1459	100-Year	9.70	90.00	91.08	91.08	91.25	0.012114	2.04	6.43	19.50	0.88
Lake Ontario 32	Main	1427	100-Year	9.70	89.94	90.58	90.52	90.64	0.007690	1.52	11.03	36.56	0.70
Lake Ontario 32	Main	1356	100-Year	9.70	89.39	90.00	89.95	90.08	0.008038	1.62	9.82	32.93	0.73
Lake Ontario 32	Main	1319	100-Year	9.70	88.31	89.97	89.84	89.98	0.000482	0.44	34.48	90.37	0.18
Lake Ontario 32	Main	1302 LO32-10		Culvert									
Lake Ontario 32	Main	1291	100-Year	9.70	88.20	89.38	89.38	89.74	0.015237	2.67	3.63	74.21	1.01
Lake Ontario 32	Main	1265	100-Year	9.70	88.78	89.19	89.11	89.20	0.002668	0.56	23.69	98.84	0.37
Lake Ontario 32	Main	1224	100-Year	9.70	88.21	89.17	88.86	89.18	0.000137	0.28	51.38	76.31	0.10
Lake Ontario 32	Main	1181	100-Year	9.70	87.24	89.17	88.14	89.17	0.000025	0.18	98.06	103.92	0.05
Lake Ontario 32	Main	1158	100-Year	9.70	87.24	89.17	88.11	89.17	0.000107	0.38	45.33	81.85	0.10
Lake Ontario 32	Main	1151 LO32-9		Culvert									
Lake Ontario 32	Main	1134	100-Year	9.70	87.00	88.87	88.04	88.91	0.000596	0.88	12.15	68.09	0.23
Lake Ontario 32	Main	1106	100-Year	14.10	86.79	88.88		88.88	0.000015	0.17	119.70	80.93	0.04
Lake Ontario 32	Main	1006	100-Year	14.10	85.48	88.88	86.67	88.88	0.000009	0.17	177.75	100.50	0.03
Lake Ontario 32	Main	997 LO32-8		Culvert									
Lake Ontario 32	Main	989	100-Year	14.10	84.90	87.68	86.16	87.71	0.000261	0.69	20.40	67.65	0.15
Lake Ontario 32	Main	974 LO32-7		Culvert									
Lake Ontario 32	Main	957	100-Year	14.10	84.57	86.23	86.03	86.49	0.008691	2.28	6.18	15.47	0.75
Lake Ontario 32	Main	912	100-Year	14.10	84.88	85.99		86.07	0.003273	1.45	15.56	33.31	0.46
Lake Ontario 32	Main	871	100-Year	14.10	83.61	85.97	84.69	86.00	0.000580	0.83	17.15	13.04	0.20
Lake Ontario 32	Main	836 LO32-6		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 32	Main	796	100-Year	14.10	83.07	84.88	84.29	85.00	0.002812	1.51	9.92	11.01	0.41
Lake Ontario 32	Main	728	100-Year	14.10	83.72	84.66		84.77	0.006735	1.96	12.92	18.94	0.65
Lake Ontario 32	Main	703	100-Year	14.10	81.85	84.61	83.34	84.66	0.000769	1.00	17.52	15.58	0.22
Lake Ontario 32	Main	690 LO32-5		Culvert									
Lake Ontario 32	Main	670	100-Year	14.10	81.49	83.99	82.72	84.04	0.000729	1.00	14.16	15.53	0.23
Lake Ontario 32	Main	644	100-Year	14.10	82.12	83.98		84.00	0.000544	0.72	31.19	60.34	0.19
Lake Ontario 32	Main	622	100-Year	14.10	81.30	83.93	82.61	83.98	0.000792	0.97	17.75	17.80	0.22
Lake Ontario 32	Main	596 LO32-4		Culvert									
Lake Ontario 32	Main	578	100-Year	14.10	80.64	82.85	81.73	82.90	0.000696	0.95	14.85	18.82	0.23
Lake Ontario 32	Main	545	100-Year	14.10	80.94	82.84		82.87	0.000628	0.89	30.13	46.12	0.22
Lake Ontario 32	Main	518	100-Year	14.10	80.49	82.78	81.77	82.84	0.000981	1.23	18.46	15.23	0.27
Lake Ontario 32	Main	502 LO32-3		Culvert									
Lake Ontario 32	Main	484	100-Year	14.10	80.06	81.93	81.34	82.05	0.002926	1.54	9.17	10.72	0.43
Lake Ontario 32	Main	426	100-Year	18.90	79.47	81.94		81.94	0.000110	0.45	88.29	78.73	0.10
Lake Ontario 32	Main	368	100-Year	18.90	79.05	81.89	80.44	81.92	0.000463	0.97	38.67	33.20	0.19
Lake Ontario 32	Main	352 LO32-2		Culvert									
Lake Ontario 32	Main	286	100-Year	18.90	78.18	80.05	79.51	80.20	0.003651	1.74	10.90	20.75	0.47
Lake Ontario 32	Main	234	100-Year	18.90	78.20	79.93	79.27	80.02	0.001991	1.51	20.03	20.61	0.38
Lake Ontario 32	Main	186	100-Year	18.90	76.79	79.89	78.62	79.96	0.000965	1.18	16.00	27.58	0.26
Lake Ontario 32	Main	164 LO32-1		Culvert									
Lake Ontario 32	Main	137	100-Year	18.90	76.21	78.99	77.63	79.04	0.000881	1.02	18.60	16.87	0.23
Lake Ontario 32	Main	105	100-Year	18.90	77.32	78.38	78.38	78.76	0.014117	2.95	8.75	13.25	0.94
Lake Ontario 32	Main	68	100-Year	18.90	75.94	77.27	77.27	77.64	0.015416	2.72	7.29	11.64	0.94
Lake Ontario 32	Main	18	100-Year	18.90	75.43	76.70	76.70	77.01	0.016089	2.53	8.19	14.78	0.94
Lake Ontario 32	Main	3	100-Year	18.90	75.12	75.99	75.97	76.16	0.007477	2.45	12.65	28.57	0.88
Lake Ontario 31	Trib2a	48	100-Year	3.70	89.86	90.91		90.93	0.000733	0.75	6.92	10.45	0.24
Lake Ontario 31	Trib2a	42	100-Year	3.70	89.72	90.91		90.92	0.000395	0.63	8.68	12.00	0.19
Lake Ontario 31	Trib2a	5	100-Year	3.70	89.40	90.91		90.91	0.000080	0.35	17.14	21.08	0.09
Lake Ontario 31	Trib2b	303	100-Year	10.30	93.13	93.73	93.73	93.84	0.011535	2.09	9.63	39.97	0.89
Lake Ontario 31	Trib2b	237	100-Year	10.30	92.73	93.26		93.29	0.003069	0.92	14.32	35.53	0.44
Lake Ontario 31	Trib2b	170	100-Year	10.30	91.41	92.41	92.41	92.73	0.011262	2.71	4.97	8.64	0.93
Lake Ontario 31	Trib2b	120	100-Year	10.30	90.88	92.06	91.74	92.14	0.002877	1.33	10.29	19.59	0.42
Lake Ontario 31	Trib2b	66	100-Year	10.30	90.41	91.47	91.47	91.80	0.011420	2.69	4.51	7.57	0.93
Lake Ontario 31	Trib2b	6	100-Year	10.30	89.37	90.88		90.91	0.000724	0.89	16.09	24.88	0.25
Lake Ontario 31	Trib1	1056	100-Year	7.00	86.00	88.89		88.89	0.000040	0.22	82.17	92.45	0.04
Lake Ontario 31	Trib1	1045	100-Year	7.00	85.91	88.87	86.89	88.88	0.000119	0.52	13.95	81.23	0.11
Lake Ontario 31	Trib1	1033 LO31T-3		Culvert									
Lake Ontario 31	Trib1	1025	100-Year	7.00	85.70	86.48	86.48	86.82	0.017734	2.58	2.73	7.24	0.99
Lake Ontario 31	Trib1	1000	100-Year	7.00	84.92	86.32		86.37	0.001949	1.10	7.87	18.93	0.38
Lake Ontario 31	Trib1	993	100-Year	7.00	84.92	86.30	85.90	86.34	0.001705	0.97	7.21	48.05	0.35
Lake Ontario 31	Trib1	974 LO31T-2		Culvert									
Lake Ontario 31	Trib1	963	100-Year	7.00	84.37	85.46	85.07	85.52	0.002655	1.11	6.28	9.17	0.43
Lake Ontario 31	Trib1	943	100-Year	7.00	84.12	85.37		85.45	0.003083	1.33	5.42	8.28	0.47
Lake Ontario 31	Trib1	923	100-Year	7.00	84.12	85.26	85.00	85.38	0.004886	1.56	4.50	10.96	0.58
Lake Ontario 31	Trib1	893 LO31T-1		Culvert									
Lake Ontario 31	Trib1	865	100-Year	7.00	83.60	84.87	84.34	84.91	0.002178	0.84	8.38	11.86	0.31
Lake Ontario 31	Trib1	828	100-Year	7.00	83.60	84.64		84.75	0.004991	1.57	5.84	10.66	0.54
Lake Ontario 31	Trib1	792	100-Year	7.00	83.39	84.65		84.68	0.000785	0.80	12.46	14.79	0.23

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 31	Trib2	1000	100-Year	10.50	89.17	90.89		90.91	0.000401	0.71	22.05	28.18	0.19
Lake Ontario 31	Trib2	967	100-Year	10.50	88.45	90.76	89.58	90.85	0.007568	1.37	7.71		0.29
Lake Ontario 31	Trib2	925 LO31-5		Culvert									
Lake Ontario 31	Trib2	720	100-Year	15.80	83.43	86.56	84.65	86.84	0.018116	2.34	6.96		0.42
Lake Ontario 31	Trib2	718	100-Year	15.80	83.43	86.61	84.71	86.62	0.000077	0.48	64.31	68.34	0.09
Lake Ontario 31	Trib2	699 LO31-3		Culvert									
Lake Ontario 31	Trib2	675	100-Year	17.60	83.28	85.55		85.58	0.000312	0.76	28.13	22.47	0.18
Lake Ontario 31	Trib2	667	100-Year	17.60	83.28	85.52	84.33	85.57	0.000475	0.93	19.02	108.09	0.22
Lake Ontario 31	Trib2	629		Culvert									
Lake Ontario 31	Trib2	597	100-Year	17.60	83.08	85.00	84.34	85.12	0.001711	1.59	12.56	30.02	0.40
Lake Ontario 31	Trib2	581	100-Year	17.60	83.22	84.73	84.50	84.98	0.005247	2.48	10.16	20.74	0.69
Lake Ontario 31	Trib2	522	100-Year	17.60	83.15	84.47		84.66	0.006709	2.26	11.05	14.54	0.67
Lake Ontario 31	Main	1000	100-Year	17.30	83.11	84.44	84.19	84.66	0.006309	2.21	9.43	29.03	0.65
Lake Ontario 31	Main	952	100-Year	17.30	82.85	83.68	83.68	84.09	0.023140	2.92	6.52	34.89	1.13
Lake Ontario 31	Main	908	100-Year	17.30	81.99	83.34	83.34	83.54	0.009010	2.40	13.16	36.73	0.75
Lake Ontario 31	Main	861	100-Year	17.30	81.78	82.70	82.47	82.75	0.004090	1.38	19.56	38.12	0.49
Lake Ontario 31	Main	794	100-Year	21.00	81.07	82.61	82.24	82.63	0.000938	0.85	47.94	87.85	0.25
Lake Ontario 31	Main	765	100-Year	21.00	79.66	82.54	81.19	82.58	0.000651	1.03	38.67	96.85	0.21
Lake Ontario 31	Main	733 LO31-1		Culvert									
Lake Ontario 31	Main	687	100-Year	21.00	76.58	79.91	78.31	79.98	0.000736	1.22	17.30	18.92	0.24
Lake Ontario 31	Main	646	100-Year	21.00	75.90	79.13	79.13	79.65	0.021179	3.22	6.63	7.43	0.97
Lake Ontario 31	Main	616	100-Year	21.00	75.90	78.46	78.46	78.86	0.011694	3.10	9.33	12.40	0.75
Lake Ontario 31	Main	593	100-Year	21.00	75.21	76.85	76.85	77.35	0.009658	3.51	8.38	9.06	0.93
Lake Ontario 31	Main	563	100-Year	21.00	75.16	76.30	76.30	76.71	0.010703	3.06	8.98	12.33	0.95
Lake Ontario 31	Main	556	100-Year	21.00	74.86	75.66	75.66	75.93	0.017402	3.14	10.99	20.00	1.15
Lake Ontario 29	Main	1638	100-Year	5.70	106.25	106.94	106.94	107.15	0.015361	2.05	2.99	8.41	0.98
Lake Ontario 29	Main	1614	100-Year	5.70	106.00	106.48	106.48	106.63	0.017845	1.72	3.36	12.40	1.00
Lake Ontario 29	Main	1593 LO29-8		Culvert									
Lake Ontario 29	Main	1553	100-Year	5.70	103.41	104.25	104.25	104.47	0.016667	2.10	2.72	6.06	1.00
Lake Ontario 29	Main	1524	100-Year	5.70	102.57	103.30	103.30	103.30	0.000036	0.08	50.26	65.48	0.04
Lake Ontario 29	Main	1509	100-Year	5.70	102.41	102.73	102.73	102.73	0.000036	0.05	55.01	83.23	0.04
Lake Ontario 29	Main	1458	100-Year	5.70	101.20	101.26	101.26	101.26	0.000202	0.06	28.38	58.39	0.08
Lake Ontario 29	Main	1402	100-Year	5.70	99.92	100.13	100.05	100.15	0.003337	0.48	11.90	56.26	0.39
Lake Ontario 29	Main	1382	100-Year	5.70	99.98	100.13	100.13	100.13	0.000195	0.10	34.44	102.79	0.09
Lake Ontario 29	Main	1336	100-Year	5.70	99.00	99.18	99.18	99.18	0.000097	0.08	47.76	121.37	0.07
Lake Ontario 29	Main	1334	100-Year	5.70	98.92	99.12	99.12	99.12	0.000073	0.07	54.81	138.66	0.06
Lake Ontario 29	Main	1310 LO29-6		Culvert									
Lake Ontario 29	Main	1213	100-Year	5.70	93.86	94.56	94.37	94.63	0.004673	1.22	4.68	9.88	0.55
Lake Ontario 29	Main	1212	100-Year	5.70	93.86	94.37	94.37	94.55	0.017443	1.90	3.01	8.32	1.01
Lake Ontario 29	Main	1180	100-Year	5.70	93.27	94.04		94.09	0.002245	1.03	6.26	12.70	0.40
Lake Ontario 29	Main	1141	100-Year	5.70	92.92	94.05	93.49	94.05	0.000083	0.26	46.33	121.78	0.08
Lake Ontario 29	Main	1014 LO29-5		Culvert									
Lake Ontario 29	Main	932	100-Year	9.40	89.79	93.37	90.50	93.37	0.000001	0.07	350.16	325.78	0.01
Lake Ontario 29	Main	931	100-Year	9.40	89.56	93.37	90.13	93.37	0.000000	0.04	377.67	178.22	0.01
Lake Ontario 29	Main	912 LO29-4		Culvert									
Lake Ontario 29	Main	901	100-Year	9.40	88.77	91.42	89.52	91.42	0.000040	0.31	33.81	151.91	0.07
Lake Ontario 29	Main	891	100-Year	9.40	88.24	91.41	89.27	91.42	0.000054	0.39	24.68	114.94	0.08
Lake Ontario 29	Main	803 LO29-3		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Lake Ontario 29	Main	721	100-Year	9.40	86.63	87.44	87.44	87.66	0.016068	2.08	4.52	13.90	1.00
Lake Ontario 29	Main	700	100-Year	12.30	86.17	87.22	87.22	87.43	0.012639	2.13	6.40	16.57	0.91
Lake Ontario 29	Main	517 LO29-2		Culvert									
Lake Ontario 29	Main	176	100-Year	12.30	75.84	76.71	76.71	76.96	0.012791	2.88	6.60	13.11	1.00
Lake Ontario 29	Main	167	100-Year	12.30	74.35	74.85	74.85	75.04	0.018370	2.35	6.97	18.99	1.09
Beamsville	Trib2b1	798	100-Year	5.00	136.89	137.71	137.71	137.83	0.006244	1.84	5.15	30.18	0.72
Beamsville	Trib2b1	775	100-Year	5.00	130.86	131.58	131.58	131.91	0.015634	2.65	2.06	3.20	1.03
Beamsville	Trib2b1	754	100-Year	5.00	129.24	129.76	129.76	129.96	0.014518	2.08	2.67	7.15	1.03
Beamsville	Trib2b1	693	100-Year	5.00	117.17	117.84	117.84	118.01	0.022939	1.85	2.70	7.80	1.00
Beamsville	Trib2b1	634	100-Year	5.00	117.34	116.96	116.82	117.02	0.017388		4.80	13.50	0.00
Beamsville	Trib2b1	608	100-Year	5.00	116.78	116.44		116.51	0.022802		4.39	11.79	0.00
Beamsville	Trib2b1	592	100-Year	5.00	115.46	116.35		116.40	0.003021	1.08	5.86	11.02	0.41
Beamsville	Trib2b1	564	100-Year	5.00	115.28	116.01	116.01	116.23	0.014691	2.22	3.05	7.74	0.89
Beamsville	Trib2b1	533	100-Year	5.00	114.48	115.28	115.28	115.49	0.022068	2.01	2.48	6.00	1.00
Beamsville	Trib2b1	513	100-Year	5.00	113.30	114.15		114.27	0.008077	1.63	3.49	6.08	0.65
Beamsville	Trib2b1	473	100-Year	5.00	112.89	113.63	113.58	113.82	0.016360	1.93	2.59	5.21	0.87
Beamsville	Trib2b1	368	100-Year	5.00	111.96	112.66		112.82	0.013223	1.76	2.96	6.81	0.80
Beamsville	Trib2b1	323	100-Year	5.00	111.66	112.49		112.52	0.002598	1.06	8.46	19.58	0.39
Beamsville	Trib2b1	297	100-Year	5.00	111.44	112.12	112.10	112.36	0.020292	2.23	2.63	10.50	1.00
Beamsville	Trib2b1	228	100-Year	5.00	109.82	110.60	110.58	110.82	0.018285	2.14	2.52	5.70	0.95
Beamsville	Trib2b1	137	100-Year	5.00	108.64	109.53	109.46	109.69	0.014304	1.80	2.79	6.20	0.82
Beamsville	Trib2b1	71	100-Year	5.00	108.13	108.82	108.82	109.01	0.018751	2.21	3.35	9.33	0.97
Beamsville	Trib2b1	37	100-Year	5.00	107.66	108.32	108.25	108.48	0.011023	1.90	3.38	8.20	0.77
Beamsville	Trib2b1	34	100-Year	5.00	106.84	107.56	107.56	107.85	0.019783	2.41	2.14	3.98	0.98
Beamsville	Trib2b1	8	100-Year	5.00	106.37	106.97	106.97	107.16	0.020049	2.38	3.59	9.75	1.02
Beamsville	Trib2b2	1247	100-Year	4.70	139.81	140.70		140.78	0.006328	1.38	4.77	15.95	0.57
Beamsville	Trib2b2	1038	100-Year	4.70	137.95	138.70	138.68	138.89	0.023158	1.92	2.51	6.95	0.92
Beamsville	Trib2b2	980	100-Year	4.70	136.76	137.59	137.47	137.69	0.008203	1.50	3.60	8.94	0.64
Beamsville	Trib2b2	919	100-Year	4.70	136.37	136.82	136.82	136.94	0.021793	1.70	3.45	14.89	0.89
Beamsville	Trib2b2	895 KT2b-4		Culvert									
Beamsville	Trib2b2	877	100-Year	4.70	135.12	135.67	135.67	135.89	0.020972	2.09	2.25	7.95	1.00
Beamsville	Trib2b2	847	100-Year	4.70	131.34	132.04	132.04	132.26	0.020508	2.10	2.34	5.56	0.99
Beamsville	Trib2b2	806	100-Year	4.70	128.42	129.00	129.00	129.21	0.018469	2.09	2.53	6.60	0.96
Beamsville	Trib2b2	762	100-Year	4.70	119.33	120.00	120.00	120.20	0.021364	1.99	2.37	13.95	0.99
Beamsville	Trib2b2	683	100-Year	4.70	116.04	116.60	116.60	116.78	0.022993	1.91	2.46	6.73	1.01
Beamsville	Trib2b2	555	100-Year	4.70	113.79	114.60	114.44	114.70	0.006750	1.36	3.57	7.58	0.59
Beamsville	Trib2b2	466	100-Year	4.70	113.02	113.55	113.55	113.73	0.023117	1.89	2.49	6.99	1.01
Beamsville	Trib2b2	435	100-Year	4.70	112.30	113.05		113.10	0.003118	1.09	5.28	9.88	0.42
Beamsville	Trib2b2	384	100-Year	4.70	111.50	112.70	112.70	112.79	0.015450	1.70	4.85	24.46	0.75
Beamsville	Trib2b2	298	100-Year	4.70	110.00	111.29	111.29	111.40	0.011778	1.83	5.01	21.87	0.62
Beamsville	Trib2b2	265	100-Year	4.70	110.00	110.82	110.82	110.97	0.013307	1.93	3.79	18.20	0.80
Beamsville	Trib2b2	221	100-Year	4.70	109.50	110.26	110.22	110.30	0.015354	1.63	6.28	34.57	0.72
Beamsville	Trib2b2	184	100-Year	4.70	108.71	109.41	109.41	109.60	0.022134	1.96	2.40	6.07	1.00
Beamsville	Trib2b2	133	100-Year	4.70	107.98	108.42	108.42	108.51	0.015875	1.67	4.34	21.32	0.86
Beamsville	Trib2b2	88	100-Year	4.70	106.66	107.66	107.33	107.73	0.002156	1.22	4.40	9.33	0.43
Beamsville	Trib2b2	51 KT2b-3		Culvert									
Beamsville	Trib2b2	15	100-Year	4.70	106.12	107.10	106.71	107.16	0.002473	1.09	4.36	26.29	0.38
Beamsville	Trib2b2	10	100-Year	4.70	105.84	107.11	106.56	107.13	0.000828	0.76	10.02	24.23	0.23

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Beamsville	Trib1a	1091	100-Year	1.50	108.25	108.67	108.67	108.79	0.018602	1.64	1.12	5.10	0.90
Beamsville	Trib1a	1061	100-Year	1.50	106.58	107.06	107.06	107.21	0.025152	1.70	0.89	3.30	1.00
Beamsville	Trib1a	1027	100-Year	1.50	105.74	106.05	106.05	106.13	0.021611	1.53	1.35	8.29	0.94
Beamsville	Trib1a	992	100-Year	1.50	104.91	105.12	105.12	105.16	0.021857	1.14	2.00	19.42	0.88
Beamsville	Trib1a	963	100-Year	1.50	104.25	104.38	104.38	104.39	0.018699	0.60	3.40	54.82	0.70
Beamsville	Trib1a	939	100-Year	1.50	103.81	103.90	103.90	103.91	0.004657	0.26	4.65	36.21	0.34
Beamsville	Trib1a	915	100-Year	1.50	103.44	103.53	103.53	103.53	0.003009	0.20	7.07	60.17	0.27
Beamsville	Trib1a	895	100-Year	1.50	103.09	103.25	103.25	103.25	0.001095	0.16	8.43	48.90	0.17
Beamsville	Trib1a	868	100-Year	1.50	102.72	102.79		102.82	0.011133	0.37	2.36	18.85	0.51
Beamsville	Trib1a	848	100-Year	1.50	102.41	102.48		102.51	0.021501	0.51	1.78	10.95	0.71
Beamsville	Trib1a	826	100-Year	1.50	102.03	102.24		102.25	0.007029	0.54	3.48	24.47	0.47
Beamsville	Trib1a	812	100-Year	1.50	101.77	101.96	101.96	102.02	0.048623	1.32	1.45	13.09	1.23
Beamsville	Trib1a	796	100-Year	1.50	101.50	101.65	101.58	101.66	0.011188	0.54	2.72	20.57	0.56
Beamsville	Trib1a	769	100-Year	1.50	101.03	101.11	101.07	101.12	0.048657	0.72	2.65	29.53	1.06
Beamsville	Trib1a	720	100-Year	1.50	100.19	100.28		100.28	0.008840	0.38	6.99	105.23	0.47
Beamsville	Trib1a	663	100-Year	1.50	99.18	99.52	99.52	99.59	0.017328	1.49	2.23	20.32	0.86
Beamsville	Trib1a	642	100-Year	1.50	98.81	99.20	99.20	99.25	0.011000	1.27	2.96	33.13	0.70
Beamsville	Trib1a	590	100-Year	1.50	97.87	98.15	98.15	98.24	0.032669	1.56	1.92	20.00	1.10
Beamsville	Trib1a	580	100-Year	1.50	97.68	97.90	97.90	97.92	0.012416	0.90	2.73	28.51	0.67
Beamsville	Trib1a	537	100-Year	1.50	96.87	97.19	97.19	97.22	0.012945	1.16	2.70	36.38	0.72
Beamsville	Trib1a	491	100-Year	1.50	96.03	96.39	96.38	96.42	0.014440	0.97	2.58	32.80	0.72
Beamsville	Trib1a	402	100-Year	1.50	94.53	94.90	94.86	94.98	0.017940	1.54	1.48	10.82	0.88
Beamsville	Trib1a	334	100-Year	1.50	93.41	93.71	93.71	93.77	0.017504	1.19	1.52	10.36	0.82
Beamsville	Trib1a	253	100-Year	3.80	92.31	92.59	92.59	92.60	0.001271	0.29	11.04	39.76	0.21
Beamsville	Trib1a	193	100-Year	3.80	91.48	91.82	91.79	91.86	0.012827	1.19	5.77	47.82	0.73
Beamsville	Trib1a	149	100-Year	3.80	90.84	91.42		91.46	0.006788	1.40	6.87	49.81	0.60
Beamsville	Trib1a	114	100-Year	3.80	90.31	91.00	90.94	91.15	0.011616	2.01	2.80	7.79	0.80
Beamsville	Trib1a	60	100-Year	3.80	89.50	90.16	90.16	90.38	0.017355	2.36	2.11	4.95	0.96
Beamsville	Trib1a	25	100-Year	3.80	88.98	90.10		90.14	0.002038	0.90	4.47	9.95	0.33
Beamsville	Trib1a	1	100-Year	3.80	88.94	90.04		90.09	0.002222	1.02	4.77	13.14	0.34
Beamsville	Trib1b	1257	100-Year	1.40	108.00	108.28	108.28	108.39	0.014694	1.60	1.11	5.35	0.97
Beamsville	Trib1b	1226	100-Year	1.40	106.94	107.19	107.19	107.30	0.016198	1.57	1.10	5.53	1.01
Beamsville	Trib1b	1210	100-Year	1.40	106.46	106.69	106.69	106.78	0.016594	1.42	1.17	7.09	0.99
Beamsville	Trib1b	1194	100-Year	1.40	105.97	106.20	106.20	106.28	0.023912	1.34	1.40	9.85	0.95
Beamsville	Trib1b	1163	100-Year	1.40	105.46	105.69	105.69	105.76	0.027517	1.40	1.49	11.19	1.01
Beamsville	Trib1b	1155	100-Year	1.40	104.82	105.10	105.10	105.18	0.024761	1.36	1.35	9.70	0.96
Beamsville	Trib1b	1140	100-Year	1.40	104.47	104.66	104.65	104.73	0.027476	1.30	1.52	14.12	0.99
Beamsville	Trib1b	1109	100-Year	1.40	104.29	104.30		104.31	0.007577	0.09	4.01	33.35	0.31
Beamsville	Trib1b	1099	100-Year	1.40	104.06	104.15		104.17	0.033003	0.80	2.40	34.71	0.94
Beamsville	Trib1b	1066	100-Year	1.40	103.24	103.50	103.46	103.55	0.011774	0.98	1.64	10.94	0.67
Beamsville	Trib1b	972	100-Year	1.40	102.47	102.69	102.67	102.72	0.014929	1.00	2.79	42.44	0.74
Beamsville	Trib1b	927	100-Year	1.40	101.94	102.05		102.06	0.014112	0.61	3.24	48.02	0.70
Beamsville	Trib1b	901	100-Year	1.40	101.00	101.23	101.23	101.27	0.017093	1.28	2.36	27.00	0.91
Beamsville	Trib1b	842	100-Year	1.40	99.89	100.22	100.22	100.26	0.008522	1.35	2.39	23.41	0.76
Beamsville	Trib1b	809	100-Year	1.40	99.53	99.64	99.64	99.68	0.030406	1.23	1.67	22.70	1.20
Beamsville	Trib1b	790	100-Year	1.40	99.28	99.34		99.35	0.009800	0.45	3.12	36.64	0.61
Beamsville	Trib1b	771	100-Year	1.40	99.06	99.16		99.17	0.009309	0.63	3.28	39.04	0.65
Beamsville	Trib1b	743	100-Year	1.40	98.72	98.88		98.90	0.009955	0.93	2.50	23.18	0.74

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Beamsville	Trib1b	724	100-Year	1.40	98.48	98.64	98.64	98.67	0.015155	1.05	2.32	35.69	0.89
Beamsville	Trib1b	609	100-Year	1.40	97.50	97.67	97.67	97.67	0.000922	0.16	8.26	67.90	0.19
Beamsville	Trib1b	605	100-Year	1.40	96.59	96.74	96.72	96.76	0.020770	0.78	2.66	53.34	0.93
Beamsville	Trib1b	566	100-Year	1.40	95.97	96.10		96.11	0.013461	0.56	2.76	41.93	0.72
Beamsville	Trib1b	535	100-Year	1.40	95.47	95.65	95.65	95.66	0.015473	0.64	3.25	56.22	0.67
Beamsville	Trib1b	450	100-Year	1.40	94.14	94.45	94.43	94.50	0.012314	0.99	1.77	14.93	0.68
Beamsville	Trib1b	396	100-Year	1.40	93.77	93.85	93.85	93.90	0.044098	0.77	1.38	11.61	1.03
Beamsville	Trib1b	383	100-Year	1.40	93.59	93.72		93.72	0.000963	0.16	4.55	13.48	0.17
Beamsville	Trib1b	376	100-Year	1.40	93.50	93.64	93.64	93.70	0.040620	1.08	1.32	9.54	1.09
Beamsville	Trib1b	364	100-Year	1.40	93.31	93.34		93.35	0.001688	0.08	3.79	12.77	0.17
Beamsville	Trib1b	352	100-Year	1.40	93.12	93.33		93.33	0.001503	0.25	4.61	18.24	0.22
Beamsville	Trib1b	334	100-Year	1.40	92.88	93.24	93.18	93.27	0.007897	0.92	2.10	13.92	0.57
Beamsville	Trib1b	325	100-Year	1.40	92.79	93.06	93.05	93.15	0.026682	1.42	1.12	6.27	1.00
Beamsville	Trib1b	266	100-Year	1.40	91.96	92.36	92.30	92.41	0.007214	1.07	1.69	10.37	0.63
Beamsville	Trib1b	224	100-Year	1.40	91.75	92.09		92.14	0.007594	1.19	2.08	11.82	0.66
Beamsville	Trib1b	209	100-Year	1.40	91.61	92.00	91.90	92.05	0.004363	0.99	1.48	8.42	0.55
Beamsville	Trib1b	207		Inl Struct									
Beamsville	Trib1b	203	100-Year	1.40	90.76	91.39		91.41	0.001694	0.68	2.11	6.26	0.35
Beamsville	Trib1b	202	100-Year	1.40	90.87	91.34		91.38	0.003151	1.00	2.18	9.06	0.49
Beamsville	Trib1b	179	100-Year	1.40	90.97	91.18	91.17	91.24	0.013919	1.10	1.34	9.86	0.87
Beamsville	Trib1b	121	100-Year	1.40	90.50	90.80		90.85	0.009286	1.32	1.61	8.87	0.78
Beamsville	Trib1b	77	100-Year	1.40	89.90	90.18	90.18	90.29	0.018321	1.47	0.95	4.59	1.03
Beamsville	Trib1b	48	100-Year	1.40	89.44	90.08		90.10	0.000843	0.66	3.80	14.39	0.27
Beamsville	Trib1b	15	100-Year	1.40	88.89	90.08		90.08	0.000142	0.28	5.38	11.19	0.10
Beamsville	Trib2a	1545	100-Year	3.40	108.35	108.87		109.00	0.019858	1.88	2.31	6.61	0.88
Beamsville	Trib2a	1516	100-Year	3.40	107.66	108.20	108.20	108.42	0.024946	2.14	1.71	4.11	0.97
Beamsville	Trib2a	1502	100-Year	3.40	107.24	107.87	107.87	108.05	0.017542	2.09	2.30	7.47	0.86
Beamsville	Trib2a	1474	100-Year	3.40	106.41	106.87	106.87	107.03	0.025846	1.89	2.23	8.09	0.93
Beamsville	Trib2a	1447	100-Year	3.40	105.91	106.01	106.01	106.08	0.041028	1.05	2.88	24.74	1.29
Beamsville	Trib2a	1432	100-Year	3.40	105.11	105.65		105.67	0.002243	0.86	6.51	24.06	0.41
Beamsville	Trib2a	1426	100-Year	3.40	105.09	105.55	105.55	105.64	0.008843	1.52	3.38	21.11	0.79
Beamsville	Trib2a	1422	100-Year	3.40	104.47	104.81	104.81	104.90	0.010291	1.49	3.40	22.48	0.84
Beamsville	Trib2a	1418	100-Year	3.40	104.51	104.74	104.74	104.79	0.034487	1.44	3.30	28.96	1.29
Beamsville	Trib2a	1404	100-Year	3.40	104.34	104.54		104.56	0.006403	0.84	5.71	33.82	0.61
Beamsville	Trib2a	1349	100-Year	3.40	103.91	103.96		103.97	0.019763	0.28	7.33	55.42	0.59
Beamsville	Trib2a	1302	100-Year	3.40	102.36	102.87	102.87	103.02	0.016757	1.77	2.35	9.23	0.89
Beamsville	Trib2a	1227	100-Year	3.40	101.69	102.25	102.17	102.29	0.006475	1.03	4.24	17.09	0.54
Beamsville	Trib2a	1094	100-Year	3.40	99.97	100.19	100.19	100.33	0.057540	1.84	2.27	21.87	1.42
Beamsville	Trib2a	1069	100-Year	3.40	99.75	99.88	99.88	99.89	0.001712	0.27	10.20	48.52	0.24
Beamsville	Trib2a	1049	100-Year	3.40	99.50	99.62	99.62	99.62	0.000219	0.09	23.92	96.76	0.08
Beamsville	Trib2a	997	100-Year	3.40	98.87	99.21	99.21	99.27	0.017312	1.57	3.74	25.71	0.87
Beamsville	Trib2a	955	100-Year	3.40	98.38	98.82	98.82	98.83	0.000919	0.40	11.59	42.85	0.21
Beamsville	Trib2a	833	100-Year	3.40	96.89	97.37	97.37	97.46	0.018920	1.83	2.92	15.31	0.94
Beamsville	Trib2a	798	100-Year	3.40	96.44	96.89	96.89	96.92	0.008553	1.08	5.71	49.58	0.61
Beamsville	Trib2a	743	100-Year	3.40	96.03	96.45	96.33	96.46	0.002421	0.54	9.74	55.90	0.32
Beamsville	Trib2a	711	100-Year	3.90	96.28	96.16	96.16	96.22	0.052818		3.72	40.07	0.00
Beamsville	Trib2a	692	100-Year	3.90	95.65	96.06	95.96	96.06	0.000052	0.10	44.40	112.23	0.05
Beamsville	Trib2a	682 KT2a-2		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Beamsville	Trib2a	673	100-Year	3.90	94.77	95.70	95.65	95.82	0.013907	1.54	2.53	11.00	0.86
Beamsville	Trib2a	607	100-Year	3.90	94.43	94.79	94.76	94.85	0.011310	1.28	4.06	25.64	0.78
Beamsville	Trib2a	561	100-Year	3.90	93.89	94.22	94.20	94.31	0.014906	1.36	3.38	21.01	0.88
Beamsville	Trib2a	467	100-Year	3.90	92.46	93.07	93.06	93.17	0.009561	1.56	3.75	22.62	0.77
Beamsville	Trib2a	384	100-Year	3.90	91.83	92.32	92.32	92.40	0.012758	1.42	3.84	29.75	0.83
Beamsville	Trib2a	342	100-Year	3.90	90.95	91.70		91.80	0.005184	1.51	3.10	6.72	0.60
Beamsville	Trib2a	284	100-Year	3.90	90.83	91.36	91.36	91.42	0.006791	1.45	6.17	59.36	0.66
Beamsville	Trib2a	259	100-Year	3.90	90.37	90.83		90.87	0.004861	1.17	4.97	16.60	0.56
Beamsville	Trib2a	210	100-Year	3.90	90.12	90.65		90.67	0.003268	0.78	9.32	48.88	0.39
Beamsville	Trib2a	107	100-Year	3.90	89.31	89.83	89.83	90.01	0.018970	1.99	2.29	6.92	0.96
Beamsville	Trib2a	58	100-Year	4.80	87.96	89.81		89.84	0.000401	0.76	8.60	13.24	0.19
Beamsville	Trib2a	48	100-Year	4.80	87.85	89.81	88.70	89.82	0.000479	0.55	8.67	10.76	0.16
Beamsville	Trib2a	40 KT2a-1		Culvert									
Beamsville	Trib2a	33	100-Year	4.80	87.52	89.75	88.55	89.76	0.000104	0.37	12.96	59.97	0.10
Beamsville	Trib2a	15	100-Year	4.80	87.94	89.75		89.76	0.000052	0.26	34.80	80.66	0.06
Beamsville	Trib2b	1748	100-Year	10.20	105.42	106.98	106.62	107.11	0.004155	1.78	9.41	24.66	0.49
Beamsville	Trib2b	1639	100-Year	10.20	105.99	106.69	106.51	106.70	0.002139	0.74	20.09	63.03	0.33
Beamsville	Trib2b	1585	100-Year	10.20	106.29	106.34	106.34	106.42	0.127585	0.97	8.17	49.58	1.93
Beamsville	Trib2b	1523	100-Year	10.20	103.60	105.60	104.78	105.68	0.001350	1.29	8.53	7.32	0.33
Beamsville	Trib2b	1512 KT2b-2		Culvert									
Beamsville	Trib2b	1502	100-Year	10.20	103.52	104.64	104.64	105.09	0.019847	2.98	3.42	4.01	1.00
Beamsville	Trib2b	1458	100-Year	10.20	102.97	103.84	103.78	103.96	0.005108	1.63	8.33	24.90	0.66
Beamsville	Trib2b	1351	100-Year	10.20	102.38	103.07	103.07	103.25	0.013734	2.09	8.03	27.40	0.86
Beamsville	Trib2b	1157	100-Year	10.20	99.09	99.84	99.60	99.89	0.002607	1.23	11.37	20.87	0.48
Beamsville	Trib2b	1029	100-Year	11.30	98.12	99.02	99.02	99.31	0.011933	2.43	4.75	8.46	0.99
Beamsville	Trib2b	839	100-Year	11.30	96.31	97.43		97.57	0.005350	1.76	7.79	12.58	0.57
Beamsville	Trib2b	703	100-Year	11.30	95.47	96.40	96.29	96.59	0.010165	1.97	6.05	11.39	0.75
Beamsville	Trib2b	524	100-Year	11.30	92.91	94.00	94.00	94.30	0.019604	2.46	4.60	7.41	1.00
Beamsville	Trib2b	402	100-Year	11.30	90.22	91.24	91.24	91.57	0.016660	2.58	4.64	7.60	0.96
Beamsville	Trib2b	227	100-Year	11.30	88.89	91.08		91.11	0.000454	0.80	18.14	15.39	0.18
Beamsville	Trib2b	161	100-Year	13.30	88.72	91.03	89.88	91.07	0.000668	1.06	20.87	33.24	0.23
Beamsville	Trib2b	100	100-Year	13.30	89.93	90.66	90.66	90.86	0.012236	2.43	8.01	33.83	1.01
Beamsville	Trib2b	79 KT2b-1		Culvert									
Beamsville	Trib2b	27	100-Year	13.30	87.26	89.74	88.29	89.76	0.000147	0.58	22.92	30.07	0.13
Beamsville	Trib2b	18	100-Year	13.30	87.26	89.74		89.76	0.000115	0.51	33.18	31.67	0.12
Beamsville	Trib1	1399	100-Year	5.50	88.91	90.06		90.08	0.001413	0.95	8.77	20.55	0.30
Beamsville	Trib1	1398	100-Year	5.50	88.57	89.89	89.51	90.02	0.006636	1.57	3.49	4.09	0.54
Beamsville	Trib1	1388 KT1-4		Culvert									
Beamsville	Trib1	1376	100-Year	5.50	88.46	89.55	89.41	89.66	0.009671	1.42	3.88	39.22	0.67
Beamsville	Trib1	1367	100-Year	5.50	88.62	89.40		89.45	0.009917	1.56	8.05	57.71	0.69
Beamsville	Trib1	1347	100-Year	5.50	88.91	89.19		89.20	0.004798	0.63	9.79	45.35	0.43
Beamsville	Trib1	1291	100-Year	5.50	88.22	88.77		88.83	0.007837	1.33	5.63	19.90	0.62
Beamsville	Trib1	1255	100-Year	5.50	87.80	88.57	88.39	88.63	0.004219	1.06	6.05	17.61	0.46
Beamsville	Trib1	1162	100-Year	5.50	87.44	88.04	88.04	88.14	0.013206	1.66	5.47	25.51	0.79
Beamsville	Trib1	1091	100-Year	5.50	86.95	87.95		87.96	0.000760	0.59	21.83	43.53	0.21
Beamsville	Trib1	1044	100-Year	5.50	86.34	87.95		87.95	0.000115	0.33	50.98	64.78	0.09
Beamsville	Trib1	1025	100-Year	5.50	85.82	87.94	86.69	87.94	0.000177	0.43	13.56	82.37	0.11
Beamsville	Trib1	1013 KT1-3		Culvert									

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Beamsville	Trib1	1005	100-Year	5.50	85.46	86.46	86.14	86.54	0.004528	1.25	4.41	6.42	0.48
Beamsville	Trib1	994	100-Year	5.50	85.47	86.36		86.40	0.002583	1.04	9.29	51.26	0.38
Beamsville	Trib1	963	100-Year	5.50	85.45	86.17	86.06	86.26	0.008403	1.36	5.17	40.86	0.64
Beamsville	Trib1	917	100-Year	5.50	85.22	86.05		86.09	0.002854	1.04	8.90	38.74	0.40
Beamsville	Trib1	854	100-Year	5.50	84.74	85.50	85.50	85.71	0.016839	2.15	3.11	9.88	0.92
Beamsville	Trib1	822	100-Year	5.50	84.46	85.23	85.09	85.32	0.006018	1.45	5.15	21.17	0.57
Beamsville	Trib1	794	100-Year	5.50	84.25	85.11		85.16	0.003378	1.14	7.20	26.58	0.43
Beamsville	Trib1	736	100-Year	5.50	83.85	84.71	84.60	84.85	0.009390	1.81	3.99	14.74	0.71
Beamsville	Trib1	659	100-Year	5.50	83.40	84.15	84.13	84.23	0.006638	1.41	6.60	36.46	0.59
Beamsville	Trib1	591	100-Year	5.50	83.16	83.83	83.83	83.89	0.006981	1.33	7.60	52.21	0.59
Beamsville	Trib1	566	100-Year	5.50	82.99	83.73		83.76	0.003783	1.01	9.40	45.37	0.44
Beamsville	Trib1	505	100-Year	5.50	82.39	83.52		83.58	0.002335	1.11	6.15	11.81	0.37
Beamsville	Trib1	480	100-Year	5.50	81.61	83.50	82.57	83.53	0.000615	0.71	7.99	25.63	0.20
Beamsville	Trib1	472 KT1-2		Culvert									
Beamsville	Trib1	464	100-Year	5.50	81.37	82.94	82.33	82.97	0.001054	0.78	7.06	13.12	0.25
Beamsville	Trib1	462	100-Year	5.50	81.37	82.93		82.96	0.001560	0.88	10.44	23.61	0.29
Beamsville	Trib1	404	100-Year	5.50	81.81	82.80	82.46	82.85	0.002794	1.11	7.09	13.20	0.40
Beamsville	Trib1	353	100-Year	5.50	81.98	82.40	82.40	82.53	0.021800	1.83	3.81	14.85	0.99
Beamsville	Trib1	281	100-Year	6.20	79.69	82.17		82.17	0.000048	0.23	40.08	52.89	0.06
Beamsville	Trib1	271	100-Year	6.20	79.73	82.16	80.60	82.17	0.000091	0.34	18.20	65.66	0.08
Beamsville	Trib1	207 KT1-1		Culvert									
Beamsville	Trib1	143	100-Year	6.20	78.74	80.23	79.69	80.28	0.001807	0.95	6.52	13.70	0.32
Beamsville	Trib1	117	100-Year	6.20	78.99	80.03	79.89	80.16	0.007051	1.71	4.73	13.86	0.63
Beamsville	Trib1	83	100-Year	6.20	78.94	79.68	79.63	79.77	0.007705	1.39	6.16	36.49	0.62
Beamsville	Trib1	42	100-Year	6.20	78.75	79.68		79.69	0.000972	0.68	17.27	73.92	0.24
Beamsville	Trib1	11	100-Year	6.20	78.43	79.67		79.67	0.000297	0.41	30.64	116.41	0.13
Beamsville	Trib2	1227	100-Year	18.00	87.72	89.74		89.75	0.000347	0.70	58.27	162.48	0.16
Beamsville	Trib2	1159	100-Year	18.00	86.84	89.74		89.74	0.000100	0.45	92.07	185.53	0.09
Beamsville	Trib2	1094	100-Year	18.80	86.66	89.74		89.74	0.000008	0.16	281.75	243.78	0.03
Beamsville	Trib2	1043	100-Year	18.80	86.89	89.71	87.77	89.73	0.000181	0.63	29.88	257.44	0.13
Beamsville	Trib2	1029 KT2-2		Culvert									
Beamsville	Trib2	1021	100-Year	18.80	87.14	88.26	88.26	88.70	0.010653	3.07	6.67	110.82	1.01
Beamsville	Trib2	970	100-Year	18.80	85.78	86.87	86.74	87.07	0.007857	2.13	12.61	31.54	0.70
Beamsville	Trib2	813	100-Year	18.80	84.17	85.30	85.30	85.62	0.013103	2.57	8.46	16.22	0.88
Beamsville	Trib2	624	100-Year	18.80	82.29	84.59		84.65	0.000837	1.17	30.04	45.35	0.26
Beamsville	Trib2	554	100-Year	18.80	81.40	84.61		84.62	0.000052	0.36	120.10	97.85	0.07
Beamsville	Trib2	436	100-Year	22.00	80.94	84.61	82.14	84.61	0.000038	0.34	117.82	66.22	0.06
Beamsville	Trib2	320	100-Year	22.00	79.71	84.58	81.11	84.60	0.000061	0.62	35.80	134.43	0.09
Beamsville	Trib2	243 KT2-1		Culvert									
Beamsville	Trib2	177	100-Year	22.00	79.11	80.85	80.58	81.24	0.008632	2.77	7.98	22.49	0.73
Beamsville	Trib2	141	100-Year	22.00	79.41	80.54	80.54	80.85	0.013475	3.01	11.43	20.00	0.93
Beamsville	Trib2	84	100-Year	22.00	78.97	79.99		80.12	0.007009	2.02	19.41	52.10	0.66
Beamsville	Trib2	41	100-Year	22.00	78.57	79.88		79.92	0.002445	1.38	34.21	75.48	0.40
Beamsville	Trib2	19	100-Year	22.00	78.38	79.58	79.58	79.81	0.010698	2.69	14.06	50.49	0.83
Beamsville	Main	600	100-Year	29.60	77.83	79.57		79.66	0.003140	1.66	35.25	93.62	0.46
Beamsville	Main	551	100-Year	29.60	77.56	79.18	79.18	79.39	0.006270	2.53	23.73	65.62	0.67
Beamsville	Main	483	100-Year	29.60	77.27	78.74		78.88	0.005135	2.11	22.84	42.55	0.59
Beamsville	Main	442	100-Year	29.60	76.91	78.59	78.59	78.75	0.004637	2.25	27.01	72.56	0.58

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Beamsville	Main	429	100-Year	29.60	76.72	78.60		78.64	0.001408	1.35	53.03	131.93	0.32
Beamsville	Main	408	100-Year	29.60	76.39	78.58	77.94	78.61	0.000974	1.10	53.06	106.42	0.26
Beamsville	Main	401 K-1		Culvert									
Beamsville	Main	395	100-Year	29.60	76.15	78.17	77.85	78.46	0.007002	2.38	12.47	21.59	0.66
Beamsville	Main	370	100-Year	29.60	76.30	78.03	77.86	78.26	0.005339	2.45	28.99	72.03	0.62
Beamsville	Main	260	100-Year	29.60	75.91	77.39		77.60	0.006992	2.23	20.95	35.07	0.67
Beamsville	Main	118	100-Year	29.60	74.88	76.59	76.49	76.78	0.004949	2.29	22.96	46.47	0.59
Beamsville	Main	67	100-Year	29.60	74.93	76.40		76.53	0.003046	1.68	24.42	49.94	0.46
Beamsville	Main	16	100-Year	29.60	74.91	76.26	76.01	76.34	0.003859	1.80	31.82	57.96	0.51
Bartlett	Trib1c	1117	100-Year	8.00	127.47	127.99	127.99	128.15	0.012808	2.11	5.25	16.32	0.99
Bartlett	Trib1c	1093	100-Year	8.00	126.23	127.11		127.20	0.006143	1.47	7.26	13.87	0.53
Bartlett	Trib1c	1068	100-Year	8.00	125.72	127.02	126.94	127.08	0.002515	1.33	10.98	36.04	0.44
Bartlett	Trib1c	1055 BT1-4		Culvert									
Bartlett	Trib1c	1035	100-Year	8.00	124.76	125.96	125.96	126.32	0.015087	2.65	3.03	11.33	0.99
Bartlett	Trib1c	1012	100-Year	8.00	124.95	125.72	125.72	125.95	0.010056	2.36	4.83	12.82	0.93
Bartlett	Trib1c	922	100-Year	8.00	123.95	124.76		124.78	0.001677	0.95	14.11	33.74	0.35
Bartlett	Trib1c	886	100-Year	9.60	123.91	124.51	124.51	124.69	0.010281	2.13	6.77	20.09	0.91
Bartlett	Trib1c	854	100-Year	9.60	122.49	124.10	123.91	124.14	0.003449	1.17	27.93	101.08	0.40
Bartlett	Trib1c	816 BT1-3		Culvert									
Bartlett	Trib1c	733	100-Year	9.60	119.63	120.44	120.44	120.75	0.018867	2.46	3.91	26.39	1.00
Bartlett	Trib1c	713	100-Year	9.60	119.29	119.90	119.90	119.99	0.018848	1.92	9.31	37.55	0.94
Bartlett	Trib1c	553	100-Year	11.50	114.21	115.08	115.08	115.21	0.011581	1.95	9.72	35.52	0.79
Bartlett	Trib1c	453	100-Year	11.50	111.41	112.41	112.41	112.62	0.012656	2.13	6.79	19.16	0.76
Bartlett	Trib1c	285	100-Year	11.50	108.41	109.10	109.10	109.26	0.017419	2.37	7.81	22.13	0.97
Bartlett	Trib1c	216	100-Year	11.50	106.46	107.50	107.50	107.76	0.010967	2.48	7.35	18.04	0.82
Bartlett	Trib1c	191	100-Year	11.50	105.52	107.20	106.98	107.41	0.006942	2.08	6.15	11.60	0.68
Bartlett	Trib1c	186	100-Year	11.50	104.50	107.29		107.35	0.001905	1.19	14.95	40.22	0.33
Bartlett	Trib1c	185	100-Year	11.50	104.50	107.31	107.17	107.33	0.002911	0.74	21.61	75.49	0.11
Bartlett	Trib1c	175	100-Year	11.50	104.00	107.30	106.96	107.30	0.000409	0.34	44.60	101.02	0.05
Bartlett	Trib1c	148	100-Year	11.50	103.00	107.08	107.08	107.25	0.025061	2.25	6.60	17.70	0.29
Bartlett	Trib2	1927	100-Year	4.50	132.27	132.71	132.71	132.85	0.021402	1.78	3.07	11.71	0.89
Bartlett	Trib2	1889	100-Year	4.50	127.61	128.06	128.06	128.22	0.029483	1.82	2.48	7.66	1.01
Bartlett	Trib2	1815	100-Year	4.50	122.71	123.27	123.23	123.37	0.013622	1.55	4.33	27.80	0.73
Bartlett	Trib2	1733	100-Year	4.50	121.36	121.84	121.84	121.95	0.024950	1.78	3.63	16.23	0.93
Bartlett	Trib2	1655	100-Year	4.50	119.31	119.94	119.94	120.14	0.015140	2.04	2.33	6.25	0.97
Bartlett	Trib2	1570	100-Year	4.50	117.93	118.42	118.42	118.57	0.014461	1.80	2.78	9.54	0.93
Bartlett	Trib2	1484	100-Year	4.50	116.15	116.85	116.78	117.01	0.010383	1.85	3.51	17.90	0.75
Bartlett	Trib2	1370	100-Year	4.50	114.50	115.15	115.15	115.28	0.021313	1.65	3.16	15.94	0.87
Bartlett	Trib2	1282	100-Year	4.50	112.63	113.34	113.26	113.48	0.013760	1.69	2.91	7.12	0.74
Bartlett	Trib2	1196	100-Year	4.50	111.13	111.75	111.75	111.95	0.023558	2.03	2.33	6.36	0.95
Bartlett	Trib2	1068	100-Year	5.50	109.45	110.18	110.11	110.29	0.008577	1.53	4.38	14.32	0.66
Bartlett	Trib2	993	100-Year	5.50	108.67	109.21	109.21	109.38	0.018206	1.94	3.52	14.94	0.94
Bartlett	Trib2	853	100-Year	5.50	107.17	107.57		107.59	0.006643	0.85	8.53	37.47	0.52
Bartlett	Trib2	779	100-Year	5.50	106.13	106.83	106.75	106.96	0.011100	1.64	3.71	13.75	0.74
Bartlett	Trib2	707	100-Year	7.00	105.66	106.61	106.33	106.65	0.002253	1.02	10.84	22.06	0.36
Bartlett	Trib2	681	100-Year	7.00	104.82	106.59	105.69	106.62	0.000805	0.88	8.66	38.63	0.23
Bartlett	Trib2	660 B-9		Culvert									
Bartlett	Trib2	595	100-Year	7.00	104.52	105.40	105.37	105.69	0.016035	2.39	3.02	5.37	0.90

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Bartlett	Trib2	506	100-Year	7.00	103.32	103.95	103.91	104.10	0.020237	1.70	4.16	11.09	0.86
Bartlett	Trib2	434	100-Year	7.00	101.79	102.71		102.83	0.006907	1.57	5.00	13.56	0.61
Bartlett	Trib2	364	100-Year	7.00	101.25	102.06	102.06	102.25	0.012574	2.07	4.39	16.64	0.82
Bartlett	Trib2	323	100-Year	7.00	100.88	101.48	101.48	101.59	0.013462	1.82	6.83	30.66	0.82
Bartlett	Trib2	261	100-Year	7.00	99.77	100.33	100.33	100.43	0.012524	1.73	6.88	30.79	0.79
Bartlett	Trib2	175	100-Year	7.00	98.69	99.69		99.76	0.004205	1.18	6.18	11.83	0.47
Bartlett	Trib2	106	100-Year	14.70	97.95	99.24	98.98	99.38	0.006110	1.89	13.29	31.32	0.56
Bartlett	Trib2	89	100-Year	14.70	97.70	98.58	98.58	98.97	0.018623	2.93	5.63	13.53	1.05
Bartlett	Trib2	74 B-8		Culvert									
Bartlett	Trib2	58	100-Year	14.70	97.04	98.16	98.14	98.56	0.014846	2.89	5.73	11.00	0.95
Bartlett	Trib2	41	100-Year	14.70	96.94	97.86	97.86	98.15	0.020471	2.71	7.82	14.66	0.97
Bartlett	Trib2	22	100-Year	14.70	96.39	97.68		97.71	0.001464	1.09	23.95	31.46	0.31
Bartlett	Trib1a	397	100-Year	6.40	112.20	113.04	113.04	113.32	0.016914	2.38	2.90	5.78	0.94
Bartlett	Trib1a	376	100-Year	6.40	111.40	112.37	112.35	112.65	0.016026	2.41	2.87	5.15	0.92
Bartlett	Trib1a	353	100-Year	6.40	110.51	112.32	111.57	112.40	0.002214	1.31	5.07	8.05	0.35
Bartlett	Trib1a	319 BT1a-1		Culvert									
Bartlett	Trib1a	283	100-Year	6.40	108.81	109.65	109.65	110.02	0.017829	2.70	2.37	10.19	1.00
Bartlett	Trib1a	260	100-Year	6.40	108.34	109.52	109.01	109.55	0.001029	0.78	9.64	13.28	0.25
Bartlett	Trib1a	242	100-Year	6.40	107.29	109.50	108.50	109.53	0.000800	0.82	11.63	23.85	0.20
Bartlett	Trib1a	238	100-Year	6.40	107.30	109.42	109.42	109.52	0.020926	1.69	5.26	24.23	0.30
Bartlett	Trib1a	160	100-Year	6.40	103.50	107.16	107.16	107.21	0.018623	1.57	7.77	61.11	0.17
Bartlett	Trib1b	924	100-Year	0.80	112.97	113.16	113.16	113.21	0.018176	1.05	0.88	7.75	0.95
Bartlett	Trib1b	908.26	100-Year	0.80	111.90	112.52	112.41	112.58	0.010320	1.14	0.72	2.67	0.62
Bartlett	Trib1b	872	100-Year	0.80	111.90	112.11	112.11	112.16	0.022947	1.07	0.91	6.97	0.81
Bartlett	Trib1b	860	100-Year	0.80	110.83	111.17	111.17	111.30	0.028738	1.59	0.50	2.00	1.01
Bartlett	Trib1b	855.59	100-Year	0.80	110.00	110.40	110.40	110.60	0.029763	1.98	0.40	1.00	1.00
Bartlett	Trib1b	819	100-Year	0.80	103.50	107.69	103.90	107.69	0.000008	0.04	18.93	32.05	0.01
Bartlett	Trib1	656	100-Year	21.30	103.00	106.94	106.94	106.99	0.014108	1.76	26.90	183.61	0.16
Bartlett	Trib1	478	100-Year	21.30	100.00	103.22	103.22	103.29	0.014397	1.74	23.01	145.39	0.20
Bartlett	Trib1	474.42	100-Year	21.30	100.75	102.13	102.13	102.53	0.008757	3.11	8.94	11.89	0.93
Bartlett	Trib1	400	100-Year	21.30	99.00	101.83	101.44	101.85	0.001858	0.81	30.94	47.97	0.13
Bartlett	Trib1	242	100-Year	21.30	98.00	101.16	101.16	101.22	0.013696	1.76	26.72	178.68	0.18
Bartlett	Trib1	236	100-Year	21.30	97.90	99.75		99.96	0.004648	2.27	12.77	19.57	0.65
Bartlett	Trib1	227.62	100-Year	21.30	97.90	99.81		99.90	0.002960	1.58	21.00	33.17	0.40
Bartlett	Trib1	193	100-Year	21.30	97.90	99.36	99.33	99.70	0.013463	2.84	12.47	22.78	0.83
Bartlett	Trib1	159.56	100-Year	21.30	97.89	99.22	98.82	99.31	0.003175	1.67	22.18	34.25	0.47
Bartlett	Trib1	135 BT1-1		Culvert									
Bartlett	Trib1	117.6	100-Year	21.30	96.36	98.35	98.24	98.88	0.010530	3.21	6.64	16.58	0.88
Bartlett	Trib1	56.34	100-Year	21.30	96.41	97.58	97.58	97.92	0.017244	2.97	10.59	16.43	0.93
Bartlett	Trib1	14	100-Year	21.30	95.87	97.61		97.62	0.000554	0.82	44.43	44.48	0.20
Bartlett	Main	3633	100-Year	35.20	95.91	97.21	97.21	97.56	0.016312	3.23	16.97	23.61	0.93
Bartlett	Main	3559	100-Year	35.20	95.45	96.98		97.04	0.002262	1.52	33.84	32.70	0.40
Bartlett	Main	3502	100-Year	35.20	94.96	96.75		96.89	0.002913	2.14	29.62	37.35	0.53
Bartlett	Main	3465	100-Year	35.20	94.84	96.77	95.91	96.79	0.000981	1.04	93.10	95.10	0.24
Bartlett	Main	3436	100-Year	35.20	95.09	95.93	95.55	96.63	0.060316	4.65	13.21	34.26	1.67
Bartlett	Main	3433		Inl Struct									
Bartlett	Main	3430	100-Year	35.20	94.19	95.93	95.83	96.00	0.003388	1.95	61.77	123.98	0.50
Bartlett	Main	3386	100-Year	35.20	93.84	95.31	95.29	95.63	0.007735	3.30	19.47	29.15	0.91

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Bartlett	Main	3296	100-Year	35.20	93.40	94.99	94.79	95.28	0.004580	2.65	20.08	32.28	0.71
Bartlett	Main	3243	100-Year	35.20	92.55	94.85	94.45	94.98	0.002265	1.74	30.52	73.27	0.48
Bartlett	Main	3232 B-7		Culvert									
Bartlett	Main	3212	100-Year	35.20	92.23	94.76	93.86	94.89	0.001765	1.77	32.69	42.92	0.38
Bartlett	Main	3197	100-Year	35.20	92.31	94.76		94.80	0.001222	1.54	63.51	108.17	0.32
Bartlett	Main	3182	100-Year	35.20	91.78	94.64	93.78	94.74	0.001076	1.83	40.15	43.65	0.37
Bartlett	Main	3149 B-6		Culvert									
Bartlett	Main	3121	100-Year	35.20	91.70	93.91	93.50	94.32	0.006277	2.94	12.86	29.45	0.67
Bartlett	Main	3087	100-Year	35.20	91.84	93.85	93.55	93.95	0.003366	1.94	39.33	87.04	0.45
Bartlett	Main	2997	100-Year	35.20	91.29	93.28	92.99	93.49	0.005267	2.80	24.37	34.02	0.64
Bartlett	Main	2847	100-Year	35.20	90.87	92.50	92.22	92.63	0.006225	2.35	26.20	39.20	0.60
Bartlett	Main	2803	100-Year	35.20	90.62	92.40	92.03	92.49	0.003522	1.82	38.21	75.03	0.45
Bartlett	Main	2771	100-Year	35.20	90.58	92.45	91.87	92.45	0.000076	0.27	172.65	144.74	0.07
Bartlett	Main	2745	100-Year	35.20	90.69	92.45	91.75	92.45	0.000104	0.32	142.04	110.06	0.08
Bartlett	Main	2721	100-Year	35.20	90.18	92.44	91.80	92.45	0.000169	0.47	119.59	107.21	0.10
Bartlett	Main	2703	100-Year	35.20	89.95	92.44	91.64	92.44	0.000139	0.61	157.43	220.38	0.13
Bartlett	Main	2693		Culvert									
Bartlett	Main	2683	100-Year	35.20	89.62	91.79	91.79	92.44	0.021389	3.57	9.89	110.34	1.00
Bartlett	Main	2642	100-Year	35.20	90.43	91.71	91.55	91.77	0.006330	1.56	37.47	78.99	0.53
Bartlett	Main	2609	100-Year	35.20	90.04	91.24	91.06	91.26	0.003960	1.37	68.57	204.80	0.44
Bartlett	Main	2478	100-Year	35.20	89.45	90.61	90.61	90.79	0.013324	2.63	30.63	68.73	0.82
Bartlett	Main	2384	100-Year	35.20	88.85	90.56		90.56	0.000238	0.46	162.86	213.63	0.12
Bartlett	Main	2343	100-Year	35.20	88.08	90.56		90.56	0.000037	0.22	349.06	340.64	0.05
Bartlett	Main	2303	100-Year	35.20	87.93	90.56	89.18	90.56	0.000005	0.09	797.41	689.38	0.02
Bartlett	Main	2244	100-Year	35.20	87.81	90.56	88.90	90.56	0.000002	0.05	1347.87	998.11	0.01
Bartlett	Main	2214	100-Year	35.20	86.86	90.56	88.90	90.56	0.000001	0.06	1241.24	843.15	0.01
Bartlett	Main	2195 B-4		Culvert									
Bartlett	Main	2186	100-Year	35.20	86.27	88.54	88.30	89.01	0.006035	3.11	12.86	51.29	0.72
Bartlett	Main	2111	100-Year	35.20	86.75	88.25		88.29	0.002677	1.30	59.23	156.36	0.37
Bartlett	Main	2045	100-Year	35.20	86.13	88.23	87.92	88.24	0.000314	0.78	119.14	228.21	0.18
Bartlett	Main	2033 B-3		Culvert									
Bartlett	Main	2024	100-Year	35.20	86.04	87.85	87.85	87.99	0.005322	2.28	36.69	123.11	0.58
Bartlett	Main	1997	100-Year	35.20	86.33	87.75		87.77	0.002326	1.14	72.25	163.10	0.34
Bartlett	Main	1902	100-Year	35.20	85.97	87.53		87.57	0.002785	1.36	56.39	95.61	0.38
Bartlett	Main	1828	100-Year	35.20	85.19	86.99	86.88	87.25	0.006801	2.52	23.79	34.56	0.63
Bartlett	Main	1766	100-Year	35.20	85.33	86.68		86.75	0.004395	1.65	45.90	84.55	0.48
Bartlett	Main	1623	100-Year	35.20	84.85	86.08		86.15	0.004890	1.82	38.65	83.02	0.56
Bartlett	Main	1554	100-Year	35.20	84.21	85.77		85.85	0.004485	2.13	41.49	92.52	0.56
Bartlett	Main	1447	100-Year	35.20	83.64	85.35		85.42	0.003139	1.58	55.41	147.92	0.42
Bartlett	Main	1361	100-Year	35.20	83.14	85.22		85.24	0.001238	1.14	78.29	144.66	0.27
Bartlett	Main	1326	100-Year	35.20	83.00	85.19		85.20	0.000777	0.95	93.45	173.55	0.22
Bartlett	Main	1271	100-Year	35.20	82.82	85.13		85.15	0.000936	1.17	84.38	108.84	0.25
Bartlett	Main	1209	100-Year	35.20	82.45	84.93		85.05	0.002829	1.96	38.90	59.37	0.42
Bartlett	Main	1146	100-Year	35.20	82.40	84.45	84.31	84.76	0.007132	3.04	30.60	46.42	0.73
Bartlett	Main	1103	100-Year	35.20	82.31	84.36		84.51	0.004445	2.13	37.02	41.36	0.51
Bartlett	Main	1076	100-Year	35.20	81.43	83.51	83.51	84.08	0.011486	3.49	13.43	25.76	0.83
Bartlett	Main	1025 B-2		Culvert									
Bartlett	Main	973	100-Year	35.20	81.33	83.56	82.88	83.72	0.003305	1.86	22.13	45.07	0.44

HEC-RAS Plan: Default Scenario Profile: 100-Year (Continued)

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Bartlett	Main	912	100-Year	35.20	81.33	83.36		83.54	0.004449	2.31	27.99	26.74	0.53
Bartlett	Main	880	100-Year	35.20	81.03	83.14		83.29	0.003971	2.15	32.17	35.01	0.49
Bartlett	Main	837	100-Year	35.20	80.88	82.95		83.11	0.004154	2.23	31.17	36.61	0.51
Bartlett	Main	783	100-Year	35.20	80.96	82.54		82.79	0.008716	2.71	19.69	22.82	0.71
Bartlett	Main	685	100-Year	35.20	79.93	81.63	81.50	81.94	0.012127	3.48	19.70	25.58	0.85
Bartlett	Main	615	100-Year	35.20	79.12	80.70	80.70	81.11	0.011295	3.30	15.94	21.05	0.89
Bartlett	Main	542	100-Year	35.20	77.88	80.02		80.13	0.001863	1.70	30.86	29.23	0.38
Bartlett	Main	436	100-Year	35.20	77.13	79.54		79.81	0.004779	2.67	22.47	22.93	0.56
Bartlett	Main	334	100-Year	35.20	76.35	78.32	78.32	78.97	0.015110	4.04	13.52	12.90	0.95
Bartlett	Main	263	100-Year	35.20	76.24	77.99		78.05	0.002144	1.46	44.13	70.57	0.39
Bartlett	Main	98	100-Year	35.20	74.91	77.81		77.91	0.001188	1.56	58.36	47.06	0.31
Bartlett	Main	62	100-Year	35.20	74.30	77.79	76.85	77.83	0.000613	1.36	53.24	54.71	0.25
Bartlett	Main	52 B-1		Culvert									
Bartlett	Main	42	100-Year	35.20	74.40	77.05	77.05	77.78	0.015817	3.89	9.57	22.48	0.99
Bartlett	Main	26	100-Year	35.20	74.78	76.32	76.32	76.79	0.011192	3.36	14.13	15.70	0.89
Bartlett	Main	-5	100-Year	35.20	74.41	76.12	75.90	76.33	0.005077	2.40	21.62	24.11	0.61

Appendix E:

Municipal Storm Sewer Mapping

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Lake Ontario 39, 44, & 44A

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°38'0"W 79°37'0"W 79°36'0"W

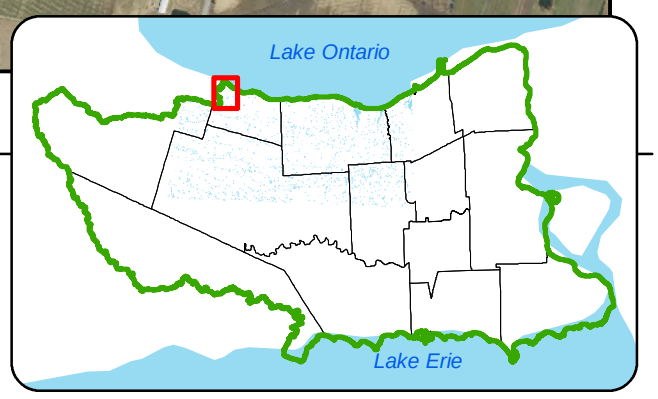
43°13'0"N 43°12'0"N

LO44A-1
LO44A-2
LO44A-3
LO44-1
LO44-2
LO44-3
LO39-1
LO39-2
LO39-3
LO39-4
LO39-5
LO39-6

Lake Ontario 44A (Outlet 1)
Lake Ontario 44 (Outlet 2)
Lake Ontario 39 (Outlet 9)

North Service Road
Queen Elizabeth Way
South Service Road
Winston Road
Lakelawn Road
Oakes Road North
Kelson Avenue North
Kelson Avenue South
Hunter Road
Main Street West
Casablanca Boulevard
Livingston Avenue
Woolverton Road
Brand Road
Bowslaugh Road
Hysert Road
Ridge Road West

Meters
0 250 500 1,000

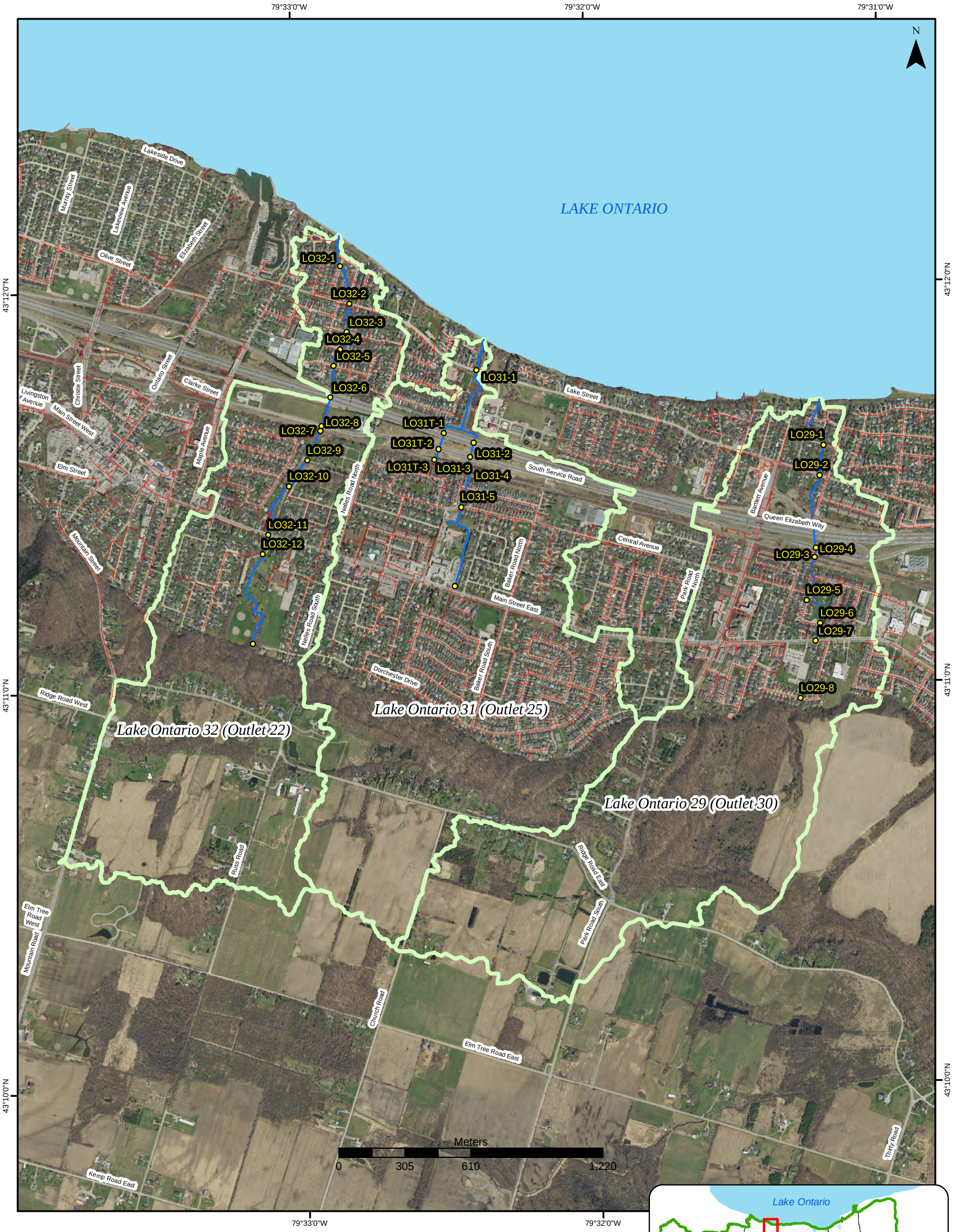


- Major Structures
- Storm Pipe
- Watercourse
- Subwatersheds
- NPCA Jurisdiction

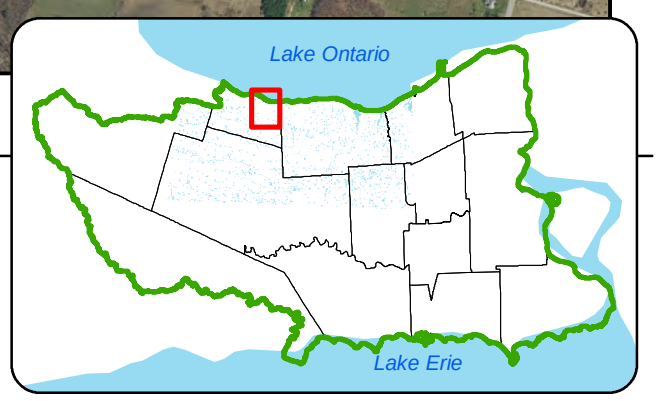
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Lake Ontario 29, 31, & 32

NIAGARA PENINSULA CONSERVATION AUTHORITY



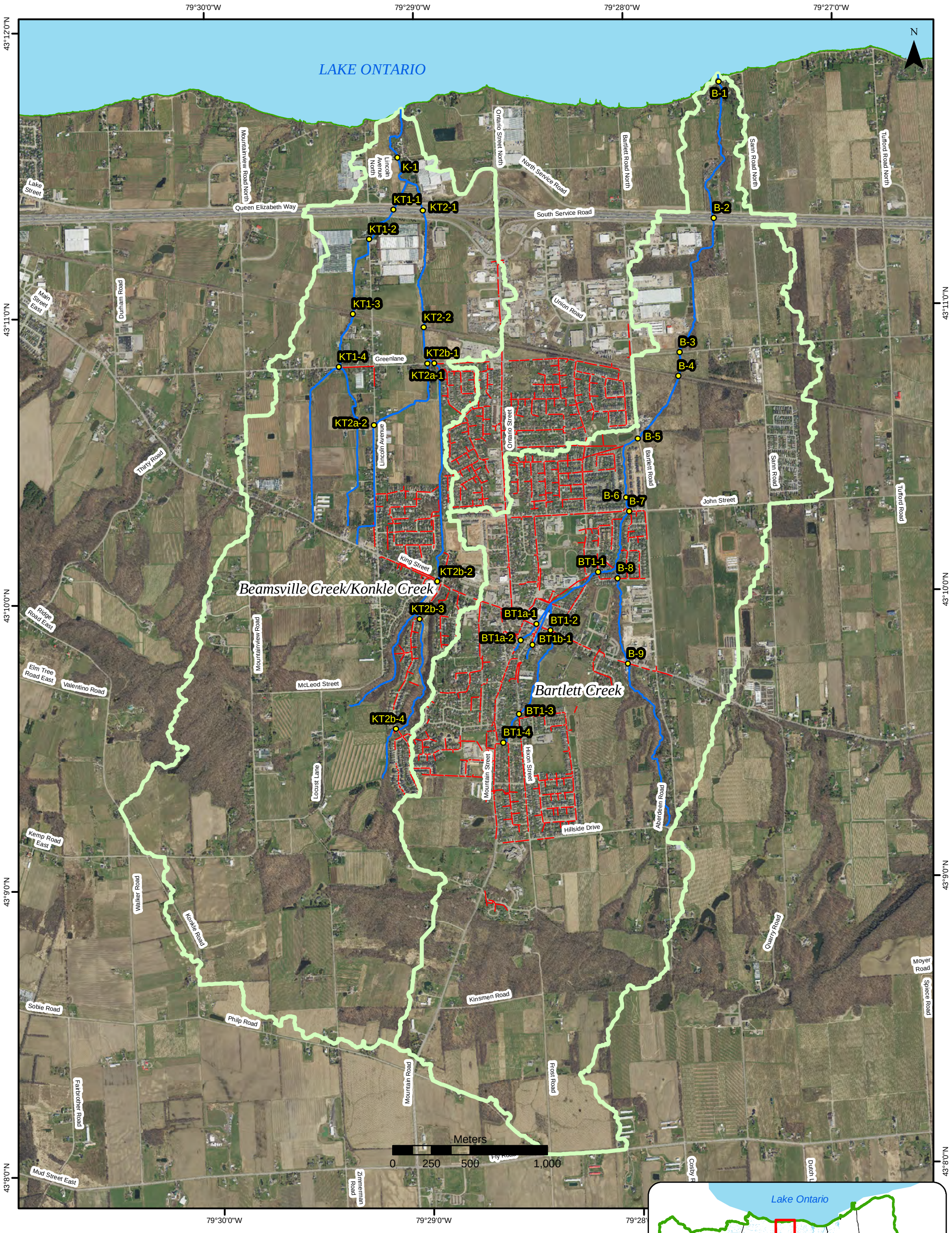
- Major Structures
- Storm Pipe
- Watercourse
- Subwatersheds
- NPCA Jurisdiction



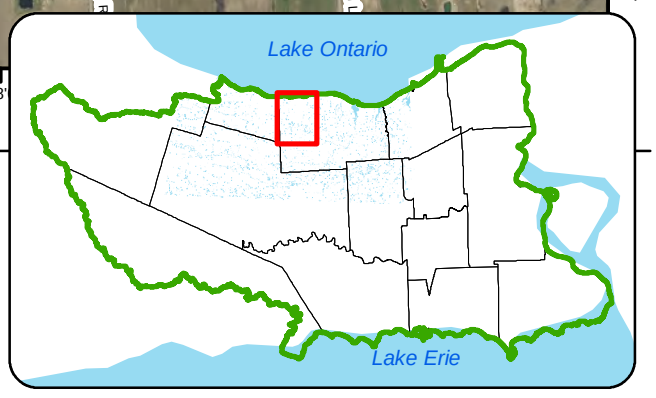
Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln
Major Structures - Beamsville/Konkle & Bartlett Creeks

NIAGARA PENINSULA CONSERVATION AUTHORITY



- Major Structures
- Storm Pipe
- Waterbodies
- Subwatersheds
- NPCA Jurisdiction



Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018

Lake Ontario Tributaries Floodplain Mapping Update in the Towns of Grimsby & Lincoln Major Structures - Prudhomme Creek

NIAGARA PENINSULA CONSERVATION AUTHORITY

79°26'0"W 79°25'0"W 79°24'0"W 79°23'0"W

43°11'0"N 43°10'0"N 43°9'0"N

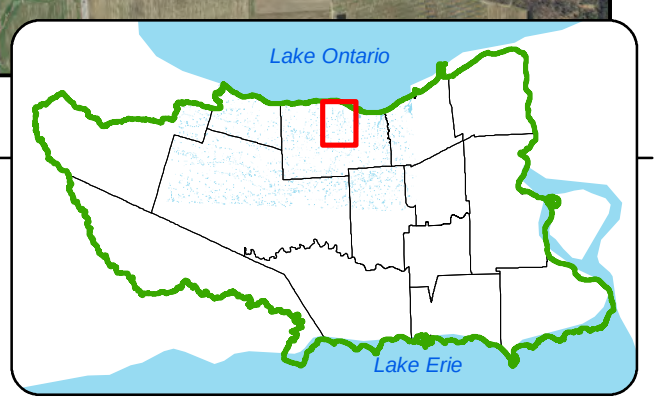
N

LAKE ONTARIO

P-1 (confirm size)
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
PT1-1
PT1-2
PT1-3
PT1-4
PT2-1

Victoria Avenue North
Maple Grove Road North
Cherry Avenue North
Martin Road North
North Service Road
South Service Road
Queen Elizabeth Way
Prudhomme Boulevard
Marina Boulevard
Greenlane
First Avenue
Victoria Avenue
John Street
Maple Grove Road
Merritt Road
Martin Road
Second Avenue
Twenty-first Street
Prudhomme Creek
Claus Road
Culp Road
Twenty-third Street
Cherry Avenue
King Street
Rittenhouse Road
Tallman Drive
Campden Road
Tintern Road
Moyer Road

Meters
0 360 720 1,440



- Major Structures
- Storm Pipe
- Proposed Floodplain Mapping
- Subwatersheds
- NPCA Jurisdiction

Projection: NAD_83_UTM_Zone_17N
Source: Niagara Peninsula Conservation Authority
Date: May, 2018