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Applewood Creek Erosion Control Project – Lakeview Golf Course

Detailed Design Brief



A design brief submitted by:
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Table of Contents

1	INTRODUCTION	1
2	STUDY AREA EXISTING CONDITIONS.....	2
2.1	Geomorphic and Erosion Assessment	4
2.2	Hydrologic & Hydraulic Assessment	8
2.2.1	Existing Hydrologic Conditions	8
2.2.2	Existing Hydraulic Conditions	8
2.3	Fish Habitat Assessment.....	11
2.3.1	Fish Communities.....	11
2.4	Terrestrial Resources Assessment	12
2.4.1	Vegetation Communities and Flora.....	12
2.4.2	Breeding Birds.....	13
2.5	Ministry of Natural Resources and Forestry (MECP) Species at Risk Screening.....	13
2.5.1	Butternut – Present – Endangered	13
2.5.2	Chimney Swift – Potentially Present / Non-Breeding – Threatened.....	14
2.5.3	Barn Swallow – Potentially Present / Non-Breeding – Threatened.....	14
2.6	Archaeological Assessments	14
2.7	Heritage Impact Assessments.....	15
2.8	Land Ownership and Easements.....	15
3	DESIGN FACTORS	16
3.1	Channel Form and Profile.....	17
3.2	Hydraulic Assessment	18
3.2.1	Water Surface Elevations	18
3.2.2	Hydraulic Parameters	22
3.2.3	Flow Conveyance Analysis	23
3.3	Geotechnical Investigations.....	24
3.4	Substrate Sizing	25
3.5	Bank Treatments.....	26
3.6	Sanitary Sewer Crossings	26
3.7	Fish Passage.....	26
3.8	Enhancement to Golf Course Features	27
3.9	Vegetation Restoration	30
4	PERMITS AND APPROVALS.....	30
5	REFERENCES	31

List of Figures

Figure 1-1. Applewood Creek Study Area – Lakeview Golf Course.....	1
Figure 2-1. A Photographic Compilation of the Existing Conditions.	3
Figure 2-2. Historic Comparison of Maps and Aerial Imagery.....	6
Figure 2-3. MNRF Guideline for Determining an Erosion Hazard Corridor within Unconfined Systems Such as Applewood Creek.....	7
Figure 2-4. Existing CVC HEC-RAS Schematic of Applewood Creek.....	8
Figure 2-5. Observed Butternut Tree within Study Area.	13
Figure 2-6. Results of the Stage 1 Archaeological Assessment. (ASI, 2019)	15
Figure 3-1. Typical Detail of Proposed Riffles and Pools.....	17
Figure 3-2. Arrangement of Cross Sections in the Proposed Conditions HEC-RAS Model.....	18
Figure 3-3. Comparison of Updated Existing and Proposed 100-year Flood Limits (49.7m ³ /s).....	22
Figure 3-4. Lakeview Golf Course 17 th Hole – 1921, Existing & Proposed Conditions.	29

List of Tables

Table 2-1. MNRF Erosion Allowance Guidelines for Watercourses in Valley Settings.....	7
Table 2-2. Summary of Applewood Creek Flow Regime through Lakeview Golf Course.	8
Table 2-3. Comparison of Water Surface Elevations (CVC Existing Vs. Updated Existing).....	9
Table 2-4. Summary of Updated Existing Hydraulic Conditions for the Applewood Creek.	11
Table 3-1. Comparison of HEC-RAS 100-year Water Surface Elevations (Updated Existing Vs. Proposed).	18
Table 3-2. Comparison of HEC-RAS 2-year Water Surface Elevations (Updated Existing Vs. Proposed).	20
Table 3-3. Summary of Proposed Hydraulic Conditions of Applewood Creek.	23
Table 3-4. Erosion Thresholds for Stream Bed and Bank Materials (Fischenich, 2001).	23
Table 3-5. CVC Low Traffic Pedestrian Crossing Design Criteria.....	24
Table 3-6. Proposed Bridge Dimensions.	24
Table 3-7. Conveyance Flow Analysis for Proposed Bridges.	24
Table 3-8. Mean Grain Sizes from the Hydraulic Analysis.....	25
Table 3-9. Proposed Substrate Gradation.	26
Table 3-10. Channel Velocities Under Low Flow Conditions.	26
Table 3-11. Fish Swimming Speeds (MTO, 2006).....	27

List of Appendices

Appendix A – CVC Regulatory Flood Hazard Mapping (2020)
Appendix B – Detailed HEC-RAS Results
Appendix C – Fish Habitat Assessment Field Sheets
Appendix D – Detailed Tree Inventory
Appendix E – Stage 2 Archaeological Study Report by ASI.
Appendix F – Geotechnical Report by Terraprobe

1 INTRODUCTION

Aquafor Beech Limited (Aquafor), in conjunction with Schollen & Company Inc. (Schollen) were retained by the City of Mississauga to undertake a Class Environmental Assessment (EA) and Detailed Design for Applewood Creek where watercourse erosion and degradation have created risks to public health and safety, as well as loss of golf course's property and infrastructure. Within the study area, Applewood Creek runs southerly through the Lakeview Golf Course as presented in Figure 1-1 below.



Figure 1-1. Applewood Creek Study Area – Lakeview Golf Course.

The EA for the study area was completed and filed on September 29th, 2020, through which Natural Channel Realignment of Applewood Creek within the study area was selected as the preferred alternative. The intent of this design brief is to summarize the detailed design of the preferred alternative, as well as the technical requirements associated with the detailed design drawings.

2 STUDY AREA EXISTING CONDITIONS

Applewood Creek, with a drainage area of approximately 411 hectares, is the easternmost watercourse within the jurisdiction of Credit Valley Conservation (CVC) and flows directly into Lake Ontario. The watercourse is located within an urbanized watershed that encompasses various land uses, including residential, commercial and open space.

Specific to the ~1300m corridor within the study area, Applewood Creek runs through the Lakeview Golf Course between the Dixie Outlet Mall and CN railway. The creek is channelized and was previously lined with engineered gabion banks along its entire length as a means to mitigate erosion and channel migration. Although efforts have been made by the golf course to constantly patch and repair the gabion baskets, these structures are approaching the end of their life-span. Throughout the golf course, the baskets have become outflanked and are devoid of stone at the base, causing the top courses to fall into the creek and posing significant risks to the safety of golf course users.

Moreover, in this case Applewood Creek is regarded as a natural hazard within the golf course, which if creatively integrated with the golf course layout, will improve aesthetics and enhance playability and the strategy of play, providing golfers with an enjoyable and memorable golf experience. However, in its existing condition, Applewood Creek does not add any beauty to the course and the current alignment of the watercourse is not very well incorporated to complement the playability of some of the golf holes. For example, the existing creek crossing Lakeview's 8th hole presents a 160-200-yard distance for a golfer's tee shot to carry the creek. This is a significant carry for beginner, intermediate and senior golfers.

A photo compilation of the existing conditions of Applewood Creek is provided in Figure 2-1, highlighting the confined nature of the watercourse and its position and context within the golf course setting.



E. Bridge #8 in good condition with irrigation main in saddle.



A. Downstream culverts under CN railway, with mixed headwall materials – historical brick and more recent gabion baskets.



B2. Slumping gabion baskets undermining and scouring around chamber structure



F. Deteriorated gabion baskets with top layer leaning towards the creek, posing safety risks to golf course users



B1. Bank scour and planform adjustment due to failure of gabion baskets.



C. Failure of gabion and unstable slope undermining mature vegetation in proximity to maintenance building & parking



D. Creek in proximity to 12th fairway and 16th green. Constraints of limited space to form natural meanders.



G. Applewood Creek at the upstream limit of the golf course, through a confined channel adjacent to Dixie Mall.

Figure 2-1. A Photographic Compilation of the Existing Conditions.

2.1 Geomorphic and Erosion Assessment

The Applewood Creek watershed is an urbanized watershed which lies within the lowland area of Lake Ontario. The watershed has relatively low gradients and is sensitive to water level fluctuations in Lake Ontario. Engineered erosion protection measures, in the form of gabion-lining along the banks, have been installed along the creek throughout the golf course. These gabions have been deteriorating and failing since the time of their installation and have required significant maintenance efforts from the golf course on an annual basis to minimize erosion impacts on the golf course.

An investigation of the historical alignments of the creek corridor provided insight into, and an understanding of the existing conditions, particularly related to mass changes to the alignment, and the natural tendencies of the creek to return to pre-disturbed conditions, while establishing parameters for unstable levels of shearing and flow velocities.

A compilation of the historical maps and aerial photos is presented in Figure 2-2 below, which highlights some of the following key features:

- 1859 – Applewood Creek in its historical alignment running down the centre of one single lot between Lakeshore Road and Middle Road. The property was owned at that time by Robert Campbell.
- 1877 – The lot was subdivided into three parcels. The historical alignment of Applewood Creek remained unchanged.
- 1909 & 1918 – The High Park Golf and Country Club was relocated to the area in 1907 and was renamed as the ‘Lakeview Golf and Country Club’ in 1912. The historical alignment of Applewood Creek remained unchanged throughout this period.
- 1954 – Applewood Creek was re-aligned into its present planform within the golf course. The bridges were installed. The Toronto Golf Club was constructed on the east side of Dixie Road. The residential neighborhood which presently surrounds the Lakeview Golf and Country Club was partially constructed.
- 1966 – The residential neighborhood continued to grow, occupying the remaining farm lands on the east side of Applewood Road. Dixie Mall was constructed north of the golf course, with the upstream section of the creek truncated and piped beneath the mall property.
- 1977 – The irrigation pond was constructed southwest of the 90-degree bends in the alignment of Applewood Creek. The ‘Fairway’ condominium building at 1400 Dixie Road was also constructed at around this time.
- 1992 – The Dixie Mall was further expanded to include the building and parking areas to the southwest of the existing mall, resulting in the removal of the remaining vacant/vegetated lands. Applewood Creek was lined with gabion baskets in the 1980s.
- 2015 – Erosion and undermining of gabion baskets necessitated significant maintenance efforts from the golf course. A number of trees on the northeastern slope between the pond and the maintained building fell. The last remaining piece of the open land in the area (Owls Head Road, Carnegie Drive, and Haig Blvd) was developed into a residential townhouse community.
- 2019 – Existing conditions included failing gabion baskets and undermined bridge abutments. The creek became unsightly and did not contribute to the aesthetic quality of the golf course.





Figure 2-2. Historic Comparison of Maps and Aerial Imagery.

When completing a geomorphic assessment, it is common practice to refer a segment of watercourse that exhibits similar channel form, floodplain access, adjacent landuse and valley setting as a ‘Reach’. Based upon the historic aerial imagery and field reconnaissance, Applewood Creek within the study area is considered as a single reach of uniformly gabion-lined watercourse, which has a consistent depth and width throughout.

The geomorphic conditions of Applewood Creek within the study area are negligible, as the entirety of the channel is considered engineered. That said, there is evidence of intermittent baselevel lowering, which can further exacerbate the gabion basket failure through undermining the structures. The bed materials (substrate) are primarily composed of thin layer of gabion stone actively being sourced from areas where gabion baskets are failing at the base. There are intermittent outcroppings of shale bedrock amongst the gabion, however, degradation rates are controlled by the veneer of gabion.

With regards to planform development and consideration of horizontal erosion hazards, the Technical Guide River & Stream Systems: Erosion Hazard Limit (MNR, 2002) can be applied to this study area. The erosion hazard limit is illustrated in cross section in Figure 2-3, followed by Table 2-1 which summarizes the typical erosion allowances associated with a natural channel setting. This information is presented as reference to inform the susceptibility to erosion of Applewood Creek over a long-term horizon. As identified above that the creek banks are entirely engineered along its length and exhibit signs of stress and erosion, the existing erosion hazards within the creek corridor are relatively low. Moreover, no slope stability concerns are present within the study area where no valley slopes exist. However, if the existing baskets continue to fall without intervention, extensive erosion and loss of tableland are expected to happen in a short timeframe. This elevated erosion rate can be as great as 15 meters in a 100-year time span, causing loss of tableland of the golf course and risks associated with safety.

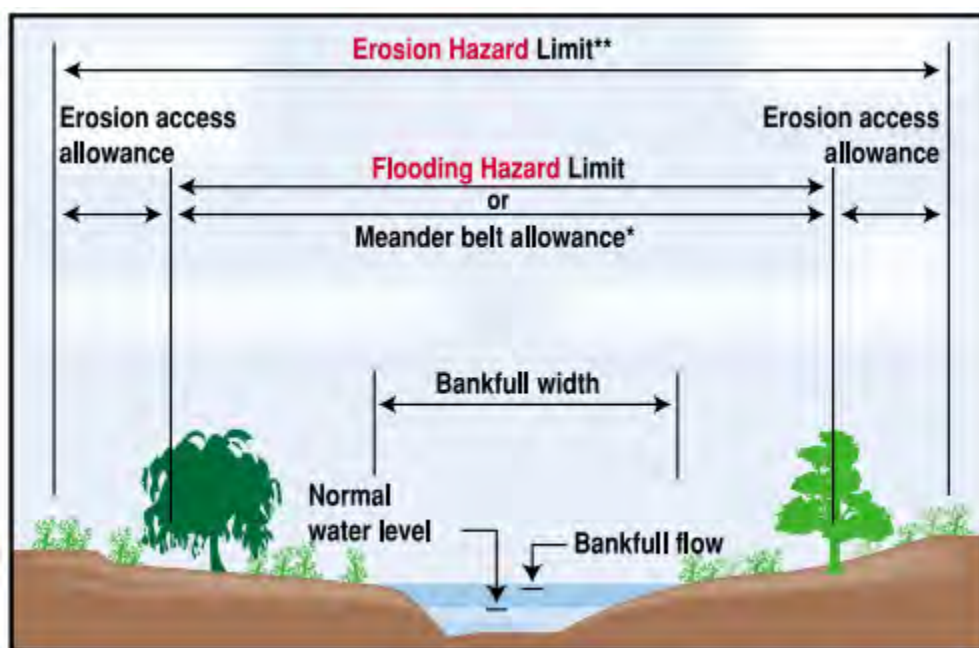


Figure 2-3. MNRF Guideline for Determining an Erosion Hazard Corridor within Unconfined Systems Such as Applewood Creek.

Table 2-1. MNRF Erosion Allowance Guidelines for Watercourses in Valley Settings.

MINIMUM TOE EROSION ALLOWANCE - River within 15 m of Slope Toe *				
Type of Material	Evidence of Active Erosion** or Bankfull Flow Velocity > Competent Flow Velocity***	No Evidence of Active Erosion** or Flow Velocity << Competent Flow Velocity***		
Native Soil Structure		Bankfull Width		
		< 5 m	5 - 30 m	> 30 m
1. Hard Rock (granite)	0 - 2 m	0 m	0 m	1 m
2. Soft Rock (shale, limestone) Cobbles, Boulders	2 - 5 m	0 m	1 m	2 m
3. Stiff/Hard Cohesive Soil (clays, clayey silt) Coarse Granular (gravels), Tills	5 - 8 m	1 m	2 m	4 m
4. Soft/Firm Cohesive Soil Fine Granular (sand, silt), Fill	8 - 15 m	1 - 2 m	5 m	7 m

* If a valley floor is > 15 m width, still may require study or inclusion of a toe erosion allowance.

** Active Erosion is defined as: bank material is bare and exposed directly to stream flow under normal or flood flow conditions and, where undercutting, over steepening, slumping of a bank or high down stream sediment loading is occurring. An area may be exposed to river flow but may not display “active erosion” (i.e. is not bare or undercut) either as a result of well rooted vegetation or as a result of shifting of the channel or because flows are relatively low velocity. The toe erosion allowances presented in the right half of Table 2 are suggested for sites with this condition.

*** Competent Flow velocity; the flow velocity that the bed material in the stream can support without resulting in erosion or scour. Consideration must also be given to potential future meandering of the watercourse channel.

Source: Ontario Ministry of Natural Resources (2002), “Technical Guide River & Stream Systems: Erosion Hazard Limit, pp38

2.2 Hydrologic & Hydraulic Assessment

A review of the study area hydrology and hydraulic conditions was undertaken to determine the existing flood levels / floodlines of Applewood Creek through the golf course, as well as to gain an understanding of the hydraulic parameters observed under the range of flood flow conditions which attribute to erosion and channel alteration.

2.2.1 Existing Hydrologic Conditions

At the onset of the study, a hydraulic (HEC-RAS) model was obtained from CVC which addresses a range of hydrologic conditions (i.e., flood flow scenarios), including the Regional event and return period events for 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storms. Table 2-2 below summarizes the range of flood flows of Applewood Creek through Lakeview Golf Course.

Table 2-2. Summary of Applewood Creek Flow Regime through Lakeview Golf Course.

Return Period	2-year	5-year	10-year	25-year	50-year	Regional	100-year
Flow (m³/s)	12.7	19.7	27.5	34.7	41.8	42.3	49.7

2.2.2 Existing Hydraulic Conditions

Existing Regulatory Model

A Regulatory HEC-RAS model of Applewood Creek representing its existing conditions was provided by CVC at the onset of the project. As per the model description, this existing Regulatory HEC-RAS model was most recently updated in May 2019. The existing model covers a length of approximately 2.8 km of the Applewood Creek from the Dixie Outlet Mall to the Lake Ontario, with the study area bounded by station 12591 and 11310. The cross-section arrangement of the study area within the entire model extent is presented in Figure 2-4.



Figure 2-4. Existing CVC HEC-RAS Schematic of Applewood Creek.

An existing Regulatory Flood Hazard Map (2020) through the study area was also provided by CVC and presented in Appendix A. Review of the CVC Regulatory flood hazard map and Table 2-2 suggests that the 100-year return flood defines the Regulatory floodplain limit within the study area. It is also noted that a significant portion of Lakeview Golf court is within the floodplain, with an identified spill area over the CN railway, which defines the downstream boundary of the study area. In turn, Aquafor recognizes the presence of sensitivity with regard to flooding of Applewood Creek within the study area.

Updated Existing Conditions Model

Opportunities to further improve the accuracy of the existing CVC model were taken to create the Updated Existing Conditions model, with the cross-section geometry updated for all stations within the study area, highlighting the continued channel erosion due to failure of the gabion baskets. These updates were based on a combination of the most recent topographic survey data undertaken by Aquafor and LiDAR data collected by Airborne Imaging in 2014-2015.

The Existing Regulatory model and Updated Existing Conditions model were run under a mixed flow regime, consistent with the setup of the base model. The resulting Regional water surface elevations of the updated existing condition model were compared to those under existing conditions, as summarized in Table 2-3. A complete table of hydraulic results is provided in Appendix B.

Table 2-3. Comparison of Water Surface Elevations (CVC Existing Vs. Updated Existing).

River Station	100-Year Flood Flow (m ³ /s)	Water Surface Elevation (m)		
		Existing CVC Conditions	Updated Existing Conditions	Δ (Up – Ex)
12753	49.7	97.65	97.65	0
12737	49.7	97.37	97.37	0
12691	49.7	96.91	96.91	0
12654	49.7	96.7	96.7	0
12627	49.7	96.37	96.36	-0.01
12605	49.7	96.21	96.2	-0.01
12591	49.7	96.05	96.05	0
12555	49.7	95.8	95.8	0
12504	49.7	95.59	95.58	-0.01
12461	49.7	95.47	95.47	0
12396	49.7	95.26	95.25	-0.01
12345	49.7	94.79	94.78	-0.01
12301	49.7	94.63	94.63	0
12271	49.7	94.49	94.49	0
12268 13-Access Way				
12266	49.7	94.47	94.47	0
12229	49.7	94.09	94.09	0
12204	49.7	93.95	93.95	0
12199 12-Access Way				
12195	49.7	93.85	93.85	0
12155	49.7	93.69	93.69	0
12140	49.7	93.6	93.6	0
12109	49.7	93.44	93.44	0
12076	49.7	93.27	93.27	0
12054	49.7	93.05	93.05	0
12027	49.7	92.92	92.92	0
11998	49.7	92.79	92.8	0.01
11995 11-Access Way				

River Station	100-Year Flood Flow (m3/s)	Water Surface Elevation (m)		
		Existing CVC Conditions	Updated Existing Conditions	Δ (Up – Ex)
11992	49.7	92.47	92.47	0
11966	49.7	92.43	92.42	-0.01
11937	49.7	92.38	92.38	0
11932 10-Access Way				
11928	49.7	92.28	92.27	-0.01
11910	49.7	92.04	92.04	0
11886	49.7	92.06	92.06	0
11861	49.7	91.88	91.87	-0.01
11820	49.7	91.52	91.52	0
11761	49.7	91.29	91.29	0
11757 9-Access Way				
11754	49.7	91.05	91.04	-0.01
11717	49.7	90.84	90.83	-0.01
11702	49.7	90.75	90.75	0
11676	49.7	90.61	90.61	0
11673 8-Access Way				
11672	49.7	90.48	90.46	-0.02
11655	49.7	90.39	90.39	0
11630	49.7	90.36	90.35	-0.01
11607	49.7	90.17	90.17	0
11592	49.7	90.12	90.12	0
11587 7-Access Way				
11582	49.7	90.05	90.05	0
11542	49.7	89.64	89.64	0
11500	49.7	89.36	89.36	0
11477	49.7	89.31	89.31	0
11450	49.7	89.27	89.27	0
11407	49.7	89.26	89.26	0
11402 6-Access Way				
11396	49.7	89.22	89.22	0
11369	49.7	89.23	89.23	0
11350	49.7	89.23	89.23	0
11346 5-Access Way				
11341	49.7	89.23	89.23	0
11310	49.7	89.22	89.22	0
11294	51.1	89.22	89.22	0
11276 4-CNR				
11258	51.1	86.59	86.59	0

Minors changes in the resulting water surface elevations were observed when comparing the Updated Existing Conditions to the existing CVC model. These changes ($\leq 0.1\text{m}$) are explained by the updated channel bed elevations based upon the most recent topographic survey within the study area.

Additional hydraulic parameters were also reviewed from the Updated Existing Conditions model in order to provide insight into aspects such as erosive potential under a range of flood flow conditions. Summarized below is a suite of parameters associated with the range of flood flows from 2-year through to 100-year and Regional, for the creek and overbank lands in Table 2-4.

Table 2-4. Summary of Updated Existing Hydraulic Conditions for the Applewood Creek.

Flood Event	Flow (m ³ /s)	Channel Velocity (m/s)		Channel Shear (N/m ²)		Channel Power (N/m s)	
		Avg.	Max.	Avg.	Max.	Avg.	Max.
2yr	12.7	1.7	2.5	52.8	103.1	99.9	246.8
5yr	19.7	1.8	3.1	57.5	162.0	117.9	509.1
10yr	27.5	1.8	3.0	56.7	162.9	119.0	484.4
25yr	34.7	1.9	3.1	58.8	169.9	129.8	519.9
50yr	41.8	1.9	3.2	62.8	176.7	144.0	560.5
Regional	42.3	1.9	3.2	62.9	178.6	144.9	569.7
100yr	49.7	2.0	3.1	65.3	159.9	152.5	396.1

Review of the above tables highlights that Applewood Creek, experiences moderate to high shearing forces, channel power, and velocities under range of flood flow conditions. These high hydraulic forces carried by the Creek can contribute to increased levels of erosion and channel activity. These conditions have been considered when defining types of slope and bank stabilization opportunities, sizing and resistance thresholds of materials, and channel form.

2.3 Fish Habitat Assessment

A fish habitat assessment was completed on April 9, 2019 as part of the EA, using the Rapid Assessment Methodology for Channel Structure of the Ontario Stream Assessment protocol (OSAP) (Section 4: Module 1, Stanfield 2017). The site used for the OSAP assessment was located upstream of the northern side of the GO Train line culvert and extended approximately 1.4 km upstream to the southern limit of the Dixie Outlet Mall. This site was selected to provide a representative view of the study area. The fish habitat assessment field sheets are provided in Appendix C. A field inspection of the watercourse was conducted downstream of the study area to gain an understanding of the condition beyond the southern limit of the study area.

At the time of sampling, the average wetted width of Applewood Creek was 2.5 m. The average depth of the watercourse at crossovers was approximately 15 mm, with a maximum sampled depth of nearly 600 mm. The assessment suggests that the site consisted predominantly of shallow-to-medium-depth glides (hydraulic head of 4-7 mm), slow riffles (8-17 mm), and fast riffles (> 17 mm), as well as three deep pool habitats. Instream cover is low and consists of unembedded flat rock (at 33.3% of the observation points) and embedded flat rock (at 11.7% of the observation points). Substrate point particles are mainly gravel, with bedrock as the maximum particle.

Instream vegetation is comprised of filamentous algae. Overhanging vegetation is minimal but trees provide moderate canopy cover. Throughout the study area, riparian vegetation contributed to a canopy cover of 15%, since the vegetation community that is located along much of the length of the banks comprised maintained turf grass right up to the edge of the gabion-lined banks.

No major barrier to fish passage were observed within the study area. No fish were observed at the time of the assessment, however a dead *Lepomis* species was observed within the pool downstream of a footbridge.

2.3.1 Fish Communities

The Action Plan to Restore the Mississauga Shoreline (CVC, 2018) noted that Applewood Creek receives flow from Etobicoke Creek during high flow events; i.e., it has connectivity with a fish-bearing watercourse. That document further noted that warmwater fish species can access the creek upstream of Lakeshore Road as a result of culvert improvements (CVC, 2018). This was confirmed during site investigations that were conducted by qualified biologists who walked the corridor from the confluence at Lake Ontario to the downstream limit of the study area. No barriers were observed downstream of the GO Train crossing. While no specific fish community information was available for the study area, multiple sources, including an Angler Workshop conducted by CVC indicated that multiple (5) fish species had been found within the tributary (MacMull, 2015). This

information, combined with the noted connectivity to a fish-bearing watercourse (Etobicoke Creek) and Lake Ontario, along with the observation of an unknown *Lepomis* species within the study area, indicated that Applewood Creek (within the study area) should be considered to be fish habitat, since it meets the test of supporting fish at any time during any given year and/or connected to waterbodies that support fish at any time during any given year.

According to the Department of Fisheries and Oceans Canada (DFO) Aquatic Species at Risk (SAR) Map tool, no SAR are found (or potentially found) within the study area and no critical habitat for aquatic species at risk is present within the study area (DFO, 2019).

2.4 Terrestrial Resources Assessment

2.4.1 Vegetation Communities and Flora

Due to its location on an active golf course, the study area contains no natural vegetation communities except for a narrow, linear wooded feature that is located on the south side of Applewood Creek near the northwestern project limits. This community was described in the City of Mississauga's 2018 Natural Areas System Update (Site LV14) as a Willow Lowland Deciduous Forest (FOD7-3) community type. The 2018 Natural Areas System Updates and associated mapping for the study area (Site LV14) are included in Appendix D. Species observed by Aquafor Beech's field staff in this area include: Crack Willow (*Salix x rubens*), Manitoba Maple (*Acer negundo*), Sweet Cherry (*Prunus avium*), Green Ash (*Fraxinus pennsylvanica*), Siberian Elm (*Ulmus pumila*), Black Walnut (*Juglans nigra*), and Silver Maple (*Acer saccharinum*). Ash trees in this area were noted to be affected by invasive pest species Emerald Ash Borer (*Agrilus planipennis*). Invasive species such as Garlic Mustard (*Alliaria petiolata*), European Buckthorn (*Rhamnus cathartica*), and Dog-strangling Vine or European Swallow-wort (*Vincetoxicum rossicum*) were documented in this unit and it was noted to be highly disturbed by adjacent human activities/developments.

A single Butternut (*Juglans cinerea*) tree was observed directly adjacent to Applewood Creek in this vegetation community. Butternut is an Endangered species due to the widespread effects of the introduced Butternut Canker fungus (*Ophiognomonia clavignenti-juglandacearum*). A Butternut Health Assessment (BHA) per provincial requirements was completed for this tree on July 4, 2019, at which time it was determined to be a Category 2 tree ("retainable"). DNA testing for hybridity was not completed but a visual inspection did not provide any evidence to suggest the tree was not a genetically-pure Butternut. The observed butternut was tagged as No. 259 and is depicted in Figure 2-5.

The rest of the site consists of scattered trees within a manicured turf grass landscape. City Forestry maintains a comprehensive set of tree inventory data within the Lakeview Golf Course. Aquafor Beech supplemented this inventory in 2019 as trees within the FOD7-3 forest unit described above had not been previously inventoried. The combined inventory data provides a complete overview of the trees that are growing along Applewood Creek within the study area such that any proposed tree removals may be quantified to determine compensation requirements in accordance with City of Mississauga and CVC standards. A total number of 1896 mature trees were included in the combined inventory, as included in Appendix D.



Figure 2-5. Observed Butternut Tree within Study Area.

2.4.2 Breeding Birds

The City of Mississauga's Natural Areas System Update (2018) lists a number of bird species in association with Site LV14 which overlaps the study area. Most of these bird species are common in suburban parkland and residential neighborhoods. However, one species is a designated SAR: Chimney Swift, which is listed as Threatened both provincially and federally. This species nests almost exclusively in human-made structures (i.e., chimneys) and therefore does not have any nesting habitat present in the study area. It could, however, be nesting in nearby buildings and foraging over the golf course property.

The active nests of most migratory birds are protected under the federal *Migratory Birds Convention Act* and/or the provincial *Fish and Wildlife Conservation Act*. Actions that may cause harm to bird nests (e.g., removal of vegetation) should preferentially be planned to occur outside of the typical bird nesting season which extends from April 1 to August 31 in any given year.

2.5 Ministry of Natural Resources and Forestry (MECP) Species at Risk Screening

For the purpose of this study, SAR are defined as those species designated as Endangered (END), Threatened (THR), or Special Concern (SC) under the provincial *Endangered Species Act* and/or the federal *Species at Risk Act*. Aquafor Beech completed a screening exercise for SAR within the study area using background data (e.g., the NHIC's database, the City's Natural Areas System Update, citizen science databases such as eBird and iNaturalist, etc.) and correspondence with the Ontario Ministry of the Environment, Conservation, and Parks (MECP) to identify species with the potential to occur in the vicinity. These species were then assessed by comparing their habitat requirements with the habitat present in the study area.

2.5.1 Butternut – Present – Endangered

As previously documented, Butternut (END) was found in the study area directly adjacent to Applewood Creek in lowland forest habitat. It was observed growing right at the edge of the gabion basket and therefore will be impacted by the proposed removal of the baskets. The proposed design is intended to retain this butternut tree, noting that wire meshes of the gabion baskets are to be removed with caution to limit damages to the roots. IGF submission process will allow MECP to review the proposed works and determine the requirements for registration, permitting, or other actions regarding the Butternut on the property.

2.5.2 Chimney Swift – Potentially Present / Non-Breeding – Threatened

Chimney Swift historically nested in deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer. Nesting sites today are mostly found in urban areas in large and uncapped chimneys. Chimney Swift was documented by background sources as being present in the vicinity of the study area; however, this species is not considered to have any suitable nesting habitat in the study area.

2.5.3 Barn Swallow – Potentially Present / Non-Breeding – Threatened

Barn Swallow (*Hirundo rustica*), a Threatened bird species, was noted in the vicinity of the study area by several background sources. This species, like Chimney Swift, typically nests on human-made structures; it is known to use the underside of bridges for nest construction (COSEWIC, 2011). However, Barn Swallow is not considered to be a factor in this project due to the absence of suitable nesting habitat (i.e., vertical riverbanks or other eroded faces; COSEWIC, 2013) in the study area. While Aquafor Beech's field staff did not note any Barn Swallow nests on the underside of golf course bridges along Applewood Creek, it is recommended that the site be reviewed again prior to construction to confirm the absence of nests as nesting sites are not necessarily static from year to year.

2.6 Archaeological Assessments

Stage 1 archaeological assessment was carried out by Archaeological Services Inc. (ASI) in May 2019. The assessment included review of background documentation and property inspection to determine if the study area exhibits any archaeological potential. As a result, the Stage 1 assessment indicated that part of the study area (orange & green areas highlighted in Figure 2-6) exhibits archaeological potential and requires a Stage 2 assessment.

Stage 2 archaeological assessment involving further site investigations and test pit surveys were then undertaken by ASI on May 19-21, 2020. In addition, First Nation groups, including the Haudenosaunee Development Institute (HDI), Huron-Wendat First Nation (HWFN), and the Mississaugas of the New Credit First Nation (MCFN) were invited to attend the Stage 2 on-site assessment. HDI and HWFN were able to provide on-site liaisons, and daily fieldwork submissions were provided to MCFN through the Archaeological Consultant Daily Submission Form. No archaeological resources or intact A-horizon were encountered during the Stage 2 test pit survey. The Stage 2 archaeological assessment report is included in Appendix E.



Lakeview Golf Course is designated by the City of Mississauga as a 'Heritage Landscape' under Part IV of the Ontario Heritage Act. As such, it is essential that the proposed erosion control and watercourse restoration works do not pose a negative impact on the features of the golf course that have heritage values based on the designation and that the proposed works are fully integrated with the golf course landscape.

Since Lakeview Golf Course is designated under the Ontario Heritage Act, a Heritage Permit will be required to facilitate any alterations of the property. Upon finalization, this detailed design will also be submitted to the City's Heritage Advisory Committee for review and comment.

The study area is located within the Lakeview Golf Course which is a city-owned property. The Region of Peel owns an easement over top of the sanitary sewer infrastructure that traverses the southeast corner of the golf course. The sanitary sewer crosses the creek ~60m upstream of the CN railway. Detailed designs of the proposed channel within the sanitary sewer easement will be submitted to the Region for review and approval, with the intent to maintain the existing cover depth above the sanitary sewer crossing.

3 DESIGN FACTORS

During the process of developing the detailed design for Applewood Creek erosion controls, it is imperative that all conditions and constraints for the channel are identified at the onset of the design. This ensures that they are adequately considered while developing various elements of the design. While several of the constraints and conditions are common to any design project, several are unique to this study area. Constraints and considerations identified within the study area were as follows:

Design Flow – Hydraulic conditions anticipated in the channel for the full range of flow events should be considered when determining suitable substrate sizes. Hydraulic modelling of the Applewood Creek study extent was performed using the U.S. Army Corps of Engineering HEC-RAS model. The model has been provided by CVC and modified by Aquafor for the purposes of this study. The flow profiles in CVC's baseline model are used for all modelling scenarios.

Upstream and Downstream Tie-in Points - Care must be taken to ensure that there is a smooth transition into, and out of, the modified channel sections such that a continuity of channel form and process occurs, and that the stability of the constructed works is not compromised. This is accomplished by ensuring that the proposed channel modification is properly tied-into the existing creek at the Dixie Outlet Mall and the existing culverts under CN railway at the downstream end.

Low-Traffic Bridge Crossings – To accommodate the proposed channel and golf course restoration works, all none (9) existing pedestrian/cart bridge crossings will be removed. Five (5) new bridges are proposed to facilitate pedestrian and golf cart traffic. The proposed bridges are considered as and will be designed to meeting the standards for "Low Traffic Pedestrian Crossings" as defined in the CVC's Technical Guidelines for Watercourse Crossings.

Creek Corridor with Golf Course Setting - Applewood Creek is regarded as a natural hazard within the golf course. In turn, the proposed channel restoration should be creatively integrated with the golf course layout, such that it improves aesthetics, playability and the strategy of play, as well as providing golfers with an enjoyable and memorable golf experience.

Storm Sewer Outfalls – Two (2) storm sewer outfalls are located within the proposed work areas, which have deteriorated. These storm outfalls will be restored and retrofitted into the proposed channel alignment.

Sanitary Sewer Crossings – Region of Peel's sanitary trunk sewer crosses the channel near the downstream limit of the study area. In the proposed design, the existing cover of the sewer crossing will be maintained, in order to protect the sewer lines.

Disturbance to Terrestrial Vegetation – Mature trees and other vegetation are designated cultural heritage attributes of the Lakeview Golf Course, protected under the Ontario Heritage Act. The proposed design will endeavor to limit the number of trees required for removal. However, whenever trees are required for removal to facilitate construction, new trees consistent with City of Mississauga and Credit Valley Conservation requirements be replanted. As a number of potentially suitable maternity roosting trees for endangered bats are located within the study area, considerations will be given to minimize disturbance to those trees as well.

Low Flow – To ensure sufficient water depth for potential fish passage at structures, a low flow channel is required to concentrate flows in the riffle design.

Enhancement of Aquatic and Terrestrial Habitat – Efforts will be made to enhance terrestrial and aquatic habitats of Applewood Creek within the study area due to the creation of low flow channel and riparian plantings.

The sections below detail the various components of the design, subject to the above-mentioned considerations and constraints

3.1 Channel Form and Profile

Throughout the study area, the proposed channel restoration is contained within the City-owned golf course. Re-meandering of the channel is incorporated in the detailed design, with consideration of the watercourse blending into the golf course setting and being part of the play. The channel is significantly realigned within the middle section, where the design removes the existing irrigation pond and the proposed channel shifted away from the slope below the maintenance building. Locations of the riffles and pools were selected to minimize excavation, placing riffles on straight sections and pools on bends, and providing riffles at bridge crossings where possible. An average channel width of 10.3m is maintained, allowing a bankfull discharge approximately equivalent to the 2-year flood. Vegetated banks, with lifts of boulders, soil mix and vegetation plantings, are proposed long outer bends and runs to further stabilize channel banks and prevent bank failure from long-term erosion.

The proposed longitudinal profile provides a riffle-pool sequence, following the planform configuration. With fixed tie-in elevations at both ends, the proposed channel maintains the same average slope as the existing channel, with grades on the proposed riffles ranging from 1.5% to 2.5%. The proposed pool depth is maintained at 0.3m throughout the design, which provide potentials for fish habitat development.

Cross sections of typical riffles and pools are depicted in Figure 3-1 below. Profile details for arrangement of each riffle and pool feature are demonstrated on the detailed design drawings.

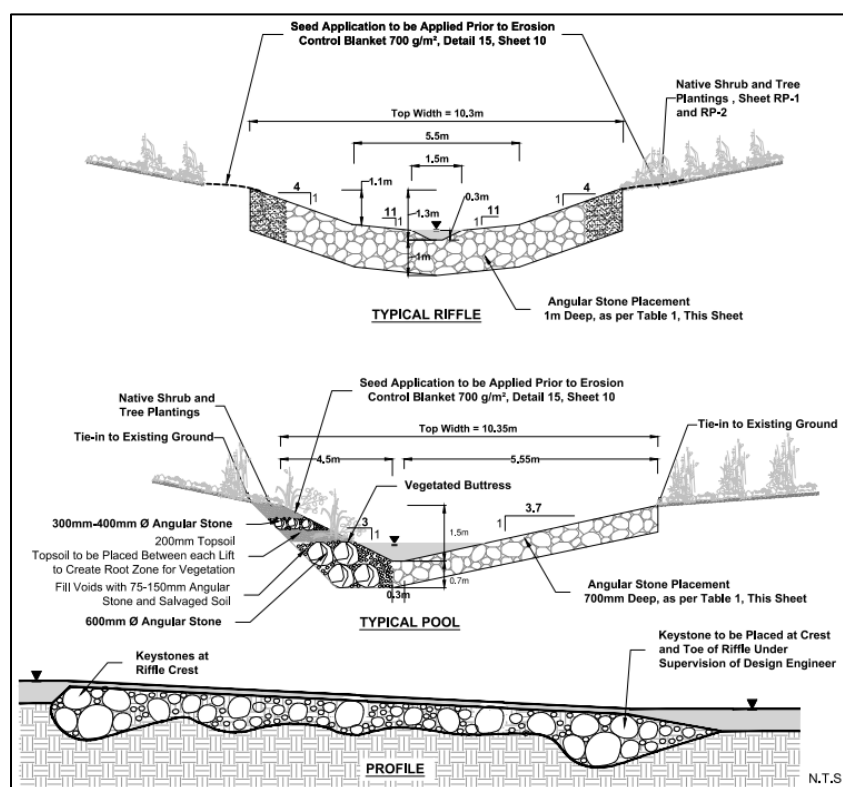


Figure 3-1. Typical Detail of Proposed Riffles and Pools.

As shown in the cross-section drawings, channel bed is to be constructed with a layer of angular stone mixture and the outer banks of the pools with vegetated boulders. The larger boulders placed at the toe of bank slopes are sized with a diameter of 0.6 (24 inch) which have a permissive shear stress and velocities of 483.6 N/m² and 5.49 m/s respectively (Table 3-4), surpassing the maximum shear and velocities that the channel experiences under all flow scenarios given in Table 3-3. The following sections will further explain the sizing of riffle materials.

3.2 Hydraulic Assessment

A Proposed Conditions scenario was developed to estimate hydraulic impacts of the proposed restoration work. The geometry of the Updated Existing conditions model was updated to generate the Proposed Conditions model as per the design. The geometry of cross sections, and the channel centerline from station 12591 to station 11310, were modified to reflect the proposed design including five (5) new bridges. The arrangement of the Proposed Conditions model cross-sections is depicted in Figure 3-2.



Figure 3-2. Arrangement of Cross Sections in the Proposed Conditions HEC-RAS Model.

3.2.1 Water Surface Elevations

The Proposed Condition model was used to estimate impacts of the proposed design on the water surface elevations for the return period flows and the Regional event. A summary of the resulting water surface elevations from the Proposed Conditions for the 100-year and 2-year events is presented in Table 3-1 and Table 3-2 respectively, in comparison to the Updated Existing Conditions water surface elevations. A complete table of hydraulic results for all three model scenarios is presented in Appendix A.

Table 3-1. Comparison of HEC-RAS 100-year Water Surface Elevations (Updated Existing Vs. Proposed).

100-Year Flood Flow (m ³ /s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.) (m)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	
49.7	12753	97.65	12753	97.65	0
49.7	12737	97.37	12737	97.37	0
49.7	12691	96.91	12691	96.91	0
49.7	12654	96.7	12654	96.7	0
49.7	12627	96.36	12627	96.39	0.03
49.7	12605	96.2	12605	96.3	0.1
49.7	12591	96.05	12591	95.67	-0.38
49.7	12555	95.8	12555	95.53	-0.27

100-Year Flood Flow (m3/s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	(m)
49.7	12504	95.58	12504	95.31	-0.27
49.7	12461	95.47	12461	95.16	-0.31
49.7	12396	95.25	12396	94.96	-0.29
49.7	12345	94.78	12345	94.43	-0.35
49.7	12301	94.63	12301	94.48	-0.15
49.7			12274	94.22	
49.7			12270 Proposed Bridge 1		
49.7			12266	93.85	
49.7	12271	94.49			
49.7	12268 Bridge / 13-Access Way				
49.7	12266	94.47			
49.7	12229	94.09	12229	93.67	-0.42
49.7	12204	93.95			
49.7	12199 Bridge / 12-Access Way				
49.7	12195	93.85	12195	93.65	-0.2
49.7	12155	93.69	12155	93.41	-0.28
49.7	12140	93.6	12140	93.2	-0.4
49.7	12109	93.44	12109	92.88	-0.56
49.7	12076	93.27	12076	92.83	-0.44
49.7	12054	93.05	12054	92.79	-0.26
49.7	12027	92.92	12027	92.57	-0.35
49.7	11998	92.8	11998	92.49	-0.31
49.7	11995 Bridge / 11-Access Way		11995 Proposed Bridge 2		
49.7	11992	92.47	11992	92.32	-0.15
49.7	11966	92.42	11966	92.35	-0.07
49.7	11937	92.38			
49.7	11932 Bridge / 10-Access Way				
49.7	11928	92.27	11928	92.34	0.07
49.7	11910	92.04			
49.7	11886	92.06			
49.7			11879	92.02	
49.7			11872 Proposed Bridge 3		
49.7	11861	91.87	11861	91.22	-0.65
49.7	11820	91.52	11820	90.84	-0.68
49.7	11761	91.29			
49.7	11757 Bridge / 9-Access Way				
49.7	11754	91.04			
49.7	11717	90.83	11717	90.32	-0.51
49.7	11702	90.75	11702	89.93	-0.82
49.7	11676	90.61			
49.7	11673 Bridge / 8-Access Way				
49.7	11672	90.46			
49.7	11655	90.39	11655	89.75	-0.64
49.7	11630	90.35	11630	89.73	-0.62
49.7	11607	90.17	11607	89.71	-0.46
49.7	11592	90.12			
49.7	11587 Bridge / 7-Access Way				

100-Year Flood Flow (m3/s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	(m)
49.7	11582				
49.7			11553	89.61	
49.7			11549 Proposed Bridge 4		
49.7			11543	89.18	
49.7	11542	90.05			
49.7			11536	89.22	
49.7	11500	89.36	11500	89.23	-0.13
49.7	11477	89.31	11477	89.23	-0.08
49.7	11450	89.27	11450	89.23	-0.04
49.7	11407	89.26	11407	89.23	-0.03
49.7	11402 Bridge / 6-Access Way		11405 Proposed Bridge 5		
49.7	11396	89.22	11396	89.22	0
49.7	11369	89.23	11369	89.23	0
49.7	11350	89.23			
49.7	11346 Bridge / 5-Access Way				
49.7	11341	89.23	11341	89.22	-0.01
49.7	11310	89.22	11310	89.22	0
51.1	11294	89.22	11294	89.22	0
11276 Culvert / 4-CNR					
51.1	11258	86.59	11258	86.59	0

Table 3-2. Comparison of HEC-RAS 2-year Water Surface Elevations (Updated Existing Vs. Proposed).

2-Year Flood Flow (m3/s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	(m)
12.7	12753	96.65	12753	96.65	0
12.7	12737	96.55	12737	96.55	0
12.7	12691	96.06	12691	96.06	0
12.7	12654	95.88	12654	95.88	0
12.7	12627	95.8	12627	95.8	0
12.7	12605	95.62	12605	95.3	-0.32
12.7	12591	95.5	12591	95.12	-0.38
12.7	12555	95.23	12555	94.84	-0.39
12.7	12504	94.99	12504	94.59	-0.4
12.7	12461	94.85	12461	94.39	-0.46
12.7	12396	94.55	12396	93.98	-0.57
12.7	12345	94.22	12345	93.52	-0.7
12.7	12301	94.04	12301	93.37	-0.67
12.7			12274	93.17	
12.7			12270 Proposed Bridge 1		
12.7			12266	93.09	
12.7	12271	93.85			
12.7	12268 Bridge / 13-Access Way				
12.7	12266	93.89			
12.7	12229	93.61	12229	93.01	-0.6
12.7	12204	93.56			

2-Year Flood Flow (m3/s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	(m)
12.7	12199 Bridge / 12-Access Way				
12.7	12195	93.27	12195	92.89	-0.38
12.7	12155	93.09	12155	92.47	-0.62
12.7	12140	92.99	12140	92.23	-0.76
12.7	12109	92.8	12109	92.02	-0.78
12.7	12076	92.64	12076	91.96	-0.68
12.7	12054	92.53	12054	91.91	-0.62
12.7	12027	92.26	12027	91.54	-0.72
12.7	11998	92.12	11998	91.37	-0.75
12.7	11995 Bridge / 11-Access Way		11995 Proposed Bridge 2		
12.7	11992	91.96	11992	91.34	-0.62
12.7	11966	91.95	11966	91.29	-0.66
12.7	11937	91.92			
12.7	11932 Bridge / 10-Access Way				
12.7	11928	91.65	11928	91.25	-0.4
12.7	11910	91.62			
12.7	11886	91.52			
12.7			11879	90.96	
12.7			11872 Proposed Bridge 3		
12.7	11861	91.09	11861	90.38	-0.71
12.7	11820	90.74	11820	89.94	-0.8
12.7	11761	90.47			
12.7	11757 Bridge / 9-Access Way				
12.7	11754	90.46			
12.7	11717	90.33	11717	89.47	-0.86
12.7	11702	90.2	11702	89.1	-1.1
12.7	11676	90.12			
12.7	11673 Bridge / 8-Access Way				
12.7	11672	90.06			
12.7	11655	90.02	11655	88.83	-1.19
12.7	11630	89.68	11630	88.72	-0.96
12.7	11607	89.48	11607	88.4	-1.08
12.7	11592	89.56			
12.7	11587 Bridge / 7-Access Way				
12.7	11582	89.3			
12.7			11553	88.29	
12.7			11549 Proposed Bridge 4		
12.7			11543	87.97	
12.7	11542	88.99			
12.7			11536	87.77	
12.7	11500	88.55	11500	87.48	-1.07
12.7	11477	88.51	11477	87.32	-1.19
12.7	11450	88.12	11450	87.1	-1.02
12.7	11407	87.62	11407	86.9	-0.72
12.7	11402 Bridge / 6-Access Way		11405 Proposed Bridge 5		
12.7	11396	87.5	11396	86.81	-0.69
12.7	11369	87.12	11369	86.68	-0.44

2-Year Flood Flow (m ³ /s)	Updated Existing	Updated Existing	Proposed	Proposed	Δ (Proposed - UpEx.) (m)
	River Station	W.S. Elev (m)	River Station	W.S. Elev (m)	
12.7	11350	87.07			
12.7	11346 Bridge / 5-Access Way				
12.7	11341	86.64	11341	86.62	-0.02
12.7	11310	86.48	11310	86.51	0.03
13.3	11294	86.54	11294	86.54	0
11276 Culvert / 4-CNR					
13.3	11258	85.69	11258	85.69	0

Review of tables above suggests that the proposed conditions water surface elevations and flooding conditions are significantly reduced within most areas of the study area under both flow regimes. Under the Regulatory (100-year) event, an increase in flooding was only observed at station 11928, downstream bounding cross section of an existing bridge. This increase of 0.07m can be explained due to the removal of the bridge and regrading of the area in the proposed design. For the 2-year event, only a minor increase of 0.03m was observed at the downstream boundary of the study area at station 11310. This 0.03m increase in water surface elevation is within the model accuracy and contained within golf course. Moreover, it is noted that these increases of water surface elevations have minimal impact on the Regulatory floodplain and will not impact the flooding conditions at the CN railway. An updated mapping of 100-year floodplain for the Updated Existing and Proposed Conditions models is depicted in Figure 25 below



Figure 3-3. Comparison of Updated Existing and Proposed 100-year Flood Limits (49.7m³/s).

3.2.2 Hydraulic Parameters

Key hydraulic parameters from the Proposed Conditions HEC-RAS model output are summarized in Table 3-3 below, indicating the velocity and forces that the proposed channel experiences during a range of flood events.

Table 3-3. Summary of Proposed Hydraulic Conditions of Applewood Creek.

Flood Event	Flow (m ³ /s)	Channel Velocity (m/s)		Channel Shear (N/m ²)		Channel Power (N/m s)	
		Avg.	Max.	Avg.	Max.	Avg.	Max.
2-year	12.7	1.72	2.82	46.75	142.86	92.14	403.10
5-year	19.7	1.85	3.10	50.78	135.13	108.78	419.27
10-year	27.5	1.92	3.45	53.87	162.89	127.05	545.86
25-year	34.7	1.95	3.67	54.67	169.94	134.50	619.06
50-year	41.8	2.06	3.73	58.55	177.50	150.67	617.52
Regional	42.3	2.05	3.73	57.97	180.33	148.56	614.98
100-year	49.7	2.13	3.73	59.91	243.77	157.65	856.70

Review of the above tables, in comparison to Table 2-4, shows that the proposed channel is expected to experience similar hydraulic conditions to its existing condition. In turn, the design has considered the risks associated with bed incision and bank failure over long-term erosion as well as under extreme conditions when defining types of restoration measures and determining resistance thresholds for proposed channel substrates. Published data on critical erosional thresholds for various types of materials are presented in Table 3-4.

Table 3-4. Erosion Thresholds for Stream Bed and Bank Materials (Fischenich, 2001).

Boundary Material	Permissible Shear Stress	Permissible Velocity
	(N/m ²)	(m/s)
Fine Gravels	3.6	0.76
Stiff Clay	12.4	0.91-1.37
Alluvial Silt	12.4	1.14
Shales and Hardpan	32.1	1.83
Non-Uniform Gravel / Cobble		
2-inch	32.1	0.91-1.83
6-inch	95.8	1.22-2.29
12-inch	191.5	1.68-3.66
Rip-Rap		
9-inch D50	181.9	2.13-3.35
12-inch D50	244.2	3.05-3.96
18-inch D50	363.9	3.66-4.88
24-inch D50	483.6	4.275-4.9
Soil Bioengineering		
Vegetated coir mat	191.5-383.0	2.9
Live brush mattress (initial)	19.2-196.3	1.22
Live brush mattress (grown)	186.7-392.6	3.66
Brush layering (initial/grown)	19.2-299.2	3.66
Concrete / Armourstone	598.5	5.49

3.2.3 Flow Conveyance Analysis

As aforementioned, the primary function of the proposed bridges is to allow golf carts and golfers to cross the creek during the play. In turn, these bridges are considered as “Low Traffic Pedestrian Crossings” and have in turn been designed to meet the minimum dimensions as required in the Guideline. Design criteria for “Low Traffic Pedestrian Crossings” and the proposed bridge dimensions are summarized in Table 3-5 and Table 3-6 respectively.

Table 3-5. CVC Low Traffic Pedestrian Crossing Design Criteria.

Criteria	Minimum Height = x (times) bankfull depth	Minimum Span = x (times) bankfull width
	$1 \frac{1}{2} + 30\text{cm}$ when depth is greater than 60cm	$1 \frac{1}{2}$ (or 1 for existing man-made channelization)

Table 3-6. Proposed Bridge Dimensions.

River Station	Bridge #	Soffit Elevation (m)	Channel Invert Elevation (m)	Height (m)	Span (m)	Width (m)
12270	Bridge 1	94.13	91.88	2.25	15.45	3
11995	Bridge 2	92.25	90	2.25	15.45	3
11872	Bridge 3	91.93	89.68	2.25	15.45	3.6
11549	Bridge 4	88.93	86.68	2.25	15.45	3
11405	Bridge 5	87.92	85.37	2.55	15.45	3

Flow conveyance analysis for all five (5) proposed bridges was performed in order to identify their conveyance capacities and overtopping conditions and examine these conditions against CVC's Technical Guidelines for Watercourse Crossings. Assessment results are provided in Table 3-7.

Table 3-7. Conveyance Flow Analysis for Proposed Bridges.

River Station	Bridge #	Max. Conveyance with Free Board	Max. Pressurized Flow without Overtopping	Min. Flow with Overtopping
12270	Bridge 1	100-year		
11995	Bridge 2	Regional	100-year	
11872	Bridge 3	100-year		
11549	Bridge 4	10-year	100-year	
11405	Bridge 5	5-year		10-year

Review of the results suggests that all proposed bridges, except for Bridge #5, will not be overtopped under storm events ranging from 2-year to Regulatory. Upon review of the flood profiles of the entire reach, it is noted that conveyance through Bridge #5 is largely restricted due to the backwater effect of the downstream CN culvert crossing.

3.3 Geotechnical Investigations

A detailed geotechnical investigation was undertaken by Terraprobe Inc. in April 2020, in order to define and characterize the subsurface soil and groundwater conditions within the study area, as well as providing geotechnical engineering recommendations for the design of the proposed pedestrian bridge foundations.

The field investigation consists of drilling and sampling a total of nine (9) boreholes to auger refusal depths of 2.1m to 3.9m below existing ground surface, in the vicinity of each of the proposed bridge locations. In summary, a surficial layer of topsoil was encountered at the ground surface in all boreholes. The topsoil was underlain by a layer of earth fill materials in some boreholes. The native deposits consisted of generally loose sandy silt to silty sand or sand which was in turn underlain by clayey silt glacial till deposit which extended to the inferred bedrock. The bedrock of the Georgian Bay Formation, typically found in the general area, is a deposit predominantly comprising thin to medium bedded blue-grey shale of Upper Ordovician age. The bedrock contains interbeds of grey calcareous shale, limestone and calcareous sandstone which are discontinuous and nominally 50-300mm thick.

Upon review of the subsurface soil and groundwater conditions identified within the study area, it is recommended that a conventional spread footing foundation approach would be the most feasible based on the relatively shallow depth of inferred bedrock.

The complete geotechnical report is included in Appendix F.

3.4 Substrate Sizing

The predicted shear stress and velocity values in the hydraulic model were reviewed to determine appropriate stone sizing for the channel substrate mix under proposed conditions. Channel shear stress values from the proposed model were used to determine the entrainable grain size using the critical shear stress equation derived from the Shield's equation (Robert, 2003):

$$\tau_{cr} = 0.728D \quad [1]$$

where τ_{cr} is the critical shear stress [N/m²]
D is the grain size entrained [mm]

Transportable grain sizes were also considered in the analysis and were determined using the predicted velocities in the equation derived by Komar (1987):

$$v = 57D^{0.46} \quad [2]$$

where v is the velocity [cm/s]
D is the grain size transported [cm]

Results from the hydraulic model and hydraulic analysis are included in Appendix A. The calculated mean values for grain sizes entrained and transported for the HEC-RAS sections throughout the study area are presented in Table 3-8. These values were used to inform the proposed channel substrate gradation.

Table 3-8. Mean Grain Sizes from the Hydraulic Analysis.

Flood Event	Mean Grain Size Entrained (Shield Equation)		Mean Grain Size Transported (Komar Equation)	
	Average (mm)	Max (mm)	Average (mm)	Max (mm)
2-Year (12.7 m ³ /s)	61	156	114	330
5-Year (19.7 m ³ /s)	67	186	137	431
Regional (42.3 m ³ /s)	73	335	165	650
100-Year (49.7 m ³ /s)	79	248	186	650

Review of the table above suggests that the mean grain size predicted by the model to be entrained is about 50 to 350mm for the 2-year through 100-year flood events. The estimated transportable grain size is about 100 to 650mm for the same range of flows. Applying a factor of safety, these values were used to determine the D₅₀ and D₈₄ of the substrate, which were then used to inform the substrate gradation as included in Table 3-9. The smaller material has been specified to fill the voids between the larger material and to contribute to fish habitat. Larger particles, keystones, are included to provide stabilization of the overall riffle structures, particularly at the riffle toe and crest under all potential flood flow conditions, including the Regional and range of return period events.

Table 3-9. Proposed Substrate Gradation.

Substrate Sizing		Percent Composition (%)	Accumulative Percentage (%)
(mm)	(in)		
50 – 150	2 - 6	15	15
150 - 300	6 - 12	20	35
300 – 450 (D ₅₀)	12 - 18	20	55
450 – 550	18- 21.5	15	70
550-750	21.5 - 29.5	15	85
750-900 (D ₈₄)	29.5 - 35.5	15	100

3.5 Bank Treatments

Vegetated buttresses are proposed to form banks of the outer bends to further stabilized the proposed channel while creating a more natural form. The vegetated buttresses are composed of layers of roundstone with the void space filled with smaller roundstone and native soil. The surface will be amended with topsoil, planted with native shrubs (potted stock), and terraseeded with a native seed mix. A detail is shown on Sheet CD-1 of the design drawing package. Upper banks of the runs and riffles of the proposed channel will consist of a 50/50 mixture of channel substrate and native fills. The hard materials are proposed to stabilize the banks with the native materials filling the voids and supporting vegetation growth.

3.6 Sanitary Sewer Crossings

Region of Peel’s sanitary trunk sewer, 2.4m diameter, crosses the proposed channel near the downstream limit of the study area, at chainage 1+220m. Protection of the sanitary sewer crossing is critical to this project as this sewer is integral to Peel’s collection system serving as the Region’s main eastern trunk sewer collection spine and cannot be isolated. The existing cover depth above the sewer crossing is ~2.8m which will be maintained by the proposed design. Risks associated with impact loads and heavy equipment live loads to the sewer will be assessed and confirmed with the Region that the proposed channel and construction activities do not undermine the integrity of this sanitary crossing. Mitigation measures to further protect the sewer during construction will also be considered, including placement of wood/steel mats on the riding surface over/near the sewer and pre- and post-construction CCTV inspection of the sewer.

A cross section of the proposed channel restoration through the sewer crossing is shown on Sheet XS-6 of the design drawing package.

3.7 Fish Passage

The design was also assessed to ensure fish habitat and passage potential are not negatively impacted throughout the study area. A fish passage assessment was performed for the proposed channel adjustment by evaluating channel velocities under frequent flow conditions. The low flow condition was estimated using the Ontario Flow Assessment Tool (OFAT). The User Guide suggests that the 1 in 10 years 3-day delay discharge (3Q10) be used when assessing fish passage. A 3Q10 discharge of 0.11 m³/s was estimated using OFAT, applying the Graphical Index Method (MOEE 1995). This flow condition was applied to the updated existing conditions and proposed conditions HEC-RAS model scenario, with simulation results for channel velocities summarized in Table 3-10.

Table 3-10. Channel Velocities Under Low Flow Conditions.

Model Scenario	Flow (m ³ /s)	Channel Velocity (m/s)		
		Median	Average	Maximum
Updated Existing	0.11	0.46	0.52	1.21
Proposed	0.11	0.58	0.58	1.05

The resulting channel velocities were then compared with fish swimming velocities from the Environmental Guide for Fish and Fish Habitat (MTO, 2006) summarized in Table 3-11.

Table 3-11. Fish Swimming Speeds (MTO, 2006).

Species End Life Stage (size, mm)	Sustained* Speed (m/s)	Prolonged* Speed (m/s)	Burst* Speed (m/s)
Small forage fish** (50 – 65 mm)	0 – 0.22	0.22 – 0.29	0.29 – 0.40
Medium forage fish** (90 – 110 mm)	0 – 0.31	0.31 – 0.68	0.68 – 0.76
Large forage fish** (180 – 230 mm)	0 – 0.42	0.42 – 0.95	0.95 – 1.11
Carp (adults)	0 – 0.4	0.4 – 1.2	1.2 – 2.6
Suckers (adults)	0 – 0.4	0.4 – 1.5	1.6 – 3.1
Brown Trout (adults)	0.0 – 0.7	0.7 – 1.9	1.9 – 3.9
Rainbow Trout (adults)	0.0 – 0.9	0.9 – 1.8	1.8 – 4.3

* Sustained speed can be maintained indefinitely.

Prolonged speed can be maintained for up to 200 minutes.

Burst speed can be maintained for up to 15 seconds. (Chillbeck 1992)

** Calculations based on a generalized relationship between fish length and swimming speed for species using the same swimming form (Katopodis and Gervais, 1991).

Comparison of velocities at low flow conditions suggest that the study area of Applewood Creek is currently passable to large forage fish and larger species, although channel velocities can exceed the burst speed of large forage fish within some localized sections. Maximum channel velocities under low flow conditions have decreased under the proposed condition, with minimal increase on the average velocity, so impacts to fish passage should not be negative overall. In addition, the estimated velocities of the proposed channel are well within the range of swimming speeds of White Suckers which were previously observed upstream of Lakeshore as documented in the Environmental Impact Study for 1345 Lakeshore Road East Land Development (ABL, 2018).

It is important to note that the existing aquatic habitat within Applewood Creek represents a disturbed watercourse in an urban area and supports a low diversity of fish community due to the degraded gabion lined banks and little in-stream vegetation cover. However, the intent of this project is to improve the existing condition in which better opportunities for fish habitat and passage may occur. In this regard, all gabion line banks are proposed to be removed and replaced with vegetated boulders and stones, along with proposed riffle profile sloping from 1.5-2.5%, considered well within the range of fish passage potential.

3.8 Enhancement to Golf Course Features

Given the architectural pedigree and cultural heritage value of Lakeview Golf Course, it is critical that any alterations to the golf features are designed in a restorative fashion, so that the restoration does not undermine the principles and style of the original design while accommodating the erosion protection objectives.

To accommodate the proposed natural realignment as per the preferred alternative, some changes to the golf course features are required, including some tees, fairways, greens, trees, and cart path. Therefore, Aquafor has worked collaboratively with Schollen's golf course architect throughout the project, with the intention to bring back the original layout (~1920s by Mr. Strong) where possible and to allow the proposed Applewood Creek corridor to become a more aesthetically and strategically prominent part of the golf course. The proposed restorative changes to each hole are summarized below.

Hole 1:

The 1st tee is proposed to be relocated and restored as an elevated tee shot as the proposed creek alignment traverse through the existing tees. Research suggested that the hole played at 350-yards during the 1923 Canadian Open, which is approximately 15-yards longer than its current length (Toronto Star 1923). As such, elevating the tee and lengthening the hole will be consistent with its original design.

Hole 5:

The restoration of Hole 5, a par 5, will be focused on enhancing the prominence of Applewood Creek and strengthening sightlines to the north side of the second landing area. This will require the removal of two spruce trees that are located to the left (northwest) of the green and the reconstruction of the cart path along the right (south) side of the hole.

Hole 8:

The alterations to Hole 8 will include the provision of connection from the forward tee-off to the fairway area by constructing a bridge over the watercourse. A new forward tee will also be re-constructed. The fairway is proposed to be re-contoured with additional landing width to improve playability of this hole, which can be achieved by changing the grass-cutting strategies.

Hole 16:

The restoration of Hole 16 will recapture the opportunity to use the natural topography on the left (north) side to direct the ball into the ideal landing area with a clearer sightline. This will require the removal of one spruce tree in the left rough, expansion of the fairway, realignment of the back tee, and relocation of the front tee. A review of historical aerial photographs suggests that there was no tree historically located on the left-hand side of the fairway prior to the 1980's, therefore, removal of the spruce tree will assist in restoring this hole to its pre-1980s state.

Moreover, the green is proposed to be enlarged to its anticipated original size, which is considered important in maintaining adequate turf health to the course (which hosts over 32,000 rounds of play each season). The green expansion will involve probing beyond the existing perimeter of the green and searching for remnants of the original green profile. If the green can be restored to its original size via this approach, it would be seen as a positive impact on the cultural heritage value of the course. Otherwise, if no remnants of the former green can be found, the expansion will be achieved by carefully matching surface grades and strategic grass-cutting to achieve a seamless transition. It is also important to note that the internal slope percentages within the green shall be maintained.

Hole 17:

The novelty of Hole 17 is its two sets of tees and greens (upper and lower). Based upon research of historical photographs and literature, the upper set appears to be original as designed by Mr. Strong in 1921, whereas the lower set was created in 1950-1960s and has since been altered several times, with the pond being constructed in 1977. The proposed alterations to Hole 17 include the restoration of the upper green size, to achieve the character and bunker configuration to that of 1921 green, as well as the removal of the lower green. A historic photo of the original 17th green is included in the Figure below, which is a strong example of the artistry and character of Mr. Strong who boldly located greens near ridgelines.



Figure 3-4. Lakeview Golf Course 17th Hole – 1921, Exiting & Proposed Conditions.

3.9 Vegetation Restoration

In order for the proposed restoration to be implemented, some disturbance to the surrounding vegetation will occur. In an effort to minimize the disturbance, sediment and erosion control fencing will be erected at the onset of the construction and will be used delineate the extents of machinery access and minimize creep into surround areas. As indicated in Section 2.4, a detailed vegetation inventory was completed to enable tailoring the access and impacted areas to minimize mature tree removals.

A total of 175 trees were identified for removal to facilitate the proposed channel works, mostly consisting of non-native species (i.e., Manitoba Maples, Norway Maples, etc.) which are also mostly in poor health conditions and low preservation priorities. Following completion of construction, all disturbed areas will be restored as per the planting plan and details of the design drawings. All trees removed will be compensated at a 3:1 ratio. Native seed mixes will also be specified for the disturbed area. The seed mixes will be applied by Terraseeding with a cover crop to provide erosion protection as the permanent vegetation establishes.

Overall, the restoration plan provides an ecological benefit to aquatic and terrestrial habitats. Once established, shrubs and trees along the bank will provide over-hanging vegetation which will shade the creek and help maintain cooler water temperatures. Over-hanging vegetation also provides secondary inputs, such as insects and leaf litter, which contribute to aquatic habitat. Rooting masses of established plants will help to stabilize the bank and reduce sediment release. The use of native vegetation provides habitat for wildlife (e.g., food sources for birds) and will increase the vegetation diversity in the creek corridor. Detailed restoration plan including restored areas, species of trees and shrubs to be planted, and seed mix is shown on design drawings.

4 PERMITS AND APPROVALS

Prior to construction it will be necessary to coordinate environmental approvals and permits required to completed the intended works. At this time, it is Aquafor's understanding that approvals from CVC, MECP, DFO, Region of Peel, and City of Mississauga may be required. A brief summary of permits and approvals is included below:

CVC – O. Reg. 166/06 Permit – This typically involves two submissions (60% & 95% design) and will include supporting design brief information.

DFO – Assessment under the Federal Fisheries Act – Aquafor's certified fisheries biologist completed a Self-Assessment based on the detailed design for the proposed works. It was determined that application for a DFO Request for Review was necessary for the proposed Duncan Creek restoration design. A Request for Review will be submitted to DFO. Based on similar experiences, at minimum a Letter of Advice may will be required from DFO.

MECP 17(2) (b / c) Species at Risk Permit – An Information Gathering Form (IGF) will be submitted to the MEC. Depending on the results of the IGF and further field investigations, MECP will confirm whether a SAR permit will be required.

Regional of Peel – Sanitary Sewer Easement – The proposed channel works within the existing Region sanitary sewer easement need to be approved by the Region.

City of Mississauga – Heritage By-Law - A heritage permit application will be submitted to the City's Heritage Advisory Committee, including the detailed design and Heritage Impact Assessment report.

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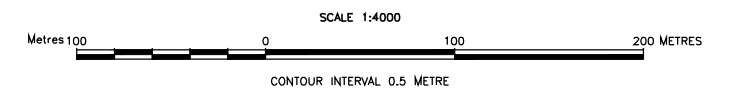
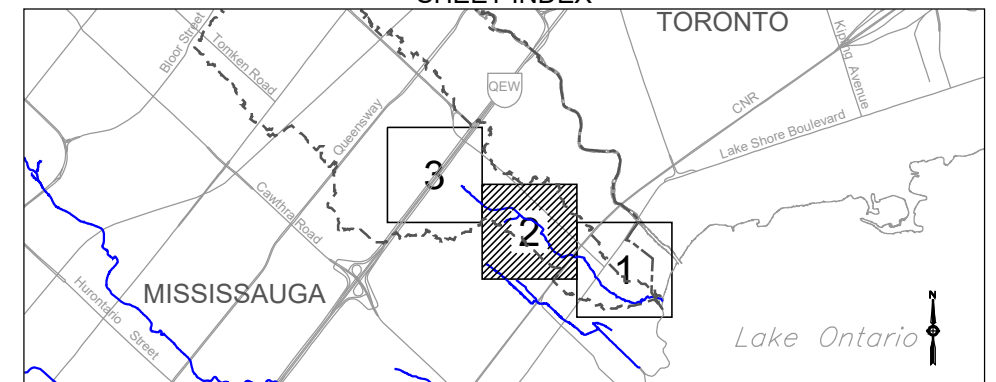
Appendix A – CVC Regulatory Flood Hazard Mapping (2020)

FLOOD HAZARD MAP APPLEWOOD CREEK WATERSHED

LEGEND

Bridges.....	Marsh.....	Spot Height.....
Building.....	Municipal Boundary.....	Trail.....
Building Ruin.....	Overhead Walkway.....	Wall.....
Building Under Construction.....	Parcel Fabric.....	Watershed Boundary.....
Contour Index.....	Parking Lot.....	Waterbody Elevation.....
Contour Intermediate.....	Pile.....	Wooded Area.....
Culvert Symbol.....	Pipe.....	Regulatory Floodline.....
Culvert to Scale.....	Pit.....	Regulatory Floodplain (2D Model).....
Dam.....	Playground.....	1D-2D Model Limits.....
Ditch.....	Pole.....	Two-Zone Policy Area.....
Dock, Wharf, Pier.....	Pool.....	Section.....
Driveway.....	Railway.....	Overflow Section.....
Falls, Rapids.....	Railway Abandoned.....	Structure ID.....
Fire Hydrant.....	River, Creek, Shoreline.....	Spill.....
Flow Direction.....	Road.....	Regional Flood Elevation
Footbridge.....	Road Shoulder.....	Section Number
Guiderail.....	Road Understructure (UC).....	100 Year Flood Elevation
Headwall.....	Sidewalk.....	
Hedge.....	Silo.....	

SHEET INDEX



General Notes:

1. Contourlines on this map were generated by Airborne Imaging using the Spring of 2015 LIDAR point cloud, breaklines and hydrologic enforcement at bridges. The vertical accuracy of the original points is 0.10 metres RMSE.
2. The planimetric data was obtained from the City of Mississauga in 2017.
3. The vertical datum is mean sea level established by the CGVD 28, 1978 Southern Ontario adjustment.
4. The horizontal datum is North American Datum 1983 CSRS (Epoch 2010) UTM Zone 17.
5. To obtain City of Mississauga datum, add 0.121 metres to elevation data.



No	Amendment/Revision	By	Date

Appendix B – Detailed HECRAS Results

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12843	2yr	Applewood Final Flow	12.7	97	97.92	97.83	98.18	0.015148	2.23	100.36	223.31	32.16	5.71	7.98	0.84
2241	12843	2yr	Updated Existing	12.7	97	97.92	97.83	98.18	0.015148	2.23	100.36	223.31	31.7	5.71	7.98	0.84
2241	12843	2yr	ABL_Proposed	12.7	97	97.92	97.83	98.18	0.015148	2.23	100.36	223.31	27.15	5.71	7.98	0.84
2241	12843	5yr	Applewood Final Flow	19.7	97	98.19	98.08	98.5	0.014425	2.47	117.35	290.16	52.72	7.97	8.98	0.84
2241	12843	5yr	Updated Existing	19.7	97	98.19	98.08	98.5	0.014425	2.47	117.35	290.16	52.27	7.97	8.98	0.84
2241	12843	5yr	ABL_Proposed	19.7	97	98.19	98.08	98.5	0.014425	2.47	117.35	290.16	44.02	7.97	8.98	0.84
2241	12843	10yr	Applewood Final Flow	27.5	97	98.52	98.3	98.83	0.011405	2.47	111.47	275.04	81.1	11.15	10.4	0.76
2241	12843	10yr	Updated Existing	27.5	97	98.52	98.3	98.83	0.011405	2.47	111.47	275.04	81.01	11.15	10.4	0.76
2241	12843	10yr	ABL_Proposed	27.5	97	98.52	98.3	98.83	0.011405	2.47	111.47	275.04	73.24	11.15	10.4	0.76
2241	12843	25yr	Applewood Final Flow	34.7	97	98.67	98.49	99.05	0.012648	2.72	132.66	360.36	106.4	12.77	11.1	0.81
2241	12843	25yr	Updated Existing	34.7	97	98.67	98.49	99.05	0.012648	2.72	132.66	360.36	106.43	12.77	11.1	0.81
2241	12843	25yr	ABL_Proposed	34.7	97	98.67	98.49	99.05	0.012648	2.72	132.66	360.36	102.34	12.77	11.1	0.81
2241	12843	50yr	Applewood Final Flow	41.8	97	98.81	98.65	99.24	0.013013	2.91	148.49	432.21	119.97	14.38	11.79	0.83
2241	12843	50yr	Updated Existing	41.8	97	98.81	98.65	99.24	0.013013	2.91	148.49	432.21	119.98	14.38	11.79	0.83
2241	12843	50yr	ABL_Proposed	41.8	97	98.81	98.65	99.24	0.013013	2.91	148.49	432.21	115.9	14.38	11.79	0.83
2241	12843	100yr	Applewood Final Flow	49.7	97	98.95	98.8	99.44	0.013261	3.1	164.57	510.97	134.65	16.09	12.67	0.85
2241	12843	100yr	Updated Existing	49.7	97	98.95	98.8	99.44	0.013261	3.1	164.57	510.97	134.69	16.09	12.67	0.85
2241	12843	100yr	ABL_Proposed	49.7	97	98.95	98.8	99.44	0.013261	3.1	164.57	510.97	131.67	16.09	12.67	0.85
2241	12843	Regional	Applewood Final Flow	42.3	97	98.82	98.66	99.26	0.013023	2.92	149.5	437.04	130.85	14.49	11.83	0.83
2241	12843	Regional	Updated Existing	42.3	97	98.82	98.66	99.26	0.013023	2.92	149.5	437.04	130.86	14.49	11.83	0.83
2241	12843	Regional	ABL_Proposed	42.3	97	98.82	98.66	99.26	0.013023	2.92	149.5	437.04	127.43	14.49	11.83	0.83
2241	12843	Fish Passage	Applewood Final Flow	0.11	97	97.08	97.06	97.09	0.014927	0.43	8	3.47	1.38	0.25	4.63	0.59
2241	12843	Fish Passage	Updated Existing	0.11	97	97.08	97.06	97.09	0.014927	0.43	8	3.47	1.22	0.25	4.63	0.59
2241	12843	Fish Passage	ABL_Proposed	0.11	97	97.08	97.06	97.09	0.014927	0.43	8	3.47	1.32	0.25	4.63	0.59
2241	12839	2yr	Applewood Final Flow	12.7	96.91	97.77	97.77	98.11	0.020608	2.56	127.44	325.69	32.14	4.97	7.46	1
2241	12839	2yr	Updated Existing	12.7	96.91	97.77	97.77	98.11	0.020608	2.56	127.44	325.69	31.68	4.97	7.46	1
2241	12839	2yr	ABL_Proposed	12.7	96.91	97.77	97.77	98.11	0.020608	2.56	127.44	325.69	27.13	4.97	7.46	1
2241	12839	5yr	Applewood Final Flow	19.7	96.91	98.02	98.02	98.43	0.01996	2.84	150.87	428.95	52.69	6.93	8.43	1
2241	12839	5yr	Updated Existing	19.7	96.91	98.02	98.02	98.43	0.01996	2.84	150.87	428.95	52.24	6.93	8.43	1
2241	12839	5yr	ABL_Proposed	19.7	96.91	98.02	98.02	98.43	0.01996	2.84	150.87	428.95	43.99	6.93	8.43	1
2241	12839	10yr	Applewood Final Flow	27.5	96.91	98.49		98.79	0.010614	2.43	104.01	252.27	81.06	11.34	10.56	0.75
2241	12839	10yr	Updated Existing	27.5	96.91	98.49		98.79	0.010614	2.43	104.01	252.27	80.97	11.34	10.56	0.75
2241	12839	10yr	ABL_Proposed	27.5	96.91	98.49		98.79	0.010614	2.43	104.01	252.27	73.2	11.34	10.56	0.75
2241	12839	25yr	Applewood Final Flow	34.7	96.91	98.63		99	0.011806	2.68	124.93	335.31	106.35	12.93	11.31	0.8
2241	12839	25yr	Updated Existing	34.7	96.91	98.63		99	0.011806	2.68	124.93	335.31	106.38	12.93	11.31	0.8
2241	12839	25yr	ABL_Proposed	34.7	96.91	98.63		99	0.011806	2.68	124.93	335.31	102.3	12.93	11.31	0.8
2241	12839	50yr	Applewood Final Flow	41.8	96.91	98.77		99.19	0.012201	2.88	140.6	405.41	119.91	14.55	12.08	0.82
2241	12839	50yr	Updated Existing	41.8	96.91	98.77		99.19	0.012201	2.88	140.6	405.41	119.93	14.55	12.08	0.82
2241	12839	50yr	ABL_Proposed	41.8	96.91	98.77		99.19	0.012201	2.88	140.6	405.41	115.85	14.55	12.08	0.82
2241	12839	100yr	Applewood Final Flow	49.7	96.91	98.91	98.75	99.39	0.01292	3.07	157.47	483.67	134.59	16.33	14.01	0.85
2241	12839	100yr	Updated Existing	49.7	96.91	98.91	98.75	99.39	0.01292	3.07	157.47	483.67	134.64	16.33	14.01	0.85
2241	12839	100yr	ABL_Proposed	49.7	96.91	98.91	98.75	99.39	0.01292	3.07	157.47	483.67	131.61	16.33	14.01	0.85
2241	12839	Regional	Applewood Final Flow	42.3	96.91	98.78		99.21	0.012222	2.9	141.6	410.08	130.8	14.66	12.14	0.82
2241	12839	Regional	Updated Existing	42.3	96.91	98.78		99.21	0.012222	2.9	141.6	410.08	130.81	14.66	12.14	0.82
2241	12839	Regional	ABL_Proposed	42.3	96.91	98.78		99.21	0.012222	2.9	141.6	410.08	127.38	14.66	12.14	0.82
2241	12839	Fish Passage	Applewood Final Flow	0.11	96.91	96.98	96.98	97	0.045012	0.67	19.5	13.04	1.38	0.16	3.72	1.02
2241	12839	Fish Passage	Updated Existing	0.11	96.91	96.98	96.98	97	0.045012	0.67	19.5	13.04	1.22	0.16	3.72	1.02
2241	12839	Fish Passage	ABL_Proposed	0.11	96.91	96.98	96.98	97	0.045012	0.67	19.5	13.04	1.32	0.16	3.72	1.02
2241	12831	2yr	Applewood Final Flow	12.7	96.47	97.73	97.34	97.85	0.005064	1.57	43.62	68.29	32.09	8.11	8.57	0.51
2241	12831	2yr	Updated Existing	12.7	96.47	97.73	97.34	97.85	0.005064	1.57	43.62	68.29	31.63	8.11	8.57	0.51
2241	12831	2yr	ABL_Proposed	12.7	96.47	97.73	97.34	97.85	0.005064	1.57	43.62	68.29	27.07	8.11	8.57	0.51

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12831	5yr	Applewood Final Flow	19.7	96.47	98.12	97.58	98.27	0.004448	1.68	47.56	79.69	52.61	11.76	9.89	0.49
2241	12831	5yr	Updated Existing	19.7	96.47	98.12	97.58	98.27	0.004448	1.68	47.56	79.69	52.16	11.76	9.89	0.49
2241	12831	5yr	ABL_Proposed	19.7	96.47	98.12	97.58	98.27	0.004448	1.68	47.56	79.69	43.92	11.76	9.89	0.49
2241	12831	10yr	Applewood Final Flow	27.5	96.47	98.55		98.69	0.00371	1.69	46.63	78.65	80.95	16.3	11.62	0.45
2241	12831	10yr	Updated Existing	27.5	96.47	98.55		98.69	0.00371	1.69	46.63	78.65	80.86	16.3	11.62	0.45
2241	12831	10yr	ABL_Proposed	27.5	96.47	98.55		98.69	0.00371	1.69	46.63	78.65	73.09	16.3	11.62	0.45
2241	12831	25yr	Applewood Final Flow	34.7	96.47	98.7		98.89	0.004262	1.91	58.27	111.26	106.23	18.2	12.6	0.49
2241	12831	25yr	Updated Existing	34.7	96.47	98.7		98.89	0.004262	1.91	58.27	111.26	106.26	18.2	12.6	0.49
2241	12831	25yr	ABL_Proposed	34.7	96.47	98.7		98.89	0.004262	1.91	58.27	111.26	102.17	18.2	12.6	0.49
2241	12831	50yr	Applewood Final Flow	41.8	96.47	98.85		99.08	0.004517	2.09	67.78	141.76	119.77	20.21	14.58	0.52
2241	12831	50yr	Updated Existing	41.8	96.47	98.85		99.08	0.004517	2.09	67.78	141.76	119.78	20.21	14.58	0.52
2241	12831	50yr	ABL_Proposed	41.8	96.47	98.85		99.08	0.004517	2.09	67.78	141.76	115.71	20.21	14.58	0.52
2241	12831	100yr	Applewood Final Flow	49.7	96.47	99		99.26	0.004757	2.27	77.73	176.6	134.43	22.49	15.74	0.54
2241	12831	100yr	Updated Existing	49.7	96.47	99		99.26	0.004757	2.27	77.73	176.6	134.48	22.49	15.74	0.54
2241	12831	100yr	ABL_Proposed	49.7	96.47	99		99.26	0.004757	2.27	77.73	176.6	131.46	22.49	15.74	0.54
2241	12831	Regional	Applewood Final Flow	42.3	96.47	98.86		99.09	0.004532	2.1	68.4	143.88	130.66	20.36	14.68	0.52
2241	12831	Regional	Updated Existing	42.3	96.47	98.86		99.09	0.004532	2.1	68.4	143.88	130.66	20.36	14.68	0.52
2241	12831	Regional	ABL_Proposed	42.3	96.47	98.86		99.09	0.004532	2.1	68.4	143.88	127.24	20.36	14.68	0.52
2241	12831	Fish Passage	Applewood Final Flow	0.11	96.47	96.58	96.55	96.59	0.009904	0.41	6.61	2.72	1.38	0.27	3.91	0.5
2241	12831	Fish Passage	Updated Existing	0.11	96.47	96.58	96.55	96.59	0.009904	0.41	6.61	2.72	1.22	0.27	3.91	0.5
2241	12831	Fish Passage	ABL_Proposed	0.11	96.47	96.58	96.55	96.59	0.009904	0.41	6.61	2.72	1.32	0.27	3.91	0.5
2241	12816	2yr	Applewood Final Flow	12.7	96.29	97.6	97.32	97.75	0.008192	1.74	59.91	104.04	31.97	7.31	9.28	0.62
2241	12816	2yr	Updated Existing	12.7	96.29	97.6	97.32	97.75	0.008192	1.74	59.91	104.04	31.51	7.31	9.28	0.62
2241	12816	2yr	ABL_Proposed	12.7	96.29	97.6	97.32	97.75	0.008192	1.74	59.91	104.04	26.96	7.31	9.28	0.62
2241	12816	5yr	Applewood Final Flow	19.7	96.29	98.05	97.58	98.18	0.006545	1.59	62.29	98.98	52.43	12.59	15.35	0.5
2241	12816	5yr	Updated Existing	19.7	96.29	98.05	97.58	98.18	0.006545	1.59	62.29	98.98	51.98	12.59	15.35	0.5
2241	12816	5yr	ABL_Proposed	19.7	96.29	98.05	97.58	98.18	0.006545	1.59	62.29	98.98	43.73	12.59	15.35	0.5
2241	12816	10yr	Applewood Final Flow	27.5	96.29	98.53	97.81	98.62	0.003156	1.38	41.55	57.29	80.66	22.22	23.92	0.37
2241	12816	10yr	Updated Existing	27.5	96.29	98.53	97.81	98.62	0.003156	1.38	41.55	57.29	80.57	22.22	23.92	0.37
2241	12816	10yr	ABL_Proposed	27.5	96.29	98.53	97.81	98.62	0.003156	1.38	41.55	57.29	72.8	22.22	23.92	0.37
2241	12816	25yr	Applewood Final Flow	34.7	96.29	98.71	97.97	98.81	0.003204	1.5	47.07	70.39	105.9	26.04	25.86	0.38
2241	12816	25yr	Updated Existing	34.7	96.29	98.71	97.97	98.81	0.003204	1.5	47.07	70.39	105.93	26.04	25.86	0.38
2241	12816	25yr	ABL_Proposed	34.7	96.29	98.71	97.97	98.81	0.003204	1.5	47.07	70.39	101.84	26.04	25.86	0.38
2241	12816	50yr	Applewood Final Flow	41.8	96.29	98.87	98.14	98.99	0.003136	1.58	50.89	80.44	119.4	29.77	27.24	0.38
2241	12816	50yr	Updated Existing	41.8	96.29	98.87	98.14	98.99	0.003136	1.58	50.89	80.44	119.41	29.77	27.24	0.38
2241	12816	50yr	ABL_Proposed	41.8	96.29	98.87	98.14	98.99	0.003136	1.58	50.89	80.44	115.33	29.77	27.24	0.38
2241	12816	100yr	Applewood Final Flow	49.7	96.29	99.04	98.33	99.17	0.003098	1.67	55.04	91.84	134.01	33.56	28.63	0.38
2241	12816	100yr	Updated Existing	49.7	96.29	99.04	98.33	99.17	0.003098	1.67	55.04	91.84	134.06	33.56	28.63	0.38
2241	12816	100yr	ABL_Proposed	49.7	96.29	99.04	98.33	99.17	0.003098	1.67	55.04	91.84	131.04	33.56	28.63	0.38
2241	12816	Regional	Applewood Final Flow	42.3	96.29	98.88	98.16	99	0.003131	1.59	51.13	81.1	130.28	30.03	27.33	0.38
2241	12816	Regional	Updated Existing	42.3	96.29	98.88	98.16	99	0.003131	1.59	51.13	81.1	130.29	30.03	27.33	0.38
2241	12816	Regional	ABL_Proposed	42.3	96.29	98.88	98.16	99	0.003131	1.59	51.13	81.1	126.86	30.03	27.33	0.38
2241	12816	Fish Passage	Applewood Final Flow	0.11	96.29	96.4	96.38	96.41	0.013057	0.58	10.03	5.83	1.38	0.19	2.39	0.66
2241	12816	Fish Passage	Updated Existing	0.11	96.29	96.4	96.38	96.41	0.013057	0.58	10.03	5.83	1.21	0.19	2.39	0.66
2241	12816	Fish Passage	ABL_Proposed	0.11	96.29	96.4	96.38	96.41	0.013057	0.58	10.03	5.83	1.31	0.19	2.39	0.66
2241	12800	2yr	Applewood Final Flow	12.7	95.97	97.52	97.03	97.64	0.005047	1.57	46.29	72.78	31.85	8.08	7.8	0.49
2241	12800	2yr	Updated Existing	12.7	95.97	97.52	97.03	97.64	0.005047	1.57	46.29	72.78	31.39	8.08	7.8	0.49
2241	12800	2yr	ABL_Proposed	12.7	95.97	97.52	97.03	97.64	0.005047	1.57	46.29	72.78	26.83	8.08	7.8	0.49
2241	12800	5yr	Applewood Final Flow	19.7	95.97	97.96	97.31	98.1	0.004039	1.64	46.96	76.9	52.23	12.4	11.98	0.46
2241	12800	5yr	Updated Existing	19.7	95.97	97.96	97.31	98.1	0.004039	1.64	46.96	76.9	51.78	12.4	11.98	0.46
2241	12800	5yr	ABL_Proposed	19.7	95.97	97.96	97.31	98.1	0.004039	1.64	46.96	76.9	43.53	12.4	11.98	0.46

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12800	10yr	Applewood Final Flow	27.5	95.97	98.46	97.58	98.57	0.002627	1.54	38.53	59.21	80.31	19.7	18.27	0.38
2241	12800	10yr	Updated Existing	27.5	95.97	98.46	97.58	98.57	0.002627	1.54	38.53	59.21	80.22	19.7	18.27	0.38
2241	12800	10yr	ABL_Proposed	27.5	95.97	98.46	97.58	98.57	0.002627	1.54	38.53	59.21	72.45	19.7	18.27	0.38
2241	12800	25yr	Applewood Final Flow	34.7	95.97	98.61	97.79	98.76	0.003019	1.74	48.13	83.8	105.48	22.08	19.36	0.41
2241	12800	25yr	Updated Existing	34.7	95.97	98.61	97.79	98.76	0.003019	1.74	48.13	83.8	105.51	22.08	19.36	0.41
2241	12800	25yr	ABL_Proposed	34.7	95.97	98.61	97.79	98.76	0.003019	1.74	48.13	83.8	101.43	22.08	19.36	0.41
2241	12800	50yr	Applewood Final Flow	41.8	95.97	98.76	97.97	98.93	0.003245	1.9	55.97	106.5	118.92	24.46	20.48	0.43
2241	12800	50yr	Updated Existing	41.8	95.97	98.76	97.97	98.93	0.003245	1.9	55.97	106.5	118.93	24.46	20.48	0.43
2241	12800	50yr	ABL_Proposed	41.8	95.97	98.76	97.97	98.93	0.003245	1.9	55.97	106.5	114.86	24.46	20.48	0.43
2241	12800	100yr	Applewood Final Flow	49.7	95.97	98.91	98.21	99.1	0.003481	2.07	64.56	133.53	133.47	26.85	21.48	0.46
2241	12800	100yr	Updated Existing	49.7	95.97	98.91	98.21	99.1	0.003481	2.07	64.56	133.53	133.51	26.85	21.48	0.46
2241	12800	100yr	ABL_Proposed	49.7	95.97	98.91	98.21	99.1	0.003481	2.07	64.56	133.53	130.49	26.85	21.48	0.46
2241	12800	Regional	Applewood Final Flow	42.3	95.97	98.77	97.99	98.94	0.003259	1.91	56.5	108.09	129.8	24.62	20.55	0.44
2241	12800	Regional	Updated Existing	42.3	95.97	98.77	97.99	98.94	0.003259	1.91	56.5	108.09	129.8	24.62	20.55	0.44
2241	12800	Regional	ABL_Proposed	42.3	95.97	98.77	97.99	98.94	0.003259	1.91	56.5	108.09	126.38	24.62	20.55	0.44
2241	12800	Fish Passage	Applewood Final Flow	0.11	95.97	96.06	96.06	96.1	0.034344	0.83	22.81	18.87	1.38	0.13	1.94	1.01
2241	12800	Fish Passage	Updated Existing	0.11	95.97	96.06	96.06	96.1	0.034344	0.83	22.81	18.87	1.21	0.13	1.94	1.01
2241	12800	Fish Passage	ABL_Proposed	0.11	95.97	96.06	96.06	96.1	0.034344	0.83	22.81	18.87	1.31	0.13	1.94	1.01
2241	12785	2yr	Applewood Final Flow	12.7	95.77	97.2	96.94	97.49	0.010326	2.39	89.83	214.31	31.75	5.44	5.58	0.7
2241	12785	2yr	Updated Existing	12.7	95.77	97.2	96.94	97.49	0.010326	2.39	89.83	214.31	31.29	5.44	5.58	0.7
2241	12785	2yr	ABL_Proposed	12.7	95.77	97.2	96.94	97.49	0.010326	2.39	89.83	214.31	26.73	5.44	5.58	0.7
2241	12785	5yr	Applewood Final Flow	19.7	95.77	97.6	97.32	97.95	0.008937	2.68	103.24	276.83	52.08	8	7.96	0.68
2241	12785	5yr	Updated Existing	19.7	95.77	97.6	97.32	97.95	0.008937	2.68	103.24	276.83	51.63	8	7.96	0.68
2241	12785	5yr	ABL_Proposed	19.7	95.77	97.6	97.32	97.95	0.008937	2.68	103.24	276.83	43.38	8	7.96	0.68
2241	12785	10yr	Applewood Final Flow	27.5	95.77	98.35	97.71	98.52	0.003088	2.04	52.46	106.94	80.03	18.52	19.71	0.43
2241	12785	10yr	Updated Existing	27.5	95.77	98.35	97.71	98.52	0.003088	2.04	52.46	106.94	79.94	18.52	19.71	0.43
2241	12785	10yr	ABL_Proposed	27.5	95.77	98.35	97.71	98.52	0.003088	2.04	52.46	106.94	72.16	18.52	19.71	0.43
2241	12785	25yr	Applewood Final Flow	34.7	95.77	98.49	98.02	98.69	0.003487	2.26	62.96	142.02	105.16	21.59	21.65	0.46
2241	12785	25yr	Updated Existing	34.7	95.77	98.49	98.02	98.69	0.003487	2.26	62.96	142.02	105.18	21.59	21.65	0.46
2241	12785	25yr	ABL_Proposed	34.7	95.77	98.49	98.02	98.69	0.003487	2.26	62.96	142.02	101.1	21.59	21.65	0.46
2241	12785	50yr	Applewood Final Flow	41.8	95.77	98.66	98.23	98.87	0.003497	2.36	67.43	159.14	118.54	25.37	23.75	0.46
2241	12785	50yr	Updated Existing	41.8	95.77	98.66	98.23	98.87	0.003497	2.36	67.43	159.14	118.55	25.37	23.75	0.46
2241	12785	50yr	ABL_Proposed	41.8	95.77	98.66	98.23	98.87	0.003497	2.36	67.43	159.14	114.48	25.37	23.75	0.46
2241	12785	100yr	Applewood Final Flow	49.7	95.77	98.84	98.42	99.05	0.00343	2.44	70.57	172.25	133.03	29.93	26.56	0.46
2241	12785	100yr	Updated Existing	49.7	95.77	98.84	98.42	99.05	0.00343	2.44	70.57	172.25	133.07	29.93	26.56	0.46
2241	12785	100yr	ABL_Proposed	49.7	95.77	98.84	98.42	99.05	0.00343	2.44	70.57	172.25	130.05	29.93	26.56	0.46
2241	12785	Regional	Applewood Final Flow	42.3	95.77	98.67	98.25	98.88	0.003492	2.37	67.64	160.01	129.42	25.65	24.05	0.46
2241	12785	Regional	Updated Existing	42.3	95.77	98.67	98.25	98.88	0.003492	2.37	67.64	160.01	129.42	25.65	24.05	0.46
2241	12785	Regional	ABL_Proposed	42.3	95.77	98.67	98.25	98.88	0.003492	2.37	67.64	160.01	126	25.65	24.05	0.46
2241	12785	Fish Passage	Applewood Final Flow	0.11	95.77	95.96	95.86	95.96	0.000893	0.22	1.21	0.27	1.37	0.49	3.33	0.19
2241	12785	Fish Passage	Updated Existing	0.11	95.77	95.96	95.86	95.96	0.000891	0.22	1.21	0.27	1.21	0.49	3.33	0.19
2241	12785	Fish Passage	ABL_Proposed	0.11	95.77	95.96	95.86	95.96	0.000891	0.22	1.21	0.27	1.3	0.49	3.33	0.19
2241	12779	14-Pedestrian Br	Bridge													
2241	12774	2yr	Applewood Final Flow	12.7	95.4	96.17	96.47	97.14	0.075972	4.36	366.46	1597.37	31.7	2.91	5.08	1.84
2241	12774	2yr	Updated Existing	12.7	95.4	96.17	96.47	97.14	0.075972	4.36	366.46	1597.37	31.24	2.91	5.08	1.84
2241	12774	2yr	ABL_Proposed	12.7	95.4	96.17	96.47	97.14	0.075972	4.36	366.46	1597.37	26.69	2.91	5.08	1.84
2241	12774	5yr	Applewood Final Flow	19.7	95.4	96.95	96.77	97.33	0.011973	2.75	119.4	327.9	52.01	7.3	6.46	0.78
2241	12774	5yr	Updated Existing	19.7	95.4	96.95	96.77	97.33	0.011971	2.75	119.39	327.86	51.56	7.3	6.46	0.78
2241	12774	5yr	ABL_Proposed	19.7	95.4	96.95	96.77	97.33	0.011971	2.75	119.39	327.86	43.31	7.3	6.46	0.78
2241	12774	10yr	Applewood Final Flow	27.5	95.4	97.12	97.05	97.69	0.01532	3.37	172.66	581.92	79.86	8.4	6.94	0.9

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12774	10yr	Updated Existing	27.5	95.4	97.12	97.05	97.69	0.01532	3.37	172.66	581.92	79.77	8.4	6.94	0.9
2241	12774	10yr	ABL_Proposed	27.5	95.4	97.12	97.05	97.69	0.01532	3.37	172.66	581.92	72	8.4	6.94	0.9
2241	12774	25yr	Applewood Final Flow	34.7	95.4	97.29	97.29	98	0.016274	3.75	205.9	772.59	104.96	9.67	7.47	0.94
2241	12774	25yr	Updated Existing	34.7	95.4	97.29	97.29	98	0.016274	3.75	205.9	772.59	104.99	9.67	7.47	0.94
2241	12774	25yr	ABL_Proposed	34.7	95.4	97.29	97.29	98	0.016274	3.75	205.9	772.59	100.9	9.67	7.47	0.94
2241	12774	50yr	Applewood Final Flow	41.8	95.4	97.48	97.48	98.27	0.015845	3.99	224.3	895.06	118.32	11.17	8.32	0.95
2241	12774	50yr	Updated Existing	41.8	95.4	97.48	97.48	98.27	0.015845	3.99	224.3	895.06	118.33	11.17	8.32	0.95
2241	12774	50yr	ABL_Proposed	41.8	95.4	97.48	97.48	98.27	0.015845	3.99	224.3	895.06	114.26	11.17	8.32	0.95
2241	12774	100yr	Applewood Final Flow	49.7	95.4	97.81	97.81	98.53	0.012018	3.88	200.98	780.55	132.78	14.41	12.14	0.85
2241	12774	100yr	Updated Existing	49.7	95.4	97.81	97.81	98.53	0.012018	3.88	200.98	780.55	132.82	14.41	12.14	0.85
2241	12774	100yr	ABL_Proposed	49.7	95.4	97.81	97.81	98.53	0.012018	3.88	200.98	780.55	129.8	14.41	12.14	0.85
2241	12774	Regional	Applewood Final Flow	42.3	95.4	97.51	97.51	98.29	0.015537	3.98	222.66	887.05	129.19	11.35	8.49	0.94
2241	12774	Regional	Updated Existing	42.3	95.4	97.51	97.51	98.29	0.015537	3.98	222.66	887.05	129.2	11.35	8.49	0.94
2241	12774	Regional	ABL_Proposed	42.3	95.4	97.51	97.51	98.29	0.015537	3.98	222.66	887.05	125.77	11.35	8.49	0.94
2241	12774	Fish Passage	Applewood Final Flow	0.11	95.4	95.66	95.55	95.66	0.002601	0.28	2.36	0.65	1.37	0.4	4.18	0.29
2241	12774	Fish Passage	Updated Existing	0.11	95.4	95.66	95.55	95.66	0.002592	0.28	2.35	0.65	1.2	0.4	4.18	0.28
2241	12774	Fish Passage	ABL_Proposed	0.11	95.4	95.66	95.55	95.66	0.002592	0.28	2.35	0.65	1.3	0.4	4.18	0.28
2241	12753	2yr	Applewood Final Flow	12.7	95.44	96.65	96.33	96.79	0.005745	1.67	48.06	80.1	31.59	7.72	10.07	0.56
2241	12753	2yr	Updated Existing	12.7	95.44	96.65	96.33	96.79	0.005741	1.67	48.04	80.05	31.13	7.72	10.07	0.56
2241	12753	2yr	ABL_Proposed	12.7	95.44	96.65	96.33	96.79	0.005739	1.67	48.03	80.02	26.58	7.72	10.07	0.56
2241	12753	5yr	Applewood Final Flow	19.7	95.44	96.84	96.57	97.06	0.007404	2.09	72.39	151.35	51.82	10.43	24.66	0.65
2241	12753	5yr	Updated Existing	19.7	95.44	96.84	96.57	97.06	0.007402	2.09	72.37	151.29	51.37	10.43	24.66	0.65
2241	12753	5yr	ABL_Proposed	19.7	95.44	96.84	96.57	97.06	0.007401	2.09	72.37	151.29	43.12	10.43	24.66	0.65
2241	12753	10yr	Applewood Final Flow	27.5	95.44	97.16	96.94	97.31	0.004644	1.87	55.29	103.62	79.54	20.85	34.3	0.53
2241	12753	10yr	Updated Existing	27.5	95.44	97.16	96.94	97.31	0.004644	1.87	55.29	103.62	79.45	20.85	34.3	0.53
2241	12753	10yr	ABL_Proposed	27.5	95.44	97.16	96.94	97.31	0.004644	1.87	55.29	103.62	71.68	20.85	34.3	0.53
2241	12753	25yr	Applewood Final Flow	34.7	95.44	97.39	97.1	97.51	0.003613	1.77	48.1	85.29	104.54	28.66	35.41	0.47
2241	12753	25yr	Updated Existing	34.7	95.44	97.39	97.1	97.51	0.003613	1.77	48.1	85.29	104.57	28.66	35.41	0.47
2241	12753	25yr	ABL_Proposed	34.7	95.44	97.39	97.1	97.51	0.003613	1.77	48.1	85.29	100.48	28.66	35.41	0.47
2241	12753	50yr	Applewood Final Flow	41.8	95.44	97.58	97.19	97.69	0.003112	1.72	44.54	76.57	117.8	35.47	36.49	0.44
2241	12753	50yr	Updated Existing	41.8	95.44	97.58	97.19	97.69	0.003112	1.72	44.54	76.57	117.82	35.47	36.49	0.44
2241	12753	50yr	ABL_Proposed	41.8	95.44	97.58	97.19	97.69	0.003112	1.72	44.54	76.57	113.74	35.47	36.49	0.44
2241	12753	100yr	Applewood Final Flow	49.7	95.44	97.65	97.29	97.78	0.003626	1.89	53.27	100.41	132.19	38.27	36.95	0.48
2241	12753	100yr	Updated Existing	49.7	95.44	97.65	97.29	97.78	0.003626	1.89	53.27	100.41	132.23	38.27	36.95	0.48
2241	12753	100yr	ABL_Proposed	49.7	95.44	97.65	97.29	97.78	0.003626	1.89	53.27	100.41	129.21	38.27	36.95	0.48
2241	12753	Regional	Applewood Final Flow	42.3	95.44	97.59	97.2	97.7	0.00308	1.72	44.28	75.95	128.67	35.95	36.57	0.44
2241	12753	Regional	Updated Existing	42.3	95.44	97.59	97.2	97.7	0.00308	1.72	44.28	75.95	128.68	35.95	36.57	0.44
2241	12753	Regional	ABL_Proposed	42.3	95.44	97.59	97.2	97.7	0.00308	1.72	44.28	75.95	125.25	35.95	36.57	0.44
2241	12753	Fish Passage	Applewood Final Flow	0.11	95.44	95.5	95.49	95.52	0.035923	0.69	16.14	11.11	1.36	0.16	3.48	1.03
2241	12753	Fish Passage	Updated Existing	0.11	95.44	95.49	95.49	95.52	0.036896	0.69	16.47	11.44	1.2	0.16	3.47	1.04
2241	12753	Fish Passage	ABL_Proposed	0.11	95.44	95.49	95.49	95.52	0.036896	0.69	16.47	11.44	1.29	0.16	3.47	1.04
2241	12737	2yr	Applewood Final Flow	12.7	95.28	96.55		96.69	0.006368	1.62	49.21	79.7	31.46	7.84	9.51	0.57
2241	12737	2yr	Updated Existing	12.7	95.28	96.55		96.69	0.006363	1.62	49.18	79.62	31	7.84	9.51	0.57
2241	12737	2yr	ABL_Proposed	12.7	95.28	96.55		96.69	0.00636	1.62	49.16	79.58	26.45	7.85	9.51	0.57
2241	12737	5yr	Applewood Final Flow	19.7	95.28	96.61		96.89	0.012671	2.34	101.72	237.78	51.66	8.43	9.83	0.81
2241	12737	5yr	Updated Existing	19.7	95.28	96.61		96.89	0.012636	2.34	101.49	237.01	51.22	8.44	9.84	0.81
2241	12737	5yr	ABL_Proposed	19.7	95.28	96.61		96.89	0.012629	2.33	101.45	236.85	42.97	8.44	9.84	0.8
2241	12737	10yr	Applewood Final Flow	27.5	95.28	96.69	96.69	97.15	0.019323	2.97	162.89	484.36	79.29	9.25	10.26	1
2241	12737	10yr	Updated Existing	27.5	95.28	96.69	96.69	97.15	0.019323	2.97	162.89	484.36	79.2	9.25	10.26	1
2241	12737	10yr	ABL_Proposed	27.5	95.28	96.69	96.69	97.15	0.019323	2.97	162.89	484.36	71.43	9.25	10.26	1
2241	12737	25yr	Applewood Final Flow	34.7	95.28	96.88	96.88	97.36	0.018488	3.06	169.94	519.88	104.21	11.45	13.23	0.99

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12737	25yr	Updated Existing	34.7	95.28	96.88	96.88	97.36	0.018488	3.06	169.94	519.88	104.24	11.45	13.23	0.99
2241	12737	25yr	ABL_Proposed	34.7	95.28	96.88	96.88	97.36	0.018488	3.06	169.94	519.88	100.15	11.45	13.23	0.99
2241	12737	50yr	Applewood Final Flow	41.8	95.28	97.03	97.03	97.54	0.017184	3.17	176.69	560.46	117.4	13.63	15.88	0.97
2241	12737	50yr	Updated Existing	41.8	95.28	97.03	97.03	97.54	0.017184	3.17	176.69	560.46	117.41	13.63	15.88	0.97
2241	12737	50yr	ABL_Proposed	41.8	95.28	97.03	97.03	97.54	0.017184	3.17	176.69	560.46	113.34	13.63	15.88	0.97
2241	12737	100yr	Applewood Final Flow	49.7	95.28	97.37	97.37	97.68	0.008822	2.59	111.06	287.83	131.66	26.26	52.46	0.71
2241	12737	100yr	Updated Existing	49.7	95.28	97.37	97.37	97.68	0.008822	2.59	111.06	287.83	131.71	26.26	52.46	0.71
2241	12737	100yr	ABL_Proposed	49.7	95.28	97.37	97.37	97.68	0.008822	2.59	111.06	287.83	128.68	26.26	52.46	0.71
2241	12737	Regional	Applewood Final Flow	42.3	95.28	97.04	97.04	97.56	0.017291	3.19	178.56	569.74	128.26	13.73	16.02	0.97
2241	12737	Regional	Updated Existing	42.3	95.28	97.04	97.04	97.56	0.017291	3.19	178.56	569.74	128.27	13.73	16.02	0.97
2241	12737	Regional	ABL_Proposed	42.3	95.28	97.04	97.04	97.56	0.017291	3.19	178.56	569.74	124.84	13.73	16.02	0.97
2241	12737	Fish Passage	Applewood Final Flow	0.11	95.28	95.41		95.42	0.002284	0.3	2.41	0.73	1.36	0.37	3.36	0.29
2241	12737	Fish Passage	Updated Existing	0.11	95.28	95.41	95.34	95.42	0.002248	0.3	2.39	0.71	1.19	0.37	3.37	0.29
2241	12737	Fish Passage	ABL_Proposed	0.11	95.28	95.41	95.34	95.42	0.002248	0.3	2.39	0.71	1.29	0.37	3.37	0.29
2241	12691	2yr	Applewood Final Flow	12.7	95.06	96.06	95.95	96.28	0.012747	2.09	82.67	173.09	31.12	6.07	25.05	0.81
2241	12691	2yr	Updated Existing	12.7	95.06	96.06	95.95	96.28	0.0128	2.1	82.95	173.95	30.66	6.06	24.94	0.81
2241	12691	2yr	ABL_Proposed	12.7	95.06	96.06	95.95	96.28	0.012832	2.1	83.12	174.46	26.11	6.05	24.88	0.81
2241	12691	5yr	Applewood Final Flow	19.7	95.06	96.34	96.19	96.44	0.006401	1.6	48.08	77.02	51.05	17.82	52.05	0.57
2241	12691	5yr	Updated Existing	19.7	95.06	96.34	96.19	96.44	0.006448	1.61	48.37	77.71	50.61	17.77	52	0.58
2241	12691	5yr	ABL_Proposed	19.7	95.06	96.34	96.19	96.44	0.006458	1.61	48.43	77.85	42.36	17.75	51.98	0.58
2241	12691	10yr	Applewood Final Flow	27.5	95.06	96.53	96.35	96.6	0.004397	1.49	39.33	58.51	78.43	28.83	57.34	0.49
2241	12691	10yr	Updated Existing	27.5	95.06	96.53	96.35	96.6	0.004408	1.49	39.42	58.69	78.34	28.81	57.34	0.49
2241	12691	10yr	ABL_Proposed	27.5	95.06	96.53	96.35	96.6	0.00437	1.48	39.13	58.07	70.57	28.9	57.36	0.49
2241	12691	25yr	Applewood Final Flow	34.7	95.06	96.67	96.41	96.74	0.003573	1.44	35.76	51.56	103.12	37.03	58.99	0.45
2241	12691	25yr	Updated Existing	34.7	95.06	96.67	96.41	96.73	0.003578	1.44	35.8	51.65	103.15	37.01	58.98	0.45
2241	12691	25yr	ABL_Proposed	34.7	95.06	96.67	96.41	96.74	0.003543	1.44	35.51	51.05	99.06	37.14	59.01	0.44
2241	12691	50yr	Applewood Final Flow	41.8	95.06	96.79	96.49	96.85	0.003172	1.43	34.44	49.32	116.1	44.1	60.03	0.43
2241	12691	50yr	Updated Existing	41.8	95.06	96.79	96.49	96.85	0.003174	1.43	34.45	49.35	116.11	44.09	60.02	0.43
2241	12691	50yr	ABL_Proposed	41.8	95.06	96.79	96.49	96.85	0.003161	1.43	34.34	49.1	112.03	44.15	60.03	0.42
2241	12691	100yr	Applewood Final Flow	49.7	95.06	96.91	96.55	96.97	0.002906	1.43	33.74	48.24	129.91	51.33	61.04	0.41
2241	12691	100yr	Updated Existing	49.7	95.06	96.91	96.55	96.97	0.002906	1.43	33.74	48.24	129.96	51.33	61.04	0.41
2241	12691	100yr	ABL_Proposed	49.7	95.06	96.91	96.55	96.97	0.002897	1.43	33.65	48.06	126.93	51.38	61.05	0.41
2241	12691	Regional	Applewood Final Flow	42.3	95.06	96.8	96.5	96.86	0.00315	1.43	34.37	49.2	126.95	44.58	60.09	0.42
2241	12691	Regional	Updated Existing	42.3	95.06	96.8	96.5	96.86	0.003151	1.43	34.38	49.22	126.95	44.57	60.09	0.42
2241	12691	Regional	ABL_Proposed	42.3	95.06	96.8	96.5	96.86	0.003139	1.43	34.27	48.98	123.52	44.63	60.1	0.42
2241	12691	Fish Passage	Applewood Final Flow	0.11	95.06	95.14	95.14	95.16	0.032641	0.67	15.05	10.09	1.34	0.16	3.49	0.99
2241	12691	Fish Passage	Updated Existing	0.11	95.06	95.14	95.14	95.16	0.032641	0.67	15.05	10.09	1.18	0.16	3.49	0.99
2241	12691	Fish Passage	ABL_Proposed	0.11	95.06	95.14	95.14	95.16	0.032641	0.67	15.05	10.09	1.28	0.16	3.49	0.99
2241	12654	2yr	Applewood Final Flow	12.7	94.34	95.88	95.45	95.99	0.004335	1.43	38.02	54.22	30.81	9.14	15.21	0.47
2241	12654	2yr	Updated Existing	12.7	94.34	95.88	95.45	95.98	0.004387	1.43	38.36	54.93	30.36	9.09	14.9	0.47
2241	12654	2yr	ABL_Proposed	12.7	94.34	95.88	95.45	95.98	0.004418	1.44	38.56	55.35	25.8	9.06	14.48	0.47
2241	12654	5yr	Applewood Final Flow	19.7	94.34	96.12	95.7	96.24	0.004482	1.62	46.76	75.92	50.43	15.22	30.93	0.49
2241	12654	5yr	Updated Existing	19.7	94.34	96.11	95.7	96.24	0.004612	1.64	47.87	78.58	49.99	14.98	30.74	0.5
2241	12654	5yr	ABL_Proposed	19.7	94.34	96.11	95.7	96.24	0.004642	1.65	48.13	79.2	41.74	14.93	30.69	0.5
2241	12654	10yr	Applewood Final Flow	27.5	94.34	96.29	95.93	96.43	0.004724	1.77	54.19	96.01	77.52	20.91	34.05	0.51
2241	12654	10yr	Updated Existing	27.5	94.34	96.29	95.93	96.43	0.004762	1.78	54.56	96.97	77.43	20.83	34.03	0.51
2241	12654	10yr	ABL_Proposed	27.5	94.34	96.3	95.93	96.43	0.004633	1.76	53.3	93.68	69.65	21.1	34.1	0.51
2241	12654	25yr	Applewood Final Flow	34.7	94.34	96.45	96.19	96.58	0.00456	1.81	55.5	100.22	101.96	26.32	36.28	0.5
2241	12654	25yr	Updated Existing	34.7	94.34	96.45	96.19	96.58	0.004574	1.81	55.67	100.66	101.99	26.28	36.18	0.51
2241	12654	25yr	ABL_Proposed	34.7	94.34	96.45	96.19	96.58	0.00448	1.79	54.64	97.92	97.89	26.52	36.8	0.5
2241	12654	50yr	Applewood Final Flow	41.8	94.34	96.57	96.3	96.71	0.00435	1.86	57.52	107.16	114.72	31.19	40.67	0.5

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12654	50yr	Updated Existing	41.8	94.34	96.57	96.3	96.71	0.004355	1.86	57.57	107.28	114.73	31.18	40.66	0.5
2241	12654	50yr	ABL_Proposed	41.8	94.34	96.58	96.3	96.71	0.004316	1.86	57.17	106.21	110.65	31.29	40.74	0.5
2241	12654	100yr	Applewood Final Flow	49.7	94.34	96.7	96.39	96.84	0.004132	1.92	59.43	114.12	128.3	36.46	43.76	0.49
2241	12654	100yr	Updated Existing	49.7	94.34	96.7	96.39	96.84	0.004133	1.92	59.44	114.15	128.35	36.46	43.76	0.49
2241	12654	100yr	ABL_Proposed	49.7	94.34	96.7	96.39	96.84	0.004104	1.92	59.11	113.24	125.32	36.55	43.8	0.49
2241	12654	Regional	Applewood Final Flow	42.3	94.34	96.58	96.31	96.72	0.004339	1.87	57.7	107.76	125.55	31.52	40.92	0.5
2241	12654	Regional	Updated Existing	42.3	94.34	96.58	96.31	96.72	0.004343	1.87	57.74	107.87	125.56	31.51	40.92	0.5
2241	12654	Regional	ABL_Proposed	42.3	94.34	96.58	96.31	96.72	0.004306	1.86	57.36	106.84	122.13	31.62	41	0.5
2241	12654	Fish Passage	Applewood Final Flow	0.11	94.34	94.52	94.46	94.53	0.003343	0.38	3.82	1.46	1.34	0.29	2.43	0.36
2241	12654	Fish Passage	Updated Existing	0.11	94.34	94.52	94.46	94.53	0.003861	0.4	4.25	1.71	1.17	0.27	2.39	0.38
2241	12654	Fish Passage	ABL_Proposed	0.11	94.34	94.52	94.46	94.53	0.003858	0.4	4.25	1.71	1.27	0.27	2.39	0.38
2241	12627	2yr	Applewood Final Flow	12.7	94.3	95.81	95.23	95.88	0.002926	1.2	26.04	31.14	30.54	10.62	13.92	0.39
2241	12627	2yr	Updated Existing	12.7	94.3	95.8	95.23	95.88	0.002961	1.2	26.3	31.6	30.09	10.57	13.6	0.39
2241	12627	2yr	ABL_Proposed	12.7	94.3	95.8	95.23	95.88	0.002982	1.2	26.46	31.88	25.53	10.54	13.4	0.39
2241	12627	5yr	Applewood Final Flow	19.7	94.3	96.01	95.46	96.12	0.004151	1.46	39.04	57.16	50.02	14.87	22.94	0.47
2241	12627	5yr	Updated Existing	19.7	94.3	96	95.46	96.11	0.004315	1.48	40.23	59.71	49.59	14.6	22.84	0.48
2241	12627	5yr	ABL_Proposed	19.7	94.3	96	95.46	96.11	0.004353	1.49	40.5	60.3	41.34	14.54	22.82	0.48
2241	12627	10yr	Applewood Final Flow	27.5	94.3	96.13	95.68	96.29	0.005644	1.8	57.39	103.02	76.99	17.54	23.85	0.55
2241	12627	10yr	Updated Existing	27.5	94.3	96.12	95.68	96.28	0.005715	1.8	57.98	104.61	76.91	17.43	23.81	0.55
2241	12627	10yr	ABL_Proposed	27.5	94.3	96.14	95.68	96.29	0.005479	1.77	55.99	99.34	69.12	17.79	23.96	0.54
2241	12627	25yr	Applewood Final Flow	34.7	94.3	96.22	95.94	96.42	0.007033	2.06	74.57	153.38	101.33	19.69	26.06	0.62
2241	12627	25yr	Updated Existing	34.7	94.3	96.21	95.94	96.42	0.007092	2.06	75.08	154.92	101.36	19.61	25.39	0.62
2241	12627	25yr	ABL_Proposed	34.7	94.3	96.24	95.94	96.43	0.006619	2.02	71.26	143.66	97.25	20.21	27.93	0.6
2241	12627	50yr	Applewood Final Flow	41.8	94.3	96.29	96.08	96.54	0.007995	2.29	90.28	206.47	114	21.8	29.01	0.67
2241	12627	50yr	Updated Existing	41.8	94.3	96.29	96.08	96.54	0.008045	2.29	90.69	207.84	114.01	21.74	28.98	0.67
2241	12627	50yr	ABL_Proposed	41.8	94.3	96.31	96.08	96.55	0.007624	2.25	87.13	196.17	109.92	22.23	29.3	0.65
2241	12627	100yr	Applewood Final Flow	49.7	94.3	96.37	96.21	96.66	0.008907	2.51	106.79	268.31	127.48	24	30.12	0.71
2241	12627	100yr	Updated Existing	49.7	94.3	96.36	96.21	96.66	0.008941	2.52	107.1	269.43	127.53	23.96	30.1	0.71
2241	12627	100yr	ABL_Proposed	49.7	94.3	96.39	96.21	96.67	0.008191	2.44	100.26	244.92	124.49	24.81	30.48	0.68
2241	12627	Regional	Applewood Final Flow	42.3	94.3	96.3	96.08	96.55	0.008057	2.3	91.35	210.3	124.82	21.94	29.11	0.67
2241	12627	Regional	Updated Existing	42.3	94.3	96.29	96.08	96.55	0.008106	2.31	91.76	211.67	124.83	21.89	29.07	0.67
2241	12627	Regional	ABL_Proposed	42.3	94.3	96.31	96.08	96.55	0.007676	2.27	88.11	199.62	121.39	22.38	29.39	0.65
2241	12627	Fish Passage	Applewood Final Flow	0.11	94.3	94.43	94.38	94.43	0.003904	0.34	3.38	1.15	1.33	0.32	3.65	0.36
2241	12627	Fish Passage	Updated Existing	0.11	94.3	94.44	94.38	94.45	0.002297	0.29	2.3	0.66	1.16	0.39	3.76	0.28
2241	12627	Fish Passage	ABL_Proposed	0.11	94.3	94.44	94.38	94.45	0.002358	0.29	2.34	0.67	1.26	0.38	3.75	0.29
2241	12605	2yr	Applewood Final Flow	12.7	94.2	95.66		95.79	0.005459	1.71	49.73	85.06	30.33	9.74	25.85	0.53
2241	12605	2yr	Updated Existing	12.7	94.2	95.62	95.3	95.78	0.006631	1.84	58.11	106.75	29.88	8.72	25.35	0.58
2241	12605	2yr	ABL_Proposed	12.7	94.2	95.3	95.3	95.71	0.020206	2.82	142.86	403.1	25.37	4.5	5.5	1
2241	12605	5yr	Applewood Final Flow	19.7	94.2	95.92		96.03	0.003946	1.69	45.12	76.34	49.69	17.47	32.95	0.47
2241	12605	5yr	Updated Existing	19.7	94.2	95.89		96.02	0.004527	1.78	50.49	90	49.27	16.41	32.28	0.5
2241	12605	5yr	ABL_Proposed	19.7	94.2	95.73	95.73	95.97	0.009122	2.32	89.13	206.52	41.06	11.74	26.81	0.7
2241	12605	10yr	Applewood Final Flow	27.5	94.2	96.02		96.17	0.005252	2.04	64.29	131.36	76.6	20.62	34.64	0.55
2241	12605	10yr	Updated Existing	27.5	94.2	96.01		96.16	0.005502	2.08	66.8	138.92	76.52	20.22	34.45	0.56
2241	12605	10yr	ABL_Proposed	27.5	94.2	95.89	95.89	96.14	0.009048	2.51	100.45	252.4	68.77	16.22	32.15	0.71
2241	12605	25yr	Applewood Final Flow	34.7	94.2	96.08		96.28	0.00651	2.34	83.31	195.21	100.89	22.87	35.68	0.62
2241	12605	25yr	Updated Existing	34.7	94.2	96.07		96.27	0.006805	2.38	86.42	205.98	100.93	22.46	35.5	0.63
2241	12605	25yr	ABL_Proposed	34.7	94.2	95.99	95.99	96.26	0.009359	2.69	112.31	302.26	96.84	19.66	34.18	0.73
2241	12605	50yr	Applewood Final Flow	41.8	94.2	96.14		96.37	0.007422	2.57	99.09	254.98	113.52	25.17	36.66	0.66
2241	12605	50yr	Updated Existing	41.8	94.2	96.13		96.37	0.007724	2.61	102.4	267.56	113.54	24.77	36.49	0.68
2241	12605	50yr	ABL_Proposed	41.8	94.2	96.08	96.08	96.36	0.009543	2.83	121.92	345.48	109.46	22.77	35.64	0.75
2241	12605	100yr	Applewood Final Flow	49.7	94.2	96.21	96.16	96.47	0.008391	2.81	116.54	327.39	126.96	27.47	37.62	0.71

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12605	100yr	Updated Existing	49.7	94.2	96.2		96.47	0.008744	2.85	120.57	344.07	127.01	27.03	37.44	0.72
2241	12605	100yr	ABL_Proposed	49.7	94.2	96.3	96.16	96.5	0.006168	2.5	90.5	226.09	123.92	30.92	38.98	0.61
2241	12605	Regional	Applewood Final Flow	42.3	94.2	96.15		96.38	0.007482	2.59	100.17	259.29	124.34	25.32	36.73	0.67
2241	12605	Regional	Updated Existing	42.3	94.2	96.14		96.38	0.007788	2.63	103.53	272.12	124.35	24.93	36.56	0.68
2241	12605	Regional	ABL_Proposed	42.3	94.2	96.08	96.08	96.37	0.009613	2.85	123.17	350.95	120.93	22.92	35.7	0.75
2241	12605	Fish Passage	Applewood Final Flow	0.11	94.2	94.39		94.39	0.001046	0.24	1.42	0.34	1.32	0.46	3.25	0.2
2241	12605	Fish Passage	Updated Existing	0.11	94.2	94.29	94.29	94.32	0.035082	0.73	17.7	12.99	1.16	0.15	2.89	1.03
2241	12605	Fish Passage	ABL_Proposed	0.11	94.2	94.29	94.29	94.32	0.035082	0.73	17.7	12.99	1.25	0.15	2.89	1.03
2241	12591	2yr	Applewood Final Flow	12.7	94.19	95.52	95.29	95.67	0.013067	1.75	87.36	153.17	30.2	7.24	10.41	0.66
2241	12591	2yr	Updated Existing	12.7	93.62	95.5	95.22	95.65	0.011953	1.7	79.36	134.55	29.76	7.49	10.14	0.63
2241	12591	2yr	ABL_Proposed	12.7	93.72	95.12	94.81	95.24	0.006877	1.53	51.25	78.29	25.28	8.31	10.37	0.54
2241	12591	5yr	Applewood Final Flow	19.7	94.19	95.68	95.53	95.91	0.016897	2.16	133.27	287.82	49.47	9.9	32.03	0.75
2241	12591	5yr	Updated Existing	19.7	93.62	95.68	95.49	95.89	0.015316	2.08	120.49	250.64	49.05	10.18	31.38	0.71
2241	12591	5yr	ABL_Proposed	19.7	93.72	95.36	95.03	95.53	0.007362	1.81	68.39	123.87	40.89	10.88	10.54	0.57
2241	12591	10yr	Applewood Final Flow	27.5	94.19	95.87	95.87	96.05	0.012484	2.04	116.84	238.06	76.28	18.11	49.95	0.65
2241	12591	10yr	Updated Existing	27.5	93.62	95.86	95.86	96.04	0.012588	2.05	115.57	236.41	76.21	17.81	49.74	0.65
2241	12591	10yr	ABL_Proposed	27.5	93.72	95.55	95.21	95.78	0.008647	2.14	92.13	196.86	68.54	12.89	11.41	0.62
2241	12591	25yr	Applewood Final Flow	34.7	94.19	95.94	95.94	96.13	0.013144	2.19	131.83	288.59	100.52	21.71	50.98	0.68
2241	12591	25yr	Updated Existing	34.7	93.62	95.93	95.93	96.13	0.013115	2.19	129.24	282.88	100.56	21.56	50.82	0.67
2241	12591	25yr	ABL_Proposed	34.7	93.72	95.61	95.37	95.95	0.01193	2.57	132.28	340.55	96.58	13.55	12.46	0.73
2241	12591	50yr	Applewood Final Flow	41.8	94.19	96	96	96.21	0.013965	2.34	147.57	344.77	113.1	24.66	52.2	0.7
2241	12591	50yr	Updated Existing	41.8	93.62	95.99	95.99	96.2	0.01384	2.33	143.79	334.9	113.12	24.62	51.98	0.69
2241	12591	50yr	ABL_Proposed	41.8	93.72	95.65	95.51	96.11	0.01554	2.99	177.5	531.53	109.17	14.08	16.64	0.84
2241	12591	100yr	Applewood Final Flow	49.7	94.19	96.05	96.05	96.29	0.014825	2.49	164.4	408.71	126.49	27.61	53.55	0.73
2241	12591	100yr	Updated Existing	49.7	93.62	96.05	96.05	96.28	0.014672	2.48	159.94	396.06	126.54	27.61	53.36	0.72
2241	12591	100yr	ABL_Proposed	49.7	93.72	95.67	95.67	96.3	0.021109	3.51	243.77	856.7	123.55	14.28	17.71	0.98
2241	12591	Regional	Applewood Final Flow	42.3	94.19	96	96	96.21	0.014143	2.35	149.73	352.48	123.92	24.77	52.25	0.71
2241	12591	Regional	Updated Existing	42.3	93.62	95.99	95.99	96.21	0.013915	2.34	145.01	339.37	123.94	24.8	52.07	0.69
2241	12591	Regional	ABL_Proposed	42.3	93.72	95.66	95.52	96.12	0.01574	3.02	180.33	544.5	120.63	14.14	17.04	0.85
2241	12591	Fish Passage	Applewood Final Flow	0.11	94.19	94.34	94.31	94.36	0.010731	0.57	8.88	5.05	1.31	0.19	2.27	0.62
2241	12591	Fish Passage	Updated Existing	0.11	93.62	94.03	93.91	94.05	0.00571	0.61	8.39	5.11	1.15	0.18	0.89	0.43
2241	12591	Fish Passage	ABL_Proposed	0.11	93.72	93.94	93.89	93.97	0.007992	0.65	10.12	6.61	1.25	0.17	1.2	0.56
2241	12555	2yr	Applewood Final Flow	12.7	93.74	95.24	94.94	95.37	0.00561	1.67	49.33	82.21	29.91	9.27	30.22	0.54
2241	12555	2yr	Updated Existing	12.7	93.59	95.23	94.92	95.36	0.005598	1.67	49.21	82	29.47	9.07	25.88	0.54
2241	12555	2yr	ABL_Proposed	12.7	93.53	94.84		95	0.006009	1.75	41.47	72.68	24.99	7.33	11.04	0.66
2241	12555	5yr	Applewood Final Flow	19.7	93.74	95.39	95.36	95.55	0.006313	1.94	64.04	124.51	49	16.04	52.62	0.59
2241	12555	5yr	Updated Existing	19.7	93.59	95.38	95.36	95.54	0.006403	1.96	65.01	127.54	48.59	15.67	52.35	0.59
2241	12555	5yr	ABL_Proposed	19.7	93.53	95.02	94.86	95.26	0.007307	2.16	59.55	128.57	40.52	9.49	16.19	0.74
2241	12555	10yr	Applewood Final Flow	27.5	93.74	95.51	95.48	95.67	0.006139	2.06	69.44	143.17	75.55	22.96	56.7	0.59
2241	12555	10yr	Updated Existing	27.5	93.59	95.51	95.48	95.67	0.006254	2.08	70.78	147.52	75.49	22.58	56.51	0.6
2241	12555	10yr	ABL_Proposed	27.5	93.53	95.17	95.1	95.48	0.007824	2.49	74.9	186.26	68.08	12.61	24.98	0.79
2241	12555	25yr	Applewood Final Flow	34.7	93.74	95.61	95.55	95.77	0.005922	2.13	72.46	154.62	99.62	28.8	60.05	0.59
2241	12555	25yr	Updated Existing	34.7	93.59	95.61	95.55	95.76	0.006027	2.16	73.76	159	99.67	28.41	59.78	0.6
2241	12555	25yr	ABL_Proposed	34.7	93.53	95.36	95.36	95.63	0.006034	2.44	68.17	166.28	95.97	19.93	51.19	0.71
2241	12555	50yr	Applewood Final Flow	41.8	93.74	95.71	95.62	95.85	0.005519	2.16	72.37	156.11	112.04	34.6	62.12	0.58
2241	12555	50yr	Updated Existing	41.8	93.59	95.7	95.62	95.85	0.005613	2.18	73.59	160.28	112.07	34.22	61.94	0.58
2241	12555	50yr	ABL_Proposed	41.8	93.53	95.45	95.45	95.73	0.005895	2.54	71.92	182.51	108.45	24.96	54.71	0.72
2241	12555	100yr	Applewood Final Flow	49.7	93.74	95.8	95.68	95.95	0.005245	2.19	73.31	160.87	125.27	40.52	64.29	0.57
2241	12555	100yr	Updated Existing	49.7	93.59	95.8	95.68	95.94	0.005321	2.21	74.36	164.53	125.33	40.16	64.08	0.57
2241	12555	100yr	ABL_Proposed	49.7	93.53	95.53	95.54	95.82	0.006162	2.69	79.56	214.36	122.76	29.15	56.91	0.74
2241	12555	Regional	Applewood Final Flow	42.3	93.74	95.72	95.62	95.86	0.0055	2.16	72.43	156.42	122.85	34.98	62.25	0.58

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12555	Regional	Updated Existing	42.3	93.59	95.71	95.62	95.86	0.005592	2.18	73.64	160.55	122.88	34.61	62.07	0.58
2241	12555	Regional	ABL_Proposed	42.3	93.53	95.45	95.45	95.73	0.005979	2.56	73.08	187.01	119.91	25.09	54.84	0.72
2241	12555	Fish Passage	Applewood Final Flow	0.11	93.74	93.87		93.89	0.016115	0.66	12.79	8.46	1.31	0.17	2.03	0.74
2241	12555	Fish Passage	Updated Existing	0.11	93.59	93.82		93.84	0.005877	0.51	6.55	3.34	1.15	0.22	1.83	0.47
2241	12555	Fish Passage	ABL_Proposed	0.11	93.53	93.74		93.75	0.004499	0.46	5.19	2.39	1.24	0.24	1.98	0.42
2241	12504	2yr	Applewood Final Flow	12.7	93.54	95.01		95.11	0.004462	1.53	36.95	56.53	29.35	13.02	44.43	0.51
2241	12504	2yr	Updated Existing	12.7	93.3	94.99	94.69	95.1	0.004595	1.56	38.21	59.56	28.93	12.38	43.62	0.52
2241	12504	2yr	ABL_Proposed	12.7	93.23	94.59		94.72	0.004698	1.59	33.85	53.98	24.58	8.67	24.5	0.58
2241	12504	5yr	Applewood Final Flow	19.7	93.54	95.15		95.26	0.004677	1.72	44.76	77.19	48.14	19.65	49.24	0.54
2241	12504	5yr	Updated Existing	19.7	93.3	95.13		95.25	0.004789	1.75	46.09	80.83	47.75	19.1	48.84	0.54
2241	12504	5yr	ABL_Proposed	19.7	93.23	94.81		94.95	0.003972	1.74	37.08	64.62	39.89	14.6	29.88	0.56
2241	12504	10yr	Applewood Final Flow	27.5	93.54	95.29		95.4	0.004546	1.84	49.06	90.39	74.36	26.48	52.6	0.54
2241	12504	10yr	Updated Existing	27.5	93.3	95.27		95.39	0.004623	1.87	50.19	93.71	74.32	26	52.29	0.54
2241	12504	10yr	ABL_Proposed	27.5	93.23	94.97		95.15	0.004189	1.98	45.47	89.96	67.21	20.49	42.02	0.59
2241	12504	25yr	Applewood Final Flow	34.7	93.54	95.39		95.51	0.004369	1.92	51.52	98.7	98.16	32.32	54.32	0.54
2241	12504	25yr	Updated Existing	34.7	93.3	95.38		95.5	0.004423	1.94	52.45	101.6	98.23	31.9	54.13	0.54
2241	12504	25yr	ABL_Proposed	34.7	93.23	95.1	94.86	95.28	0.00418	2.11	50.14	105.92	94.78	25.95	47.7	0.6
2241	12504	50yr	Applewood Final Flow	41.8	93.54	95.49		95.61	0.00433	2	54.9	109.91	110.33	37.73	57.59	0.54
2241	12504	50yr	Updated Existing	41.8	93.3	95.48		95.6	0.004365	2.02	55.64	112.36	110.37	37.34	57.3	0.54
2241	12504	50yr	ABL_Proposed	41.8	93.23	95.2	95.05	95.39	0.004096	2.21	53.19	117.3	107	31.12	50.56	0.6
2241	12504	100yr	Applewood Final Flow	49.7	93.54	95.59		95.71	0.004222	2.07	57.37	118.78	123.28	43.59	60.77	0.54
2241	12504	100yr	Updated Existing	49.7	93.3	95.58		95.71	0.00425	2.09	58.03	121.06	123.36	43.22	59.89	0.54
2241	12504	100yr	ABL_Proposed	49.7	93.23	95.31	95.16	95.51	0.003909	2.27	54.95	124.8	121.04	37.02	53.07	0.59
2241	12504	Regional	Applewood Final Flow	42.3	93.54	95.5		95.62	0.004325	2.01	55.1	110.58	121.12	38.09	57.76	0.54
2241	12504	Regional	Updated Existing	42.3	93.3	95.49		95.61	0.004358	2.02	55.81	112.96	121.16	37.72	57.47	0.54
2241	12504	Regional	ABL_Proposed	42.3	93.23	95.21	95.06	95.4	0.00409	2.21	53.39	118.07	118.44	31.48	50.79	0.6
2241	12504	Fish Passage	Applewood Final Flow	0.11	93.54	93.76		93.76	0.000953	0.25	1.42	0.36	1.29	0.44	2.81	0.2
2241	12504	Fish Passage	Updated Existing	0.11	93.3	93.56		93.57	0.004707	0.48	5.66	2.74	1.14	0.23	1.77	0.43
2241	12504	Fish Passage	ABL_Proposed	0.11	93.23	93.48		93.49	0.005316	0.56	7.28	4.08	1.23	0.2	1.29	0.46
2241	12461	2yr	Applewood Final Flow	12.7	93.46	94.87		94.92	0.003922	1.16	30.41	35.3	28.72	16.88	49.24	0.41
2241	12461	2yr	Updated Existing	12.7	93.1	94.85		94.91	0.003701	1.16	29.64	34.33	28.32	16.75	48.92	0.4
2241	12461	2yr	ABL_Proposed	12.7	93	94.39		94.51	0.004085	1.53	30.85	47.34	24.19	8.48	14.96	0.55
2241	12461	5yr	Applewood Final Flow	19.7	93.46	95.02		95.07	0.003726	1.26	34.02	42.93	47.2	24.31	52.25	0.41
2241	12461	5yr	Updated Existing	19.7	93.1	95.01		95.06	0.00354	1.26	33.25	41.89	46.82	24.36	52.04	0.4
2241	12461	5yr	ABL_Proposed	19.7	93	94.61	94.31	94.77	0.004076	1.8	39.13	70.37	39.26	13.39	34.9	0.57
2241	12461	10yr	Applewood Final Flow	27.5	93.46	95.15		95.21	0.003553	1.35	37.11	50.02	73.13	31.88	56.5	0.41
2241	12461	10yr	Updated Existing	27.5	93.1	95.15		95.2	0.003418	1.35	36.51	49.25	73.09	31.93	56.2	0.4
2241	12461	10yr	ABL_Proposed	27.5	93	94.8		94.97	0.003753	1.93	42.64	82.34	66.26	21.53	47.28	0.56
2241	12461	25yr	Applewood Final Flow	34.7	93.46	95.27		95.33	0.003456	1.42	39.77	56.38	96.66	38.48	60.7	0.41
2241	12461	25yr	Updated Existing	34.7	93.1	95.26		95.32	0.003343	1.42	39.21	55.66	96.74	38.55	60.36	0.4
2241	12461	25yr	ABL_Proposed	34.7	93	94.93		95.1	0.003603	2.03	45.39	91.98	93.55	27.96	50.59	0.56
2241	12461	50yr	Applewood Final Flow	41.8	93.46	95.37		95.43	0.003332	1.47	41.55	61.03	108.57	44.91	64.69	0.41
2241	12461	50yr	Updated Existing	41.8	93.1	95.36		95.43	0.003245	1.47	41.12	60.57	108.62	44.97	64.39	0.4
2241	12461	50yr	ABL_Proposed	41.8	93	95.04		95.21	0.003519	2.11	47.99	101.34	105.53	33.66	52.77	0.56
2241	12461	100yr	Applewood Final Flow	49.7	93.46	95.47		95.54	0.003243	1.52	43.6	66.42	121.26	51.92	69.77	0.41
2241	12461	100yr	Updated Existing	49.7	93.1	95.47		95.53	0.003169	1.53	43.19	65.99	121.34	51.96	69.51	0.4
2241	12461	100yr	ABL_Proposed	49.7	93	95.16		95.34	0.003383	2.18	49.95	109.03	119.29	40.2	56.65	0.56
2241	12461	Regional	Applewood Final Flow	42.3	93.46	95.38		95.44	0.003324	1.47	41.66	61.32	119.35	45.34	64.95	0.41
2241	12461	Regional	Updated Existing	42.3	93.1	95.37		95.43	0.003236	1.48	41.22	60.83	119.39	45.41	64.66	0.4
2241	12461	Regional	ABL_Proposed	42.3	93	95.05		95.22	0.003512	2.12	48.14	101.88	116.96	34.06	52.93	0.56
2241	12461	Fish Passage	Applewood Final Flow	0.11	93.46	93.68	93.6	93.69	0.003618	0.39	4.11	1.6	1.28	0.28	2.37	0.36

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12461	Fish Passage	Updated Existing	0.11	93.1	93.44		93.44	0.00202	0.37	3.07	1.14	1.13	0.3	1.77	0.29
2241	12461	Fish Passage	ABL_Proposed	0.11	93	93.26		93.27	0.004433	0.52	6.29	3.29	1.22	0.21	1.33	0.42
2241	12396	2yr	Applewood Final Flow	12.7	93.02	94.57		94.66	0.004379	1.42	37.44	53.04	27.79	14.02	42.27	0.47
2241	12396	2yr	Updated Existing	12.7	92.92	94.55		94.64	0.004671	1.45	39.48	57.36	27.41	13.26	41.52	0.48
2241	12396	2yr	ABL_Proposed	12.7	92.7	93.98		94.11	0.011581	1.63	86.13	140.14	23.66	8.2	12.88	0.59
2241	12396	5yr	Applewood Final Flow	19.7	93.02	94.77		94.84	0.003599	1.46	37.2	54.2	45.82	22.71	46.72	0.44
2241	12396	5yr	Updated Existing	19.7	92.92	94.76		94.83	0.003746	1.48	38.61	57.32	45.45	22.24	46.56	0.45
2241	12396	5yr	ABL_Proposed	19.7	92.7	94.23		94.38	0.010246	1.75	92.9	162.26	38.43	12.75	19.86	0.57
2241	12396	10yr	Applewood Final Flow	27.5	93.02	94.93		95	0.003333	1.53	39.35	60.28	71.31	30.36	49.18	0.43
2241	12396	10yr	Updated Existing	27.5	92.92	94.92		95	0.003393	1.55	40.06	61.97	71.28	30.05	48.97	0.43
2241	12396	10yr	ABL_Proposed	27.5	92.7	94.46		94.61	0.008939	1.87	99.7	186.74	64.99	18.59	32.78	0.55
2241	12396	25yr	Applewood Final Flow	34.7	93.02	95.05		95.13	0.003281	1.61	42.3	68.19	94.49	36.31	50.79	0.43
2241	12396	25yr	Updated Existing	34.7	92.92	95.04		95.12	0.003335	1.63	43	69.94	94.57	36.01	50.69	0.44
2241	12396	25yr	ABL_Proposed	34.7	92.7	94.64		94.78	0.007104	1.84	91.59	168.44	91.86	25.99	43.96	0.5
2241	12396	50yr	Applewood Final Flow	41.8	93.02	95.15		95.24	0.003286	1.69	45.5	76.98	106.06	41.72	52.94	0.44
2241	12396	50yr	Updated Existing	41.8	92.92	95.14		95.23	0.003333	1.71	46.15	78.7	106.12	41.41	52.78	0.44
2241	12396	50yr	ABL_Proposed	41.8	92.7	94.8		94.92	0.005678	1.77	81.68	144.49	103.42	33.3	47.16	0.46
2241	12396	100yr	Applewood Final Flow	49.7	93.02	95.26		95.35	0.003288	1.77	48.67	86.14	118.39	47.34	54.65	0.44
2241	12396	100yr	Updated Existing	49.7	92.92	95.25		95.34	0.003332	1.78	49.33	87.94	118.47	47.03	54.53	0.45
2241	12396	100yr	ABL_Proposed	49.7	92.7	94.96		95.07	0.004749	1.73	75.28	129.91	116.74	40.87	49.7	0.42
2241	12396	Regional	Applewood Final Flow	42.3	93.02	95.16		95.24	0.003286	1.7	45.71	77.58	116.81	42.08	53.05	0.44
2241	12396	Regional	Updated Existing	42.3	92.92	95.15		95.24	0.003332	1.71	46.36	79.29	116.86	41.78	52.93	0.44
2241	12396	Regional	ABL_Proposed	42.3	92.7	94.81		94.93	0.005601	1.76	81.13	143.17	114.83	33.79	47.3	0.45
2241	12396	Fish Passage	Applewood Final Flow	0.11	93.02	93.12	93.12	93.16	0.031121	0.86	22.49	19.33	1.26	0.13	1.7	1
2241	12396	Fish Passage	Updated Existing	0.11	92.92	93.06	93.06	93.1	0.030476	0.89	23.06	20.58	1.11	0.12	1.56	1.02
2241	12396	Fish Passage	ABL_Proposed	0.11	92.7	92.92		92.93	0.006749	0.37	8.05	2.95	1.21	0.3	2.42	0.33
2241	12345	2yr	Applewood Final Flow	12.7	92.75	94.24	93.96	94.41	0.005189	1.9	49.4	93.82	27.19	9.85	28.34	0.56
2241	12345	2yr	Updated Existing	12.7	92.52	94.22	93.88	94.38	0.005183	1.9	49.37	93.92	26.84	9.39	27.62	0.56
2241	12345	2yr	ABL_Proposed	12.7	92.1	93.52		93.68	0.006259	1.78	43	76.68	23.27	7.12	9.75	0.67
2241	12345	5yr	Applewood Final Flow	19.7	92.75	94.38	94.36	94.59	0.006445	2.28	68.75	157.02	44.9	14.02	31.28	0.64
2241	12345	5yr	Updated Existing	19.7	92.52	94.36	94.34	94.57	0.006496	2.3	69.3	159.2	44.55	13.59	30.8	0.63
2241	12345	5yr	ABL_Proposed	19.7	92.1	93.75		93.97	0.00622	2.07	53.83	111.62	37.86	9.72	13.58	0.69
2241	12345	10yr	Applewood Final Flow	27.5	92.75	94.51	94.49	94.75	0.007216	2.57	84.52	217.37	70.09	18.14	33.73	0.69
2241	12345	10yr	Updated Existing	27.5	92.52	94.49	94.48	94.74	0.007271	2.59	85.12	220.09	70.08	17.77	33.38	0.68
2241	12345	10yr	ABL_Proposed	27.5	92.1	93.94	93.74	94.22	0.006207	2.35	65.11	153.3	64.19	12.77	17.06	0.71
2241	12345	25yr	Applewood Final Flow	34.7	92.75	94.61	94.6	94.87	0.007554	2.76	94.87	261.51	93.04	21.65	34.99	0.71
2241	12345	25yr	Updated Existing	34.7	92.52	94.59	94.59	94.86	0.0076	2.77	95.32	263.83	93.13	21.35	34.75	0.7
2241	12345	25yr	ABL_Proposed	34.7	92.1	94.1	93.92	94.42	0.006149	2.56	73.6	188.33	90.79	15.63	19.84	0.72
2241	12345	50yr	Applewood Final Flow	41.8	92.75	94.7	94.68	94.97	0.007806	2.91	103.82	302.24	104.39	24.85	36.09	0.73
2241	12345	50yr	Updated Existing	41.8	92.52	94.69	94.67	94.96	0.007831	2.92	103.95	303.33	104.46	24.59	35.88	0.72
2241	12345	50yr	ABL_Proposed	41.8	92.1	94.26	94.05	94.6	0.00581	2.69	78.01	209.49	102.09	18.99	23.56	0.72
2241	12345	100yr	Applewood Final Flow	49.7	92.75	94.79	94.76	95.08	0.008002	3.06	112.45	343.86	116.5	28.19	37.16	0.75
2241	12345	100yr	Updated Existing	49.7	92.52	94.78	94.75	95.07	0.008015	3.06	112.32	343.79	116.6	27.97	36.96	0.74
2241	12345	100yr	ABL_Proposed	49.7	92.1	94.43	94.22	94.79	0.005231	2.75	78.89	217.18	115.1	23.5	27.8	0.69
2241	12345	Regional	Applewood Final Flow	42.3	92.75	94.71	94.68	94.98	0.007818	2.92	104.37	304.87	115.13	25.07	36.15	0.73
2241	12345	Regional	Updated Existing	42.3	92.52	94.69	94.67	94.97	0.007853	2.93	104.61	306.41	115.2	24.8	35.95	0.72
2241	12345	Regional	ABL_Proposed	42.3	92.1	94.27	94.07	94.62	0.005776	2.69	78.17	210.39	113.47	19.25	23.82	0.72
2241	12345	Fish Passage	Applewood Final Flow	0.11	92.75	92.97	92.84	92.97	0.000769	0.24	1.26	0.3	1.25	0.46	2.65	0.18
2241	12345	Fish Passage	Updated Existing	0.11	92.52	92.82	92.69	92.82	0.001469	0.3	2.11	0.64	1.1	0.36	2.29	0.24
2241	12345	Fish Passage	ABL_Proposed	0.11	92.1	92.25	92.25	92.29	0.029185	0.96	24.95	23.94	1.2	0.11	1.27	1.02

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12266	2yr	Applewood Final Flow	12.7	92.19	93.88	93.34	93.97	0.003052	1.53	31.36	47.98	26.28	14.38	36.15	0.39
2241	12266	2yr	Updated Existing	12.7	92.18	93.89	93.34	93.97	0.002895	1.5	30	44.95	25.92	14.78	36.66	0.38
2241	12266	2yr	ABL_Proposed	12.7	91.73	93.09	92.82	93.22	0.004673	1.6	33.94	54.26	22.6	7.97	11.16	0.58
2241	12266	5yr	Applewood Final Flow	19.7	92.19	94.04	93.88	94.14	0.003387	1.72	38.49	66.32	43.54	20.74	39.54	0.42
2241	12266	5yr	Updated Existing	19.7	92.18	94.04	93.88	94.14	0.003406	1.73	38.71	66.89	43.19	20.68	39.52	0.42
2241	12266	5yr	ABL_Proposed	19.7	91.73	93.35	93.04	93.52	0.004211	1.84	40.75	74.9	36.91	11.24	14.63	0.58
2241	12266	10yr	Applewood Final Flow	27.5	92.19	94.18	94.02	94.28	0.003623	1.88	44.49	83.49	68.31	26.65	48.05	0.44
2241	12266	10yr	Updated Existing	27.5	92.18	94.18	94.02	94.28	0.003666	1.89	44.99	84.88	68.3	26.5	47.76	0.44
2241	12266	10yr	ABL_Proposed	27.5	91.73	93.54	93.24	93.76	0.004518	2.13	51.77	110.29	62.87	13.9	17.43	0.62
2241	12266	25yr	Applewood Final Flow	34.7	92.19	94.28	94.1	94.39	0.003823	2	49.52	98.94	90.93	31.64	48.99	0.45
2241	12266	25yr	Updated Existing	34.7	92.18	94.28	94.1	94.39	0.003856	2.01	49.95	100.2	91.02	31.52	48.97	0.46
2241	12266	25yr	ABL_Proposed	34.7	91.73	93.66	93.4	93.95	0.005131	2.42	64.62	156.26	89.05	15.72	19.83	0.67
2241	12266	50yr	Applewood Final Flow	41.8	92.19	94.38	94.17	94.49	0.003931	2.09	53.33	111.42	101.98	36.26	50.47	0.46
2241	12266	50yr	Updated Existing	41.8	92.18	94.37	94.17	94.49	0.003957	2.1	53.69	112.55	102.04	36.15	50.42	0.47
2241	12266	50yr	ABL_Proposed	41.8	91.73	93.76	93.53	94.11	0.005745	2.68	77.69	208.44	99.88	17.24	21.79	0.72
2241	12266	100yr	Applewood Final Flow	49.7	92.19	94.47	94.24	94.59	0.004011	2.17	56.92	123.77	113.75	41.11	52.04	0.47
2241	12266	100yr	Updated Existing	49.7	92.18	94.47	94.24	94.59	0.004035	2.18	57.26	124.89	113.84	41.01	52.01	0.47
2241	12266	100yr	ABL_Proposed	49.7	91.73	93.85	93.69	94.28	0.006447	2.96	92.87	275.31	112.33	18.69	23.65	0.77
2241	12266	Regional	Applewood Final Flow	42.3	92.19	94.38	94.18	94.5	0.003937	2.1	53.58	112.27	112.69	36.57	50.58	0.47
2241	12266	Regional	Updated Existing	42.3	92.18	94.38	94.18	94.5	0.003963	2.1	53.93	113.37	112.75	36.47	50.54	0.47
2241	12266	Regional	ABL_Proposed	42.3	91.73	93.76	93.54	94.12	0.00579	2.7	78.64	212.44	111.23	17.34	21.91	0.72
2241	12266	Fish Passage	Applewood Final Flow	0.11	92.19	92.32	92.25	92.32	0.002131	0.3	2.29	0.68	1.23	0.37	3.22	0.28
2241	12266	Fish Passage	Updated Existing	0.11	92.18	92.3	92.25	92.31	0.002787	0.32	2.77	0.9	1.08	0.34	3.21	0.32
2241	12266	Fish Passage	ABL_Proposed	0.11	91.73	91.9	91.9	91.95	0.028307	1.04	28.03	29.22	1.16	0.11	0.97	1.01
2241	12229	2yr	Applewood Final Flow	12.7	91.97	93.64	93.37	93.79	0.006125	1.87	58.42	109.54	25.79	10.19	37.86	0.56
2241	12229	2yr	Updated Existing	12.7	91.88	93.61	93.35	93.79	0.006837	1.96	64.1	125.64	25.43	9.38	37.36	0.58
2241	12229	2yr	ABL_Proposed	12.7	91.28	93.01		93.09	0.001922	1.22	18.19	22.24	22.26	10.48	11.3	0.39
2241	12229	5yr	Applewood Final Flow	19.7	91.97	93.76	93.76	93.94	0.007133	2.17	75.44	163.51	42.84	15.09	39.76	0.61
2241	12229	5yr	Updated Existing	19.7	91.88	93.76	93.76	93.94	0.007132	2.17	75.4	163.53	42.5	15.04	39.72	0.61
2241	12229	5yr	ABL_Proposed	19.7	91.28	93.27		93.38	0.002156	1.51	25.55	38.46	36.45	13.49	12.39	0.43
2241	12229	10yr	Applewood Final Flow	27.5	91.97	93.86	93.86	94.06	0.008098	2.43	92.39	224.43	67.45	19.17	40.87	0.66
2241	12229	10yr	Updated Existing	27.5	91.88	93.87	93.86	94.06	0.007985	2.42	91.23	220.46	67.43	19.24	40.88	0.65
2241	12229	10yr	ABL_Proposed	27.5	91.28	93.44		93.61	0.002726	1.84	36.65	67.47	62.29	15.65	34.44	0.49
2241	12229	25yr	Applewood Final Flow	34.7	91.97	93.95	93.94	94.16	0.008494	2.59	102.9	266.43	89.91	22.7	41.66	0.68
2241	12229	25yr	Updated Existing	34.7	91.88	93.95	93.94	94.16	0.008396	2.58	101.8	262.46	90	22.77	41.66	0.68
2241	12229	25yr	ABL_Proposed	34.7	91.28	93.52	93.07	93.77	0.003604	2.2	51.32	112.87	88.38	17.08	38.33	0.57
2241	12229	50yr	Applewood Final Flow	41.8	91.97	94.02	94.01	94.25	0.00899	2.75	114.11	313.55	100.83	25.64	42.31	0.71
2241	12229	50yr	Updated Existing	41.8	91.88	94.02	94	94.25	0.008903	2.74	113.04	309.48	100.89	25.71	42.31	0.7
2241	12229	50yr	ABL_Proposed	41.8	91.28	93.6	93.21	93.9	0.004317	2.48	64.46	160.15	99.12	19.92	39.14	0.63
2241	12229	100yr	Applewood Final Flow	49.7	91.97	94.09	94.07	94.34	0.009517	2.91	126.2	367.36	112.46	28.58	42.95	0.73
2241	12229	100yr	Updated Existing	49.7	91.88	94.09	94.07	94.34	0.009426	2.9	125.02	362.59	112.56	28.66	42.95	0.73
2241	12229	100yr	ABL_Proposed	49.7	91.28	93.67	93.36	94.04	0.004993	2.75	78.05	215.01	111.47	22.86	39.8	0.68
2241	12229	Regional	Applewood Final Flow	42.3	91.97	94.03	94.01	94.26	0.009023	2.76	114.87	316.86	111.53	25.84	42.35	0.71
2241	12229	Regional	Updated Existing	42.3	91.88	94.03	94.01	94.26	0.008938	2.75	113.82	312.84	111.59	25.9	42.35	0.7
2241	12229	Regional	ABL_Proposed	42.3	91.28	93.6	93.22	93.91	0.004366	2.5	65.38	163.67	110.46	20.11	39.19	0.63
2241	12229	Fish Passage	Applewood Final Flow	0.11	91.97	92.11	92.1	92.14	0.018689	0.71	14.16	10.03	1.22	0.16	1.98	0.81
2241	12229	Fish Passage	Updated Existing	0.11	91.88	92.09		92.11	0.01292	0.64	11.13	7.14	1.07	0.17	1.89	0.68
2241	12229	Fish Passage	ABL_Proposed	0.11	91.28	91.65	91.43	91.66	0.00038	0.19	0.74	0.14	1.15	0.58	2.79	0.13
2241	12204	2yr	Applewood Final Flow	12.7	91.74	93.6	93.39	93.65	0.002757	1.23	25.56	31.54	25.44	17.69	41.77	0.33
2241	12204	2yr	Updated Existing	12.7	91.77	93.56	93.39	93.62	0.003173	1.31	29.03	38.15	25.11	16.39	39.02	0.35
2241	12204	5yr	Applewood Final Flow	19.7	91.74	93.65	93.52	93.74	0.005108	1.71	48.59	82.94	42.42	19.87	46.95	0.45

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12204	5yr	Updated Existing	19.7	91.77	93.64	93.52	93.74	0.005154	1.72	49.16	84.54	42.07	19.79	46.87	0.45
2241	12204	10yr	Applewood Final Flow	27.5	91.74	93.76	93.64	93.86	0.005635	1.87	57.3	107.35	66.9	25.55	56.73	0.47
2241	12204	10yr	Updated Existing	27.5	91.77	93.76	93.65	93.86	0.005675	1.89	57.89	109.19	66.89	25.46	56.71	0.48
2241	12204	25yr	Applewood Final Flow	34.7	91.74	93.83	93.71	93.94	0.006155	2.02	65.56	132.41	89.27	29.92	58.91	0.5
2241	12204	25yr	Updated Existing	34.7	91.77	93.83	93.72	93.94	0.006179	2.03	66.06	134.17	89.37	29.86	58.9	0.5
2241	12204	50yr	Applewood Final Flow	41.8	91.74	93.89	93.78	94.02	0.006742	2.16	74.39	160.97	100.12	33.47	60.1	0.53
2241	12204	50yr	Updated Existing	41.8	91.77	93.89	93.79	94.02	0.006776	2.18	75.04	163.39	100.18	33.39	60.09	0.53
2241	12204	100yr	Applewood Final Flow	49.7	91.74	93.95	93.84	94.09	0.007299	2.3	83.32	191.9	111.67	37.1	61.23	0.55
2241	12204	100yr	Updated Existing	49.7	91.77	93.95	93.84	94.09	0.00731	2.31	83.81	193.97	111.77	37.05	61.23	0.55
2241	12204	Regional	Applewood Final Flow	42.3	91.74	93.9	93.79	94.02	0.006779	2.17	74.96	162.9	110.82	33.72	60.17	0.53
2241	12204	Regional	Updated Existing	42.3	91.77	93.9	93.79	94.02	0.006813	2.19	75.63	165.37	110.88	33.63	60.16	0.53
2241	12204	Fish Passage	Applewood Final Flow	0.11	91.74	91.94	91.87	91.95	0.003847	0.38	3.8	1.43	1.21	0.29	2.76	0.37
2241	12204	Fish Passage	Updated Existing	0.11	91.77	91.95	91.89	91.96	0.003197	0.36	3.36	1.21	1.06	0.31	2.75	0.34
2241	12199	12-Access Way	Bridge													
2241	12195	2yr	Applewood Final Flow	12.7	91.52	93.27	92.84	93.43	0.006773	1.9	57.86	109.78	25.33	10.31	41.77	0.54
2241	12195	2yr	Updated Existing	12.7	91.6	93.27	92.86	93.43	0.007015	1.92	59.45	114.12	25	10.19	41.75	0.55
2241	12195	2yr	ABL_Proposed	12.7	91.28	92.89		93	0.003431	1.46	27.47	40.17	21.92	8.76	11.63	0.5
2241	12195	5yr	Applewood Final Flow	19.7	91.52	93.43	93.4	93.57	0.006185	1.96	59.61	117.12	42.27	17.19	44.46	0.53
2241	12195	5yr	Updated Existing	19.7	91.6	93.43	93.4	93.57	0.006323	1.98	60.56	119.74	41.92	17.09	44.45	0.54
2241	12195	5yr	ABL_Proposed	19.7	91.28	93.14		93.28	0.003434	1.72	35.04	60.24	35.98	12.82	28.29	0.53
2241	12195	10yr	Applewood Final Flow	27.5	91.52	93.57	93.5	93.69	0.005795	2.02	61.28	123.97	66.72	23.47	47.55	0.52
2241	12195	10yr	Updated Existing	27.5	91.6	93.57	93.5	93.69	0.005897	2.03	62.01	126.03	66.7	23.37	47.53	0.53
2241	12195	10yr	ABL_Proposed	27.5	91.28	93.35		93.5	0.003019	1.82	36.85	66.93	61.61	21.79	47.02	0.51
2241	12195	25yr	Applewood Final Flow	34.7	91.52	93.67	93.56	93.79	0.005617	2.08	63.4	131.9	89.05	28.78	53.48	0.52
2241	12195	25yr	Updated Existing	34.7	91.6	93.67	93.56	93.79	0.005712	2.09	64.13	134	89.14	28.64	53.44	0.52
2241	12195	25yr	ABL_Proposed	34.7	91.28	93.45		93.62	0.003262	1.99	42.96	85.32	87.57	26.71	48.61	0.53
2241	12195	50yr	Applewood Final Flow	41.8	91.52	93.76	93.63	93.88	0.005469	2.13	65.05	138.26	99.85	33.6	55.68	0.52
2241	12195	50yr	Updated Existing	41.8	91.6	93.76	93.63	93.88	0.005543	2.13	65.62	139.94	99.92	33.48	55.65	0.52
2241	12195	50yr	ABL_Proposed	41.8	91.28	93.55		93.73	0.003395	2.12	47.7	100.93	98.18	31.36	50.35	0.55
2241	12195	100yr	Applewood Final Flow	49.7	91.52	93.85	93.69	93.97	0.005258	2.16	65.83	141.97	111.37	38.78	57.59	0.51
2241	12195	100yr	Updated Existing	49.7	91.6	93.85	93.69	93.97	0.00533	2.16	66.43	143.77	111.47	38.63	57.56	0.51
2241	12195	100yr	ABL_Proposed	49.7	91.28	93.65		93.84	0.003435	2.22	51.52	114.52	110.39	36.58	52.6	0.56
2241	12195	Regional	Applewood Final Flow	42.3	91.52	93.77	93.63	93.89	0.005457	2.13	65.13	138.6	110.55	33.94	55.82	0.52
2241	12195	Regional	Updated Existing	42.3	91.6	93.76	93.63	93.89	0.005531	2.14	65.71	140.28	110.62	33.81	55.79	0.52
2241	12195	Regional	ABL_Proposed	42.3	91.28	93.55		93.74	0.003406	2.12	48.04	102.06	109.51	31.66	50.45	0.55
2241	12195	Fish Passage	Applewood Final Flow	0.11	91.52	91.77	91.67	91.78	0.001031	0.25	1.47	0.37	1.21	0.44	2.86	0.21
2241	12195	Fish Passage	Updated Existing	0.11	91.6	91.77	91.69	91.78	0.001718	0.29	2.11	0.62	1.06	0.37	2.86	0.26
2241	12195	Fish Passage	ABL_Proposed	0.11	91.28	91.64		91.64	0.000508	0.21	0.95	0.2	1.13	0.51	2.57	0.15
2241	12155	2yr	Applewood Final Flow	12.7	91.48	93.09	93.02	93.2	0.004397	1.64	42.76	70.29	24.93	11.91	36.03	0.5
2241	12155	2yr	Updated Existing	12.7	91.4	93.09	93.01	93.2	0.004368	1.64	42.53	69.78	24.61	11.89	35.98	0.5
2241	12155	2yr	ABL_Proposed	12.7	91.35	92.47	92.45	92.74	0.013521	2.3	76.44	175.92	21.63	5.52	9.21	0.95
2241	12155	5yr	Applewood Final Flow	19.7	91.48	93.25	93.15	93.36	0.004466	1.81	49.71	90.1	41.65	17.98	45.17	0.52
2241	12155	5yr	Updated Existing	19.7	91.4	93.25	93.15	93.36	0.004463	1.81	49.67	90.06	41.3	17.94	45.1	0.51
2241	12155	5yr	ABL_Proposed	19.7	91.35	92.67	92.67	93.02	0.013661	2.63	93.48	245.61	35.57	7.59	11.99	0.98
2241	12155	10yr	Applewood Final Flow	27.5	91.48	93.39	93.26	93.51	0.004479	1.95	55.32	107.63	65.88	23.67	49.03	0.53
2241	12155	10yr	Updated Existing	27.5	91.4	93.39	93.26	93.51	0.004493	1.95	55.44	108.05	65.88	23.61	48.96	0.53
2241	12155	10yr	ABL_Proposed	27.5	91.35	92.88	92.88	93.27	0.010777	2.78	95.7	265.7	60.97	10.74	20.1	0.91
2241	12155	25yr	Applewood Final Flow	34.7	91.48	93.51	93.34	93.62	0.004158	1.98	55.71	110.24	88.03	31.03	52.47	0.51
2241	12155	25yr	Updated Existing	34.7	91.4	93.5	93.34	93.62	0.004193	1.99	56.07	111.37	88.13	30.89	52.4	0.51
2241	12155	25yr	ABL_Proposed	34.7	91.35	93.12	93.11	93.42	0.006965	2.58	77.06	199.13	86.68	18.17	38.78	0.76

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12155	50yr	Applewood Final Flow	41.8	91.48	93.6	93.41	93.71	0.004101	2.04	58.27	119.1	98.67	35.89	53.32	0.51
2241	12155	50yr	Updated Existing	41.8	91.4	93.6	93.41	93.71	0.00412	2.05	58.45	119.69	98.74	35.8	53.3	0.51
2241	12155	50yr	ABL_Proposed	41.8	91.35	93.27	93.22	93.55	0.005736	2.54	71.69	182.35	97.07	24.08	45.76	0.71
2241	12155	100yr	Applewood Final Flow	49.7	91.48	93.69	93.49	93.81	0.004021	2.1	60.53	127.29	110.02	41.01	54.15	0.51
2241	12155	100yr	Updated Existing	49.7	91.4	93.69	93.49	93.81	0.004045	2.11	60.76	128.08	110.12	40.91	54.12	0.51
2241	12155	100yr	ABL_Proposed	49.7	91.35	93.41	93.32	93.67	0.004945	2.53	68.51	173.3	109.05	30.05	49.62	0.67
2241	12155	Regional	Applewood Final Flow	42.3	91.48	93.6	93.42	93.72	0.004097	2.05	58.43	119.68	109.36	36.22	53.37	0.51
2241	12155	Regional	Updated Existing	42.3	91.4	93.6	93.42	93.72	0.004115	2.05	58.61	120.26	109.43	36.13	53.35	0.51
2241	12155	Regional	ABL_Proposed	42.3	91.35	93.28	93.23	93.56	0.005639	2.54	71.09	180.31	108.39	24.54	46.11	0.7
2241	12155	Fish Passage	Applewood Final Flow	0.11	91.48	91.69	91.63	91.7	0.004833	0.47	5.52	2.6	1.19	0.23	1.95	0.43
2241	12155	Fish Passage	Updated Existing	0.11	91.4	91.64	91.58	91.66	0.006507	0.55	7.39	4.04	1.05	0.2	1.66	0.5
2241	12155	Fish Passage	ABL_Proposed	0.11	91.35	91.53	91.52	91.57	0.019904	0.92	21.11	19.32	1.12	0.12	1.03	0.85
2241	12140	2yr	Applewood Final Flow	12.7	91.37	93	92.89	93.12	0.006063	1.67	51.23	85.68	24.75	10.41	34.05	0.55
2241	12140	2yr	Updated Existing	12.7	91.24	92.99	92.85	93.11	0.006412	1.71	53.35	90.98	24.43	10.07	33.75	0.56
2241	12140	2yr	ABL_Proposed	12.7	91.13	92.23	92.23	92.52	0.015035	2.39	83.07	198.54	21.55	5.31	9.08	1
2241	12140	5yr	Applewood Final Flow	19.7	91.37	93.15		93.28	0.00607	1.85	59.66	110.4	41.37	16	38.85	0.56
2241	12140	5yr	Updated Existing	19.7	91.24	93.14		93.28	0.006276	1.87	60.98	114.09	41.03	15.76	38.67	0.57
2241	12140	5yr	ABL_Proposed	19.7	91.13	92.44	92.44	92.8	0.014525	2.68	97.71	261.72	35.46	7.36	10.4	1.01
2241	12140	10yr	Applewood Final Flow	27.5	91.37	93.29		93.42	0.005876	1.97	65.14	128.53	65.5	21.8	44.15	0.57
2241	12140	10yr	Updated Existing	27.5	91.24	93.29		93.42	0.006002	1.98	65.88	130.76	65.5	21.6	43.92	0.57
2241	12140	10yr	ABL_Proposed	27.5	91.13	92.59	92.64	93.07	0.014876	3.08	121.17	373.11	60.81	9.09	12.49	1.06
2241	12140	25yr	Applewood Final Flow	34.7	91.37	93.4		93.54	0.00573	2.06	69.16	142.6	87.56	26.94	49.19	0.57
2241	12140	25yr	Updated Existing	34.7	91.24	93.4		93.53	0.005825	2.07	69.66	144.23	87.66	26.76	49.08	0.57
2241	12140	25yr	ABL_Proposed	34.7	91.13	92.8	92.8	93.27	0.010946	3.06	111.42	341.43	86.44	12.07	15.51	0.94
2241	12140	50yr	Applewood Final Flow	41.8	91.37	93.5		93.64	0.005414	2.1	70.14	147.39	98.12	31.88	50.73	0.56
2241	12140	50yr	Updated Existing	41.8	91.24	93.5		93.63	0.005485	2.11	70.43	148.36	98.19	31.74	50.69	0.56
2241	12140	50yr	ABL_Proposed	41.8	91.13	93.05	93.05	93.44	0.00729	2.86	90.95	260.49	96.74	18.52	34.55	0.79
2241	12140	100yr	Applewood Final Flow	49.7	91.37	93.6		93.74	0.005124	2.14	71.02	151.86	109.39	37.06	51.8	0.55
2241	12140	100yr	Updated Existing	49.7	91.24	93.6		93.73	0.00519	2.14	71.28	152.78	109.49	36.9	51.76	0.55
2241	12140	100yr	ABL_Proposed	49.7	91.13	93.2	93.2	93.57	0.006243	2.86	87.2	249.22	108.62	24.54	40.67	0.75
2241	12140	Regional	Applewood Final Flow	42.3	91.37	93.51		93.64	0.005394	2.1	70.2	147.69	108.81	32.22	50.8	0.56
2241	12140	Regional	Updated Existing	42.3	91.24	93.5		93.64	0.005463	2.11	70.47	148.61	108.87	32.08	50.76	0.56
2241	12140	Regional	ABL_Proposed	42.3	91.13	93.06	93.06	93.45	0.007249	2.87	91.06	261.28	108.05	18.84	34.98	0.79
2241	12140	Fish Passage	Applewood Final Flow	0.11	91.37	91.65		91.66	0.001632	0.33	2.47	0.81	1.19	0.34	2.09	0.26
2241	12140	Fish Passage	Updated Existing	0.11	91.24	91.55		91.57	0.005401	0.53	6.67	3.52	1.05	0.21	1.52	0.45
2241	12140	Fish Passage	ABL_Proposed	0.11	91.13	91.35	91.3	91.37	0.00913	0.69	11.27	7.72	1.12	0.16	1.17	0.59
2241	12109	2yr	Applewood Final Flow	12.7	91.35	92.81	92.75	92.94	0.005738	1.74	50.14	87.47	24.42	10.79	35.55	0.57
2241	12109	2yr	Updated Existing	12.7	90.99	92.8	92.73	92.93	0.005655	1.73	48.68	83.99	24.11	10.7	35.37	0.55
2241	12109	2yr	ABL_Proposed	12.7	90.68	92.02	91.78	92.16	0.005109	1.64	36.14	59.35	21.35	7.74	10.5	0.61
2241	12109	5yr	Applewood Final Flow	19.7	91.35	93		93.11	0.004804	1.79	50.02	89.75	40.83	17.62	38.74	0.54
2241	12109	5yr	Updated Existing	19.7	90.99	92.99		93.1	0.004734	1.77	48.46	85.87	40.49	17.65	38.66	0.52
2241	12109	5yr	ABL_Proposed	19.7	90.68	92.28	91.99	92.46	0.004616	1.9	43.71	82.88	35.18	10.56	11.7	0.6
2241	12109	10yr	Applewood Final Flow	27.5	91.35	93.14		93.26	0.004619	1.91	54.22	103.33	64.78	23.39	40.73	0.54
2241	12109	10yr	Updated Existing	27.5	90.99	93.14		93.25	0.004539	1.88	52.3	98.19	64.78	23.53	40.69	0.52
2241	12109	10yr	ABL_Proposed	27.5	90.68	92.5	92.18	92.73	0.004517	2.15	52.35	112.37	60.46	13.32	12.79	0.62
2241	12109	25yr	Applewood Final Flow	34.7	91.35	93.25		93.37	0.004622	2.01	58.83	118.36	86.68	27.87	41.76	0.54
2241	12109	25yr	Updated Existing	34.7	90.99	93.25		93.37	0.004554	1.98	56.78	112.55	86.78	28.04	41.74	0.53
2241	12109	25yr	ABL_Proposed	34.7	90.68	92.66	92.33	92.95	0.004727	2.38	61.87	147.32	86.01	15.79	25.33	0.65
2241	12109	50yr	Applewood Final Flow	41.8	91.35	93.35		93.48	0.0046	2.1	62.62	131.45	97.1	31.96	42.42	0.55
2241	12109	50yr	Updated Existing	41.8	90.99	93.34		93.47	0.004535	2.07	60.4	124.84	97.16	32.16	42.41	0.53
2241	12109	50yr	ABL_Proposed	41.8	90.68	92.81	92.48	93.12	0.004523	2.5	65.74	164.2	96.13	20.91	36.28	0.64

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12109	100yr	Applewood Final Flow	49.7	91.35	93.44		93.58	0.004599	2.19	66.73	146.16	108.21	36.16	43.18	0.55
2241	12109	100yr	Updated Existing	49.7	90.99	93.44		93.58	0.004548	2.16	64.46	139.07	108.31	36.37	43.17	0.54
2241	12109	100yr	ABL_Proposed	49.7	90.68	92.88	92.81	93.25	0.005322	2.79	80.61	224.51	107.87	23.3	37.24	0.7
2241	12109	Regional	Applewood Final Flow	42.3	91.35	93.35		93.48	0.0046	2.11	62.89	132.38	107.77	32.23	42.47	0.55
2241	12109	Regional	Updated Existing	42.3	90.99	93.35		93.48	0.004535	2.07	60.66	125.72	107.84	32.44	42.46	0.53
2241	12109	Regional	ABL_Proposed	42.3	90.68	92.79	92.49	93.12	0.005016	2.6	71.58	186.01	107.45	19.89	35.87	0.67
2241	12109	Fish Passage	Applewood Final Flow	0.11	91.35	91.53	91.5	91.55	0.012497	0.67	11.9	8.03	1.18	0.16	1.62	0.68
2241	12109	Fish Passage	Updated Existing	0.11	90.99	91.32	91.25	91.34	0.010181	0.73	12.82	9.41	1.04	0.15	0.93	0.58
2241	12109	Fish Passage	ABL_Proposed	0.11	90.68	90.85	90.85	90.9	0.028647	1.05	28.29	29.62	1.11	0.11	0.96	1.01
2241	12076	2yr	Applewood Final Flow	12.7	91.01	92.65		92.76	0.004588	1.54	41.57	63.94	24.05	11.41	31.21	0.49
2241	12076	2yr	Updated Existing	12.7	90.84	92.64		92.75	0.004686	1.55	42.25	65.57	23.74	11.14	30.89	0.49
2241	12076	2yr	ABL_Proposed	12.7	90.23	91.96		92.04	0.001919	1.22	18.16	22.19	21.03	10.54	11.75	0.39
2241	12076	5yr	Applewood Final Flow	19.7	91.01	92.81		92.94	0.005293	1.81	55.16	100.03	40.26	16.7	39.18	0.54
2241	12076	5yr	Updated Existing	19.7	90.84	92.8		92.93	0.005207	1.8	54.37	98.11	39.92	16.71	39.06	0.53
2241	12076	5yr	ABL_Proposed	19.7	90.23	92.22		92.34	0.002107	1.49	25.07	37.41	34.76	13.92	14.56	0.42
2241	12076	10yr	Applewood Final Flow	27.5	91.01	92.95		93.09	0.005304	1.96	62.13	121.95	64.02	22.69	43.4	0.55
2241	12076	10yr	Updated Existing	27.5	90.84	92.95		93.09	0.005235	1.96	61.4	120.03	64.01	22.72	43.37	0.54
2241	12076	10yr	ABL_Proposed	27.5	90.23	92.46		92.6	0.002256	1.73	31.77	54.87	59.93	17.61	17.51	0.45
2241	12076	25yr	Applewood Final Flow	34.7	91.01	93.07		93.21	0.005164	2.05	65.85	134.96	85.76	27.83	45.05	0.55
2241	12076	25yr	Updated Existing	34.7	90.84	93.07		93.2	0.005106	2.04	65.14	133.04	85.85	27.87	45.01	0.54
2241	12076	25yr	ABL_Proposed	34.7	90.23	92.62		92.8	0.002464	1.93	38.48	74.42	85.37	21.59	29.97	0.48
2241	12076	50yr	Applewood Final Flow	41.8	91.01	93.17		93.31	0.005152	2.14	70.27	150.44	96.03	32.41	47.2	0.55
2241	12076	50yr	Updated Existing	41.8	90.84	93.17		93.31	0.005093	2.13	69.48	148.19	96.1	32.47	47.17	0.55
2241	12076	50yr	ABL_Proposed	41.8	90.23	92.78		92.97	0.002425	2.04	41.51	84.66	95.3	27.12	39.65	0.48
2241	12076	100yr	Applewood Final Flow	49.7	91.01	93.27		93.42	0.005147	2.23	74.83	167.08	107	37.25	49.66	0.56
2241	12076	100yr	Updated Existing	49.7	90.84	93.27		93.42	0.005106	2.23	74.17	165.14	107.09	37.29	49.59	0.55
2241	12076	100yr	ABL_Proposed	49.7	90.23	92.83		93.08	0.00302	2.32	53.13	123.17	106.97	29.17	41.46	0.54
2241	12076	Regional	Applewood Final Flow	42.3	91.01	93.17		93.32	0.00515	2.15	70.56	151.48	106.7	32.72	47.34	0.55
2241	12076	Regional	Updated Existing	42.3	90.84	93.17		93.32	0.005092	2.14	69.77	149.22	106.76	32.79	47.31	0.55
2241	12076	Regional	ABL_Proposed	42.3	90.23	92.75		92.96	0.00267	2.12	44.92	95.03	106.66	25.92	36.61	0.51
2241	12076	Fish Passage	Applewood Final Flow	0.11	91.01	91.13		91.15	0.011305	0.63	10.48	6.61	1.18	0.17	1.8	0.65
2241	12076	Fish Passage	Updated Existing	0.11	90.84	91.07		91.08	0.005812	0.53	6.87	3.65	1.04	0.21	1.62	0.47
2241	12076	Fish Passage	ABL_Proposed	0.11	90.23	90.69	90.38	90.69	0.000135	0.13	0.32	0.04	1.1	0.85	3.39	0.08
2241	12054	2yr	Applewood Final Flow	12.7	90.82	92.56	92.19	92.66	0.004089	1.49	38.95	58.05	23.79	11.7	32.24	0.46
2241	12054	2yr	Updated Existing	12.7	90.73	92.53	92.17	92.65	0.004671	1.57	43.54	68.4	23.5	10.82	31.62	0.48
2241	12054	2yr	ABL_Proposed	12.7	90.23	91.91		91.99	0.002352	1.29	20.83	26.97	20.81	9.88	11.61	0.43
2241	12054	5yr	Applewood Final Flow	19.7	90.82	92.68	92.59	92.82	0.005322	1.82	56.29	102.63	39.91	15.7	34.08	0.53
2241	12054	5yr	Updated Existing	19.7	90.73	92.67	92.59	92.81	0.005503	1.85	57.98	107.27	39.57	15.41	33.93	0.54
2241	12054	5yr	ABL_Proposed	19.7	90.23	92.16		92.28	0.002523	1.57	28.3	44.42	34.47	13.12	14.02	0.46
2241	12054	10yr	Applewood Final Flow	27.5	90.82	92.79	92.71	92.96	0.006355	2.11	73.05	153.82	63.55	19.35	35.39	0.59
2241	12054	10yr	Updated Existing	27.5	90.73	92.78	92.71	92.95	0.006595	2.14	75.46	161.45	63.55	19.01	35.25	0.6
2241	12054	10yr	ABL_Proposed	27.5	90.23	92.38		92.55	0.002681	1.81	35.72	64.83	59.56	16.93	26.02	0.49
2241	12054	25yr	Applewood Final Flow	34.7	90.82	92.88	92.8	93.07	0.006924	2.3	84.98	195.11	85.2	22.55	36.48	0.62
2241	12054	25yr	Updated Existing	34.7	90.73	92.87	92.8	93.07	0.006982	2.31	85.69	197.69	85.3	22.43	36.42	0.62
2241	12054	25yr	ABL_Proposed	34.7	90.23	92.57		92.75	0.002609	1.94	39.21	76.05	84.88	23.3	40.18	0.49
2241	12054	50yr	Applewood Final Flow	41.8	90.82	92.96	92.88	93.17	0.007247	2.44	94.19	229.87	95.39	25.62	37.52	0.64
2241	12054	50yr	Updated Existing	41.8	90.73	92.96	92.88	93.17	0.007261	2.45	94.47	231.04	95.45	25.56	37.48	0.64
2241	12054	50yr	ABL_Proposed	41.8	90.23	92.75	92.17	92.91	0.002251	1.94	37.66	72.9	94.68	30.95	43.53	0.46
2241	12054	100yr	Applewood Final Flow	49.7	90.82	93.05	92.95	93.28	0.007459	2.57	102.61	263.86	106.26	28.93	38.66	0.65
2241	12054	100yr	Updated Existing	49.7	90.73	93.05	92.95	93.27	0.00744	2.57	102.52	263.73	106.36	28.92	38.64	0.65
2241	12054	100yr	ABL_Proposed	49.7	90.23	92.79		93	0.002825	2.2	48.42	106.69	106.3	32.83	44.19	0.52

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	12054	Regional	Applewood Final Flow	42.3	90.82	92.97	92.88	93.18	0.007265	2.45	94.79	232.2	106.05	25.83	37.6	0.64
2241	12054	Regional	Updated Existing	42.3	90.73	92.96	92.88	93.18	0.007284	2.46	95.12	233.57	106.11	25.76	37.55	0.64
2241	12054	Regional	ABL_Proposed	42.3	90.23	92.71	92.18	92.89	0.002596	2.05	42.42	86.79	106.07	29.12	42.87	0.5
2241	12054	Fish Passage	Applewood Final Flow	0.11	90.82	91	90.93	91.01	0.004071	0.44	4.97	2.18	1.17	0.25	1.95	0.39
2241	12054	Fish Passage	Updated Existing	0.11	90.73	90.95	90.89	90.96	0.005559	0.51	6.55	3.33	1.03	0.22	1.74	0.46
2241	12054	Fish Passage	ABL_Proposed	0.11	90.23	90.69		90.69	0.000139	0.13	0.33	0.04	1.08	0.84	3.37	0.08
2241	12027	2yr	Applewood Final Flow	12.7	90.62	92.24	92.06	92.48	0.01002	2.22	87.41	194.33	23.55	6.99	22.7	0.69
2241	12027	2yr	Updated Existing	12.7	90.39	92.26	91.99	92.47	0.00863	2.09	77.03	161.11	23.26	7.55	24.68	0.63
2241	12027	2yr	ABL_Proposed	12.7	90.45	91.54	91.54	91.84	0.015302	2.4	84.23	202.58	20.6	5.28	9.05	1.01
2241	12027	5yr	Applewood Final Flow	19.7	90.62	92.47	92.47	92.65	0.007296	2.16	77.35	167.09	39.5	15.45	42.22	0.61
2241	12027	5yr	Updated Existing	19.7	90.39	92.46	92.46	92.64	0.007267	2.15	76.76	164.83	39.17	15.31	42.11	0.6
2241	12027	5yr	ABL_Proposed	19.7	90.45	91.76	91.76	92.12	0.014113	2.66	95.77	254.3	34.18	7.42	10.5	1
2241	12027	10yr	Applewood Final Flow	27.5	90.62	92.6		92.78	0.007291	2.3	85.04	195.74	63.03	21.01	44.36	0.62
2241	12027	10yr	Updated Existing	27.5	90.39	92.61		92.77	0.006675	2.21	78.42	173.27	63.02	21.72	44.53	0.58
2241	12027	10yr	ABL_Proposed	27.5	90.45	91.96	91.96	92.38	0.012083	2.89	104.57	302.15	59.19	9.82	13.75	0.96
2241	12027	25yr	Applewood Final Flow	34.7	90.62	92.71		92.88	0.006808	2.34	85.85	201.13	84.57	26.19	46.08	0.61
2241	12027	25yr	Updated Existing	34.7	90.39	92.73		92.88	0.006316	2.26	79.99	180.75	84.66	26.92	46.19	0.57
2241	12027	25yr	ABL_Proposed	34.7	90.45	92.14	92.14	92.59	0.010435	3.02	107.46	324.02	84.39	12.5	18	0.92
2241	12027	50yr	Applewood Final Flow	41.8	90.62	92.81		92.98	0.00649	2.39	87.17	207.94	94.66	30.82	47.15	0.6
2241	12027	50yr	Updated Existing	41.8	90.39	92.82		92.98	0.006116	2.31	82.26	190.37	94.72	31.49	47.25	0.57
2241	12027	50yr	ABL_Proposed	41.8	90.45	92.25	92.25	92.76	0.010412	3.22	118.73	382.77	94.04	14.89	23.7	0.94
2241	12027	100yr	Applewood Final Flow	49.7	90.62	92.92		93.08	0.006215	2.43	88.68	215.56	105.43	35.66	48.25	0.59
2241	12027	100yr	Updated Existing	49.7	90.39	92.92		93.08	0.005914	2.37	84.31	199.46	105.52	36.31	48.34	0.57
2241	12027	100yr	ABL_Proposed	49.7	90.45	92.57	92.52	92.89	0.005377	2.7	77.17	208.42	105.48	26.69	43.85	0.7
2241	12027	Regional	Applewood Final Flow	42.3	90.62	92.82		92.98	0.006476	2.39	87.32	208.64	105.31	31.12	47.22	0.6
2241	12027	Regional	Updated Existing	42.3	90.39	92.83		92.98	0.006085	2.32	82.19	190.28	105.37	31.84	47.33	0.57
2241	12027	Regional	ABL_Proposed	42.3	90.45	92.41	92.41	92.77	0.006552	2.77	84.24	233.37	105.39	20.03	39.45	0.76
2241	12027	Fish Passage	Applewood Final Flow	0.11	90.62	90.73	90.73	90.77	0.029939	0.92	24.63	22.61	1.17	0.12	1.37	0.99
2241	12027	Fish Passage	Updated Existing	0.11	90.39	90.6	90.6	90.65	0.034219	1.01	31.11	31.51	1.03	0.11	1.05	1.01
2241	12027	Fish Passage	ABL_Proposed	0.11	90.45	90.62	90.62	90.67	0.028581	1.05	28.24	29.54	1.06	0.11	0.97	1.01
2241	11998	2yr	Applewood Final Flow	12.7	90.15	92.11	91.51	92.25	0.004498	1.83	49.36	90.26	23.32	8.67	27.34	0.43
2241	11998	2yr	Updated Existing	12.7	90.21	92.12	91.67	92.27	0.004124	1.87	45.78	85.41	23.01	8.7	30.34	0.45
2241	11998	2yr	ABL_Proposed	12.7	90	91.37	91.09	91.5	0.004545	1.59	33.29	52.79	20.41	8.02	10.76	0.57
2241	11998	5yr	Applewood Final Flow	19.7	90.15	92.31	92.23	92.44	0.004599	1.98	56	110.98	39.03	16.85	41.58	0.45
2241	11998	5yr	Updated Existing	19.7	90.21	92.33	92.24	92.46	0.003898	1.95	48.42	94.65	38.69	17.84	42.1	0.44
2241	11998	5yr	ABL_Proposed	19.7	90	91.63	91.31	91.8	0.004117	1.83	40.27	73.71	33.92	11.08	12.83	0.57
2241	11998	10yr	Applewood Final Flow	27.5	90.15	92.47	92.36	92.59	0.004349	2.03	57.2	116.04	62.38	23.78	43.95	0.44
2241	11998	10yr	Updated Existing	27.5	90.21	92.49	92.37	92.61	0.003879	2.05	51.89	106.31	62.35	24.44	44.22	0.45
2241	11998	10yr	ABL_Proposed	27.5	90	91.86	91.5	92.07	0.004041	2.07	48.16	99.6	58.84	14.23	14.95	0.59
2241	11998	25yr	Applewood Final Flow	34.7	90.15	92.58	92.44	92.7	0.004319	2.09	59.83	125.21	83.77	28.97	45.74	0.44
2241	11998	25yr	Updated Existing	34.7	90.21	92.6	92.45	92.72	0.003931	2.13	55.37	118.18	83.84	29.54	46.03	0.45
2241	11998	25yr	ABL_Proposed	34.7	90	92.04	91.66	92.29	0.003987	2.25	54.34	122.08	83.96	17.1	21.12	0.6
2241	11998	50yr	Applewood Final Flow	41.8	90.15	92.68	92.51	92.8	0.004312	2.15	62.33	134.12	93.73	33.64	47.53	0.44
2241	11998	50yr	Updated Existing	41.8	90.21	92.7	92.52	92.82	0.00401	2.22	58.89	130.52	93.77	34.03	47.74	0.46
2241	11998	50yr	ABL_Proposed	41.8	90	92.18	91.81	92.47	0.004099	2.43	61.41	149.02	93.54	19.58	25.12	0.61
2241	11998	100yr	Applewood Final Flow	49.7	90.15	92.79	92.57	92.91	0.004237	2.19	63.93	140.29	104.35	38.71	49.32	0.44
2241	11998	100yr	Updated Existing	49.7	90.21	92.8	92.59	92.93	0.003987	2.27	61.11	138.99	104.43	39.02	49.48	0.46
2241	11998	100yr	ABL_Proposed	49.7	90	92.49	91.96	92.74	0.00298	2.33	53.2	123.69	104.68	25.28	33.76	0.54
2241	11998	Regional	Applewood Final Flow	42.3	90.15	92.69	92.51	92.81	0.004314	2.16	62.53	134.8	104.37	33.94	47.64	0.44
2241	11998	Regional	Updated Existing	42.3	90.21	92.7	92.53	92.83	0.00399	2.22	58.79	130.3	104.41	34.42	47.87	0.46
2241	11998	Regional	ABL_Proposed	42.3	90	92.19	91.82	92.48	0.004089	2.44	61.71	150.26	104.8	19.79	25.44	0.61

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11998	Fish Passage	Applewood Final Flow	0.11	90.15	90.5	90.25	90.5	0.000176	0.14	0.43	0.06	1.15	0.81	2.76	0.08
2241	11998	Fish Passage	Updated Existing	0.11	90.21	90.42	90.31	90.42	0.001283	0.27	1.75	0.48	1.02	0.4	2.72	0.23
2241	11998	Fish Passage	ABL_Proposed	0.11	90	90.23	90.17	90.25	0.007274	0.63	9.38	5.91	1.06	0.17	1.22	0.53
2241	11995	11-Access Way	Bridge													
2241	11992	2yr	Applewood Final Flow	12.7	90.17	91.97	91.57	92.14	0.006531	1.91	61.99	118.13	23.27	8.32	26.76	0.54
2241	11992	2yr	Updated Existing	12.7	90.15	91.96	91.57	92.14	0.006726	1.93	63.48	122.32	22.97	8.12	25.25	0.55
2241	11992	2yr	ABL_Proposed	12.7	89.93	91.34	91.02	91.46	0.003817	1.5	29.45	44.31	20.35	8.48	11.14	0.53
2241	11992	5yr	Applewood Final Flow	19.7	90.17	92.15	92.15	92.32	0.006409	2.07	69.69	144.05	38.96	15	42.33	0.55
2241	11992	5yr	Updated Existing	19.7	90.15	92.15	92.15	92.32	0.006381	2.06	69.45	143.34	38.61	15.02	42.34	0.55
2241	11992	5yr	ABL_Proposed	19.7	89.93	91.61	91.24	91.76	0.003528	1.74	36.03	62.84	33.83	11.71	13.19	0.53
2241	11992	10yr	Applewood Final Flow	27.5	90.17	92.25	92.25	92.43	0.007098	2.28	82.73	188.46	62.28	19.46	44.29	0.59
2241	11992	10yr	Updated Existing	27.5	90.15	92.25	92.25	92.43	0.0071	2.28	82.78	188.68	62.25	19.45	44.29	0.59
2241	11992	10yr	ABL_Proposed	27.5	89.93	91.83	91.43	92.03	0.003501	1.97	43.3	85.44	58.74	14.93	15	0.55
2241	11992	25yr	Applewood Final Flow	34.7	90.17	92.32	92.32	92.52	0.007848	2.47	95.65	236.07	83.65	22.62	45.5	0.62
2241	11992	25yr	Updated Existing	34.7	90.15	92.32	92.32	92.52	0.007862	2.47	95.85	236.82	83.72	22.6	45.48	0.62
2241	11992	25yr	ABL_Proposed	34.7	89.93	92.02	91.59	92.24	0.00345	2.14	48.65	104.02	83.83	17.73	27.85	0.56
2241	11992	50yr	Applewood Final Flow	41.8	90.17	92.39	92.38	92.6	0.008368	2.61	106.01	277.18	93.59	25.52	46.57	0.65
2241	11992	50yr	Updated Existing	41.8	90.15	92.38	92.38	92.6	0.008578	2.64	108.36	286.37	93.63	25.27	46.48	0.65
2241	11992	50yr	ABL_Proposed	41.8	89.93	92.16	91.74	92.42	0.003572	2.31	55.15	127.47	93.39	19.92	30.44	0.58
2241	11992	100yr	Applewood Final Flow	49.7	90.17	92.47	92.44	92.68	0.008026	2.65	106.95	283.25	104.19	29.64	49.73	0.64
2241	11992	100yr	Updated Existing	49.7	90.15	92.47	92.44	92.68	0.008249	2.68	109.55	293.53	104.26	29.31	49.21	0.65
2241	11992	100yr	ABL_Proposed	49.7	89.93	92.32	91.9	92.61	0.003542	2.45	60.16	147.52	104.51	22.45	33.42	0.58
2241	11992	Regional	Applewood Final Flow	42.3	90.17	92.39	92.38	92.61	0.00834	2.62	106.01	277.37	104.23	25.79	46.67	0.65
2241	11992	Regional	Updated Existing	42.3	90.15	92.39	92.39	92.61	0.008465	2.63	107.44	282.94	104.26	25.64	46.61	0.65
2241	11992	Regional	ABL_Proposed	42.3	89.93	92.17	91.75	92.43	0.003565	2.32	55.43	128.57	104.65	20.1	30.64	0.58
2241	11992	Fish Passage	Applewood Final Flow	0.11	90.17	90.5	90.27	90.5	0.000232	0.16	0.55	0.09	1.15	0.69	2.59	0.1
2241	11992	Fish Passage	Updated Existing	0.11	90.15	90.37	90.27	90.37	0.001445	0.29	2.07	0.61	1.02	0.37	2.44	0.24
2241	11992	Fish Passage	ABL_Proposed	0.11	89.93	90.1	90.1	90.15	0.028311	1.04	28.03	29.22	1.06	0.11	0.97	1.01
2241	11966	2yr	Applewood Final Flow	12.7	90.34	91.95	91.5	92	0.001946	1.15	21.72	24.98	22.94	19.12	54.22	0.33
2241	11966	2yr	Updated Existing	12.7	90	91.95	91.42	91.99	0.001807	1.13	20.63	23.3	22.64	19.32	54.18	0.32
2241	11966	2yr	ABL_Proposed	12.7	89.48	91.29	90.75	91.37	0.0022	1.3	20.6	26.78	20.13	9.94	10.94	0.41
2241	11966	5yr	Applewood Final Flow	19.7	90.34	92.09	91.9	92.14	0.002117	1.29	26.24	33.76	38.46	26.76	55.85	0.35
2241	11966	5yr	Updated Existing	19.7	90	92.08	91.89	92.13	0.002047	1.28	25.8	33.12	38.12	26.78	55.8	0.34
2241	11966	5yr	ABL_Proposed	19.7	89.48	91.55	91	91.68	0.002574	1.58	28.62	45.12	33.54	13.02	12.69	0.46
2241	11966	10yr	Applewood Final Flow	27.5	90.34	92.19	91.99	92.25	0.002408	1.44	32.18	46.42	61.66	32.83	56.74	0.38
2241	11966	10yr	Updated Existing	27.5	90	92.19	91.99	92.25	0.002308	1.43	31.35	44.92	61.63	33.08	56.73	0.37
2241	11966	10yr	ABL_Proposed	27.5	89.48	91.78	91.22	91.94	0.002782	1.83	36.51	66.81	58.36	16.05	32.13	0.49
2241	11966	25yr	Applewood Final Flow	34.7	90.34	92.27	92.06	92.34	0.002734	1.59	38.37	60.94	82.95	37.12	57.33	0.4
2241	11966	25yr	Updated Existing	34.7	90	92.27	92.05	92.34	0.002627	1.58	37.42	59.04	83.02	37.42	57.32	0.39
2241	11966	25yr	ABL_Proposed	34.7	89.48	91.96	91.4	92.16	0.00291	2.03	43.01	87.15	83.35	18.71	37.06	0.51
2241	11966	50yr	Applewood Final Flow	41.8	90.34	92.34	92.11	92.42	0.002919	1.69	42.88	72.55	92.81	41.38	57.85	0.42
2241	11966	50yr	Updated Existing	41.8	90	92.34	92.11	92.42	0.002858	1.69	42.46	71.89	92.85	41.47	57.82	0.41
2241	11966	50yr	ABL_Proposed	41.8	89.48	92.15	91.56	92.3	0.002193	1.9	36.31	68.89	92.77	32.44	48.64	0.45
2241	11966	100yr	Applewood Final Flow	49.7	90.34	92.43	92.17	92.51	0.003016	1.78	46.51	82.61	103.31	46.13	58.43	0.43
2241	11966	100yr	Updated Existing	49.7	90	92.42	92.16	92.51	0.002968	1.78	46.21	82.25	103.39	46.2	58.4	0.43
2241	11966	100yr	ABL_Proposed	49.7	89.48	92.35	91.71	92.48	0.001739	1.81	31.99	57.98	103.73	42.33	50.37	0.41
2241	11966	Regional	Applewood Final Flow	42.3	90.34	92.35	92.11	92.43	0.002926	1.7	43.13	73.23	103.44	41.69	57.89	0.42
2241	11966	Regional	Updated Existing	42.3	90	92.34	92.11	92.42	0.002865	1.7	42.71	72.56	103.48	41.78	57.86	0.42
2241	11966	Regional	ABL_Proposed	42.3	89.48	92.16	91.57	92.31	0.002156	1.89	35.96	67.98	104.02	33.11	48.76	0.45
2241	11966	Fish Passage	Applewood Final Flow	0.11	90.34	90.43	90.43	90.47	0.031646	0.82	20.83	17	1.14	0.13	1.98	1

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11966	Fish Passage	Updated Existing	0.11	90	90.2	90.2	90.26	0.028547	1	26.59	26.72	1.01	0.11	1.08	1.01
2241	11966	Fish Passage	ABL_Proposed	0.11	89.48	89.96	89.63	89.96	0.000149	0.14	0.36	0.05	1.05	0.8	3.03	0.09
2241	11937	2yr	Applewood Final Flow	12.7	89.89	91.92	91.18	91.95	0.00108	0.82	11.45	9.36	22.42	25.09	61.51	0.23
2241	11937	2yr	Updated Existing	12.7	89.82	91.92	91.04	91.95	0.001006	0.81	11.05	8.93	22.1	25.39	61.5	0.22
2241	11937	5yr	Applewood Final Flow	19.7	89.89	92.06	91.77	92.09	0.00125	0.94	14.64	13.76	37.76	33.52	64.78	0.25
2241	11937	5yr	Updated Existing	19.7	89.82	92.05	91.43	92.08	0.001212	0.94	14.61	13.79	37.41	33.55	64.53	0.25
2241	11937	10yr	Applewood Final Flow	27.5	89.89	92.16	91.86	92.2	0.0015	1.08	18.82	20.3	60.83	40.06	69.31	0.28
2241	11937	10yr	Updated Existing	27.5	89.82	92.16	91.86	92.2	0.001434	1.08	18.55	19.96	60.78	40.39	69.3	0.27
2241	11937	25yr	Applewood Final Flow	34.7	89.89	92.23	91.92	92.27	0.001762	1.2	23.11	27.82	82	44.57	81.91	0.3
2241	11937	25yr	Updated Existing	34.7	89.82	92.23	91.92	92.27	0.001686	1.2	22.78	27.35	82.06	44.98	81.92	0.3
2241	11937	50yr	Applewood Final Flow	41.8	89.89	92.3	91.98	92.35	0.001918	1.29	26.27	33.96	91.75	49.18	82.96	0.32
2241	11937	50yr	Updated Existing	41.8	89.82	92.3	91.97	92.35	0.001874	1.3	26.35	34.26	91.79	49.31	82.9	0.32
2241	11937	100yr	Applewood Final Flow	49.7	89.89	92.38	92.03	92.44	0.002005	1.36	28.78	39.25	102.13	54.42	84.89	0.33
2241	11937	100yr	Updated Existing	49.7	89.82	92.38	92.02	92.43	0.00197	1.37	28.99	39.83	102.21	54.49	84.85	0.33
2241	11937	Regional	Applewood Final Flow	42.3	89.89	92.31	91.98	92.36	0.001925	1.3	26.44	34.31	102.38	49.52	83.05	0.32
2241	11937	Regional	Updated Existing	42.3	89.82	92.3	91.98	92.35	0.001881	1.31	26.52	34.62	102.41	49.65	82.99	0.32
2241	11937	Fish Passage	Applewood Final Flow	0.11	89.89	90.31	89.98	90.31	0.000145	0.12	0.33	0.04	1.12	0.92	3.57	0.07
2241	11937	Fish Passage	Updated Existing	0.11	89.82	90.04	89.91	90.05	0.001075	0.26	1.73	0.44	1	0.43	2.48	0.2
2241	11932	10-Access Way	Bridge													
2241	11928	2yr	Applewood Final Flow	12.7	89.72	91.66	91.17	91.87	0.006747	2.07	62.21	128.97	22.24	7.58	37.28	0.55
2241	11928	2yr	Updated Existing	12.7	89.72	91.65	91.17	91.87	0.007111	2.12	65.05	137.71	21.92	7.05	26.78	0.57
2241	11928	2yr	ABL_Proposed	12.7	89.48	91.25	90.59	91.3	0.00142	0.97	14.01	13.59	19.71	13.28	14.38	0.3
2241	11928	5yr	Applewood Final Flow	19.7	89.72	91.87	91.87	92.02	0.00548	2.04	57.75	117.99	37.52	17.44	57.32	0.51
2241	11928	5yr	Updated Existing	19.7	89.72	91.89	91.87	92.03	0.004917	1.95	52.41	102.2	37.17	18.51	58.04	0.49
2241	11928	5yr	ABL_Proposed	19.7	89.48	91.52	90.81	91.59	0.001571	1.19	19.44	23.07	32.99	17.32	27.24	0.33
2241	11928	10yr	Applewood Final Flow	27.5	89.72	91.97	91.97	92.13	0.006257	2.27	69.73	157.99	60.53	22.97	60.96	0.55
2241	11928	10yr	Updated Existing	27.5	89.72	91.97	91.97	92.13	0.006257	2.27	69.73	157.99	60.49	22.97	60.96	0.55
2241	11928	10yr	ABL_Proposed	27.5	89.48	91.75	91	91.84	0.001724	1.39	25.12	34.83	57.63	21.64	39.53	0.36
2241	11928	25yr	Applewood Final Flow	34.7	89.72	92.05	92.04	92.21	0.006151	2.32	72.06	167.35	81.67	28.45	63.77	0.55
2241	11928	25yr	Updated Existing	34.7	89.72	92.05		92.21	0.006407	2.36	74.74	176.66	81.73	27.98	63.49	0.56
2241	11928	25yr	ABL_Proposed	34.7	89.48	91.94	91.14	92.05	0.001786	1.53	29.25	44.62	82.41	25.96	49.6	0.37
2241	11928	50yr	Applewood Final Flow	41.8	89.72	92.17	92.09	92.3	0.004931	2.17	61.6	133.7	91.38	36.04	71.24	0.5
2241	11928	50yr	Updated Existing	41.8	89.72	92.16		92.29	0.005188	2.22	64.43	142.88	91.42	35.33	70.42	0.51
2241	11928	50yr	ABL_Proposed	41.8	89.48	92.14	91.27	92.22	0.00131	1.41	24	33.78	91.52	46.79	73.21	0.32
2241	11928	100yr	Applewood Final Flow	49.7	89.72	92.28	92.14	92.39	0.00442	2.13	58.11	123.57	101.7	42.65	84.68	0.48
2241	11928	100yr	Updated Existing	49.7	89.72	92.27		92.38	0.004579	2.16	59.96	129.43	101.78	42.1	84.11	0.48
2241	11928	100yr	ABL_Proposed	49.7	89.48	92.34	91.4	92.41	0.001046	1.35	21.19	28.51	102.12	62.58	80.9	0.29
2241	11928	Regional	Applewood Final Flow	42.3	89.72	92.18	92.09	92.3	0.004878	2.16	61.17	132.38	102	36.52	71.85	0.5
2241	11928	Regional	Updated Existing	42.3	89.72	92.17		92.3	0.005144	2.21	64.12	141.95	102.03	35.78	70.94	0.51
2241	11928	Regional	ABL_Proposed	42.3	89.48	92.15	91.28	92.24	0.001288	1.4	23.76	33.33	102.75	47.83	73.75	0.32
2241	11928	Fish Passage	Applewood Final Flow	0.11	89.72	90.17		90.17	0.000105	0.13	0.31	0.04	1.11	0.86	2.5	0.07
2241	11928	Fish Passage	Updated Existing	0.11	89.72	89.98		89.98	0.001076	0.28	1.7	0.47	1	0.4	2.29	0.21
2241	11928	Fish Passage	ABL_Proposed	0.11	89.48	89.95	89.62	89.95	0.000084	0.1	0.2	0.02	1.01	1.06	4.19	0.07
2241	11910	2yr	Applewood Final Flow	12.7	89.96	91.63	91.31	91.72	0.004169	1.5	37.83	56.76	21.94	12.76	38.75	0.47
2241	11910	2yr	Updated Existing	12.7	89.6	91.62	91.19	91.71	0.003755	1.45	34.82	50.54	21.63	13.02	38.46	0.44
2241	11910	5yr	Applewood Final Flow	19.7	89.96	91.76	91.66	91.87	0.004695	1.73	48.15	83.18	37.06	18.57	45.41	0.5
2241	11910	5yr	Updated Existing	19.7	89.6	91.86	91.64	91.92	0.002748	1.41	30.8	43.39	36.66	23.12	50.67	0.39
2241	11910	10yr	Applewood Final Flow	27.5	89.96	91.86	91.77	91.99	0.005675	2	62.83	125.59	59.98	22.88	50.85	0.56
2241	11910	10yr	Updated Existing	27.5	89.6	91.85	91.76	91.98	0.005405	1.97	60.49	119.39	59.93	23.03	50.57	0.54

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11910	25yr	Applewood Final Flow	34.7	89.96	91.94	91.84	92.09	0.006345	2.2	74.41	163.44	81.02	26.56	55.75	0.6
2241	11910	25yr	Updated Existing	34.7	89.6	91.93	91.84	92.08	0.006034	2.17	71.47	154.82	81.08	26.81	55.49	0.58
2241	11910	50yr	Applewood Final Flow	41.8	89.96	91.99	91.91	92.16	0.007417	2.43	90.12	219.13	90.62	29.04	58.93	0.65
2241	11910	50yr	Updated Existing	41.8	89.6	91.98	91.9	92.16	0.007102	2.4	87.01	209.12	90.66	29.27	58.86	0.63
2241	11910	100yr	Applewood Final Flow	49.7	89.96	92.04	91.99	92.25	0.008226	2.63	103.97	273.32	100.83	31.98	60.06	0.69
2241	11910	100yr	Updated Existing	49.7	89.6	92.04	91.98	92.24	0.00791	2.6	100.66	261.88	100.91	32.22	60	0.67
2241	11910	Regional	Applewood Final Flow	42.3	89.96	91.99	91.92	92.17	0.007458	2.44	90.89	222.04	101.23	29.25	59.01	0.65
2241	11910	Regional	Updated Existing	42.3	89.6	91.99	91.91	92.17	0.007143	2.41	87.76	211.92	101.27	29.48	58.95	0.63
2241	11910	Fish Passage	Applewood Final Flow	0.11	89.96	90.16	90.07	90.17	0.00236	0.37	3.2	1.19	1.1	0.3	2.07	0.31
2241	11910	Fish Passage	Updated Existing	0.11	89.6	89.94	89.82	89.95	0.002847	0.44	4.26	1.86	0.99	0.25	1.48	0.34
2241	11886	2yr	Applewood Final Flow	12.7	89.84	91.53	91.53	91.62	0.004189	1.62	37.04	59.96	21.09	18.15	84.83	0.49
2241	11886	2yr	Updated Existing	12.7	89.4	91.52	91.52	91.61	0.004459	1.63	37.81	61.68	20.78	17.49	84.69	0.49
2241	11886	5yr	Applewood Final Flow	19.7	89.84	91.75		91.79	0.001766	1.19	18.78	22.32	35.94	37.12	86.2	0.33
2241	11886	5yr	Updated Existing	19.7	89.4	91.86	91.59	91.87	0.00095	0.9	10.44	9.35	35.38	46.22	86.77	0.24
2241	11886	10yr	Applewood Final Flow	27.5	89.84	91.86		91.89	0.001831	1.27	21.04	26.81	58.7	46.28	86.79	0.34
2241	11886	10yr	Updated Existing	27.5	89.4	91.85		91.89	0.001875	1.26	20.57	25.84	58.66	46.03	86.76	0.33
2241	11886	25yr	Applewood Final Flow	34.7	89.84	91.95		91.98	0.001877	1.34	22.86	30.67	79.61	53.69	87.18	0.35
2241	11886	25yr	Updated Existing	34.7	89.4	91.94		91.98	0.001894	1.31	22.03	28.93	79.67	53.68	87.17	0.34
2241	11886	50yr	Applewood Final Flow	41.8	89.84	92		92.04	0.002096	1.45	26.47	38.45	89.12	58.56	87.43	0.37
2241	11886	50yr	Updated Existing	41.8	89.4	92		92.04	0.002118	1.42	25.52	36.27	89.17	58.52	87.41	0.36
2241	11886	100yr	Applewood Final Flow	49.7	89.84	92.06		92.11	0.002241	1.54	29.47	45.48	99.23	64.16	87.71	0.39
2241	11886	100yr	Updated Existing	49.7	89.4	92.06		92.11	0.002263	1.51	28.35	42.76	99.31	64.15	87.7	0.37
2241	11886	Regional	Applewood Final Flow	42.3	89.84	92.01		92.05	0.002102	1.46	26.63	38.81	99.73	58.96	87.45	0.37
2241	11886	Regional	Updated Existing	42.3	89.4	92		92.04	0.002123	1.43	25.66	36.58	99.77	58.93	87.43	0.36
2241	11886	Fish Passage	Applewood Final Flow	0.11	89.84	89.98	89.98	90.03	0.027765	0.95	24.28	23.08	1.1	0.12	1.24	0.99
2241	11886	Fish Passage	Updated Existing	0.11	89.4	89.7	89.7	89.78	0.03614	1.21	37.12	44.8	0.99	0.09	0.6	0.99
2241	11879	2yr	ABL_Proposed	12.7	89.68	90.96	90.78	91.12	0.006734	1.79	44.16	79.17	19.17	7.08	10.18	0.69
2241	11879	5yr	ABL_Proposed	19.7	89.68	91.23	91	91.42	0.00503	1.92	45.59	87.67	32.25	11.03	15.91	0.63
2241	11879	10yr	ABL_Proposed	27.5	89.68	91.47	91.21	91.67	0.004366	2.07	49.18	101.85	56.62	14.72	17.69	0.6
2241	11879	25yr	ABL_Proposed	34.7	89.68	91.66	91.35	91.88	0.003971	2.18	51.93	113.26	81.01	17.9	65.2	0.59
2241	11879	50yr	ABL_Proposed	41.8	89.68	91.83	91.47	92.07	0.003728	2.28	54.73	124.93	89.61	20.82	77.92	0.58
2241	11879	100yr	ABL_Proposed	49.7	89.68	92.02	91.6	92.27	0.003451	2.37	56.68	134.16	99.61	24.11	78.55	0.57
2241	11879	Regional	ABL_Proposed	42.3	89.68	91.84	91.48	92.09	0.003692	2.29	54.68	124.94	100.8	21.07	77.96	0.58
2241	11879	Fish Passage	ABL_Proposed	0.11	89.68	89.92	89.85	89.94	0.006357	0.6	8.41	5.04	0.98	0.18	1.25	0.5
2241	11861	2yr	Applewood Final Flow	12.7	89.63	91.1		91.42	0.01327	2.54	113.12	287.16	20.25	5.12	35.93	0.79
2241	11861	2yr	Updated Existing	12.7	89.18	91.09	90.86	91.38	0.011601	2.4	99.26	238.04	19.95	5.4	35.82	0.73
2241	11861	2yr	ABL_Proposed	12.7	89.28	90.38	90.38	90.67	0.015042	2.39	83.1	198.62	19.13	5.31	9.08	1
2241	11861	5yr	Applewood Final Flow	19.7	89.63	91.56	91.56	91.7	0.004996	1.99	61.3	121.74	34.61	19.19	66.21	0.52
2241	11861	5yr	Updated Existing	19.7	89.18	91.27	91.22	91.76	0.016253	3.14	162.01	509.14	34.11	6.58	39.84	0.88
2241	11861	5yr	ABL_Proposed	19.7	89.28	90.59	90.59	90.95	0.014136	2.66	95.88	254.71	32.19	7.42	10.41	1
2241	11861	10yr	Applewood Final Flow	27.5	89.63	91.65	91.65	91.81	0.005784	2.22	75.14	166.76	57.18	25.19	70.65	0.56
2241	11861	10yr	Updated Existing	27.5	89.18	91.64	91.64	91.8	0.005666	2.19	72.55	159.09	57.14	25.1	69.22	0.54
2241	11861	10yr	ABL_Proposed	27.5	89.28	90.78	90.78	91.22	0.012472	2.92	107.09	312.76	56.53	9.58	12.2	0.98
2241	11861	25yr	Applewood Final Flow	34.7	89.63	91.72	91.68	91.89	0.006396	2.4	86.8	208.58	77.94	30.63	78.67	0.59
2241	11861	25yr	Updated Existing	34.7	89.18	91.71	91.68	91.88	0.006396	2.39	85.32	204.25	78	30.34	78.63	0.58
2241	11861	25yr	ABL_Proposed	34.7	89.28	90.95	90.95	91.43	0.011148	3.09	113.23	349.7	80.9	11.74	13.75	0.95
2241	11861	50yr	Applewood Final Flow	41.8	89.63	91.82	91.78	91.96	0.00522	2.26	75.27	170.13	87.29	38.88	79.14	0.54
2241	11861	50yr	Updated Existing	41.8	89.18	91.82	91.77	91.95	0.005133	2.23	72.78	162.56	87.33	38.95	79.12	0.53
2241	11861	50yr	ABL_Proposed	41.8	89.28	91.09	91.09	91.62	0.010638	3.27	121.73	397.6	89.44	13.61	18.5	0.95
2241	11861	100yr	Applewood Final Flow	49.7	89.63	91.88	91.83	92.02	0.005587	2.39	83.07	198.28	97.28	43.27	79.38	0.56

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11861	100yr	Updated Existing	49.7	89.18	91.87	91.82	92.01	0.005539	2.37	80.85	191.29	97.36	43.26	79.36	0.55
2241	11861	100yr	ABL_Proposed	49.7	89.28	91.22	91.22	91.81	0.010343	3.46	131.54	454.57	99.4	15.5	25.76	0.95
2241	11861	Regional	Applewood Final Flow	42.3	89.63	91.83	91.78	91.96	0.005069	2.24	73.52	164.39	97.88	39.7	79.18	0.53
2241	11861	Regional	Updated Existing	42.3	89.18	91.83	91.78	91.96	0.004985	2.21	71.08	157.06	97.92	39.78	79.17	0.52
2241	11861	Regional	ABL_Proposed	42.3	89.28	91.1	91.1	91.63	0.010577	3.28	122.05	399.71	100.63	13.75	19.01	0.94
2241	11861	Fish Passage	Applewood Final Flow	0.11	89.63	89.81	89.74	89.82	0.003352	0.4	4	1.61	1.09	0.27	2.2	0.36
2241	11861	Fish Passage	Updated Existing	0.11	89.18	89.63	89.44	89.64	0.001702	0.38	3.07	1.17	0.98	0.29	1.29	0.26
2241	11861	Fish Passage	ABL_Proposed	0.11	89.28	89.45	89.45	89.5	0.02834	1.04	28.06	29.26	0.98	0.11	0.97	1.01
2241	11820	2yr	Applewood Final Flow	12.7	89.38	90.84	90.51	91	0.006921	1.75	57.09	100.1	19.59	7.26	39	0.58
2241	11820	2yr	Updated Existing	12.7	89.23	90.74	90.49	90.93	0.00931	1.93	70.9	136.93	19.37	6.58	32.13	0.67
2241	11820	2yr	ABL_Proposed	12.7	88.18	89.94	89.38	90.01	0.001773	1.19	17.15	20.45	18.67	10.99	13.33	0.38
2241	11820	5yr	Applewood Final Flow	19.7	89.38	91.01	90.78	91.23	0.008354	2.16	81.64	176.1	33.25	10.98	50.74	0.66
2241	11820	5yr	Updated Existing	19.7	89.23	91	90.77	91.23	0.0083	2.15	81.23	174.85	33.12	10.93	50.31	0.66
2241	11820	5yr	ABL_Proposed	19.7	88.18	90.2	89.62	90.31	0.001918	1.45	23.34	33.73	31.56	14.93	16.37	0.41
2241	11820	10yr	Applewood Final Flow	27.5	89.38	91.15	91.13	91.41	0.009196	2.45	101.25	248.1	55.5	14.83	56.23	0.71
2241	11820	10yr	Updated Existing	27.5	89.23	91.14	91.13	91.41	0.009033	2.44	99.88	243.29	55.47	14.88	56.08	0.7
2241	11820	10yr	ABL_Proposed	27.5	88.18	90.42	89.82	90.56	0.002132	1.69	30.32	51.25	55.74	18.78	18.86	0.44
2241	11820	25yr	Applewood Final Flow	34.7	89.38	91.26	91.26	91.55	0.009491	2.64	113.83	299.96	75.98	18.31	60.34	0.73
2241	11820	25yr	Updated Existing	34.7	89.23	91.25	91.25	91.54	0.009509	2.64	114.09	301.09	76.06	18.21	60.12	0.73
2241	11820	25yr	ABL_Proposed	34.7	88.18	90.57	89.97	90.75	0.002401	1.91	37.62	72	79.95	21.91	22.81	0.47
2241	11820	50yr	Applewood Final Flow	41.8	89.38	91.38	91.38	91.66	0.008517	2.65	111.91	296.89	84.94	24.09	70.25	0.7
2241	11820	50yr	Updated Existing	41.8	89.23	91.38	91.38	91.65	0.008561	2.66	112.52	299.39	84.99	23.82	69.77	0.7
2241	11820	50yr	ABL_Proposed	41.8	88.18	90.7	90.13	90.91	0.002647	2.11	44.66	94.25	88.34	25.1	27.27	0.5
2241	11820	100yr	Applewood Final Flow	49.7	89.38	91.52	91.52	91.74	0.006882	2.53	98.75	249.73	94.59	33.86	74.36	0.64
2241	11820	100yr	Updated Existing	49.7	89.23	91.52	91.52	91.74	0.006825	2.52	98.18	247.74	94.67	33.88	74.36	0.64
2241	11820	100yr	ABL_Proposed	49.7	88.18	90.84	90.28	91.08	0.002797	2.28	50.81	115.79	98.11	29.19	32.09	0.52
2241	11820	Regional	Applewood Final Flow	42.3	89.38	91.38	91.38	91.66	0.008722	2.68	114.6	307.67	95.51	24.09	70.25	0.71
2241	11820	Regional	Updated Existing	42.3	89.23	91.38	91.38	91.66	0.008767	2.69	115.22	310.26	95.56	23.82	69.77	0.71
2241	11820	Regional	ABL_Proposed	42.3	88.18	90.71	90.14	90.93	0.002653	2.12	45	95.44	99.52	25.38	27.63	0.5
2241	11820	Fish Passage	Applewood Final Flow	0.11	89.38	89.47	89.47	89.5	0.037641	0.81	24.43	19.8	1.09	0.14	2.03	1
2241	11820	Fish Passage	Updated Existing	0.11	89.23	89.4	89.4	89.44	0.039125	0.93	30.87	28.74	0.98	0.12	1.43	1.03
2241	11820	Fish Passage	ABL_Proposed	0.11	88.18	88.64	88.33	88.64	0.000142	0.13	0.33	0.04	0.95	0.84	3.35	0.08
2241	11761	2yr	Applewood Final Flow	12.7	88.61	90.7	89.78	90.78	0.001808	1.3	23.82	31.01	19.01	13.11	36.84	0.31
2241	11761	2yr	Updated Existing	12.7	88.54	90.47	89.76	90.6	0.003314	1.61	38.19	61.51	18.92	8.41	8.77	0.41
2241	11761	5yr	Applewood Final Flow	19.7	88.61	90.74	90.12	90.9	0.003754	1.91	50.69	96.62	32.53	14.84	42.54	0.45
2241	11761	5yr	Updated Existing	19.7	88.54	90.72	90.1	90.89	0.004002	1.96	53.54	104.68	32.42	13.92	39.75	0.47
2241	11761	10yr	Applewood Final Flow	27.5	88.61	91	90.81	91.11	0.002658	1.75	41.06	72.06	54.49	29.77	67.62	0.39
2241	11761	10yr	Updated Existing	27.5	88.54	91	90.76	91.11	0.002601	1.74	40.34	70.19	54.45	30.01	67.68	0.39
2241	11761	25yr	Applewood Final Flow	34.7	88.61	91.13	90.95	91.22	0.002492	1.77	40.86	72.25	74.77	38.55	70.69	0.38
2241	11761	25yr	Updated Existing	34.7	88.54	91.13	90.95	91.22	0.002433	1.75	40.08	70.2	74.84	38.88	70.76	0.38
2241	11761	50yr	Applewood Final Flow	41.8	88.61	91.22	91.03	91.31	0.002566	1.84	43.76	80.58	83.53	44.8	72.1	0.39
2241	11761	50yr	Updated Existing	41.8	88.54	91.22	91.03	91.31	0.002548	1.84	43.55	80.02	83.58	44.86	72.1	0.39
2241	11761	100yr	Applewood Final Flow	49.7	88.61	91.29	91.1	91.39	0.002727	1.94	48.09	93.35	92.98	50.4	73.02	0.4
2241	11761	100yr	Updated Existing	49.7	88.54	91.29	91.09	91.39	0.002693	1.93	47.63	92.01	93.06	50.6	73.04	0.4
2241	11761	Regional	Applewood Final Flow	42.3	88.61	91.22	91.04	91.32	0.00259	1.85	44.25	81.97	94.1	45.07	72.15	0.39
2241	11761	Regional	Updated Existing	42.3	88.54	91.22	91.03	91.32	0.002553	1.84	43.76	80.61	94.14	45.27	72.17	0.39
2241	11761	Fish Passage	Applewood Final Flow	0.11	88.61	89.38	88.71	89.38	0.000008	0.04	0.04	0	1.01	2.47	4.25	0.02
2241	11761	Fish Passage	Updated Existing	0.11	88.54	88.84	88.67	88.84	0.000848	0.24	1.47	0.35	0.96	0.46	2.51	0.18
2241	11757	9-Access Way		Bridge												

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11754	2yr	Applewood Final Flow	12.7	88.6	90.59	89.6	90.66	0.001379	1.24	18.64	23.08	18.92	11.55	11.65	0.29
2241	11754	2yr	Updated Existing	12.7	88.62	90.46	89.6	90.55	0.001859	1.37	23.26	31.75	18.85	10.21	9.66	0.34
2241	11754	5yr	Applewood Final Flow	19.7	88.6	90.67	89.92	90.83	0.002785	1.81	39.38	71.4	32.43	13.43	40.31	0.42
2241	11754	5yr	Updated Existing	19.7	88.62	90.61	89.93	90.78	0.003199	1.9	43.66	82.84	32.32	11.78	12.87	0.45
2241	11754	10yr	Applewood Final Flow	27.5	88.6	90.79	90.24	91	0.00381	2.21	57.18	126.14	54.29	19.14	57.83	0.5
2241	11754	10yr	Updated Existing	27.5	88.62	90.73	90.24	90.99	0.004624	2.38	67.3	160.28	54.25	16.04	49.56	0.55
2241	11754	25yr	Applewood Final Flow	34.7	88.6	90.88	90.87	91.11	0.00433	2.42	67.95	164.67	74.51	24.72	63.36	0.54
2241	11754	25yr	Updated Existing	34.7	88.62	90.87	90.87	91.11	0.004425	2.44	69.21	169.16	74.58	24.4	63.07	0.54
2241	11754	50yr	Applewood Final Flow	41.8	88.6	90.97	90.97	91.2	0.004427	2.52	72.52	182.84	83.23	30.82	69.08	0.55
2241	11754	50yr	Updated Existing	41.8	88.62	90.97	90.97	91.2	0.004412	2.52	72.25	181.81	83.28	30.91	69.16	0.54
2241	11754	100yr	Applewood Final Flow	49.7	88.6	91.05	91.05	91.28	0.004647	2.64	78.8	208.27	92.65	36.2	71.12	0.56
2241	11754	100yr	Updated Existing	49.7	88.62	91.04	91.04	91.28	0.004721	2.66	79.84	212.35	92.72	35.94	71.05	0.57
2241	11754	Regional	Applewood Final Flow	42.3	88.6	90.98	90.98	91.21	0.004405	2.52	72.4	182.5	93.8	31.33	69.44	0.54
2241	11754	Regional	Updated Existing	42.3	88.62	90.97	90.97	91.21	0.004465	2.53	73.22	185.5	93.84	31.13	69.31	0.55
2241	11754	Fish Passage	Applewood Final Flow	0.11	88.6	89.25	88.68	89.25	0.000006	0.04	0.03	0	0.99	2.67	4.75	0.02
2241	11754	Fish Passage	Updated Existing	0.11	88.62	88.78	88.68	88.78	0.000841	0.21	1.06	0.22	0.96	0.52	3.98	0.19
2241	11717	2yr	Applewood Final Flow	12.7	89.06	90.3	90.21	90.51	0.010685	2.07	79.35	164.42	18.56	7.12	22.18	0.75
2241	11717	2yr	Updated Existing	12.7	88.22	90.33	89.81	90.44	0.004251	1.51	39.25	59.46	18.47	9.92	30.9	0.47
2241	11717	2yr	ABL_Proposed	12.7	88.38	89.47	89.47	89.77	0.015115	2.39	83.42	199.74	18.21	5.3	9.07	1
2241	11717	5yr	Applewood Final Flow	19.7	89.06	90.51	90.51	90.67	0.007173	1.99	67.62	134.58	31.83	17.19	55.06	0.64
2241	11717	5yr	Updated Existing	19.7	88.22	90.47	90.16	90.62	0.005408	1.85	56.27	104.11	31.77	16.72	54.5	0.54
2241	11717	5yr	ABL_Proposed	19.7	88.38	89.7	89.7	90.05	0.013924	2.64	94.86	250.88	30.93	7.46	11.94	0.99
2241	11717	10yr	Applewood Final Flow	27.5	89.06	90.6	90.6	90.78	0.008078	2.24	82.94	185.45	53.47	22.14	55.98	0.68
2241	11717	10yr	Updated Existing	27.5	88.22	90.58	90.54	90.74	0.005774	2.03	65.87	133.92	53.48	23.21	55.82	0.56
2241	11717	10yr	ABL_Proposed	27.5	88.38	89.91	89.91	90.3	0.01115	2.81	98.22	275.85	54.92	10.48	16.19	0.93
2241	11717	25yr	Applewood Final Flow	34.7	89.06	90.68	90.67	90.86	0.008273	2.37	91.11	216.03	73.48	26.58	56.73	0.7
2241	11717	25yr	Updated Existing	34.7	88.22	90.67	90.62	90.84	0.005953	2.16	72.53	156.44	73.52	28.32	56.68	0.58
2241	11717	25yr	ABL_Proposed	34.7	88.38	90.09	90.09	90.49	0.009127	2.87	96.36	276.28	78.94	14.01	22.19	0.86
2241	11717	50yr	Applewood Final Flow	41.8	89.06	90.76	90.72	90.94	0.007861	2.42	92.78	224.59	81.97	31.37	57.63	0.69
2241	11717	50yr	Updated Existing	41.8	88.22	90.76	90.69	90.93	0.006025	2.25	77.6	174.72	81.99	32.97	57.55	0.59
2241	11717	50yr	ABL_Proposed	41.8	88.38	90.22	90.22	90.65	0.008591	2.99	101.25	303.09	87.16	17	23.92	0.85
2241	11717	100yr	Applewood Final Flow	49.7	89.06	90.84	90.78	91.02	0.007797	2.51	97.7	245.11	91.18	35.84	58.47	0.7
2241	11717	100yr	Updated Existing	49.7	88.22	90.83	90.75	91.01	0.006178	2.36	83.69	197.35	91.23	37.5	58.4	0.6
2241	11717	100yr	ABL_Proposed	49.7	88.38	90.32	90.32	90.8	0.009	3.22	114.27	367.94	96.73	19.66	37.42	0.89
2241	11717	Regional	Applewood Final Flow	42.3	89.06	90.77	90.73	90.95	0.007827	2.42	92.82	224.9	92.52	31.71	57.69	0.69
2241	11717	Regional	Updated Existing	42.3	88.22	90.76	90.69	90.93	0.006024	2.26	77.87	175.74	92.54	33.3	57.62	0.59
2241	11717	Regional	ABL_Proposed	42.3	88.38	90.23	90.23	90.66	0.008685	3.02	102.69	309.76	98.33	17.1	23.98	0.86
2241	11717	Fish Passage	Applewood Final Flow	0.11	89.06	89.2	89.2	89.24	0.030104	0.87	21.75	18.95	0.94	0.13	1.69	1.02
2241	11717	Fish Passage	Updated Existing	0.11	88.22	88.77	88.44	88.77	0.000228	0.17	0.59	0.1	0.93	0.64	2.07	0.1
2241	11717	Fish Passage	ABL_Proposed	0.11	88.38	88.57	88.55	88.61	0.01488	0.82	16.71	13.73	0.93	0.13	1.08	0.74
2241	11702	2yr	Applewood Final Flow	12.7	88.63	90.2	89.97	90.35	0.007468	1.8	60.74	109.25	18.43	8.99	32.37	0.6
2241	11702	2yr	Updated Existing	12.7	88.58	90.2	89.96	90.35	0.007373	1.79	60.18	107.84	18.32	8.98	31.93	0.6
2241	11702	2yr	ABL_Proposed	12.7	88.08	89.1	89.17	89.48	0.022421	2.75	113.55	312.7	18.14	4.61	8.6	1.2
2241	11702	5yr	Applewood Final Flow	19.7	88.63	90.39	90.35	90.52	0.005857	1.81	57.69	104.39	31.54	18.41	52.66	0.55
2241	11702	5yr	Updated Existing	19.7	88.58	90.41	90.35	90.52	0.005186	1.73	52.15	90.06	31.47	19.42	52.84	0.52
2241	11702	5yr	ABL_Proposed	19.7	88.08	89.29	89.39	89.78	0.021981	3.1	135.13	419.27	30.82	6.35	9.74	1.23
2241	11702	10yr	Applewood Final Flow	27.5	88.63	90.52	90.44	90.64	0.005391	1.88	59.61	111.78	53.07	25.56	54.01	0.54
2241	11702	10yr	Updated Existing	27.5	88.58	90.52	90.44	90.64	0.005365	1.87	59.48	111.52	53.07	25.55	54	0.54
2241	11702	10yr	ABL_Proposed	27.5	88.08	89.45	89.59	90.05	0.021707	3.45	158.11	545.86	54.78	7.99	11.1	1.25
2241	11702	25yr	Applewood Final Flow	34.7	88.63	90.61	90.51	90.74	0.005673	2.01	67.01	134.69	73	30.12	54.95	0.56
2241	11702	25yr	Updated Existing	34.7	88.58	90.61	90.51	90.74	0.005632	2.01	66.72	133.96	73.03	30.15	54.94	0.56

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11702	25yr	ABL_Proposed	34.7	88.08	89.59	89.74	90.27	0.019587	3.67	168.77	619.06	78.76	9.68	12.72	1.22
2241	11702	50yr	Applewood Final Flow	41.8	88.63	90.68	90.57	90.82	0.005822	2.12	72.79	153.96	81.42	34.4	57.19	0.57
2241	11702	50yr	Updated Existing	41.8	88.58	90.68	90.57	90.82	0.005802	2.12	72.7	153.8	81.42	34.39	57.15	0.57
2241	11702	50yr	ABL_Proposed	41.8	88.08	89.74	89.9	90.44	0.016381	3.73	165.53	617.52	86.94	11.82	14.45	1.15
2241	11702	100yr	Applewood Final Flow	49.7	88.63	90.75	90.63	90.9	0.006175	2.25	81	182.19	90.55	38.4	60.02	0.6
2241	11702	100yr	Updated Existing	49.7	88.58	90.75	90.63	90.9	0.006081	2.24	80.1	179.33	90.59	38.57	60.1	0.59
2241	11702	100yr	ABL_Proposed	49.7	88.08	89.93	90.02	90.62	0.013272	3.73	156.89	584.9	96.47	14.64	16.45	1.06
2241	11702	Regional	Applewood Final Flow	42.3	88.63	90.69	90.58	90.83	0.005816	2.12	73.02	154.8	91.96	34.72	57.44	0.57
2241	11702	Regional	Updated Existing	42.3	88.58	90.69	90.57	90.83	0.005802	2.12	73	154.83	91.97	34.71	57.38	0.57
2241	11702	Regional	ABL_Proposed	42.3	88.08	89.76	89.91	90.46	0.016136	3.73	164.87	614.98	98.1	12	14.58	1.14
2241	11702	Fish Passage	Applewood Final Flow	0.11	88.63	88.74	88.74	88.78	0.028817	0.87	21.96	19.01	0.94	0.13	1.59	0.98
2241	11702	Fish Passage	Updated Existing	0.11	88.58	88.71	88.71	88.75	0.031223	0.9	23.44	21.09	0.93	0.12	1.56	1.03
2241	11702	Fish Passage	ABL_Proposed	0.11	88.08	88.25	88.25	88.3	0.028339	1.04	28.06	29.26	0.92	0.11	0.97	1.01
2241	11676	2yr	Applewood Final Flow	12.7	88	90.13	89.25	90.21	0.002611	1.41	30.67	43.1	18.1	13.86	49.39	0.33
2241	11676	2yr	Updated Existing	12.7	88	90.12	89.25	90.21	0.002648	1.41	31.05	43.88	17.99	13.7	49.1	0.34
2241	11676	5yr	Applewood Final Flow	19.7	88	90.14	89.65	90.33	0.005963	2.13	70.58	150.63	31.04	14.54	52.23	0.5
2241	11676	5yr	Updated Existing	19.7	88	90.11	89.65	90.33	0.006572	2.22	76.73	170.35	30.97	13.35	48.45	0.53
2241	11676	10yr	Applewood Final Flow	27.5	88	90.42	90.28	90.51	0.003048	1.68	41.68	70.04	52.17	30.61	60.47	0.37
2241	11676	10yr	Updated Existing	27.5	88	90.42	90.28	90.51	0.003066	1.68	41.91	70.6	52.17	30.53	60.46	0.37
2241	11676	25yr	Applewood Final Flow	34.7	88	90.5	90.35	90.59	0.003378	1.81	47.82	86.55	71.95	36.17	61.29	0.39
2241	11676	25yr	Updated Existing	34.7	88	90.5	90.35	90.59	0.003376	1.81	47.8	86.49	71.98	36.18	61.29	0.39
2241	11676	50yr	Applewood Final Flow	41.8	88	90.56	90.41	90.66	0.003775	1.95	55.01	107.3	80.23	40.11	61.99	0.42
2241	11676	50yr	Updated Existing	41.8	88	90.56	90.41	90.66	0.003792	1.95	55.23	107.93	80.24	40.04	61.98	0.42
2241	11676	100yr	Applewood Final Flow	49.7	88	90.61	90.47	90.73	0.004443	2.15	66.09	141.78	89.25	43.04	62.51	0.45
2241	11676	100yr	Updated Existing	49.7	88	90.61	90.47	90.73	0.004349	2.13	64.85	137.87	89.28	43.4	62.57	0.45
2241	11676	Regional	Applewood Final Flow	42.3	88	90.57	90.42	90.67	0.003782	1.96	55.24	108.03	90.76	40.45	62.05	0.42
2241	11676	Regional	Updated Existing	42.3	88	90.57	90.42	90.67	0.003806	1.96	55.55	108.93	90.77	40.35	62.03	0.42
2241	11676	Fish Passage	Applewood Final Flow	0.11	88	88.55	88.11	88.55	0.000031	0.08	0.11	0.01	0.92	1.46	3.35	0.04
2241	11676	Fish Passage	Updated Existing	0.11	88	88.53	88.11	88.53	0.000036	0.08	0.13	0.01	0.91	1.39	3.33	0.04
2241	11673	8-Access Way		Bridge												
2241	11672	2yr	Applewood Final Flow	12.7	88.06	90.07	89.29	90.18	0.003013	1.59	34.76	55.1	18.05	12.26	52.32	0.38
2241	11672	2yr	Updated Existing	12.7	87.98	90.06	89.25	90.17	0.002932	1.58	34.29	54.13	17.94	12.06	50.13	0.38
2241	11672	5yr	Applewood Final Flow	19.7	88.06	90.17	89.67	90.33	0.004559	2.02	55.57	112.4	30.98	18.43	66.98	0.48
2241	11672	5yr	Updated Existing	19.7	87.98	90.16	89.62	90.33	0.004421	2.01	54.71	110.08	30.92	18.38	66.92	0.47
2241	11672	10yr	Applewood Final Flow	27.5	88.06	90.27	90.27	90.44	0.004988	2.2	64.33	141.32	52.04	25.76	69.16	0.5
2241	11672	10yr	Updated Existing	27.5	87.98	90.27	90.27	90.43	0.004827	2.18	63.22	138.04	52.04	25.86	69.15	0.49
2241	11672	25yr	Applewood Final Flow	34.7	88.06	90.34	90.34	90.51	0.00557	2.37	74.33	176.52	71.8	30.49	70.63	0.53
2241	11672	25yr	Updated Existing	34.7	87.98	90.34	90.34	90.51	0.005489	2.38	74.24	176.63	71.83	30.41	70.54	0.53
2241	11672	50yr	Applewood Final Flow	41.8	88.06	90.39	90.38	90.58	0.006432	2.59	87.78	227.4	80.07	33.75	71.65	0.58
2241	11672	50yr	Updated Existing	41.8	87.98	90.39	90.39	90.58	0.006195	2.57	85.87	220.62	80.07	34.03	71.68	0.57
2241	11672	100yr	Applewood Final Flow	49.7	88.06	90.48	90.48	90.65	0.005953	2.56	84.81	217.49	89.07	40.3	72.56	0.56
2241	11672	100yr	Updated Existing	49.7	87.98	90.46	90.45	90.65	0.006313	2.65	90.46	239.84	89.1	39.13	72.39	0.57
2241	11672	Regional	Applewood Final Flow	42.3	88.06	90.39	90.39	90.59	0.006506	2.61	88.95	232.02	90.6	34.03	71.71	0.58
2241	11672	Regional	Updated Existing	42.3	87.98	90.39	90.39	90.58	0.006305	2.59	87.45	226.77	90.6	34.12	71.7	0.57
2241	11672	Fish Passage	Applewood Final Flow	0.11	88.06	88.55	88.15	88.55	0.000037	0.08	0.13	0.01	0.91	1.35	3.26	0.04
2241	11672	Fish Passage	Updated Existing	0.11	87.98	88.51	88.09	88.51	0.000034	0.08	0.12	0.01	0.9	1.38	3.23	0.04
2241	11655	2yr	Applewood Final Flow	12.7	88.36	90.02	89.63	90.11	0.004113	1.45	36.6	53.11	17.88	13.66	53.57	0.46
2241	11655	2yr	Updated Existing	12.7	88.28	90.02	89.61	90.11	0.004224	1.47	37.48	55.02	17.77	13.28	51.14	0.47
2241	11655	2yr	ABL_Proposed	12.7	87.18	88.83	88.27	88.9	0.001582	1.15	15.82	18.21	17.77	11.44	13.16	0.36

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11655	5yr	Applewood Final Flow	19.7	88.36	90.1	90.1	90.24	0.006346	1.89	60.63	114.55	30.76	18.26	64.46	0.58
2241	11655	5yr	Updated Existing	19.7	88.28	90.1	90.1	90.24	0.006329	1.89	60.64	114.69	30.71	18.18	64.43	0.58
2241	11655	5yr	ABL_Proposed	19.7	87.18	89.07	88.49	89.18	0.001868	1.43	22.91	32.84	30.34	14.84	15.25	0.4
2241	11655	10yr	Applewood Final Flow	27.5	88.36	90.15	90.18	90.34	0.008645	2.28	86.71	197.52	51.78	21.75	65.21	0.68
2241	11655	10yr	Updated Existing	27.5	88.28	90.15	90.18	90.34	0.008642	2.28	86.89	198.32	51.78	21.66	65.17	0.68
2241	11655	10yr	ABL_Proposed	27.5	87.18	89.26	88.68	89.41	0.002251	1.72	31.58	54.35	54.18	17.87	17.15	0.45
2241	11655	25yr	Applewood Final Flow	34.7	88.36	90.21	90.24	90.41	0.00927	2.45	98.15	240.04	71.49	25.89	65.92	0.71
2241	11655	25yr	Updated Existing	34.7	88.28	90.21	90.24	90.41	0.009294	2.45	98.6	241.9	71.52	25.79	65.89	0.71
2241	11655	25yr	ABL_Proposed	34.7	87.18	89.46	88.84	89.63	0.002254	1.87	35.89	67.25	78.05	21.52	19.19	0.46
2241	11655	50yr	Applewood Final Flow	41.8	88.36	90.29	90.29	90.48	0.008562	2.45	96.6	236.89	79.72	31.1	66.64	0.69
2241	11655	50yr	Updated Existing	41.8	88.28	90.27	90.29	90.48	0.009539	2.57	106.21	272.63	79.73	29.73	66.45	0.73
2241	11655	50yr	ABL_Proposed	41.8	87.18	89.58	88.99	89.79	0.002587	2.1	44.12	92.73	86.12	24.07	24.6	0.5
2241	11655	100yr	Applewood Final Flow	49.7	88.36	90.39	90.34	90.55	0.007335	2.38	89.06	212.27	88.66	37.6	67.52	0.65
2241	11655	100yr	Updated Existing	49.7	88.28	90.39	90.34	90.55	0.007379	2.39	89.68	214.63	88.69	37.47	67.5	0.65
2241	11655	100yr	ABL_Proposed	49.7	87.18	89.75	89.14	89.99	0.002598	2.24	48.46	108.33	95.47	29.13	34.84	0.51
2241	11655	Regional	Applewood Final Flow	42.3	88.36	90.3	90.29	90.48	0.008604	2.46	97.34	239.7	90.25	31.33	66.68	0.7
2241	11655	Regional	Updated Existing	42.3	88.28	90.28	90.29	90.48	0.009573	2.58	106.9	275.42	90.26	29.97	66.48	0.73
2241	11655	Regional	ABL_Proposed	42.3	87.18	89.63	89	89.84	0.002398	2.06	42.03	86.62	97.24	25.39	27.65	0.48
2241	11655	Fish Passage	Applewood Final Flow	0.11	88.36	88.53	88.48	88.54	0.005988	0.49	6.11	2.99	0.9	0.22	2.12	0.48
2241	11655	Fish Passage	Updated Existing	0.11	88.28	88.49	88.44	88.5	0.006292	0.51	6.66	3.42	0.89	0.21	1.93	0.49
2241	11655	Fish Passage	ABL_Proposed	0.11	87.18	87.56	87.35	87.56	0.001058	0.25	1.45	0.36	0.91	0.44	3.01	0.21
2241	11630	2yr	Applewood Final Flow	12.7	88.21	89.7	89.51	89.95	0.00951	2.26	84.6	191.39	17.62	6.95	33.73	0.71
2241	11630	2yr	Updated Existing	12.7	88.08	89.68	89.49	89.94	0.009699	2.28	85.71	195.2	17.52	6.6	26.39	0.71
2241	11630	2yr	ABL_Proposed	12.7	87.18	88.72		88.83	0.004001	1.52	30.39	46.33	17.51	8.5	16.2	0.54
2241	11630	5yr	Applewood Final Flow	19.7	88.21	89.85	89.91	90.05	0.008102	2.29	82.93	190.16	30.3	17.67	80.16	0.67
2241	11630	5yr	Updated Existing	19.7	88.08	89.85	89.91	90.05	0.008076	2.3	82.89	190.33	30.25	17.5	80.13	0.67
2241	11630	5yr	ABL_Proposed	19.7	87.18	88.95	88.62	89.1	0.003782	1.76	37.15	65.36	29.98	12.63	18.71	0.55
2241	11630	10yr	Applewood Final Flow	27.5	88.21	90.04	89.98	90.13	0.004025	1.78	47.8	85.29	51.07	33.15	82.09	0.48
2241	11630	10yr	Updated Existing	27.5	88.08	90.04	89.98	90.13	0.00409	1.8	48.55	87.42	51.07	32.83	82.04	0.49
2241	11630	10yr	ABL_Proposed	27.5	87.18	89.12		89.32	0.004308	2.07	48.97	101.34	53.74	16.08	24.52	0.6
2241	11630	25yr	Applewood Final Flow	34.7	88.21	90.16	90.03	90.23	0.003267	1.7	42.06	71.34	70.6	42.75	83.18	0.44
2241	11630	25yr	Updated Existing	34.7	88.08	90.16	90.03	90.23	0.003293	1.71	42.39	72.28	70.64	42.54	83.14	0.44
2241	11630	25yr	ABL_Proposed	34.7	87.18	89.39		89.56	0.003024	1.98	42.07	83.46	77.45	24.38	36.79	0.52
2241	11630	50yr	Applewood Final Flow	41.8	88.21	90.26		90.32	0.002918	1.67	39.99	66.85	78.65	50.83	84.16	0.42
2241	11630	50yr	Updated Existing	41.8	88.08	90.25	90.07	90.32	0.002932	1.68	40.17	67.39	78.68	50.68	84.13	0.42
2241	11630	50yr	ABL_Proposed	41.8	87.18	89.53		89.72	0.00298	2.09	45.38	94.9	85.42	29.98	45.06	0.52
2241	11630	100yr	Applewood Final Flow	49.7	88.21	90.36		90.41	0.002664	1.66	38.76	64.42	87.4	59.17	85.25	0.41
2241	11630	100yr	Updated Existing	49.7	88.08	90.35		90.41	0.002671	1.67	38.84	64.7	87.44	59.05	85.22	0.41
2241	11630	100yr	ABL_Proposed	49.7	87.18	89.73		89.9	0.00247	2.06	42.36	87.3	94.55	41.94	81.25	0.49
2241	11630	Regional	Applewood Final Flow	42.3	88.21	90.26		90.33	0.002895	1.67	39.84	66.51	89.17	51.41	84.23	0.42
2241	11630	Regional	Updated Existing	42.3	88.08	90.26	90.08	90.32	0.00291	1.68	40.03	67.08	89.2	51.24	84.2	0.42
2241	11630	Regional	ABL_Proposed	42.3	87.18	89.59		89.76	0.002602	2.01	41.17	82.55	96.49	33.1	52.5	0.49
2241	11630	Fish Passage	Applewood Final Flow	0.11	88.21	88.38	88.33	88.39	0.005937	0.49	6.08	2.96	0.89	0.23	2.12	0.48
2241	11630	Fish Passage	Updated Existing	0.11	88.08	88.32	88.27	88.34	0.00724	0.55	7.62	4.18	0.88	0.2	1.79	0.52
2241	11630	Fish Passage	ABL_Proposed	0.11	87.18	87.54		87.54	0.000464	0.2	0.87	0.18	0.9	0.54	2.69	0.15
2241	11607	2yr	Applewood Final Flow	12.7	88	89.48	89.31	89.72	0.00945	2.22	79.19	175.67	17.44	7.87	34.42	0.7
2241	11607	2yr	Updated Existing	12.7	87.8	89.48	89.25	89.71	0.008913	2.18	75.69	164.74	17.34	7.9	34.29	0.68
2241	11607	2yr	ABL_Proposed	12.7	87.28	88.4	88.38	88.67	0.013676	2.31	77.13	178.23	17.36	5.5	9.2	0.95
2241	11607	5yr	Applewood Final Flow	19.7	88	89.74	89.71	89.87	0.005226	1.92	54.96	105.49	29.82	18.69	47.61	0.54
2241	11607	5yr	Updated Existing	19.7	87.8	89.75	89.7	89.87	0.004772	1.86	51.08	94.91	29.76	19.27	47.68	0.52
2241	11607	5yr	ABL_Proposed	19.7	87.28	88.64	88.6	88.95	0.011352	2.48	82.07	203.88	29.75	8.18	16.54	0.91

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11607	10yr	Applewood Final Flow	27.5	88	89.91		90.01	0.004286	1.89	50.93	96.01	50.25	26.66	48.84	0.5
2241	11607	10yr	Updated Existing	27.5	87.8	89.91		90.01	0.004207	1.88	50.33	94.57	50.26	26.71	48.83	0.5
2241	11607	10yr	ABL_Proposed	27.5	87.28	88.88	88.83	89.18	0.008075	2.51	76.59	192.31	53.42	13.02	23.95	0.8
2241	11607	25yr	Applewood Final Flow	34.7	88	90		90.11	0.004554	2.02	57.48	116.28	69.59	31.05	49.56	0.52
2241	11607	25yr	Updated Existing	34.7	87.8	90		90.11	0.004483	2.02	56.9	114.81	69.63	31.11	49.55	0.52
2241	11607	25yr	ABL_Proposed	34.7	87.28	89.35		89.49	0.002578	1.83	35.92	65.86	76.88	27.59	37.47	0.48
2241	11607	50yr	Applewood Final Flow	41.8	88	90.08		90.2	0.004654	2.12	62.01	131.48	77.47	35.29	50.31	0.53
2241	11607	50yr	Updated Existing	41.8	87.8	90.08		90.2	0.004615	2.12	61.74	130.89	77.5	35.3	50.28	0.53
2241	11607	50yr	ABL_Proposed	41.8	87.28	89.5		89.64	0.002464	1.91	37.71	71.96	84.73	33.34	41.52	0.48
2241	11607	100yr	Applewood Final Flow	49.7	88	90.17		90.3	0.004663	2.2	65.65	144.57	86.04	39.94	51.27	0.54
2241	11607	100yr	Updated Existing	49.7	87.8	90.17		90.3	0.004617	2.2	65.24	143.5	86.07	39.98	51.24	0.53
2241	11607	100yr	ABL_Proposed	49.7	87.28	89.71		89.84	0.001953	1.85	33.88	62.58	93.58	47.7	68.89	0.43
2241	11607	Regional	Applewood Final Flow	42.3	88	90.09		90.21	0.004639	2.12	62.07	131.78	87.97	35.64	50.38	0.53
2241	11607	Regional	Updated Existing	42.3	87.8	90.09		90.21	0.004607	2.12	61.87	131.4	88.01	35.63	50.34	0.53
2241	11607	Regional	ABL_Proposed	42.3	87.28	89.55		89.7	0.002381	1.92	37.66	72.2	95.73	36.77	65.17	0.47
2241	11607	Fish Passage	Applewood Final Flow	0.11	88	88.09	88.09	88.13	0.029166	0.8	19.03	15.24	0.89	0.14	2.04	0.99
2241	11607	Fish Passage	Updated Existing	0.11	87.8	87.98	87.98	88.03	0.028641	0.96	24.82	23.81	0.88	0.11	1.23	1
2241	11607	Fish Passage	ABL_Proposed	0.11	87.28	87.45	87.45	87.5	0.028647	1.05	28.29	29.62	0.89	0.11	0.96	1.01
2241	11592	2yr	Applewood Final Flow	12.7	87.57	89.57	88.73	89.61	0.001178	0.98	14.58	14.34	17.08	21.13	44.75	0.25
2241	11592	2yr	Updated Existing	12.7	87.54	89.56	88.69	89.6	0.001169	0.99	14.69	14.55	16.99	20.91	44.66	0.25
2241	11592	5yr	Applewood Final Flow	19.7	87.57	89.75	89.05	89.79	0.001343	1.13	18.51	20.9	29.15	29.2	47.56	0.28
2241	11592	5yr	Updated Existing	19.7	87.54	89.76	89.02	89.8	0.00126	1.11	17.79	19.76	29.07	29.71	47.69	0.27
2241	11592	10yr	Applewood Final Flow	27.5	87.57	89.89	89.53	89.94	0.001544	1.27	23	29.31	49.34	36.04	51.77	0.3
2241	11592	10yr	Updated Existing	27.5	87.54	89.89	89.52	89.94	0.001499	1.27	22.75	28.91	49.35	36.23	51.77	0.3
2241	11592	25yr	Applewood Final Flow	34.7	87.57	89.96	89.62	90.03	0.00188	1.44	29.15	42.09	68.55	40.04	53.49	0.33
2241	11592	25yr	Updated Existing	34.7	87.54	89.96	89.61	90.03	0.001828	1.44	28.87	41.6	68.59	40.24	53.5	0.33
2241	11592	50yr	Applewood Final Flow	41.8	87.57	90.04	89.68	90.11	0.002124	1.57	34.21	53.87	76.3	44.14	55.84	0.35
2241	11592	50yr	Updated Existing	41.8	87.54	90.04	89.68	90.11	0.002081	1.58	34.08	53.7	76.34	44.26	55.82	0.35
2241	11592	100yr	Applewood Final Flow	49.7	87.57	90.12	89.76	90.2	0.002304	1.69	38.65	65.13	84.73	48.94	58.81	0.37
2241	11592	100yr	Updated Existing	49.7	87.54	90.12	89.76	90.2	0.002256	1.69	38.49	64.87	84.76	49.11	58.8	0.37
2241	11592	Regional	Applewood Final Flow	42.3	87.57	90.05	89.69	90.12	0.00213	1.58	34.42	54.38	86.8	44.5	55.98	0.36
2241	11592	Regional	Updated Existing	42.3	87.54	90.04	89.68	90.12	0.00209	1.58	34.33	54.31	86.83	44.6	55.95	0.35
2241	11592	Fish Passage	Applewood Final Flow	0.11	87.57	87.8	87.7	87.8	0.001132	0.25	1.5	0.37	0.88	0.44	3.11	0.21
2241	11592	Fish Passage	Updated Existing	0.11	87.54	87.78	87.64	87.79	0.000462	0.19	0.81	0.15	0.88	0.57	3.08	0.14
2241	11587	7-Access Way	Bridge													
2241	11582	2yr	Applewood Final Flow	12.7	87.5	89.32	88.89	89.51	0.005247	1.96	55.79	109.55	16.97	7.32	13.3	0.53
2241	11582	2yr	Updated Existing	12.7	87.58	89.3	88.92	89.5	0.005828	2.03	60.31	122.52	16.88	6.97	12.28	0.56
2241	11582	5yr	Applewood Final Flow	19.7	87.5	89.5	89.34	89.78	0.00718	2.49	86.09	214.22	28.98	10.74	28.66	0.64
2241	11582	5yr	Updated Existing	19.7	87.58	89.52	89.52	89.78	0.006912	2.44	83.07	203.05	28.9	11.22	30.51	0.63
2241	11582	10yr	Applewood Final Flow	27.5	87.5	89.73	89.73	89.92	0.005166	2.31	71.02	164.2	49.11	21.5	60.61	0.55
2241	11582	10yr	Updated Existing	27.5	87.58	89.73	89.73	89.92	0.005259	2.32	71.73	166.43	49.12	21.47	60.67	0.56
2241	11582	25yr	Applewood Final Flow	34.7	87.5	89.82	89.82	90.01	0.005261	2.42	76.2	184.11	68.28	27.6	65.51	0.56
2241	11582	25yr	Updated Existing	34.7	87.58	89.83	89.83	90.01	0.005322	2.42	76.55	185.1	68.31	27.61	65.55	0.57
2241	11582	50yr	Applewood Final Flow	41.8	87.5	89.93	89.88	90.09	0.004561	2.34	69.89	163.21	75.98	34.84	67.71	0.53
2241	11582	50yr	Updated Existing	41.8	87.58	89.93	89.89	90.09	0.004641	2.34	70.59	165.43	76.02	34.71	67.7	0.53
2241	11582	100yr	Applewood Final Flow	49.7	87.5	90.05	89.94	90.18	0.003866	2.23	62.76	140.23	84.35	42.96	69.54	0.49
2241	11582	100yr	Updated Existing	49.7	87.58	90.05	89.94	90.18	0.00391	2.24	63.06	141.06	84.38	42.88	69.54	0.49
2241	11582	Regional	Applewood Final Flow	42.3	87.5	89.94	89.89	90.09	0.004493	2.32	69.14	160.73	86.47	35.42	67.89	0.53
2241	11582	Regional	Updated Existing	42.3	87.58	89.94	89.89	90.09	0.004589	2.34	70.07	163.71	86.51	35.23	67.86	0.53
2241	11582	Fish Passage	Applewood Final Flow	0.11	87.5	87.74	87.63	87.74	0.002013	0.36	2.96	1.07	0.88	0.3	1.91	0.29

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11582	Fish Passage	Updated Existing	0.11	87.58	87.77	87.69	87.78	0.003023	0.4	3.81	1.52	0.87	0.28	2.02	0.35
2241	11553	2yr	ABL_Proposed	12.7	86.68	88.29	87.85	88.37	0.002049	1.31	17.87	23.38	16.98	10.39	14.62	0.43
2241	11553	5yr	ABL_Proposed	19.7	86.68	88.55	88.09	88.67	0.001998	1.53	22.42	34.26	29.21	14.56	17.04	0.45
2241	11553	10yr	ABL_Proposed	27.5	86.68	88.8	88.28	88.93	0.001955	1.71	26.45	45.28	52.67	18.64	18.9	0.46
2241	11553	25yr	ABL_Proposed	34.7	86.68	89.3	88.43	89.4	0.001035	1.52	18.88	28.7	75.52	27.85	27.4	0.35
2241	11553	50yr	ABL_Proposed	41.8	86.68	89.44	88.58	89.56	0.00111	1.65	21.81	36.09	83.12	34.38	30.35	0.37
2241	11553	100yr	ABL_Proposed	49.7	86.68	89.61	88.7	89.76	0.001225	1.83	26.04	47.71	91.44	41.72	49.82	0.39
2241	11553	Regional	ABL_Proposed	42.3	86.68	89.5	88.58	89.61	0.001023	1.62	20.63	33.33	93.99	36.08	31.44	0.35
2241	11553	Fish Passage	ABL_Proposed	0.11	86.68	87.14	86.82	87.15	0.000099	0.12	0.24	0.03	0.87	0.91	3.61	0.08
2241	11543	2yr	ABL_Proposed	12.7	86.87	87.97	87.97	88.26	0.015092	2.39	83.32	199.41	16.89	5.31	9.07	1
2241	11543	5yr	ABL_Proposed	19.7	86.87	88.18	88.18	88.54	0.014057	2.65	95.5	253.28	29.1	7.43	11.06	1
2241	11543	10yr	ABL_Proposed	27.5	86.87	88.6	88.38	88.86	0.005597	2.27	60.18	136.78	52.51	12.84	16.04	0.68
2241	11543	25yr	ABL_Proposed	34.7	86.87	89.11	88.53	89.29	0.002457	1.92	38.13	73.35	75.3	19.58	21.34	0.48
2241	11543	50yr	ABL_Proposed	41.8	86.87	89.14	88.66	89.39	0.003339	2.27	52.81	119.91	82.9	20	22.6	0.56
2241	11543	100yr	ABL_Proposed	49.7	86.87	89.18	88.8	89.5	0.004197	2.59	67.94	175.65	91.2	23.68	24.21	0.63
2241	11543	Regional	ABL_Proposed	42.3	86.87	89.2	88.67	89.42	0.002946	2.18	48.11	104.81	93.76	24.04	24.82	0.53
2241	11543	Fish Passage	ABL_Proposed	0.11	86.87	87.05	87.04	87.09	0.021777	0.95	22.7	21.47	0.86	0.12	1.01	0.89
2241	11542	2yr	Applewood Final Flow	12.7	87.37	88.97	88.78	89.22	0.00908	2.27	82.82	188.34	16.71	6.1	9.98	0.7
2241	11542	2yr	Updated Existing	12.7	87.26	88.99	88.76	89.23	0.007946	2.17	74.62	162.08	16.62	6.53	16.03	0.65
2241	11542	5yr	Applewood Final Flow	19.7	87.37	89.26	89.26	89.47	0.006516	2.26	75.76	171.59	28.49	13.97	36.39	0.62
2241	11542	5yr	Updated Existing	19.7	87.26	89.19	89.24	89.48	0.008722	2.54	96.33	244.24	28.47	11.6	32.9	0.7
2241	11542	10yr	Applewood Final Flow	27.5	87.37	89.34	89.39	89.63	0.009111	2.77	111.47	308.86	48.41	16.63	37.57	0.74
2241	11542	10yr	Updated Existing	27.5	87.26	89.33	89.39	89.63	0.009145	2.77	111.51	309.26	48.42	16.53	37.47	0.73
2241	11542	25yr	Applewood Final Flow	34.7	87.37	89.46	89.48	89.73	0.008357	2.81	111.22	312.16	67.37	21.56	39.88	0.71
2241	11542	25yr	Updated Existing	34.7	87.26	89.46	89.48	89.73	0.008379	2.81	111.13	312	67.41	21.48	39.81	0.71
2241	11542	50yr	Applewood Final Flow	41.8	87.37	89.57	89.57	89.83	0.008006	2.87	113.52	325.34	74.87	25.75	41.49	0.71
2241	11542	50yr	Updated Existing	41.8	87.26	89.56	89.56	89.83	0.007992	2.86	112.99	323.28	74.91	25.73	41.46	0.7
2241	11542	100yr	Applewood Final Flow	49.7	87.37	89.64	89.64	89.93	0.008587	3.05	127.03	387.79	83.04	28.8	42.65	0.74
2241	11542	100yr	Updated Existing	49.7	87.26	89.64	89.64	89.92	0.008576	3.05	126.44	385.41	83.08	28.78	42.61	0.73
2241	11542	Regional	Applewood Final Flow	42.3	87.37	89.57	89.57	89.84	0.008058	2.88	114.56	329.96	85.35	25.93	41.56	0.71
2241	11542	Regional	Updated Existing	42.3	87.26	89.57	89.57	89.83	0.008015	2.87	113.67	326.41	85.39	25.95	41.54	0.7
2241	11542	Fish Passage	Applewood Final Flow	0.11	87.37	87.49	87.49	87.53	0.028567	0.89	22.15	19.71	0.87	0.12	1.53	1
2241	11542	Fish Passage	Updated Existing	0.11	87.26	87.44	87.44	87.49	0.029421	0.95	24.64	23.41	0.86	0.12	1.29	1.01
2241	11536	2yr	ABL_Proposed	12.7	86.53	87.77	87.63	87.95	0.008043	1.91	50.8	97.09	16.81	6.65	9.92	0.75
2241	11536	5yr	ABL_Proposed	19.7	86.53	87.99	87.84	88.24	0.007563	2.2	61.83	136.07	28.98	9.04	11.63	0.75
2241	11536	10yr	ABL_Proposed	27.5	86.53	88.62		88.76	0.0022	1.7	30.95	52.76	52.29	18.66	20.68	0.45
2241	11536	25yr	ABL_Proposed	34.7	86.53	89.13		89.23	0.001079	1.46	20.43	29.72	74.92	33.02	35.04	0.33
2241	11536	50yr	ABL_Proposed	41.8	86.53	89.17		89.3	0.001432	1.7	27.68	47.05	82.5	34.52	36.21	0.38
2241	11536	100yr	ABL_Proposed	49.7	86.53	89.22		89.39	0.001846	1.96	36.44	71.3	90.79	36.16	37.44	0.43
2241	11536	Regional	ABL_Proposed	42.3	86.53	89.22		89.34	0.001328	1.66	26.26	43.64	93.35	36.27	37.53	0.37
2241	11536	Fish Passage	ABL_Proposed	0.11	86.53	86.7	86.7	86.75	0.028648	1.05	28.29	29.62	0.86	0.11	0.96	1.01
2241	11500	2yr	Applewood Final Flow	12.7	87.05	88.65	88.65	88.85	0.008097	2.16	76.73	165.67	16.38	9.04	40.72	0.63
2241	11500	2yr	Updated Existing	12.7	86.78	88.55	88.55	88.83	0.011265	2.44	99.69	243.44	16.34	6.77	17.75	0.73
2241	11500	2yr	ABL_Proposed	12.7	86.12	87.48		87.67	0.00768	1.93	50.78	97.77	16.58	6.6	9.38	0.73
2241	11500	5yr	Applewood Final Flow	19.7	87.05	88.71	88.83	89.06	0.014435	2.98	143.7	428.09	27.92	11.86	49.51	0.85
2241	11500	5yr	Updated Existing	19.7	86.78	88.72	88.83	89.03	0.012506	2.81	126.62	356.37	27.93	12.61	49.93	0.79
2241	11500	5yr	ABL_Proposed	19.7	86.12	87.74		87.97	0.006972	2.15	58.39	125.37	28.66	9.2	10.78	0.73
2241	11500	10yr	Applewood Final Flow	27.5	87.05	88.93	88.92	89.08	0.007123	2.33	83.4	194.47	47.5	23.56	56.25	0.62

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11500	10yr	Updated Existing	27.5	86.78	88.92	88.91	89.08	0.007224	2.35	84.32	198.3	47.53	23.23	56.08	0.61
2241	11500	10yr	ABL_Proposed	27.5	86.12	88.58		88.69	0.001386	1.49	22.53	33.57	51.57	21.23	26.44	0.36
2241	11500	25yr	Applewood Final Flow	34.7	87.05	89.22	88.98	89.28	0.002661	1.61	37.51	60.48	65.95	41.18	62.02	0.39
2241	11500	25yr	Updated Existing	34.7	86.78	89.22	88.98	89.28	0.00263	1.61	36.95	59.33	65.99	41.26	61.99	0.38
2241	11500	25yr	ABL_Proposed	34.7	86.12	89.13		89.19	0.000575	1.16	12.34	14.26	73.42	49.39	57.51	0.24
2241	11500	50yr	Applewood Final Flow	41.8	87.05	89.29	89.03	89.36	0.00296	1.74	43.29	75.47	73.26	45.31	63.01	0.41
2241	11500	50yr	Updated Existing	41.8	86.78	89.29	89.03	89.36	0.00293	1.74	42.69	74.13	73.3	45.39	62.98	0.41
2241	11500	50yr	ABL_Proposed	41.8	86.12	89.18		89.25	0.000749	1.34	16.41	21.92	80.92	51.99	58.03	0.28
2241	11500	100yr	Applewood Final Flow	49.7	87.05	89.36	89.09	89.44	0.003221	1.87	48.93	91.25	81.26	49.77	64.5	0.43
2241	11500	100yr	Updated Existing	49.7	86.78	89.36	89.09	89.43	0.003195	1.86	48.28	89.72	81.3	49.85	64.47	0.43
2241	11500	100yr	ABL_Proposed	49.7	86.12	89.23		89.32	0.000945	1.52	21.13	32.16	89.13	54.84	58.6	0.32
2241	11500	Regional	Applewood Final Flow	42.3	87.05	89.33	89.04	89.39	0.002633	1.67	39.3	65.5	83.68	47.66	63.78	0.39
2241	11500	Regional	Updated Existing	42.3	86.78	89.32	89.03	89.39	0.002607	1.66	38.73	64.28	83.72	47.75	63.75	0.38
2241	11500	Regional	ABL_Proposed	42.3	86.12	89.23		89.29	0.000684	1.29	15.29	19.78	91.68	54.88	58.61	0.27
2241	11500	Fish Passage	Applewood Final Flow	0.11	87.05	87.25	87.16	87.26	0.00269	0.4	3.65	1.45	0.86	0.28	1.92	0.33
2241	11500	Fish Passage	Updated Existing	0.11	86.78	87.15	87.01	87.16	0.001988	0.38	3.23	1.24	0.85	0.29	1.56	0.29
2241	11500	Fish Passage	ABL_Proposed	0.11	86.12	86.38	86.27	86.39	0.002144	0.36	3.02	1.1	0.85	0.3	2.03	0.3
2241	11477	2yr	Applewood Final Flow	12.7	87.04	88.56	88.44	88.63	0.003606	1.46	34.92	50.82	16.07	14.15	36.51	0.43
2241	11477	2yr	Updated Existing	12.7	86.85	88.51	88.4	88.61	0.004273	1.59	41.38	65.73	16.08	12.76	35.48	0.46
2241	11477	2yr	ABL_Proposed	12.7	86.05	87.32	87.14	87.49	0.006978	1.82	45.41	82.46	16.41	6.99	10.13	0.7
2241	11477	5yr	Applewood Final Flow	19.7	87.04	88.67	88.56	88.77	0.004707	1.75	49.38	86.51	27.5	18.63	43.73	0.49
2241	11477	5yr	Updated Existing	19.7	86.85	88.66	88.55	88.77	0.004735	1.77	50.31	89.26	27.51	18.37	42.83	0.49
2241	11477	5yr	ABL_Proposed	19.7	86.05	87.63	87.36	87.82	0.004819	1.92	45.02	86.46	28.42	10.47	12.11	0.62
2241	11477	10yr	Applewood Final Flow	27.5	87.04	88.79	88.67	88.9	0.005572	2.02	63.55	128.05	46.84	24.41	56.74	0.54
2241	11477	10yr	Updated Existing	27.5	86.85	88.78	88.66	88.9	0.005555	2.03	64.22	130.55	46.87	24.19	55.91	0.54
2241	11477	10yr	ABL_Proposed	27.5	86.05	88.58	87.55	88.65	0.000814	1.23	14.85	18.31	50.94	31.04	40.77	0.28
2241	11477	25yr	Applewood Final Flow	34.7	87.04	89.19	88.79	89.22	0.001462	1.22	21.46	26.21	64.66	50.38	69.85	0.29
2241	11477	25yr	Updated Existing	34.7	86.85	89.19	88.71	89.22	0.001439	1.22	21.38	26.14	64.7	50.51	69.83	0.29
2241	11477	25yr	ABL_Proposed	34.7	86.05	89.14	87.71	89.17	0.000338	0.94	7.95	7.48	72.03	64.29	71.17	0.19
2241	11477	50yr	Applewood Final Flow	41.8	87.04	89.25	88.85	89.29	0.001698	1.35	25.75	34.64	71.85	54.57	70.71	0.31
2241	11477	50yr	Updated Existing	41.8	86.85	89.25	88.85	89.29	0.001673	1.35	25.67	34.59	71.89	54.69	70.7	0.31
2241	11477	50yr	ABL_Proposed	41.8	86.05	89.18	87.85	89.23	0.00044	1.09	10.52	11.43	79.46	67.64	71.86	0.22
2241	11477	100yr	Applewood Final Flow	49.7	87.04	89.31	88.89	89.36	0.001916	1.46	30.06	43.94	79.73	59.15	72.09	0.34
2241	11477	100yr	Updated Existing	49.7	86.85	89.31	88.89	89.36	0.001892	1.46	30	43.95	79.76	59.26	72.07	0.33
2241	11477	100yr	ABL_Proposed	49.7	86.05	89.23	88	89.29	0.000553	1.23	13.49	16.64	87.59	71.33	72.62	0.24
2241	11477	Regional	Applewood Final Flow	42.3	87.04	89.29	88.86	89.33	0.001497	1.28	23.23	29.78	82.2	57.57	71.61	0.3
2241	11477	Regional	Updated Existing	42.3	86.85	89.29	88.86	89.33	0.001477	1.28	23.16	29.74	82.24	57.7	71.59	0.29
2241	11477	Regional	ABL_Proposed	42.3	86.05	89.23	87.86	89.27	0.000402	1.05	9.81	10.31	90.14	71.2	72.59	0.21
2241	11477	Fish Passage	Applewood Final Flow	0.11	87.04	87.17	87.12	87.18	0.004975	0.42	4.85	2.06	0.86	0.26	2.56	0.43
2241	11477	Fish Passage	Updated Existing	0.11	86.85	87.06	87.01	87.08	0.007531	0.54	7.41	3.97	0.85	0.21	2	0.53
2241	11477	Fish Passage	ABL_Proposed	0.11	86.05	86.27	86.22	86.3	0.008075	0.66	10.21	6.69	0.85	0.17	1.2	0.56
2241	11450	2yr	Applewood Final Flow	12.7	86.75	88.13	88.07	88.44	0.014993	2.49	113.5	283.06	15.83	5.38	11.28	0.86
2241	11450	2yr	Updated Existing	12.7	86.47	88.12	88.01	88.41	0.013376	2.39	103.14	246.83	15.85	5.56	10.82	0.81
2241	11450	2yr	ABL_Proposed	12.7	85.74	87.1		87.29	0.007722	1.93	51.01	98.4	16.23	6.58	9.37	0.74
2241	11450	5yr	Applewood Final Flow	19.7	86.75	88.45	88.45	88.62	0.006981	2.1	72.56	152.53	27.08	15.22	44.48	0.62
2241	11450	5yr	Updated Existing	19.7	86.47	88.44	88.44	88.61	0.006956	2.11	72.52	153.03	27.1	14.92	44.21	0.61
2241	11450	5yr	ABL_Proposed	19.7	85.74	87.54		87.7	0.003709	1.77	37.42	66.36	28.13	11.38	12.4	0.55
2241	11450	10yr	Applewood Final Flow	27.5	86.75	88.68		88.78	0.004151	1.82	51.46	93.8	46.22	25.75	47.9	0.49
2241	11450	10yr	Updated Existing	27.5	86.47	88.68		88.78	0.003975	1.8	49.63	89.28	46.25	26	47.9	0.48
2241	11450	10yr	ABL_Proposed	27.5	85.74	88.57		88.63	0.000595	1.11	11.77	13.1	50.04	36.3	48.4	0.25
2241	11450	25yr	Applewood Final Flow	34.7	86.75	89.16		89.19	0.00115	1.17	19.13	22.34	63.37	56.1	78.98	0.27

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11450	25yr	Updated Existing	34.7	86.47	89.16		89.19	0.001127	1.16	18.74	21.73	63.4	56.36	78.98	0.27
2241	11450	25yr	ABL_Proposed	34.7	85.74	89.13		89.16	0.000263	0.87	6.58	5.69	70.23	70.64	80.38	0.17
2241	11450	50yr	Applewood Final Flow	41.8	86.75	89.21		89.25	0.001382	1.3	23.65	30.85	70.46	60.36	80.64	0.3
2241	11450	50yr	Updated Existing	41.8	86.47	89.21		89.25	0.001357	1.3	23.18	30.03	70.49	60.63	80.64	0.29
2241	11450	50yr	ABL_Proposed	41.8	85.74	89.18		89.21	0.000344	1	8.77	8.79	77.56	74.31	81.17	0.19
2241	11450	100yr	Applewood Final Flow	49.7	86.75	89.27		89.32	0.001592	1.43	28.06	40.07	78.22	65.15	81.72	0.32
2241	11450	100yr	Updated Existing	49.7	86.47	89.27		89.32	0.001565	1.42	27.54	39.08	78.25	65.42	81.72	0.32
2241	11450	100yr	ABL_Proposed	49.7	85.74	89.23		89.27	0.000437	1.14	11.34	12.95	85.59	78.35	82.88	0.22
2241	11450	Regional	Applewood Final Flow	42.3	86.75	89.26		89.29	0.001199	1.23	21.02	25.95	80.72	64.21	81.51	0.28
2241	11450	Regional	Updated Existing	42.3	86.47	89.26		89.29	0.001179	1.23	20.63	25.31	80.75	64.47	81.51	0.27
2241	11450	Regional	ABL_Proposed	42.3	85.74	89.23		89.26	0.000316	0.97	8.21	7.98	88.14	78.38	82.89	0.19
2241	11450	Fish Passage	Applewood Final Flow	0.11	86.75	86.88	86.88	86.91	0.029898	0.85	21.11	17.88	0.85	0.13	1.77	1
2241	11450	Fish Passage	Updated Existing	0.11	86.47	86.68	86.68	86.73	0.027909	1.01	26.68	26.97	0.84	0.11	1.02	0.99
2241	11450	Fish Passage	ABL_Proposed	0.11	85.74	85.89	85.89	85.93	0.026795	0.93	23.29	21.65	0.84	0.12	1.29	0.98
2241	11407	2yr	Applewood Final Flow	12.7	86.01	87.64	87.4	87.89	0.009886	2.24	80.08	179.39	15.58	5.86	8.81	0.7
2241	11407	2yr	Updated Existing	12.7	86.11	87.62	87.41	87.89	0.010542	2.29	84.2	192.98	15.6	5.69	8.27	0.73
2241	11407	2yr	ABL_Proposed	12.7	85.37	86.9	86.57	87.02	0.004131	1.54	31.11	47.9	15.91	8.26	11.1	0.55
2241	11407	5yr	Applewood Final Flow	19.7	86.01	88.2	87.81	88.32	0.003811	1.7	42.97	73.2	26.35	16.4	51.32	0.45
2241	11407	5yr	Updated Existing	19.7	86.11	88.2	87.81	88.32	0.003811	1.7	43.01	73.29	26.37	16.41	51.44	0.45
2241	11407	5yr	ABL_Proposed	19.7	85.37	87.49	86.81	87.57	0.001414	1.3	18.47	24.01	27.51	17.35	18.27	0.35
2241	11407	10yr	Applewood Final Flow	27.5	86.01	88.6	88.14	88.65	0.001516	1.26	21.78	27.49	44.68	34.59	79.97	0.3
2241	11407	10yr	Updated Existing	27.5	86.11	88.6	88.14	88.65	0.001517	1.26	21.82	27.55	44.7	34.59	79.99	0.3
2241	11407	10yr	ABL_Proposed	27.5	85.37	88.57	87.02	88.6	0.000265	0.83	6.16	5.09	48.06	55.67	92.74	0.17
2241	11407	25yr	Applewood Final Flow	34.7	86.01	89.15	88.27	89.16	0.000255	0.62	4.75	2.92	60.1	95.43	101.04	0.13
2241	11407	25yr	Updated Existing	34.7	86.11	89.15	88.27	89.16	0.000255	0.62	4.76	2.93	60.13	95.4	101.04	0.13
2241	11407	25yr	ABL_Proposed	34.7	85.37	89.13	87.19	89.14	0.000122	0.64	3.47	2.23	66.26	113.17	114.1	0.12
2241	11407	50yr	Applewood Final Flow	41.8	86.01	89.2	88.36	89.21	0.000324	0.7	6.16	4.34	66.98	100.66	104.7	0.14
2241	11407	50yr	Updated Existing	41.8	86.11	89.2	88.36	89.21	0.000324	0.7	6.18	4.35	67.01	100.63	104.7	0.14
2241	11407	50yr	ABL_Proposed	41.8	85.37	89.18	87.33	89.19	0.00016	0.74	4.63	3.45	73.41	118.36	114.9	0.14
2241	11407	100yr	Applewood Final Flow	49.7	86.01	89.26	88.44	89.27	0.000395	0.79	7.69	6.06	74.5	106.63	107.47	0.16
2241	11407	100yr	Updated Existing	49.7	86.11	89.26	88.44	89.27	0.000396	0.79	7.71	6.08	74.53	106.59	107.47	0.16
2241	11407	100yr	ABL_Proposed	49.7	85.37	89.23	87.46	89.25	0.000204	0.85	5.99	5.08	81.22	124.03	115.78	0.15
2241	11407	Regional	Applewood Final Flow	42.3	86.01	89.25	88.36	89.26	0.000293	0.68	5.67	3.84	77.05	105.78	107.24	0.14
2241	11407	Regional	Updated Existing	42.3	86.11	89.25	88.37	89.26	0.000293	0.68	5.68	3.85	77.07	105.75	107.24	0.14
2241	11407	Regional	ABL_Proposed	42.3	85.37	89.23	87.34	89.24	0.000147	0.72	4.34	3.13	83.78	124.09	115.78	0.13
2241	11407	Fish Passage	Applewood Final Flow	0.11	86.01	86.32	86.18	86.33	0.002413	0.32	2.59	0.83	0.84	0.34	2.92	0.3
2241	11407	Fish Passage	Updated Existing	0.11	86.11	86.32	86.22	86.33	0.003026	0.34	3.05	1.05	0.83	0.32	2.92	0.33
2241	11407	Fish Passage	ABL_Proposed	0.11	85.37	85.66	85.52	85.66	0.001277	0.3	1.99	0.59	0.83	0.37	2.23	0.24
2241	11402	6-Access Way	Bridge													
2241	11396	2yr	Applewood Final Flow	12.7	85.54	87.53	86.95	87.67	0.005629	1.64	46.02	75.47	15.52	7.75	7.61	0.51
2241	11396	2yr	Updated Existing	12.7	85.52	87.5	86.95	87.64	0.006077	1.68	48.73	82.06	15.54	7.54	7.43	0.53
2241	11396	2yr	ABL_Proposed	12.7	85.37	86.81	86.57	86.96	0.005793	1.73	40.38	69.95	15.83	7.33	9.89	0.64
2241	11396	5yr	Applewood Final Flow	19.7	85.54	87.61	87.34	87.89	0.010708	2.35	92.85	217.95	26.26	8.45	16.82	0.71
2241	11396	5yr	Updated Existing	19.7	85.52	87.61	87.33	87.89	0.010876	2.36	93.96	221.76	26.28	8.39	16.1	0.72
2241	11396	5yr	ABL_Proposed	19.7	85.37	87.47	86.81	87.55	0.001483	1.32	19.1	25.2	27.34	16.62	25.61	0.36
2241	11396	10yr	Applewood Final Flow	27.5	85.54	88.57	87.63	88.59	0.000652	0.88	10.53	9.23	44.18	51.95	97.36	0.2
2241	11396	10yr	Updated Existing	27.5	85.52	88.57	87.63	88.59	0.000651	0.88	10.53	9.23	44.2	51.95	97.35	0.2
2241	11396	10yr	ABL_Proposed	27.5	85.37	88.57	87.03	88.58	0.000163	0.65	3.78	2.44	47.45	83.39	94.97	0.13
2241	11396	25yr	Applewood Final Flow	34.7	85.54	89.13	88.03	89.14	0.00026	0.65	5.34	3.47	59.08	86.7	117.35	0.13
2241	11396	25yr	Updated Existing	34.7	85.52	89.13	88.03	89.14	0.000259	0.65	5.34	3.47	59.1	86.71	117.35	0.13

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11396	25yr	ABL_Proposed	34.7	85.37	89.13	87.19	89.14	0.000077	0.51	2.21	1.13	65.03	145.11	125.95	0.09
2241	11396	50yr	Applewood Final Flow	41.8	85.54	89.17	88.13	89.19	0.000344	0.76	7.2	5.44	65.91	89.66	119.81	0.15
2241	11396	50yr	Updated Existing	41.8	85.52	89.17	88.14	89.19	0.000344	0.76	7.2	5.44	65.93	89.67	119.81	0.15
2241	11396	50yr	ABL_Proposed	41.8	85.37	89.18	87.32	89.19	0.000102	0.59	2.95	1.75	72.12	150.79	126.26	0.11
2241	11396	100yr	Applewood Final Flow	49.7	85.54	89.22	88.23	89.24	0.000442	0.87	9.42	8.17	73.37	92.9	122.71	0.17
2241	11396	100yr	Updated Existing	49.7	85.52	89.22	88.24	89.24	0.000442	0.87	9.41	8.17	73.4	92.91	122.71	0.17
2241	11396	100yr	ABL_Proposed	49.7	85.37	89.22	87.45	89.24	0.00013	0.68	3.83	2.59	79.87	156.98	126.6	0.12
2241	11396	Regional	Applewood Final Flow	42.3	85.54	89.22	88.14	89.24	0.000319	0.74	6.8	5.02	75.92	93	122.79	0.14
2241	11396	Regional	Updated Existing	42.3	85.52	89.22	88.14	89.24	0.000319	0.74	6.8	5.02	75.94	93.01	122.79	0.14
2241	11396	Regional	ABL_Proposed	42.3	85.37	89.23	87.33	89.23	0.000094	0.58	2.77	1.59	82.42	157.08	126.61	0.1
2241	11396	Fish Passage	Applewood Final Flow	0.11	85.54	86.02	85.62	86.02	0.000074	0.12	0.24	0.03	0.84	0.93	2.32	0.06
2241	11396	Fish Passage	Updated Existing	0.11	85.52	85.94	85.61	85.94	0.00013	0.14	0.37	0.05	0.83	0.77	2.21	0.08
2241	11396	Fish Passage	ABL_Proposed	0.11	85.37	85.64	85.52	85.65	0.001677	0.33	2.48	0.82	0.83	0.33	2.13	0.27
2241	11369	2yr	Applewood Final Flow	12.7	85.86	87.12	87.07	87.39	0.015112	2.32	101.2	234.48	15.34	5.83	17.61	0.87
2241	11369	2yr	Updated Existing	12.7	85.71	87.12	87.05	87.38	0.013622	2.24	93.6	209.69	15.36	6.05	17.74	0.82
2241	11369	2yr	ABL_Proposed	12.7	85.33	86.68	86.4	86.8	0.004192	1.57	32.29	50.84	15.6	8.47	12.24	0.56
2241	11369	5yr	Applewood Final Flow	19.7	85.86	87.48	87.36	87.63	0.006189	1.93	61.6	118.97	25.99	15.11	34.68	0.59
2241	11369	5yr	Updated Existing	19.7	85.71	87.47	87.34	87.63	0.005942	1.91	59.82	114.16	26.02	15.23	34.65	0.58
2241	11369	5yr	ABL_Proposed	19.7	85.33	87.46	86.62	87.5	0.000743	1.02	10.93	11.15	26.64	28.68	41.77	0.26
2241	11369	10yr	Applewood Final Flow	27.5	85.86	88.57	87.52	88.58	0.000222	0.58	4.45	2.59	42.8	89.02	137.91	0.13
2241	11369	10yr	Updated Existing	27.5	85.71	88.57	87.52	88.58	0.00022	0.58	4.42	2.57	42.82	89.17	137.9	0.13
2241	11369	10yr	ABL_Proposed	27.5	85.33	88.57	86.81	88.57	0.000095	0.52	2.4	1.25	44.28	101.58	138.9	0.1
2241	11369	25yr	Applewood Final Flow	34.7	85.86	89.13	87.62	89.14	0.000054	0.33	1.35	0.45	56.77	197.88	165.05	0.06
2241	11369	25yr	Updated Existing	34.7	85.71	89.13	87.61	89.14	0.000054	0.33	1.35	0.45	56.79	198.04	165.05	0.06
2241	11369	25yr	ABL_Proposed	34.7	85.33	89.13	86.97	89.13	0.000035	0.36	1.08	0.39	59.6	211.77	165.54	0.06
2241	11369	50yr	Applewood Final Flow	41.8	85.86	89.18	87.73	89.18	0.000072	0.39	1.84	0.72	63.51	205.65	172.71	0.07
2241	11369	50yr	Updated Existing	41.8	85.71	89.18	87.72	89.18	0.000072	0.39	1.84	0.72	63.54	205.81	172.71	0.07
2241	11369	50yr	ABL_Proposed	41.8	85.33	89.18	87	89.18	0.000049	0.43	1.54	0.67	66.48	219.49	173.74	0.08
2241	11369	100yr	Applewood Final Flow	49.7	85.86	89.23	87.82	89.23	0.000091	0.45	2.38	1.06	70.88	214.4	178.76	0.08
2241	11369	100yr	Updated Existing	49.7	85.71	89.23	87.81	89.23	0.000091	0.45	2.37	1.06	70.91	214.55	178.76	0.08
2241	11369	100yr	ABL_Proposed	49.7	85.33	89.23	87.33	89.23	0.000064	0.5	2.03	1.02	74	228.17	179.76	0.09
2241	11369	Regional	Applewood Final Flow	42.3	85.86	89.23	87.73	89.23	0.000066	0.38	1.72	0.65	73.43	214.38	178.76	0.07
2241	11369	Regional	Updated Existing	42.3	85.71	89.23	87.72	89.23	0.000066	0.38	1.72	0.65	73.45	214.54	178.76	0.07
2241	11369	Regional	ABL_Proposed	42.3	85.33	89.23	87	89.23	0.000047	0.43	1.47	0.63	76.55	228.29	179.79	0.07
2241	11369	Fish Passage	Applewood Final Flow	0.11	85.86	85.96	85.96	86	0.030777	0.86	21.54	18.58	0.82	0.13	1.76	1.02
2241	11369	Fish Passage	Updated Existing	0.11	85.71	85.88	85.88	85.92	0.027485	0.89	22.09	19.75	0.82	0.12	1.46	0.98
2241	11369	Fish Passage	ABL_Proposed	0.11	85.33	85.47	85.47	85.51	0.028494	0.89	22.3	19.93	0.82	0.12	1.51	1
2241	11350	2yr	Applewood Final Flow	12.7	85.33	87.07	86.47	87.2	0.0036	1.74	39.65	68.87	15.17	10.71	33.91	0.44
2241	11350	2yr	Updated Existing	12.7	85.3	87.07	86.47	87.2	0.003531	1.73	39.11	67.52	15.19	10.78	34.03	0.43
2241	11350	5yr	Applewood Final Flow	19.7	85.33	87.47	87.16	87.52	0.001634	1.36	22.49	30.53	25.55	26.5	44.16	0.31
2241	11350	5yr	Updated Existing	19.7	85.3	87.46	87.15	87.52	0.001633	1.36	22.55	30.66	25.57	26.45	44.12	0.31
2241	11350	10yr	Applewood Final Flow	27.5	85.33	88.57	87.28	88.58	0.000132	0.52	2.81	1.45	40.92	104.07	161.38	0.09
2241	11350	10yr	Updated Existing	27.5	85.3	88.57	87.28	88.58	0.000131	0.52	2.81	1.45	40.94	104.08	161.38	0.09
2241	11350	25yr	Applewood Final Flow	34.7	85.33	89.13	87.38	89.13	0.000037	0.31	0.94	0.29	53.88	227.29	186.68	0.05
2241	11350	25yr	Updated Existing	34.7	85.3	89.13	87.38	89.13	0.000037	0.31	0.94	0.29	53.91	227.33	186.68	0.05
2241	11350	50yr	Applewood Final Flow	41.8	85.33	89.18	87.46	89.18	0.000049	0.36	1.26	0.45	60.54	234.9	189.54	0.06
2241	11350	50yr	Updated Existing	41.8	85.3	89.18	87.46	89.18	0.000049	0.36	1.26	0.45	60.56	234.93	189.54	0.06
2241	11350	100yr	Applewood Final Flow	49.7	85.33	89.23	87.54	89.23	0.000063	0.41	1.63	0.66	67.81	243.2	193.88	0.07
2241	11350	100yr	Updated Existing	49.7	85.3	89.23	87.54	89.23	0.000063	0.41	1.63	0.66	67.83	243.23	193.88	0.07
2241	11350	Regional	Applewood Final Flow	42.3	85.33	89.23	87.47	89.23	0.000046	0.35	1.18	0.41	70.35	243.21	193.89	0.06
2241	11350	Regional	Updated Existing	42.3	85.3	89.23	87.46	89.23	0.000046	0.35	1.18	0.41	70.37	243.24	193.89	0.06

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11350	Fish Passage	Applewood Final Flow	0.11	85.33	85.49	85.39	85.5	0.000932	0.23	1.28	0.3	0.82	0.48	3.25	0.19
2241	11350	Fish Passage	Updated Existing	0.11	85.3	85.44	85.38	85.45	0.002735	0.33	2.79	0.91	0.81	0.34	3.14	0.32
2241	11346	5-Access Way		Bridge												
2241	11341	2yr	Applewood Final Flow	12.7	85.2	86.71	86.46	87.01	0.01006	2.44	91.38	223.34	15.1	5.37	6.36	0.71
2241	11341	2yr	Updated Existing	12.7	85.11	86.64	86.4	86.96	0.010882	2.5	96.03	239.75	15.12	5.17	5.59	0.73
2241	11341	2yr	ABL_Proposed	12.7	84.92	86.62		86.7	0.002094	1.25	19.11	23.82	15.29	11.2	20.52	0.4
2241	11341	5yr	Applewood Final Flow	19.7	85.2	87.46	87.07	87.51	0.001559	1.32	22.82	30.17	25.33	25.6	38.25	0.3
2241	11341	5yr	Updated Existing	19.7	85.11	87.46	87.05	87.51	0.001509	1.31	22.32	29.29	25.35	25.75	38.21	0.29
2241	11341	5yr	ABL_Proposed	19.7	84.92	87.46		87.48	0.000357	0.78	6.07	4.73	25.59	39.6	44.56	0.19
2241	11341	10yr	Applewood Final Flow	27.5	85.2	88.57	87.22	88.57	0.000171	0.59	3.91	2.31	39.85	87.12	132.47	0.11
2241	11341	10yr	Updated Existing	27.5	85.11	88.57	87.21	88.57	0.000169	0.59	3.88	2.29	39.88	87.32	132.47	0.11
2241	11341	10yr	ABL_Proposed	27.5	84.92	88.56		88.57	0.000066	0.46	1.8	0.83	40.37	124.04	132.37	0.09
2241	11341	25yr	Applewood Final Flow	34.7	85.2	89.13	87.33	89.13	0.000053	0.37	1.43	0.52	52.03	193.9	165.1	0.06
2241	11341	25yr	Updated Existing	34.7	85.11	89.13	87.32	89.13	0.000052	0.37	1.42	0.52	52.05	194.11	165.1	0.06
2241	11341	25yr	ABL_Proposed	34.7	84.92	89.13		89.13	0.000033	0.37	1.08	0.39	53.12	204.47	161.92	0.06
2241	11341	50yr	Applewood Final Flow	41.8	85.2	89.18	87.41	89.18	0.00007	0.42	1.91	0.81	58.62	201.45	170.69	0.07
2241	11341	50yr	Updated Existing	41.8	85.11	89.18	87.41	89.18	0.000069	0.42	1.9	0.8	58.64	201.65	170.69	0.07
2241	11341	50yr	ABL_Proposed	41.8	84.92	89.17		89.18	0.000044	0.43	1.46	0.62	59.76	211.83	166.65	0.07
2241	11341	100yr	Applewood Final Flow	49.7	85.2	89.23	87.5	89.23	0.000089	0.48	2.47	1.2	65.81	209.98	178.22	0.08
2241	11341	100yr	Updated Existing	49.7	85.11	89.23	87.49	89.23	0.000089	0.48	2.46	1.19	65.83	210.18	178.21	0.08
2241	11341	100yr	ABL_Proposed	49.7	84.92	89.22		89.23	0.000057	0.49	1.92	0.94	67.01	220.04	171.76	0.08
2241	11341	Regional	Applewood Final Flow	42.3	85.2	89.23	87.42	89.23	0.000064	0.41	1.79	0.74	68.35	210.11	178.34	0.07
2241	11341	Regional	Updated Existing	42.3	85.11	89.23	87.41	89.23	0.000064	0.41	1.78	0.73	68.37	210.32	178.33	0.07
2241	11341	Regional	ABL_Proposed	42.3	84.92	89.22		89.23	0.000041	0.42	1.39	0.58	69.56	220.26	171.89	0.07
2241	11341	Fish Passage	Applewood Final Flow	0.11	85.2	85.42	85.32	85.42	0.001558	0.3	2.1	0.63	0.81	0.37	2.61	0.26
2241	11341	Fish Passage	Updated Existing	0.11	85.11	85.3	85.23	85.31	0.003321	0.4	3.9	1.56	0.81	0.27	2.23	0.36
2241	11341	Fish Passage	ABL_Proposed	0.11	84.92	85.24	85.07	85.24	0.0008	0.25	1.36	0.34	0.82	0.44	2.44	0.19
2241	11310	2yr	Applewood Final Flow	12.7	85.17	86.48	86.48	86.67	0.008415	2.1	68.19	143.03	14.89	8.87	28.33	0.7
2241	11310	2yr	Updated Existing	12.7	84.94	86.48	86.25	86.64	0.005655	1.86	51.19	95.03	14.9	9.81	28.5	0.58
2241	11310	2yr	ABL_Proposed	12.7	84.97	86.51	86.17	86.61	0.003409	1.41	26.09	36.89	14.92	11.47	34.22	0.5
2241	11310	5yr	Applewood Final Flow	19.7	85.17	87.45	86.64	87.47	0.000436	0.78	7.31	5.67	24.17	45.63	43.19	0.18
2241	11310	5yr	Updated Existing	19.7	84.94	87.45	86.59	87.47	0.000401	0.76	6.98	5.33	24.18	46.4	43.19	0.17
2241	11310	5yr	ABL_Proposed	19.7	84.97	87.45	86.52	87.47	0.000247	0.63	4.07	2.58	24.14	47.76	42.89	0.15
2241	11310	10yr	Applewood Final Flow	27.5	85.17	88.56	86.76	88.57	0.000101	0.51	2.7	1.37	36.13	100.04	148.15	0.09
2241	11310	10yr	Updated Existing	27.5	84.94	88.56	86.73	88.57	0.000098	0.51	2.64	1.33	36.14	100.8	148.15	0.09
2241	11310	10yr	ABL_Proposed	27.5	84.97	88.56	86.65	88.57	0.000062	0.44	1.68	0.74	36.02	102.04	148.13	0.08
2241	11310	25yr	Applewood Final Flow	34.7	85.17	89.13	86.85	89.13	0.00005	0.4	1.57	0.63	45.76	251.97	255.29	0.07
2241	11310	25yr	Updated Existing	34.7	84.94	89.13	86.84	89.13	0.000049	0.4	1.54	0.61	45.77	252.74	255.28	0.07
2241	11310	25yr	ABL_Proposed	34.7	84.97	89.13	86.75	89.13	0.000033	0.36	1.07	0.39	45.62	253.91	255.19	0.06
2241	11310	50yr	Applewood Final Flow	41.8	85.17	89.17	86.94	89.18	0.000065	0.46	2.07	0.95	52.1	263.51	261.08	0.08
2241	11310	50yr	Updated Existing	41.8	84.94	89.17	86.92	89.18	0.000063	0.46	2.04	0.93	52.1	264.27	261.07	0.08
2241	11310	50yr	ABL_Proposed	41.8	84.97	89.17	86.82	89.18	0.000044	0.42	1.43	0.6	51.95	265.44	261.04	0.07
2241	11310	100yr	Applewood Final Flow	49.7	85.17	89.22	87.02	89.23	0.000081	0.52	2.64	1.37	59.02	276.26	265.3	0.09
2241	11310	100yr	Updated Existing	49.7	84.94	89.22	87	89.23	0.00008	0.52	2.6	1.35	59.02	277.02	265.3	0.08
2241	11310	100yr	ABL_Proposed	49.7	84.97	89.22	86.9	89.23	0.000056	0.48	1.85	0.89	58.86	278.16	265.26	0.08
2241	11310	Regional	Applewood Final Flow	42.3	85.17	89.22	86.94	89.23	0.000059	0.44	1.9	0.84	61.55	276.65	265.43	0.07
2241	11310	Regional	Updated Existing	42.3	84.94	89.22	86.92	89.23	0.000058	0.44	1.88	0.83	61.56	277.42	265.43	0.07
2241	11310	Regional	ABL_Proposed	42.3	84.97	89.22	86.83	89.23	0.00004	0.41	1.34	0.55	61.4	278.58	265.4	0.07
2241	11310	Fish Passage	Applewood Final Flow	0.11	85.17	85.28	85.27	85.3	0.016528	0.64	11.88	7.58	0.8	0.17	2.31	0.75
2241	11310	Fish Passage	Updated Existing	0.11	84.94	85.14	85.1	85.16	0.007836	0.52	7.24	3.79	0.8	0.21	2.18	0.54

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11310	Fish Passage	ABL_Proposed	0.11	84.97	85.16	85.12	85.18	0.008673	0.61	9.37	5.73	0.8	0.18	1.58	0.58
2241	11294	2yr	Applewood Final Flow	13.3	84.79	86.54	85.42	86.55	0.000482	0.55	6.44	3.53	14.54	24.84	52.17	0.15
2241	11294	2yr	Updated Existing	13.3	84.79	86.54	85.42	86.55	0.000482	0.55	6.44	3.53	14.54	24.84	52.17	0.15
2241	11294	2yr	ABL_Proposed	13.3	84.79	86.54	85.42	86.55	0.000482	0.55	6.44	3.53	14.54	24.84	52.17	0.15
2241	11294	5yr	Applewood Final Flow	20.7	84.79	87.45	85.58	87.46	0.000208	0.5	4.57	2.29	21.63	43.71	157.02	0.11
2241	11294	5yr	Updated Existing	20.7	84.79	87.45	85.58	87.46	0.000208	0.5	4.57	2.29	21.63	43.71	157.02	0.11
2241	11294	5yr	ABL_Proposed	20.7	84.79	87.45	85.58	87.46	0.000208	0.5	4.57	2.29	21.63	43.71	157.02	0.11
2241	11294	10yr	Applewood Final Flow	28.5	84.79	88.56	85.73	88.57	0.000103	0.46	3.34	1.53	29.48	66.53	285.74	0.08
2241	11294	10yr	Updated Existing	28.5	84.79	88.56	85.73	88.57	0.000103	0.46	3.34	1.53	29.48	66.53	285.74	0.08
2241	11294	10yr	ABL_Proposed	28.5	84.79	88.56	85.73	88.57	0.000103	0.46	3.34	1.53	29.48	66.53	285.74	0.08
2241	11294	25yr	Applewood Final Flow	35.6	84.79	89.13	85.85	89.13	0.000017	0.21	0.65	0.14	36.23	322.03	355.51	0.03
2241	11294	25yr	Updated Existing	35.6	84.79	89.13	85.85	89.13	0.000017	0.21	0.65	0.14	36.23	322.03	355.51	0.03
2241	11294	25yr	ABL_Proposed	35.6	84.79	89.13	85.85	89.13	0.000017	0.21	0.65	0.14	36.23	322.03	355.51	0.03
2241	11294	50yr	Applewood Final Flow	43	84.79	89.18	85.96	89.18	0.000011	0.17	0.44	0.07	42.3	595.5	362.7	0.03
2241	11294	50yr	Updated Existing	43	84.79	89.18	85.96	89.18	0.000011	0.17	0.44	0.07	42.3	595.5	362.7	0.03
2241	11294	50yr	ABL_Proposed	43	84.79	89.18	85.96	89.18	0.000011	0.17	0.44	0.07	42.3	595.5	362.7	0.03
2241	11294	100yr	Applewood Final Flow	51.1	84.79	89.22	86.08	89.22	0.000015	0.2	0.58	0.11	48.94	613.23	367.29	0.03
2241	11294	100yr	Updated Existing	51.1	84.79	89.22	86.08	89.22	0.000015	0.2	0.58	0.11	48.94	613.23	367.29	0.03
2241	11294	100yr	ABL_Proposed	51.1	84.79	89.22	86.08	89.22	0.000015	0.2	0.58	0.11	48.94	613.23	367.29	0.03
2241	11294	Regional	Applewood Final Flow	51.9	84.79	89.22	86.09	89.23	0.000015	0.2	0.6	0.12	51.47	613.6	367.41	0.03
2241	11294	Regional	Updated Existing	51.9	84.79	89.22	86.09	89.23	0.000015	0.2	0.6	0.12	51.47	613.6	367.41	0.03
2241	11294	Regional	ABL_Proposed	51.9	84.79	89.22	86.09	89.23	0.000015	0.2	0.6	0.12	51.47	613.6	367.41	0.03
2241	11294	Fish Passage	Applewood Final Flow	0.11	84.79	84.9	84.9	84.92	0.042876	0.64	17.28	11.12	0.8	0.17	4.14	1.01
2241	11294	Fish Passage	Updated Existing	0.11	84.79	84.9	84.9	84.92	0.042876	0.64	17.28	11.12	0.8	0.17	4.14	1.01
2241	11294	Fish Passage	ABL_Proposed	0.11	84.79	84.9	84.9	84.92	0.042876	0.64	17.28	11.12	0.8	0.17	4.14	1.01
2241	11276 4-CNR			Culvert												
2241	11258	2yr	Applewood Final Flow	13.3	83.96	85.69	84.69	85.72	0.000789	0.77	9.86	7.56	14.21	17.75	16.89	0.2
2241	11258	2yr	Updated Existing	13.3	83.96	85.69	84.69	85.72	0.000789	0.77	9.86	7.56	14.21	17.75	16.89	0.2
2241	11258	2yr	ABL_Proposed	13.3	83.96	85.69	84.69	85.72	0.000789	0.77	9.86	7.56	14.21	17.75	16.89	0.2
2241	11258	5yr	Applewood Final Flow	20.7	83.96	86.12	84.89	86.16	0.000746	0.87	11.77	10.21	20.89	25.47	30.92	0.2
2241	11258	5yr	Updated Existing	20.7	83.96	86.12	84.89	86.16	0.000746	0.87	11.77	10.21	20.89	25.47	30.92	0.2
2241	11258	5yr	ABL_Proposed	20.7	83.96	86.12	84.89	86.16	0.000746	0.87	11.77	10.21	20.89	25.47	30.92	0.2
2241	11258	10yr	Applewood Final Flow	28.5	83.96	86.29	85.06	86.34	0.001031	1.07	17.53	18.71	27.74	28.51	34.33	0.24
2241	11258	10yr	Updated Existing	28.5	83.96	86.29	85.06	86.34	0.001031	1.07	17.53	18.71	27.74	28.51	34.33	0.24
2241	11258	10yr	ABL_Proposed	28.5	83.96	86.29	85.06	86.34	0.001031	1.07	17.53	18.71	27.74	28.51	34.33	0.24
2241	11258	25yr	Applewood Final Flow	35.6	83.96	86.41	85.2	86.46	0.00097	1.07	17.33	18.51	33.5	38.49	39.34	0.23
2241	11258	25yr	Updated Existing	35.6	83.96	86.41	85.2	86.46	0.00097	1.07	17.33	18.51	33.5	38.49	39.34	0.23
2241	11258	25yr	ABL_Proposed	35.6	83.96	86.41	85.2	86.46	0.00097	1.07	17.33	18.51	33.5	38.49	39.34	0.23
2241	11258	50yr	Applewood Final Flow	43	83.96	86.5	85.34	86.56	0.001105	1.17	20.48	23.88	39.19	42.21	39.95	0.25
2241	11258	50yr	Updated Existing	43	83.96	86.5	85.34	86.56	0.001105	1.17	20.48	23.88	39.19	42.21	39.95	0.25
2241	11258	50yr	ABL_Proposed	43	83.96	86.5	85.34	86.56	0.001105	1.17	20.48	23.88	39.19	42.21	39.95	0.25
2241	11258	100yr	Applewood Final Flow	51.1	83.96	86.59	85.48	86.65	0.001254	1.27	23.98	30.35	45.27	45.58	40.1	0.27
2241	11258	100yr	Updated Existing	51.1	83.96	86.59	85.48	86.65	0.001254	1.27	23.98	30.35	45.27	45.58	40.1	0.27
2241	11258	100yr	ABL_Proposed	51.1	83.96	86.59	85.48	86.65	0.001254	1.27	23.98	30.35	45.27	45.58	40.1	0.27
2241	11258	Regional	Applewood Final Flow	51.9	83.96	86.59	85.49	86.66	0.001268	1.28	24.32	31.01	47.75	45.89	40.11	0.27
2241	11258	Regional	Updated Existing	51.9	83.96	86.59	85.49	86.66	0.001268	1.28	24.32	31.01	47.75	45.89	40.11	0.27
2241	11258	Regional	ABL_Proposed	51.9	83.96	86.59	85.49	86.66	0.001268	1.28	24.32	31.01	47.75	45.89	40.11	0.27
2241	11258	Fish Passage	Applewood Final Flow	0.11	83.96	84.07	84.04	84.08	0.009747	0.37	6.21	2.3	0.79	0.3	4.52	0.46
2241	11258	Fish Passage	Updated Existing	0.11	83.96	84.07	84.04	84.08	0.009747	0.37	6.21	2.3	0.79	0.3	4.52	0.46
2241	11258	Fish Passage	ABL_Proposed	0.11	83.96	84.07	84.04	84.08	0.009747	0.37	6.21	2.3	0.79	0.3	4.52	0.46

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11208	2yr	Applewood Final Flow	13.3	83.66	85.62	84.65	85.67	0.001052	0.98	13	12.79	13.41	13.62	13.87	0.26
2241	11208	2yr	Updated Existing	13.3	83.66	85.62	84.65	85.67	0.001052	0.98	13	12.79	13.41	13.62	13.87	0.26
2241	11208	2yr	ABL_Proposed	13.3	83.66	85.62	84.65	85.67	0.001052	0.98	13	12.79	13.41	13.62	13.87	0.26
2241	11208	5yr	Applewood Final Flow	20.7	83.66	86.05	84.9	86.11	0.000967	1.05	14.51	15.3	19.43	24.17	33.5	0.25
2241	11208	5yr	Updated Existing	20.7	83.66	86.05	84.9	86.11	0.000967	1.05	14.51	15.3	19.43	24.17	33.5	0.25
2241	11208	5yr	ABL_Proposed	20.7	83.66	86.05	84.9	86.11	0.000967	1.05	14.51	15.3	19.43	24.17	33.5	0.25
2241	11208	10yr	Applewood Final Flow	28.5	83.66	86.21	85.13	86.28	0.001194	1.24	19.5	24.19	25.84	31.73	65.09	0.29
2241	11208	10yr	Updated Existing	28.5	83.66	86.21	85.13	86.28	0.001194	1.24	19.5	24.19	25.84	31.73	65.09	0.29
2241	11208	10yr	ABL_Proposed	28.5	83.66	86.21	85.13	86.28	0.001194	1.24	19.5	24.19	25.84	31.73	65.09	0.29
2241	11208	25yr	Applewood Final Flow	35.6	83.66	86.31	85.3	86.39	0.001359	1.37	23.32	31.89	31.23	38.39	72.94	0.31
2241	11208	25yr	Updated Existing	35.6	83.66	86.31	85.3	86.39	0.001359	1.37	23.32	31.89	31.23	38.39	72.94	0.31
2241	11208	25yr	ABL_Proposed	35.6	83.66	86.31	85.3	86.39	0.001359	1.37	23.32	31.89	31.23	38.39	72.94	0.31
2241	11208	50yr	Applewood Final Flow	43	83.66	86.4	85.46	86.48	0.001465	1.46	26.26	38.39	36.56	45.16	77.91	0.32
2241	11208	50yr	Updated Existing	43	83.66	86.4	85.46	86.48	0.001465	1.46	26.26	38.39	36.56	45.16	77.91	0.32
2241	11208	50yr	ABL_Proposed	43	83.66	86.4	85.46	86.48	0.001465	1.46	26.26	38.39	36.56	45.16	77.91	0.32
2241	11208	100yr	Applewood Final Flow	51.1	83.66	86.49	85.63	86.57	0.001496	1.52	27.94	42.42	42.28	52.2	80.38	0.33
2241	11208	100yr	Updated Existing	51.1	83.66	86.49	85.63	86.57	0.001496	1.52	27.94	42.42	42.28	52.2	80.38	0.33
2241	11208	100yr	ABL_Proposed	51.1	83.66	86.49	85.63	86.57	0.001496	1.52	27.94	42.42	42.28	52.2	80.38	0.33
2241	11208	Regional	Applewood Final Flow	51.9	83.66	86.5	85.65	86.58	0.001497	1.52	28.08	42.75	44.73	52.88	80.84	0.33
2241	11208	Regional	Updated Existing	51.9	83.66	86.5	85.65	86.58	0.001497	1.52	28.08	42.75	44.73	52.88	80.84	0.33
2241	11208	Regional	ABL_Proposed	51.9	83.66	86.5	85.65	86.58	0.001497	1.52	28.08	42.75	44.73	52.88	80.84	0.33
2241	11208	Fish Passage	Applewood Final Flow	0.11	83.66	84.05	83.83	84.06	0.000107	0.09	0.2	0.02	0.75	1.17	5.82	0.07
2241	11208	Fish Passage	Updated Existing	0.11	83.66	84.05	83.83	84.06	0.000107	0.09	0.2	0.02	0.75	1.17	5.82	0.07
2241	11208	Fish Passage	ABL_Proposed	0.11	83.66	84.05	83.83	84.06	0.000107	0.09	0.2	0.02	0.75	1.17	5.82	0.07
2241	11196	3-St. Mary Ave	Bridge													
2241	11184	2yr	Applewood Final Flow	13.3	83.37	85.28	84.75	85.42	0.006289	1.67	50.94	84.86	13.24	8.15	9.76	0.51
2241	11184	2yr	Updated Existing	13.3	83.37	85.28	84.75	85.42	0.006289	1.67	50.94	84.86	13.24	8.15	9.76	0.51
2241	11184	2yr	ABL_Proposed	13.3	83.37	85.28	84.75	85.42	0.006289	1.67	50.94	84.86	13.24	8.15	9.76	0.51
2241	11184	5yr	Applewood Final Flow	20.7	83.37	85.65	85.09	85.77	0.004561	1.65	46.69	77.03	19.12	14.82	26.13	0.45
2241	11184	5yr	Updated Existing	20.7	83.37	85.65	85.09	85.77	0.004561	1.65	46.69	77.03	19.12	14.82	26.13	0.45
2241	11184	5yr	ABL_Proposed	20.7	83.37	85.65	85.09	85.77	0.004561	1.65	46.69	77.03	19.12	14.82	26.13	0.45
2241	11184	10yr	Applewood Final Flow	28.5	83.37	85.82	85.54	85.96	0.004618	1.8	53.25	95.7	25.36	19.77	43.17	0.46
2241	11184	10yr	Updated Existing	28.5	83.37	85.82	85.54	85.96	0.004618	1.8	53.25	95.7	25.36	19.77	43.17	0.46
2241	11184	10yr	ABL_Proposed	28.5	83.37	85.82	85.54	85.96	0.004618	1.8	53.25	95.7	25.36	19.77	43.17	0.46
2241	11184	25yr	Applewood Final Flow	35.6	83.37	85.96	85.7	86.09	0.004378	1.85	54.92	101.65	30.62	25.95	54.83	0.46
2241	11184	25yr	Updated Existing	35.6	83.37	85.96	85.7	86.09	0.004378	1.85	54.92	101.65	30.62	25.95	54.83	0.46
2241	11184	25yr	ABL_Proposed	35.6	83.37	85.96	85.7	86.09	0.004378	1.85	54.92	101.65	30.62	25.95	54.83	0.46
2241	11184	50yr	Applewood Final Flow	43	83.37	86.09	85.77	86.22	0.004017	1.86	54.28	101.12	35.82	32.87	65.67	0.44
2241	11184	50yr	Updated Existing	43	83.37	86.09	85.77	86.22	0.004017	1.86	54.28	101.12	35.82	32.87	65.67	0.44
2241	11184	50yr	ABL_Proposed	43	83.37	86.09	85.77	86.22	0.004017	1.86	54.28	101.12	35.82	32.87	65.67	0.44
2241	11184	100yr	Applewood Final Flow	51.1	83.37	86.18	85.94	86.32	0.004015	1.93	57.18	110.32	41.41	38.51	67.41	0.45
2241	11184	100yr	Updated Existing	51.1	83.37	86.18	85.94	86.32	0.004015	1.93	57.18	110.32	41.41	38.51	67.41	0.45
2241	11184	100yr	ABL_Proposed	51.1	83.37	86.18	85.94	86.32	0.004015	1.93	57.18	110.32	41.41	38.51	67.41	0.45
2241	11184	Regional	Applewood Final Flow	51.9	83.37	86.19	85.95	86.33	0.004025	1.94	57.59	111.56	43.83	38.99	67.51	0.45
2241	11184	Regional	Updated Existing	51.9	83.37	86.19	85.95	86.33	0.004025	1.94	57.59	111.56	43.83	38.99	67.51	0.45
2241	11184	Regional	ABL_Proposed	51.9	83.37	86.19	85.95	86.33	0.004025	1.94	57.59	111.56	43.83	38.99	67.51	0.45
2241	11184	Fish Passage	Applewood Final Flow	0.11	83.37	83.77	83.47	83.77	0.000073	0.1	0.21	0.02	0.73	1.08	3.22	0.06
2241	11184	Fish Passage	Updated Existing	0.11	83.37	83.77	83.47	83.77	0.000073	0.1	0.21	0.02	0.73	1.08	3.22	0.06
2241	11184	Fish Passage	ABL_Proposed	0.11	83.37	83.77	83.47	83.77	0.000073	0.1	0.21	0.02	0.73	1.08	3.22	0.06

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11168	2yr	Applewood Final Flow	13.3	83.59	84.8	84.8	85.18	0.020178	2.75	138.13	379.39	13.14	4.84	6.33	1
2241	11168	2yr	Updated Existing	13.3	83.59	84.8	84.8	85.18	0.020178	2.75	138.13	379.39	13.14	4.84	6.33	1
2241	11168	2yr	ABL_Proposed	13.3	83.59	84.8	84.8	85.18	0.020178	2.75	138.13	379.39	13.14	4.84	6.33	1
2241	11168	5yr	Applewood Final Flow	20.7	83.59	85.12	85.11	85.55	0.01929	2.92	154.31	449.9	18.95	7.11	8.25	0.99
2241	11168	5yr	Updated Existing	20.7	83.59	85.12	85.11	85.55	0.01929	2.92	154.31	449.9	18.95	7.11	8.25	0.99
2241	11168	5yr	ABL_Proposed	20.7	83.59	85.12	85.11	85.55	0.01929	2.92	154.31	449.9	18.95	7.11	8.25	0.99
2241	11168	10yr	Applewood Final Flow	28.5	83.59	85.5	85.5	85.81	0.009121	2.55	104.88	267.8	25.09	14.35	39.8	0.72
2241	11168	10yr	Updated Existing	28.5	83.59	85.5	85.5	85.81	0.009121	2.55	104.88	267.8	25.09	14.35	39.8	0.72
2241	11168	10yr	ABL_Proposed	28.5	83.59	85.5	85.5	85.81	0.009121	2.55	104.88	267.8	25.09	14.35	39.8	0.72
2241	11168	25yr	Applewood Final Flow	35.6	83.59	85.63	85.63	85.95	0.008921	2.69	112.71	303.06	30.26	18.07	61.29	0.72
2241	11168	25yr	Updated Existing	35.6	83.59	85.63	85.63	85.95	0.008921	2.69	112.71	303.06	30.26	18.07	61.29	0.72
2241	11168	25yr	ABL_Proposed	35.6	83.59	85.63	85.63	85.95	0.008921	2.69	112.71	303.06	30.26	18.07	61.29	0.72
2241	11168	50yr	Applewood Final Flow	43	83.59	85.74	85.74	86.07	0.00897	2.83	121.9	345.04	35.38	21.38	66.27	0.74
2241	11168	50yr	Updated Existing	43	83.59	85.74	85.74	86.07	0.00897	2.83	121.9	345.04	35.38	21.38	66.27	0.74
2241	11168	50yr	ABL_Proposed	43	83.59	85.74	85.74	86.07	0.00897	2.83	121.9	345.04	35.38	21.38	66.27	0.74
2241	11168	100yr	Applewood Final Flow	51.1	83.59	85.86	85.86	86.18	0.008181	2.85	120.63	344.32	40.88	26.83	81.72	0.71
2241	11168	100yr	Updated Existing	51.1	83.59	85.86	85.86	86.18	0.008181	2.85	120.63	344.32	40.88	26.83	81.72	0.71
2241	11168	100yr	ABL_Proposed	51.1	83.59	85.86	85.86	86.18	0.008181	2.85	120.63	344.32	40.88	26.83	81.72	0.71
2241	11168	Regional	Applewood Final Flow	51.9	83.59	85.88	85.88	86.19	0.008123	2.86	120.59	344.53	43.3	27.38	82.17	0.71
2241	11168	Regional	Updated Existing	51.9	83.59	85.88	85.88	86.19	0.008123	2.86	120.59	344.53	43.3	27.38	82.17	0.71
2241	11168	Regional	ABL_Proposed	51.9	83.59	85.88	85.88	86.19	0.008123	2.86	120.59	344.53	43.3	27.38	82.17	0.71
2241	11168	Fish Passage	Applewood Final Flow	0.11	83.59	83.74	83.72	83.76	0.012684	0.58	9.47	5.47	0.72	0.19	2.47	0.66
2241	11168	Fish Passage	Updated Existing	0.11	83.59	83.74	83.72	83.76	0.012684	0.58	9.47	5.47	0.72	0.19	2.47	0.66
2241	11168	Fish Passage	ABL_Proposed	0.11	83.59	83.74	83.72	83.76	0.012684	0.58	9.47	5.47	0.72	0.19	2.47	0.66
2241	11121	2yr	Applewood Final Flow	13.3	82.73	84.38	83.98	84.56	0.006529	1.88	57.92	108.71	12.85	7.09	8.24	0.59
2241	11121	2yr	Updated Existing	13.3	82.73	84.38	83.98	84.56	0.006529	1.88	57.92	108.71	12.85	7.09	8.24	0.59
2241	11121	2yr	ABL_Proposed	13.3	82.73	84.38	83.98	84.56	0.006529	1.88	57.92	108.71	12.85	7.09	8.24	0.59
2241	11121	5yr	Applewood Final Flow	20.7	82.73	84.8	84.3	84.99	0.006303	1.96	63.62	124.41	18.48	10.97	19.15	0.58
2241	11121	5yr	Updated Existing	20.7	82.73	84.8	84.3	84.99	0.006303	1.96	63.62	124.41	18.48	10.97	19.15	0.58
2241	11121	5yr	ABL_Proposed	20.7	82.73	84.8	84.3	84.99	0.006303	1.96	63.62	124.41	18.48	10.97	19.15	0.58
2241	11121	10yr	Applewood Final Flow	28.5	82.73	84.98	84.63	85.24	0.006907	2.26	81.01	183.28	24.37	13.71	26.74	0.62
2241	11121	10yr	Updated Existing	28.5	82.73	84.98	84.63	85.24	0.006907	2.26	81.01	183.28	24.37	13.71	26.74	0.62
2241	11121	10yr	ABL_Proposed	28.5	82.73	84.98	84.63	85.24	0.006907	2.26	81.01	183.28	24.37	13.71	26.74	0.62
2241	11121	25yr	Applewood Final Flow	35.6	82.73	85.08	84.87	85.41	0.008366	2.6	104.93	273.18	29.38	15.24	35.93	0.69
2241	11121	25yr	Updated Existing	35.6	82.73	85.08	84.87	85.41	0.008366	2.6	104.93	273.18	29.38	15.24	35.93	0.69
2241	11121	25yr	ABL_Proposed	35.6	82.73	85.08	84.87	85.41	0.008366	2.6	104.93	273.18	29.38	15.24	35.93	0.69
2241	11121	50yr	Applewood Final Flow	43	82.73	85.2	85.03	85.51	0.007682	2.63	104.29	274.28	34.26	21.25	46.7	0.67
2241	11121	50yr	Updated Existing	43	82.73	85.2	85.03	85.51	0.007682	2.63	104.29	274.28	34.26	21.25	46.7	0.67
2241	11121	50yr	ABL_Proposed	43	82.73	85.2	85.03	85.51	0.007682	2.63	104.29	274.28	34.26	21.25	46.7	0.67
2241	11121	100yr	Applewood Final Flow	51.1	82.73	85.29	85.22	85.64	0.008201	2.83	118.32	334.85	39.47	23.9	55.25	0.7
2241	11121	100yr	Updated Existing	51.1	82.73	85.29	85.22	85.64	0.008201	2.83	118.32	334.85	39.47	23.9	55.25	0.7
2241	11121	100yr	ABL_Proposed	51.1	82.73	85.29	85.22	85.64	0.008201	2.83	118.32	334.85	39.47	23.9	55.25	0.7
2241	11121	Regional	Applewood Final Flow	51.9	82.73	85.32	85.22	85.66	0.007969	2.81	116.48	327.78	41.84	24.49	60.48	0.69
2241	11121	Regional	Updated Existing	51.9	82.73	85.32	85.22	85.66	0.007969	2.81	116.48	327.78	41.84	24.49	60.48	0.69
2241	11121	Regional	ABL_Proposed	51.9	82.73	85.32	85.22	85.66	0.007969	2.81	116.48	327.78	41.84	24.49	60.48	0.69
2241	11121	Fish Passage	Applewood Final Flow	0.11	82.73	82.83	82.83	82.86	0.030557	0.82	19.78	16.14	0.71	0.13	2.01	1.01
2241	11121	Fish Passage	Updated Existing	0.11	82.73	82.83	82.83	82.86	0.030557	0.82	19.78	16.14	0.71	0.13	2.01	1.01
2241	11121	Fish Passage	ABL_Proposed	0.11	82.73	82.83	82.83	82.86	0.030557	0.82	19.78	16.14	0.71	0.13	2.01	1.01
2241	11085	2yr	Applewood Final Flow	13.3	82.31	84.27	83.45	84.38	0.002677	1.43	29.85	42.63	12.55	9.31	7.82	0.39
2241	11085	2yr	Updated Existing	13.3	82.31	84.27	83.45	84.38	0.002677	1.43	29.85	42.63	12.55	9.31	7.82	0.39
2241	11085	2yr	ABL_Proposed	13.3	82.31	84.27	83.45	84.38	0.002677	1.43	29.85	42.63	12.55	9.31	7.82	0.39

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11085	5yr	Applewood Final Flow	20.8	82.31	84.73	83.76	84.8	0.002341	1.31	27.06	35.46	17.93	17.72	43.88	0.35
2241	11085	5yr	Updated Existing	20.8	82.31	84.73	83.76	84.8	0.002341	1.31	27.06	35.46	17.93	17.72	43.88	0.35
2241	11085	5yr	ABL_Proposed	20.8	82.31	84.73	83.76	84.8	0.002341	1.31	27.06	35.46	17.93	17.72	43.88	0.35
2241	11085	10yr	Applewood Final Flow	28.5	82.31	84.96	84.05	85.03	0.001885	1.3	25.43	33.16	23.56	24.22	56.11	0.33
2241	11085	10yr	Updated Existing	28.5	82.31	84.96	84.05	85.03	0.001885	1.3	25.43	33.16	23.56	24.22	56.11	0.33
2241	11085	10yr	ABL_Proposed	28.5	82.31	84.96	84.05	85.03	0.001885	1.3	25.43	33.16	23.56	24.22	56.11	0.33
2241	11085	25yr	Applewood Final Flow	35.6	82.31	85.11	84.65	85.17	0.001559	1.26	22.94	28.82	28.39	34.53	65.27	0.3
2241	11085	25yr	Updated Existing	35.6	82.31	85.11	84.65	85.17	0.001559	1.26	22.94	28.82	28.39	34.53	65.27	0.3
2241	11085	25yr	ABL_Proposed	35.6	82.31	85.11	84.65	85.17	0.001559	1.26	22.94	28.82	28.39	34.53	65.27	0.3
2241	11085	50yr	Applewood Final Flow	43	82.31	85.22	84.75	85.28	0.001481	1.28	23.2	29.61	33.07	41.04	69.28	0.3
2241	11085	50yr	Updated Existing	43	82.31	85.22	84.75	85.28	0.001481	1.28	23.2	29.61	33.07	41.04	69.28	0.3
2241	11085	50yr	ABL_Proposed	43	82.31	85.22	84.75	85.28	0.001481	1.28	23.2	29.61	33.07	41.04	69.28	0.3
2241	11085	100yr	Applewood Final Flow	51.2	82.31	85.34	84.84	85.41	0.001388	1.29	23.12	29.77	38.06	48.46	74.87	0.29
2241	11085	100yr	Updated Existing	51.2	82.31	85.34	84.84	85.41	0.001388	1.29	23.12	29.77	38.06	48.46	74.87	0.29
2241	11085	100yr	ABL_Proposed	51.2	82.31	85.34	84.84	85.41	0.001388	1.29	23.12	29.77	38.06	48.46	74.87	0.29
2241	11085	Regional	Applewood Final Flow	52.6	82.31	85.36	84.85	85.43	0.001354	1.28	22.81	29.22	40.38	49.89	75.49	0.29
2241	11085	Regional	Updated Existing	52.6	82.31	85.36	84.85	85.43	0.001354	1.28	22.81	29.22	40.38	49.89	75.49	0.29
2241	11085	Regional	ABL_Proposed	52.6	82.31	85.36	84.85	85.43	0.001354	1.28	22.81	29.22	40.38	49.89	75.49	0.29
2241	11085	Fish Passage	Applewood Final Flow	0.11	82.31	82.47	82.38	82.48	0.000989	0.23	1.32	0.31	0.7	0.47	3.31	0.2
2241	11085	Fish Passage	Updated Existing	0.11	82.31	82.47	82.38	82.48	0.000989	0.23	1.32	0.31	0.7	0.47	3.31	0.2
2241	11085	Fish Passage	ABL_Proposed	0.11	82.31	82.47	82.38	82.48	0.000989	0.23	1.32	0.31	0.7	0.47	3.31	0.2
2241	11075	2-St. James Ave	Bridge													
2241	11064	2yr	Applewood Final Flow	13.3	82.21	83.77	83.35	83.91	0.00646	1.66	51.1	85.03	12.42	7.99	9.14	0.57
2241	11064	2yr	Updated Existing	13.3	82.21	83.77	83.35	83.91	0.00646	1.66	51.1	85.03	12.42	7.99	9.14	0.57
2241	11064	2yr	ABL_Proposed	13.3	82.21	83.77	83.35	83.91	0.00646	1.66	51.1	85.03	12.42	7.99	9.14	0.57
2241	11064	5yr	Applewood Final Flow	20.8	82.21	84.08	83.68	84.25	0.006967	1.85	62.58	116	17.69	11.22	11.39	0.6
2241	11064	5yr	Updated Existing	20.8	82.21	84.08	83.68	84.25	0.006967	1.85	62.58	116	17.69	11.22	11.39	0.6
2241	11064	5yr	ABL_Proposed	20.8	82.21	84.08	83.68	84.25	0.006967	1.85	62.58	116	17.69	11.22	11.39	0.6
2241	11064	10yr	Applewood Final Flow	28.5	82.21	84.34	83.92	84.54	0.006908	1.97	69.54	137.07	23.14	14.46	13.14	0.6
2241	11064	10yr	Updated Existing	28.5	82.21	84.34	83.92	84.54	0.006908	1.97	69.54	137.07	23.14	14.46	13.14	0.6
2241	11064	10yr	ABL_Proposed	28.5	82.21	84.34	83.92	84.54	0.006908	1.97	69.54	137.07	23.14	14.46	13.14	0.6
2241	11064	25yr	Applewood Final Flow	35.6	82.21	84.55	84.09	84.77	0.007029	2.05	76.57	157.24	27.75	17.34	14.6	0.6
2241	11064	25yr	Updated Existing	35.6	82.21	84.55	84.09	84.77	0.007029	2.05	76.57	157.24	27.75	17.34	14.6	0.6
2241	11064	25yr	ABL_Proposed	35.6	82.21	84.55	84.09	84.77	0.007029	2.05	76.57	157.24	27.75	17.34	14.6	0.6
2241	11064	50yr	Applewood Final Flow	43	82.21	84.74	84.25	84.97	0.006999	2.12	82.28	174.82	32.3	20.26	17.28	0.6
2241	11064	50yr	Updated Existing	43	82.21	84.74	84.25	84.97	0.006999	2.12	82.28	174.82	32.3	20.26	17.28	0.6
2241	11064	50yr	ABL_Proposed	43	82.21	84.74	84.25	84.97	0.006999	2.12	82.28	174.82	32.3	20.26	17.28	0.6
2241	11064	100yr	Applewood Final Flow	51.2	82.21	84.99	84.41	85.18	0.005396	2.01	71.54	143.99	37.12	27.72	88	0.54
2241	11064	100yr	Updated Existing	51.2	82.21	84.99	84.41	85.18	0.005396	2.01	71.54	143.99	37.12	27.72	88	0.54
2241	11064	100yr	ABL_Proposed	51.2	82.21	84.99	84.41	85.18	0.005396	2.01	71.54	143.99	37.12	27.72	88	0.54
2241	11064	Regional	Applewood Final Flow	52.6	82.21	85.04	84.44	85.22	0.004687	1.92	64.4	123.67	39.4	30.35	115.73	0.5
2241	11064	Regional	Updated Existing	52.6	82.21	85.04	84.44	85.22	0.004687	1.92	64.4	123.67	39.4	30.35	115.73	0.5
2241	11064	Regional	ABL_Proposed	52.6	82.21	85.04	84.44	85.22	0.004687	1.92	64.4	123.67	39.4	30.35	115.73	0.5
2241	11064	Fish Passage	Applewood Final Flow	0.11	82.21	82.39	82.28	82.39	0.001129	0.25	1.56	0.38	0.69	0.45	3.12	0.21
2241	11064	Fish Passage	Updated Existing	0.11	82.21	82.39	82.28	82.39	0.001129	0.25	1.56	0.38	0.69	0.45	3.12	0.21
2241	11064	Fish Passage	ABL_Proposed	0.11	82.21	82.39	82.28	82.39	0.001129	0.25	1.56	0.38	0.69	0.45	3.12	0.21
2241	11047	2yr	Applewood Final Flow	13.3	82.19	83.45	83.36	83.71	0.014891	2.27	98.42	223.15	12.3	5.87	8.16	0.85
2241	11047	2yr	Updated Existing	13.3	82.19	83.45	83.36	83.71	0.014891	2.27	98.42	223.15	12.3	5.87	8.16	0.85
2241	11047	2yr	ABL_Proposed	13.3	82.19	83.45	83.36	83.71	0.014891	2.27	98.42	223.15	12.3	5.87	8.16	0.85
2241	11047	5yr	Applewood Final Flow	20.8	82.19	83.72	83.62	84.05	0.014231	2.51	115.61	290.68	17.52	8.27	9.3	0.85

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	11047	5yr	Updated Existing	20.8	82.19	83.72	83.62	84.05	0.014231	2.51	115.61	290.68	17.52	8.27	9.3	0.85
2241	11047	5yr	ABL_Proposed	20.8	82.19	83.72	83.62	84.05	0.014231	2.51	115.61	290.68	17.52	8.27	9.3	0.85
2241	11047	10yr	Applewood Final Flow	28.5	82.19	83.95	83.84	84.32	0.014468	2.7	130.96	353.41	22.93	10.56	10.66	0.87
2241	11047	10yr	Updated Existing	28.5	82.19	83.95	83.84	84.32	0.014468	2.7	130.96	353.41	22.93	10.56	10.66	0.87
2241	11047	10yr	ABL_Proposed	28.5	82.19	83.95	83.84	84.32	0.014468	2.7	130.96	353.41	22.93	10.56	10.66	0.87
2241	11047	25yr	Applewood Final Flow	35.6	82.19	84.12	84.02	84.54	0.014289	2.87	144.09	413.89	27.5	12.52	13.39	0.87
2241	11047	25yr	Updated Existing	35.6	82.19	84.12	84.02	84.54	0.014289	2.87	144.09	413.89	27.5	12.52	13.39	0.87
2241	11047	25yr	ABL_Proposed	35.6	82.19	84.12	84.02	84.54	0.014289	2.87	144.09	413.89	27.5	12.52	13.39	0.87
2241	11047	50yr	Applewood Final Flow	43	82.19	84.27	84.18	84.73	0.014162	3.04	157.16	478.16	32	14.58	14.67	0.88
2241	11047	50yr	Updated Existing	43	82.19	84.27	84.18	84.73	0.014162	3.04	157.16	478.16	32	14.58	14.67	0.88
2241	11047	50yr	ABL_Proposed	43	82.19	84.27	84.18	84.73	0.014162	3.04	157.16	478.16	32	14.58	14.67	0.88
2241	11047	100yr	Applewood Final Flow	51.2	82.19	84.36	84.34	84.92	0.015908	3.34	186.77	624.57	36.72	16.01	20.64	0.94
2241	11047	100yr	Updated Existing	51.2	82.19	84.36	84.34	84.92	0.015908	3.34	186.77	624.57	36.72	16.01	20.64	0.94
2241	11047	100yr	ABL_Proposed	51.2	82.19	84.36	84.34	84.92	0.015908	3.34	186.77	624.57	36.72	16.01	20.64	0.94
2241	11047	Regional	Applewood Final Flow	52.6	82.19	84.37	84.37	84.96	0.016321	3.4	192.92	656.34	38.94	16.19	26	0.96
2241	11047	Regional	Updated Existing	52.6	82.19	84.37	84.37	84.96	0.016321	3.4	192.92	656.34	38.94	16.19	26	0.96
2241	11047	Regional	ABL_Proposed	52.6	82.19	84.37	84.37	84.96	0.016321	3.4	192.92	656.34	38.94	16.19	26	0.96
2241	11047	Fish Passage	Applewood Final Flow	0.11	82.19	82.29	82.29	82.33	0.030322	0.85	20.92	17.74	0.69	0.13	1.82	1.01
2241	11047	Fish Passage	Updated Existing	0.11	82.19	82.29	82.29	82.33	0.030322	0.85	20.92	17.74	0.69	0.13	1.82	1.01
2241	11047	Fish Passage	ABL_Proposed	0.11	82.19	82.29	82.29	82.33	0.030322	0.85	20.92	17.74	0.69	0.13	1.82	1.01
2241	11015	2yr	Applewood Final Flow	13.3	81.73	83.12	82.89	83.31	0.009789	1.91	71.34	136.12	12.1	6.97	8.83	0.69
2241	11015	2yr	Updated Existing	13.3	81.73	83.12	82.89	83.31	0.009789	1.91	71.34	136.12	12.1	6.97	8.83	0.69
2241	11015	2yr	ABL_Proposed	13.3	81.73	83.12	82.89	83.31	0.009789	1.91	71.34	136.12	12.1	6.97	8.83	0.69
2241	11015	5yr	Applewood Final Flow	20.8	81.73	83.36	83.17	83.62	0.011774	2.25	97.13	218.92	17.25	9.23	10.35	0.76
2241	11015	5yr	Updated Existing	20.8	81.73	83.36	83.17	83.62	0.011774	2.25	97.13	218.92	17.25	9.23	10.35	0.76
2241	11015	5yr	ABL_Proposed	20.8	81.73	83.36	83.17	83.62	0.011774	2.25	97.13	218.92	17.25	9.23	10.35	0.76
2241	11015	10yr	Applewood Final Flow	28.5	81.73	83.55	83.39	83.87	0.013327	2.53	119.84	302.75	22.58	11.28	11.62	0.82
2241	11015	10yr	Updated Existing	28.5	81.73	83.55	83.39	83.87	0.013327	2.53	119.84	302.75	22.58	11.28	11.62	0.82
2241	11015	10yr	ABL_Proposed	28.5	81.73	83.55	83.39	83.87	0.013327	2.53	119.84	302.75	22.58	11.28	11.62	0.82
2241	11015	25yr	Applewood Final Flow	35.6	81.73	83.7	83.57	84.07	0.014447	2.72	137.48	374.08	27.09	13.08	12.77	0.86
2241	11015	25yr	Updated Existing	35.6	81.73	83.7	83.57	84.07	0.014447	2.72	137.48	374.08	27.09	13.08	12.77	0.86
2241	11015	25yr	ABL_Proposed	35.6	81.73	83.7	83.57	84.07	0.014447	2.72	137.48	374.08	27.09	13.08	12.77	0.86
2241	11015	50yr	Applewood Final Flow	43	81.73	83.84	83.73	84.26	0.015259	2.87	152.03	436.9	31.53	14.98	21.31	0.89
2241	11015	50yr	Updated Existing	43	81.73	83.84	83.73	84.26	0.015259	2.87	152.03	436.9	31.53	14.98	21.31	0.89
2241	11015	50yr	ABL_Proposed	43	81.73	83.84	83.73	84.26	0.015259	2.87	152.03	436.9	31.53	14.98	21.31	0.89
2241	11015	100yr	Applewood Final Flow	51.2	81.73	83.97	83.97	84.42	0.01412	2.97	156.85	465.96	36.16	17.74	39.11	0.87
2241	11015	100yr	Updated Existing	51.2	81.73	83.97	83.97	84.42	0.01412	2.97	156.85	465.96	36.16	17.74	39.11	0.87
2241	11015	100yr	ABL_Proposed	51.2	81.73	83.97	83.97	84.42	0.01412	2.97	156.85	465.96	36.16	17.74	39.11	0.87
2241	11015	Regional	Applewood Final Flow	52.6	81.73	83.99	83.99	84.44	0.01392	2.98	157.38	469.71	38.37	18.2	42.84	0.86
2241	11015	Regional	Updated Existing	52.6	81.73	83.99	83.99	84.44	0.01392	2.98	157.38	469.71	38.37	18.2	42.84	0.86
2241	11015	Regional	ABL_Proposed	52.6	81.73	83.99	83.99	84.44	0.01392	2.98	157.38	469.71	38.37	18.2	42.84	0.86
2241	11015	Fish Passage	Applewood Final Flow	0.11	81.73	81.88	81.82	81.89	0.004542	0.41	4.73	1.96	0.68	0.27	2.45	0.4
2241	11015	Fish Passage	Updated Existing	0.11	81.73	81.88	81.82	81.89	0.004542	0.41	4.73	1.96	0.68	0.27	2.45	0.4
2241	11015	Fish Passage	ABL_Proposed	0.11	81.73	81.88	81.82	81.89	0.004542	0.41	4.73	1.96	0.68	0.27	2.45	0.4
2241	10962	2yr	Applewood Final Flow	13.3	81.25	82.28	82.28	82.53	0.023683	2.18	109.2	238.38	11.75	6.09	12.6	1
2241	10962	2yr	Updated Existing	13.3	81.25	82.28	82.28	82.53	0.023683	2.18	109.2	238.38	11.75	6.09	12.6	1
2241	10962	2yr	ABL_Proposed	13.3	81.25	82.28	82.28	82.53	0.023683	2.18	109.2	238.38	11.75	6.09	12.6	1
2241	10962	5yr	Applewood Final Flow	20.8	81.25	82.46	82.46	82.77	0.021879	2.46	129.24	318.52	16.78	8.44	13.59	1
2241	10962	5yr	Updated Existing	20.8	81.25	82.46	82.46	82.77	0.021879	2.46	129.24	318.52	16.78	8.44	13.59	1
2241	10962	5yr	ABL_Proposed	20.8	81.25	82.46	82.46	82.77	0.021879	2.46	129.24	318.52	16.78	8.44	13.59	1
2241	10962	10yr	Applewood Final Flow	28.5	81.25	82.62	82.62	82.99	0.020868	2.69	145.89	391.71	22	10.61	14.4	1

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10962	10yr	Updated Existing	28.5	81.25	82.62	82.62	82.99	0.020868	2.69	145.89	391.71	22	10.61	14.4	1
2241	10962	10yr	ABL_Proposed	28.5	81.25	82.62	82.62	82.99	0.020868	2.69	145.89	391.71	22	10.61	14.4	1
2241	10962	25yr	Applewood Final Flow	35.6	81.25	82.74	82.74	83.16	0.020126	2.86	158.98	453.93	26.41	12.47	14.94	1
2241	10962	25yr	Updated Existing	35.6	81.25	82.74	82.74	83.16	0.020126	2.86	158.98	453.93	26.41	12.47	14.94	1
2241	10962	25yr	ABL_Proposed	35.6	81.25	82.74	82.74	83.16	0.020126	2.86	158.98	453.93	26.41	12.47	14.94	1
2241	10962	50yr	Applewood Final Flow	43	81.25	82.86	82.86	83.33	0.019718	3.01	172.04	518.69	30.74	14.26	15.43	1
2241	10962	50yr	Updated Existing	43	81.25	82.86	82.86	83.33	0.019718	3.01	172.04	518.69	30.74	14.26	15.43	1
2241	10962	50yr	ABL_Proposed	43	81.25	82.86	82.86	83.33	0.019718	3.01	172.04	518.69	30.74	14.26	15.43	1
2241	10962	100yr	Applewood Final Flow	51.2	81.25	82.96	82.99	83.5	0.020796	3.25	195.16	633.56	35.22	15.77	15.84	1.04
2241	10962	100yr	Updated Existing	51.2	81.25	82.96	82.99	83.5	0.020796	3.25	195.16	633.56	35.22	15.77	15.84	1.04
2241	10962	100yr	ABL_Proposed	51.2	81.25	82.96	82.99	83.5	0.020796	3.25	195.16	633.56	35.22	15.77	15.84	1.04
2241	10962	Regional	Applewood Final Flow	52.6	81.25	82.98	83.01	83.52	0.020906	3.28	198.54	651.26	37.4	16.04	15.91	1.04
2241	10962	Regional	Updated Existing	52.6	81.25	82.98	83.01	83.52	0.020906	3.28	198.54	651.26	37.4	16.04	15.91	1.04
2241	10962	Regional	ABL_Proposed	52.6	81.25	82.98	83.01	83.52	0.020906	3.28	198.54	651.26	37.4	16.04	15.91	1.04
2241	10962	Fish Passage	Applewood Final Flow	0.11	81.25	81.33	81.33	81.35	0.036007	0.72	17.11	12.26	0.67	0.15	3.16	1.04
2241	10962	Fish Passage	Updated Existing	0.11	81.25	81.33	81.33	81.35	0.036007	0.72	17.11	12.26	0.67	0.15	3.16	1.04
2241	10962	Fish Passage	ABL_Proposed	0.11	81.25	81.33	81.33	81.35	0.036007	0.72	17.11	12.26	0.67	0.15	3.16	1.04
2241	10914	2yr	Applewood Final Flow	13.4	78.85	80.48	79.66	80.51	0.001073	0.79	11.56	9.17	11.2	16.89	14.25	0.23
2241	10914	2yr	Updated Existing	13.4	78.85	80.48	79.66	80.51	0.001073	0.79	11.56	9.17	11.2	16.89	14.25	0.23
2241	10914	2yr	ABL_Proposed	13.4	78.85	80.48	79.66	80.51	0.001073	0.79	11.56	9.17	11.2	16.89	14.25	0.23
2241	10914	5yr	Applewood Final Flow	20.9	78.85	80.84	79.84	80.88	0.001163	0.94	15.3	14.41	16.05	22.19	14.97	0.25
2241	10914	5yr	Updated Existing	20.9	78.85	80.84	79.84	80.88	0.001163	0.94	15.3	14.41	16.05	22.19	14.97	0.25
2241	10914	5yr	ABL_Proposed	20.9	78.85	80.84	79.84	80.88	0.001163	0.94	15.3	14.41	16.05	22.19	14.97	0.25
2241	10914	10yr	Applewood Final Flow	28.7	78.85	81.2	80	81.26	0.001148	1.03	17.54	18.1	21.09	27.81	16.04	0.25
2241	10914	10yr	Updated Existing	28.7	78.85	81.2	80	81.26	0.001148	1.03	17.54	18.1	21.09	27.81	16.04	0.25
2241	10914	10yr	ABL_Proposed	28.7	78.85	81.2	80	81.26	0.001148	1.03	17.54	18.1	21.09	27.81	16.04	0.25
2241	10914	25yr	Applewood Final Flow	35.8	78.85	81.54	80.13	81.6	0.001043	1.08	18.28	19.68	25.32	33.24	17.39	0.24
2241	10914	25yr	Updated Existing	35.8	78.85	81.54	80.13	81.6	0.001043	1.08	18.28	19.68	25.32	33.24	17.39	0.24
2241	10914	25yr	ABL_Proposed	35.8	78.85	81.54	80.13	81.6	0.001043	1.08	18.28	19.68	25.32	33.24	17.39	0.24
2241	10914	50yr	Applewood Final Flow	43.1	78.85	81.89	80.25	81.95	0.000915	1.1	18.35	20.24	29.47	39.07	18.42	0.23
2241	10914	50yr	Updated Existing	43.1	78.85	81.89	80.25	81.95	0.000915	1.1	18.35	20.24	29.47	39.07	18.42	0.23
2241	10914	50yr	ABL_Proposed	43.1	78.85	81.89	80.25	81.95	0.000915	1.1	18.35	20.24	29.47	39.07	18.42	0.23
2241	10914	100yr	Applewood Final Flow	51.3	78.85	82.31	80.38	82.37	0.000773	1.11	17.69	19.57	33.71	46.37	19.89	0.22
2241	10914	100yr	Updated Existing	51.3	78.85	82.31	80.38	82.37	0.000773	1.11	17.69	19.57	33.71	46.37	19.89	0.22
2241	10914	100yr	ABL_Proposed	51.3	78.85	82.31	80.38	82.37	0.000773	1.11	17.69	19.57	33.71	46.37	19.89	0.22
2241	10914	Regional	Applewood Final Flow	53.4	78.85	82.42	80.41	82.49	0.000738	1.1	17.43	19.23	35.83	48.39	20.31	0.21
2241	10914	Regional	Updated Existing	53.4	78.85	82.42	80.41	82.49	0.000738	1.1	17.43	19.23	35.83	48.39	20.31	0.21
2241	10914	Regional	ABL_Proposed	53.4	78.85	82.42	80.41	82.49	0.000738	1.1	17.43	19.23	35.83	48.39	20.31	0.21
2241	10914	Fish Passage	Applewood Final Flow	0.11	78.85	79.3	78.92	79.3	0.00006	0.06	0.11	0.01	0.62	1.94	10.65	0.04
2241	10914	Fish Passage	Updated Existing	0.11	78.85	79.3	78.92	79.3	0.00006	0.06	0.11	0.01	0.62	1.94	10.65	0.04
2241	10914	Fish Passage	ABL_Proposed	0.11	78.85	79.3	78.92	79.3	0.00006	0.06	0.11	0.01	0.62	1.94	10.65	0.04
2241	10898	1-Lakeshore Rd E	Culvert													
2241	10874	2yr	Applewood Final Flow	13.4	78.41	80.44	79.36	80.46	0.000468	0.59	5.53	3.27	10.69	22.7	17.84	0.17
2241	10874	2yr	Updated Existing	13.4	78.41	80.44	79.36	80.46	0.000468	0.59	5.53	3.27	10.69	22.7	17.84	0.17
2241	10874	2yr	ABL_Proposed	13.4	78.41	80.44	79.36	80.46	0.000468	0.59	5.53	3.27	10.69	22.7	17.84	0.17
2241	10874	5yr	Applewood Final Flow	20.9	78.41	80.72	79.55	80.75	0.000631	0.75	8.61	6.46	15.52	27.85	18.88	0.2
2241	10874	5yr	Updated Existing	20.9	78.41	80.72	79.55	80.75	0.000631	0.75	8.61	6.46	15.52	27.85	18.88	0.2
2241	10874	5yr	ABL_Proposed	20.9	78.41	80.72	79.55	80.75	0.000631	0.75	8.61	6.46	15.52	27.85	18.88	0.2
2241	10874	10yr	Applewood Final Flow	28.7	78.41	80.95	79.72	80.99	0.000779	0.89	11.75	10.44	20.55	32.3	19.72	0.22
2241	10874	10yr	Updated Existing	28.7	78.41	80.95	79.72	80.99	0.000779	0.89	11.75	10.44	20.55	32.3	19.72	0.22

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10874	10yr	ABL_Proposed	28.7	78.41	80.95	79.72	80.99	0.000779	0.89	11.75	10.44	20.55	32.3	19.72	0.22
2241	10874	25yr	Applewood Final Flow	35.8	78.41	81.12	79.84	81.17	0.000915	1	14.75	14.81	24.77	35.66	20.34	0.24
2241	10874	25yr	Updated Existing	35.8	78.41	81.12	79.84	81.17	0.000915	1	14.75	14.81	24.77	35.66	20.34	0.24
2241	10874	25yr	ABL_Proposed	35.8	78.41	81.12	79.84	81.17	0.000915	1	14.75	14.81	24.77	35.66	20.34	0.24
2241	10874	50yr	Applewood Final Flow	43.1	78.41	81.26	79.96	81.32	0.001071	1.12	18.15	20.34	28.9	38.46	20.84	0.26
2241	10874	50yr	Updated Existing	43.1	78.41	81.26	79.96	81.32	0.001071	1.12	18.15	20.34	28.9	38.46	20.84	0.26
2241	10874	50yr	ABL_Proposed	43.1	78.41	81.26	79.96	81.32	0.001071	1.12	18.15	20.34	28.9	38.46	20.84	0.26
2241	10874	100yr	Applewood Final Flow	51.3	78.41	81.39	80.07	81.47	0.001246	1.24	22.04	27.36	33.12	41.32	21.42	0.29
2241	10874	100yr	Updated Existing	51.3	78.41	81.39	80.07	81.47	0.001246	1.24	22.04	27.36	33.12	41.32	21.42	0.29
2241	10874	100yr	ABL_Proposed	51.3	78.41	81.39	80.07	81.47	0.001246	1.24	22.04	27.36	33.12	41.32	21.42	0.29
2241	10874	Regional	Applewood Final Flow	53.4	78.41	81.42	80.1	81.51	0.00129	1.27	23.05	29.31	35.24	42	21.56	0.29
2241	10874	Regional	Updated Existing	53.4	78.41	81.42	80.1	81.51	0.00129	1.27	23.05	29.31	35.24	42	21.56	0.29
2241	10874	Regional	ABL_Proposed	53.4	78.41	81.42	80.1	81.51	0.00129	1.27	23.05	29.31	35.24	42	21.56	0.29
2241	10874	Fish Passage	Applewood Final Flow	0.11	78.41	79.3	78.48	79.3	0.000002	0.02	0.01	0	0.41	5.29	11.57	0.01
2241	10874	Fish Passage	Updated Existing	0.11	78.41	79.3	78.48	79.3	0.000002	0.02	0.01	0	0.41	5.29	11.57	0.01
2241	10874	Fish Passage	ABL_Proposed	0.11	78.41	79.3	78.48	79.3	0.000002	0.02	0.01	0	0.41	5.29	11.57	0.01
2241	10868	2yr	Applewood Final Flow	13.4	78.48	80.43		80.45	0.000858	0.62	9.49	5.91	10.55	21.5	18.29	0.18
2241	10868	2yr	Updated Existing	13.4	78.48	80.43		80.45	0.000858	0.62	9.49	5.91	10.55	21.5	18.29	0.18
2241	10868	2yr	ABL_Proposed	13.4	78.48	80.43		80.45	0.000858	0.62	9.49	5.91	10.55	21.5	18.29	0.18
2241	10868	5yr	Applewood Final Flow	20.9	78.48	80.71		80.74	0.001142	0.78	14.72	11.49	15.35	26.76	19.46	0.21
2241	10868	5yr	Updated Existing	20.9	78.48	80.71		80.74	0.001142	0.78	14.72	11.49	15.35	26.76	19.46	0.21
2241	10868	5yr	ABL_Proposed	20.9	78.48	80.71		80.74	0.001142	0.78	14.72	11.49	15.35	26.76	19.46	0.21
2241	10868	10yr	Applewood Final Flow	28.7	78.48	80.94		80.98	0.001401	0.92	20.09	18.4	20.34	31.32	20.42	0.24
2241	10868	10yr	Updated Existing	28.7	78.48	80.94		80.98	0.001401	0.92	20.09	18.4	20.34	31.32	20.42	0.24
2241	10868	10yr	ABL_Proposed	28.7	78.48	80.94		80.98	0.001401	0.92	20.09	18.4	20.34	31.32	20.42	0.24
2241	10868	25yr	Applewood Final Flow	35.8	78.48	81.11		81.16	0.001642	1.03	25.23	25.97	24.54	34.78	21.11	0.26
2241	10868	25yr	Updated Existing	35.8	78.48	81.11		81.16	0.001642	1.03	25.23	25.97	24.54	34.78	21.11	0.26
2241	10868	25yr	ABL_Proposed	35.8	78.48	81.11		81.16	0.001642	1.03	25.23	25.97	24.54	34.78	21.11	0.26
2241	10868	50yr	Applewood Final Flow	43.1	78.48	81.24		81.31	0.00192	1.14	31.07	35.56	28.65	37.66	21.68	0.28
2241	10868	50yr	Updated Existing	43.1	78.48	81.24		81.31	0.00192	1.14	31.07	35.56	28.65	37.66	21.68	0.28
2241	10868	50yr	ABL_Proposed	43.1	78.48	81.24		81.31	0.00192	1.14	31.07	35.56	28.65	37.66	21.68	0.28
2241	10868	100yr	Applewood Final Flow	51.3	78.48	81.38		81.46	0.002228	1.26	37.73	47.67	32.86	40.61	22.31	0.3
2241	10868	100yr	Updated Existing	51.3	78.48	81.38		81.46	0.002228	1.26	37.73	47.67	32.86	40.61	22.31	0.3
2241	10868	100yr	ABL_Proposed	51.3	78.48	81.38		81.46	0.002228	1.26	37.73	47.67	32.86	40.61	22.31	0.3
2241	10868	Regional	Applewood Final Flow	53.4	78.48	81.41		81.49	0.002307	1.29	39.47	51.01	34.97	41.31	22.46	0.3
2241	10868	Regional	Updated Existing	53.4	78.48	81.41		81.49	0.002307	1.29	39.47	51.01	34.97	41.31	22.46	0.3
2241	10868	Regional	ABL_Proposed	53.4	78.48	81.41		81.49	0.002307	1.29	39.47	51.01	34.97	41.31	22.46	0.3
2241	10868	Fish Passage	Applewood Final Flow	0.11	78.48	79.3		79.3	0.000005	0.03	0.02	0	0.38	4.27	11.4	0.01
2241	10868	Fish Passage	Updated Existing	0.11	78.48	79.3		79.3	0.000005	0.03	0.02	0	0.38	4.27	11.4	0.01
2241	10868	Fish Passage	ABL_Proposed	0.11	78.48	79.3		79.3	0.000005	0.03	0.02	0	0.38	4.27	11.4	0.01
2241	10822	2yr	Applewood Final Flow	13.4	79.18	80.2	80.06	80.35	0.007882	1.85	58.58	108.16	9.86	8.22	13.35	0.66
2241	10822	2yr	Updated Existing	13.4	79.18	80.2	80.06	80.35	0.007882	1.85	58.58	108.16	9.86	8.22	13.35	0.66
2241	10822	2yr	ABL_Proposed	13.4	79.18	80.2	80.06	80.35	0.007882	1.85	58.58	108.16	9.86	8.22	13.35	0.66
2241	10822	5yr	Applewood Final Flow	20.9	79.18	80.43	80.25	80.62	0.007503	2.07	69.23	143.21	14.46	11.5	14.78	0.66
2241	10822	5yr	Updated Existing	20.9	79.18	80.43	80.25	80.62	0.007503	2.07	69.23	143.21	14.46	11.5	14.78	0.66
2241	10822	5yr	ABL_Proposed	20.9	79.18	80.43	80.25	80.62	0.007503	2.07	69.23	143.21	14.46	11.5	14.78	0.66
2241	10822	10yr	Applewood Final Flow	28.7	79.18	80.62	80.43	80.84	0.007316	2.24	77.94	174.47	19.28	14.58	19.48	0.66
2241	10822	10yr	Updated Existing	28.7	79.18	80.62	80.43	80.84	0.007316	2.24	77.94	174.47	19.28	14.58	19.48	0.66
2241	10822	10yr	ABL_Proposed	28.7	79.18	80.62	80.43	80.84	0.007316	2.24	77.94	174.47	19.28	14.58	19.48	0.66
2241	10822	25yr	Applewood Final Flow	35.8	79.18	80.78	80.55	81.01	0.00714	2.36	84.02	197.98	23.31	18.15	25.5	0.66
2241	10822	25yr	Updated Existing	35.8	79.18	80.78	80.55	81.01	0.00714	2.36	84.02	197.98	23.31	18.15	25.5	0.66

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10822	25yr	ABL_Proposed	35.8	79.18	80.78	80.55	81.01	0.00714	2.36	84.02	197.98	23.31	18.15	25.5	0.66
2241	10822	50yr	Applewood Final Flow	43.1	79.18	80.85	80.71	81.13	0.008084	2.61	100.94	263.29	27.3	20.45	31.82	0.71
2241	10822	50yr	Updated Existing	43.1	79.18	80.85	80.71	81.13	0.008084	2.61	100.94	263.29	27.3	20.45	31.82	0.71
2241	10822	50yr	ABL_Proposed	43.1	79.18	80.85	80.71	81.13	0.008084	2.61	100.94	263.29	27.3	20.45	31.82	0.71
2241	10822	100yr	Applewood Final Flow	51.3	79.18	80.94	80.85	81.25	0.008744	2.83	116.15	328.33	31.37	23.37	35.31	0.75
2241	10822	100yr	Updated Existing	51.3	79.18	80.94	80.85	81.25	0.008744	2.83	116.15	328.33	31.37	23.37	35.31	0.75
2241	10822	100yr	ABL_Proposed	51.3	79.18	80.94	80.85	81.25	0.008744	2.83	116.15	328.33	31.37	23.37	35.31	0.75
2241	10822	Regional	Applewood Final Flow	53.4	79.18	80.96	80.88	81.28	0.008851	2.87	119.36	342.93	33.45	24.16	36.06	0.76
2241	10822	Regional	Updated Existing	53.4	79.18	80.96	80.88	81.28	0.008851	2.87	119.36	342.93	33.45	24.16	36.06	0.76
2241	10822	Regional	ABL_Proposed	53.4	79.18	80.96	80.88	81.28	0.008851	2.87	119.36	342.93	33.45	24.16	36.06	0.76
2241	10822	Fish Passage	Applewood Final Flow	0.11	79.18	79.28	79.27	79.29	0.012668	0.46	7.28	3.38	0.28	0.24	4.01	0.61
2241	10822	Fish Passage	Updated Existing	0.11	79.18	79.28	79.27	79.29	0.012668	0.46	7.28	3.38	0.28	0.24	4.01	0.61
2241	10822	Fish Passage	ABL_Proposed	0.11	79.18	79.28	79.27	79.29	0.012668	0.46	7.28	3.38	0.28	0.24	4.01	0.61
2241	10769	2yr	Applewood Final Flow	13.4	78.8	79.91		80.03	0.004449	1.55	37.89	58.59	9.38	9.47	13.01	0.52
2241	10769	2yr	Updated Existing	13.4	78.8	79.91		80.03	0.004449	1.55	37.89	58.59	9.38	9.47	13.01	0.52
2241	10769	2yr	ABL_Proposed	13.4	78.8	79.91		80.03	0.004449	1.55	37.89	58.59	9.38	9.47	13.01	0.52
2241	10769	5yr	Applewood Final Flow	20.9	78.8	80.11		80.27	0.005436	1.9	54.5	103.38	13.8	12.68	21.48	0.58
2241	10769	5yr	Updated Existing	20.9	78.8	80.11		80.27	0.005436	1.9	54.5	103.38	13.8	12.68	21.48	0.58
2241	10769	5yr	ABL_Proposed	20.9	78.8	80.11		80.27	0.005436	1.9	54.5	103.38	13.8	12.68	21.48	0.58
2241	10769	10yr	Applewood Final Flow	28.7	78.8	80.19	80.05	80.43	0.007666	2.34	81.81	191.8	18.47	14.83	28.99	0.7
2241	10769	10yr	Updated Existing	28.7	78.8	80.19	80.05	80.43	0.007666	2.34	81.81	191.8	18.47	14.83	28.99	0.7
2241	10769	10yr	ABL_Proposed	28.7	78.8	80.19	80.05	80.43	0.007666	2.34	81.81	191.8	18.47	14.83	28.99	0.7
2241	10769	25yr	Applewood Final Flow	35.8	78.8	80.27	80.23	80.57	0.008837	2.61	100.09	261.63	22.32	17.47	35.72	0.76
2241	10769	25yr	Updated Existing	35.8	78.8	80.27	80.23	80.57	0.008837	2.61	100.09	261.63	22.32	17.47	35.72	0.76
2241	10769	25yr	ABL_Proposed	35.8	78.8	80.27	80.23	80.57	0.008837	2.61	100.09	261.63	22.32	17.47	35.72	0.76
2241	10769	50yr	Applewood Final Flow	43.1	78.8	80.39	80.39	80.68	0.008375	2.67	102.16	272.58	26.11	22.16	42.52	0.74
2241	10769	50yr	Updated Existing	43.1	78.8	80.39	80.39	80.68	0.008375	2.67	102.16	272.58	26.11	22.16	42.52	0.74
2241	10769	50yr	ABL_Proposed	43.1	78.8	80.39	80.39	80.68	0.008375	2.67	102.16	272.58	26.11	22.16	42.52	0.74
2241	10769	100yr	Applewood Final Flow	51.3	78.8	80.48	80.48	80.78	0.008388	2.79	109.24	304.68	29.98	26	43.43	0.75
2241	10769	100yr	Updated Existing	51.3	78.8	80.48	80.48	80.78	0.008388	2.79	109.24	304.68	29.98	26	43.43	0.75
2241	10769	100yr	ABL_Proposed	51.3	78.8	80.48	80.48	80.78	0.008388	2.79	109.24	304.68	29.98	26	43.43	0.75
2241	10769	Regional	Applewood Final Flow	53.4	78.8	80.5	80.5	80.8	0.008439	2.82	111.43	314.62	32.01	26.85	43.63	0.75
2241	10769	Regional	Updated Existing	53.4	78.8	80.5	80.5	80.8	0.008439	2.82	111.43	314.62	32.01	26.85	43.63	0.75
2241	10769	Regional	ABL_Proposed	53.4	78.8	80.5	80.5	80.8	0.008439	2.82	111.43	314.62	32.01	26.85	43.63	0.75
2241	10769	Fish Passage	Applewood Final Flow	0.11	78.8	78.92		78.92	0.004487	0.32	3.05	0.96	0.26	0.35	5.02	0.38
2241	10769	Fish Passage	Updated Existing	0.11	78.8	78.92		78.92	0.004487	0.32	3.05	0.96	0.26	0.35	5.02	0.38
2241	10769	Fish Passage	ABL_Proposed	0.11	78.8	78.92		78.92	0.004487	0.32	3.05	0.96	0.26	0.35	5.02	0.38
2241	10741	2yr	Applewood Final Flow	13.4	78.53	79.81	79.41	79.91	0.003798	1.38	31.41	43.3	9.09	10.04	25.33	0.47
2241	10741	2yr	Updated Existing	13.4	78.53	79.81	79.41	79.91	0.003798	1.38	31.41	43.3	9.09	10.04	25.33	0.47
2241	10741	2yr	ABL_Proposed	13.4	78.53	79.81	79.41	79.91	0.003798	1.38	31.41	43.3	9.09	10.04	25.33	0.47
2241	10741	5yr	Applewood Final Flow	20.9	78.53	79.92	79.63	80.1	0.006328	1.9	57.98	110.3	13.41	11.69	40.03	0.61
2241	10741	5yr	Updated Existing	20.9	78.53	79.92	79.63	80.1	0.006328	1.9	57.98	110.3	13.41	11.69	40.03	0.61
2241	10741	5yr	ABL_Proposed	20.9	78.53	79.92	79.63	80.1	0.006328	1.9	57.98	110.3	13.41	11.69	40.03	0.61
2241	10741	10yr	Applewood Final Flow	28.7	78.53	80.05	79.83	80.22	0.005815	1.95	59.27	115.73	17.96	19.64	41.54	0.6
2241	10741	10yr	Updated Existing	28.7	78.53	80.05	79.83	80.22	0.005815	1.95	59.27	115.73	17.96	19.64	41.54	0.6
2241	10741	10yr	ABL_Proposed	28.7	78.53	80.05	79.83	80.22	0.005815	1.95	59.27	115.73	17.96	19.64	41.54	0.6
2241	10741	25yr	Applewood Final Flow	35.8	78.53	80.16	80.07	80.33	0.005661	2.03	62.73	127.62	21.71	24.15	42.61	0.59
2241	10741	25yr	Updated Existing	35.8	78.53	80.16	80.07	80.33	0.005661	2.03	62.73	127.62	21.71	24.15	42.61	0.59
2241	10741	25yr	ABL_Proposed	35.8	78.53	80.16	80.07	80.33	0.005661	2.03	62.73	127.62	21.71	24.15	42.61	0.59
2241	10741	50yr	Applewood Final Flow	43.1	78.53	80.26	80.14	80.43	0.00549	2.11	65.81	138.93	25.36	28.37	43.88	0.59
2241	10741	50yr	Updated Existing	43.1	78.53	80.26	80.14	80.43	0.00549	2.11	65.81	138.93	25.36	28.37	43.88	0.59

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10741	50yr	ABL_Proposed	43.1	78.53	80.26	80.14	80.43	0.00549	2.11	65.81	138.93	25.36	28.37	43.88	0.59
2241	10741	100yr	Applewood Final Flow	51.3	78.53	80.36	80.21	80.54	0.005309	2.18	68.65	149.91	29.1	32.96	46.24	0.59
2241	10741	100yr	Updated Existing	51.3	78.53	80.36	80.21	80.54	0.005309	2.18	68.65	149.91	29.1	32.96	46.24	0.59
2241	10741	100yr	ABL_Proposed	51.3	78.53	80.36	80.21	80.54	0.005309	2.18	68.65	149.91	29.1	32.96	46.24	0.59
2241	10741	Regional	Applewood Final Flow	53.4	78.53	80.38	80.23	80.56	0.00527	2.2	69.34	152.61	31.1	34.09	46.7	0.59
2241	10741	Regional	Updated Existing	53.4	78.53	80.38	80.23	80.56	0.00527	2.2	69.34	152.61	31.1	34.09	46.7	0.59
2241	10741	Regional	ABL_Proposed	53.4	78.53	80.38	80.23	80.56	0.00527	2.2	69.34	152.61	31.1	34.09	46.7	0.59
2241	10741	Fish Passage	Applewood Final Flow	0.11	78.53	78.62	78.62	78.64	0.032395	0.68	15.41	10.54	0.26	0.16	3.31	0.99
2241	10741	Fish Passage	Updated Existing	0.11	78.53	78.62	78.62	78.64	0.032395	0.68	15.41	10.54	0.26	0.16	3.31	0.99
2241	10741	Fish Passage	ABL_Proposed	0.11	78.53	78.62	78.62	78.64	0.032395	0.68	15.41	10.54	0.26	0.16	3.31	0.99
2241	10704	2yr	Applewood Final Flow	13.4	78.18	79.56	79.27	79.71	0.007089	1.75	56.11	98.16	8.69	7.84	23.09	0.61
2241	10704	2yr	Updated Existing	13.4	78.18	79.56	79.27	79.71	0.007089	1.75	56.11	98.16	8.69	7.84	23.09	0.61
2241	10704	2yr	ABL_Proposed	13.4	78.18	79.56	79.27	79.71	0.007089	1.75	56.11	98.16	8.69	7.84	23.09	0.61
2241	10704	5yr	Applewood Final Flow	20.9	78.18	79.8	79.54	79.89	0.003782	1.51	38.61	58.47	12.8	18.28	38.63	0.46
2241	10704	5yr	Updated Existing	20.9	78.18	79.8	79.54	79.89	0.003782	1.51	38.61	58.47	12.8	18.28	38.63	0.46
2241	10704	5yr	ABL_Proposed	20.9	78.18	79.8	79.54	79.89	0.003782	1.51	38.61	58.47	12.8	18.28	38.63	0.46
2241	10704	10yr	Applewood Final Flow	28.7	78.18	79.91	79.71	80.02	0.004225	1.7	47.32	80.57	17.17	23.15	41.12	0.5
2241	10704	10yr	Updated Existing	28.7	78.18	79.91	79.71	80.02	0.004225	1.7	47.32	80.57	17.17	23.15	41.12	0.5
2241	10704	10yr	ABL_Proposed	28.7	78.18	79.91	79.71	80.02	0.004225	1.7	47.32	80.57	17.17	23.15	41.12	0.5
2241	10704	25yr	Applewood Final Flow	35.8	78.18	80.02	79.82	80.14	0.003978	1.76	48.85	85.79	20.74	28	42.58	0.49
2241	10704	25yr	Updated Existing	35.8	78.18	80.02	79.82	80.14	0.003978	1.76	48.85	85.79	20.74	28	42.58	0.49
2241	10704	25yr	ABL_Proposed	35.8	78.18	80.02	79.82	80.14	0.003978	1.76	48.85	85.79	20.74	28	42.58	0.49
2241	10704	50yr	Applewood Final Flow	43.1	78.18	80.13	79.9	80.24	0.003832	1.81	50.78	92.08	24.23	32.5	44.06	0.49
2241	10704	50yr	Updated Existing	43.1	78.18	80.13	79.9	80.24	0.003832	1.81	50.78	92.08	24.23	32.5	44.06	0.49
2241	10704	50yr	ABL_Proposed	43.1	78.18	80.13	79.9	80.24	0.003832	1.81	50.78	92.08	24.23	32.5	44.06	0.49
2241	10704	100yr	Applewood Final Flow	51.3	78.18	80.24	79.97	80.36	0.003686	1.87	52.53	98.08	27.8	37.33	45.86	0.48
2241	10704	100yr	Updated Existing	51.3	78.18	80.24	79.97	80.36	0.003686	1.87	52.53	98.08	27.8	37.33	45.86	0.48
2241	10704	100yr	ABL_Proposed	51.3	78.18	80.24	79.97	80.36	0.003686	1.87	52.53	98.08	27.8	37.33	45.86	0.48
2241	10704	Regional	Applewood Final Flow	53.4	78.18	80.26	79.99	80.38	0.003664	1.88	53.08	99.9	29.75	38.5	46.28	0.48
2241	10704	Regional	Updated Existing	53.4	78.18	80.26	79.99	80.38	0.003664	1.88	53.08	99.9	29.75	38.5	46.28	0.48
2241	10704	Regional	ABL_Proposed	53.4	78.18	80.26	79.99	80.38	0.003664	1.88	53.08	99.9	29.75	38.5	46.28	0.48
2241	10704	Fish Passage	Applewood Final Flow	0.11	78.18	78.35	78.26	78.36	0.001511	0.27	1.83	0.5	0.25	0.4	3.23	0.25
2241	10704	Fish Passage	Updated Existing	0.11	78.18	78.35	78.26	78.36	0.001511	0.27	1.83	0.5	0.25	0.4	3.23	0.25
2241	10704	Fish Passage	ABL_Proposed	0.11	78.18	78.35	78.26	78.36	0.001511	0.27	1.83	0.5	0.25	0.4	3.23	0.25
2241	10668	2yr	Applewood Final Flow	13.4	78.13	79.07	79.02	79.32	0.01712	2.26	114.21	258.25	8.4	6.31	13.55	0.86
2241	10668	2yr	Updated Existing	13.4	78.13	79.07	79.02	79.32	0.01712	2.26	114.21	258.25	8.4	6.31	13.55	0.86
2241	10668	2yr	ABL_Proposed	13.4	78.13	79.07	79.02	79.32	0.01712	2.26	114.21	258.25	8.4	6.31	13.55	0.86
2241	10668	5yr	Applewood Final Flow	20.9	78.13	79.25	79.25	79.61	0.019263	2.71	154.66	419.64	12.32	8.48	22.71	0.94
2241	10668	5yr	Updated Existing	20.9	78.13	79.25	79.25	79.61	0.019263	2.71	154.66	419.64	12.32	8.48	22.71	0.94
2241	10668	5yr	ABL_Proposed	20.9	78.13	79.25	79.25	79.61	0.019263	2.71	154.66	419.64	12.32	8.48	22.71	0.94
2241	10668	10yr	Applewood Final Flow	28.7	78.13	79.48	79.48	79.76	0.013464	2.56	129.66	331.93	16.53	15.91	32.01	0.81
2241	10668	10yr	Updated Existing	28.7	78.13	79.48	79.48	79.76	0.013464	2.56	129.66	331.93	16.53	15.91	32.01	0.81
2241	10668	10yr	ABL_Proposed	28.7	78.13	79.48	79.48	79.76	0.013464	2.56	129.66	331.93	16.53	15.91	32.01	0.81
2241	10668	25yr	Applewood Final Flow	35.8	78.13	79.59	79.59	79.89	0.01323	2.71	140.98	382.74	19.97	19.56	34.58	0.81
2241	10668	25yr	Updated Existing	35.8	78.13	79.59	79.59	79.89	0.01323	2.71	140.98	382.74	19.97	19.56	34.58	0.81
2241	10668	25yr	ABL_Proposed	35.8	78.13	79.59	79.59	79.89	0.01323	2.71	140.98	382.74	19.97	19.56	34.58	0.81
2241	10668	50yr	Applewood Final Flow	43.1	78.13	79.69	79.69	80.01	0.013061	2.85	151.19	430.94	23.33	23.06	36.64	0.82
2241	10668	50yr	Updated Existing	43.1	78.13	79.69	79.69	80.01	0.013061	2.85	151.19	430.94	23.33	23.06	36.64	0.82
2241	10668	50yr	ABL_Proposed	43.1	78.13	79.69	79.69	80.01	0.013061	2.85	151.19	430.94	23.33	23.06	36.64	0.82
2241	10668	100yr	Applewood Final Flow	51.3	78.13	79.77	79.77	80.12	0.013402	3.02	166.16	502.21	26.78	26.36	38.31	0.84
2241	10668	100yr	Updated Existing	51.3	78.13	79.77	79.77	80.12	0.013402	3.02	166.16	502.21	26.78	26.36	38.31	0.84

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10668	100yr	ABL_Proposed	51.3	78.13	79.77	79.77	80.12	0.013402	3.02	166.16	502.21	26.78	26.36	38.31	0.84
2241	10668	Regional	Applewood Final Flow	53.4	78.13	79.8	79.8	80.15	0.013354	3.05	168.56	514.67	28.69	27.28	38.79	0.84
2241	10668	Regional	Updated Existing	53.4	78.13	79.8	79.8	80.15	0.013354	3.05	168.56	514.67	28.69	27.28	38.79	0.84
2241	10668	Regional	ABL_Proposed	53.4	78.13	79.8	79.8	80.15	0.013354	3.05	168.56	514.67	28.69	27.28	38.79	0.84
2241	10668	Fish Passage	Applewood Final Flow	0.11	78.13	78.24	78.21	78.25	0.008387	0.39	5.43	2.14	0.24	0.28	4.21	0.49
2241	10668	Fish Passage	Updated Existing	0.11	78.13	78.24	78.21	78.25	0.008387	0.39	5.43	2.14	0.24	0.28	4.21	0.49
2241	10668	Fish Passage	ABL_Proposed	0.11	78.13	78.24	78.21	78.25	0.008387	0.39	5.43	2.14	0.24	0.28	4.21	0.49
2241	10633	2yr	Applewood Final Flow	13.4	77.65	78.63	78.63	78.81	0.011744	2.22	82.61	183	8.1	10.11	25.7	0.81
2241	10633	2yr	Updated Existing	13.4	77.65	78.63	78.63	78.81	0.011744	2.22	82.61	183	8.1	10.11	25.7	0.81
2241	10633	2yr	ABL_Proposed	13.4	77.65	78.63	78.63	78.81	0.011744	2.22	82.61	183	8.1	10.11	25.7	0.81
2241	10633	5yr	Applewood Final Flow	20.9	77.65	78.76	78.77	79	0.014575	2.64	114.71	302.96	11.91	13.53	27.76	0.91
2241	10633	5yr	Updated Existing	20.9	77.65	78.76	78.77	79	0.014575	2.64	114.71	302.96	11.91	13.53	27.76	0.91
2241	10633	5yr	ABL_Proposed	20.9	77.65	78.76	78.77	79	0.014575	2.64	114.71	302.96	11.91	13.53	27.76	0.91
2241	10633	10yr	Applewood Final Flow	28.7	77.65	78.81	78.89	79.17	0.020995	3.26	172.86	563.08	15.98	15.13	28.83	1.1
2241	10633	10yr	Updated Existing	28.7	77.65	78.81	78.89	79.17	0.020995	3.26	172.86	563.08	15.98	15.13	28.83	1.1
2241	10633	10yr	ABL_Proposed	28.7	77.65	78.81	78.89	79.17	0.020995	3.26	172.86	563.08	15.98	15.13	28.83	1.1
2241	10633	25yr	Applewood Final Flow	35.8	77.65	78.9	79.03	79.3	0.022014	3.47	193.59	671.86	19.31	17.76	30.19	1.13
2241	10633	25yr	Updated Existing	35.8	77.65	78.9	79.03	79.3	0.022014	3.47	193.59	671.86	19.31	17.76	30.19	1.13
2241	10633	25yr	ABL_Proposed	35.8	77.65	78.9	79.03	79.3	0.022014	3.47	193.59	671.86	19.31	17.76	30.19	1.13
2241	10633	50yr	Applewood Final Flow	43.1	77.65	79.11	79.05	79.39	0.015155	3.02	146.33	442	22.49	24.45	36.77	0.94
2241	10633	50yr	Updated Existing	43.1	77.65	79.11	79.05	79.39	0.015155	3.02	146.33	442	22.49	24.45	36.77	0.94
2241	10633	50yr	ABL_Proposed	43.1	77.65	79.11	79.05	79.39	0.015155	3.02	146.33	442	22.49	24.45	36.77	0.94
2241	10633	100yr	Applewood Final Flow	51.3	77.65	79.23	79.16	79.51	0.013625	3.08	146.78	452.22	25.79	29.06	39.74	0.91
2241	10633	100yr	Updated Existing	51.3	77.65	79.23	79.16	79.51	0.013625	3.08	146.78	452.22	25.79	29.06	39.74	0.91
2241	10633	100yr	ABL_Proposed	51.3	77.65	79.23	79.16	79.51	0.013625	3.08	146.78	452.22	25.79	29.06	39.74	0.91
2241	10633	Regional	Applewood Final Flow	53.4	77.65	79.26	79.17	79.54	0.013262	3.09	146.5	452.84	27.67	30.25	40.21	0.9
2241	10633	Regional	Updated Existing	53.4	77.65	79.26	79.17	79.54	0.013262	3.09	146.5	452.84	27.67	30.25	40.21	0.9
2241	10633	Regional	ABL_Proposed	53.4	77.65	79.26	79.17	79.54	0.013262	3.09	146.5	452.84	27.67	30.25	40.21	0.9
2241	10633	Fish Passage	Applewood Final Flow	0.11	77.65	77.71	77.71	77.74	0.031723	0.75	17.59	13.13	0.23	0.15	2.59	1
2241	10633	Fish Passage	Updated Existing	0.11	77.65	77.71	77.71	77.74	0.031723	0.75	17.59	13.13	0.23	0.15	2.59	1
2241	10633	Fish Passage	ABL_Proposed	0.11	77.65	77.71	77.71	77.74	0.031723	0.75	17.59	13.13	0.23	0.15	2.59	1
2241	10591	2yr	Applewood Final Flow	13.4	77	78.28	77.8	78.36	0.003037	1.27	27.85	35.49	7.67	12.01	23.53	0.41
2241	10591	2yr	Updated Existing	13.4	77	78.28	77.8	78.36	0.003037	1.27	27.85	35.49	7.67	12.01	23.53	0.41
2241	10591	2yr	ABL_Proposed	13.4	77	78.28	77.8	78.36	0.003037	1.27	27.85	35.49	7.67	12.01	23.53	0.41
2241	10591	5yr	Applewood Final Flow	20.9	77	78.46	78.03	78.58	0.003789	1.59	41.11	65.45	11.33	16.59	26.32	0.47
2241	10591	5yr	Updated Existing	20.9	77	78.46	78.03	78.58	0.003789	1.59	41.11	65.45	11.33	16.59	26.32	0.47
2241	10591	5yr	ABL_Proposed	20.9	77	78.46	78.03	78.58	0.003789	1.59	41.11	65.45	11.33	16.59	26.32	0.47
2241	10591	10yr	Applewood Final Flow	28.7	77	78.61	78.28	78.77	0.004334	1.85	53.12	98.11	15.3	20.71	28.09	0.51
2241	10591	10yr	Updated Existing	28.7	77	78.61	78.28	78.77	0.004334	1.85	53.12	98.11	15.3	20.71	28.09	0.51
2241	10591	10yr	ABL_Proposed	28.7	77	78.61	78.28	78.77	0.004334	1.85	53.12	98.11	15.3	20.71	28.09	0.51
2241	10591	25yr	Applewood Final Flow	35.8	77	78.73	78.44	78.91	0.004766	2.05	63.54	130.19	18.52	24.09	29.97	0.55
2241	10591	25yr	Updated Existing	35.8	77	78.73	78.44	78.91	0.004766	2.05	63.54	130.19	18.52	24.09	29.97	0.55
2241	10591	25yr	ABL_Proposed	35.8	77	78.73	78.44	78.91	0.004766	2.05	63.54	130.19	18.52	24.09	29.97	0.55
2241	10591	50yr	Applewood Final Flow	43.1	77	78.84		79.05	0.005008	2.21	71.97	158.9	21.52	27.48	30.62	0.57
2241	10591	50yr	Updated Existing	43.1	77	78.84		79.05	0.005008	2.21	71.97	158.9	21.52	27.48	30.62	0.57
2241	10591	50yr	ABL_Proposed	43.1	77	78.84		79.05	0.005008	2.21	71.97	158.9	21.52	27.48	30.62	0.57
2241	10591	100yr	Applewood Final Flow	51.3	77	78.94		79.18	0.005491	2.41	83.78	201.57	24.69	30.42	31.12	0.6
2241	10591	100yr	Updated Existing	51.3	77	78.94		79.18	0.005491	2.41	83.78	201.57	24.69	30.42	31.12	0.6
2241	10591	100yr	ABL_Proposed	51.3	77	78.94		79.18	0.005491	2.41	83.78	201.57	24.69	30.42	31.12	0.6
2241	10591	Regional	Applewood Final Flow	53.4	77	78.96		79.21	0.005583	2.45	86.46	211.85	26.53	31.19	31.25	0.61
2241	10591	Regional	Updated Existing	53.4	77	78.96		79.21	0.005583	2.45	86.46	211.85	26.53	31.19	31.25	0.61

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10591	Regional	ABL_Proposed	53.4	77	78.96		79.21	0.005583	2.45	86.46	211.85	26.53	31.19	31.25	0.61
2241	10591	Fish Passage	Applewood Final Flow	0.11	77	77.19	77.1	77.19	0.000844	0.16	0.85	0.14	0.21	0.67	6.42	0.16
2241	10591	Fish Passage	Updated Existing	0.11	77	77.19	77.1	77.19	0.000844	0.16	0.85	0.14	0.21	0.67	6.42	0.16
2241	10591	Fish Passage	ABL_Proposed	0.11	77	77.19	77.1	77.19	0.000844	0.16	0.85	0.14	0.21	0.67	6.42	0.16
2241	10574	2yr	Applewood Final Flow	13.4	77.04	78.15	77.98	78.29	0.006358	1.68	48.14	81.04	7.49	10.76	29.48	0.6
2241	10574	2yr	Updated Existing	13.4	77.04	78.15	77.98	78.29	0.006358	1.68	48.14	81.04	7.49	10.76	29.48	0.6
2241	10574	2yr	ABL_Proposed	13.4	77.04	78.15	77.98	78.29	0.006358	1.68	48.14	81.04	7.49	10.76	29.48	0.6
2241	10574	5yr	Applewood Final Flow	20.9	77.04	78.35		78.5	0.005916	1.88	55.92	105.29	11.08	16.71	30.43	0.6
2241	10574	5yr	Updated Existing	20.9	77.04	78.35		78.5	0.005916	1.88	55.92	105.29	11.08	16.71	30.43	0.6
2241	10574	5yr	ABL_Proposed	20.9	77.04	78.35		78.5	0.005916	1.88	55.92	105.29	11.08	16.71	30.43	0.6
2241	10574	10yr	Applewood Final Flow	28.7	77.04	78.52		78.69	0.005757	2.06	63.45	130.55	14.98	21.92	32.95	0.61
2241	10574	10yr	Updated Existing	28.7	77.04	78.52		78.69	0.005757	2.06	63.45	130.55	14.98	21.92	32.95	0.61
2241	10574	10yr	ABL_Proposed	28.7	77.04	78.52		78.69	0.005757	2.06	63.45	130.55	14.98	21.92	32.95	0.61
2241	10574	25yr	Applewood Final Flow	35.8	77.04	78.64		78.83	0.005722	2.2	69.99	153.9	18.14	26.27	34.91	0.62
2241	10574	25yr	Updated Existing	35.8	77.04	78.64		78.83	0.005722	2.2	69.99	153.9	18.14	26.27	34.91	0.62
2241	10574	25yr	ABL_Proposed	35.8	77.04	78.64		78.83	0.005722	2.2	69.99	153.9	18.14	26.27	34.91	0.62
2241	10574	50yr	Applewood Final Flow	43.1	77.04	78.76		78.96	0.005734	2.33	76.46	178.26	21.09	30.45	37.07	0.63
2241	10574	50yr	Updated Existing	43.1	77.04	78.76		78.96	0.005734	2.33	76.46	178.26	21.09	30.45	37.07	0.63
2241	10574	50yr	ABL_Proposed	43.1	77.04	78.76		78.96	0.005734	2.33	76.46	178.26	21.09	30.45	37.07	0.63
2241	10574	100yr	Applewood Final Flow	51.3	77.04	78.85		79.08	0.006238	2.53	88.48	224.22	24.22	33.92	39.5	0.66
2241	10574	100yr	Updated Existing	51.3	77.04	78.85		79.08	0.006238	2.53	88.48	224.22	24.22	33.92	39.5	0.66
2241	10574	100yr	ABL_Proposed	51.3	77.04	78.85		79.08	0.006238	2.53	88.48	224.22	24.22	33.92	39.5	0.66
2241	10574	Regional	Applewood Final Flow	53.4	77.04	78.87		79.11	0.006312	2.58	90.95	234.31	26.05	34.86	39.66	0.67
2241	10574	Regional	Updated Existing	53.4	77.04	78.87		79.11	0.006312	2.58	90.95	234.31	26.05	34.86	39.66	0.67
2241	10574	Regional	ABL_Proposed	53.4	77.04	78.87		79.11	0.006312	2.58	90.95	234.31	26.05	34.86	39.66	0.67
2241	10574	Fish Passage	Applewood Final Flow	0.11	77.04	77.15		77.16	0.006533	0.38	4.37	1.67	0.2	0.29	4.21	0.47
2241	10574	Fish Passage	Updated Existing	0.11	77.04	77.15		77.16	0.006533	0.38	4.37	1.67	0.2	0.29	4.21	0.47
2241	10574	Fish Passage	ABL_Proposed	0.11	77.04	77.15		77.16	0.006533	0.38	4.37	1.67	0.2	0.29	4.21	0.47
2241	10556	2yr	Applewood Final Flow	13.4	76.81	77.85	77.8	78.12	0.011302	2.32	77	178.53	7.34	6.18	18.28	0.86
2241	10556	2yr	Updated Existing	13.4	76.81	77.85	77.8	78.12	0.011302	2.32	77	178.53	7.34	6.18	18.28	0.86
2241	10556	2yr	ABL_Proposed	13.4	76.81	77.85	77.8	78.12	0.011302	2.32	77	178.53	7.34	6.18	18.28	0.86
2241	10556	5yr	Applewood Final Flow	20.9	76.81	78.08	78.08	78.36	0.009264	2.45	79.66	195.49	10.83	12.37	27.84	0.81
2241	10556	5yr	Updated Existing	20.9	76.81	78.08	78.08	78.36	0.009264	2.45	79.66	195.49	10.83	12.37	27.84	0.81
2241	10556	5yr	ABL_Proposed	20.9	76.81	78.08	78.08	78.36	0.009264	2.45	79.66	195.49	10.83	12.37	27.84	0.81
2241	10556	10yr	Applewood Final Flow	28.7	76.81	78.23	78.23	78.54	0.009308	2.71	92.48	250.54	14.65	16.69	30.79	0.83
2241	10556	10yr	Updated Existing	28.7	76.81	78.23	78.23	78.54	0.009308	2.71	92.48	250.54	14.65	16.69	30.79	0.83
2241	10556	10yr	ABL_Proposed	28.7	76.81	78.23	78.23	78.54	0.009308	2.71	92.48	250.54	14.65	16.69	30.79	0.83
2241	10556	25yr	Applewood Final Flow	35.8	76.81	78.35	78.35	78.69	0.009324	2.9	102.4	296.83	17.75	20.34	32.63	0.84
2241	10556	25yr	Updated Existing	35.8	76.81	78.35	78.35	78.69	0.009324	2.9	102.4	296.83	17.75	20.34	32.63	0.84
2241	10556	25yr	ABL_Proposed	35.8	76.81	78.35	78.35	78.69	0.009324	2.9	102.4	296.83	17.75	20.34	32.63	0.84
2241	10556	50yr	Applewood Final Flow	43.1	76.81	78.45	78.45	78.82	0.009422	3.08	112.32	345.66	20.63	23.86	37.04	0.86
2241	10556	50yr	Updated Existing	43.1	76.81	78.45	78.45	78.82	0.009422	3.08	112.32	345.66	20.63	23.86	37.04	0.86
2241	10556	50yr	ABL_Proposed	43.1	76.81	78.45	78.45	78.82	0.009422	3.08	112.32	345.66	20.63	23.86	37.04	0.86
2241	10556	100yr	Applewood Final Flow	51.3	76.81	78.58	78.58	78.94	0.008565	3.13	112.41	351.67	23.68	29.21	41.37	0.83
2241	10556	100yr	Updated Existing	51.3	76.81	78.58	78.58	78.94	0.008565	3.13	112.41	351.67	23.68	29.21	41.37	0.83
2241	10556	100yr	ABL_Proposed	51.3	76.81	78.58	78.58	78.94	0.008565	3.13	112.41	351.67	23.68	29.21	41.37	0.83
2241	10556	Regional	Applewood Final Flow	53.4	76.81	78.61	78.61	78.97	0.008569	3.16	114.38	361.95	25.49	30.22	41.53	0.83
2241	10556	Regional	Updated Existing	53.4	76.81	78.61	78.61	78.97	0.008569	3.16	114.38	361.95	25.49	30.22	41.53	0.83
2241	10556	Regional	ABL_Proposed	53.4	76.81	78.61	78.61	78.97	0.008569	3.16	114.38	361.95	25.49	30.22	41.53	0.83
2241	10556	Fish Passage	Applewood Final Flow	0.11	76.81	76.91	76.91	76.93	0.029262	0.73	16.58	12.11	0.2	0.15	2.6	0.97
2241	10556	Fish Passage	Updated Existing	0.11	76.81	76.91	76.91	76.93	0.029262	0.73	16.58	12.11	0.2	0.15	2.6	0.97

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10556	Fish Passage	ABL_Proposed	0.11	76.81	76.91	76.91	76.93	0.029262	0.73	16.58	12.11	0.2	0.15	2.6	0.97
2241	10525	2yr	Applewood Final Flow	13.4	76.56	77.72	77.55	77.81	0.006425	1.59	45.76	72.66	7.01	14.98	35.3	0.56
2241	10525	2yr	Updated Existing	13.4	76.56	77.72	77.55	77.81	0.006425	1.59	45.76	72.66	7.01	14.98	35.3	0.56
2241	10525	2yr	ABL_Proposed	13.4	76.56	77.72	77.55	77.81	0.006425	1.59	45.76	72.66	7.01	14.98	35.3	0.56
2241	10525	5yr	Applewood Final Flow	20.9	76.56	77.89	77.7	78	0.007437	1.92	63.29	121.57	10.28	22.29	48.84	0.62
2241	10525	5yr	Updated Existing	20.9	76.56	77.89	77.7	78	0.007437	1.92	63.29	121.57	10.28	22.29	48.84	0.62
2241	10525	5yr	ABL_Proposed	20.9	76.56	77.89	77.7	78	0.007437	1.92	63.29	121.57	10.28	22.29	48.84	0.62
2241	10525	10yr	Applewood Final Flow	28.7	76.56	78.01	77.73	78.13	0.007391	2.07	70.75	146.56	13.93	28.26	49.27	0.63
2241	10525	10yr	Updated Existing	28.7	76.56	78.01	77.73	78.13	0.007391	2.07	70.75	146.56	13.93	28.26	49.27	0.63
2241	10525	10yr	ABL_Proposed	28.7	76.56	78.01	77.73	78.13	0.007391	2.07	70.75	146.56	13.93	28.26	49.27	0.63
2241	10525	25yr	Applewood Final Flow	35.8	76.56	78.11	77.82	78.24	0.007409	2.19	77.21	169.47	16.89	33.08	49.85	0.64
2241	10525	25yr	Updated Existing	35.8	76.56	78.11	77.82	78.24	0.007409	2.19	77.21	169.47	16.89	33.08	49.85	0.64
2241	10525	25yr	ABL_Proposed	35.8	76.56	78.11	77.82	78.24	0.007409	2.19	77.21	169.47	16.89	33.08	49.85	0.64
2241	10525	50yr	Applewood Final Flow	43.1	76.56	78.19	78.04	78.33	0.007727	2.34	85.99	201.35	19.64	37.14	50.39	0.66
2241	10525	50yr	Updated Existing	43.1	76.56	78.19	78.04	78.33	0.007727	2.34	85.99	201.35	19.64	37.14	50.39	0.66
2241	10525	50yr	ABL_Proposed	43.1	76.56	78.19	78.04	78.33	0.007727	2.34	85.99	201.35	19.64	37.14	50.39	0.66
2241	10525	100yr	Applewood Final Flow	51.3	76.56	78.27	78.1	78.43	0.008224	2.51	97.17	244.32	22.53	41.15	51.47	0.69
2241	10525	100yr	Updated Existing	51.3	76.56	78.27	78.1	78.43	0.008224	2.51	97.17	244.32	22.53	41.15	51.47	0.69
2241	10525	100yr	ABL_Proposed	51.3	76.56	78.27	78.1	78.43	0.008224	2.51	97.17	244.32	22.53	41.15	51.47	0.69
2241	10525	Regional	Applewood Final Flow	53.4	76.56	78.29	78.11	78.45	0.008353	2.56	100.02	255.72	24.32	42.1	51.63	0.7
2241	10525	Regional	Updated Existing	53.4	76.56	78.29	78.11	78.45	0.008353	2.56	100.02	255.72	24.32	42.1	51.63	0.7
2241	10525	Regional	ABL_Proposed	53.4	76.56	78.29	78.11	78.45	0.008353	2.56	100.02	255.72	24.32	42.1	51.63	0.7
2241	10525	Fish Passage	Applewood Final Flow	0.11	76.56	76.69		76.7	0.003278	0.34	3.17	1.08	0.19	0.32	3.22	0.34
2241	10525	Fish Passage	Updated Existing	0.11	76.56	76.69		76.7	0.003278	0.34	3.17	1.08	0.19	0.32	3.22	0.34
2241	10525	Fish Passage	ABL_Proposed	0.11	76.56	76.69		76.7	0.003278	0.34	3.17	1.08	0.19	0.32	3.22	0.34
2241	10504	2yr	Applewood Final Flow	13.4	76.45	77.4	77.4	77.6	0.014569	2.17	88.44	191.83	6.76	9.17	24.75	0.86
2241	10504	2yr	Updated Existing	13.4	76.45	77.4	77.4	77.6	0.014569	2.17	88.44	191.83	6.76	9.17	24.75	0.86
2241	10504	2yr	ABL_Proposed	13.4	76.45	77.4	77.4	77.6	0.014569	2.17	88.44	191.83	6.76	9.17	24.75	0.86
2241	10504	5yr	Applewood Final Flow	20.9	76.45	77.58	77.58	77.79	0.012975	2.36	97.89	230.8	9.89	14.88	39.3	0.84
2241	10504	5yr	Updated Existing	20.9	76.45	77.58	77.58	77.79	0.012975	2.36	97.89	230.8	9.89	14.88	39.3	0.84
2241	10504	5yr	ABL_Proposed	20.9	76.45	77.58	77.58	77.79	0.012975	2.36	97.89	230.8	9.89	14.88	39.3	0.84
2241	10504	10yr	Applewood Final Flow	28.7	76.45	77.72	77.72	77.94	0.01123	2.45	100.08	245.3	13.41	21.77	50.46	0.8
2241	10504	10yr	Updated Existing	28.7	76.45	77.72	77.72	77.94	0.01123	2.45	100.08	245.3	13.41	21.77	50.46	0.8
2241	10504	10yr	ABL_Proposed	28.7	76.45	77.72	77.72	77.94	0.01123	2.45	100.08	245.3	13.41	21.77	50.46	0.8
2241	10504	25yr	Applewood Final Flow	35.8	76.45	77.8	77.8	78.04	0.01188	2.65	114.23	302.93	16.28	25.61	51.04	0.83
2241	10504	25yr	Updated Existing	35.8	76.45	77.8	77.8	78.04	0.01188	2.65	114.23	302.93	16.28	25.61	51.04	0.83
2241	10504	25yr	ABL_Proposed	35.8	76.45	77.8	77.8	78.04	0.01188	2.65	114.23	302.93	16.28	25.61	51.04	0.83
2241	10504	50yr	Applewood Final Flow	43.1	76.45	77.89	77.87	78.13	0.011531	2.76	120.16	331.23	18.94	30.07	51.97	0.83
2241	10504	50yr	Updated Existing	43.1	76.45	77.89	77.87	78.13	0.011531	2.76	120.16	331.23	18.94	30.07	51.97	0.83
2241	10504	50yr	ABL_Proposed	43.1	76.45	77.89	77.87	78.13	0.011531	2.76	120.16	331.23	18.94	30.07	51.97	0.83
2241	10504	100yr	Applewood Final Flow	51.3	76.45	77.99		78.23	0.010526	2.8	120.01	335.6	21.73	35.63	53.26	0.81
2241	10504	100yr	Updated Existing	51.3	76.45	77.99		78.23	0.010526	2.8	120.01	335.6	21.73	35.63	53.26	0.81
2241	10504	100yr	ABL_Proposed	51.3	76.45	77.99		78.23	0.010526	2.8	120.01	335.6	21.73	35.63	53.26	0.81
2241	10504	Regional	Applewood Final Flow	53.4	76.45	78.03		78.26	0.010036	2.78	117.48	326.47	23.49	37.37	53.55	0.79
2241	10504	Regional	Updated Existing	53.4	76.45	78.03		78.26	0.010036	2.78	117.48	326.47	23.49	37.37	53.55	0.79
2241	10504	Regional	ABL_Proposed	53.4	76.45	78.03		78.26	0.010036	2.78	117.48	326.47	23.49	37.37	53.55	0.79
2241	10504	Fish Passage	Applewood Final Flow	0.11	76.45	76.53	76.53	76.55	0.0267	0.59	12.05	7.16	0.19	0.19	4	0.88
2241	10504	Fish Passage	Updated Existing	0.11	76.45	76.53	76.53	76.55	0.0267	0.59	12.05	7.16	0.19	0.19	4	0.88
2241	10504	Fish Passage	ABL_Proposed	0.11	76.45	76.53	76.53	76.55	0.0267	0.59	12.05	7.16	0.19	0.19	4	0.88
2241	10457	2yr	Applewood Final Flow	13.4	76	77.18	76.93	77.23	0.003555	1.25	28.73	35.9	6.21	18.15	36.25	0.43

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10457	2yr	Updated Existing	13.4	76	77.18	76.93	77.23	0.003555	1.25	28.73	35.9	6.21	18.15	36.25	0.43
2241	10457	2yr	ABL_Proposed	13.4	76	77.18	76.93	77.23	0.003555	1.25	28.73	35.9	6.21	18.15	36.25	0.43
2241	10457	5yr	Applewood Final Flow	20.9	76	77.28	77.06	77.37	0.005092	1.62	46.34	75.02	9.16	22.2	38.91	0.53
2241	10457	5yr	Updated Existing	20.9	76	77.28	77.06	77.37	0.005092	1.62	46.34	75.02	9.16	22.2	38.91	0.53
2241	10457	5yr	ABL_Proposed	20.9	76	77.28	77.06	77.37	0.005092	1.62	46.34	75.02	9.16	22.2	38.91	0.53
2241	10457	10yr	Applewood Final Flow	28.7	76	77.41	77.19	77.52	0.005639	1.85	58.08	107.44	12.46	27.31	42.49	0.57
2241	10457	10yr	Updated Existing	28.7	76	77.41	77.19	77.52	0.005639	1.85	58.08	107.44	12.46	27.31	42.49	0.57
2241	10457	10yr	ABL_Proposed	28.7	76	77.41	77.19	77.52	0.005639	1.85	58.08	107.44	12.46	27.31	42.49	0.57
2241	10457	25yr	Applewood Final Flow	35.8	76	77.52	77.28	77.65	0.005864	2.01	66.67	134.31	15.17	32.29	44.54	0.59
2241	10457	25yr	Updated Existing	35.8	76	77.52	77.28	77.65	0.005864	2.01	66.67	134.31	15.17	32.29	44.54	0.59
2241	10457	25yr	ABL_Proposed	35.8	76	77.52	77.28	77.65	0.005864	2.01	66.67	134.31	15.17	32.29	44.54	0.59
2241	10457	50yr	Applewood Final Flow	43.1	76	77.63	77.35	77.77	0.00571	2.11	70.87	149.39	17.66	37.22	45.08	0.59
2241	10457	50yr	Updated Existing	43.1	76	77.63	77.35	77.77	0.00571	2.11	70.87	149.39	17.66	37.22	45.08	0.59
2241	10457	50yr	ABL_Proposed	43.1	76	77.63	77.35	77.77	0.00571	2.11	70.87	149.39	17.66	37.22	45.08	0.59
2241	10457	100yr	Applewood Final Flow	51.3	76	77.75	77.41	77.9	0.005511	2.19	74.57	163.56	20.25	42.59	50.99	0.59
2241	10457	100yr	Updated Existing	51.3	76	77.75	77.41	77.9	0.005511	2.19	74.57	163.56	20.25	42.59	50.99	0.59
2241	10457	100yr	ABL_Proposed	51.3	76	77.75	77.41	77.9	0.005511	2.19	74.57	163.56	20.25	42.59	50.99	0.59
2241	10457	Regional	Applewood Final Flow	53.4	76	77.81	77.41	77.94	0.005104	2.16	71.59	154.79	21.92	44.98	52.06	0.57
2241	10457	Regional	Updated Existing	53.4	76	77.81	77.41	77.94	0.005104	2.16	71.59	154.79	21.92	44.98	52.06	0.57
2241	10457	Regional	ABL_Proposed	53.4	76	77.81	77.41	77.94	0.005104	2.16	71.59	154.79	21.92	44.98	52.06	0.57
2241	10457	Fish Passage	Applewood Final Flow	0.11	76	76.13	76.08	76.14	0.004194	0.33	3.74	1.22	0.17	0.34	3.67	0.35
2241	10457	Fish Passage	Updated Existing	0.11	76	76.13	76.08	76.14	0.004194	0.33	3.74	1.22	0.17	0.34	3.67	0.35
2241	10457	Fish Passage	ABL_Proposed	0.11	76	76.13	76.08	76.14	0.004194	0.33	3.74	1.22	0.17	0.34	3.67	0.35
2241	10424	2yr	Applewood Final Flow	13.4	75.81	77.09	76.73	77.13	0.00263	1.15	23.77	27.28	5.62	22	44.92	0.38
2241	10424	2yr	Updated Existing	13.4	75.81	77.09	76.73	77.13	0.00263	1.15	23.77	27.28	5.62	22	44.92	0.38
2241	10424	2yr	ABL_Proposed	13.4	75.81	77.09	76.73	77.13	0.00263	1.15	23.77	27.28	5.62	22	44.92	0.38
2241	10424	5yr	Applewood Final Flow	20.9	75.81	77.08	76.85	77.19	0.006672	1.82	59.8	108.7	8.51	21.65	44.89	0.6
2241	10424	5yr	Updated Existing	20.9	75.81	77.08	76.85	77.19	0.006672	1.82	59.8	108.7	8.51	21.65	44.89	0.6
2241	10424	5yr	ABL_Proposed	20.9	75.81	77.08	76.85	77.19	0.006672	1.82	59.8	108.7	8.51	21.65	44.89	0.6
2241	10424	10yr	Applewood Final Flow	28.7	75.81	77.24	76.87	77.34	0.005957	1.9	62.04	117.77	11.64	28.51	45.5	0.58
2241	10424	10yr	Updated Existing	28.7	75.81	77.24	76.87	77.34	0.005957	1.9	62.04	117.77	11.64	28.51	45.5	0.58
2241	10424	10yr	ABL_Proposed	28.7	75.81	77.24	76.87	77.34	0.005957	1.9	62.04	117.77	11.64	28.51	45.5	0.58
2241	10424	25yr	Applewood Final Flow	35.8	75.81	77.37	77.15	77.48	0.00538	1.95	62.79	122.21	14.19	34.52	46.02	0.56
2241	10424	25yr	Updated Existing	35.8	75.81	77.37	77.15	77.48	0.00538	1.95	62.79	122.21	14.19	34.52	46.02	0.56
2241	10424	25yr	ABL_Proposed	35.8	75.81	77.37	77.15	77.48	0.00538	1.95	62.79	122.21	14.19	34.52	46.02	0.56
2241	10424	50yr	Applewood Final Flow	43.1	75.81	77.49	77.22	77.6	0.004993	2	64.16	128.27	16.53	40.22	46.47	0.55
2241	10424	50yr	Updated Existing	43.1	75.81	77.49	77.22	77.6	0.004993	2	64.16	128.27	16.53	40.22	46.47	0.55
2241	10424	50yr	ABL_Proposed	43.1	75.81	77.49	77.22	77.6	0.004993	2	64.16	128.27	16.53	40.22	46.47	0.55
2241	10424	100yr	Applewood Final Flow	51.3	75.81	77.62	77.28	77.73	0.004659	2.05	65.68	134.93	18.95	46.31	47.58	0.54
2241	10424	100yr	Updated Existing	51.3	75.81	77.62	77.28	77.73	0.004659	2.05	65.68	134.93	18.95	46.31	47.58	0.54
2241	10424	100yr	ABL_Proposed	51.3	75.81	77.62	77.28	77.73	0.004659	2.05	65.68	134.93	18.95	46.31	47.58	0.54
2241	10424	Regional	Applewood Final Flow	53.4	75.81	77.69	77.3	77.79	0.004124	1.99	60.86	121.27	20.54	49.69	50.73	0.51
2241	10424	Regional	Updated Existing	53.4	75.81	77.69	77.3	77.79	0.004124	1.99	60.86	121.27	20.54	49.69	50.73	0.51
2241	10424	Regional	ABL_Proposed	53.4	75.81	77.69	77.3	77.79	0.004124	1.99	60.86	121.27	20.54	49.69	50.73	0.51
2241	10424	Fish Passage	Applewood Final Flow	0.11	75.81	75.95	75.9	75.96	0.0075	0.48	6.75	3.25	0.16	0.23	2.46	0.51
2241	10424	Fish Passage	Updated Existing	0.11	75.81	75.95	75.9	75.96	0.0075	0.48	6.75	3.25	0.16	0.23	2.46	0.51
2241	10424	Fish Passage	ABL_Proposed	0.11	75.81	75.95	75.9	75.96	0.0075	0.48	6.75	3.25	0.16	0.23	2.46	0.51
2241	10396	2yr	Applewood Final Flow	13.4	75.67	76.72	76.67	76.98	0.011083	2.34	90.42	211.84	5.07	6.61	45.18	0.8
2241	10396	2yr	Updated Existing	13.4	75.67	76.72	76.67	76.98	0.011083	2.34	90.42	211.84	5.07	6.61	45.18	0.8
2241	10396	2yr	ABL_Proposed	13.4	75.67	76.72	76.67	76.98	0.011083	2.34	90.42	211.84	5.07	6.61	45.18	0.8
2241	10396	5yr	Applewood Final Flow	20.9	75.67	76.96	76.81	77.04	0.003953	1.65	41.25	68.01	7.8	26.52	49.06	0.5

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10396	5yr	Updated Existing	20.9	75.67	76.96	76.81	77.04	0.003953	1.65	41.25	68.01	7.8	26.52	49.06	0.5
2241	10396	5yr	ABL_Proposed	20.9	75.67	76.96	76.81	77.04	0.003953	1.65	41.25	68.01	7.8	26.52	49.06	0.5
2241	10396	10yr	Applewood Final Flow	28.7	75.67	77.12	76.89	77.2	0.0036	1.73	43.16	74.49	10.7	34.71	50.11	0.49
2241	10396	10yr	Updated Existing	28.7	75.67	77.12	76.89	77.2	0.0036	1.73	43.16	74.49	10.7	34.71	50.11	0.49
2241	10396	10yr	ABL_Proposed	28.7	75.67	77.12	76.89	77.2	0.0036	1.73	43.16	74.49	10.7	34.71	50.11	0.49
2241	10396	25yr	Applewood Final Flow	35.8	75.67	77.26	76.96	77.35	0.003372	1.79	44.86	80.31	13.05	41.87	52.2	0.48
2241	10396	25yr	Updated Existing	35.8	75.67	77.26	76.96	77.35	0.003372	1.79	44.86	80.31	13.05	41.87	52.2	0.48
2241	10396	25yr	ABL_Proposed	35.8	75.67	77.26	76.96	77.35	0.003372	1.79	44.86	80.31	13.05	41.87	52.2	0.48
2241	10396	50yr	Applewood Final Flow	43.1	75.67	77.4	77.03	77.48	0.00314	1.83	45.69	83.8	15.21	48.84	52.87	0.47
2241	10396	50yr	Updated Existing	43.1	75.67	77.4	77.03	77.48	0.00314	1.83	45.69	83.8	15.21	48.84	52.87	0.47
2241	10396	50yr	ABL_Proposed	43.1	75.67	77.4	77.03	77.48	0.00314	1.83	45.69	83.8	15.21	48.84	52.87	0.47
2241	10396	100yr	Applewood Final Flow	51.3	75.67	77.53	77.09	77.62	0.002948	1.88	46.74	87.95	17.42	56.2	53.44	0.46
2241	10396	100yr	Updated Existing	51.3	75.67	77.53	77.09	77.62	0.002948	1.88	46.74	87.95	17.42	56.2	53.44	0.46
2241	10396	100yr	ABL_Proposed	51.3	75.67	77.53	77.09	77.62	0.002948	1.88	46.74	87.95	17.42	56.2	53.44	0.46
2241	10396	Regional	Applewood Final Flow	53.4	75.67	77.62	77.11	77.69	0.002558	1.81	42.52	76.91	18.9	60.58	53.77	0.43
2241	10396	Regional	Updated Existing	53.4	75.67	77.62	77.11	77.69	0.002558	1.81	42.52	76.91	18.9	60.58	53.77	0.43
2241	10396	Regional	ABL_Proposed	53.4	75.67	77.62	77.11	77.69	0.002558	1.81	42.52	76.91	18.9	60.58	53.77	0.43
2241	10396	Fish Passage	Applewood Final Flow	0.11	75.67	75.82	75.76	75.82	0.003381	0.31	3	0.94	0.16	0.35	3.84	0.33
2241	10396	Fish Passage	Updated Existing	0.11	75.67	75.82	75.76	75.82	0.003381	0.31	3	0.94	0.16	0.35	3.84	0.33
2241	10396	Fish Passage	ABL_Proposed	0.11	75.67	75.82	75.76	75.82	0.003381	0.31	3	0.94	0.16	0.35	3.84	0.33
2241	10344	2yr	Applewood Final Flow	13.4	75.47	76.67	76.36	76.72	0.002073	1.11	19.22	21.39	4.34	22.15	44.36	0.36
2241	10344	2yr	Updated Existing	13.4	75.47	76.67	76.36	76.72	0.002073	1.11	19.22	21.39	4.34	22.15	44.36	0.36
2241	10344	2yr	ABL_Proposed	13.4	75.47	76.67	76.36	76.72	0.002073	1.11	19.22	21.39	4.34	22.15	44.36	0.36
2241	10344	5yr	Applewood Final Flow	20.9	75.47	76.85	76.55	76.9	0.002272	1.3	24.85	32.34	6.72	29.97	44.95	0.39
2241	10344	5yr	Updated Existing	20.9	75.47	76.85	76.55	76.9	0.002272	1.3	24.85	32.34	6.72	29.97	44.95	0.39
2241	10344	5yr	ABL_Proposed	20.9	75.47	76.85	76.55	76.9	0.002272	1.3	24.85	32.34	6.72	29.97	44.95	0.39
2241	10344	10yr	Applewood Final Flow	28.7	75.47	77.01	76.65	77.08	0.002279	1.43	28.58	40.8	9.34	37.57	45.51	0.4
2241	10344	10yr	Updated Existing	28.7	75.47	77.01	76.65	77.08	0.002279	1.43	28.58	40.8	9.34	37.57	45.51	0.4
2241	10344	10yr	ABL_Proposed	28.7	75.47	77.01	76.65	77.08	0.002279	1.43	28.58	40.8	9.34	37.57	45.51	0.4
2241	10344	25yr	Applewood Final Flow	35.8	75.47	77.16	76.73	77.23	0.002227	1.51	31	46.9	11.45	44.18	46.03	0.4
2241	10344	25yr	Updated Existing	35.8	75.47	77.16	76.73	77.23	0.002227	1.51	31	46.9	11.45	44.18	46.03	0.4
2241	10344	25yr	ABL_Proposed	35.8	75.47	77.16	76.73	77.23	0.002227	1.51	31	46.9	11.45	44.18	46.03	0.4
2241	10344	50yr	Applewood Final Flow	43.1	75.47	77.29	76.8	77.37	0.002195	1.59	33.37	53.16	13.36	50.43	46.54	0.4
2241	10344	50yr	Updated Existing	43.1	75.47	77.29	76.8	77.37	0.002195	1.59	33.37	53.16	13.36	50.43	46.54	0.4
2241	10344	50yr	ABL_Proposed	43.1	75.47	77.29	76.8	77.37	0.002195	1.59	33.37	53.16	13.36	50.43	46.54	0.4
2241	10344	100yr	Applewood Final Flow	51.3	75.47	77.43	76.87	77.51	0.00217	1.68	35.9	60.15	15.33	56.99	47.1	0.41
2241	10344	100yr	Updated Existing	51.3	75.47	77.43	76.87	77.51	0.00217	1.68	35.9	60.15	15.33	56.99	47.1	0.41
2241	10344	100yr	ABL_Proposed	51.3	75.47	77.43	76.87	77.51	0.00217	1.68	35.9	60.15	15.33	56.99	47.1	0.41
2241	10344	Regional	Applewood Final Flow	53.4	75.47	77.53	76.89	77.6	0.00188	1.62	32.81	53.02	16.65	61.49	47.57	0.38
2241	10344	Regional	Updated Existing	53.4	75.47	77.53	76.89	77.6	0.00188	1.62	32.81	53.02	16.65	61.49	47.57	0.38
2241	10344	Regional	ABL_Proposed	53.4	75.47	77.53	76.89	77.6	0.00188	1.62	32.81	53.02	16.65	61.49	47.57	0.38
2241	10344	Fish Passage	Applewood Final Flow	0.11	75.47	75.59	75.56	75.6	0.005661	0.35	3.85	1.36	0.14	0.31	4.46	0.43
2241	10344	Fish Passage	Updated Existing	0.11	75.47	75.59	75.56	75.6	0.005661	0.35	3.85	1.36	0.14	0.31	4.46	0.43
2241	10344	Fish Passage	ABL_Proposed	0.11	75.47	75.59	75.56	75.6	0.005661	0.35	3.85	1.36	0.14	0.31	4.46	0.43
2241	10311	2yr	Applewood Final Flow	12.7	75.31	76.6		76.65	0.001994	1.14	20.06	22.96	3.73	21.04	50.25	0.35
2241	10311	2yr	Updated Existing	12.7	75.31	76.6		76.65	0.001994	1.14	20.06	22.96	3.73	21.04	50.25	0.35
2241	10311	2yr	ABL_Proposed	12.7	75.31	76.6		76.65	0.001994	1.14	20.06	22.96	3.73	21.04	50.25	0.35
2241	10311	5yr	Applewood Final Flow	19.9	75.31	76.78		76.83	0.002182	1.32	25.49	33.71	5.9	29.83	51.07	0.38
2241	10311	5yr	Updated Existing	19.9	75.31	76.78		76.83	0.002182	1.32	25.49	33.71	5.9	29.83	51.07	0.38
2241	10311	5yr	ABL_Proposed	19.9	75.31	76.78		76.83	0.002182	1.32	25.49	33.71	5.9	29.83	51.07	0.38
2241	10311	10yr	Applewood Final Flow	27.6	75.31	76.95		77.01	0.002131	1.43	28.37	40.44	8.3	38.79	51.85	0.38

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10311	10yr	Updated Existing	27.6	75.31	76.95		77.01	0.002131	1.43	28.37	40.44	8.3	38.79	51.85	0.38
2241	10311	10yr	ABL_Proposed	27.6	75.31	76.95		77.01	0.002131	1.43	28.37	40.44	8.3	38.79	51.85	0.38
2241	10311	25yr	Applewood Final Flow	34.4	75.31	77.1		77.16	0.001999	1.48	29.43	43.46	10.22	46.67	52.6	0.38
2241	10311	25yr	Updated Existing	34.4	75.31	77.1		77.16	0.001999	1.48	29.43	43.46	10.22	46.67	52.6	0.38
2241	10311	25yr	ABL_Proposed	34.4	75.31	77.1		77.16	0.001999	1.48	29.43	43.46	10.22	46.67	52.6	0.38
2241	10311	50yr	Applewood Final Flow	41.5	75.31	77.24		77.31	0.001932	1.54	30.96	47.57	11.96	54.04	53.42	0.37
2241	10311	50yr	Updated Existing	41.5	75.31	77.24		77.31	0.001932	1.54	30.96	47.57	11.96	54.04	53.42	0.37
2241	10311	50yr	ABL_Proposed	41.5	75.31	77.24		77.31	0.001932	1.54	30.96	47.57	11.96	54.04	53.42	0.37
2241	10311	100yr	Applewood Final Flow	49.5	75.31	77.38		77.45	0.001889	1.6	32.8	52.56	13.74	61.77	54.55	0.38
2241	10311	100yr	Updated Existing	49.5	75.31	77.38		77.45	0.001889	1.6	32.8	52.56	13.74	61.77	54.55	0.38
2241	10311	100yr	ABL_Proposed	49.5	75.31	77.38		77.45	0.001889	1.6	32.8	52.56	13.74	61.77	54.55	0.38
2241	10311	Regional	Applewood Final Flow	55	75.31	77.48		77.55	0.001864	1.64	33.99	55.89	14.93	66.92	55.41	0.38
2241	10311	Regional	Updated Existing	55	75.31	77.48		77.55	0.001864	1.64	33.99	55.89	14.93	66.92	55.41	0.38
2241	10311	Regional	ABL_Proposed	55	75.31	77.48		77.55	0.001864	1.64	33.99	55.89	14.93	66.92	55.41	0.38
2241	10311	Fish Passage	Applewood Final Flow	0.11	75.31	75.47	75.42	75.48	0.002484	0.27	2.07	0.55	0.13	0.41	4.79	0.29
2241	10311	Fish Passage	Updated Existing	0.11	75.31	75.47	75.42	75.48	0.002484	0.27	2.07	0.55	0.13	0.41	4.79	0.29
2241	10311	Fish Passage	ABL_Proposed	0.11	75.31	75.47	75.42	75.48	0.002484	0.27	2.07	0.55	0.13	0.41	4.79	0.29
2241	10298	2yr	Applewood Final Flow	12.7	75.28	76.39	76.39	76.59	0.012927	2.09	86.5	180.69	3.57	8.95	30.95	0.78
2241	10298	2yr	Updated Existing	12.7	75.28	76.39	76.39	76.59	0.012927	2.09	86.5	180.69	3.57	8.95	30.95	0.78
2241	10298	2yr	ABL_Proposed	12.7	75.28	76.39	76.39	76.59	0.012927	2.09	86.5	180.69	3.57	8.95	30.95	0.78
2241	10298	5yr	Applewood Final Flow	19.9	75.28	76.62		76.78	0.008782	2.06	76.96	158.62	5.65	16.63	35.19	0.67
2241	10298	5yr	Updated Existing	19.9	75.28	76.62		76.78	0.008782	2.06	76.96	158.62	5.65	16.63	35.19	0.67
2241	10298	5yr	ABL_Proposed	19.9	75.28	76.62		76.78	0.008782	2.06	76.96	158.62	5.65	16.63	35.19	0.67
2241	10298	10yr	Applewood Final Flow	27.6	75.28	76.82		76.96	0.006616	2.04	70.51	143.72	7.97	23.97	36.18	0.61
2241	10298	10yr	Updated Existing	27.6	75.28	76.82		76.96	0.006616	2.04	70.51	143.72	7.97	23.97	36.18	0.61
2241	10298	10yr	ABL_Proposed	27.6	75.28	76.82		76.96	0.006616	2.04	70.51	143.72	7.97	23.97	36.18	0.61
2241	10298	25yr	Applewood Final Flow	34.4	75.28	76.99		77.12	0.005593	2.05	68.03	139.25	9.82	29.95	36.96	0.57
2241	10298	25yr	Updated Existing	34.4	75.28	76.99		77.12	0.005593	2.05	68.03	139.25	9.82	29.95	36.96	0.57
2241	10298	25yr	ABL_Proposed	34.4	75.28	76.99		77.12	0.005593	2.05	68.03	139.25	9.82	29.95	36.96	0.57
2241	10298	50yr	Applewood Final Flow	41.5	75.28	77.13		77.26	0.005184	2.11	69.77	147.08	11.49	35.19	37.68	0.56
2241	10298	50yr	Updated Existing	41.5	75.28	77.13		77.26	0.005184	2.11	69.77	147.08	11.49	35.19	37.68	0.56
2241	10298	50yr	ABL_Proposed	41.5	75.28	77.13		77.26	0.005184	2.11	69.77	147.08	11.49	35.19	37.68	0.56
2241	10298	100yr	Applewood Final Flow	49.5	75.28	77.27		77.41	0.004913	2.18	72.56	158.42	13.2	40.87	44.56	0.55
2241	10298	100yr	Updated Existing	49.5	75.28	77.27		77.41	0.004913	2.18	72.56	158.42	13.2	40.87	44.56	0.55
2241	10298	100yr	ABL_Proposed	49.5	75.28	77.27		77.41	0.004913	2.18	72.56	158.42	13.2	40.87	44.56	0.55
2241	10298	Regional	Applewood Final Flow	55	75.28	77.36		77.51	0.004752	2.23	74.3	165.69	14.34	45.23	48.28	0.55
2241	10298	Regional	Updated Existing	55	75.28	77.36		77.51	0.004752	2.23	74.3	165.69	14.34	45.23	48.28	0.55
2241	10298	Regional	ABL_Proposed	55	75.28	77.36		77.51	0.004752	2.23	74.3	165.69	14.34	45.23	48.28	0.55
2241	10298	Fish Passage	Applewood Final Flow	0.11	75.28	75.37	75.37	75.39	0.037574	0.75	20.09	15.02	0.12	0.15	2.69	1.02
2241	10298	Fish Passage	Updated Existing	0.11	75.28	75.37	75.37	75.39	0.037574	0.75	20.09	15.02	0.12	0.15	2.69	1.02
2241	10298	Fish Passage	ABL_Proposed	0.11	75.28	75.37	75.37	75.39	0.037574	0.75	20.09	15.02	0.12	0.15	2.69	1.02
2241	10268	2yr	Applewood Final Flow	12.7	74.97	76.3	75.79	76.38	0.003198	1.28	27.32	34.87	3.3	12.78	34.36	0.42
2241	10268	2yr	Updated Existing	12.7	74.97	76.3	75.79	76.38	0.003198	1.28	27.32	34.87	3.3	12.78	34.36	0.42
2241	10268	2yr	ABL_Proposed	12.7	74.97	76.3	75.79	76.38	0.003198	1.28	27.32	34.87	3.3	12.78	34.36	0.42
2241	10268	5yr	Applewood Final Flow	19.9	74.97	76.54	76.05	76.63	0.003139	1.47	33.54	49.25	5.25	19	40.13	0.43
2241	10268	5yr	Updated Existing	19.9	74.97	76.54	76.05	76.63	0.003139	1.47	33.54	49.25	5.25	19	40.13	0.43
2241	10268	5yr	ABL_Proposed	19.9	74.97	76.54	76.05	76.63	0.003139	1.47	33.54	49.25	5.25	19	40.13	0.43
2241	10268	10yr	Applewood Final Flow	27.6	74.97	76.79	76.34	76.86	0.0022	1.4	28.53	39.89	7.43	34.45	46.72	0.37
2241	10268	10yr	Updated Existing	27.6	74.97	76.79	76.34	76.86	0.0022	1.4	28.53	39.89	7.43	34.45	46.72	0.37
2241	10268	10yr	ABL_Proposed	27.6	74.97	76.79	76.34	76.86	0.0022	1.4	28.53	39.89	7.43	34.45	46.72	0.37
2241	10268	25yr	Applewood Final Flow	34.4	74.97	76.96	76.46	77.03	0.002029	1.45	29.46	42.67	9.17	42.57	48.86	0.37

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10268	25yr	Updated Existing	34.4	74.97	76.96	76.46	77.03	0.002029	1.45	29.46	42.67	9.17	42.57	48.86	0.37
2241	10268	25yr	ABL_Proposed	34.4	74.97	76.96	76.46	77.03	0.002029	1.45	29.46	42.67	9.17	42.57	48.86	0.37
2241	10268	50yr	Applewood Final Flow	41.5	74.97	77.1	76.56	77.18	0.001968	1.51	31.19	47.17	10.75	49.76	49.96	0.37
2241	10268	50yr	Updated Existing	41.5	74.97	77.1	76.56	77.18	0.001968	1.51	31.19	47.17	10.75	49.76	49.96	0.37
2241	10268	50yr	ABL_Proposed	41.5	74.97	77.1	76.56	77.18	0.001968	1.51	31.19	47.17	10.75	49.76	49.96	0.37
2241	10268	100yr	Applewood Final Flow	49.5	74.97	77.25	76.65	77.33	0.001938	1.58	33.32	52.79	12.36	57.16	51.16	0.37
2241	10268	100yr	Updated Existing	49.5	74.97	77.25	76.65	77.33	0.001938	1.58	33.32	52.79	12.36	57.16	51.16	0.37
2241	10268	100yr	ABL_Proposed	49.5	74.97	77.25	76.65	77.33	0.001938	1.58	33.32	52.79	12.36	57.16	51.16	0.37
2241	10268	Regional	Applewood Final Flow	55	74.97	77.34	76.71	77.43	0.001915	1.63	34.61	56.34	13.43	62.11	51.96	0.37
2241	10268	Regional	Updated Existing	55	74.97	77.34	76.71	77.43	0.001915	1.63	34.61	56.34	13.43	62.11	51.96	0.37
2241	10268	Regional	ABL_Proposed	55	74.97	77.34	76.71	77.43	0.001915	1.63	34.61	56.34	13.43	62.11	51.96	0.37
2241	10268	Fish Passage	Applewood Final Flow	0.11	74.97	75.12	75.03	75.12	0.000649	0.17	0.73	0.13	0.11	0.64	5.55	0.16
2241	10268	Fish Passage	Updated Existing	0.11	74.97	75.12	75.03	75.12	0.000649	0.17	0.73	0.13	0.11	0.64	5.55	0.16
2241	10268	Fish Passage	ABL_Proposed	0.11	74.97	75.12	75.03	75.12	0.000649	0.17	0.73	0.13	0.11	0.64	5.55	0.16
2241	10243	2yr	Applewood Final Flow	12.7	74.96	76.24	75.81	76.29	0.003088	1.04	22.97	23.91	2.88	17.57	62.25	0.37
2241	10243	2yr	Updated Existing	12.7	74.96	76.24	75.81	76.29	0.003088	1.04	22.97	23.91	2.88	17.57	62.25	0.37
2241	10243	2yr	ABL_Proposed	12.7	74.96	76.24	75.81	76.29	0.003088	1.04	22.97	23.91	2.88	17.57	62.25	0.37
2241	10243	5yr	Applewood Final Flow	19.9	74.96	76.52	76.05	76.55	0.00181	0.97	18.03	17.45	4.47	33.68	69.18	0.3
2241	10243	5yr	Updated Existing	19.9	74.96	76.52	76.05	76.55	0.00181	0.97	18.03	17.45	4.47	33.68	69.18	0.3
2241	10243	5yr	ABL_Proposed	19.9	74.96	76.52	76.05	76.55	0.00181	0.97	18.03	17.45	4.47	33.68	69.18	0.3
2241	10243	10yr	Applewood Final Flow	27.6	74.96	76.77	76.27	76.8	0.001286	0.94	15.86	14.92	6.27	48.65	73.23	0.26
2241	10243	10yr	Updated Existing	27.6	74.96	76.77	76.27	76.8	0.001286	0.94	15.86	14.92	6.27	48.65	73.23	0.26
2241	10243	10yr	ABL_Proposed	27.6	74.96	76.77	76.27	76.8	0.001286	0.94	15.86	14.92	6.27	48.65	73.23	0.26
2241	10243	25yr	Applewood Final Flow	34.4	74.96	76.95	76.35	76.98	0.001149	0.97	16.03	15.48	7.73	58.99	82.52	0.25
2241	10243	25yr	Updated Existing	34.4	74.96	76.95	76.35	76.98	0.001149	0.97	16.03	15.48	7.73	58.99	82.52	0.25
2241	10243	25yr	ABL_Proposed	34.4	74.96	76.95	76.35	76.98	0.001149	0.97	16.03	15.48	7.73	58.99	82.52	0.25
2241	10243	50yr	Applewood Final Flow	41.5	74.96	77.1	76.42	77.13	0.00111	1.01	17.01	17.18	9.06	67.82	85.51	0.25
2241	10243	50yr	Updated Existing	41.5	74.96	77.1	76.42	77.13	0.00111	1.01	17.01	17.18	9.06	67.82	85.51	0.25
2241	10243	50yr	ABL_Proposed	41.5	74.96	77.1	76.42	77.13	0.00111	1.01	17.01	17.18	9.06	67.82	85.51	0.25
2241	10243	100yr	Applewood Final Flow	49.5	74.96	77.24	76.48	77.28	0.001091	1.06	18.24	19.35	10.41	76.76	87.98	0.25
2241	10243	100yr	Updated Existing	49.5	74.96	77.24	76.48	77.28	0.001091	1.06	18.24	19.35	10.41	76.76	87.98	0.25
2241	10243	100yr	ABL_Proposed	49.5	74.96	77.24	76.48	77.28	0.001091	1.06	18.24	19.35	10.41	76.76	87.98	0.25
2241	10243	Regional	Applewood Final Flow	55	74.96	77.34	76.52	77.38	0.001079	1.09	19.01	20.77	11.31	82.65	88.89	0.25
2241	10243	Regional	Updated Existing	55	74.96	77.34	76.52	77.38	0.001079	1.09	19.01	20.77	11.31	82.65	88.89	0.25
2241	10243	Regional	ABL_Proposed	55	74.96	77.34	76.52	77.38	0.001079	1.09	19.01	20.77	11.31	82.65	88.89	0.25
2241	10243	Fish Passage	Applewood Final Flow	0.11	74.96	75.04	75.04	75.07	0.03882	0.72	18.72	13.39	0.1	0.15	3.12	1.03
2241	10243	Fish Passage	Updated Existing	0.11	74.96	75.04	75.04	75.07	0.03882	0.72	18.72	13.39	0.1	0.15	3.12	1.03
2241	10243	Fish Passage	ABL_Proposed	0.11	74.96	75.04	75.04	75.07	0.03882	0.72	18.72	13.39	0.1	0.15	3.12	1.03
2241	10189	2yr	Applewood Final Flow	12.7	74.72	76.19	75.46	76.21	0.000784	0.67	8.47	5.65	1.74	28.37	62.3	0.2
2241	10189	2yr	Updated Existing	12.7	74.72	76.19	75.46	76.21	0.000784	0.67	8.47	5.65	1.74	28.37	62.3	0.2
2241	10189	2yr	ABL_Proposed	12.7	74.72	76.19	75.46	76.21	0.000784	0.67	8.47	5.65	1.74	28.37	62.3	0.2
2241	10189	5yr	Applewood Final Flow	19.9	74.72	76.48	75.64	76.5	0.000677	0.72	9.19	6.63	2.59	43.68	67.38	0.19
2241	10189	5yr	Updated Existing	19.9	74.72	76.48	75.64	76.5	0.000677	0.72	9.19	6.63	2.59	43.68	67.38	0.19
2241	10189	5yr	ABL_Proposed	19.9	74.72	76.48	75.64	76.5	0.000677	0.72	9.19	6.63	2.59	43.68	67.38	0.19
2241	10189	10yr	Applewood Final Flow	27.6	74.72	76.74	75.81	76.76	0.000614	0.77	9.87	7.59	3.68	57.8	69.6	0.19
2241	10189	10yr	Updated Existing	27.6	74.72	76.74	75.81	76.76	0.000614	0.77	9.87	7.59	3.68	57.8	69.6	0.19
2241	10189	10yr	ABL_Proposed	27.6	74.72	76.74	75.81	76.76	0.000614	0.77	9.87	7.59	3.68	57.8	69.6	0.19
2241	10189	25yr	Applewood Final Flow	34.4	74.72	76.92	76.01	76.94	0.000618	0.83	10.98	9.06	4.6	67.44	80.13	0.19
2241	10189	25yr	Updated Existing	34.4	74.72	76.92	76.01	76.94	0.000618	0.83	10.98	9.06	4.6	67.44	80.13	0.19
2241	10189	25yr	ABL_Proposed	34.4	74.72	76.92	76.01	76.94	0.000618	0.83	10.98	9.06	4.6	67.44	80.13	0.19
2241	10189	50yr	Applewood Final Flow	41.5	74.72	77.06	76.08	77.09	0.000648	0.89	12.44	11.06	5.45	75.57	82.56	0.2

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10189	50yr	Updated Existing	41.5	74.72	77.06	76.08	77.09	0.000648	0.89	12.44	11.06	5.45	75.57	82.56	0.2
2241	10189	50yr	ABL_Proposed	41.5	74.72	77.06	76.08	77.09	0.000648	0.89	12.44	11.06	5.45	75.57	82.56	0.2
2241	10189	100yr	Applewood Final Flow	49.5	74.72	77.21	76.19	77.24	0.000683	0.96	14.07	13.47	6.31	83.77	84.35	0.21
2241	10189	100yr	Updated Existing	49.5	74.72	77.21	76.19	77.24	0.000683	0.96	14.07	13.47	6.31	83.77	84.35	0.21
2241	10189	100yr	ABL_Proposed	49.5	74.72	77.21	76.19	77.24	0.000683	0.96	14.07	13.47	6.31	83.77	84.35	0.21
2241	10189	Regional	Applewood Final Flow	55	74.72	77.31	76.24	77.34	0.000701	1	15.1	15.09	6.88	89.18	85.3	0.21
2241	10189	Regional	Updated Existing	55	74.72	77.31	76.24	77.34	0.000701	1	15.1	15.09	6.88	89.18	85.3	0.21
2241	10189	Regional	ABL_Proposed	55	74.72	77.31	76.24	77.34	0.000701	1	15.1	15.09	6.88	89.18	85.3	0.21
2241	10189	Fish Passage	Applewood Final Flow	0.11	74.72	74.91	74.8	74.91	0.000371	0.13	0.44	0.06	0.07	0.85	6.98	0.12
2241	10189	Fish Passage	Updated Existing	0.11	74.72	74.91	74.8	74.91	0.000371	0.13	0.44	0.06	0.07	0.85	6.98	0.12
2241	10189	Fish Passage	ABL_Proposed	0.11	74.72	74.91	74.8	74.91	0.000371	0.13	0.44	0.06	0.07	0.85	6.98	0.12
2241	10151	2yr	Applewood Final Flow	12.7	74.69	76.12	75.55	76.16	0.00188	1	17.1	17.08	0.9	13.87	18.2	0.33
2241	10151	2yr	Updated Existing	12.7	74.69	76.12	75.55	76.16	0.00188	1	17.1	17.08	0.9	13.87	18.2	0.33
2241	10151	2yr	ABL_Proposed	12.7	74.69	76.12	75.55	76.16	0.00188	1	17.1	17.08	0.9	13.87	18.2	0.33
2241	10151	5yr	Applewood Final Flow	19.9	74.69	76.39	75.76	76.45	0.002026	1.16	22.08	25.64	1.27	20.3	34.6	0.35
2241	10151	5yr	Updated Existing	19.9	74.69	76.39	75.76	76.45	0.002026	1.16	22.08	25.64	1.27	20.3	34.6	0.35
2241	10151	5yr	ABL_Proposed	19.9	74.69	76.39	75.76	76.45	0.002026	1.16	22.08	25.64	1.27	20.3	34.6	0.35
2241	10151	10yr	Applewood Final Flow	27.6	74.69	76.66	75.93	76.72	0.002341	1.17	27.61	32.18	1.78	32.27	58.95	0.33
2241	10151	10yr	Updated Existing	27.6	74.69	76.66	75.93	76.72	0.002341	1.17	27.61	32.18	1.78	32.27	58.95	0.33
2241	10151	10yr	ABL_Proposed	27.6	74.69	76.66	75.93	76.72	0.002341	1.17	27.61	32.18	1.78	32.27	58.95	0.33
2241	10151	25yr	Applewood Final Flow	34.4	74.69	76.84	76.07	76.9	0.001981	1.18	26.82	31.53	2.23	42.42	61.71	0.32
2241	10151	25yr	Updated Existing	34.4	74.69	76.84	76.07	76.9	0.001981	1.18	26.82	31.53	2.23	42.42	61.71	0.32
2241	10151	25yr	ABL_Proposed	34.4	74.69	76.84	76.07	76.9	0.001981	1.18	26.82	31.53	2.23	42.42	61.71	0.32
2241	10151	50yr	Applewood Final Flow	41.5	74.69	76.99	76.19	77.05	0.001863	1.22	27.86	33.93	2.67	50.79	63.9	0.31
2241	10151	50yr	Updated Existing	41.5	74.69	76.99	76.19	77.05	0.001863	1.22	27.86	33.93	2.67	50.79	63.9	0.31
2241	10151	50yr	ABL_Proposed	41.5	74.69	76.99	76.19	77.05	0.001863	1.22	27.86	33.93	2.67	50.79	63.9	0.31
2241	10151	100yr	Applewood Final Flow	49.5	74.69	77.13	76.34	77.2	0.001808	1.27	29.56	37.65	3.11	59.3	66.95	0.31
2241	10151	100yr	Updated Existing	49.5	74.69	77.13	76.34	77.2	0.001808	1.27	29.56	37.65	3.11	59.3	66.95	0.31
2241	10151	100yr	ABL_Proposed	49.5	74.69	77.13	76.34	77.2	0.001808	1.27	29.56	37.65	3.11	59.3	66.95	0.31
2241	10151	Regional	Applewood Final Flow	55	74.69	77.23	76.51	77.29	0.001753	1.3	30.3	39.41	3.4	65.11	68.5	0.31
2241	10151	Regional	Updated Existing	55	74.69	77.23	76.51	77.29	0.001753	1.3	30.3	39.41	3.4	65.11	68.5	0.31
2241	10151	Regional	ABL_Proposed	55	74.69	77.23	76.51	77.29	0.001753	1.3	30.3	39.41	3.4	65.11	68.5	0.31
2241	10151	Fish Passage	Applewood Final Flow	0.11	74.69	74.89	74.78	74.89	0.000946	0.21	1.15	0.24	0.05	0.52	4.2	0.19
2241	10151	Fish Passage	Updated Existing	0.11	74.69	74.89	74.78	74.89	0.000946	0.21	1.15	0.24	0.05	0.52	4.2	0.19
2241	10151	Fish Passage	ABL_Proposed	0.11	74.69	74.89	74.78	74.89	0.000946	0.21	1.15	0.24	0.05	0.52	4.2	0.19
2241	10110	2yr	Applewood Final Flow	12.7	74.69	75.96	75.58	76.05	0.003854	1.42	33.89	48.09	0.4	10.93	17.09	0.46
2241	10110	2yr	Updated Existing	12.7	74.69	75.96	75.58	76.05	0.003854	1.42	33.89	48.09	0.4	10.93	17.09	0.46
2241	10110	2yr	ABL_Proposed	12.7	74.69	75.96	75.58	76.05	0.003854	1.42	33.89	48.09	0.4	10.93	17.09	0.46
2241	10110	5yr	Applewood Final Flow	19.9	74.69	76.22	75.86	76.34	0.003984	1.63	42.45	69.24	0.56	15.49	18.11	0.48
2241	10110	5yr	Updated Existing	19.9	74.69	76.22	75.86	76.34	0.003984	1.63	42.45	69.24	0.56	15.49	18.11	0.48
2241	10110	5yr	ABL_Proposed	19.9	74.69	76.22	75.86	76.34	0.003984	1.63	42.45	69.24	0.56	15.49	18.11	0.48
2241	10110	10yr	Applewood Final Flow	27.6	74.69	76.45	76.03	76.59	0.003954	1.81	49.59	89.66	0.71	19.72	18.99	0.49
2241	10110	10yr	Updated Existing	27.6	74.69	76.45	76.03	76.59	0.003954	1.81	49.59	89.66	0.71	19.72	18.99	0.49
2241	10110	10yr	ABL_Proposed	27.6	74.69	76.45	76.03	76.59	0.003954	1.81	49.59	89.66	0.71	19.72	18.99	0.49
2241	10110	25yr	Applewood Final Flow	34.4	74.69	76.61	76.16	76.77	0.004005	1.96	56.29	110.49	0.84	22.9	19.59	0.51
2241	10110	25yr	Updated Existing	34.4	74.69	76.61	76.16	76.77	0.004005	1.96	56.29	110.49	0.84	22.9	19.59	0.51
2241	10110	25yr	ABL_Proposed	34.4	74.69	76.61	76.16	76.77	0.004005	1.96	56.29	110.49	0.84	22.9	19.59	0.51
2241	10110	50yr	Applewood Final Flow	41.5	74.69	76.72	76.28	76.92	0.004519	2.18	67.96	148.26	1.03	25.04	20	0.54
2241	10110	50yr	Updated Existing	41.5	74.69	76.72	76.28	76.92	0.004519	2.18	67.96	148.26	1.03	25.04	20	0.54
2241	10110	50yr	ABL_Proposed	41.5	74.69	76.72	76.28	76.92	0.004519	2.18	67.96	148.26	1.03	25.04	20	0.54
2241	10110	100yr	Applewood Final Flow	49.5	74.69	76.81	76.39	77.06	0.005222	2.43	83.02	202.03	1.21	26.94	21.44	0.59

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Shear Chan (N/m2)	Power Chan (N/m s)	Volume (1000 m3)	Flow Area (m2)	Top Width (m)	Froude # Chl
2241	10110	100yr	Updated Existing	49.5	74.69	76.81	76.39	77.06	0.005222	2.43	83.02	202.03	1.21	26.94	21.44	0.59
2241	10110	100yr	ABL_Proposed	49.5	74.69	76.81	76.39	77.06	0.005222	2.43	83.02	202.03	1.21	26.94	21.44	0.59
2241	10110	Regional	Applewood Final Flow	55	74.69	76.88	76.47	77.15	0.005628	2.59	92.76	240.05	1.31	28.27	25.51	0.62
2241	10110	Regional	Updated Existing	55	74.69	76.88	76.47	77.15	0.005628	2.59	92.76	240.05	1.31	28.27	25.51	0.62
2241	10110	Regional	ABL_Proposed	55	74.69	76.88	76.47	77.15	0.005628	2.59	92.76	240.05	1.31	28.27	25.51	0.62
2241	10110	Fish Passage	Applewood Final Flow	0.11	74.69	74.86	74.75	74.86	0.000606	0.17	0.78	0.13	0.02	0.64	4.82	0.15
2241	10110	Fish Passage	Updated Existing	0.11	74.69	74.86	74.75	74.86	0.000606	0.17	0.78	0.13	0.02	0.64	4.82	0.15
2241	10110	Fish Passage	ABL_Proposed	0.11	74.69	74.86	74.75	74.86	0.000606	0.17	0.78	0.13	0.02	0.64	4.82	0.15
2241	10060	2yr	Applewood Final Flow	12.7	74.67	75.41	75.41	75.68	0.018095	2.29	93.06	213.46		5.54	10.29	1
2241	10060	2yr	Updated Existing	12.7	74.67	75.41	75.41	75.68	0.018095	2.29	93.06	213.46		5.54	10.29	1
2241	10060	2yr	ABL_Proposed	12.7	74.67	75.41	75.41	75.68	0.018095	2.29	93.06	213.46		5.54	10.29	1
2241	10060	5yr	Applewood Final Flow	19.9	74.67	75.61	75.61	75.96	0.017116	2.62	113.73	297.7		7.6	10.83	1
2241	10060	5yr	Updated Existing	19.9	74.67	75.61	75.61	75.96	0.017116	2.62	113.73	297.7		7.6	10.83	1
2241	10060	5yr	ABL_Proposed	19.9	74.67	75.61	75.61	75.96	0.017116	2.62	113.73	297.7		7.6	10.83	1
2241	10060	10yr	Applewood Final Flow	27.6	74.67	75.79	75.79	76.21	0.016387	2.89	131.65	380.14		9.58	11.62	1
2241	10060	10yr	Updated Existing	27.6	74.67	75.79	75.79	76.21	0.016387	2.89	131.65	380.14		9.58	11.62	1
2241	10060	10yr	ABL_Proposed	27.6	74.67	75.79	75.79	76.21	0.016387	2.89	131.65	380.14		9.58	11.62	1
2241	10060	25yr	Applewood Final Flow	34.4	74.67	75.95	75.95	76.41	0.014436	3	135.56	406.03		11.86	19.35	0.96
2241	10060	25yr	Updated Existing	34.4	74.67	75.95	75.95	76.41	0.014436	3	135.56	406.03		11.86	19.35	0.96
2241	10060	25yr	ABL_Proposed	34.4	74.67	75.95	75.95	76.41	0.014436	3	135.56	406.03		11.86	19.35	0.96
2241	10060	50yr	Applewood Final Flow	41.5	74.67	76.17	76.17	76.58	0.010417	2.88	118.08	340.21		17.55	35.95	0.84
2241	10060	50yr	Updated Existing	41.5	74.67	76.17	76.17	76.58	0.010417	2.88	118.08	340.21		17.55	35.95	0.84
2241	10060	50yr	ABL_Proposed	41.5	74.67	76.17	76.17	76.58	0.010417	2.88	118.08	340.21		17.55	35.95	0.84
2241	10060	100yr	Applewood Final Flow	49.5	74.67	76.32	76.32	76.72	0.008994	2.9	114.9	333.16		23.3	38.46	0.79
2241	10060	100yr	Updated Existing	49.5	74.67	76.32	76.32	76.72	0.008994	2.9	114.9	333.16		23.3	38.46	0.79
2241	10060	100yr	ABL_Proposed	49.5	74.67	76.32	76.32	76.72	0.008994	2.9	114.9	333.16		23.3	38.46	0.79
2241	10060	Regional	Applewood Final Flow	55	74.67	76.39	76.39	76.8	0.008873	2.98	119.36	355.76		26.1	39.08	0.79
2241	10060	Regional	Updated Existing	55	74.67	76.39	76.39	76.8	0.008873	2.98	119.36	355.76		26.1	39.08	0.79
2241	10060	Regional	ABL_Proposed	55	74.67	76.39	76.39	76.8	0.008873	2.98	119.36	355.76		26.1	39.08	0.79
2241	10060	Fish Passage	Applewood Final Flow	0.11	74.67	74.8	74.75	74.8	0.003263	0.3	2.56	0.77		0.36	4.54	0.34
2241	10060	Fish Passage	Updated Existing	0.11	74.67	74.8	74.75	74.8	0.003263	0.3	2.56	0.77		0.36	4.54	0.34
2241	10060	Fish Passage	ABL_Proposed	0.11	74.67	74.8	74.75	74.8	0.003263	0.3	2.56	0.77		0.36	4.54	0.34

Appendix C – Fish Habitat Assessment Field Sheets

Site Identification

Stream Name APPLEWOOD										Stream Code APLWD										Date (yyyy-mm-dd) 2019-04-09																			
Site Code APLWD-01										Alternate Site Code										Sample 01										Site Length (m) 1350.0									
Record using NAD83 datum Uncorr. UTM Zone 17 Easting 616256.0 Northings 4827198.0 Corr. UTM Zone 1 Easting Northings										OR Lat. DD MM SS.sss										Long. DD MM SS.sss																			
Source of Uncorrected UTM Coord.										Source of Corrected UTM Coordinates										Name of Layer Used for Correction																			
GPS/DGPS ☐ Other ☐ GIS ☒ OBM ☐										FWIS ☐ Other ☐ Ortho-photos ☐ GIS ☐																													

Access Route

SOUTH ON DIXIE FROM QEW, LAKEVIEW GOLF CLUB
ON RIGHT SIDE, PARK IN LOT, CREEK TO THE WEST

Site Description

LAKEVIEW GOLF CLUB - SITE FROM SOUTH BOUNDARY
TO NORTH BOUNDARY

☐ Site Was Unsampleable - add reason on reverse

Sketches

Site/Access Route Sketch		Sketch	
Be sure to include enough detail in sketches to ensure that someone could find the site again; include a north arrow and the locations of all markers and noted features. The artist should also sign the sketches.			

Photo No.	Photo Name	Photo Description

Comments

GOLF COURSE, REALIGNED W GABION BANKS,

Crew Leader (init. & last name)

GEY

Crew

N JAWETZ

Recorder

GE

Entered

Verified

Corrected

Site Features

Mandatory Fields in Grey
Must be filled out for processing

Stream Code

APLWD

Site Code

APLWD-01

Sample

01

Date (mm-dd)

2019 04-09

Stream Name

APPLEWOOD CREEK

For each landuse, check box that applies. Be sure to include comments explaining the particulars, including names and numbers of contacts

Site Features	Ongoing & Active	Historical Evidence	No Evidence but Reported	No Evidence	Unknown	Comments
Potential Point or Non-point Source Contaminant Sources	☒	☐	☐	☐	☐	GOLF CLUB
Major Nutrient Sources Upstream	☒	☐	☐	☐	☐	GOLF CLUB
Channel Hardening or Straightening	☒	☐	☐	☐	☐	GOLF CLUB, GABION LINED
Adjacent Landuses that Destabilize Banks	☒	☐	☐	☐	☐	GOLF CLUB
Sediment Loading or Deprivation	☐	☐	☐	☒	☐	
Instream Habitat Modifications	☒	☐	☐	☐	☐	GABION LINED
Barriers and/or Dams in the Vicinity of the Site	☐	☐	☐	☒	☐	
High Fishing Pressure	☐	☐	☐	☒	☐	
Log Jam Deflectors	☐	☐	☐	☒	☐	
Springs or Seeps at the Site	☐	☐	☐	☒	☐	
Impervious Substrate Limiting Burrowing Depth of Fish	☐	☐	☐	☒	☐	
Fish Stocked Near Sample Site	☐	☐	☐	☒	☐	
Other Activities that Could Influence Biota or Habitat	☐	☐	☐	☒	☐	
Intensive Logging Activities within the Riparian Zone	☐	☐	☐	☒	☐	

Sources of Information

Visual

Immediate ☒

Visual

Extended ☐Interview ☐

Maps &

Photos ☐

Riparian Vegetation Community

Only check one box for each bank and zone.

Dominant Vegetation Type

Temperatures

Time (24hr)

Water Temp (°C)

Max. Water Temp (°C)

Source of Max. Air Temp

Air Temp (°C)

Max Air Temp (°C)

Riparian Zone	Left Bank							Right Bank						
	None	Lawn	Crop- land	Mea- dow	Scrub- land	Forest	Wet- lands	None	Lawn	Crop- land	Mea- dow	Scrub- land	Forest	Wet- lands
1.5-10m	☐	☒	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
10-30m	☐	☒	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐
30-100m	☐	☒	☐	☐	☐	☐	☐	☐	☒	☐	☐	☐	☐	☐

Comments

SPOTS W WOODLAND ON BANKS (SEE PHOTOS)

Crew Leader (initial & last name)

G EBY

Crew Initials

N SCHWETZ

Recorder

GB

Ent/Scanned

Verified

Corrected

Rapid Assessment Methodology Field Form

Mandatory Fields In Grey
Must be filled out for processing

Stream Code
APLWD

Date
2019-04-09

Site Type
☐ Calibration ☒ Survey

Stream Name
APPLEWOOD CREEK

Crew Leader (initial & last name)
G EBY

Crew
N. SCHWETZ

Recorder
GE

Channel Structure

Depth (mm)	Pools (Hydraulic Head = 0-3 mm)		Glides (Hydraulic Head = 4-7 mm)		Slow Riffles (Hydraulic Head = 8-17 mm)		Fast Riffles (Hydraulic Head > 17 mm)	
	No Cover	Cover Present	No Cover	Cover Present	No Cover	Cover Present	No Cover	Cover Present
0 - 100 mm	☒	☐	☐	01	☒	18	☒	14
101 - 600 mm	☒	04	07	17	☐	☐	☐	05
601 - 1000 mm	☐	☐	☐	☐	☐	☐	☐	☐
> 1000 mm	☐	☐	☐	☐	☐	☐	☐	☐
Total # Points	14	04	07	18	☐	18	03	19

Instream Cover

Note:
Grey hatched areas are for tally marks.

Cover Types	Flat Rock	Round Rock	Wood	Macrophytes	Bank	Other
Number of Points	21	30	02	01	11	☐

Substrate Types

Point Particle	Fines (<2 mm)		Gravel (2-100 mm)		Cobble (100-1000mm)		Bedrock (>1000mm)		gavia feces	
	Maximum Particle	Point Particle	Maximum Particle	Point Particle	Maximum Particle	Point Particle	Maximum Particle	Point Particle	Maximum Particle	Point Particle
	☐	33	☐	36	☐	07	☐	☐	☐	☐
	☐	32	☐	48	☐	48	☐	☐	☐	☐

Bank Stability

Mean Stream Width (m) 2.5 Mean Depth at Crossover (mm) 15 Maximum Particle Size (mm) 400

Eroding Bank	☐	Angle > 45°: erodible soil, undercut or bare soil
Vulnerable Bank	111	Angle > 45°: erodible soil, no sign of recent erosion
Protected Bank	15	Angle > 45°: non-erodible material/soil
Deposition Zone	☐	Angle < 45°: (gradual slope from river), fine grained sediments

Comments

ISLAND PRESENT MACROPHYTES 13 TRAJECTS
DEAD CYPRINID ALGA - FILAMENTOUS / ATTACHED

Ent/Scanned Verified Corrected

Appendix D – Detailed Tree Inventory

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
217	<i>Tilia americana</i>	Basswood	62, 35	12.0	P-F	Cavity at base of tree. Dead and broken branches.	Retain
218	<i>Acer negundo</i>	Manitoba Maple	64	10.0	F	Broken leader and cracks.	Retain
219	<i>Acer negundo</i>	Manitoba Maple	14, 7	5.0	P-F	Broken branches, suckers. Previously pruned.	Retain
220	<i>Acer negundo</i>	Manitoba Maple	17, 16	5.0	F	Codominant leaders. Extensive grape on tree.	Retain
221	<i>Tilia americana</i>	Basswood	20	6.0	G		Retain
222	<i>Acer negundo</i>	Manitoba Maple	47	10.0	P-F	Main branch split and cracked off. Now large open wound.	Retain
223	<i>Acer negundo</i>	Manitoba Maple	18, 10, 10, 6	6.0	F	Grape on tree. Epicormic shoots.	Retain
225	<i>Acer negundo</i>	Manitoba Maple	20, 16, 7	4.0	F	Grape on tree.	Retain
226	<i>Acer negundo</i>	Manitoba Maple	26, 12, (6<10)	7.0	F	Grape on tree.	Retain
227	<i>Acer negundo</i>	Manitoba Maple	36, 40	14.0	F	Broken branches with decaying third stump.	Retain
228	<i>Acer negundo</i>	Manitoba Maple	41	9.0	F	Broken branches with decaying third stump.	Retain
229	<i>Acer negundo</i>	Manitoba Maple	28	6.0	F-G		Remove
230	<i>Acer saccharum</i>	Sugar Maple	52	12.0	F-G	Lean towards creek 75 degrees.	Remove
231	<i>Tilia americana</i>	Basswood	20, 16	7.0	F	Suckers; dead twigs. Growth impeded by #230.	Remove
232	<i>Acer saccharum</i>	Sugar Maple	8	14.0	G		Remove
233	<i>Acer negundo</i>	Manitoba Maple	10	31.0	F		Remove
234	<i>Fraxinus americana</i>	White Ash	40, 53	10.0	P	Emerald Ash Borer (EAB).	Remove
235	<i>Acer negundo</i>	Manitoba Maple	16	5.0	F		Remove
236	<i>Fraxinus americana</i>	White Ash	19	4.0	P	EAB.	Retain
237	<i>Acer negundo</i>	Manitoba Maple	19	5.0	F	Dead twigs.	Retain
238	<i>Acer negundo</i>	Manitoba Maple	17	5.0	F		Retain
239	<i>Juglans nigra</i>	Black Walnut	23	7.0	F	Canopy pushed down by woodland trees.	Remove
240	<i>Acer saccharum</i>	Sugar Maple	55	14.0	G		Remove
241	<i>Fraxinus americana</i>	White Ash	33	10.0	P	EAB.	Remove
242	<i>Acer saccharum</i>	Sugar Maple	13	7.0	G		Remove
243	<i>Acer saccharum</i>	Sugar Maple	13	7.0	G		Remove
244	<i>Fraxinus americana</i>	White Ash	35	10.0	P	EAB.	Remove
245	<i>Juglans nigra</i>	Black Walnut	15	6.0	F-G		Remove
246	<i>Prunus serotina</i>	Black Cherry	23	7.0	G		Remove
247	<i>Acer negundo</i>	Manitoba Maple	42	10.0	G		Retain
248	<i>Fraxinus americana</i>	White Ash	16	5.0	P	EAB.	Retain
249	<i>Fraxinus americana</i>	White Ash	17	5.0	P	EAB.	Retain
250	<i>Acer saccharum</i>	Sugar Maple	12	5.0	G		Retain
251	<i>Acer saccharum</i>	Sugar Maple	27	12.0	G		Remove
252	<i>Acer saccharum</i>	Sugar Maple	11	5.0	G		Remove
253	<i>Acer negundo</i>	Manitoba Maple	20	7.0	F-G	Suckers. Previously pruned.	Retain
254	<i>Acer negundo</i>	Manitoba Maple	26	7.0	F-G	Lean towards creek. 2 stems joined.	Retain
255	<i>Acer negundo</i>	Manitoba Maple	19, 22, 37	12.0	F	Dead branches.	Remove
256	<i>Acer platanoides</i>	Norway Maple	22	6.0	G		Retain
257	<i>Acer negundo</i>	Manitoba Maple	13	4.0	F	Broken branches.	Retain
258	<i>Acer platanoides</i>	Norway Maple	14	5.0	G		Remove
259	<i>Juglans cinerea</i>	Butternut	19	5.0	F		Retain
260	<i>Acer platanoides</i>	Norway Maple	36	7.0	G		Remove
261	<i>Acer platanoides</i>	Norway Maple	24	10.0	G		Remove
262	<i>Fraxinus americana</i>	White Ash	20	6.0	P		Remove
263	<i>Acer negundo</i>	Manitoba Maple	12	5.0	F	Suckers.	Remove
264	<i>Acer platanoides</i>	Norway Maple	15	6.0	G		Remove
265	<i>Acer negundo</i>	Manitoba Maple	26, 20	10.0	G		Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
266	<i>Ulmus pumila</i>	Siberian Elm	18	6.0	F-G		Remove
267	<i>Acer negundo</i>	Manitoba Maple	14	5.0	F-G		Retain
268	<i>Acer negundo</i>	Manitoba Maple	15	6.0	P-F		Retain
269	<i>Acer negundo</i>	Manitoba Maple	16	5.0	P-F		Retain
270	<i>Acer negundo</i>	Manitoba Maple	24	7.0	F		Retain
271	<i>Acer negundo</i>	Manitoba Maple	11	4.0	F		Remove
272	<i>Prunus avium</i>	Sweet Cherry	11	4.0	F		Remove
273	<i>Acer negundo</i>	Manitoba Maple	14	5.0	F		Remove
274	<i>Acer negundo</i>	Manitoba Maple	43	11.0	F		Retain
275	<i>Acer negundo</i>	Manitoba Maple	17, 13	6.0	F		Retain
276	<i>Acer saccharum</i>	Sugar Maple	10	4.0	G		Retain
277	<i>Fraxinus americana</i>	White Ash	14	0.0	D		Retain
278	<i>Fraxinus americana</i>	White Ash	32	0.0	D		Retain
279	<i>Salix x rubens</i>	Crack Willow	44	10.0	P	Decay at base. Tree fallen over and leaning.	Retain
280	<i>Acer platanoides</i>	Norway Maple	17	6.0	F-G		Remove
281	<i>Fraxinus americana</i>	White Ash	21	4.0	P	EAB.	Retain
282	<i>Acer negundo</i>	Manitoba Maple	12	4.0	F-G		Remove
283	<i>Fraxinus americana</i>	White Ash	35	10.0	P	EAB.	Remove
284	<i>Salix x rubens</i>	Crack Willow	~80 (2 stems)	12.0	F	Broken branches. Base rot in 1 stem.	Remove
285	<i>Prunus avium</i>	Sweet Cherry	14	5.0	F-G		Retain
286	<i>Acer negundo</i>	Manitoba Maple	13	4.0	F-G		Retain
287	<i>Acer negundo</i>	Manitoba Maple	11	4.0	F-G		Remove
288	<i>Acer negundo</i>	Manitoba Maple	12	4.0	F-G		Retain
289	<i>Salix x rubens</i>	Crack Willow	~100 (3 stems)	18.0	P-F	Trunk rot at base.	Remove
290	<i>Prunus avium</i>	Sweet Cherry	12	4.0	F-G		Remove
291	<i>Betula papyrifera</i>	White Birch	19	5.0	F-G	Growing from #290.	Retain
292	<i>Ulmus pumila</i>	Siberian Elm	20	6.0	F-G		Remove
293	<i>Salix x rubens</i>	Crack Willow	~60	10.0	P-F	Rot in trunk.	Retain
294	<i>Acer negundo</i>	Manitoba Maple	18	5.0	F-G		Retain
295	<i>Acer negundo</i>	Manitoba Maple	11	4.0	G		Remove
296	<i>Juglans nigra</i>	Black Walnut	17	5.0	G		Remove
297	<i>Prunus serotina</i>	Black Cherry	13	5.0	G		Remove
298	<i>Prunus serotina</i>	Black Cherry	13	5.0	G		Remove
299	<i>Ulmus pumila</i>	Siberian Elm	13	4.0	F		Remove
300	<i>Prunus serotina</i>	Black Cherry	19	6.0	F		Retain
301	<i>Acer saccharinum</i>	Silver Maple	129	24.0	F	Internal rot between 2 stems. DBH taken below joint.	Remove
302	<i>Acer saccharum</i>	Sugar Maple	48	8.0	G		Remove
303	<i>Acer saccharum</i>	Sugar Maple	49	10.0	G		Remove
304	<i>Acer saccharinum</i>	Silver Maple	67	9.0	G		Remove
305	<i>Acer saccharinum</i>	Silver Maple	64	9.0	G		Remove
306	<i>Acer saccharinum</i>	Silver Maple	48	9.0	G		Remove
307	<i>Fraxinus pennsylvanica</i>	Green Ash	49	0.0	D		Remove
308	<i>Fraxinus pennsylvanica</i>	Green Ash	56	10.0	P		Retain
309	<i>Fraxinus pennsylvanica</i>	Green Ash	35	7.0	P		Retain
310	<i>Juglans nigra</i>	Black Walnut	54	14.0	G		Retain
311	<i>Thuja occidentalis</i>	White Cedar	34	6.0	F-G		Retain
312	<i>Thuja occidentalis</i>	White Cedar	37	6.0	F-G		Retain
313	<i>Fraxinus americana</i>	White Ash	68	10.0	P	EAB and suckers.	Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
314	<i>Ulmus rubra</i>	Red Elm	82	20.0	G		Retain
315	<i>Prunus avium</i>	Sweet Cherry	17, 20	5.0	F	Dead stem. Previously pruned.	Retain
316	<i>Fraxinus pennsylvanica</i>	Green Ash	13	5.0	P	EAB.	Retain
317	<i>Acer negundo</i>	Manitoba Maple	15	6.0	F	Growing into gabion basket.	Retain
318	<i>Juglans nigra</i>	Black Walnut	26	8.0	G	Growing into gabion basket.	Retain
319	<i>Fraxinus pennsylvanica</i>	Green Ash	22	6.0	P	EAB.	Retain
320	<i>Juglans nigra</i>	Black Walnut	25	6.0	F	Topped. No central leader.	Retain
321	<i>Fraxinus pennsylvanica</i>	Green Ash	13	3.0	P	EAB.	Retain
322	<i>Fraxinus pennsylvanica</i>	Green Ash	16	4.0	P	EAB.	Retain
323	<i>Salix x rubens</i>	Crack Willow	~100	15.0	F	Broken limbs and cracked bark.	Retain
324	<i>Salix x rubens</i>	Crack Willow	68	15.0	F	1 stem removed.	Retain
325	<i>Acer saccharum</i>	Sugar Maple	9	4.0	G		Retain
326	<i>Acer saccharinum</i>	Silver Maple	28, 40	10.0	F-G	2 main stems. Lean towards creek.	Retain
327	<i>Acer saccharinum</i>	Silver Maple	23, 20, 24, 25, 15	15.0	G	Lean towards creek.	Retain
328	<i>Acer saccharinum</i>	Silver Maple	23	6.0	G	Lean towards creek.	Retain
329	<i>Acer negundo</i>	Manitoba Maple	17	10.0	F	Lean towards creek, tree almost horizontal. Rubbing branches.	Retain
330	<i>Acer saccharinum</i>	Silver Maple	15	5.0	F	Suckers.	Retain
331	<i>Ulmus pumila</i>	Siberian Elm	12	2.0	F	Trunk wounds and suckers.	Retain
332	<i>Fraxinus pennsylvanica</i>	Green Ash	8	3.0	P	Suckers.	Retain
333	<i>Acer saccharinum</i>	Silver Maple	24, 26	6.0	P	Growing into gabion basket. Lean towards creek.	Retain
334	<i>Acer saccharinum</i>	Silver Maple	9	3.0	F	Suckers.	Retain
335	<i>Acer saccharinum</i>	Silver Maple	18	5.0	P-F	Suckers. Improperly pruned (split branches).	Retain
336	<i>Acer negundo</i>	Manitoba Maple	11	4.0	F	Suckers. Lean towards creek.	Retain
337	<i>Acer negundo</i>	Manitoba Maple	13, 10	4.0	F	Suckers. Lean towards creek.	Retain
338	<i>Salix x rubens</i>	Crack Willow	65	11.0	F	Suckers. Lean towards creek.	Retain
339	<i>Salix x rubens</i>	Crack Willow	75	12.0	P-F	1 stem removed. Decay and suckers.	Retain
340	<i>Acer negundo</i>	Manitoba Maple	25	4.0	P-F	1 stem removed.	Retain
341	<i>Acer negundo</i>	Manitoba Maple	10	3.0	F	Lean towards creek.	Retain
342	<i>Acer negundo</i>	Manitoba Maple	13	4.0	F-G	Lean towards creek.	Retain
343	<i>Malus</i> sp.	Apple Species	11	3.0	F-G		Retain
344	<i>Acer negundo</i>	Manitoba Maple	25	7.0	F-G	Lean towards creek.	Retain
345	<i>Acer negundo</i>	Manitoba Maple	11, 11, 8	6.0	F-G		Retain
346	<i>Salix x rubens</i>	Crack Willow	32, 23, 42	15.0	F-G	Suckers. 1 stem previously removed.	Retain
347	<i>Salix x rubens</i>	Crack Willow	54, 81	12.0	F	Cavity ~2.5 m up tree.	Retain
348	<i>Fraxinus pennsylvanica</i>	Green Ash	21	4.0	P	EAB.	Retain
349	<i>Acer negundo</i>	Manitoba Maple	28	5.0	P	Lean over creek. Broken and dead branches.	Retain
350	<i>Acer negundo</i>	Manitoba Maple	12	5.0	F-G		Retain
351	<i>Acer negundo</i>	Manitoba Maple	14	5.0	F-G		Retain
352	<i>Salix x rubens</i>	Crack Willow	80	18.0	F-G		Retain
353	<i>Acer negundo</i>	Manitoba Maple	16, 34, 17, 18	8.0	F-G	Lean over creek.	Retain
354	<i>Tilia americana</i>	Basswood	9	3.0	G		Retain
355	<i>Fraxinus pennsylvanica</i>	Green Ash	15, 7	3.0	P	EAB.	Retain
356	<i>Fraxinus pennsylvanica</i>	Green Ash	30	4.0	P	EAB.	Retain
357	<i>Fraxinus pennsylvanica</i>	Green Ash	12	3.0	P	Previously pruned. Root girdling. Ash growing with tree.	Retain
358	<i>Acer negundo</i>	Manitoba Maple	25, 36, 18-ash	8.0	F	EAB.	Retain
359	<i>Salix x rubens</i>	Crack Willow	66	10.0	F-G	Broken twigs. Gypsy moth egg masses.	Retain
360	<i>Salix x rubens</i>	Crack Willow	~80, ~70	12.0	F-G	Broken twigs. Growing next to pipe.	Retain
361	<i>Fraxinus pennsylvanica</i>	Green Ash	13, 10	2.0	P	EAB.	Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
362	<i>Fraxinus pennsylvanica</i>	Green Ash	28	6.0	P		Retain
363	<i>Ulmus americana</i>	White Elm	10	2.0	F-G		Retain
NT1	<i>Fraxinus pennsylvanica</i>	Green Ash	10	2.0	P	Beside #363 at creek. EAB.	Retain
364	<i>Morus alba</i>	White Mulberry	12, 7, 6	3.0	F-G		Retain
365	<i>Fraxinus pennsylvanica</i>	Green Ash	10, 8	4.0	P	In gabion basket. EAB.	Retain
366	<i>Acer negundo</i>	Manitoba Maple	10	3.0	F-G		Retain
367	<i>Ulmus pumila</i>	Siberian Elm	23	5.0	P	In gabion basket.	Retain
368	<i>Ulmus pumila</i>	Siberian Elm	20	5.0	P	In gabion basket.	Retain
369	<i>Morus alba</i>	White Mulberry	16	4.0	P-F	On slope above gabion.	Retain
370	<i>Morus alba</i>	White Mulberry	14, 10	4.0	F	On slope above gabion.	Retain
371	<i>Pinus sylvestris</i>	Scots Pine	32, 37	7.0	F	Codominant stems.	Retain
372	<i>Fraxinus pennsylvanica</i>	Green Ash	28	7.0	P	EAB.	Retain
373	<i>Prunus serotina</i>	Black Cherry	23, 22	8.0	F-G		Retain
374	<i>Juglans nigra</i>	Black Walnut	25	7.0	F-G	Roots in gabion.	Retain
375	<i>Juglans nigra</i>	Black Walnut	17	7.0	F-G	Roots in gabion.	Retain
376	<i>Fraxinus pennsylvanica</i>	Green Ash	10	3.0	P	EAB.	Retain
377	<i>Prunus avium</i>	Sweet Cherry	10	3.0	F-G		Retain
378	<i>Fraxinus pennsylvanica</i>	Green Ash	11	3.0	P	EAB.	Retain
379	<i>Betula papyrifera</i>	White Birch	61	11.0	P	Decay at base. Dead branches.	Retain
380	<i>Fraxinus pennsylvanica</i>	Green Ash	11	3.0	P	EAB.	Retain
381	<i>Fraxinus pennsylvanica</i>	Green Ash	17	4.0	P	EAB.	Retain
382	<i>Fraxinus pennsylvanica</i>	Green Ash	12	3.0	P	EAB.	Retain
383	<i>Betula papyrifera</i>	White Birch	34	7.0	F	Exposed roots lifting up.	Retain
384	<i>Betula papyrifera</i>	White Birch	26	6.0	F	Exposed roots lifting up.	Remove
385	<i>Thuja occidentalis</i>	White Cedar	30, 25, 12	6.0	F-G	Included bark.	Retain
386	<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	10	3.0	G		Retain
387	<i>Fraxinus pennsylvanica</i>	Green Ash	57	9.0	P	EAB.	Retain
388	<i>Thuja occidentalis</i>	White Cedar	24, 13	4.0	F	Growing with #387	Retain
389	<i>Thuja occidentalis</i>	White Cedar	20	4.0	F	Sealing trunk wound.	Retain
390	<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	11	4.0	G		Retain
391	<i>Thuja occidentalis</i>	White Cedar	25	4.0	F	Roots lifting.	Retain
392	<i>Thuja occidentalis</i>	White Cedar	23	4.0	G		Retain
393	<i>Morus alba</i>	White Mulberry	19	5.0	G		Retain
394	<i>Thuja occidentalis</i>	White Cedar	28	4.0	F-G	Lean towards creek.	Retain
395	<i>Thuja occidentalis</i>	White Cedar	34, 21	5.0	G		Retain
396	<i>Fraxinus pennsylvanica</i>	Green Ash	12	3.0	P	EAB.	Retain
397	<i>Acer saccharinum</i>	Silver Maple	14	4.0	F-G	Suckers.	Retain
398	<i>Fraxinus pennsylvanica</i>	Green Ash	12	4.0	P	EAB.	Retain
399	<i>Betula papyrifera</i>	White Birch	15	4.0	F	Lean towards creek.	Retain
400	<i>Fraxinus pennsylvanica</i>	Green Ash	13	3.0	P	EAB.	Retain
1301	<i>Thuja occidentalis</i>	White Cedar	16	3.0	F	Bleaching 1/2 of trunk.	Retain
1302	<i>Fraxinus pennsylvanica</i>	Green Ash	16	4.0	P	EAB.	Remove
1303	<i>Tilia americana</i>	Basswood	24, 42, 42	11.0	F	Previously pruned. Decaying in pruned trunk.	Retain
1304	<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	10	4.0	G		Remove
1305	<i>Prunus</i> sp.	Plum species	10	4.0	G		Retain
1306	<i>Prunus</i> sp.	Plum species	9	4.0	G		Retain
1307	<i>Fraxinus pennsylvanica</i>	Green Ash	13	4.0	P	EAB.	Remove
1308	<i>Juglans nigra</i>	Black Walnut	26	7.0	G		Remove

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
1309	<i>Fraxinus pennsylvanica</i>	Green Ash	16	3.0	P	EAB.	Remove
1310	<i>Fraxinus pennsylvanica</i>	Green Ash	11	3.0	P	EAB.	Remove
1311	<i>Fraxinus pennsylvanica</i>	Green Ash	10	3.0	P	EAB.	Remove
1312	<i>Fraxinus pennsylvanica</i>	Green Ash	11	3.0	P	EAB.	Remove
1313	<i>Fraxinus pennsylvanica</i>	Green Ash	21	4.0	P	EAB.	Remove
1314	<i>Juglans nigra</i>	Black Walnut	12	6.0	G		Remove
1315	<i>Picea glauca</i>	White Spruce	20	5.0	G		Remove
1316	<i>Pinus sylvestris</i>	Scots Pine	57	9.0	G		Retain
1317	<i>Pinus sylvestris</i>	Scots Pine	47	8.0	G		Retain
1318	<i>Pinus sylvestris</i>	Scots Pine	35	6.0	F-G	1 broken branch.	Retain
1319	<i>Juglans nigra</i>	Black Walnut	52	12.0	G		Remove
1320	<i>Juglans nigra</i>	Black Walnut	60	12.0	F	Trunk wound - sealing with rot.	Remove
1321	<i>Juglans nigra</i>	Black Walnut	56	12.0	G		Remove
00000	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00000	<i>Thuja occidentalis</i>	Eastern White Cedar	32				Remove
00001	<i>Pinus sylvestris</i>	Scotch Pine	43				Retain
00001	<i>Thuja occidentalis</i>	Eastern White Cedar	37				Remove
00002	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00002	<i>Thuja occidentalis</i>	Eastern White Cedar	26				Remove
00003	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00003	<i>Thuja occidentalis</i>	Eastern White Cedar	33				Remove
00004	<i>Pinus sylvestris</i>	Scotch Pine	43				Retain
00004	<i>Thuja occidentalis</i>	Eastern White Cedar	35				Remove
00005	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00005	<i>Thuja occidentalis</i>	Eastern White Cedar	32				Remove
00006	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00006	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Remove
00007	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00007	<i>Thuja occidentalis</i>	Eastern White Cedar	21				Retain
00008	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00008	<i>Salix</i>	Common Willow	88				Remove
00008	<i>Thuja occidentalis</i>	Eastern White Cedar	37				Retain
00009	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00009	<i>Salix</i>	Common Willow	92				Remove
00009	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Retain
00010	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00010	<i>Acer negundo</i>	Manitoba Maple	28				Retain
00010	<i>Thuja occidentalis</i>	Eastern White Cedar	42				Remove
00011	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00011	<i>Acer negundo</i>	Manitoba Maple	55				Retain
00011	<i>Thuja occidentalis</i>	Eastern White Cedar	26				Remove
00012	<i>Acer negundo</i>	Manitoba Maple	38				Retain
00012	<i>Pinus sylvestris</i>	Scotch Pine	58				Retain
00012	<i>Thuja occidentalis</i>	Eastern White Cedar	23				Remove
00013	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00013	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00013	<i>Thuja occidentalis</i>	Eastern White Cedar	50				Retain
00014	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00014	Salix	Common Willow	66				Retain
00014	Thuja occidentalis	Eastern White Cedar	45				Remove
00015	Pinus sylvestris	Scotch Pine	42				Retain
00015	Acer saccharinum	Silver Maple	170				Retain
00015	Thuja occidentalis	Eastern White Cedar	55				Retain
00016	Pinus sylvestris	Scotch Pine	36				Retain
00016	Thuja occidentalis	Eastern White Cedar	22				Retain
00017	Acer rubrum	Red Maple	88				Retain
00017	Pinus sylvestris	Scotch Pine	34				Retain
00017	Thuja occidentalis	Eastern White Cedar	52				Retain
00018	Acer saccharinum	Silver Maple	115				Retain
00018	Pinus sylvestris	Scotch Pine	38				Retain
00018	Thuja occidentalis	Eastern White Cedar	24				Retain
00019	Pinus sylvestris	Scotch Pine	45				Retain
00019	Thuja occidentalis	Eastern White Cedar	34				Retain
00020	Thuja occidentalis	Eastern White Cedar	49				Retain
00020	Pinus sylvestris	Scotch Pine	34				Retain
00021	Thuja occidentalis	Eastern White Cedar	15				Retain
00021	Pinus sylvestris	Scotch Pine	45				Retain
00022	Thuja occidentalis	Eastern White Cedar	8				Retain
00022	Pinus sylvestris	Scotch Pine	43				Retain
00023	Thuja occidentalis	Eastern White Cedar	30				Retain
00023	Pinus sylvestris	Scotch Pine	29				Retain
00024	Thuja occidentalis	Eastern White Cedar	22				Retain
00024	Pinus sylvestris	Scotch Pine	33				Retain
00025	Thuja occidentalis	Eastern White Cedar	47				Retain
00025	Pinus sylvestris	Scotch Pine	30				Retain
00026	Thuja occidentalis	Eastern White Cedar	40				Retain
00026	Pinus sylvestris	Scotch Pine	55				Retain
00027	Thuja occidentalis	Eastern White Cedar	45				Retain
00027	Pinus sylvestris	Scotch Pine	40				Retain
00028	Thuja occidentalis	Eastern White Cedar	35				Retain
00028	Pinus sylvestris	Scotch Pine	40				Retain
00029	Thuja occidentalis	Eastern White Cedar	35				Retain
00029	Pinus sylvestris	Scotch Pine	40				Retain
00030	Thuja occidentalis	Eastern White Cedar	31				Retain
00030	Pinus sylvestris	Scotch Pine	41				Retain
00031	Thuja occidentalis	Eastern White Cedar	43				Retain
00031	Pinus sylvestris	Scotch Pine	26				Retain
00032	Thuja occidentalis	Eastern White Cedar	47				Retain
00032	Pinus sylvestris	Scotch Pine	25				Retain
00033	Thuja occidentalis	Eastern White Cedar	39				Retain
00033	Pinus sylvestris	Scotch Pine	27				Retain
00034	Thuja occidentalis	Eastern White Cedar	33				Retain
00034	Pinus sylvestris	Scotch Pine	40				Retain
00035	Thuja occidentalis	Eastern White Cedar	32				Retain
00035	Pinus sylvestris	Scotch Pine	38				Retain
00036	Thuja occidentalis	Eastern White Cedar	29				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00036	Pinus sylvestris	Scotch Pine	32				Retain
00037	Thuja occidentalis	Eastern White Cedar	25				Retain
00037	Pinus sylvestris	Scotch Pine	46				Retain
00038	Thuja occidentalis	Eastern White Cedar	28				Retain
00038	Pinus sylvestris	Scotch Pine	50				Retain
00039	Thuja occidentalis	Eastern White Cedar	70				Retain
00039	Pinus sylvestris	Scotch Pine	40				Retain
00040	Thuja occidentalis	Eastern White Cedar	27				Retain
00040	Pinus sylvestris	Scotch Pine	46				Retain
00041	Thuja occidentalis	Eastern White Cedar	25				Retain
00041	Pinus sylvestris	Scotch Pine	42				Retain
00042	Thuja occidentalis	Eastern White Cedar	28				Retain
00042	Pinus sylvestris	Scotch Pine	36				Retain
00043	Thuja occidentalis	Eastern White Cedar	26				Retain
00043	Pinus sylvestris	Scotch Pine	46				Retain
00044	Thuja occidentalis	Eastern White Cedar	21				Retain
00044	Pinus sylvestris	Scotch Pine	29				Retain
00045	Thuja occidentalis	Eastern White Cedar	26				Retain
00045	Pinus sylvestris	Scotch Pine	51				Retain
00046	Pinus sylvestris	Scotch Pine	32				Retain
00046	Thuja occidentalis	Eastern White Cedar	29				Retain
00047	Pinus sylvestris	Scotch Pine	49				Retain
00047	Thuja occidentalis	Eastern White Cedar	30				Retain
00048	Pinus sylvestris	Scotch Pine	41				Retain
00048	Thuja occidentalis	Eastern White Cedar	28				Retain
00049	Pinus sylvestris	Scotch Pine	45				Retain
00049	Thuja occidentalis	Eastern White Cedar	36				Retain
00050	Acer saccharinum	Silver Maple	120				Retain
00050	Pinus sylvestris	Scotch Pine	38				Retain
00050	Thuja occidentalis	Eastern White Cedar	31				Retain
00051	Pinus sylvestris	Scotch Pine	18				Retain
00051	Thuja occidentalis	Eastern White Cedar	30				Retain
00052	Pinus sylvestris	Scotch Pine	34				Retain
00052	Thuja occidentalis	Eastern White Cedar	27				Retain
00053	Pinus sylvestris	Scotch Pine	29				Retain
00053	Thuja occidentalis	Eastern White Cedar	27				Retain
00054	Pinus sylvestris	Scotch Pine	21				Retain
00054	Thuja occidentalis	Eastern White Cedar	34				Retain
00055	Pinus sylvestris	Scotch Pine	38				Retain
00055	Thuja occidentalis	Eastern White Cedar	29				Retain
00056	Pinus sylvestris	Scotch Pine	54				Retain
00056	Tilia americana	Basswood Linden	41				Retain
00056	Thuja occidentalis	Eastern White Cedar	25				Retain
00057	Morus	Mulberry	42				Retain
00057	Pinus sylvestris	Scotch Pine	29				Retain
00057	Thuja occidentalis	Eastern White Cedar	26				Retain
00058	Pinus sylvestris	Scotch Pine	53				Retain
00058	Salix x sepulcralis 'Chrysocoma'	Weeping Willow	120				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00058	Thuja occidentalis	Eastern White Cedar	24				Retain
00059	Pinus sylvestris	Scotch Pine	37				Retain
00059	Thuja occidentalis	Eastern White Cedar	18				Retain
00060	Pinus sylvestris	Scotch Pine	39				Retain
00060	Thuja occidentalis	Eastern White Cedar	32				Retain
00061	Pinus sylvestris	Scotch Pine	35				Remove
00061	Thuja occidentalis	Eastern White Cedar	39				Retain
00062	Pinus sylvestris	Scotch Pine	37				Retain
00062	Thuja occidentalis	Eastern White Cedar	32				Remove
00063	Pinus sylvestris	Scotch Pine	25				Retain
00063	Thuja occidentalis	Eastern White Cedar	30				Remove
00064	Thuja occidentalis	Eastern White Cedar	27				Remove
00064	Pinus sylvestris	Scotch Pine	38				Retain
00065	Thuja occidentalis	Eastern White Cedar	27				Retain
00065	Pinus sylvestris	Scotch Pine	34				Remove
00066	Thuja occidentalis	Eastern White Cedar	24				Remove
00066	Pinus sylvestris	Scotch Pine	39				Retain
00067	Thuja occidentalis	Eastern White Cedar	42				Remove
00067	Pinus sylvestris	Scotch Pine	45				Retain
00068	Thuja occidentalis	Eastern White Cedar	43				Retain
00068	Pinus sylvestris	Scotch Pine	40				Remove
00069	Thuja occidentalis	Eastern White Cedar	31				Retain
00069	Pinus sylvestris	Scotch Pine	48				Retain
00070	Thuja occidentalis	Eastern White Cedar	32				Retain
00070	Pinus sylvestris	Scotch Pine	43				Remove
00071	Thuja occidentalis	Eastern White Cedar	28				Retain
00071	Pinus sylvestris	Scotch Pine	52				Retain
00072	Thuja occidentalis	Eastern White Cedar	26				Retain
00072	Pinus sylvestris	Scotch Pine	35				Retain
00073	Thuja occidentalis	Eastern White Cedar	21				Retain
00073	Pinus sylvestris	Scotch Pine	34				Retain
00074	Thuja occidentalis	Eastern White Cedar	13				Retain
00074	Pinus sylvestris	Scotch Pine	34				Retain
00075	Thuja occidentalis	Eastern White Cedar	10				Retain
00075	Pinus sylvestris	Scotch Pine	24				Retain
00076	Thuja occidentalis	Eastern White Cedar	13				Retain
00076	Pinus sylvestris	Scotch Pine	30				Retain
00077	Thuja occidentalis	Eastern White Cedar	10				Retain
00077	Pinus sylvestris	Scotch Pine	26				Retain
00078	Thuja occidentalis	Eastern White Cedar	14				Retain
00078	Pinus sylvestris	Scotch Pine	32				Retain
00079	Thuja occidentalis	Eastern White Cedar	8				Retain
00079	Pinus sylvestris	Scotch Pine	28				Retain
00080	Thuja occidentalis	Eastern White Cedar	13				Retain
00080	Pinus sylvestris	Scotch Pine	40				Retain
00081	Thuja occidentalis	Eastern White Cedar	19				Retain
00081	Pinus sylvestris	Scotch Pine	41				Retain
00082	Thuja occidentalis	Eastern White Cedar	12				Remove

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00082	Pinus sylvestris	Scotch Pine	32				Retain
00083	Thuja occidentalis	Eastern White Cedar	14				Retain
00083	Pinus sylvestris	Scotch Pine	42				Remove
00084	Thuja occidentalis	Eastern White Cedar	12				Retain
00084	Pinus sylvestris	Scotch Pine	57				Remove
00085	Thuja occidentalis	Eastern White Cedar	12				Retain
00085	Pinus sylvestris	Scotch Pine	30				Retain
00086	Thuja occidentalis	Eastern White Cedar	27				Retain
00086	Pinus sylvestris	Scotch Pine	41				Retain
00087	Thuja occidentalis	Eastern White Cedar	30				Retain
00087	Pinus sylvestris	Scotch Pine	42				Remove
00088	Pinus sylvestris	Scotch Pine	51				Retain
00088	Thuja occidentalis	Eastern White Cedar	31				Remove
00089	Pinus sylvestris	Scotch Pine	52				Retain
00089	Thuja occidentalis	Eastern White Cedar	27				Remove
00090	Pinus sylvestris	Scotch Pine	52				Retain
00090	Thuja occidentalis	Eastern White Cedar	41				Retain
00091	Thuja occidentalis	Eastern White Cedar	22				Retain
00092	Pinus sylvestris	Scotch Pine	45				Retain
00093	Pinus sylvestris	Scotch Pine	48				Remove
00093	Thuja occidentalis	Eastern White Cedar	24				Retain
00094	Pinus sylvestris	Scotch Pine	28				Retain
00094	Gymnocladus dioicus	Kentucky Coffee Tree	58				Remove
00095	Pinus sylvestris	Scotch Pine	44				Remove
00095	Prunus serotina	Black Cherry	45				Retain
00096	Pinus sylvestris	Scotch Pine	30				Retain
00096	Prunus serotina	Black Cherry	40				Remove
00097	Pinus sylvestris	Scotch Pine	25				Retain
00097	Prunus serotina	Black Cherry	56				Retain
00098	Prunus serotina	Black Cherry	64				Retain
00098	Pinus sylvestris	Scotch Pine	24				Retain
00099	Prunus serotina	Black Cherry	66				Retain
00099	Pinus sylvestris	Scotch Pine	27				Retain
00100	Prunus serotina	Black Cherry	31				Retain
00100	Pinus sylvestris	Scotch Pine	27				Retain
00101	Prunus serotina	Black Cherry	52				Retain
00101	Pinus sylvestris	Scotch Pine	45				Retain
00102	Prunus serotina	Black Cherry	63				Retain
00102	Pinus sylvestris	Scotch Pine	28				Retain
00103	Prunus serotina	Black Cherry	30				Retain
00103	Pinus sylvestris	Scotch Pine	32				Retain
00104	Prunus serotina	Black Cherry	25				Retain
00104	Pinus sylvestris	Scotch Pine	32				Retain
00105	Prunus serotina	Black Cherry	22				Retain
00105	Pinus sylvestris	Scotch Pine	31				Remove
00106	Prunus serotina	Black Cherry	31				Retain
00106	Pinus sylvestris	Scotch Pine	27				Retain
00107	Prunus serotina	Black Cherry	23				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00107	Pinus sylvestris	Scotch Pine	26				Retain
00108	Prunus serotina	Black Cherry	25				Retain
00108	Pinus sylvestris	Scotch Pine	21				Retain
00109	Pinus sylvestris	Scotch Pine	33				Retain
00109	Prunus serotina	Black Cherry	65				Retain
00110	Pinus sylvestris	Scotch Pine	38				Retain
00110	Prunus serotina	Black Cherry	61				Remove
00111	Pinus sylvestris	Scotch Pine	46				Retain
00111	Prunus serotina	Black Cherry	46				Retain
00112	Pinus sylvestris	Scotch Pine	24				Retain
00112	Prunus serotina	Black Cherry	49				Retain
00113	Pinus sylvestris	Scotch Pine	38				Retain
00113	Prunus serotina	Black Cherry	40				Retain
00114	Pinus sylvestris	Scotch Pine	36				Retain
00114	Prunus serotina	Black Cherry	47				Retain
00115	Pinus sylvestris	Scotch Pine	24				Retain
00115	Prunus serotina	Black Cherry	36				Retain
00116	Pinus sylvestris	Scotch Pine	27				Retain
00116	Prunus serotina	Black Cherry	22				Retain
00117	Pinus sylvestris	Scotch Pine	27				Retain
00117	Prunus serotina	Black Cherry	41				Retain
00118	Pinus sylvestris	Scotch Pine	28				Retain
00118	Prunus serotina	Black Cherry	43				Retain
00119	Pinus sylvestris	Scotch Pine	32				Retain
00119	Prunus serotina	Black Cherry	15				Retain
00120	Pinus sylvestris	Scotch Pine	32				Retain
00120	Prunus serotina	Black Cherry	42				Retain
00121	Pinus sylvestris	Scotch Pine	31				Retain
00121	Prunus serotina	Black Cherry	32				Retain
00122	Pinus sylvestris	Scotch Pine	22				Retain
00122	Prunus serotina	Black Cherry	16				Retain
00123	Pinus strobus	White Pine	49				Remove
00123	Prunus serotina	Black Cherry	36				Retain
00124	Pinus strobus	White Pine	45				Retain
00124	Prunus serotina	Black Cherry	10				Remove
00125	Pinus strobus	White Pine	7				Remove
00125	Prunus serotina	Black Cherry	18				Retain
00126	Pinus strobus	White Pine	9				Retain
00126	Prunus serotina	Black Cherry	24				Remove
00127	Pinus strobus	White Pine	38				Retain
00127	Prunus serotina	Black Cherry	21				Retain
00128	Pinus strobus	White Pine	56				Retain
00128	Prunus serotina	Black Cherry	100				Retain
00129	Prunus serotina	Black Cherry	19				Retain
00129	Pinus strobus	White Pine	56				Retain
00130	Prunus serotina	Black Cherry	51				Remove
00130	Pinus strobus	White Pine	10				Retain
00131	Prunus serotina	Black Cherry	24				Remove

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00131	Pinus strobus	White Pine	7				Retain
00132	Prunus serotina	Black Cherry	15				Retain
00132	Pinus strobus	White Pine	95				Retain
00133	Prunus serotina	Black Cherry	14				Remove
00133	Pinus strobus	White Pine	51				Retain
00134	Prunus serotina	Black Cherry	47				Retain
00134	Pinus strobus	White Pine	44				Retain
00135	Prunus serotina	Black Cherry	39				Retain
00135	Pinus strobus	White Pine	51				Retain
00136	Prunus serotina	Black Cherry	42				Retain
00136	Pinus strobus	White Pine	43				Retain
00137	Prunus serotina	Black Cherry	28				Retain
00137	Pinus strobus	White Pine	16				Retain
00138	Prunus serotina	Black Cherry	66				Retain
00138	Pinus strobus	White Pine	15				Retain
00139	Prunus serotina	Black Cherry	25				Retain
00139	Pinus strobus	White Pine	8				Retain
00140	Prunus serotina	Black Cherry	64				Retain
00140	Pinus strobus	White Pine	7				Retain
00141	Prunus serotina	Black Cherry	25				Retain
00141	Pinus strobus	White Pine	8				Retain
00142	Prunus serotina	Black Cherry	46				Retain
00142	Pinus strobus	White Pine	14				Retain
00143	Prunus serotina	Black Cherry	34				Retain
00143	Pinus strobus	White Pine	34				Retain
00144	Prunus serotina	Black Cherry	45				Retain
00144	Pinus strobus	White Pine	34				Retain
00145	Prunus serotina	Black Cherry	50				Retain
00145	Pinus strobus	White Pine	54				Retain
00146	Prunus avium	Cherry	37				Retain
00146	Pinus strobus	White Pine	44				Retain
00147	Prunus avium	Cherry	66				Retain
00147	Pinus strobus	White Pine	40				Retain
00148	Prunus avium	Cherry	28				Retain
00148	Pinus strobus	White Pine	51				Retain
00149	Prunus avium	Cherry	17				Retain
00149	Pinus strobus	White Pine	50				Retain
00150	Pinus strobus	White Pine	5				Retain
00150	Prunus avium	Cherry	17				Retain
00151	Pinus strobus	White Pine	5				Retain
00151	Prunus avium	Cherry	15				Retain
00152	Pinus strobus	White Pine	80				Remove
00152	Prunus avium	Cherry	12				Remove
00153	Pinus strobus	White Pine	67				Retain
00153	Prunus avium	Cherry	14				Retain
00154	Prunus avium	Cherry	14				Retain
00154	Pinus strobus	White Pine	44				Retain
00155	Prunus avium	Cherry	18				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00155	Pinus strobus	White Pine	46				Retain
00156	Prunus avium	Cherry	51				Retain
00156	Pinus strobus	White Pine	52				Retain
00157	Pinus strobus	White Pine	65				Retain
00157	Prunus avium	Cherry	82				Retain
00158	Pinus strobus	White Pine	42				Retain
00158	Prunus avium	Cherry	60				Retain
00159	Pinus strobus	White Pine	50				Retain
00159	Prunus avium	Cherry	75				Retain
00160	Pinus strobus	White Pine	48				Retain
00160		Deadoo	90				Retain
00161	Pinus strobus	White Pine	54				Retain
00161		Deadoo	21				Retain
00162	Pinus strobus	White Pine	47				Retain
00162		Deadoo	17				Retain
00163	Pinus strobus	White Pine	44				Retain
00163		Deadoo	16				Retain
00164	Pinus strobus	White Pine	13				Remove
00164		Deadoo	23				Retain
00165	Pinus strobus	White Pine	13				Retain
00165		Deadoo	13				Retain
00166	Pinus strobus	White Pine	5				Retain
00166		Deadoo	55				Retain
00167	Pinus strobus	White Pine	15				Retain
00167		Deadoo	16				Retain
00168	Pinus strobus	White Pine	5				Retain
00168		Deadoo	24				Retain
00169		Deadoo	20				Retain
00169	Pinus strobus	White Pine	5				Retain
00169	Ailanthus altissima	Tree Of Heaven	8				Retain
00170		Deadoo	41				Retain
00170	Pinus strobus	White Pine	44				Retain
00170	Ailanthus altissima	Tree Of Heaven	8				Retain
00171	Pinus strobus	White Pine	53				Retain
00171		Deadoo	23				Retain
00171	Ailanthus altissima	Tree Of Heaven	8				Retain
00172	Pinus strobus	White Pine	44				Retain
00172		Deadoo	16				Retain
00172	Ailanthus altissima	Tree Of Heaven	8				Retain
00173	Pinus strobus	White Pine	45				Retain
00173		Deadoo	12				Retain
00173	Ailanthus altissima	Tree Of Heaven	8				Retain
00174	Pinus strobus	White Pine	36				Retain
00174		Deadoo	54				Retain
00174	Ailanthus altissima	Tree Of Heaven	8				Retain
00175	Pinus strobus	White Pine	46				Retain
00175		Deadoo	25				Retain
00175	Ailanthus altissima	Tree Of Heaven	8				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00176	Pinus strobus	White Pine	50				Retain
00176	Ulmus americana	American Elm	23				Retain
00176	Ailanthus altissima	Tree Of Heaven	8				Retain
00177	Populus balsamifera	Balsam Poplar	41				Remove
00177	Ulmus americana	American Elm	19				Retain
00177	Ailanthus altissima	Tree Of Heaven	8				Retain
00178	Populus balsamifera	Balsam Poplar	50				Retain
00178	Ulmus americana	American Elm	15				Retain
00178	Ailanthus altissima	Tree Of Heaven	8				Remove
00179	Populus balsamifera	Balsam Poplar	48				Remove
00179	Ulmus americana	American Elm	17				Retain
00179	Ailanthus altissima	Tree Of Heaven	8				Retain
00180	Populus balsamifera	Balsam Poplar	38				Retain
00180	Ulmus americana	American Elm	15				Remove
00180	Ailanthus altissima	Tree Of Heaven	8				Retain
00181	Populus balsamifera	Balsam Poplar	41				Retain
00181	Ulmus americana	American Elm	38				Remove
00181	Ailanthus altissima	Tree Of Heaven	8				Retain
00182	Populus balsamifera	Balsam Poplar	47				Retain
00182	Ulmus americana	American Elm	70				Retain
00182	Ailanthus altissima	Tree Of Heaven	8				Retain
00183	Populus balsamifera	Balsam Poplar	36				Retain
00183	Ulmus spp.	Elm Spp.	21				Retain
00183	Ailanthus altissima	Tree Of Heaven	8				Remove
00184	Populus	Cottonwood Poplar	85				Retain
00184	Ulmus pumila	Siberian Elm	54				Retain
00184	Ailanthus altissima	Tree Of Heaven	8				Retain
00185	Populus	Cottonwood Poplar	51				Retain
00185	Ginkgo biloba	Ginkgo Bilboa	41				Retain
00185	Ailanthus altissima	Tree Of Heaven	8				Retain
00186	Populus	Cottonwood Poplar	51				Retain
00186	Ginkgo biloba	Ginkgo Bilboa	38				Retain
00186	Ailanthus altissima	Tree Of Heaven	8				Retain
00187	Populus	Cottonwood Poplar	18				Retain
00187	Ailanthus altissima	Tree Of Heaven	8				Retain
00188	Populus	Cottonwood Poplar	27				Retain
00188	Ginkgo biloba	Ginkgo	28				Retain
00188	Ailanthus altissima	Tree Of Heaven	8				Retain
00189	Populus	Cottonwood Poplar	12				Remove
00189	Ginkgo biloba	Ginkgo	25				Retain
00190	Populus	Cottonwood Poplar	16				Retain
00190	Ginkgo biloba	Ginkgo	25				Retain
00191	Populus	Cottonwood Poplar	15				Retain
00191	Celtis occidentalis	Native Hackberry	14				Retain
00192	Picea pungens	Colorado Blue Spruce	43				Retain
00192	Tsuga canadensis	Eastern Hemlock	83				Retain
00193	Picea pungens	Colorado Blue Spruce	51				Retain
00193	Crataegus spp.	Hawthorn Spp	11				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00194	Picea pungens	Colorado Blue Spruce	25				Retain
00194	Crataegus spp.	Hawthorn Spp	14				Retain
00195	Picea pungens	Colorado Blue Spruce	27				Retain
00195	Crataegus spp.	Hawthorn Spp	10				Retain
00196	Picea pungens	Colorado Blue Spruce	31				Retain
00196	Crataegus spp.	Hawthorn Spp	14				Retain
00197	Picea pungens	Colorado Blue Spruce	34				Retain
00197	Ostrya virginiana	Ironwood	28				Retain
00198	Picea glauca	White Spruce	80				Retain
00198	Picea pungens	Colorado Blue Spruce	29				Retain
00198	Ostrya virginiana	Ironwood	12				Retain
00199	Picea pungens	Colorado Blue Spruce	23				Remove
00199	Pinus strobus	White Pine	100				Retain
00199	Juniperus virginiana	Eastern Red Juniper	31				Retain
00200	Picea pungens	Colorado Blue Spruce	23				Retain
00200	Prunus serotina	Black Cherry	80				Retain
00200	Tilia americana	Basswood Linden	20				Remove
00201	Picea pungens	Colorado Blue Spruce	37				Retain
00201	Acer saccharinum	Silver Maple	140				Retain
00201	Tilia americana	Basswood Linden	34				Retain
00202	Picea pungens	Colorado Blue Spruce	27				Retain
00202	Acer saccharum	Sugar Maple	96				Retain
00202	Tilia americana	Basswood Linden	35				Retain
00203	Picea pungens	Colorado Blue Spruce	30				Retain
00203	Populus	Misc Poplar	120				Retain
00203	Tilia americana	Basswood Linden	34				Retain
00204	Picea pungens	Colorado Blue Spruce	45				Retain
00205	Picea pungens	Colorado Blue Spruce	35				Retain
00205	Acer saccharinum	Silver Maple	70				Retain
00205	Tilia cordata	Littleleaf Linden	44				Retain
00206	Picea pungens	Colorado Blue Spruce	37				Retain
00206	Acer saccharinum	Silver Maple	110				Retain
00206	Tilia cordata	Littleleaf Linden	48				Retain
00207	Picea pungens	Colorado Blue Spruce	51				Retain
00207	Populus	Misc Poplar	210				Retain
00207	Tilia cordata	Littleleaf Linden	29				Retain
00208	Picea pungens	Colorado Blue Spruce	36				Remove
00208	Robinia pseudoacacia	Black Locust	40				Retain
00209	Picea pungens	Colorado Blue Spruce	37				Retain
00209	Robinia pseudoacacia	Black Locust	49				Remove
00210	Picea Pungens	Colorado Green Spruce	60				Retain
00210	Robinia pseudoacacia	Black Locust	49				Remove
00211	Picea pungens	Colorado Spruce	35				Retain
00211	Robinia pseudoacacia	Black Locust	55				Retain
00212	Picea pungens	Colorado Spruce	48				Retain
00212	Robinia pseudoacacia	Black Locust	51				Retain
00213	Picea pungens	Colorado Spruce	47				Retain
00213	Robinia pseudoacacia	Black Locust	10				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00213	Populus	Cottonwood Poplar	131				Retain
00214	Picea pungens	Colorado Spruce	57				Retain
00214	Robinia pseudoacacia	Black Locust	18				Remove
00214	Acer saccharum	Sugar Maple	70				Retain
00215	Picea pungens	Colorado Spruce	46				Remove
00215	Robinia pseudoacacia	Black Locust	33				Retain
00215	Fraxinus americana	White Ash	60				Retain
00216	Picea pungens	Colorado Spruce	29				Retain
00216	Robinia pseudoacacia	Black Locust	16				Retain
00217	Picea abies	Norway Spruce	51				Retain
00217	Robinia pseudoacacia	Black Locust	14				Retain
00218	Picea abies	Norway Spruce	45				Remove
00218	Robinia pseudoacacia	Black Locust	11				Remove
00218	Acer platanoides	Norway Maple	75				Retain
00219	Picea abies	Norway Spruce	41				Retain
00219	Robinia pseudoacacia	Black Locust	74				Retain
00219	Fraxinus pennsylvanica	Green Ash	45				Retain
00220	Picea abies	Norway Spruce	46				Retain
00220	Robinia pseudoacacia	Black Locust	55				Retain
00221	Picea abies	Norway Spruce	33				Retain
00221	Robinia pseudoacacia	Black Locust	58				Retain
00222	Picea abies	Norway Spruce	30				Retain
00222	Robinia pseudoacacia	Black Locust	17				Retain
00222	Fraxinus pennsylvanica	Green Ash	45				Retain
00223	Picea abies	Norway Spruce	48				Retain
00223	Robinia pseudoacacia	Black Locust	23				Retain
00223	Fraxinus pennsylvanica	Green Ash	40				Retain
00224	Picea abies	Norway Spruce	50				Retain
00224	Robinia pseudoacacia	Black Locust	6				Retain
00224	Fraxinus pennsylvanica	Green Ash	45				Retain
00225	Picea abies	Norway Spruce	58				Retain
00225	Robinia pseudoacacia	Black Locust	15				Retain
00225	Fraxinus pennsylvanica	Green Ash	86				Retain
00226	Picea abies	Norway Spruce	42				Retain
00226	Robinia pseudoacacia	Black Locust	23				Retain
00227	Picea abies	Norway Spruce	14				Retain
00227	Robinia pseudoacacia	Black Locust	16				Retain
00228	Picea abies	Norway Spruce	40				Retain
00228	Robinia pseudoacacia	Black Locust	15				Retain
00229	Picea abies	Norway Spruce	46				Retain
00229	Robinia pseudoacacia	Black Locust	20				Retain
00229	Fraxinus pennsylvanica	Green Ash	33				Remove
00230	Picea abies	Norway Spruce	40				Retain
00230	Gleditsia triacanthos	Honey Locust	33				Retain
00231	Picea abies	Norway Spruce	59				Retain
00231	Gleditsia triacanthos	Honey Locust	39				Retain
00232	Picea abies	Norway Spruce	25				Retain
00232	Gleditsia triacanthos	Honey Locust	35				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00233	Picea abies	Norway Spruce	28				Retain
00233	Fraxinus pennsylvanica	Green Ash	25				Retain
00233	Gleditsia triacanthos	Honey Locust	47				Retain
00234	Gleditsia triacanthos	Honey Locust	48				Retain
00234	Picea abies	Norway Spruce	18				Retain
00234	Fraxinus pennsylvanica	Green Ash	46				Retain
00235	Acer palmatum	Japanese Maple	20				Retain
00235	Picea abies	Norway Spruce	30				Retain
00235	Fraxinus americana	White Ash	60				Retain
00236	Acer negundo	Manitoba Maple	26				Retain
00236	Picea abies	Norway Spruce	30				Retain
00237	Acer negundo	Manitoba Maple	34				Retain
00237	Picea abies	Norway Spruce	42				Retain
00238	Acer negundo	Manitoba Maple	32				Retain
00238	Picea abies	Norway Spruce	67				Retain
00239	Acer negundo	Manitoba Maple	43				Retain
00239	Picea abies	Norway Spruce	69				Retain
00239	Fraxinus pennsylvanica	Green Ash	70				Retain
00240	Picea abies	Norway Spruce	75				Retain
00240	Acer negundo	Manitoba Maple	27				Retain
00240	Fraxinus pennsylvanica	Green Ash	43				Retain
00241	Picea abies	Norway Spruce	38				Retain
00241	Acer negundo	Manitoba Maple	38				Retain
00241	Fraxinus pennsylvanica	Green Ash	50				Retain
00242	Picea abies	Norway Spruce	48				Retain
00242	Fraxinus pennsylvanica	Green Ash	56				Retain
00242	Acer negundo	Manitoba Maple	8				Retain
00243	Picea abies	Norway Spruce	43				Retain
00243	Acer negundo	Manitoba Maple	8				Retain
00244	Picea abies	Norway Spruce	27				Retain
00244	Acer negundo	Manitoba Maple	48				Retain
00245	Picea glauca	White Spruce	34				Retain
00245	Acer negundo	Manitoba Maple	43				Retain
00246	Picea glauca	White Spruce	38				Retain
00246	Acer negundo	Manitoba Maple	24				Retain
00247	Fraxinus pennsylvanica	Green Ash	55				Retain
00247	Picea glauca	White Spruce	45				Retain
00247	Acer negundo	Manitoba Maple	32				Retain
00248	Picea glauca	White Spruce	37				Retain
00248	Fraxinus pennsylvanica	Green Ash	46				Retain
00248	Acer negundo	Manitoba Maple	31				Retain
00249	Picea glauca	White Spruce	46				Retain
00249	Acer negundo	Manitoba Maple	25				Retain
00250	Picea glauca	White Spruce	38				Retain
00250	Acer negundo	Manitoba Maple	17				Retain
00251	Picea glauca	White Spruce	32				Retain
00251	Acer negundo	Manitoba Maple	16				Retain
00252	Fraxinus pennsylvanica	Green Ash	45				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00252	Picea glauca	White Spruce	41				Retain
00252	Acer negundo	Manitoba Maple	9				Retain
00253	Fraxinus pennsylvanica	Green Ash	28				Retain
00253	Picea glauca	White Spruce	24				Retain
00253	Acer negundo	Manitoba Maple	11				Retain
00254	Fraxinus pennsylvanica	Green Ash	58				Retain
00254	Picea glauca	White Spruce	26				Retain
00254	Acer negundo	Manitoba Maple	7				Retain
00255	Fraxinus pennsylvanica	Green Ash	50				Retain
00255	Picea glauca	White Spruce	25				Retain
00255	Acer negundo	Manitoba Maple	11				Retain
00256	Picea glauca	White Spruce	28				Retain
00256	Acer negundo	Manitoba Maple	7				Retain
00257	Fraxinus pennsylvanica	Green Ash	49				Retain
00257	Picea glauca	White Spruce	32				Retain
00257	Acer negundo	Manitoba Maple	8				Retain
00258	Fraxinus pennsylvanica	Green Ash	45				Retain
00258	Picea glauca	White Spruce	40				Retain
00258	Acer negundo	Manitoba Maple	11				Retain
00259	Picea glauca	White Spruce	21				Retain
00259	Fraxinus pennsylvanica	Green Ash	50				Retain
00259	Acer negundo	Manitoba Maple	8				Retain
00260	Picea glauca	White Spruce	35				Retain
00260	Fraxinus pennsylvanica	Green Ash	54				Retain
00260	Acer negundo	Manitoba Maple	44				Retain
00261	Picea glauca	White Spruce	26				Retain
00261	Acer negundo	Manitoba Maple	17				Retain
00262	Picea glauca	White Spruce	40				Retain
00262	Acer negundo	Manitoba Maple	15				Retain
00263	Picea glauca	White Spruce	37				Retain
00263	Acer negundo	Manitoba Maple	7				Retain
00264	Picea glauca	White Spruce	38				Retain
00264	Fraxinus pennsylvanica	Green Ash	49				Retain
00264	Acer negundo	Manitoba Maple	19				Retain
00265	Picea glauca	White Spruce	27				Retain
00265	Fraxinus pennsylvanica	Green Ash	19				Retain
00265	Acer negundo	Manitoba Maple	19				Retain
00266	Fraxinus pennsylvanica	Green Ash	31				Retain
00266	Picea glauca	White Spruce	36				Retain
00266	Acer negundo	Manitoba Maple	20				Retain
00267	Picea glauca	White Spruce	36				Retain
00267	Fraxinus pennsylvanica	Green Ash	27				Retain
00267	Acer negundo	Manitoba Maple	12				Retain
00268	Picea glauca	White Spruce	63				Retain
00268	Acer negundo	Manitoba Maple	15				Retain
00269	Picea glauca	White Spruce	55				Retain
00269	Acer negundo	Manitoba Maple	18				Retain
00270	Picea glauca	White Spruce	46				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00270	Acer negundo	Manitoba Maple	22				Retain
00271	Picea glauca	White Spruce	47				Retain
00271	Acer negundo	Manitoba Maple	21				Retain
00272	Picea glauca	White Spruce	44				Retain
00272	Acer negundo	Manitoba Maple	18				Retain
00273	Picea glauca	White Spruce	33				Retain
00273	Acer negundo	Manitoba Maple	16				Retain
00274	Picea glauca	White Spruce	24				Retain
00274	Acer negundo	Manitoba Maple	19				Retain
00275	Picea glauca	White Spruce	30				Retain
00275	Acer negundo	Manitoba Maple	41				Retain
00276	Picea glauca	White Spruce	36				Retain
00276	Acer negundo	Manitoba Maple	16				Retain
00277	Picea glauca	White Spruce	30				Retain
00277	Acer negundo	Manitoba Maple	14				Retain
00278	Picea glauca	White Spruce	33				Retain
00278	Acer negundo	Manitoba Maple	28				Retain
00279	Picea glauca	White Spruce	47				Retain
00279	Acer negundo	Manitoba Maple	15				Retain
00280	Acer saccharinum	Silver Maple	100				Retain
00280	Picea glauca	White Spruce	43				Retain
00280	Acer negundo	Manitoba Maple	35				Retain
00281	Picea glauca	White Spruce	46				Retain
00281	Acer negundo	Manitoba Maple	47				Retain
00282	Picea glauca	White Spruce	35				Retain
00282	Acer negundo	Manitoba Maple	41				Retain
00283	Picea glauca	White Spruce	47				Retain
00283	Acer negundo	Manitoba Maple	42				Retain
00284	Picea glauca	White Spruce	55				Retain
00284	Acer negundo	Manitoba Maple	32				Retain
00285	Picea glauca	White Spruce	42				Retain
00285	Acer negundo	Manitoba Maple	45				Retain
00286	Picea glauca	White Spruce	42				Retain
00286	Acer negundo	Manitoba Maple	42				Retain
00287	Acer negundo	Manitoba Maple	5				Retain
00287	Picea glauca	White Spruce	35				Retain
00288	Acer negundo	Manitoba Maple	9				Retain
00288	Picea glauca	White Spruce	42				Retain
00289	Acer negundo	Manitoba Maple	14				Retain
00289	Picea glauca	White Spruce	48				Retain
00290	Acer negundo	Manitoba Maple	12				Remove
00290	Picea glauca	White Spruce	25				Retain
00291	Acer negundo	Manitoba Maple	13				Retain
00291	Picea glauca	White Spruce	16				Remove
00292	Acer negundo	Manitoba Maple	11				Retain
00292	Picea glauca	White Spruce	25				Retain
00293	Acer negundo	Manitoba Maple	21				Retain
00293	Picea glauca	White Spruce	29				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00294	Acer negundo	Manitoba Maple	21				Retain
00294	Picea glauca	White Spruce	45				Retain
00295	Acer negundo	Manitoba Maple	13				Retain
00295	Picea glauca	White Spruce	12				Retain
00296	Acer negundo	Manitoba Maple	13				Retain
00296	Picea glauca	White Spruce	29				Retain
00297	Acer negundo	Manitoba Maple	10				Retain
00297	Picea glauca	White Spruce	22				Retain
00298	Acer negundo	Manitoba Maple	12				Retain
00298	Picea glauca	White Spruce	9				Retain
00299	Picea glauca	White Spruce	38				Retain
00299	Acer negundo	Manitoba Maple	22				Retain
00300	Picea glauca	White Spruce	28				Retain
00300	Acer negundo	Manitoba Maple	12				Retain
00301	Picea glauca	White Spruce	30				Retain
00301	Acer negundo	Manitoba Maple	13				Retain
00302	Picea glauca	White Spruce	15				Retain
00302	Acer negundo	Manitoba Maple	12				Retain
00303	Picea glauca	White Spruce	20				Retain
00303	Acer negundo	Manitoba Maple	14				Retain
00304	Picea glauca	White Spruce	25				Retain
00304	Acer negundo	Manitoba Maple	25				Retain
00305	Picea glauca	White Spruce	28				Retain
00305	Acer negundo	Manitoba Maple	7				Retain
00306	Picea glauca	White Spruce	12				Retain
00306	Acer negundo	Manitoba Maple	21				Retain
00307	Picea glauca	White Spruce	25				Retain
00307	Acer platanoides	Norway Maple	12				Retain
00308	Picea glauca	White Spruce	35				Retain
00308	Acer platanoides	Norway Maple	15				Retain
00309	Picea glauca	White Spruce	15				Retain
00309	Acer platanoides	Norway Maple	36				Retain
00310	Picea glauca	White Spruce	32				Retain
00310	Acer platanoides	Norway Maple	37				Retain
00311	Picea glauca	White Spruce	39				Retain
00311	Acer platanoides	Norway Maple	45				Retain
00312	Picea glauca	White Spruce	42				Retain
00312	Acer platanoides	Norway Maple	43				Retain
00313	Picea glauca	White Spruce	43				Retain
00313	Acer platanoides	Norway Maple	42				Remove
00314	Picea glauca	White Spruce	34				Retain
00314	Acer platanoides	Norway Maple	52				Retain
00315	Picea glauca	White Spruce	50				Retain
00315	Acer platanoides	Norway Maple	37				Retain
00316	Picea glauca	White Spruce	41				Retain
00316	Acer platanoides	Norway Maple	19				Retain
00317	Picea glauca	White Spruce	14				Retain
00317	Acer platanoides	Norway Maple	20				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00318	Picea glauca	White Spruce	22				Retain
00318	Acer platanoides	Norway Maple	45				Retain
00319	Picea glauca	White Spruce	17				Retain
00319	Acer platanoides	Norway Maple	12				Retain
00320	Picea glauca	White Spruce	22				Retain
00320	Acer platanoides	Norway Maple	63				Retain
00321	Picea glauca	White Spruce	23				Retain
00321	Acer platanoides	Norway Maple	51				Retain
00322	Picea glauca	White Spruce	50				Retain
00322	Acer platanoides	Norway Maple	17				Retain
00323	Picea glauca	White Spruce	25				Retain
00323	Acer platanoides	Norway Maple	34				Retain
00324	Picea glauca	White Spruce	26				Retain
00324	Acer platanoides	Norway Maple	14				Retain
00325	Picea glauca	White Spruce	43				Retain
00325	Acer platanoides	Norway Maple	15				Retain
00326	Acer platanoides	Norway Maple	48				Retain
00326	Picea glauca	White Spruce	30				Retain
00327	Acer platanoides	Norway Maple	37				Retain
00327	Picea glauca	White Spruce	24				Retain
00328	Acer platanoides	Norway Maple	47				Retain
00328	Picea glauca	White Spruce	25				Retain
00329	Acer platanoides	Norway Maple	67				Retain
00329	Picea glauca	White Spruce	26				Retain
00330	Acer platanoides	Norway Maple	47				Retain
00330	Picea glauca	White Spruce	23				Retain
00331	Acer platanoides	Norway Maple	43				Retain
00331	Picea glauca	White Spruce	16				Retain
00332	Acer platanoides	Norway Maple	54				Retain
00332	Picea glauca	White Spruce	36				Remove
00333	Acer platanoides	Norway Maple	33				Retain
00333	Picea glauca	White Spruce	36				Retain
00334	Acer platanoides	Norway Maple	58				Retain
00334	Picea glauca	White Spruce	38				Retain
00335	Acer platanoides	Norway Maple	31				Retain
00335	Rhus typhina	Staghorn Sumac	15				Retain
00336	Acer platanoides	Norway Maple	13				Retain
00336	Rhus typhina	Staghorn Sumac	11				Retain
00337	Acer platanoides	Norway Maple	16				Retain
00337	Larix laricina	Tamarack	37				Retain
00338	Acer platanoides	Norway Maple	12				Retain
00338	Larix laricina	Tamarack	35				Retain
00339	Acer platanoides	Norway Maple	46				Retain
00339	Larix laricina	Tamarack	25				Retain
00340	Acer platanoides	Norway Maple	52				Retain
00340	Larix laricina	Tamarack	34				Retain
00341	Larix laricina	Tamarack	36				Retain
00341	Acer platanoides	Norway Maple	38				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00342	Ailanthus altissima	Tree Of Heaven	35				Retain
00342	Acer platanoides	Norway Maple	21				Retain
00343	Ailanthus altissima	Tree Of Heaven	28				Retain
00343	Acer platanoides	Norway Maple	49				Retain
00344	Acer platanoides	Norway Maple	49				Retain
00344	Ailanthus altissima	Tree Of Heaven	26				Retain
00345	Acer platanoides	Norway Maple	53				Retain
00345	Ailanthus altissima	Tree Of Heaven	13				Retain
00346	Acer platanoides	Norway Maple	50				Retain
00346	Ailanthus altissima	Tree Of Heaven	16				Retain
00347	Acer platanoides	Norway Maple	52				Retain
00347	Ailanthus altissima	Tree Of Heaven	14				Retain
00348	Acer platanoides	Norway Maple	58				Retain
00348	Ailanthus altissima	Tree Of Heaven	19				Retain
00349	Acer platanoides	Norway Maple	52				Retain
00349	Ailanthus altissima	Tree Of Heaven	20				Retain
00350	Acer platanoides	Norway Maple	55				Retain
00350	Ailanthus altissima	Tree Of Heaven	19				Retain
00351	Acer platanoides	Norway Maple	49				Retain
00351	Ailanthus altissima	Tree Of Heaven	10				Retain
00352	Acer platanoides	Norway Maple	12				Retain
00352	Ailanthus altissima	Tree Of Heaven	15				Retain
00353	Acer platanoides	Norway Maple	33				Retain
00353	Ailanthus altissima	Tree Of Heaven	23				Retain
00354	Acer platanoides	Norway Maple	35				Retain
00354	Ailanthus altissima	Tree Of Heaven	27				Retain
00355	Acer platanoides	Norway Maple	26				Retain
00355	Ailanthus altissima	Tree Of Heaven	15				Retain
00356	Acer platanoides	Norway Maple	40				Retain
00356	Ailanthus altissima	Tree Of Heaven	14				Retain
00357	Acer platanoides	Norway Maple	23				Retain
00357	Ailanthus altissima	Tree Of Heaven	21				Retain
00358	Ailanthus altissima	Tree Of Heaven	23				Retain
00358	Acer platanoides	Norway Maple	31				Retain
00359	Ailanthus altissima	Tree Of Heaven	18				Retain
00359	Acer platanoides	Norway Maple	45				Retain
00360	Ailanthus altissima	Tree Of Heaven	15				Retain
00360	Acer platanoides	Norway Maple	41				Retain
00361	Ailanthus altissima	Tree Of Heaven	17				Retain
00361	Acer platanoides	Norway Maple	10				Retain
00362	Ailanthus altissima	Tree Of Heaven	20				Retain
00362	Acer platanoides	Norway Maple	75				Retain
00363	Ailanthus altissima	Tree Of Heaven	13				Retain
00363	Acer platanoides	Norway Maple	9				Retain
00364	Ailanthus altissima	Tree Of Heaven	19				Retain
00364	Acer platanoides	Norway Maple	25				Retain
00364	Acer saccharinum	Silver Maple	46				Retain
00365	Ailanthus altissima	Tree Of Heaven	23				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00365	Acer platanoides	Norway Maple	32				Retain
00365	Acer saccharinum	Silver Maple	55				Retain
00366	Ailanthus altissima	Tree Of Heaven	29				Retain
00366	Acer platanoides	Norway Maple	43				Retain
00367	Ailanthus altissima	Tree Of Heaven	28				Retain
00367	Acer platanoides	Norway Maple	44				Retain
00368	Ailanthus altissima	Tree Of Heaven	20				Retain
00368	Acer platanoides	Norway Maple	56				Retain
00368	Morus alba	White Mulberry	10				Retain
00369	Ailanthus altissima	Tree Of Heaven	17				Retain
00369	Acer platanoides	Norway Maple	12				Retain
00369		Stump	40				Retain
00370	Ailanthus altissima	Tree Of Heaven	12				Retain
00370	Acer platanoides	Norway Maple	36				Retain
00370	Ailanthus altissima	Tree Of Heaven	50				Retain
00371	Ailanthus altissima	Tree Of Heaven	15				Retain
00371	Acer platanoides	Norway Maple	35				Retain
00371	Populus tremuloides	Trembling Poplar	48				Retain
00372	Ailanthus altissima	Tree Of Heaven	22				Retain
00372	Acer platanoides	Norway Maple	36				Retain
00372	Acer platanoides	Norway Maple	17				Retain
00373	Ailanthus altissima	Tree Of Heaven	10				Retain
00373	Acer platanoides	Norway Maple	28				Retain
00373		Stump	40				Retain
00374	Ailanthus altissima	Tree Of Heaven	16				Retain
00374	Acer platanoides	Norway Maple	35				Retain
00374		Stump	35				Retain
00375	Ailanthus altissima	Tree Of Heaven	15				Retain
00375	Acer platanoides	Norway Maple	40				Retain
00375	Populus tremuloides	Trembling Poplar	45				Retain
00376	Ailanthus altissima	Tree Of Heaven	24				Retain
00376	Acer platanoides	Norway Maple	27				Retain
00376	Acer platanoides	Norway Maple	20				Retain
00377	Acer platanoides	Norway Maple	47				Retain
00377	Ailanthus altissima	Tree Of Heaven	23				Retain
00377	Acer platanoides	Norway Maple	20				Retain
00378	Acer platanoides	Norway Maple	28				Retain
00378	Acer platanoides	Norway Maple	31				Retain
00378	Ailanthus altissima	Tree Of Heaven	17				Retain
00379	Rhus typhina	Staghorn Sumac	12				Retain
00379	Acer negundo	Manitoba Maple	25				Retain
00379	Acer platanoides	Norway Maple	28				Retain
00379	Ailanthus altissima	Tree Of Heaven	19				Retain
00380	Populus tremuloides	Trembling Poplar	40				Retain
00380	Acer platanoides	Norway Maple	30				Retain
00380	Ailanthus altissima	Tree Of Heaven	17				Retain
00381	Populus tremuloides	Trembling Poplar	45				Retain
00381	Acer platanoides	Norway Maple	47				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00381	Ailanthus altissima	Tree Of Heaven	17				Retain
00382	Populus tremuloides	Trembling Poplar	35				Retain
00382	Acer platanoides	Norway Maple	29				Retain
00382	Ailanthus altissima	Tree Of Heaven	10				Retain
00383	Acer platanoides	Norway Maple	40				Retain
00383	Acer platanoides	Norway Maple	42				Retain
00383	Ailanthus altissima	Tree Of Heaven	16				Retain
00384	Populus tremuloides	Trembling Poplar	47				Retain
00384	Acer platanoides	Norway Maple	41				Retain
00384		Unknown	28				Retain
00385	Populus tremuloides	Trembling Poplar	50				Retain
00385	Acer platanoides	Norway Maple	37				Retain
00385		Unknown	56				Retain
00386	Amelanchier	Serviceberry	15				Retain
00386	Acer platanoides	Norway Maple	40				Retain
00386	Juglans nigra	Black Walnut	12				Retain
00387	Acer negundo	Manitoba Maple	28				Retain
00387	Acer platanoides	Norway Maple	14				Retain
00387	Juglans nigra	Black Walnut	36				Retain
00388		Stump	25				Retain
00388	Juglans nigra	Black Walnut	52				Retain
00388	Acer platanoides	Norway Maple	44				Retain
00389	Acer negundo	Manitoba Maple	31				Retain
00389	Juglans nigra	Black Walnut	46				Retain
00389	Acer platanoides	Norway Maple	50				Retain
00390	Acer negundo	Manitoba Maple	38				Retain
00390	Juglans nigra	Black Walnut	56				Retain
00390	Acer platanoides	Norway Maple	24				Retain
00391	Juglans nigra	Black Walnut	49				Retain
00391	Acer platanoides	Norway Maple	44				Retain
00392	Juglans nigra	Black Walnut	12				Retain
00392	Acer platanoides	Norway Maple	49				Retain
00393	Juglans nigra	Black Walnut	20				Retain
00393	Acer platanoides	Norway Maple	53				Retain
00394	Juglans nigra	Black Walnut	53				Retain
00394	Acer platanoides	Norway Maple	24				Retain
00395	Juglans nigra	Black Walnut	55				Retain
00395	Acer platanoides	Norway Maple	53				Retain
00396	Robinia pseudoacacia	Black Locust	46				Retain
00396	Juglans nigra	Black Walnut	37				Retain
00396	Acer platanoides	Norway Maple	36				Retain
00397	Fagus grandifolia	American Beech	35				Retain
00397	Juglans nigra	Black Walnut	33				Retain
00397	Acer platanoides	Norway Maple	10				Retain
00398	Picea pungens	Colorado Blue Spruce	18				Retain
00398	Acer platanoides	Norway Maple	24				Retain
00398	Juglans nigra	Black Walnut	45				Retain
00399	Picea pungens	Colorado Blue Spruce	10				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00399	<i>Acer platanoides</i>	Norway Maple	12				Retain
00399	<i>Juglans nigra</i>	Black Walnut	71				Retain
00400	<i>Picea pungens</i>	Colorado Blue Spruce	14				Retain
00400	<i>Acer platanoides</i>	Norway Maple	38				Retain
00400	<i>Juglans nigra</i>	Black Walnut	54				Retain
00401	<i>Picea pungens</i>	Colorado Blue Spruce	9				Retain
00401	<i>Acer platanoides</i>	Norway Maple	38				Retain
00401	<i>Juglans nigra</i>	Black Walnut	43				Retain
00402	<i>Picea pungens</i>	Colorado Blue Spruce	30				Retain
00402	<i>Acer platanoides</i>	Norway Maple	32				Retain
00402	<i>Juglans nigra</i>	Black Walnut	65				Retain
00403	<i>Thuja occidentalis</i>	Eastern White Cedar	6				Retain
00403	<i>Acer platanoides</i>	Norway Maple	16				Retain
00403	<i>Juglans nigra</i>	Black Walnut	22				Retain
00404	<i>Acer platanoides</i>	Norway Maple	54				Remove
00404	<i>Thuja occidentalis</i>	Eastern White Cedar	9				Retain
00404	<i>Juglans nigra</i>	Black Walnut	21				Retain
00405	<i>Thuja occidentalis</i>	Eastern White Cedar	5				Retain
00405	<i>Acer platanoides</i>	Norway Maple	30				Remove
00405	<i>Juglans nigra</i>	Black Walnut	51				Retain
00406	<i>Picea pungens</i>	Colorado Blue Spruce	28				Remove
00406	<i>Acer platanoides</i>	Norway Maple	55				Retain
00406	<i>Juglans nigra</i>	Black Walnut	59				Retain
00407	<i>Thuja occidentalis</i>	Eastern White Cedar	6				Retain
00407	<i>Acer platanoides</i>	Norway Maple	12				Retain
00407	<i>Juglans nigra</i>	Black Walnut	46				Retain
00408	<i>Thuja occidentalis</i>	Eastern White Cedar	6				Retain
00408	<i>Acer platanoides</i>	Norway Maple	44				Remove
00408	<i>Salix</i>	Common Willow	87				Retain
00409	<i>Ulmus americana</i>	White Elm	13				Retain
00409	<i>Acer platanoides</i>	Norway Maple	55				Remove
00409	<i>Salix</i>	Common Willow	77				Retain
00410	<i>Thuja occidentalis</i>	Eastern White Cedar	8				Retain
00410	<i>Acer platanoides</i>	Norway Maple	19				Remove
00410	<i>Salix</i>	Common Willow	95				Retain
00411	<i>Thuja occidentalis</i>	Eastern White Cedar	10				Retain
00411	<i>Acer platanoides</i>	Norway Maple	42				Remove
00411	<i>Salix</i>	Common Willow	25				Retain
00412	<i>Acer rubrum</i>	Red Maple	43				Remove
00412	<i>Salix</i>	Common Willow	35				Retain
00413	<i>Salix</i>	Common Willow	30				Retain
00414	<i>Acer rubrum</i>	Red Maple	24				Remove
00414	<i>Salix</i>	Common Willow	45				Retain
00414	<i>Populus tremuloides</i>	Trembling Poplar	71				Retain
00415	<i>Acer rubrum</i>	Red Maple	23				Retain
00415	<i>Salix x sepulcralis</i> 'Chrysocoma'	Weeping Willow	33				Retain
00415	<i>Thuja occidentalis</i>	Eastern White Cedar	6				Retain
00416	<i>Acer rubrum</i>	Red Maple	19				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00416	<i>Taxus canadensis</i>	Canadian Yew	14				Retain
00416	<i>Acer platanoides</i>	Norway Maple	42				Retain
00417	<i>Acer rubrum</i>	Red Maple	14				Retain
00417	<i>Thuja occidentalis</i>	Eastern White Cedar	6				Retain
00418	<i>Catalpa speciosa</i>	Northern Catalpa	72				Retain
00418	<i>Acer rubrum</i>	Red Maple	56				Retain
00419	<i>Acer platanoides</i>	Norway Maple	27				Retain
00419	<i>Acer saccharinum</i>	Silver Maple	90				Retain
00420	<i>Acer platanoides</i>	Norway Maple	21				Retain
00420	<i>Acer saccharinum</i>	Silver Maple	95				Retain
00421	<i>Acer platanoides</i>	Norway Maple	29				Retain
00421	<i>Acer saccharinum</i>	Silver Maple	150				Retain
00422	<i>Acer platanoides</i>	Norway Maple	52				Retain
00422	<i>Acer saccharinum</i>	Silver Maple	87				Retain
00423	<i>Acer platanoides</i>	Norway Maple	60				Retain
00423	<i>Acer saccharinum</i>	Silver Maple	54				Retain
00424	<i>Picea pungens</i>	Colorado Blue Spruce	25				Retain
00424	<i>Acer saccharinum</i>	Silver Maple	55				Retain
00425	<i>Acer saccharinum</i>	Silver Maple	65				Retain
00426	<i>Acer saccharinum</i>	Silver Maple	52				Retain
00427	<i>Acer platanoides</i>	Norway Maple	47				Retain
00427	<i>Acer saccharinum</i>	Silver Maple	105				Retain
00428	<i>Picea pungens</i>	Colorado Blue Spruce	30				Retain
00428	<i>Acer saccharinum</i>	Silver Maple	120				Retain
00429	<i>Acer saccharinum</i>	Silver Maple	105				Retain
00430	<i>Picea pungens</i>	Colorado Blue Spruce	30				Retain
00430	<i>Acer saccharinum</i>	Silver Maple	180				Retain
00431	<i>Acer saccharinum</i>	Silver Maple	103				Retain
00432	<i>Morus alba</i>	White Mulberry	35				Retain
00432	<i>Acer saccharinum</i>	Silver Maple	56				Retain
00433	<i>Acer saccharinum</i>	Silver Maple	91				Retain
00434	<i>Acer platanoides</i>	Norway Maple	51				Retain
00434	<i>Acer saccharinum</i>	Silver Maple	65				Retain
00435	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00435	<i>Acer saccharinum</i>	Silver Maple	59				Retain
00436	<i>Picea pungens</i>	Colorado Blue Spruce	45				Retain
00436	<i>Acer saccharinum</i>	Silver Maple	95				Retain
00437	<i>Picea pungens</i>	Colorado Blue Spruce	25				Retain
00437	<i>Acer saccharinum</i>	Silver Maple	57				Retain
00438	<i>Acer saccharinum</i>	Silver Maple	48				Retain
00439	<i>Acer platanoides</i>	Norway Maple	31				Retain
00439	<i>Acer saccharinum</i>	Silver Maple	58				Retain
00440	<i>Acer saccharinum</i>	Silver Maple	99				Retain
00441	<i>Acer saccharinum</i>	Silver Maple	76				Retain
00442	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00443	<i>Fraxinus americana</i>	White Ash	70				Retain
00443	<i>Acer saccharinum</i>	Silver Maple	45				Retain
00444	<i>Fraxinus spp.</i>	Ash Spp.	30				Remove

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00444	<i>Acer saccharinum</i>	Silver Maple	105				Retain
00445	<i>Fraxinus pennsylvanica</i>	Green Ash	22				Retain
00445	<i>Acer saccharinum</i>	Silver Maple	47				Retain
00446	<i>Fraxinus pennsylvanica</i>	Green Ash	35				Retain
00446	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00447	<i>Fraxinus pennsylvanica</i>	Green Ash	42				Retain
00447	<i>Acer saccharinum</i>	Silver Maple	63				Retain
00448	<i>Fraxinus pennsylvanica</i>	Green Ash	22				Retain
00448	<i>Acer saccharinum</i>	Silver Maple	73				Retain
00449	<i>Acer saccharinum</i>	Silver Maple	150				Remove
00450	<i>Acer saccharinum</i>	Silver Maple	61				Retain
00451	<i>Fraxinus pennsylvanica</i>	Green Ash	48				Retain
00451	<i>Acer saccharinum</i>	Silver Maple	59				Retain
00452	<i>Fraxinus americana</i>	White Ash	80				Retain
00452	<i>Acer saccharinum</i>	Silver Maple	41				Remove
00453	<i>Acer saccharinum</i>	Silver Maple	77				Retain
00454	<i>Fraxinus pennsylvanica</i>	Green Ash	49				Retain
00454	<i>Acer saccharinum</i>	Silver Maple	15				Retain
00455	<i>Acer saccharinum</i>	Silver Maple	63				Retain
00456	<i>Acer saccharinum</i>	Silver Maple	10				Retain
00457	<i>Acer saccharinum</i>	Silver Maple	100				Retain
00458	<i>Acer saccharinum</i>	Silver Maple	12				Retain
00459	<i>Acer saccharinum</i>	Silver Maple	80				Retain
00460	<i>Acer saccharinum</i>	Silver Maple	21				Retain
00460	<i>Fraxinus pennsylvanica</i>	Green Ash	63				Retain
00461	<i>Acer saccharinum</i>	Silver Maple	34				Retain
00462	<i>Acer saccharinum</i>	Silver Maple	18				Retain
00463	<i>Acer saccharinum</i>	Silver Maple	19				Retain
00464	<i>Acer saccharinum</i>	Silver Maple	20				Retain
00465	<i>Acer saccharinum</i>	Silver Maple	50				Retain
00466	<i>Acer saccharinum</i>	Silver Maple	42				Retain
00467	<i>Acer saccharinum</i>	Silver Maple	32				Remove
00468	<i>Acer saccharinum</i>	Silver Maple	52				Remove
00469	<i>Acer saccharinum</i>	Silver Maple	17				Remove
00469	<i>Fraxinus pennsylvanica</i>	Green Ash	46				Retain
00470	<i>Acer saccharinum</i>	Silver Maple	17				Remove
00470	<i>Fraxinus pennsylvanica</i>	Green Ash	55				Retain
00471	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00471	<i>Juglans nigra</i>	Black Walnut	46				Remove
00472	<i>Acer saccharinum</i>	Silver Maple	71				Retain
00472	<i>Fraxinus pennsylvanica</i>	Green Ash	34				Remove
00473	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00474	<i>Acer saccharinum</i>	Silver Maple	83				Retain
00475	<i>Acer saccharinum</i>	Silver Maple	175				Retain
00476	<i>Acer saccharinum</i>	Silver Maple	151				Retain
00477	<i>Acer saccharinum</i>	Silver Maple	93				Retain
00477	<i>Fraxinus pennsylvanica</i>	Green Ash	60				Retain
00478	<i>Acer saccharinum</i>	Silver Maple	63				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00478	<i>Fraxinus pennsylvanica</i>	Green Ash	60				Retain
00479	<i>Acer saccharinum</i>	Silver Maple	201				Retain
00480	<i>Acer saccharinum</i>	Silver Maple	57				Retain
00481	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00482	<i>Acer saccharinum</i>	Silver Maple	97				Retain
00483	<i>Acer saccharinum</i>	Silver Maple	67				Retain
00484	<i>Acer saccharinum</i>	Silver Maple	67				Retain
00485	<i>Acer saccharinum</i>	Silver Maple	67				Retain
00486	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00487	<i>Acer saccharinum</i>	Silver Maple	58				Retain
00488	<i>Acer saccharinum</i>	Silver Maple	53				Retain
00489	<i>Acer saccharinum</i>	Silver Maple	90				Retain
00490	<i>Fraxinus americana</i>	White Ash	80				Retain
00490	<i>Acer saccharinum</i>	Silver Maple	77				Retain
00491	<i>Acer saccharinum</i>	Silver Maple	35				Retain
00492	<i>Fraxinus pennsylvanica</i>	Green Ash	27				Retain
00492	<i>Acer saccharinum</i>	Silver Maple	80				Retain
00493	<i>Fraxinus pennsylvanica</i>	Green Ash	48				Retain
00493	<i>Acer saccharinum</i>	Silver Maple	70				Retain
00494	<i>Fraxinus pennsylvanica</i>	Green Ash	30				Retain
00494	<i>Acer saccharinum</i>	Silver Maple	77				Retain
00495	<i>Fraxinus pennsylvanica</i>	Green Ash	52				Retain
00495	<i>Acer saccharinum</i>	Silver Maple	31				Retain
00496	<i>Acer saccharinum</i>	Silver Maple	46				Retain
00497	<i>Acer saccharinum</i>	Silver Maple	58				Retain
00498	<i>Acer saccharinum</i>	Silver Maple	54				Retain
00499	<i>Acer saccharinum</i>	Silver Maple	44				Retain
00500	<i>Acer saccharinum</i>	Silver Maple	17				Retain
00501	<i>Acer saccharinum</i>	Silver Maple	96				Retain
00502	<i>Acer saccharinum</i>	Silver Maple	19				Retain
00503	<i>Acer saccharinum</i>	Silver Maple	50				Retain
00504	<i>Acer saccharinum</i>	Silver Maple	49				Retain
00505	<i>Acer saccharinum</i>	Silver Maple	17				Retain
00506	<i>Acer saccharinum</i>	Silver Maple	135				Retain
00507	<i>Acer saccharinum</i>	Silver Maple	70				Retain
00508	<i>Acer saccharinum</i>	Silver Maple	83				Retain
00509	<i>Acer saccharinum</i>	Silver Maple	105				Retain
00510	<i>Acer saccharinum</i>	Silver Maple	115				Retain
00511	<i>Acer saccharinum</i>	Silver Maple	36				Retain
00512	<i>Acer saccharinum</i>	Silver Maple	141				Retain
00513	<i>Acer saccharinum</i>	Silver Maple	108				Retain
00514	<i>Acer saccharinum</i>	Silver Maple	95				Retain
00515	<i>Acer saccharinum</i>	Silver Maple	14				Retain
00516	<i>Acer saccharinum</i>	Silver Maple	53				Retain
00517	<i>Acer saccharinum</i>	Silver Maple	55				Retain
00518	<i>Acer saccharinum</i>	Silver Maple	60				Retain
00519	<i>Acer saccharinum</i>	Silver Maple	55				Retain
00520	<i>Acer saccharinum</i>	Silver Maple	12				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00521	<i>Acer saccharinum</i>	Silver Maple	61				Retain
00522	<i>Acer saccharinum</i>	Silver Maple	10				Retain
00523	<i>Acer saccharinum</i>	Silver Maple	85				Retain
00524	<i>Acer saccharinum</i>	Silver Maple	93				Retain
00525	<i>Acer saccharinum</i>	Silver Maple	121				Retain
00526	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00527	<i>Acer saccharinum</i>	Silver Maple	90				Retain
00528	<i>Acer saccharinum</i>	Silver Maple	53				Retain
00529	<i>Acer saccharinum</i>	Silver Maple	80				Retain
00530	<i>Acer saccharinum</i>	Silver Maple	50				Retain
00531	<i>Acer saccharinum</i>	Silver Maple	50				Retain
00532	<i>Acer saccharinum</i>	Silver Maple	160				Retain
00533	<i>Acer saccharinum</i>	Silver Maple	108				Retain
00534	<i>Acer saccharinum</i>	Silver Maple	96				Retain
00535	<i>Acer saccharinum</i>	Silver Maple	61				Retain
00536	<i>Acer saccharinum</i>	Silver Maple	73				Retain
00537	<i>Acer saccharinum</i>	Silver Maple	70				Retain
00538	<i>Acer saccharinum</i>	Silver Maple	109				Retain
00539	<i>Acer saccharinum</i>	Silver Maple	100				Retain
00540	<i>Acer saccharinum</i>	Silver Maple	59				Retain
00541	<i>Acer saccharinum</i>	Silver Maple	73				Retain
00542	<i>Acer saccharinum</i>	Silver Maple	105				Retain
00543	<i>Acer saccharinum</i>	Silver Maple	46				Retain
00544	<i>Acer saccharinum</i>	Silver Maple	57				Retain
00545	<i>Acer saccharinum</i>	Silver Maple	26				Retain
00546	<i>Acer saccharinum</i>	Silver Maple	48				Retain
00547	<i>Acer saccharinum</i>	Silver Maple	48				Retain
00548	<i>Acer saccharinum</i>	Silver Maple	53				Retain
00549	<i>Acer saccharinum</i>	Silver Maple	58				Retain
00550	<i>Acer saccharinum</i>	Silver Maple	42				Retain
00551	<i>Acer saccharinum</i>	Silver Maple	25				Retain
00552	<i>Acer saccharinum</i>	Silver Maple	55				Retain
00553	<i>Acer saccharinum</i>	Silver Maple	110				Retain
00554	<i>Acer saccharinum</i>	Silver Maple	140				Retain
00555	<i>Acer saccharinum</i>	Silver Maple	101				Retain
00556	<i>Acer saccharinum</i>	Silver Maple	63				Retain
00557	<i>Acer saccharinum</i>	Silver Maple	46				Retain
00558	<i>Acer saccharinum</i>	Silver Maple	63				Retain
00559	<i>Acer saccharinum</i>	Silver Maple	34				Retain
00560	<i>Acer saccharinum</i>	Silver Maple	76				Retain
00561	<i>Acer saccharinum</i>	Silver Maple	65				Retain
00562	<i>Acer saccharinum</i>	Silver Maple	36				Retain
00562	<i>Pinus nigra</i>	Austrian Pine	32				Retain
00563	<i>Acer saccharinum</i>	Silver Maple	52				Retain
00564	<i>Acer saccharinum</i>	Silver Maple	89				Retain
00565	<i>Acer saccharinum</i>	Silver Maple	90				Retain
00566	<i>Acer saccharinum</i>	Silver Maple	145				Retain
00567	<i>Acer saccharinum</i>	Silver Maple	86				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00568	<i>Acer saccharinum</i>	Silver Maple	27				Retain
00569	<i>Acer saccharinum</i>	Silver Maple	92				Retain
00570	<i>Acer saccharinum</i>	Silver Maple	37				Remove
00571	<i>Acer saccharinum</i>	Silver Maple	16				Retain
00572	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00573	<i>Acer saccharinum</i>	Silver Maple	44				Retain
00574	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00575	<i>Acer saccharinum</i>	Silver Maple	41				Retain
00576	<i>Acer saccharinum</i>	Silver Maple	66				Retain
00577	<i>Acer saccharinum</i>	Silver Maple	91				Retain
00578	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00579	<i>Acer saccharinum</i>	Silver Maple	76				Retain
00580	<i>Acer saccharinum</i>	Silver Maple	84				Retain
00581	<i>Acer saccharinum</i>	Silver Maple	70				Retain
00582	<i>Acer saccharinum</i>	Silver Maple	92				Retain
00583	<i>Acer saccharinum</i>	Silver Maple	99				Retain
00584	<i>Acer saccharinum</i>	Silver Maple	82				Retain
00585	<i>Acer saccharinum</i>	Silver Maple	96				Retain
00586	<i>Acer saccharinum</i>	Silver Maple	71				Retain
00587	<i>Acer saccharinum</i>	Silver Maple	38				Retain
00588	<i>Acer saccharinum</i>	Silver Maple	42				Retain
00589	<i>Acer saccharinum</i>	Silver Maple	35				Retain
00590	<i>Acer saccharinum</i>	Silver Maple	40				Retain
00591	<i>Acer saccharinum</i>	Silver Maple	26				Retain
00592	<i>Acer saccharinum</i>	Silver Maple	37				Retain
00593	<i>Acer saccharinum</i>	Silver Maple	115				Retain
00594	<i>Acer saccharinum</i>	Silver Maple	51				Retain
00595	<i>Acer saccharinum</i>	Silver Maple	109				Retain
00596	<i>Acer saccharinum</i>	Silver Maple	115				Retain
00597	<i>Acer saccharinum</i>	Silver Maple	85				Retain
00598	<i>Acer saccharinum</i>	Silver Maple	72				Retain
00599	<i>Acer saccharinum</i>	Silver Maple	75				Retain
00600	<i>Acer saccharinum</i>	Silver Maple	115				Retain
00601	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00602	<i>Acer saccharinum</i>	Silver Maple	68				Retain
00603	<i>Acer saccharum</i>	Sugar Maple	64				Retain
00604	<i>Acer saccharum</i>	Sugar Maple	76				Retain
00605	<i>Acer saccharum</i>	Sugar Maple	68				Retain
00606	<i>Acer saccharum</i>	Sugar Maple	30				Retain
00607	<i>Acer saccharum</i>	Sugar Maple	77				Retain
00608	<i>Acer saccharum</i>	Sugar Maple	65				Retain
00609	<i>Acer saccharum</i>	Sugar Maple	48				Retain
00610	<i>Acer saccharum</i>	Sugar Maple	67				Retain
00611	<i>Acer saccharum</i>	Sugar Maple	42				Retain
00612	<i>Acer saccharum</i>	Sugar Maple	44				Retain
00613	<i>Acer saccharum</i>	Sugar Maple	43				Retain
00614	<i>Acer saccharum</i>	Sugar Maple	85				Retain
00615	<i>Acer saccharum</i>	Sugar Maple	73				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00617	<i>Acer saccharum</i>	Sugar Maple	35				Retain
00618	<i>Acer saccharum</i>	Sugar Maple	38				Retain
00619	<i>Acer saccharum</i>	Sugar Maple	41				Retain
00620	<i>Acer saccharum</i>	Sugar Maple	27				Retain
00621	<i>Acer saccharum</i>	Sugar Maple	29				Retain
00622	<i>Acer saccharum</i>	Sugar Maple	51				Retain
00623	<i>Acer saccharum</i>	Sugar Maple	68				Retain
00624	<i>Acer saccharum</i>	Sugar Maple	70				Retain
00625	<i>Acer saccharum</i>	Sugar Maple	46				Retain
00626	<i>Acer saccharum</i>	Sugar Maple	12				Retain
00627	<i>Acer saccharum</i>	Sugar Maple	11				Retain
00628	<i>Acer saccharum</i>	Sugar Maple	10				Retain
00629	<i>Acer saccharum</i>	Sugar Maple	13				Retain
00630	<i>Acer saccharum</i>	Sugar Maple	15				Retain
00631	<i>Acer saccharum</i>	Sugar Maple	37				Remove
00632	<i>Acer saccharum</i>	Sugar Maple	24				Retain
00633	<i>Acer saccharum</i>	Sugar Maple	57				Retain
00634	<i>Acer saccharum</i>	Sugar Maple	77				Retain
00635	<i>Acer saccharum</i>	Sugar Maple	62				Retain
00636	<i>Acer saccharum</i>	Sugar Maple	77				Retain
00637	<i>Acer saccharum</i>	Sugar Maple	38				Retain
00638	<i>Acer saccharum</i>	Sugar Maple	76				Retain
00639	<i>Acer saccharum</i>	Sugar Maple	71				Retain
00640	<i>Acer saccharum</i>	Sugar Maple	76				Retain
00641	<i>Acer saccharum</i>	Sugar Maple	64				Retain
00642	<i>Acer saccharum</i>	Sugar Maple	68				Retain
00643	<i>Acer saccharum</i>	Sugar Maple	66				Retain
00644	<i>Acer saccharum</i>	Sugar Maple	53				Retain
00645	<i>Acer saccharum</i>	Sugar Maple	44				Retain
00646	<i>Acer saccharum</i>	Sugar Maple	65				Retain
00647	<i>Acer saccharum</i>	Sugar Maple	68				Retain
00648	<i>Acer saccharum</i>	Sugar Maple	65				Retain
00649	<i>Acer saccharum</i>	Sugar Maple	55				Retain
00650	<i>Acer saccharum</i>	Sugar Maple	78				Retain
00651	<i>Acer saccharum</i>	Sugar Maple	53				Retain
00652	<i>Acer saccharum</i>	Sugar Maple	43				Retain
00653	<i>Acer saccharum</i>	Sugar Maple	74				Retain
00654	<i>Acer saccharum</i>	Sugar Maple	59				Retain
00655	<i>Acer saccharum</i>	Sugar Maple	65				Retain
00656	<i>Acer saccharum</i>	Sugar Maple	58				Retain
00657	<i>Acer saccharum</i>	Sugar Maple	71				Retain
00658	<i>Acer saccharum</i>	Sugar Maple	59				Retain
00659	<i>Acer saccharum</i>	Sugar Maple	29				Retain
00660	<i>Acer saccharum</i>	Sugar Maple	21				Retain
00661	<i>Acer saccharum</i>	Sugar Maple	7				Remove
00662	<i>Acer saccharum</i>	Sugar Maple	6				Remove
00663	<i>Acer saccharum</i>	Sugar Maple	15				Retain
00664	<i>Acer saccharum</i>	Sugar Maple	95				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00665	<i>Acer saccharum</i>	Sugar Maple	72				Retain
00666	<i>Acer saccharum</i>	Sugar Maple	10				Remove
00667	<i>Acer saccharum</i>	Sugar Maple	20				Remove
00668	<i>Acer saccharum</i>	Sugar Maple	10				Retain
00669	<i>Acer saccharum</i>	Sugar Maple	41				Retain
00670	<i>Acer saccharum</i>	Sugar Maple	13				Retain
00671	<i>Acer saccharum</i>	Sugar Maple	36				Retain
00672	<i>Acer saccharum</i>	Sugar Maple	87				Retain
00673	<i>Acer saccharum</i>	Sugar Maple	74				Retain
00674	<i>Acer saccharum</i>	Sugar Maple	82				Retain
00675	<i>Acer saccharum</i>	Sugar Maple	64				Remove
00676	<i>Acer saccharum</i>	Sugar Maple	67				Retain
00677	<i>Acer saccharum</i>	Sugar Maple	78				Retain
00678	<i>Acer saccharum</i>	Sugar Maple	30				Retain
00679	<i>Acer saccharum</i>	Sugar Maple	60				Retain
00680	<i>Acer saccharum</i>	Sugar Maple	65				Retain
00681	<i>Acer saccharum</i>	Sugar Maple	47				Retain
00682	<i>Morus</i>	Mulberry	16				Remove
00683	<i>Morus</i>	Mulberry	16				Remove
00684	<i>Morus</i>	Mulberry	12				Retain
00685	<i>Morus</i>	Mulberry	18				Retain
00686	<i>Morus</i>	Mulberry	15				Retain
00687	<i>Morus</i>	Mulberry	10				Retain
00688	<i>Morus</i>	Mulberry	11				Retain
00689	<i>Morus</i>	Mulberry	14				Retain
00690	<i>Morus</i>	Mulberry	60				Retain
00691	<i>Morus</i>	Mulberry	49				Retain
00692	<i>Morus</i>	Mulberry	12				Retain
00692	<i>Fraxinus pennsylvanica</i>	Green Ash	69				Retain
00693	<i>Morus</i>	Mulberry	16				Retain
00693	<i>Fraxinus pennsylvanica</i>	Green Ash	68				Retain
00694	<i>Morus</i>	Mulberry	16				Retain
00695	<i>Morus</i>	Mulberry	13				Retain
00696	<i>Morus</i>	Mulberry	16				Retain
00697	<i>Morus</i>	Mulberry	36				Retain
00698	<i>Morus</i>	Mulberry	11				Retain
00699	<i>Morus</i>	Mulberry	10				Retain
00700	<i>Morus</i>	Mulberry	10				Retain
00701	<i>Morus</i>	Mulberry	30				Retain
00702	<i>Morus</i>	Mulberry	39				Remove
00703	<i>Morus</i>	Mulberry	15				Remove
00704	<i>Morus</i>	Mulberry	20				Retain
00705	<i>Morus</i>	Mulberry	12				Retain
00706	<i>Morus</i>	Mulberry	21				Retain
00707	<i>Morus alba</i>	White Mulberry	60				Retain
00708	<i>Morus alba</i>	White Mulberry	25				Retain
00709	<i>Morus alba</i>	White Mulberry	18				Retain
00710	<i>Morus alba</i>	White Mulberry	10				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00711	<i>Morus alba</i>	White Mulberry	37				Retain
00712	<i>Morus alba</i>	White Mulberry	42				Retain
00713	<i>Morus alba</i>	White Mulberry	10				Retain
00714	<i>Morus alba</i>	White Mulberry	21				Retain
00715	<i>Morus alba</i>	White Mulberry	25				Retain
00716	<i>Morus alba</i>	White Mulberry	15				Retain
00717	<i>Quercus macrocarpa</i>	Bur Oak	18				Retain
00718	<i>Quercus macrocarpa</i>	Bur Oak	15				Retain
00719	<i>Quercus rubra</i>	Red Oak	101				Retain
00720	<i>Quercus rubra</i>	Red Oak	44				Retain
00721	<i>Quercus rubra</i>	Red Oak	41				Retain
00722	<i>Quercus rubra</i>	Red Oak	31				Retain
00723	<i>Quercus rubra</i>	Red Oak	39				Retain
00724	<i>Quercus rubra</i>	Red Oak	47				Retain
00725	<i>Quercus alba</i>	White Oak	10				Retain
00726	<i>Pyrus calleryana</i>	Bradford Pear	68				Retain
00727	<i>Pinus nigra</i>	Austrian Pine	38				Retain
00728	<i>Pinus nigra</i>	Austrian Pine	28				Retain
00729	<i>Pinus nigra</i>	Austrian Pine	33				Retain
00730	<i>Pinus nigra</i>	Austrian Pine	41				Retain
00731	<i>Fagus grandifolia</i>	American Beech	45				Retain
00731	<i>Pinus nigra</i>	Austrian Pine	39				Retain
00732	<i>Acer spp.</i>	Maple	85				Retain
00732	<i>Pinus nigra</i>	Austrian Pine	46				Retain
00733	<i>Pinus resinosa</i>	Red Pine	34				Retain
00734	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00735	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00736	<i>Pinus sylvestris</i>	Scotch Pine	38				Retain
00737	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00738	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00739	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00740	<i>Pinus sylvestris</i>	Scotch Pine	21				Retain
00741	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00742	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00743	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00744	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00745	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00746	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00747	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00748	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00749	<i>Pinus sylvestris</i>	Scotch Pine	47				Retain
00750	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00751	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00752	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00753	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00754	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00755	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00756	<i>Pinus sylvestris</i>	Scotch Pine	23				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00757	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00757	<i>Morus alba</i>	White Mulberry	32				Retain
00758	<i>Pinus sylvestris</i>	Scotch Pine	23				Retain
00758	<i>Morus alba</i>	White Mulberry	33				Retain
00759	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00759	<i>Acer platanoides</i>	Norway Maple	27				Retain
00760	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00760	<i>Acer saccharinum</i>	Silver Maple	53				Retain
00761	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00762	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00763	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00764	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00765	<i>Pinus sylvestris</i>	Scotch Pine	38				Retain
00766	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00767	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00768	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00769	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00770	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00771	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00772	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00773	<i>Pinus sylvestris</i>	Scotch Pine	47				Retain
00774	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00775	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00776	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00777	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00778	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00779	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00780	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00781	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00782	<i>Pinus sylvestris</i>	Scotch Pine	42				Retain
00783	<i>Pinus sylvestris</i>	Scotch Pine	55				Retain
00784	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00785	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00786	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00787	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00788	<i>Pinus sylvestris</i>	Scotch Pine	55				Retain
00789	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00790	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00791	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00792	<i>Pinus sylvestris</i>	Scotch Pine	54				Retain
00793	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00794	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00795	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00796	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00797	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00798	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00799	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00800	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00801	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00802	<i>Pinus sylvestris</i>	Scotch Pine	43				Retain
00803	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00804	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00805	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00806	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00807	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00808	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00809	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00810	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00811	<i>Pinus sylvestris</i>	Scotch Pine	80				Retain
00812	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00813	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00814	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00815	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00816	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00817	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00818	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00819	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00820	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00821	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00822	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00823	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00824	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00825	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00826	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00827	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00828	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00829	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00830	<i>Pinus sylvestris</i>	Scotch Pine	20				Retain
00831	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00832	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00833	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00834	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00835	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00836	<i>Pinus sylvestris</i>	Scotch Pine	23				Retain
00837	<i>Pinus sylvestris</i>	Scotch Pine	22				Retain
00838	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00839	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00840	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00841	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00842	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00843	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00844	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00845	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00846	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00847	<i>Pinus sylvestris</i>	Scotch Pine	24				Retain
00848	<i>Fraxinus pennsylvanica</i>	Green Ash	40				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00848	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00849	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00849	<i>Fraxinus pennsylvanica</i>	Green Ash	53				Retain
00850	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00851	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00852	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00853	<i>Pinus sylvestris</i>	Scotch Pine	22				Retain
00854	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00855	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00856	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00857	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00858	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00859	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00860	<i>Pinus sylvestris</i>	Scotch Pine	18				Retain
00861	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00862	<i>Pinus sylvestris</i>	Scotch Pine	22				Retain
00863	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00864	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00865	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00866	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00867	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00868	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00869	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00870	<i>Pinus sylvestris</i>	Scotch Pine	18				Retain
00871	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00872	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00873	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00874	<i>Pinus sylvestris</i>	Scotch Pine	23				Retain
00875	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00876	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00877	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00878	<i>Pinus sylvestris</i>	Scotch Pine	41				Retain
00879	<i>Pinus sylvestris</i>	Scotch Pine	43				Retain
00880	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00881	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00882	<i>Pinus sylvestris</i>	Scotch Pine	53				Retain
00883	<i>Pinus sylvestris</i>	Scotch Pine	54				Retain
00884	<i>Pinus sylvestris</i>	Scotch Pine	42				Retain
00885	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00886	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00887	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00888	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00889	<i>Pinus sylvestris</i>	Scotch Pine	47				Retain
00890	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00891	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00892	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00893	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00894	<i>Pinus sylvestris</i>	Scotch Pine	43				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00895	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00896	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00897	<i>Pinus sylvestris</i>	Scotch Pine	44				Retain
00898	<i>Pinus sylvestris</i>	Scotch Pine	18				Retain
00899	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00900	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00901	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00902	<i>Malus spp.</i>	Apple Crab	33				Retain
00902	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00903	<i>Malus spp.</i>	Apple Crab	29				Retain
00903	<i>Pinus sylvestris</i>	Scotch Pine	19				Retain
00904	<i>Malus spp.</i>	Apple Crab	21				Retain
00904	<i>Pinus sylvestris</i>	Scotch Pine	20				Retain
00905	<i>Malus spp.</i>	Apple Crab	29				Retain
00905	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00906	<i>Malus spp.</i>	Apple Crab	30				Retain
00906	<i>Pinus sylvestris</i>	Scotch Pine	23				Retain
00907	<i>Malus spp.</i>	Apple Crab	22				Retain
00907	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00908	<i>Malus spp.</i>	Apple Crab	24				Retain
00908	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00909	<i>Malus spp.</i>	Apple Crab	25				Retain
00909	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00910	<i>Malus spp.</i>	Apple Crab	23				Retain
00910	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00911	<i>Malus spp.</i>	Apple Crab	30				Retain
00911	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00912	<i>Malus spp.</i>	Apple Crab	23				Retain
00912	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00913	<i>Malus spp.</i>	Apple Crab	25				Retain
00913	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00914	<i>Malus spp.</i>	Apple Crab	26				Retain
00914	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00915	<i>Malus spp.</i>	Apple Crab	26				Retain
00915	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00916	<i>Malus spp.</i>	Apple Crab	24				Retain
00916	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00917	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00917	<i>Malus spp.</i>	Apple Crab	24				Retain
00917	<i>Acer saccharum</i>	Sugar Maple	82				Retain
00918	<i>Pinus sylvestris</i>	Scotch Pine	27				Remove
00918	<i>Malus spp.</i>	Apple Crab	28				Retain
00918	<i>Salix nigra</i>	Black Willow	74				Retain
00919	<i>Pinus sylvestris</i>	Scotch Pine	47				Retain
00919	<i>Malus spp.</i>	Apple	22				Retain
00920	<i>Pinus sylvestris</i>	Scotch Pine	59				Retain
00920	<i>Malus spp.</i>	Apple	15				Remove
00921	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00921	<i>Fagus grandifolia</i>	American Beech	4				Retain
00922	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00922	<i>Fagus sylvatica</i>	European Beech	47				Retain
00923	<i>Pinus sylvestris</i>	Scotch Pine	48				Retain
00923	<i>Betula papyrifera</i>	White Birch	30				Retain
00924	<i>Pinus sylvestris</i>	Scotch Pine	58				Retain
00924	<i>Betula papyrifera</i>	White Birch	35				Retain
00925	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00925	<i>Betula papyrifera</i>	White Birch	22				Retain
00926	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00926	<i>Betula papyrifera</i>	White Birch	33				Retain
00927	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00927	<i>Betula papyrifera</i>	White Birch	22				Retain
00928	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00928	<i>Betula papyrifera</i>	White Birch	26				Retain
00929	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00929	<i>Betula papyrifera</i>	White Birch	28				Retain
00930	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00930	<i>Betula papyrifera</i>	White Birch	45				Retain
00931	<i>Pinus sylvestris</i>	Scotch Pine	36				Remove
00931	<i>Betula papyrifera</i>	White Birch	65				Retain
00932	<i>Pinus sylvestris</i>	Scotch Pine	32				Retain
00932	<i>Betula papyrifera</i>	White Birch	34				Retain
00933	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00933	<i>Betula papyrifera</i>	White Birch	26				Retain
00934	<i>Pinus sylvestris</i>	Scotch Pine	36				Remove
00934	<i>Betula papyrifera</i>	White Birch	15				Retain
00935	<i>Pinus sylvestris</i>	Scotch Pine	37				Retain
00935	<i>Betula papyrifera</i>	White Birch	30				Remove
00936	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00936	<i>Betula papyrifera</i>	White Birch	32				Retain
00937	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00937	<i>Betula papyrifera</i>	White Birch	55				Retain
00938	<i>Pinus sylvestris</i>	Scotch Pine	59				Retain
00938	<i>Betula papyrifera</i>	White Birch	27				Remove
00939	<i>Pinus sylvestris</i>	Scotch Pine	22				Retain
00939	<i>Betula papyrifera</i>	White Birch	35				Retain
00940	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00940	<i>Betula papyrifera</i>	White Birch	55				Retain
00941	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00941	<i>Betula papyrifera</i>	White Birch	73				Retain
00942	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00942	<i>Betula papyrifera</i>	White Birch	23				Retain
00943	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00943	<i>Acer saccharinum</i>	Silver Maple	110				Retain
00943	<i>Betula papyrifera</i>	White Birch	14				Remove
00944	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00944	<i>Prunus serotina</i>	Black Cherry	65				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00944	<i>Betula papyrifera</i>	White Birch	20				Retain
00945	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00945	<i>Prunus avium</i>	Cherry	55				Retain
00945	<i>Betula papyrifera</i>	White Birch	28				Retain
00946	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00946	<i>Betula papyrifera</i>	White Birch	29				Retain
00947	<i>Pinus sylvestris</i>	Scotch Pine	47				Retain
00947	<i>Betula papyrifera</i>	White Birch	32				Retain
00948	<i>Pinus sylvestris</i>	Scotch Pine	34				Retain
00948	<i>Betula papyrifera</i>	White Birch	28				Retain
00949	<i>Pinus sylvestris</i>	Scotch Pine	55				Retain
00949	<i>Betula papyrifera</i>	White Birch	18				Retain
00950	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00950	<i>Betula papyrifera</i>	White Birch	35				Retain
00951	<i>Pinus sylvestris</i>	Scotch Pine	57				Retain
00951	<i>Betula papyrifera</i>	White Birch	32				Retain
00952	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00952	<i>Thuja occidentalis</i>	Eastern White Cedar	28				Retain
00953	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00953	<i>Thuja occidentalis</i>	Eastern White Cedar	38				Retain
00954	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00954	<i>Thuja occidentalis</i>	Eastern White Cedar	24				Retain
00955	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00955	<i>Thuja occidentalis</i>	Eastern White Cedar	22				Retain
00956	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00956	<i>Thuja occidentalis</i>	Eastern White Cedar	13				Retain
00957	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00957	<i>Thuja occidentalis</i>	Eastern White Cedar	15				Retain
00958	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00958	<i>Thuja occidentalis</i>	Eastern White Cedar	11				Retain
00959	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00959	<i>Thuja occidentalis</i>	Eastern White Cedar	16				Retain
00960	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00960	<i>Thuja occidentalis</i>	Eastern White Cedar	22				Retain
00961	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00961	<i>Thuja occidentalis</i>	Eastern White Cedar	18				Retain
00962	<i>Pinus sylvestris</i>	Scotch Pine	54				Retain
00962	<i>Thuja occidentalis</i>	Eastern White Cedar	16				Retain
00963	<i>Pinus sylvestris</i>	Scotch Pine	33				Retain
00963	<i>Thuja occidentalis</i>	Eastern White Cedar	25				Retain
00964	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00964	<i>Thuja occidentalis</i>	Eastern White Cedar	26				Retain
00965	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00965	<i>Thuja occidentalis</i>	Eastern White Cedar	17				Retain
00966	<i>Pinus sylvestris</i>	Scotch Pine	46				Retain
00966	<i>Thuja occidentalis</i>	Eastern White Cedar	11				Retain
00967	<i>Pinus sylvestris</i>	Scotch Pine	36				Retain
00967	<i>Thuja occidentalis</i>	Eastern White Cedar	18				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00968	<i>Pinus sylvestris</i>	Scotch Pine	31				Retain
00968	<i>Thuja occidentalis</i>	Eastern White Cedar	10				Retain
00969	<i>Pinus sylvestris</i>	Scotch Pine	38				Retain
00969	<i>Thuja occidentalis</i>	Eastern White Cedar	18				Retain
00970	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00970	<i>Thuja occidentalis</i>	Eastern White Cedar	23				Retain
00971	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00971	<i>Thuja occidentalis</i>	Eastern White Cedar	38				Retain
00972	<i>Pinus sylvestris</i>	Scotch Pine	20				Retain
00972	<i>Thuja occidentalis</i>	Eastern White Cedar	61				Retain
00973	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00973	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Retain
00974	<i>Pinus sylvestris</i>	Scotch Pine	40				Retain
00974	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Retain
00975	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00975	<i>Thuja occidentalis</i>	Eastern White Cedar	25				Retain
00976	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00976	<i>Thuja occidentalis</i>	Eastern White Cedar	23				Retain
00977	<i>Pinus sylvestris</i>	Scotch Pine	29				Retain
00977	<i>Thuja occidentalis</i>	Eastern White Cedar	30				Retain
00978	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00978	<i>Thuja occidentalis</i>	Eastern White Cedar	38				Retain
00979	<i>Pinus sylvestris</i>	Scotch Pine	51				Retain
00979	<i>Thuja occidentalis</i>	Eastern White Cedar	36				Retain
00980	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00980	<i>Thuja occidentalis</i>	Eastern White Cedar	34				Retain
00981	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00981	<i>Thuja occidentalis</i>	Eastern White Cedar	31				Retain
00982	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00982	<i>Thuja occidentalis</i>	Eastern White Cedar	58				Retain
00983	<i>Pinus sylvestris</i>	Scotch Pine	28				Retain
00983	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Retain
00984	<i>Pinus sylvestris</i>	Scotch Pine	50				Retain
00984	<i>Thuja occidentalis</i>	Eastern White Cedar	29				Retain
00985	<i>Thuja occidentalis</i>	Eastern White Cedar	31				Retain
00985	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00986	<i>Thuja occidentalis</i>	Eastern White Cedar	27				Remove
00986	<i>Pinus sylvestris</i>	Scotch Pine	30				Retain
00987	<i>Thuja occidentalis</i>	Eastern White Cedar	24				Retain
00987	<i>Pinus sylvestris</i>	Scotch Pine	35				Remove
00988	<i>Thuja occidentalis</i>	Eastern White Cedar	28				Remove
00988	<i>Pinus sylvestris</i>	Scotch Pine	35				Retain
00989	<i>Thuja occidentalis</i>	Eastern White Cedar	45				Remove
00989	<i>Pinus sylvestris</i>	Scotch Pine	53				Retain
00990	<i>Thuja occidentalis</i>	Eastern White Cedar	23				Remove
00990	<i>Pinus sylvestris</i>	Scotch Pine	45				Retain
00991	<i>Thuja occidentalis</i>	Eastern White Cedar	50				Remove
00991	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain

Tag #	Species Name		Tree Dimensions		Health Condition	Notes	Action
	Scientific Name	Common Name	DBH (cm)	Crown Reserve (m)			
00992	<i>Thuja occidentalis</i>	Eastern White Cedar	32				Remove
00992	<i>Pinus sylvestris</i>	Scotch Pine	53				Retain
00993	<i>Thuja occidentalis</i>	Eastern White Cedar	33				Retain
00993	<i>Pinus sylvestris</i>	Scotch Pine	30				Remove
00994	<i>Thuja occidentalis</i>	Eastern White Cedar	25				Retain
00994	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00995	<i>Thuja occidentalis</i>	Eastern White Cedar	30				Retain
00995	<i>Pinus sylvestris</i>	Scotch Pine	27				Retain
00996	<i>Thuja occidentalis</i>	Eastern White Cedar	34				Retain
00996	<i>Pinus sylvestris</i>	Scotch Pine	25				Retain
00997	<i>Thuja occidentalis</i>	Eastern White Cedar	23				Remove
00997	<i>Pinus sylvestris</i>	Scotch Pine	39				Retain
00998	<i>Thuja occidentalis</i>	Eastern White Cedar	33				Remove
00998	<i>Pinus sylvestris</i>	Scotch Pine	26				Retain
00999	<i>Pinus sylvestris</i>	Scotch Pine	53				Retain
00999	<i>Thuja occidentalis</i>	Eastern White Cedar	22				Remove
TAG	Scientific name	Common Name	DBH				Action
TAG	Scientific name	Common Name	DBH				Action

NOTES:

00xxx - are trees maintained in City database

217-1321 - are tree inventoried by ABL

Appendix E – Stage 2 Archaeological Study Report by ASI.

Appendix F – Geotechnical Report by Terraprobe



Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing*

**GEOTECHNICAL INVESTIGATION
APPLEWOOD CREEK
PEDESTRIAN BRIDGES
LAKEVIEW GOLF COURSE
1190 DIXIE ROAD
CITY OF MISSISSAUGA, ONTARIO**

Prepared for: Aquafor Beech Limited
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Attention: Mr. Robert Amos, P. Eng.

File No. 1-20-0100

July 7, 2020

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TABLE OF CONTENTS

1	INTRODUCTION.....	1
2	PROJECT AND SITE DESCRIPTIONS.....	1
3	INVESTIGATION PROCEDURE	1
4	SUBSURFACE CONDITIONS	2
4.1	Topsoil.....	3
4.2	Earth Fill	3
4.3	Sandy Silt to Silty Sand and Sand.....	3
4.4	Clayey Silt (Glacial) Till	3
4.5	Inferred Bedrock.....	4
4.6	Geotechnical Laboratory Test Results	4
4.7	Ground Water.....	5
5	DISCUSSIONS AND RECOMMENDATIONS.....	6
5.1	Foundation	6
5.2	Design Frost Depth	7
5.3	Scour Protection.....	7
5.4	Lateral Earth Pressure for Abutments and Retaining Walls	8
5.5	Earthquake Design Parameters	9
5.6	Excavation and Ground Water Control.....	10
5.7	Approach Embankments	11
6	LIMITATIONS AND RISK.....	12
6.1	Procedures.....	12
6.2	Changes in Site and Scope.....	12

FIGURES

Figure 1	Site Location Plan
Figure 2	Borehole Location and Site Features Plan

APPENDICES

Appendix A	Borehole Logs
Appendix B	Geotechnical Laboratory Test Results



1 INTRODUCTION

Terraprobe Inc. (Terraprobe) was retained by Aquafor Beech Limited to conduct a geotechnical investigation for the proposed Pedestrian Bridges at Applewood Creek, on the Lakeview Golf Course located at 1190 Dixie Road in the City of Mississauga, Ontario.

This report encompasses the results of the geotechnical investigation conducted for the subject site to determine the prevailing subsurface soil and shallow ground water conditions. This information is used to provide geotechnical engineering recommendations for the design of the proposed pedestrian bridge foundations. In addition, comments are also included on pertinent construction aspects including excavation, backfill and ground water control and scour protection.

2 PROJECT AND SITE DESCRIPTIONS

Aquafor Beech Limited is conducting an Environmental Assessment (EA) for the Applewood Creek project which extends through the Lakeview golf Course, located at 1190 Dixie Road in the City of Mississauga, Ontario. It is understood that the project will include implementation of erosion control measures for the creek banks and replacement of select bridges. It is further understood that the total length of the creek through the golf course is approximately 1,300 m and five (5) pedestrian bridges will be replaced along the creek through the golf course. The general location of the subject site is presented on Figure 1.

3 INVESTIGATION PROCEDURE

The field investigation was conducted on April 27 and 28, 2020, and consisted of drilling and sampling a total of nine (9) boreholes (Boreholes 1 and 2 for new bridge near Bridge No. 8; Boreholes 3 and 4 for new bridge near Bridge No. 7; Borehole 5 for new bridge between Bridge Nos. 5 and 6; Boreholes 7 and 8 for new bridge near Bridge No. 3 and Boreholes 8 and 9 for new bridge near Bridge No. 2) to auger refusal depths of about 2.1 to 3.9 m below grade (Elev. 84.7 to 90.7 m). Generally, two boreholes (one borehole on each side of the creek) were advanced in the vicinity of each of the proposed bridge locations. However, for the bridge located between existing Bridge Nos. 5 and 6, only one borehole (Borehole 5) could be carried out at this location as the west bridge abutment will be located in what is presently a pond. As such a borehole could not be advanced at that location. The approximate location of the boreholes is shown on the enclosed Borehole Location Plan (Figure 2).

The boreholes were surveyed for coordinates and geodetic elevation with a Trimble R10 Receiver connected to the Global Navigation Satellite System. The elevations noted on the Borehole Logs are approximate, and provided only for the purpose of relating borehole soil stratigraphy, and should not be used or relied on for other purposes.

The borings were drilled by a specialist drilling contractor using a Mini Mole drill rig with power auger. The borings were advanced using continuous flight solid-stem augers, and were sampled at regular



intervals with a conventional 50 mm diameter split barrel sampler when the Standard Penetration Test (SPT) was carried out (ASTM D1586). The field work (drilling, sampling and testing) was observed and recorded by a member of our field engineering staff, who logged the borings and examined the samples as they were obtained.

All samples obtained during the field investigation were sealed in clean plastic jars, and transported to our geotechnical testing laboratory for detailed inspection and testing. Borehole samples were examined (tactile) in detail by a geotechnical engineer, and classified according to visual and index properties. Laboratory testing consisted of water content determination on all samples; and a Sieve and Hydrometer analysis on three (3) selected soil samples (Borehole 4, Sample 4, Borehole 5, Sample 3 and Borehole 7, Sample 1). The results of the geotechnical laboratory testing are plotted on the enclosed Borehole Logs at respective sampling depths. The results of laboratory tests (Sieve and Hydrometer analysis tests) are also summarized in Section 4.5 of this report, and appended.

Ground water levels were monitored in the boreholes upon completion of drilling. Standpipe type piezometer comprising 25 mm diameter PVC tubing was installed in Boreholes 4 and 8 to facilitate ground water level monitoring. The PVC tubing was saw slotted near its base and fitted with a bentonite clay seal as shown on the accompanying Borehole Logs. Water levels in the piezometers were measured on May 13, 2020 about two weeks following the installation. The results of ground water level are presented in Section 4.6 of this report.

4 SUBSURFACE CONDITIONS

The specific soil conditions encountered at each borehole location are presented in greater detail on the Borehole Logs, with a summary of the general subsurface soil conditions outlined below. This summary is intended to correlate this data to assist in the interpretation of the subsurface conditions at the site. Refer to Borehole Logs for stratigraphic and other details.

It should be noted that the subsurface conditions are confirmed at the borehole locations only, and may vary between and beyond the borehole locations. The stratigraphic boundaries between the various strata as shown on the Borehole Logs are based on non-continuous sampling. These boundaries represent an inferred transition between the various strata, rather than a precise plane of geologic change.

In summary, a surficial topsoil layer was encountered at the ground surface in all boreholes. The topsoil was underlain by a layer of earth fill materials in some boreholes. The native deposits consisted of generally loose sandy silt to silty sand or sand (in some boreholes) which was in turn underlain by clayey silt glacial till deposit which extended to the inferred bedrock. Rock coring to characterize and confirm bedrock was beyond our scope of work, and therefore was not carried out.



4.1 Topsoil

Topsoil layer (150 to 300 mm thick) was encountered at the ground surface at all Borehole locations. The topsoil thicknesses were measured from the collar of the borings and are approximate, and may vary between and beyond the boreholes. The topsoil thickness noted on the Borehole Logs refers to distinct topsoil layer present at the borehole location, however, organic inclusions extended deeper than the topsoil thickness layer noted on the Borehole Logs.

Topsoil and aggregate thickness may vary beyond the borehole location. The above data may not be sufficient for estimating topsoil or aggregate quantities and/or associated costs.

4.2 Earth Fill

A zone of earth fill consisting of sand to silty sand with terrace clay, trace rootlets and organic staining was encountered beneath the surficial topsoil layer in Boreholes 1 to 3 and 5. The earth fill materials extended to a depth of ranging from about 0.8 to 1.1 m below grade (Elev. 90.6 to 93.0 m).

The Standard Penetration Test results ('N' Values) obtained from the earth fill materials varied from 3 to 12 blows per 300 mm of penetration, indicating a loose to compact relative density (generally loose).

The measured water contents of the earth fill soil samples typically ranged from 17 to 30 percent by weight, indicating a moist to wet condition. High water contents, i.e. 30 percent is likely due to the presence of organics.

4.3 Sandy Silt to Silty Sand and Sand

Underlying the surficial topsoil in Boreholes 4, and 6 to 9 and the fill in Borehole 5, an undisturbed native cohesionless soil comprising sandy silty to silty sand and sand (hereafter referred to as the "silt and sand unit") with trace clay to clayey was encountered and extended to the a depth ranging from 0.4 to 2.3 m below grade (Elev. 87 to 91.4 m).

The Standard Penetration Test results ('N' Values) obtained from the silt and sand unit ranged from 2 to 11 blows per 300 mm of penetration, indicating a loose to compact relative density (generally loose).

The measured water contents of these soil samples ranged from 17 to 34 percent by weight, indicating a wet condition.

4.4 Clayey Silt (Glacial) Till

Clayey silt (glacial) till was encountered below the fill in Boreholes 1 to 3 and below the silt and sand unit in the remaining boreholes, and extended to the surface of the inferred bedrock, i.e. a depth ranging



from 1.2 to 3.0 m below grade (Elev. 86.3 to 91.8 m). Gravel was widely dispersed throughout the deposit and sporadic shale fragments inclusion was noted within this deposit.

The Standard Penetration Test results ('N' Value) obtained from the clayey silt soil deposit ranged from 8 to 54 blows per 300 mm of penetration, indicating a stiff to hard consistency.

The measured water contents of these soil samples ranged from 11 to 23 percent by weight, indicating a moist condition.

4.5 Inferred Bedrock

Weathered shale was inferred beneath the clayey silt glacial till deposit in all boreholes at depths ranging from about 1.2 to 3.0 m below grade, i.e. elevation ranging from 86.3 m (Borehole 8) to 91.8 m (Borehole 2). It must be noted that the presence of bedrock (Georgian Bay Formation) was inferred from the auger/sampling spoon refusal and/or presence of shale fragments in the sample(s). Auger/sampling spoon refusal may also be indicative of a presence of cobbles/boulders. Bedrock confirmation and characterization through rock coring was beyond the scope of our work and was not carried out. Therefore, it must be noted that the depth of bedrock at the borehole locations may be different from the inferred depth noted on the borehole logs. Rock coring should be undertaken if accurate confirmation of the bedrock level and its characterization are inherently important to the project design and construction, and a variation in the elevation/depth of bedrock cannot be tolerated.

The bedrock of the Georgian Bay Formation, typically found in the general area, is a deposit predominantly comprising thin to medium bedded blue-grey shale of Upper Ordovician age. The bedrock contains interbeds of grey calcareous shale, limestone/dolostone and calcareous sandstone which are discontinuous and nominally 50 to 300 mm thick.

4.6 Geotechnical Laboratory Test Results

The geotechnical laboratory testing consisted of natural water content determination for all samples, while a Sieve and Hydrometer analysis was conducted on selected soil samples. A summary of the Sieve and Hydrometer (grain size) analysis results is presented as follows:

Borehole No. Sample No.	Depth Below Grade	Percentage (by weight)				Descriptions (MIT System)
		Gravel	Sand	Silt	Clay	
Borehole 4, Sample 4	2.5 m	2	7	63	28	CLAYEY SILT, trace sand, trace gravel
Borehole 5, Sample 3	1.8 m	0	7	69	24	CLAYEY SILT, trace sand



Borehole No. Sample No.	Depth Below Grade	Percentage (by weight)				Descriptions (MIT System)
		Gravel	Sand	Silt	Clay	
Borehole 7, Sample 1	0.3 m	0	70	18	12	SAND, some silt, some clay

4.7 Ground Water

The depth of ground water and caving was measured in the boreholes immediately following the drilling. A piezometer was installed in Boreholes 4 and 8 upon completion of drilling. The stabilized ground water levels were measured in the piezometers on May 13, 2020 (about two weeks after the drilling). The ground water levels measurements are shown on the Boreholes Logs, and are summarized as follows:

Borehole No.	Depth of Borehole	Depth to Cave	Water Level at the Time of Drilling	Water Level in Piezometer on May 13, 2020	
				Depth	Elevation
1	3.1 m	open	1.5 m	No piezometer installed	
2	3.1 m	open	Dry	No piezometer installed	
3	2.5 m	open	1.7 m	No piezometer installed	
4	3.9 m	open	1.2 m	1.1 m	92.6 m
5	3.9 m	open	1.8 m	No piezometer installed	
6	2.1 m	open	Dry	No piezometer installed	
7	3.1 m	open	2.7 m	No piezometer installed	
8	3.1 m	open	2.7 m	2.0 m	85.8 m
9	3.1	open	Dry	No piezometer installed	

Ground water levels may fluctuate with time and seasonally depending on the amount of precipitation and surface runoff. Wet soils may be encountered to about 0.6 m higher than the water levels noted above due to capillary rise in fine cohesionless silt/sand soils and will be influenced by the creek water level.



5 DISCUSSIONS AND RECOMMENDATIONS

The following discussion and recommendations are based on the factual data obtained from this investigation and are intended for the use of the owner and the design engineer. Contractors bidding or providing services on this project should review the factual data and determine their own conclusions regarding construction methods and scheduling.

This report is provided on the basis of these terms of reference and on the assumption that the design features relevant to the geotechnical analyses will be in accordance with applicable codes, standards and guidelines of practice. If there are any changes to the site development features or there is any additional information available relevant to the interpretations made of the subsurface information with respect to the geotechnical analyses or other recommendations, then Terraprobe should be retained to review the implications of these changes with respect to the contents of this report.

5.1 Foundation

As noted before, nine (9) boreholes (Boreholes 1 and 2 for new bridge near Bridge No. 8; Boreholes 3 and 4 for new bridge near Bridge No. 7; Borehole 5 for new bridge between Bridge Nos. 5 and 6; Boreholes 7 and 8 for new bridge near Bridge No. 3 and Boreholes 8 and 9 for new bridge near Bridge No. 2)) were advanced on each side of the creek, at or near the proximity of the proposed bridge abutments) to auger refusal depths of about 2.1 to 3.9 m below grade (Elev. 84.7 to 90.7 m). Beneath a surficial topsoil veneer, Boreholes 1 to 3 and 5 encountered earth fill materials extending to a depth of about 0.8 to 1.1 m below grade (Elev. 90.6 to 93 m). Underlying the surficial topsoil in Boreholes 4, and 6 to 9 and the fill in Borehole 5, an undisturbed native cohesionless soil comprising loose to compact sandy silty to silty sand and sand (the "silt and sand unit") with trace clay to clayey was encountered and extended to the a depth ranging from 0.4 to 2.3 m below grade (Elev. 87 to 91.4 m). Clayey silt (glacial) till was encountered below the fill in Boreholes 1 to 3 and below the silt and sand unit in the remaining boreholes, and extended to the surface of the inferred bedrock, i.e. a depth ranging from 1.2 to 3.0 m below grade (Elev. 86.3 to 91.8 m). Rock coring to confirm and characterize the bedrock was beyond our scope of work, and was not conducted, therefore the actual depth(s) of the bearing stratum (bedrock) may vary from the inferred bedrock depth(s) noted on the borehole logs.

It is reiterated that for the bridge located between existing Bridge Nos. 5 and 6, only one borehole (Borehole 5) could be carried out at this location as the west bridge abutment will be located in what is presently a pond. As such a borehole could not be advanced at that location. Once the pond is drained and/or infilled, additional boreholes or test pits should be carried out to confirm the bedrock elevation in this area.

A conventional spread footing foundation approach would appear to be the most feasible based on the relatively shallow depth of inferred bedrock.



The existing earth fill materials are not suitable for the support of proposed bridge foundations, and the generally loose silt and sand unit and stiff to hard clayey silt glacial till will likely not provide a consistent bearing stratum also. As such, we recommend that all foundations be supported on the underlying bedrock.

Spread footing foundations supported on bedrock may be designed for a net geotechnical reaction of 1,000 kPa at Serviceability Limit State (SLS) and a factored geotechnical resistance of 1,500 kPa at Ultimate Limit State (ULS). The anticipated settlement for foundations supported on sound bedrock in conjunction with the above recommended geotechnical resistance (SLS) should be 19 mm or less.

The geotechnical resistances values given above are for concentric, vertical loads only. Effects of load inclination and eccentricity should be taken into account as illustrated in the *Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6-06*, Clause 6.7.3 and Clause 6.7.4.

Resistance to lateral forces/sliding resistance between the concrete footing and the bedrock should be evaluated in accordance with the CHBDC 2014. The sliding resistance may be computed based on an ultimate coefficient of friction of 0.5 between the concrete and bedrock.

For conventional structure design the resistance derived from passive earth pressure is generally not considered as a resisting force against sliding because a structure must deflect significantly to develop the full passive resistance.

Deep foundations (augured caisson and piles) are not considered to be an economical alternative because the bridge can be supported on a less costly foundation alternative i.e. spread footings.

Although helical pile option is an economical foundation solution for these relatively light bridges. At this site, the inferred bedrock is likely to be present at relatively shallow depth and therefore helical piers will encounter refusal at relatively shallow depths, and may not be a feasible foundation option at this site.

5.2 Design Frost Depth

Strip footings including any associated concrete wing walls/retaining walls, should be founded at a minimum depth of 1.2 m below permanent soil cover to provide adequate protection against frost penetration, as per OPSD 3090.101.

5.3 Scour Protection

The base of the bridge abutments should be protected from scour. Proper erosion and scour protection must be provided along the sides of the creek at the bridge location and for an adequate distance beyond. Suitably designed rip-rap can be used to provide protection of the bridge abutments as well as any forward slopes. The size and thickness of the rip-rap stones should be determined by a geomorphologist



or other qualified professional. The rip-rap should be separated from the native soils or embankment material with a suitable geotextile filter fabric or a filter zone of granular material.

Since storm events will cause temporary high water levels at the site, these elevated water levels should be considered when determining the lateral and vertical extent of the scour protection. The scour depth is also dependent upon the hydrology of the channel, its cross-section and the engineering properties of the materials below the streambed.

5.4 Lateral Earth Pressure for Abutments and Retaining Walls

If the abutment is allowed to yield (unrestrained system) then, active horizontal earth pressure should be used for the design. If the abutment is not allowed to yield (restrained system) then, at-rest horizontal earth pressures should be used for the design.

Where the backfill to the bridge abutment is placed in accordance with OPSD 3101.150 (Abutment Backfill Minimum Granular Requirement), as recommended; the lateral earth pressure will be governed by the properties of the material within the backfill limits shown in the respective OPSD, i.e. a line projected up at 1.5H:1V for granular backfill.

Walls subject to unbalanced earth pressures must be designed to resist a pressure that can be calculated based on the following equation:

$$P = K[\gamma(h - h_w) + \gamma' h_w + q] + \gamma_w h_w$$

where,

P = the horizontal pressure at depth, **h** (m)

K = the earth pressure coefficient

h_w = the depth below the ground water level (m)

γ = the bulk unit weight of soil, (kN/m³)

γ' = the submerged unit weight of the exterior soil, (γ - 9.8 kN/m³)

q = the complete surcharge loading (kPa)

Where the wall backfill can be drained effectively to eliminate hydrostatic pressures on the wall that would otherwise act in conjunction with the earth pressure, this equation can be simplified to:

$$P = K[\gamma h + q]$$

The factored geotechnical resistance to sliding of foundation elements is developed by friction between the base of the footing and the soil. This friction (**R**) depends on the normal load of the soil contact (**N**) and the frictional resistance of the soil (**tan φ**) expressed as **R_f = N tan φ**, which is the unfactored resistance. The factored geotechnical resistance at ULS is **R_f = 0.8 N tan φ**.



Backfill to the abutment walls should be in accordance with OPSS 902. Granular backfill should be placed to the extents shown in OPSD 3101.150. The backfill should consist of free-draining, non-frost susceptible granular materials in accordance with OPSS MUNI 1010. The design of the abutment should incorporate a subdrain as shown in OPSD 3101.150. The function of this drain and backfill is to preclude hydrostatic and frost forces from acting on the abutment. All granular fill (meeting OPSS MUNI 1010 Specifications) should be placed in loose lifts not exceeding 150 mm thick and should be compacted to at least 95 percent Standard Proctor Maximum Dry Density (SPMDD), in accordance with OPSS MUNI 501.

Earth pressures acting on the structure should be computed in accordance with Clause 6.12 of the CHBDC S6-14 and according to Clause 6.12.3 of the CHBDC S6-14; a compaction surcharge should also be added. For soils with an angle of internal friction ranging from 30° to 35° the magnitude should be 12 kPa at the top of the fill decreasing linearly to 0 kPa at a depth of 1.7 m; or decreasing linearly to 0 kPa at a depth of 2.0 m for soils with an angle of internal friction that exceeds 35° .

Earth pressure coefficients are dependent on the material used as backfill and typical values are provided in the following table.

Wall Condition	Earth Pressure Coefficient (K)			
	OPSS Granular A or OPSS Granular B Type II $\phi = 35^\circ$; $\gamma = 22.8 \text{ kN/m}^3$		OPSS Granular B Type I $\phi = 32^\circ$; $\gamma = 21.2 \text{ kN/m}^3$	
	Horizontal Surface Behind Wall	Sloping Surface Behind Wall (2H:1V)	Horizontal Surface Behind Wall	Sloping Surface Behind Wall (2H:1V)
Active (Unrestrained Wall)	0.27	0.38*	0.31	0.46*
At rest (restrained Wall)	0.43	-	0.47	-
Passive (Movement towards Soil Mass)	3.70	-	3.25	-

*For Wing Walls

The earth pressure coefficients in the table above are “ultimate” values that require certain structural movements for the respective conditions to be mobilized. The values to use for design can be estimated from Figure C6.6 in the Commentary to the CHBDC, S6.1-14.

5.5 Earthquake Design Parameters

According to Clause 4.5.2 of the CHBDC S6-14, Seismic analysis of a single-span bridge shall not be required, regardless of seismic zone. Otherwise this location would be considered to be Site Class B or C.



5.6 Excavation and Ground Water Control

The borehole data indicate that earth fill materials, native soils (“silt and sand unit” and clayey silt glacial till) and shale would be encountered in the excavations. Excavations must be carried out in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects. These regulations designate four broad classifications of soils to stipulate appropriate measures for excavation safety.

The earth fill materials as well as native soil deposit encountered in the boreholes are classified as Type 3 Soil above and Type 4 Soil below the prevailing ground water level.

Where workmen must enter excavations advanced deeper than 1.2 m, the trench walls should be suitably sloped and/or braced in accordance with the Occupational Health and Safety Act and Regulations for Construction Projects. The regulation stipulates steepest slopes of excavation by soil type as follows:

Soil Type	Base of Slope	Steepest Slope Inclination
1	within 1.2 metres of bottom of trench	1 horizontal to 1 vertical
2	within 1.2 metres of bottom of trench	1 horizontal to 1 vertical
3	from bottom of trench	1 horizontal to 1 vertical
4	from bottom of trench	3 horizontal to 1 vertical

Minimum support system requirements for steeper excavations are stipulated in the Occupational Health and Safety Act and Regulations for Construction Projects, and include provisions for timbering, shoring and moveable trench boxes.

Excavations made in bedrock can be near vertical, provided the rock faces are scaled and maintained to preclude the possibility of spalls. Where this is not possible, protective mesh can be draped over the rock face when work is required in the area immediately beside the cut rock face.

As noted before, subsurface soil deposit may contain larger particles (cobbles and boulders) that are not specifically identified in the borehole logs. The size and distribution of such obstructions cannot be predicted with borings, because the borehole sampler size is insufficient to secure representative samples of the particles of this size. Provision should be made in excavation contracts to allocate risks associated with the time spent and equipment utilized to remove or penetrate such obstructions when encountered.

Weathered shale can be removed by a hydraulic excavator using a bucket with cutting teeth. The “harder” limestone/dolostone layers may require removal using hoe operated jackhammers. The presence of these harder layers must be referenced in the contract documents to allocate risk associated with time spent and equipment utilized to remove such obstructions.



All boreholes remained open and the measured ground water level in Boreholes 1, 3, 4, 5, 7 and 8 were noted to be at a depth of about 1.2 to 2.7 m below existing grade upon completion of drilling. Boreholes 2, 6 and 8 remained dry upon completion of drilling. The ground water levels measured in the piezometers were 1.1 m (Elev. 92.6 m at Borehole 4) and 2.0 m (Elev. 85.8 m at Borehole 8) below grade on May 13, 2020.

Based on the borehole information, ground water seepage is expected into the excavation. The amount seepage will depend upon the depth of excavation and creek water level. The ground water seepage will likely emanate from the ground water generally perched within the fill materials and from very moist to wet cohesionless silt and sand unit as well as water flow from the creek. It should be noted that the excavations carried through and below the water bearing cohesionless soils (silt and sand unit), will experience loosening and sloughing of the base and sides thus requiring wider excavation slopes.

For excavations extending into the very moist to wet silt and sand unit and/or below the prevailing ground/creek water level, it will be necessary to lower the ground water level and maintain it below the excavation base (at least 1.0 m) prior to and during the subsurface construction, and therefore positive ground water control will be required. Consideration should be given to install a skim coat of lean concrete (mud-slab) to preserve the subgrade integrity, and to provide a working platform.

In addition to the groundwater control, positive management/control/diversion of the surface and creek water will be critical for the proposed bridge construction. The design of ground and surface water control plan will depend upon site specific parameters including soil permeability, subsurface stratigraphy, height of lift, size of work area and prevalent ground water table. The design of a suitable dewatering, groundwater and surface water control system is the contractor's responsibility. Dewatering of more than 50,000 litres/day would require a permit from the Ministry of Environment.

5.7 Approach Embankments

Settlement of the underlying soils in the footprint area of the approach embankments will be negligible provided that the bridge approach embankments do not exceed a height of about 2 m.

All organic and unsuitable soils must be removed from the footprint area of the approach embankments. The embankment fill should be placed on approved and properly prepared subgrade in shallow lifts not exceeding 150 mm in thickness and compacted in accordance with OPSS MUNI 501. Fill materials used for constructing the approaches should consist of approved acceptable indigenous earth fill, select subgrade material or non-cohesive earth fill. Embankments constructed with these fill materials should be designed with a side slope inclination of 2 Horizontal to 1 Vertical (2H:1V) or flatter.

Proper erosion control measures should be implemented both during construction and permanently. Temporary erosion and sediment control must be provided in accordance with OPSS 805 (Temporary



Erosion and Sediment Control). Fill slopes should be provided with permanent erosion protection in accordance with OPSS 803 (Sodding) and/or OPSS MUNI 804 (Seed and Cover).

6 LIMITATIONS AND RISK

6.1 Procedures

This investigation has been carried out using investigation techniques and engineering analysis methods consistent with those ordinarily exercised by Terraprobe and other engineering practitioners, working under similar conditions and subject to the time, financial and physical constraints applicable to this project. The discussions and recommendations that have been presented are based on the factual data obtained by Terraprobe.

It must be recognized that there are special risks whenever engineering or related disciplines are applied to identify subsurface conditions. Even a comprehensive sampling and testing programme implemented in accordance with the most stringent level of care may fail to detect certain conditions. Terraprobe has assumed for the purposes of providing design parameters and advice, that the conditions that exist between sampling points are similar to those found at the sample locations. The conditions that Terraprobe has interpreted to exist between sampling points can differ from those that actually exist.

It may not be possible to drill a sufficient number of boreholes or sample and report them in a way that would provide all the subsurface information that could affect construction costs, techniques, equipment and scheduling. Contractors bidding on or undertaking work on the project should be directed to draw their own conclusions as to how the subsurface conditions may affect them, based on their own investigations and their own interpretations of the factual investigation results, cognizant of the risks implicit in the subsurface investigation activities so that they may draw their own conclusions as to how the subsurface conditions may affect them.

6.2 Changes in Site and Scope

It must also be recognized that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site have the potential to alter subsurface conditions. Groundwater levels are particularly susceptible to seasonal fluctuations.

The discussion and recommendations are based on the factual data obtained from this investigation made at the site by Terraprobe and are intended for use by the owner and its retained designers in the design phase of the project. If there are changes to the project scope and development features, the interpretations made of the subsurface information, the geotechnical design parameters and comments relating to constructability issues and quality control may not be relevant or complete for the revised project. Terraprobe should be retained to review the implications of such changes with respect to the contents of this report.



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It is recognized that the regulatory agencies in their capacities as the planning and building authorities under Provincial statutes, will make use of and rely upon this report, cognizant of the limitations thereof, both expressed and implied.

We trust the foregoing information is sufficient for your present requirements. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us.

Yours truly,

Terraprobe Inc.

Osbert (Ozzie) Benjamin, P. Eng.
Senior Project Manager, Geotechnical Department

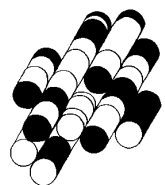
M. Tanos, P. Eng.
Consulting Principal

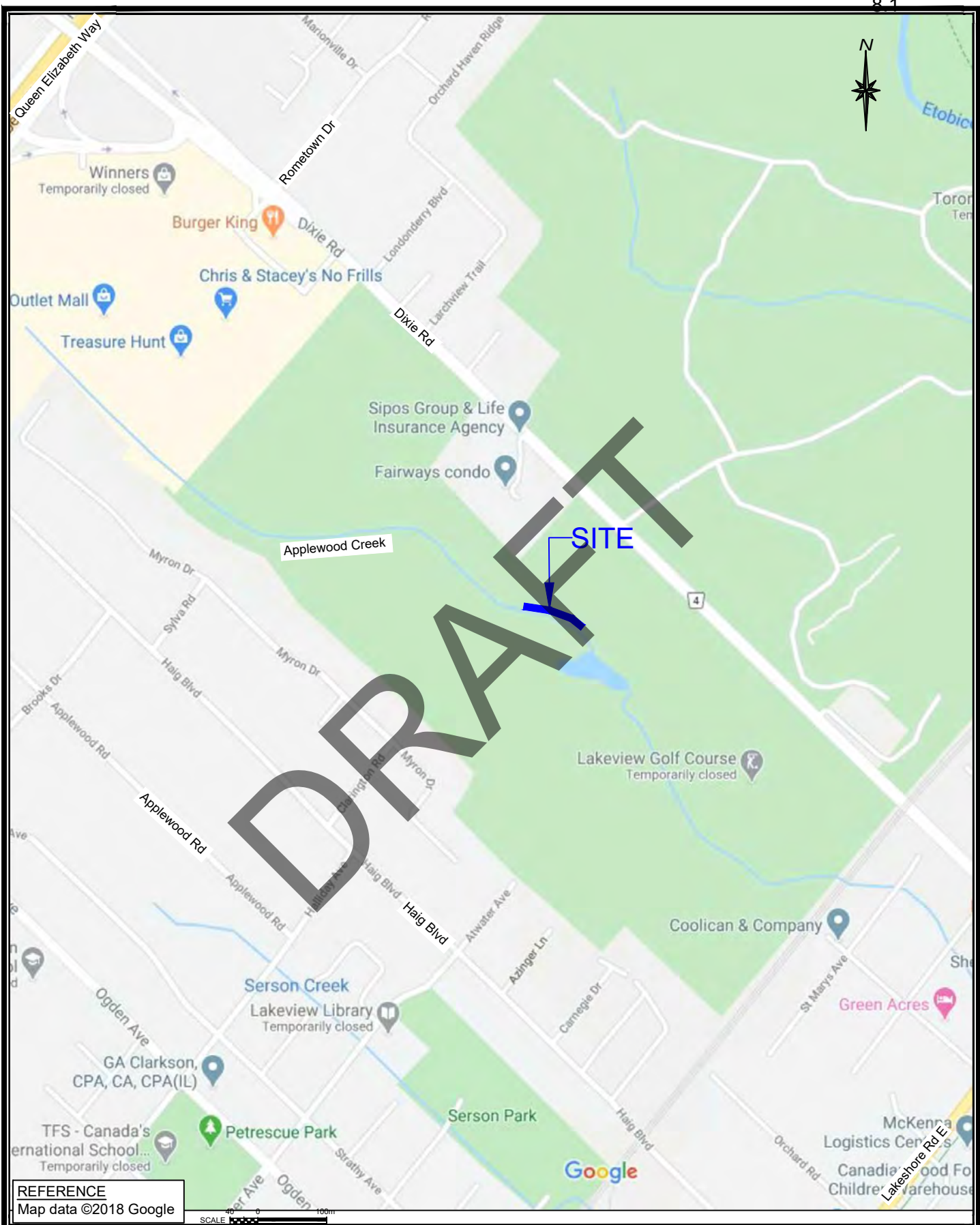


FIGURES

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TERRAPROBE INC.





REFERENCE
Map data ©2018 Google

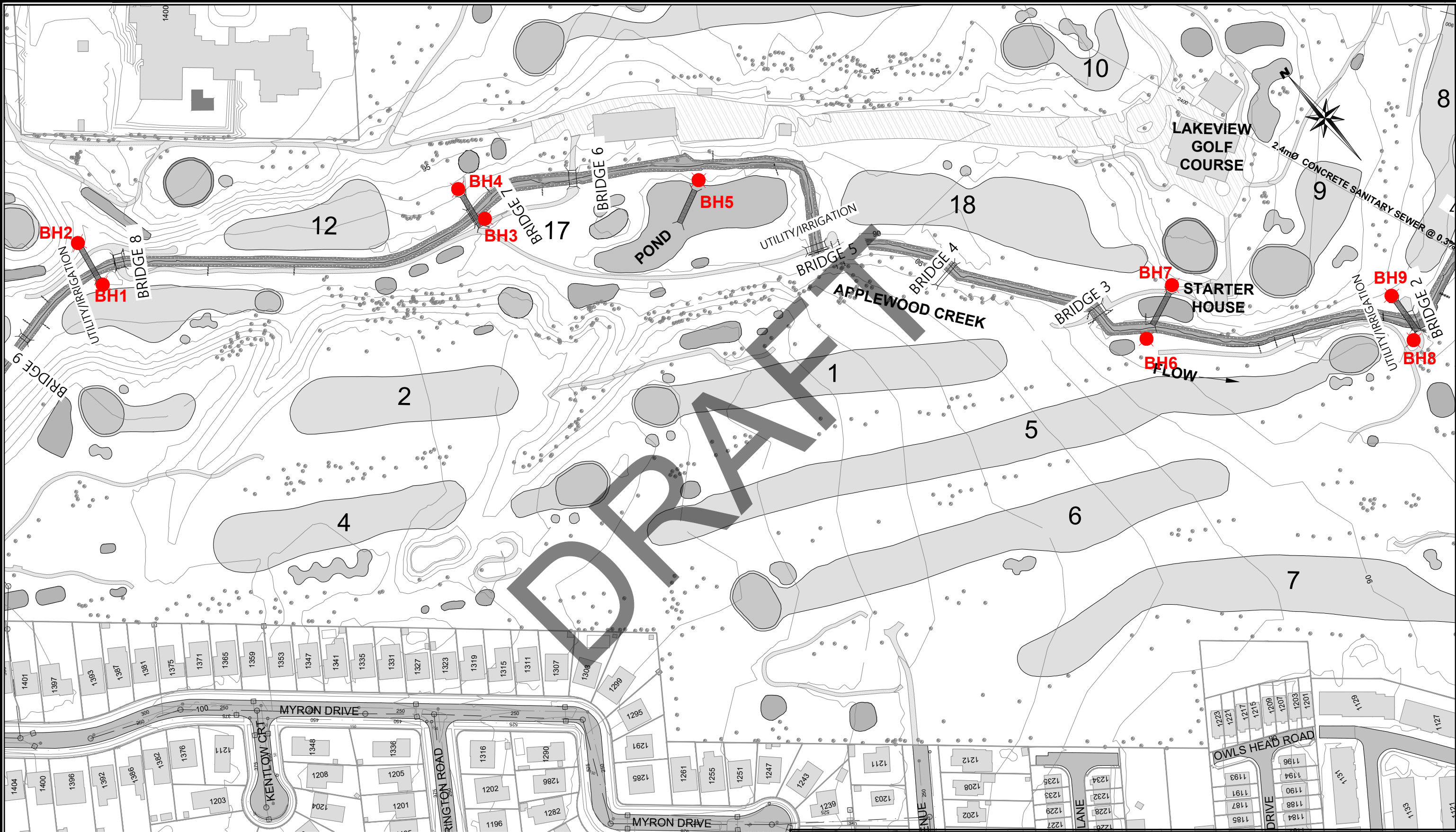
SCALE 0 40 80 100m



Terraprobe
11 Indell Lane, Brampton, Ontario, L6T 3Y3
Tel: (905) 796-2650 Fax: (905) 796-2250

Title: SITE LOCATION PLAN	
File No.:	1-20-0100-01

FIGURE :
1



REFERENCE
Project Name: Applewood Creek Erosion Control
Drawing Title: Borehole Plan, Date: 13/08/19
By: Aquafor Beech Limited

LEGEND
 Borehole Location



**Terraprobe**
11 Indell Lane, Brampton, Ontario, L6T 3Y3
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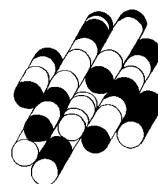
Title: BOREHOLE LOCATION PLAN	
File No.	1-20-0100-01

FIGURE :
2

APPENDICES

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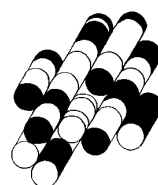
TERRAPROBE INC.



APPENDIX A

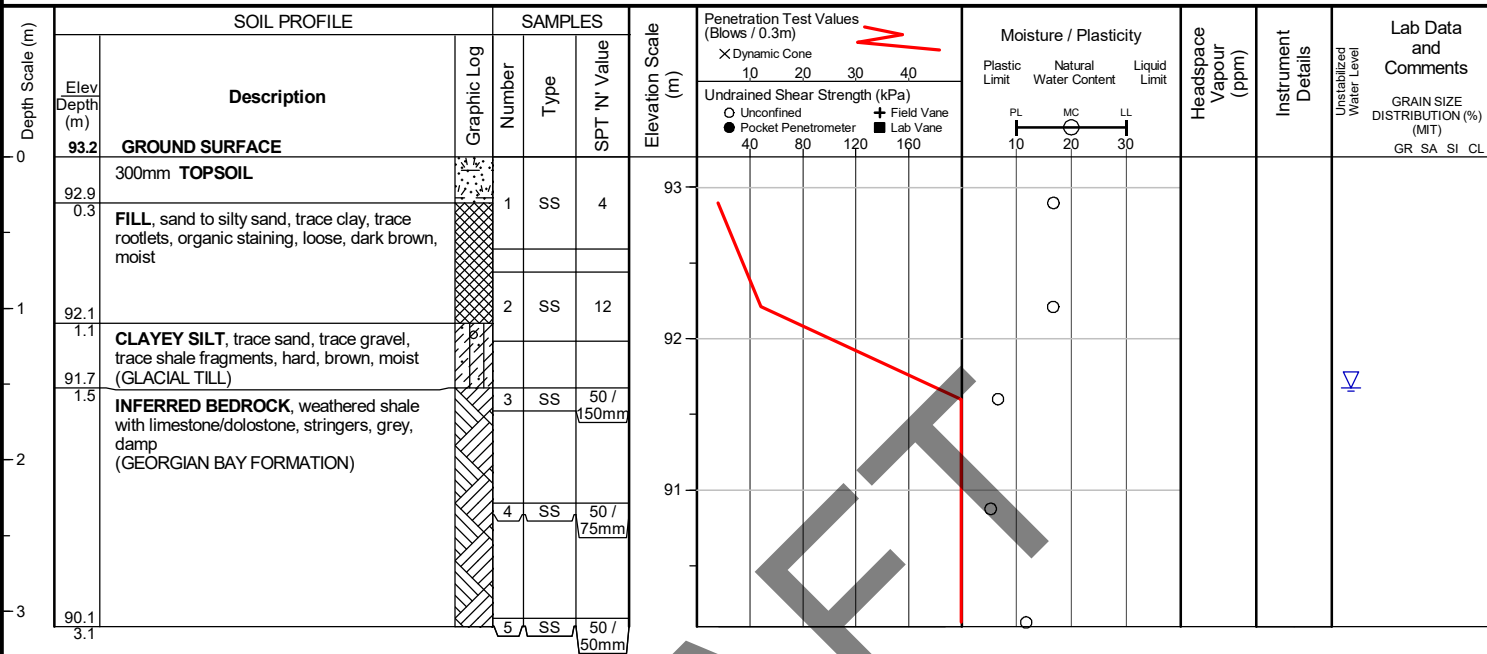
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TERRAPROBE INC.



Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 27, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616013, N: 4827342 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers



END OF BOREHOLE

Unstabilized water level measured at 1.5 m below ground surface; borehole was open upon completion of drilling.

DRAFT

Project No. : 1-20-0100-01 Client : Aquafor Beech Originated by : SM
 Date started : April 27, 2020 Project : 1190 Dixie Road, Lakeview Golf Course Compiled by : SD
 Sheet No. : 1 of 1 Location : Mississauga, Ontario Checked by : OB

Position : E: 616017, N: 4827365 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Mini Mole Drilling Method : Solid stem augers

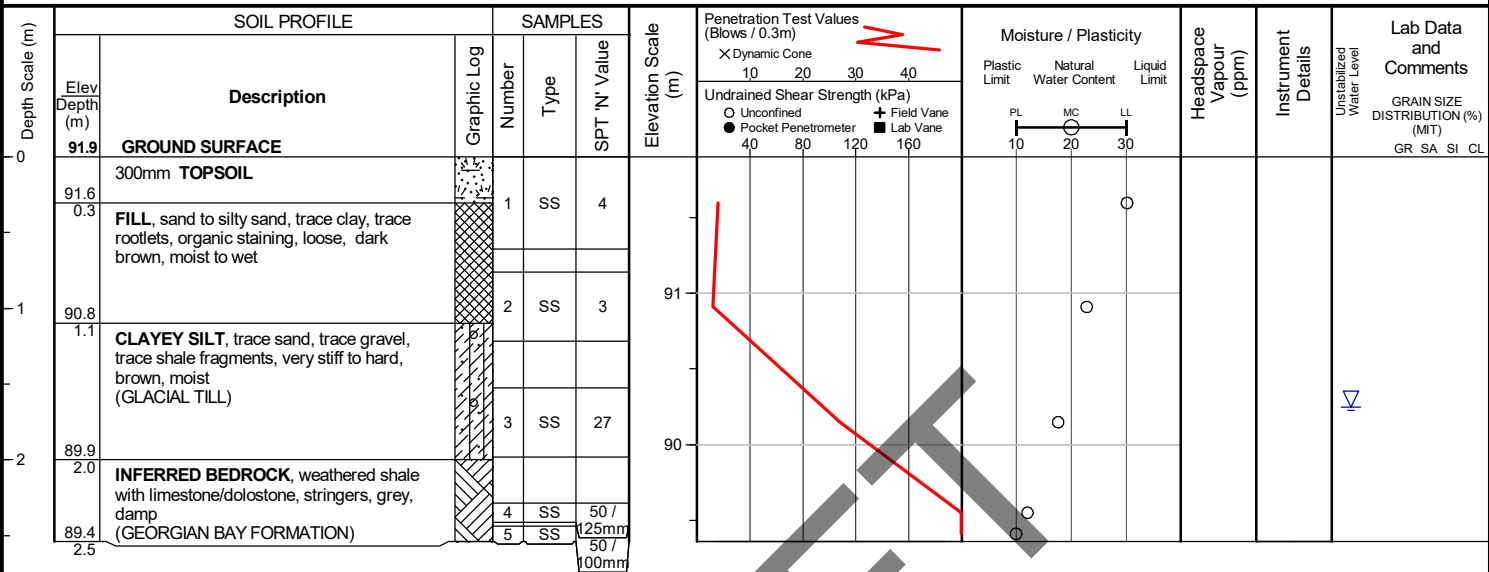
Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane 40 80 120 160	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	93.8	GROUND SURFACE										
0.2	93.6	150mm TOPSOIL		1	SS	4						
		FILL, sand to silty sand, trace clay, trace rootlets, organic staining, loose, brown / dark brown, moist										
0.8	93.0	CLAYEY SILT, trace sand, trace gravel, trace shale fragments, very stiff to hard, brown, moist to wet (GLACIAL TILL)		2	SS	24						
		...at 1.5 m, some gravel layers, wet										
2.0	91.8	INFERRED BEDROCK, weathered shale with limestone/dolostone, stringers, grey, damp (GEORGIAN BAY FORMATION)		3	SS	33						
				4	SS	50 / 75mm						
3.1	90.7	END OF BOREHOLE		5	SS	50 / 25mm						

Borehole was dry and open upon completion of drilling.

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Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 27, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616195, N: 4827224 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers



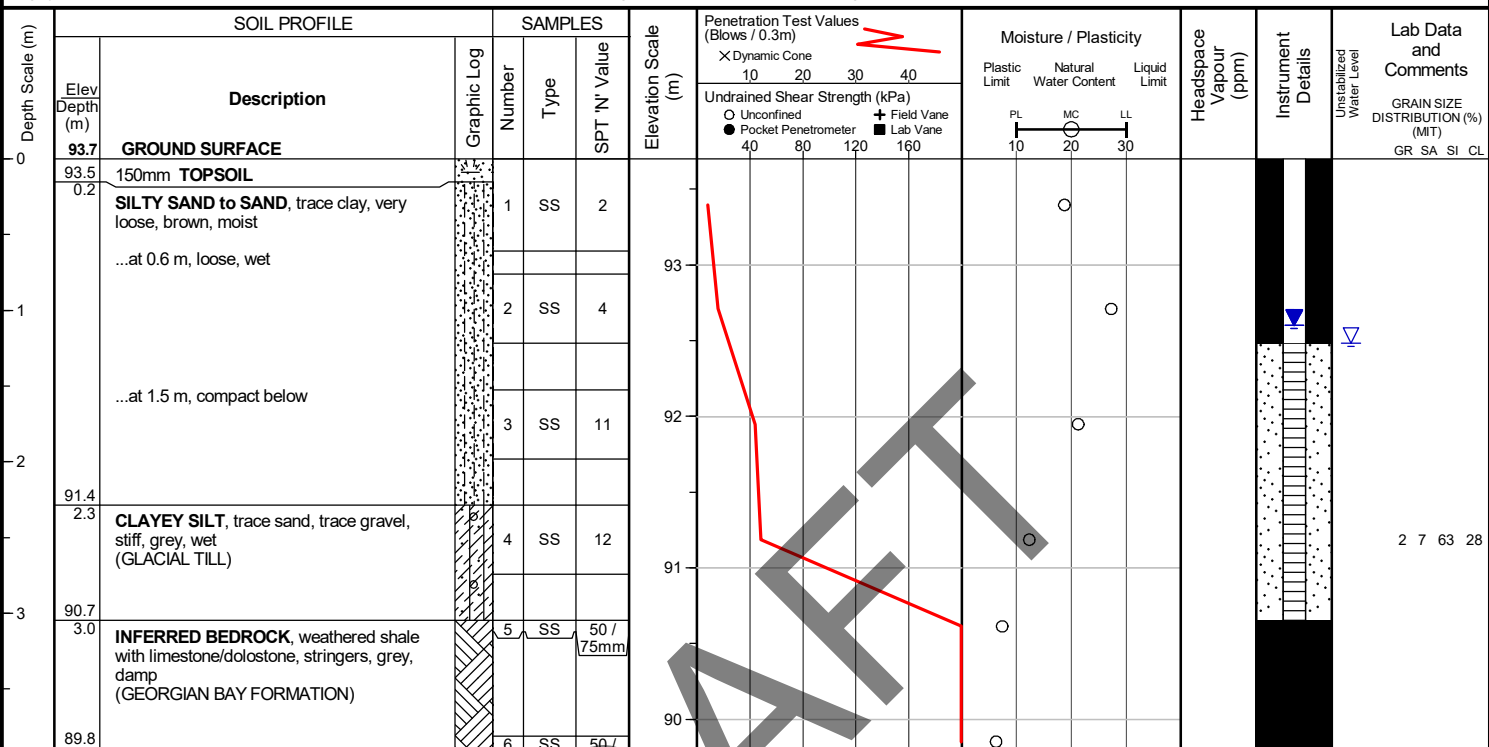
Unstabilized water level measured at 1.7 m below ground surface; borehole was open upon completion of drilling.

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Project No. : 1-20-0100-01 Client : Aquafor Beech Originated by : SM
Date started : April 27, 2020 Project : 1190 Dixie Road, Lakeview Golf Course Compiled by : SD
Sheet No. : 1 of 1 Location : Mississauga, Ontario Checked by : OB

Position : E: 616196, N: 4827248 (UTM 17T) Elevation Datum : Geodetic
Rig type : Mini Mole Drilling Method : Solid stem augers



END OF BOREHOLE

Unstabilized water level measured at 1.2 m below ground surface; borehole was open upon completion of drilling.

25 mm dia. monitoring well installed.

WATER LEVEL READINGS
Date Water Depth (m) Elevation (m)
May 13, 2020 1.1 92.6

Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 27, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

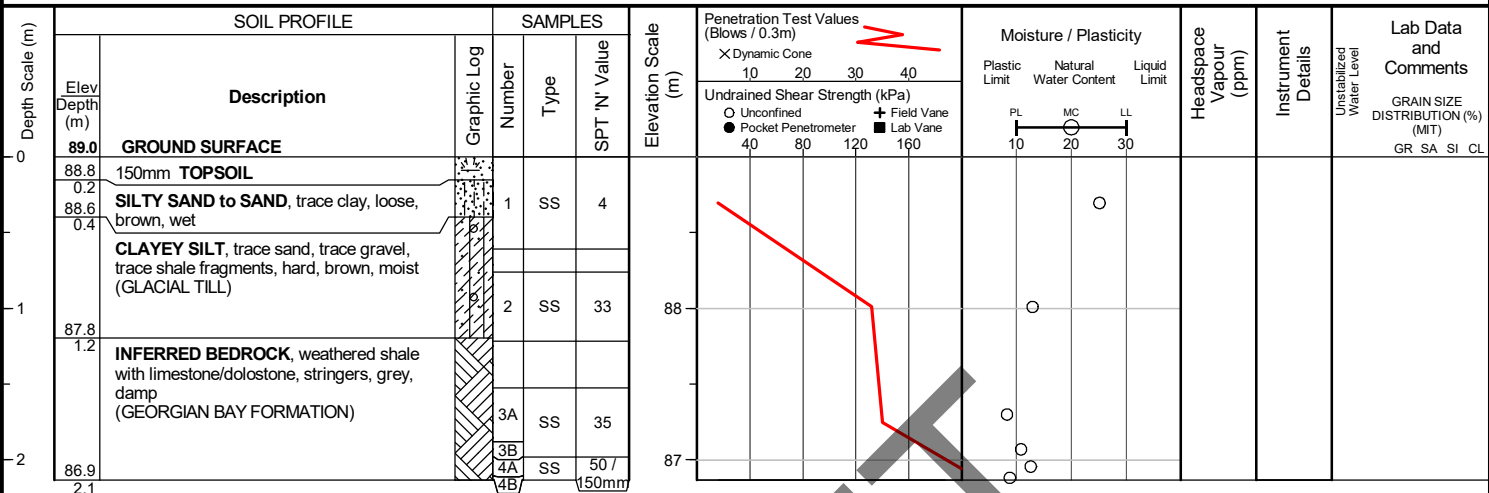
Position : E: 616300, N: 4827160 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone Undrained Shear Strength (kPa) ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	91.4	GROUND SURFACE										
0.3	91.1	250mm TOPSOIL		1	SS	9	91					
0.8	90.6	FILL , silty sand, trace clay, organic staining, loose, dark brown / brown, moist										
1	89.9	SANDY SILT to SILTY SAND , clayey, loose, brown, wet		2	SS	3	90					
1.5	89.9	CLAYEY SILT , trace sand, stiff, brown, moist (GLACIAL TILL)		3	SS	11	90					
2	88.7	...at 2.3 m, shale fragments, hard, grey		4	SS	54	89					
2.7	88.7	INFERRED BEDROCK , weathered shale with limestone/dolostone, stringers, grey, damp (GEORGIAN BAY FORMATION)		5	SS	50 / 50mm	88					
3	87.5			6	SS	50 / 50mm	88					
3.9	87.5	END OF BOREHOLE										

Unstabilized water level measured at 1.8 m below ground surface; borehole was open upon completion of drilling.

Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 28, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616424, N: 4826925 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers



Borehole was dry and open upon completion of drilling.

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Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 28, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616452, N: 4826937 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) 40 80 120 160 ○ Unconfined + Field Vane ● Pocket Penetrometer ■ Lab Vane	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	89.7	GROUND SURFACE										
	89.4	300mm TOPSOIL		1	SS	4						0 70 18 12
	0.3	SAND, some silt, some clay, trace rootlets, loose, brown, wet										
	88.9	CLAYEY SILT, trace sand, trace gravel, shale fragments, stiff, brown, moist (GLACIAL TILL)		2	SS	8						
1	0.8											
	88.2	INFERRED BEDROCK, weathered shale with limestone/dolostone, stringers, grey, damp (GEORGIAN BAY FORMATION)		3	SS	61						
2	1.5											
				4	SS	50 / 25mm						
3	86.6			5	SS	50 / 25mm						
	3.1	END OF BOREHOLE										

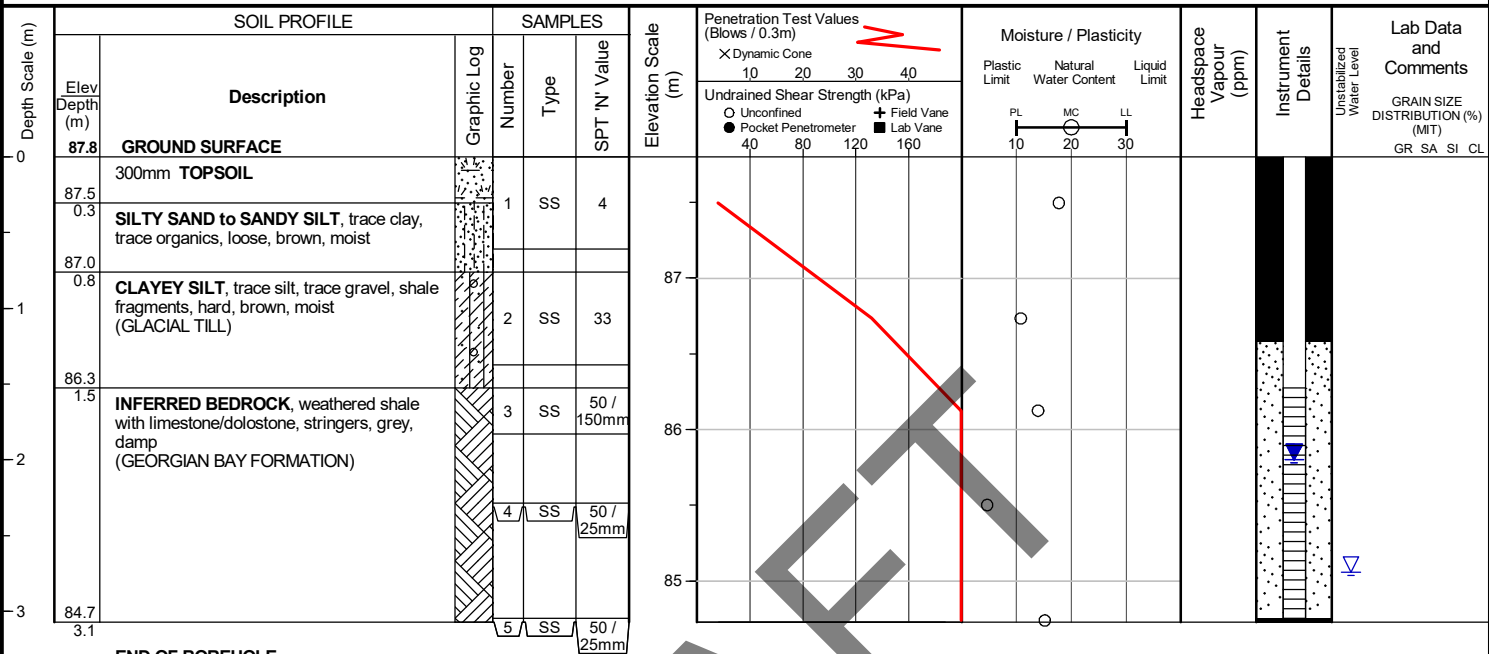
END OF BOREHOLE

Unstabilized water level measured at 2.7 m below ground surface; borehole was open upon completion of drilling.

DRAFT

Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 28, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616532, N: 4826829 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers



END OF BOREHOLE

Unstabilized water level measured at 2.7 m below ground surface; borehole was open upon completion of drilling.

WATER LEVEL READINGS
 Date: May 13, 2020 Water Depth (m): 2.0 Elevation (m): 85.8

DRAFT

Project No. : 1-20-0100-01	Client : Aquafor Beech	Originated by : SM
Date started : April 28, 2020	Project : 1190 Dixie Road, Lakeview Golf Course	Compiled by : SD
Sheet No. : 1 of 1	Location : Mississauga, Ontario	Checked by : OB

Position : E: 616539, N: 4826850 (UTM 17T)	Elevation Datum : Geodetic
Rig type : Mini Mole	Drilling Method : Solid stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m) X Dynamic Cone 10 20 30 40 Undrained Shear Strength (kPa) 40 80 120 160 ○ Unconfined ● Pocket Penetrometer + Field Vane ■ Lab Vane	Moisture / Plasticity Plastic Limit Natural Water Content Liquid Limit PL MC LL 10 20 30	Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments Unstabilized Water Level GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value						
0	87.9	GROUND SURFACE										
	87.7	200mm TOPSOIL										
	0.2	SILTY SAND to SANDY SILT, trace rootlets, organic staining, loose, dark brown / brown, moist		1	SS	7						
	87.1											
1	0.8	CLAYEY SILT, trace sand, trace gravel, shale inclusions, stiff to hard, brown, moist (GLACIAL TILL)		2	SS	15						
	86.4											
	1.5	INFERRED BEDROCK, weathered shale with limestone/dolostone, stringers, grey, damp (GEORGIAN BAY FORMATION)		3	SS	50 / 125mm						
2												
				4	SS	50 / 25mm						
3	84.8											
	3.1	END OF BOREHOLE		5	SS	50 / 25mm						

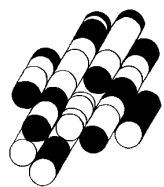
Borehole was dry and open upon completion of drilling.

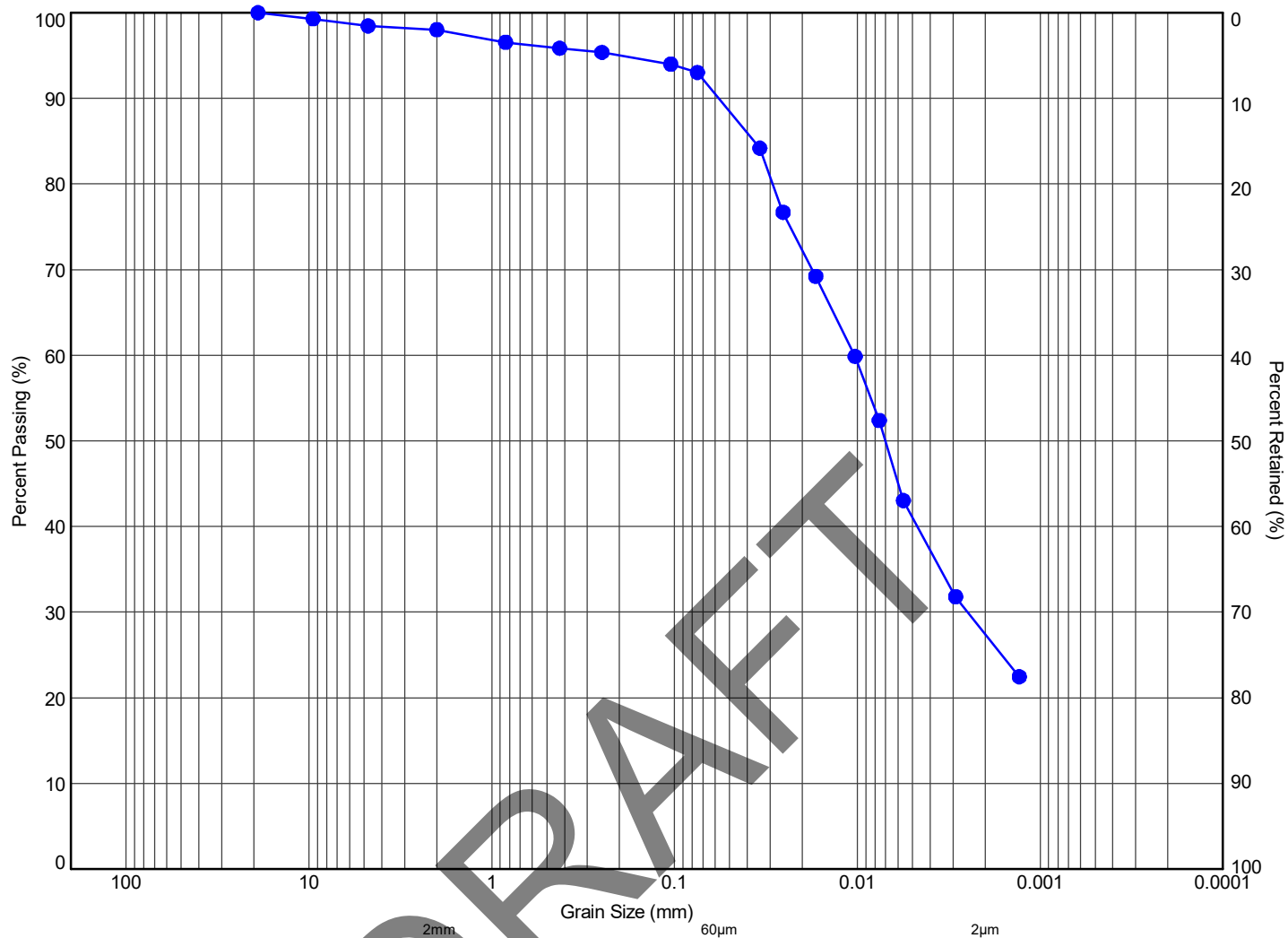
DRAFT

APPENDIX B

DRAFT

TERRAPROBE INC.





MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
4	SS4	2.5		2	7	63	28	


Terraprobe

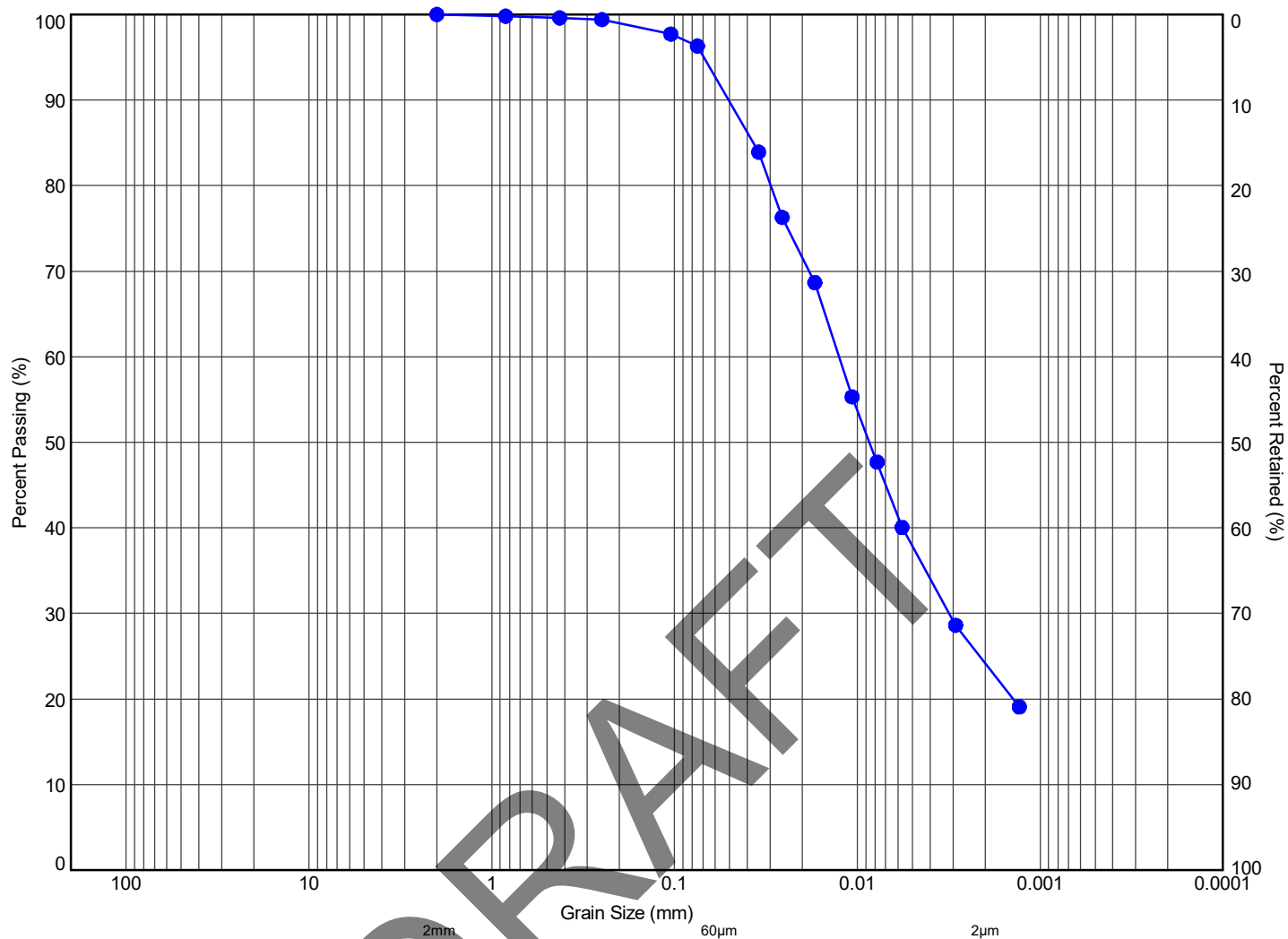
 11 Indell Lane, Brampton Ontario L6T 3Y3
 (905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
 CLAYEY SILT, TRACE SAND, TRACE GRAVEL**

File No.:

1-20-0100-01



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
5	SS3	1.8		0	7	69	24	


Terraprobe

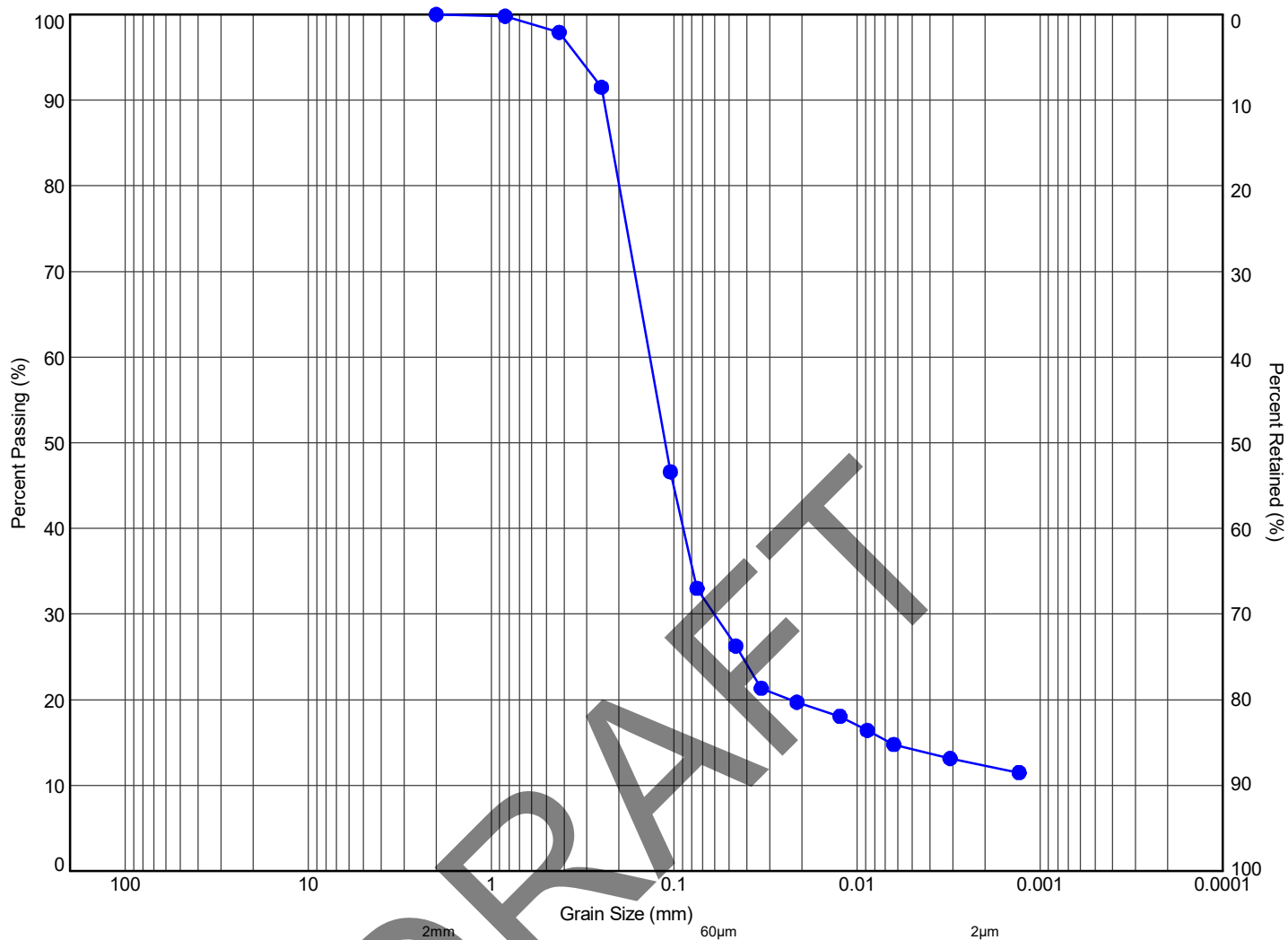
 11 Indell Lane, Brampton Ontario L6T 3Y3
 (905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
CLAYEY SILT, TRACE SAND**

File No.:

1-20-0100-01



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
7	SS1	0.3		0	70	18	12	


Terraprobe

 11 Indell Lane, Brampton Ontario L6T 3Y3
 (905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
SAND, SOME SILT, SOME CLAY**

File No.:

1-20-0100-01