Appendix C

Agency Meetings

wood.

Conservation Halton

Meeting with Conservation Halton

January 30, 2017

Minutes of Meeting

Date:	February 24, 2017
File #:	TPB166147
Meeting Date & Time:	January 30, 2017 3:00 pm
Meeting at:	Town of Oakville Town Hall, Engineering Boardroom
Subject:	Class Environmental Assessment Study Lakeshore Road West Stormwater Management and Drainage Meeting

Attendees:

Syed Rizvi, Oakville
Diana Friesen, Oakville
Trisha Henderson, Oakville
Rita Juliao, Oakville
Katie Jane Harris, Conservation Halton
Amy Mayes, Conservation Halton
Prachi Patel, Conservation Halton
Bob Felker, Amec Foster Wheeler
Neal Smith, Amec Foster Wheeler
Steve Chipps, Amec Foster Wheeler
Patrick Mac Donald, Amec Foster Wheeler

MATTERS DISCUSSED **ACTION BY:**

1. Introductions

Syed Rizvi, Town of Oakville, opened the meeting with introductions.

2. Overview of the Workplan, Schedule and Status of the project.

Amec Foster Wheeler provided an overview of the workplan, schedule and status of the EA. Key points related to the stormwater and drainage review:

- Varied cross-sections along the corridor, ditches, curb and gutter with stormsewers, various outlets;
- Complete streets approach for all users;
- Drainage issues at Coronation Park;
- Bridges and structures.

3. Overview of Stormwater ongoing and completed Studies **AFW**

- Amec Foster Wheeler identified ongoing and completed studies:
  - Fourteen Mile Creek and McCraney Creek Study

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Registered in Canada No. 773289-9; GST: 899879050 RT0008; DUNS: 25-362-6642

MATTERS DISCUSSED **ACTION BY:**

- 2015 Creek Erosion Inventory and Assessment Study (reach 21)
- Master Plan Level Study (south of QEW)
    - In discussions with the town regarding online storage
- Coronation Park Study
    - In final draft, key points
        - Improve local drainage
        - New stormsewer proposed
        - Overland drainage, reviewing possible alternatives
        - Results will impact the EA
- Town of Oakville, Stormwater Master Plan Study
    - Various cross-sections
- Town of Oakville's OSIM Inspections (Amec Foster Wheeler)
    - Bridge inspections
    - Crossings
    - Life span of structures

AFW/TOWN

4. <u>Discussion Items</u>

- **Bridge Crossings**
    - Fourteen Mile Creek
        - Tight cross-section;
        - No flood mitigation required;
        - Good for the 100-year storm.
    - McCraney Creek
        - Existing structure 5.5m X 3.5m
        - New structure 7.5m X 3.5m
        - Hydraulic requirements?
        - Pedestrian constrained
        - Erosion concerns – improvements required
        - Overtopping for the 100-year storm
        - Access for Emergency Services required
        - Rebecca Street crossing- further discussions required
            - No overtopping for the 100-year storm
            - Hydraulics not an issue
            - Requires a structural assessment
    - Bronte Creek
        - 2031 need met, no action required
        - Tiller Place issues
        - Improvements for pedestrians
        - Access to parks and harbour trails

- **Stormwater Issues**
    - Wolfdale and Sterling
        - Large drainage area (municipal drainage)
        - Culvert, divert stormwater to Lakeshore
        - Development plan for that block
        - Drainage currently runs through back yards
    -

MATTERS DISCUSSED **ACTION BY:**

- Coronation Park
  - Private yard floods, he had pictures of the flooding
  - Issue part of the Coronation Park study
- 3rd Line
  - Westminster new sewer proposed, working with the Town

- **SWM/LID**
  Review of possible LID opportunities along Lakeshore "Green Street" showcase:
  - Westminster
  - Coronation Park
  - MOECC new requirements soon
  - Boreholes required to check infiltration of soils (Town to check record for previous boreholes
  - Bioretention options and opportunities
  - Tree pits, Silvacells
  - Evaporation
- Fourteen-mile creek (SAR)
  - MNRF requirement (wildlife crossing?)
  - Butternut tree
  - Turtles
  - Rainbow Trout
  - Salmon
  - Silver Shiner
  - Studies to be completed this spring

Meeting Minutes prepared by, Neal Smith

Amec Foster Wheeler Environment & Infrastructure
A Division of Amec Foster Wheeler Americas Limited

Per:
HD/js

Meeting with Conservation Halton
March 26, 2018

McCraney Creek Structure
On
Lakeshore Road West

Agenda

1. Introductions
2. Overview of the McCraney Creek Structure
3. Emergency work completed in 2017
4. Existing Aquatic Areas and Erosion Areas
5. Existing Creek Alignment
6. Assessment of Alternatives
7. Preferred Alternative
8. Discussion
9. Next Steps

1. Introductions

2. Overview - McCraney Creek Structure

Existing Structure Cross Section – McCraney Creek

Facts

- Built in 1940
- Structure is actually made up of 2 culverts
- Bridge length (along the roadway centreline) is 21m
- Bridge width is 5.4m
- No Species at Risk (SAR) habitat identified within the creek
- Creek has a warm/cool thermal regime
- Creek also provides a migratory route for sport fish including Rainbow Trout
- Potential SAR bat habitat in the nearby forested areas
- Erosion issues

2. Overview - McCraney Creek Structure

2. Overview - McCraney Creek Structure

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

3. Emergency Work - 2017

4. Existing Aquatic Areas and Erosion Areas

- Areas of erosion evident
- Most extreme erosion is present at west bank on approach to Lakeshore Road crossing
- Fish passage barriers evident

4. Existing Aquatic Areas and Erosion Areas

4. Existing Aquatic Areas and Erosion Areas

5. Existing Creek Alignment

- Vertical drop downstream of Rebecca Street where concrete slab foundation meets natural channel substrate.
- Permanent barrier to passage of small-bodied fish species.

5. Existing Creek Alignment

- Upstream end of the Lakeshore Road crossing
- Area of exposed limestone is evident adjacent to a poured concrete pad
- Likely a partial barrier to fish passage
- Existing conditions create laminar flow at the culvert inlet resulting in few resting locations for fish or flow dissipation for fish passage.

5. Existing Creek Alignment

5. Existing Creek Alignment

5. Existing Creek Alignment

Channel realignment can provide opportunity for planting of native species and removal and management of invasive vegetation species.

5. Existing Creek Alignment

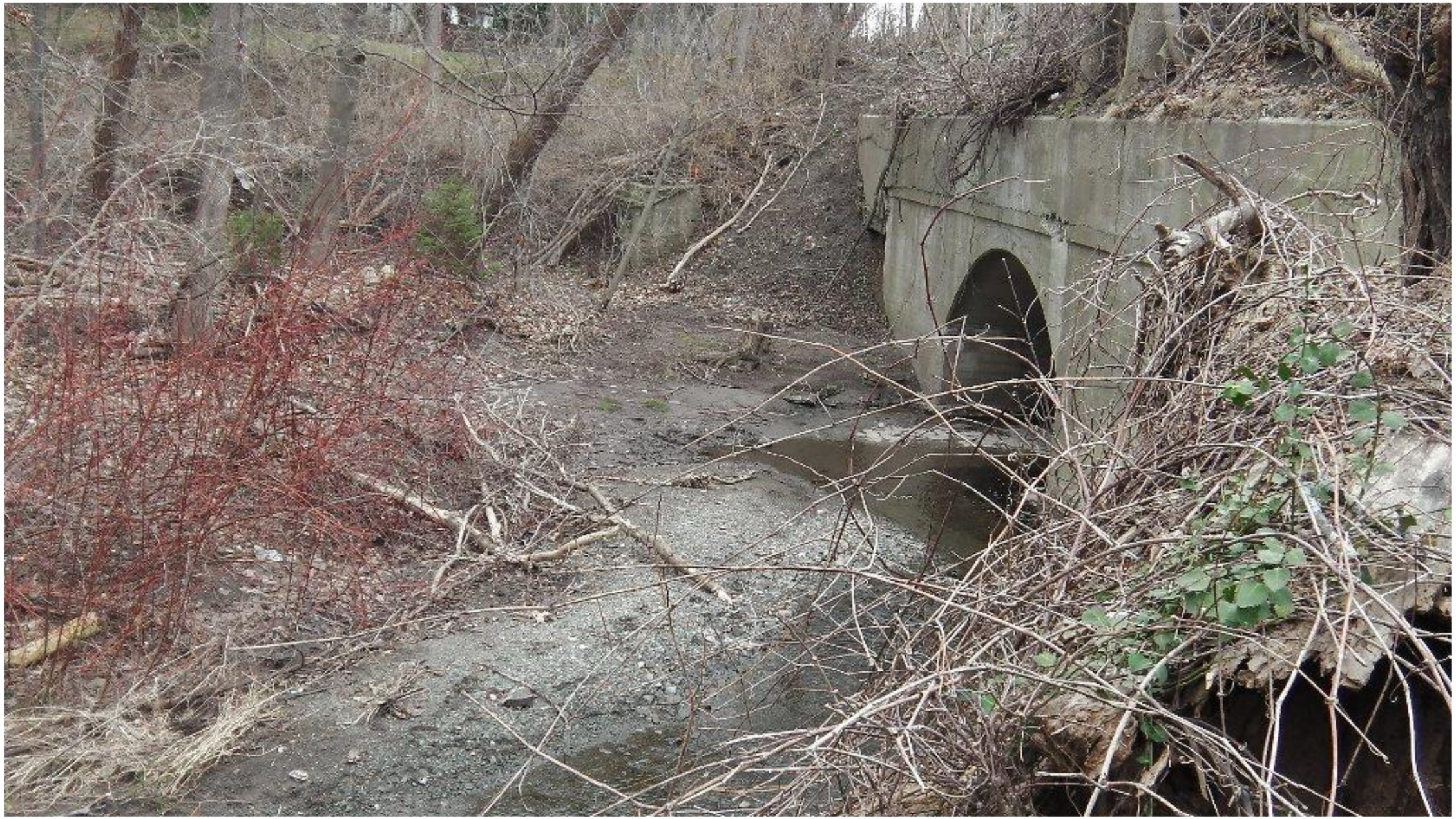
5. Existing Creek Alignment

Stone placement within the channel would provide an improved baseflow, and habitat diversity.

5. Assessment of Alternatives (Creek Alignment)

6. Assessment of Alternatives

6. Assessment of Alternatives (Creek Alignment)

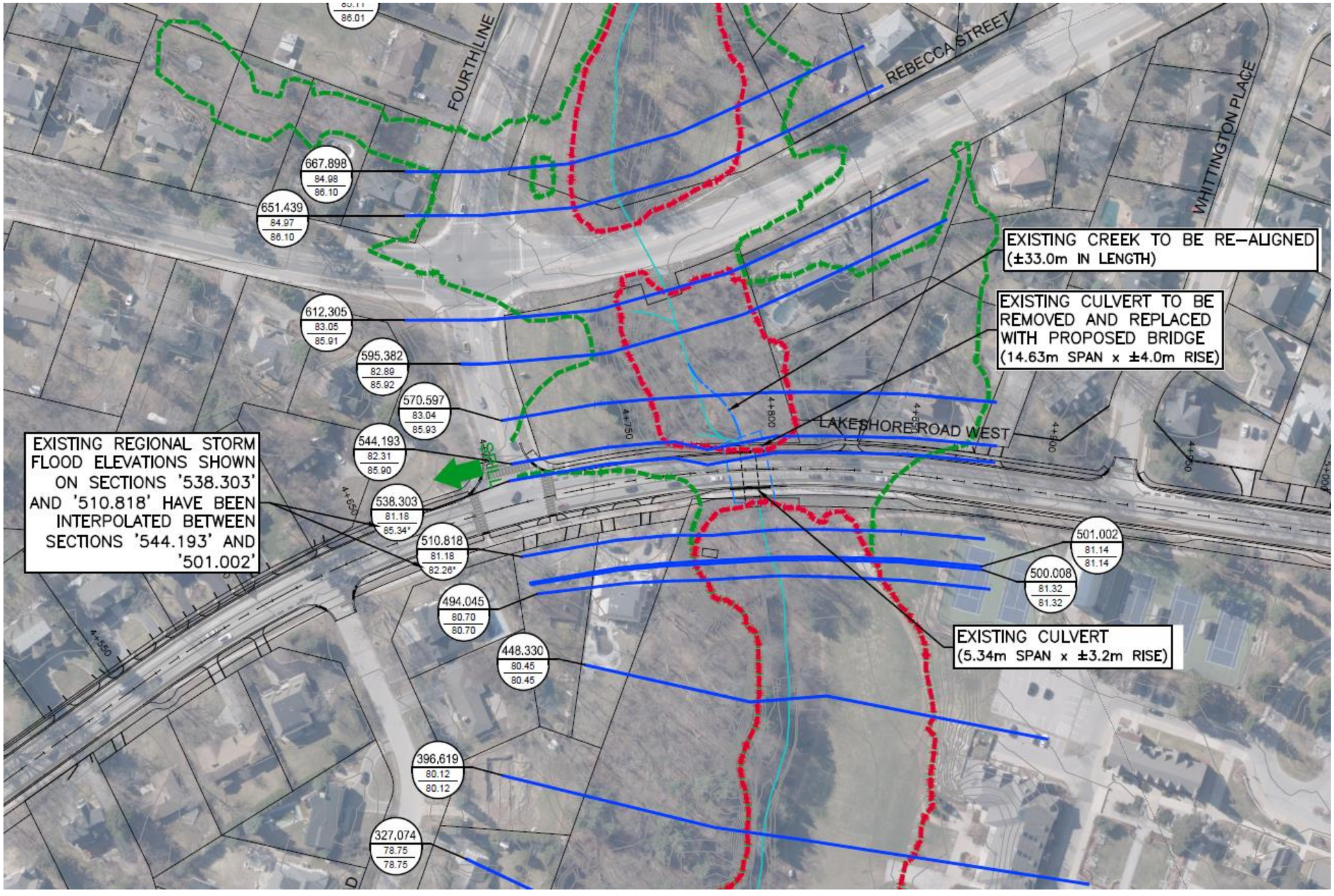


6. Assessment of Alternatives (Creek Alignment)

6. Assessment of Alternatives (Creek Alignment)

6. Assessment of Alternatives (Storm outfall – northwest bank)

6. Assessment of Alternatives (Hydraulics)



6. Assessment of Alternatives

- **Alternative 1: Do Nothing - Maintain existing structure**
- **Alternative 2: Remove and replace existing structure**
  - Replace with a new con span structure 14.65m X 3.75m
  - Re-alignment of McCraney Creek
- **Alternative 3: Remove and replace existing structure**
  - Replace with a new con span structure 14.65m X 3.75m (slightly skewed)
  - Re-alignment of McCraney Creek

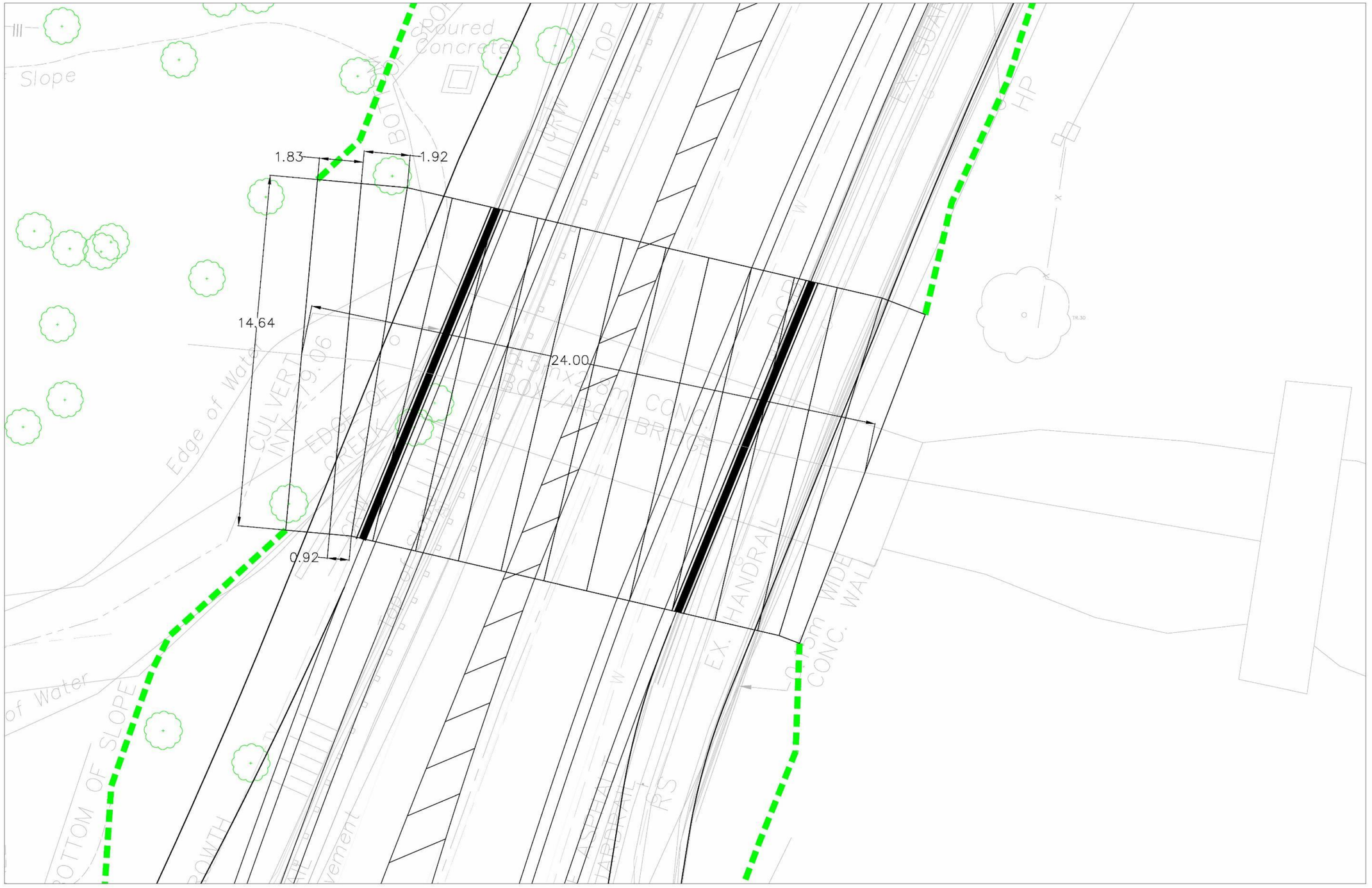
6. Assessment of Alternatives

- **Assessment Table – Hardcopy provided**

7. Preferred Alternative

- **Alternative 3: Remove existing structure**
  - Replace with a new con span structure 14.65m X 3.75m (slightly skewed)
  - Re-alignment of McCraney Creek upstream for structure

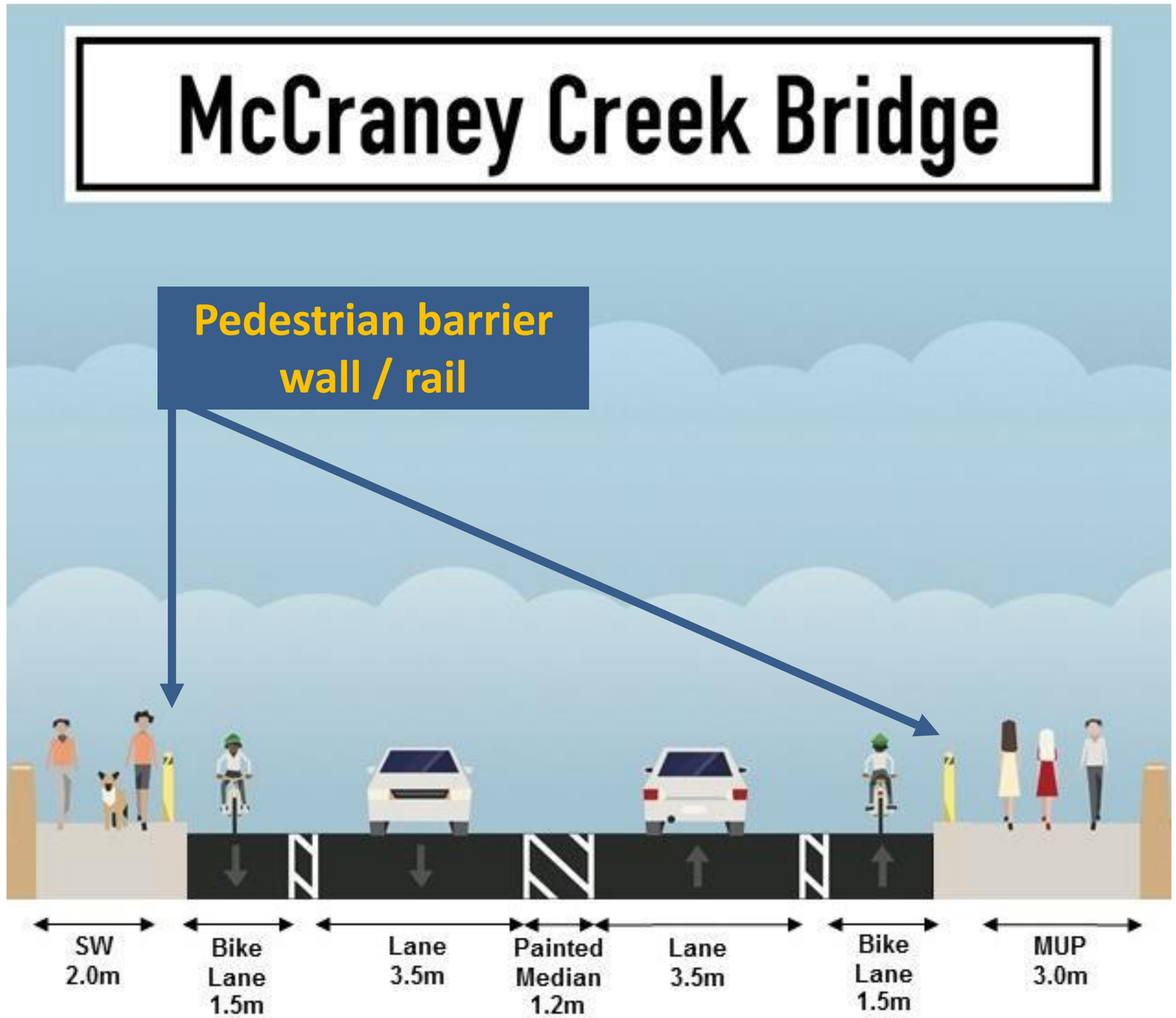
7. Preferred Alternative



7. Preferred Alternative

Proposed Cross Section of Lakeshore Road West over McCraney Creek

- Proposed structure will convey the Regional Storm Event and accommodate 2 lanes of traffic, on-road bike lanes, sidewalk and multi-use trail

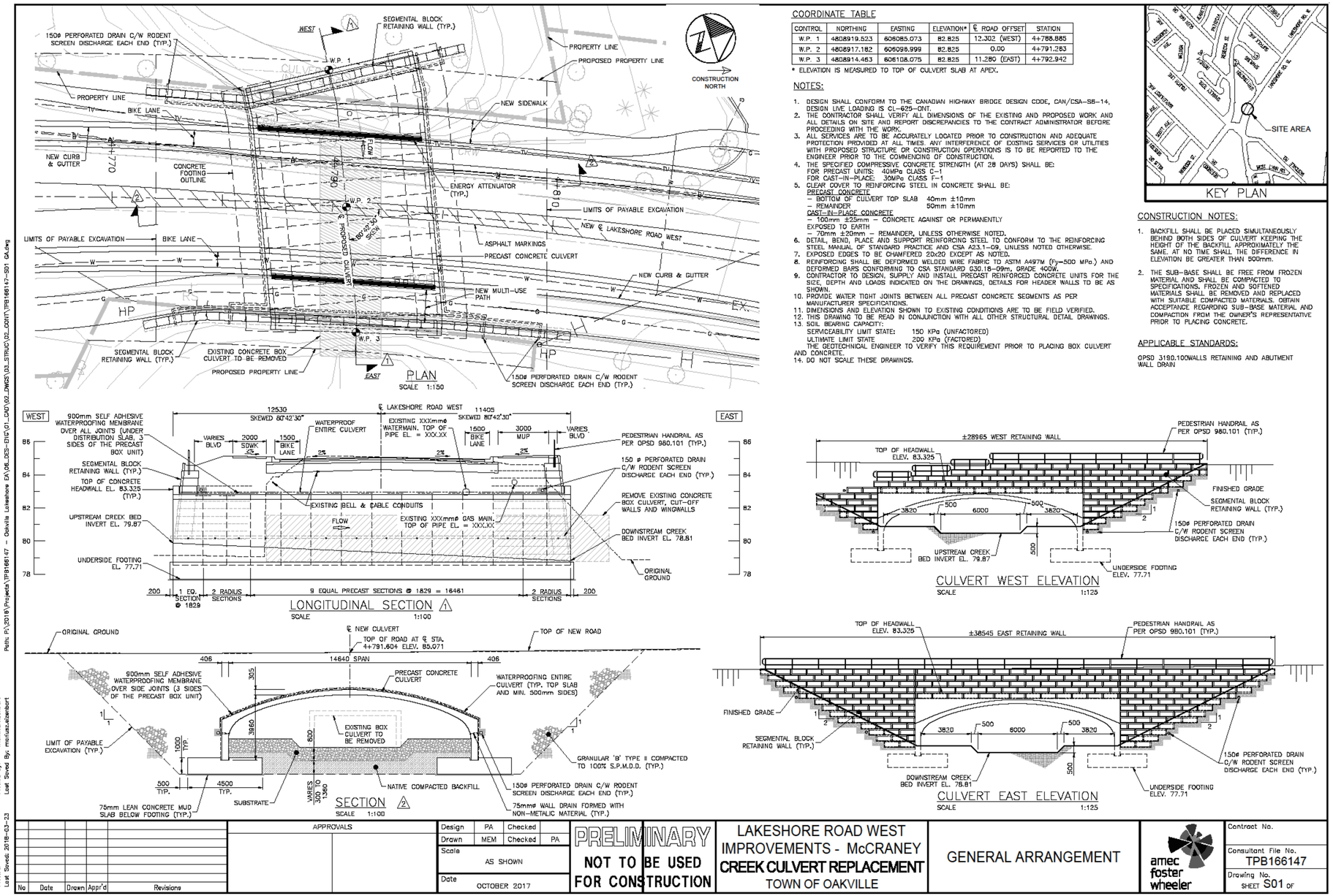


New Structure Details

- Structure length will be 24.00m (along watercourse)
- Structure span will be 14.65m
- Structure will provide pedestrian protection separated by a barrier wall / railing
- On-road bike lane in each direction over the structure
- Multi-use trail on the south side and sidewalk on the north side

7. Preferred Alternative

General Arrangement Drawing for the McCraney Creek Structure



COORDINATE TABLE

CONTROL	NORTHING	EASTING	ELEVATION*	℄ ROAD OFFSET	STATION
W.P. 1	4808919.523	606085.073	82.825	12.302 (WEST)	4+788.885
W.P. 2	4808917.182	606098.999	82.825	0.00	4+791.283
W.P. 3	4808914.463	606108.075	82.825	11.280 (EAST)	4+792.942

* ELEVATION IS MEASURED TO TOP OF CULVERT SLAB AT APEX.

NOTES:

1. DESIGN SHALL CONFORM TO THE CANADIAN HIGHWAY BRIDGE DESIGN CODE, CAN/CSA-S6-14, DESIGN LIVE LOADING IS CL-625-ONT.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE EXISTING AND PROPOSED WORK AND ALL DETAILS ON SITE AND REPORT DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.
3. ALL SERVICES ARE TO BE ACCURATELY LOCATED PRIOR TO CONSTRUCTION AND ADEQUATE PROTECTION PROVIDED AT ALL TIMES. ANY INTERFERENCE OF EXISTING SERVICES OR UTILITIES WITH PROPOSED STRUCTURE OR CONSTRUCTION OPERATIONS IS TO BE REPORTED TO THE ENGINEER PRIOR TO THE COMMENCING OF CONSTRUCTION.
4. THE SPECIFIED COMPRESSIVE CONCRETE STRENGTH (AT 28 DAYS) SHALL BE:
   FOR PRECAST UNITS: 40MPa CLASS C-1
   FOR CAST-IN-PLACE: 30MPa CLASS F-1
5. CLEAR COVER TO REINFORCING STEEL IN CONCRETE SHALL BE:
   PRECAST CONCRETE
   - BOTTOM OF CULVERT TOP SLAB 40mm ±10mm
   - REMAINDER 50mm ±10mm
   CAST-IN-PLACE CONCRETE
   - 100mm ±25mm - CONCRETE AGAINST OR PERMANENTLY EXPOSED TO EARTH
   - 70mm ±20mm - REMAINDER, UNLESS OTHERWISE NOTED.
6. DETAIL, BEND, PLACE AND SUPPORT REINFORCING STEEL TO CONFORM TO THE REINFORCING STEEL MANUAL OF STANDARD PRACTICE AND CSA A23.1-09, UNLESS NOTED OTHERWISE.
7. EXPOSED EDGES TO BE CHAMFERED 20x20 EXCEPT AS NOTED.
8. REINFORCING SHALL BE DEFORMED WELDED WIRE FABRIC TO ASTM A497M (Fy-500 MPa.) AND DEFORMED BARS CONFORMING TO CSA STANDARD G30.18-09m, GRADE 400W.
9. CONTRACTOR TO DESIGN, SUPPLY AND INSTALL PRECAST REINFORCED CONCRETE UNITS FOR THE SIZE, DEPTH AND LOADS INDICATED ON THE DRAWINGS. DETAILS FOR HEADER WALLS TO BE AS SHOWN.
10. PROVIDE WATER TIGHT JOINTS BETWEEN ALL PRECAST CONCRETE SEGMENTS AS PER MANUFACTURER SPECIFICATIONS.
11. DIMENSIONS AND ELEVATION SHOWN TO EXISTING CONDITIONS ARE TO BE FIELD VERIFIED.
12. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER STRUCTURAL DETAIL DRAWINGS.
13. SOIL BEARING CAPACITY:
    SERVICEABILITY LIMIT STATE: 150 KPa (UNFACTORED)
    ULTIMATE LIMIT STATE 200 KPa (FACTORED)
    THE GEOTECHNICAL ENGINEER TO VERIFY THIS REQUIREMENT PRIOR TO PLACING BOX CULVERT AND CONCRETE.
14. DO NOT SCALE THESE DRAWINGS.

CONSTRUCTION NOTES:

1. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH SIDES OF CULVERT KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
2. THE SUB-BASE SHALL BE FREE FROM FROZEN MATERIAL AND SHALL BE COMPACTED TO SPECIFICATIONS. FROZEN AND SOFTENED MATERIALS SHALL BE REMOVED AND REPLACED WITH SUITABLE COMPACTED MATERIALS. OBTAIN ACCEPTANCE REGARDING SUB-BASE MATERIAL AND COMPACTION FROM THE OWNER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE.

APPLICABLE STANDARDS:

OPSD 3190.100WALLS RETAINING AND ABUTMENT WALL DRAIN

No	Date	Drawn	Appr'd	Revisions

APPROVALS

Design	PA	Checked	
Drawn	MEM	Checked	PA
Scale	AS SHOWN		
Date	OCTOBER 2017		

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

LAKESHORE ROAD WEST IMPROVEMENTS - McCRANEY CREEK CULVERT REPLACEMENT
TOWN OF OAKVILLE

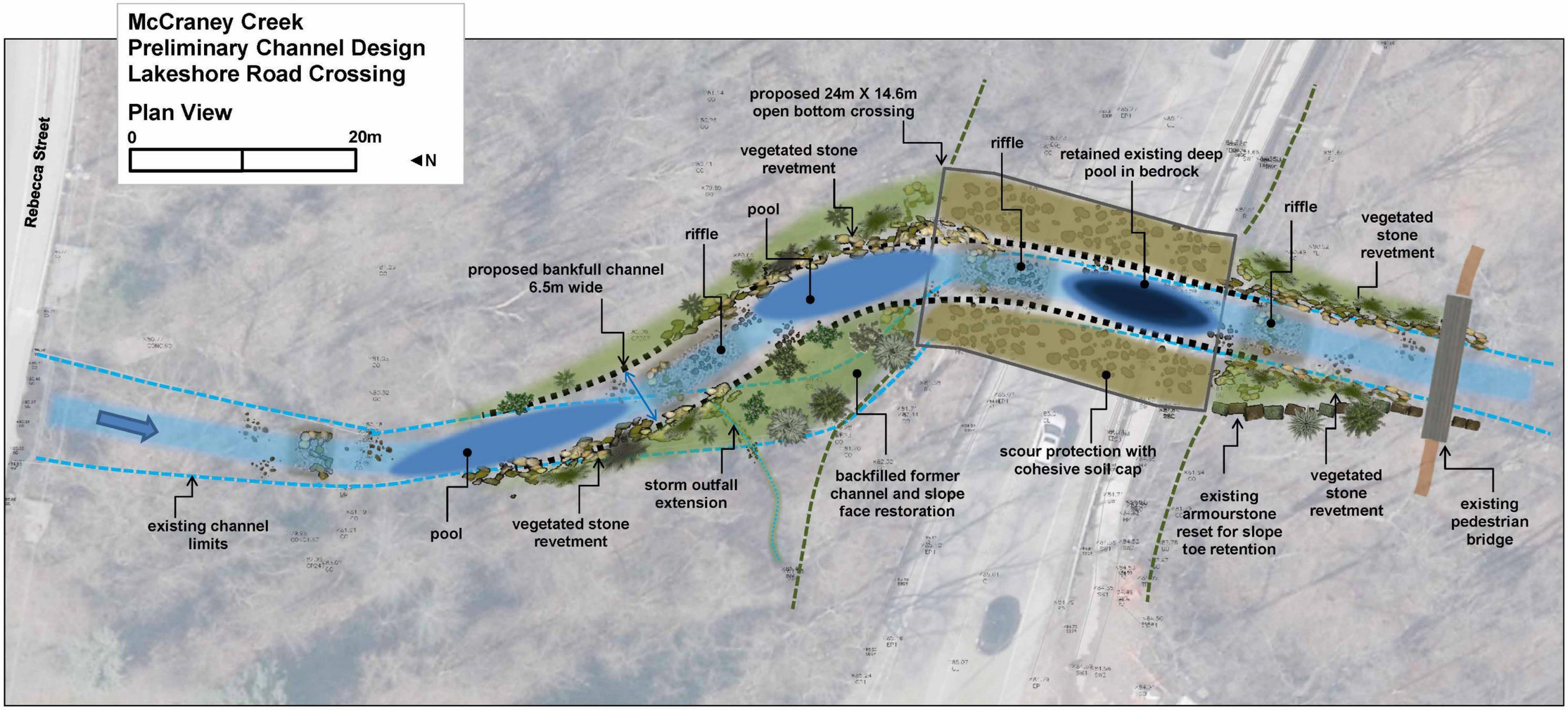
GENERAL ARRANGEMENT

amec foster wheeler

Contract No.
Consultant File No. TPB166147
Drawing No. SHEET S01 OF

Plotted: 2018-03-23
Last Saved: 2018-03-23
Plotted By: marius.alsenbert
Last Saved By: marius.alsenbert
Paths: P:\2016\Projects\TPB166147 - Oakville Lakeshore EA\06_DES-ENG\01_CAD\02_DWGS\03_STRUC\02_2017\TPB166147-S01_GA.dwg

7. Preferred Alternative (Preliminary Channel Design)

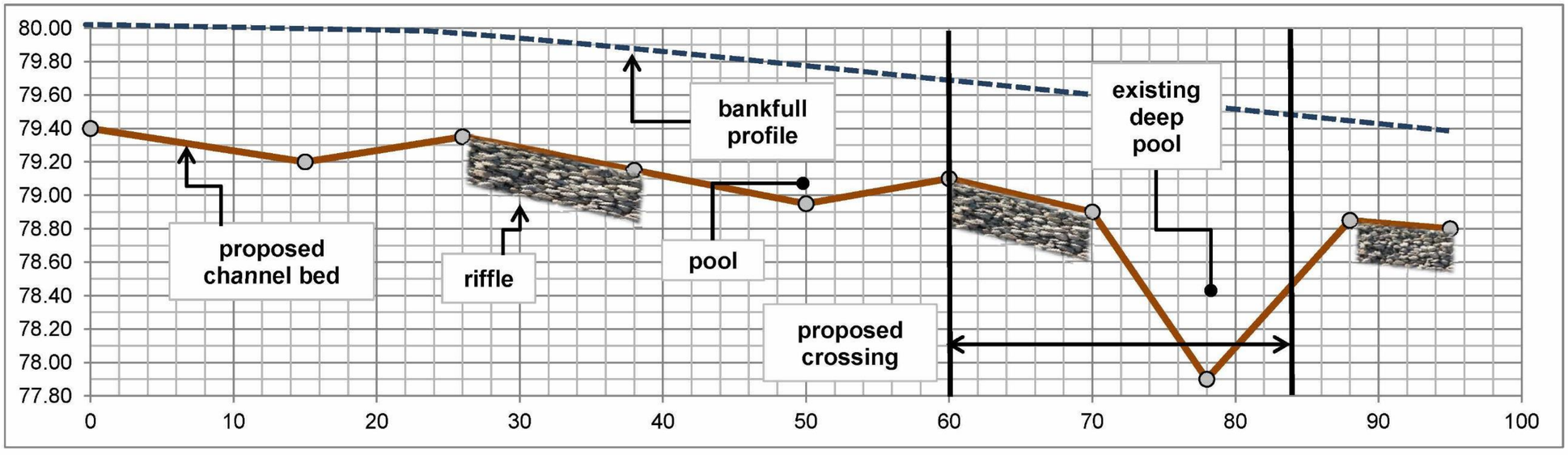


7. Preferred Alternative (Preliminary Channel Design)

McCraney Creek
Preliminary Channel Design
Lakeshore Road Crossing

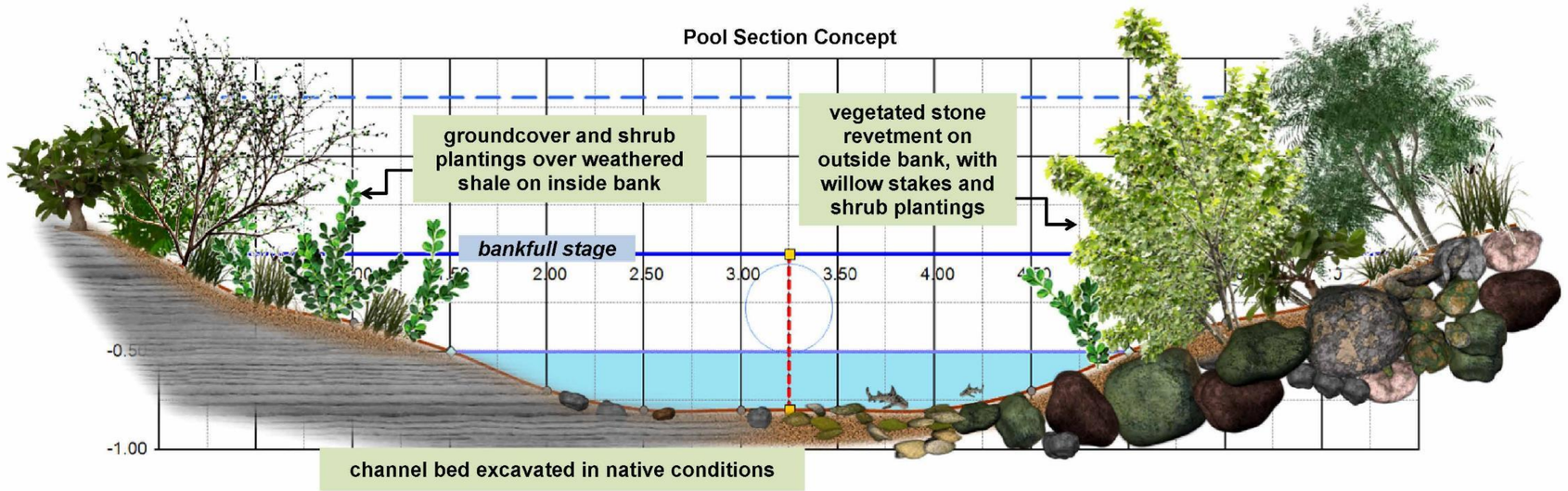
Channel Profile

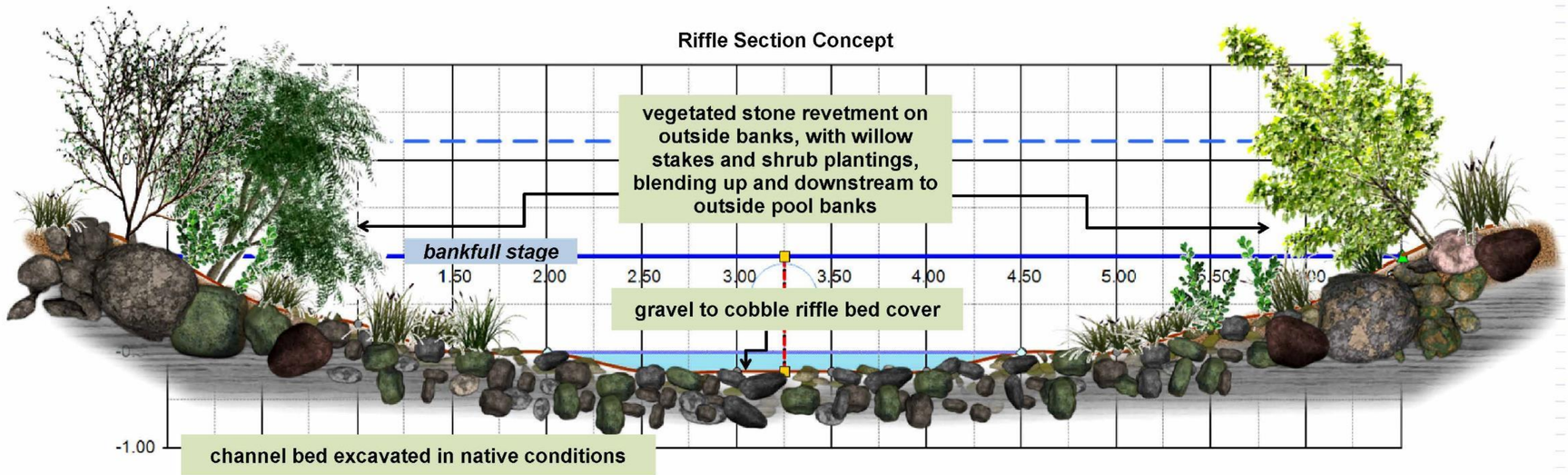
elev. m	distance m	ID
79.40	0	bottom of riffle / upstream tie-in
79.20	15	max depth pool
79.35	26	top of riffle
79.15	38	bottom of riffle
78.95	50	max depth pool
79.10	60	top of riffle
78.90	70	bottom of riffle
77.90	78	max depth existing deep pool
78.85	88	top of riffle
78.80	95	bottom of riffle / downstream tie-in



7. Preferred Alternative (Preliminary Channel Design)

McCraney Creek
Preliminary Channel Design
Lakeshore Road Crossing

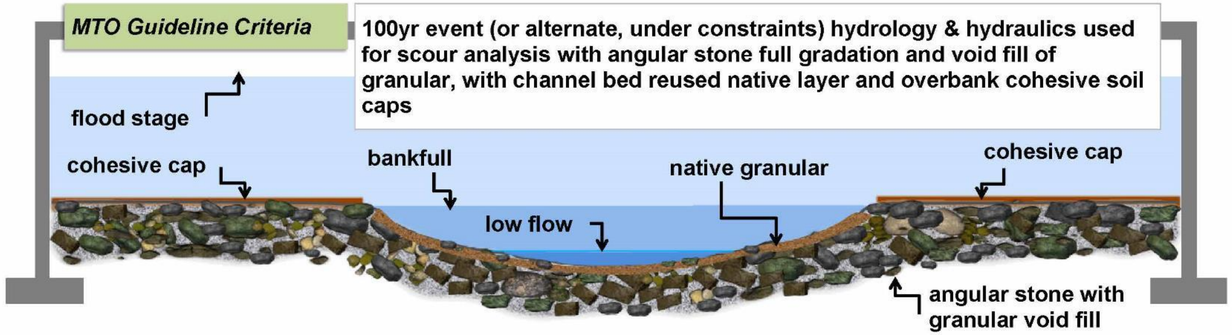




7. Preferred Alternative (Preliminary Channel Design)

McCraney Creek Preliminary Channel Design
Lakeshore Road Crossing

Scour Treatment Options



Risk and Value Summary

Scour Protection	*Channel Morphology*	*Fish Habitat*	*Terrestrial Corridor*
Low Risk High Value - designed specifically for long term structural integrity	Low Risk High Value - designed specifically for long term channel maintenance - stone effectively replaces biotechnical reinforcement with structural reinforcement	Medium Risk Medium Value - designed specifically for long term channel maintenance - not as heterogeneous as native conditions	Medium Risk Medium Value - designed specifically for long term corridor integrity - not as heterogeneous as native conditions, some stone will likely be exposed
Medium Risk Medium Value - compromise on long term structural integrity for sake of more heterogeneous conditions	Medium Risk Medium Value - compromise on long term channel maintenance for sake of more heterogeneous conditions - compromise on reinforcement	Medium Risk Medium Value - compromise on long term channel maintenance for sake of more heterogeneous conditions	Medium Risk Medium Value - compromise on long term corridor integrity for sake of more heterogeneous conditions
High Risk Low-Med Value - compromise on long term structural integrity for sake of more heterogeneous conditions - channel will erode deeply at infrequent events but footings likely protected	Medium Risk Medium Value - compromise on long term channel maintenance for sake of more heterogeneous conditions - lack of long term channel reinforcement means channel will erode deeply with unpredictable replacement by aggradation	Medium Risk Med-High Value - compromise on long term channel maintenance for sake of more heterogeneous conditions - short term conditions ultimately replaced by erosion with unpredictable replacement by aggradation but likely evolution to a large pool feature	High Risk Low-Med Value - compromise on long term corridor integrity for sake of more heterogeneous conditions - short term conditions ultimately replaced by erosion with potential corridor cut off by wall to wall low flow

8. Discussion

9. Next Steps

1. Input on the Proposed Re-alignment and Structure
2. File the Environmental Study Report
3. Detailed Design and Permitting by Town
4. Construction by Town

Assessment Table - Alternatives for the McCraney Creek Crossing

Category	Criteria	Alternative 1: Do Nothing Maintain existing structure	Alternative 2: Remove existing structure Replace with a new con span structure 14.65m X 3.75m Re-alignment of McCraney Creek	Alternative 3: Remove existing structure Replace with a new con span structure 14.65m X 3.75m (with skewed ends) Re-alignment of McCraney Creek
NATURAL ENVIRONMENT	Wetlands and Vegetation	No additional loss of natural areas, terrestrial areas, or wetland areas. No proposed improvements to natural areas	Disturbance would occur to channel banks. Vegetation removal would be required on the west and east sides to accommodate structure replacement. Opportunity to improve riparian vegetation.	Disturbance would occur to channel banks. Vegetation removal would be required on the west and east sides to accommodate structure replacement. Opportunity to improve riparian vegetation.
	Wildlife Habitat: Endangered bat species reported in the area but not observed. Includes Eastern Small-footed Myotis, Little Brown Myotis, and Northern Myotis.	No impacts to wildlife or wildlife habitat.	Vegetation restoration of the site will provide removal of invasive species with replacement with native species. Removal of potential cavity nesting trees could be detrimental to Myotis. Removal of established trees with replacement with juvenile trees would be detrimental to Myotis.	Vegetation restoration of the site will provide removal of invasive species with replacement with native species. Removal of potential cavity nesting trees could be detrimental to Myotis. Removal of established trees with replacement with juvenile trees would be detrimental to Myotis.
	Hydraulics and SWM	No impacts to the surface water with this alternative. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM The bridge would continue to be overtopped by the Regional Storm.	Water surface elevations would decrease upstream of the crossing for all storm events. Flooding of residential property would be reduced. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM New structure would be able to convey the Regional Storm.	Water surface elevations would decrease upstream of the crossing for all storm events. Flooding of residential property would be reduced. Skewed crossing would be hydraulically marginally less effective. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM New structure would be able to convey the Regional Storm.
	Fluvial Geomorphology	The current bridge consists of 2 structures of different age. Current span is 5.3m. Creek is confined by embankment. No opportunity for improvement to the watercourse to address the deficiencies observed.	The wider structure would be able to span the low flow channel and provide adequate erosion setbacks with channel modifications. Opportunity for improvements to watercourse. Risk of further erosion of Lakeshore Road West embankment could be minimized.	The wider structure would be able to span the low flow channel and provide adequate erosion setbacks with channel modifications. Opportunity for improvements to watercourse. Risk of further erosion of Lakeshore Road West embankment could be minimized.
	Fisheries: Habitat is present for several common warm water species and Rainbow Trout.	No impacts on fish or fish habitat.	Channel banks and vegetation will be disturbed to facilitate the structure replacement. Significant disturbance to the riparian vegetation and channel will be required for channel realignment. Channel realignment will provide improved bank stability. Fish and fish habitat and vegetation would be temporarily disturbed. In-water timing window would provide protection for both spring and summer spawners and extend from July 1 to March 15.	Channel banks and vegetation will be disturbed to facilitate the structure replacement. Significant disturbance to the riparian vegetation and channel will be required for channel realignment. Channel realignment will provide improved bank stability. Fish and fish habitat and vegetation would be temporarily disturbed. In-water timing window would provide protection for both spring and summer spawners and extend from July 1 to March 15.
SOCIAL, CULTURAL & ECONOMIC ENVIRONNENT	Land Use	Encroachment into town-owned property No impact to private property.	Encroachment into town-owned property No impact to private property.	Encroachment into town-owned property No impact to private property.
	Archaeology and Cultural Heritage Resources	No impact to archaeology and cultural heritage resources.	Potential for impact to archaeological resources which can be mitigated through further archaeological investigations	Potential for impact to archaeological resources which can be mitigated through further archaeological investigations
	Access Considerations	No impact to existing entrances.	No impacts to the existing entrances	No impacts to the existing entrances
	Utilities	No impact to existing utilities	Relocation of utilities as required for new structure	Relocation of utilities as required for new structure
	Construction Disruption	No impact to community from construction.	Disruptions to traffic patterns would occur. Traffic control required for staged structure replacement.	Disruptions to traffic patterns would occur. Traffic control required for staged structure replacement.
	Safety	No improvement to cyclist safety with new on road cycle lanes	Improvement to cyclist safety with new on road cycle lanes	Improvement to cyclist safety with new on road cycle lanes
	Travel Delay/ Traffic Capacity	Existing and future capacity issues will be addressed with the proposed road widening along corridor.	Existing and future capacity issues will be addressed with the proposed road widening along corridor.	Existing and future capacity issues will be addressed with the proposed road widening along corridor.
TRANSPORTATION	Active Modes of Transportation	No new cycling infrastructure across structure	The need for facilities to allow cycling requirements will be addressed.	The need for facilities to allow cycling requirements will be addressed.
	Incremental Capital Cost	No incremental cost for this option.	Full Structure Replacement cost TBD	Full Structure Replacement cost TBD
	Compatibility with Town's and Region of Halton Transportation Plans and Policies	Not compatible with Town's Transportation Master Plan, Active Transportation Plan.	Meets the Town's Transportation Master Plan, Active Transportation Plan.	Meets the Town's Transportation Master Plan, Active Transportation Plan.
STRUCTURAL	Structure Condition: Structure in poor condition and rehab or replacement required. Wing wall failure 2017.	Structure condition not addressed	New structure	New structure

Conservation Halton's Review of Project Documentation

- Conservation Halton Comments Letter, dated April 20, 2018
- Updated Alternatives Assessment Table for McCraney Creek Bridge submitted to Conservation Halton on May 1, 2018
- Study Team's Response Letter (dated May 4, 2018) submitted in response to Conservation Halton's Comments Letter of April 20, 2018
- Follow-up Letter from Conservation Halton, dated May 17, 2018

Conservation Halton

905.336.1158
Fax: 905.336.7014
2596 Britannia Road West
Burlington, Ontario L7P 0G3
conservationhalton.ca

Protecting the Natural Environment from Lake to Escarpment

April 20, 2018

BY MAIL AND EMAIL

Syed Rizvi
Engineering and Construction
Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

Dear Mr. Rizvi:

Re: Lakeshore Road West Improvements (Mississauga St to Dorval Drive) - EA Class Environmental Assessment
Town of Oakville
CH File: MPR 703

Conservation Halton (CH) staff received the following document for review;

- *'Lakeshore Road West Improvements (Mississauga Street to Dorval Drive) EA, Municipal Class Environmental Assessment, Stormwater Management Report';* dated March, 2018; prepared by Amec foster wheeler; received by CH on April 4, 2018;
- *'Fluvial Geomorphology Review and Preliminary Channel Design, Fourteen Mile Creek & McCraney Creek, Lakeshore Road West Improvements, Class Environmental Assessment, Town of Oakville',* prepared by Aqualogic, dated March, 19, 2018; received by CH on April 4, 2018;
- *Memo: 'Aquatic and Bat Habitat surveys for proposed Channel Realignment of MCCraney Creek North of Lakeshore Road to Rebecca Street; from Amec Foster Wheeler to the Town of Oakville',* dated January 24, 2018; received by CH on April 4, 2018;
- *Information Presented at the March 26, 2018 Meeting:* McCraney Creek Structure on Lakeshore Road West and Assessment Table – Alternatives for the McCraney Creek Crossing and the tree inventory report.

Purpose of EA

This undertaking involves improvement works to Lakeshore Road West from Mississauga Street to Dorval Drive. A number of road improvement alternatives will be examined as part of the study; such as, road widening, cross-section improvements, intersection improvements, accommodation of pedestrians and cyclists, and enhancement of traffic control. This section of the road is currently partially urbanized with some sections being rural and draining to roadside ditches, and have various lane configurations with and without turning lanes. The proposed

improvements will increase the Lakeshore Road right-of-way (R.O.W) width in various sections and will be a fully urbanized R.O.W (i.e. curb and gutter on both sides).

Staff have had the opportunity to review the documents and offer the following key comments; additional detailed comments are provided in Appendix A attached.

Key Comments:

1. Conservation Halton has not received a complete copy of the full Schedule C Environmental Assessment report for the Lakeshore Road Project. Please ensure that a more complete summary of the project file (ESR) is provided. Please ensure that the final Environmental Assessment includes the following:

    a. Commitments table which specifically identifies a commitment to obtain all required permits related to O.Reg. 162/06 – i.e. permits from Conservation Halton will be required under O.Reg. 162/06 prior to constructing any works within Conservation Halton's regulated. Please note that the following proposed works will require permits from CH; re-alignment of McCraney Creek, removal and re-construction of the Lakeshore Crossing of McCraney Creek, and any other works proposed within the regulated area associated with Bronte, Fourteen Mile and McCraney Creeks, potentially including road and pathway construction, grading works, construction of stormwater management infrastructure and any new outfalls, etc..

    b. Justification for the proposed road improvements that result in the need to re-construct and enlarge the McCraney Creek crossing.

    c. Justification supporting the proposed re-alignment of McCraney Creek as part of the crossing re-construction. The documents provided have not presented an evaluation of potential options for McCraney Creek – minimally the final EA should include a qualitative assessment to confirm re-alignment to be preferred relative to the 'do nothing' or alternate solutions (potentially including a protect in place solution)

2. The impact of the proposed reconstructed McCraney Creek crossing has not been clearly assessed relative to increased flood risk associated with changes to the:

    a. proposed 1:100 year water surface elevation upstream of the bridge relative to hydraulic cross sections 667.8976 & 651.4387 and

    b. proposed 1:2 year through to the 1:100 year (inclusive) water surface elevations downstream of the crossing at hydraulic cross section 510.818. *(Reference Appendix C of the Stormwater Management Report).*

    Are these increases contained within a municipal creek block? Do these increases impact any existing residences or structures? Conservation Halton requires an impact assessment confirming that these increases do not demonstrate an increase in real flood

risk prior to supporting filing of the EA. (Note: The required scope of the assessment would vary pending infrastructure risks, where there are no structures or infrastructure impacted, and where increases are maintained within municipal property, clarifying these points would be sufficient to address the impact assessment, and to allow Conservation Halton to support filing of the EA. Should modelled water level increases impact a structure however, additional analysis – including potential modifications to the proposed crossing structure- will be required to ensure that the increase does not represent a real increase in flood risk. Please contact Conservation Halton should additional guidance on expectations be required.)

3. Conservation Halton has completed only a cursory review of the Preliminary Channel Design contained within the Fluvial Geomorphology Review in Appendix C of the SWM report. Staff defer detailed comment to the channel re-alignment design to the permit process.

When making a resubmission please ensure that 3 copies of all materials are provided along with a detailed response to each of the comments within the appendix of this letter.

We trust these comments are of assistance. Should you have any questions, please contact me at extension 2266.

Yours truly,

Leah Chishimba MAES.
Environmental Planner

cc: Kristina Parker, Town of Oakville
Neal Smith, Wood PLC

APPENDIX A: DETAILED COMMENTS

Conservation Halton Regulation (Ontario Regulation 162/06):

Lakeshore Road West Improvements (Mississauga Street to Dorval Drive) EA, Municipal Class Environmental Assessment, Stormwater Management Report'

1. **Section 2.2.3 Fourteen Mile Creek, page 9:** Please note that regardless of the flow depth (less than 0.9 m quoted in MNRF Guidelines as the upper depth requirement for emergency vehicle crossing), the anticipated depth velocity product is more than double the upper limit identified by MNRF (0.4 m^2/s), and as such, under a regional storm event, the crossing would not be safe for use, even by emergency vehicles. Safe access and egress limitations are also anticipated under more frequent storms.

2. **Section 2.2.4 McCraney Creek, page 10:** Based on the anticipated depths and velocities presented for McCraney Creek, the existing crossing would not provide safe access and egress under the regional storm. Safe access and egress limitations are also anticipated under more frequent storms.

3. **Section 2.4 Existing Conditions Hydrology, page 11:** Please confirm whether or not the Manning's n values recorded with respect to pervious surfaces (0.025) was in error, and if the value should have read 0.25. Should a value of 0.025 have been maintained for pervious travel paths, please justify the selection and provide discussion and analysis confirming that this non-standard parameterization does not negatively impact the accuracy of the model.

4. **Section 3.1.2 Conservation Halton, page 16:** Conservation Halton recommends that regardless of the proximity to the Lake, quantity control be considered where drainage is conveyed across private property. Determination of the level of control required is deferred to the Town of Oakville. Please note that Conservation Halton will not require quantity control for outfalls to the three regulated watercourses within the study area - Bronte Creek, Fourteen Mile Creek and McCraney Creek.

5. **Section 3.1.2 Conservation Halton, page 16:** Inclusion of erosion control is supported and encouraged, and should be implemented to the extent feasible. Strict adherence to capturing and treating the 25 mm rainfall depth for all new increased impervious areas is not a requirement from Conservation Halton's perspective. Given the location of the infrastructure relative to the watershed system, only minimal erosion risks may be directly attributed to the infrastructure.

6. **Section 4.2 Future Conditions Hydraulics, page 20:** The water surface elevations quoted in Table 4.2 are not comparable to the discussion below. Please update the report for consistency and clarity.

7. **Section 4.2 Future Conditions Hydraulics, page 20:** The assessment of future hydraulic conditions should evaluate the impact of the change relative to all return period events to confirm the anticipated impacts. For instance, the impact of increases in the 1:2 year to 1:100 year return period storm predicted at hydraulic cross section 510.818 should be discussed/analyzed to confirm the proposed design does not negatively impact flood risk at other return events. Similarly the impact upstream at cross sections 667.8976 and 651.4387 under the 1:100 year storm should be discussed.

8. **Appendix C:** Comparison of existing vs proposed conditions indicates increases are expected at the following cross sections under the following storm events:

    a. 667.8976 & 651.4387 under the 1:100 year storm;
    b. 595.3819, 570.5971 under the 1:2 year, 1:5 year and 1:10 year storm;
    c. 544.1928 under the 1:2 year, and 1:5 year;
    d. 510.818 under the 1:2 year through to the 1:100 year inclusive

    As discussed above under Key Comment 2, additional analysis is required to confirm that the proposed change in water surface elevation represents no real increase in risk. It is recommended that the analysis be re-run in HEC RAS 5.0.3, as this would appear to eliminate concerns b and c. It is also recommended that an additional cross section be added to the existing or proposed conditions model to allow for a direct comparison of water surface elevations immediately downstream of the proposed crossing. Please address the above concerns in advance of filing the EA.

Conservation Halton Advisory Comments under MOU

1. **General:** Staff are supportive of the proposed low-impact development (LID) measures proposed to manage stormwater throughout the study area (bioretention, infiltration trenches, etc.). Staff agree that these approaches should utilize thermal mitigation requirements and suggest that these parameters be applied to all discharge points, not just Fourteen Mile Creek.

2. **SWM Report, Table 6.5:** The Stormwater Management Report details consideration of two alternatives for each separate road station section. No criteria were provided to compare the impacts of the various alternatives in terms of typical Municipal Schedule C EA process [e.g. Phase 1- 4 (detailed environmental, net impacts, etc.)]. Staff recommend that in whole, an extensive evaluation of the alternatives be presented, beyond the slides submitted in the presentation 'McCraney Creek Structure on Lakeshore Road West'. It does not appear that the work done to-date has captured the breath of potential impacts of the various alternatives.

3. **Tree Protection Table and Map:** The submitted Tree Protection Plan and associated map are not complete. Vegetation inventory must be completed including species, size, location, biological condition (noting potential stresses), presence of rare or significant species, etc. All species greater than 15cm diameter at breast height (dbh) must be illustrated on the plans. It is critical that trees to be removed or preserved should be clearly indicated and labelled on the plan(s). Consideration should be given to locating the staging area outside of the vegetation i.e., in existing cleared areas. Please update the plans with this information and resubmit as part of the detailed design process.

4. **Tree Protection Table and Map**: Staff note that much of the subject area qualifies as Significant Woodland. Staff trust that the Region of Halton staff has been circulated this EA submission for review and that they will be commenting on the interpretation and implementation of the Region's Official Plan.

5. **Aquatic and Bat Habitat Survey Memorandum:** The Memorandum titled 'Aquatic and Bat Habitat Surveys for Proposed Channel Realignment of McCraney Creek North of Lakeshore Road to Rebecca Street' focusses on the crossing of McCraney Creek only (approximately 200 m section). What are the impacts of the roadway and intersection improvements for the remainder of the natural areas within the 6.2 km project footprint?

6. **Aquatic and Bat Habitat Survey Memorandum:** Staff appreciate the consultant relaying the correspondence with the Ministry of Natural Resources and Forestry (MNRF) and we ask that we be included on future correspondence related to this project.

7. **Aquatic and Bat Habitat Survey Memorandum:** Given the late seasonality of the bat habitat surveys, staff recommend that the results obtained be verified by a follow-up survey during the appropriate field season.

8. **Aquatic and Bat Habitat Survey Memorandum:** Though, staff are supportive of the enhancement opportunities outlined in Sections 4.1 (Aquatic) and 4.2 (Terrestrial), the EA has not examined alternative methods of implementing the preferred solution, based on the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects. Were alternatives to the replacement structure for the McCraney Creek crossing considered? What were the selected mitigation methods to reduce or eliminate environmental effects?

9. **Aquatic and Bat Habitat Survey Memorandum:** Staff acknowledge that there are four trees that may be suitable for bat maternity roosting. For ease of review, please ensure that the tree tag number in this memo corresponds to the tree number and tag number presented in the Tree Protection Table and Map so that we can be mindful of site access, stockpiling and all other indirect potential impacts of the proposed works.

10. **Aquatic and Bat Habitat Survey Memorandum:** No species at risk were identified for the development of the EA, but no surveys were conducted for this purpose. Staff recommend that a screening of the site be conducted prior to detailed design to confirm that there are no new Species at Risk issues (i.e. bank swallows, bats, butternut trees etc.). Staff understand that Eastern Wood Pewee was not encountered on the field inventory; however, may be present due to the suitability of the habitat. Staff recommend that the study team monitor the status of the species of special concern, if this species is eventually assessed as Threatened or Endangered, the definition of its habitat may be revised, potentially affecting the proposed works.

11. **General:** Staff propose that the project footprint may qualify as candidate significant wildlife habitat for a number of categories. Bronte, McCraney and Fourteen Mile Creeks are all located within 3.25 km of Lake Ontario and meet the size requirements for migratory landbird stopover area. Staff understand that a large number of ash trees have been removed, which has likely resulted in a decrease of the habitat quality. Given that a breeding bird

survey was not conducted to confirm these conclusions, staff recommend that the proposed works be considered with respect to potential enhancements and restoration opportunities that serve these habitat features. For example, appropriate mitigation measures such as enhanced plantings, bat boxes and extensive plantings be incorporated into the design to mitigate against any further impacts to this already impacted habitat community.

12. **General:** Staff recommend that additional mitigation measures to offset the impacts be discussed to enhance and restore the surrounding natural environment where possible.

Assessment Table - Alternatives for the McCraney Creek Crossing

Category	Criteria	Alternative 1: Do Nothing Maintain existing structure	Alternative 2: Replace with a new con span structure 14.65m X 3.75m No re-alignment of McCraney Creek	Alternative 3: Remove existing structure Replace with a new con span structure 14.65m X 3.75m Re-Alignment of McCraney Creek	Alternative 4: Remove existing structure Replace with a new con span structure 14.65m X 3.75m (with skewed ends) Re-alignment of McCraney Creek
NATURAL ENVIRONMENT	Wetlands and Vegetation	No additional loss of natural areas, terrestrial areas, or wetland areas. No proposed improvements to natural areas	Limited disturbance would occur to channel banks. Vegetation removal would be required on the west and east sides to accommodate structure replacement. Opportunity to improve riparian vegetation with in the ROW limits.	Disturbance would occur to channel banks. Vegetation removal would be required on the west and east sides to accommodate structure replacement. Opportunity to improve riparian vegetation with in the ROW limits.	Disturbance would occur to channel banks. Vegetation removal would be required on the west and east sides to accommodate structure replacement. Opportunity to improve riparian vegetation with in the ROW limits.
	Wildlife Habitat: Endangered bat species reported in the area but not observed. Includes Eastern Small-footed Myotis, Little Brown Myotis, and Northern Myotis.	No impacts to wildlife or wildlife habitat.	Vegetation removal would be limited to areas immediately adjacent the structure. Timing restrictions during vegetation removal would provide mitigation measures sufficient to protect both birds and bats.	Vegetation removal would be limited to areas immediately adjacent the structure. Timing restrictions during vegetation removal would provide mitigation measures sufficient to protect both birds and bats.	Vegetation removal would be limited to areas immediately adjacent the structure. Timing restrictions during vegetation removal would provide mitigation measures sufficient to protect both birds and bats.
	Hydraulics and SWM	No impacts to the surface water with this alternative. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM The bridge would continue to be overtopped by the Regional Storm.	Water surface elevations would decrease upstream of the crossing for all storm events. Flooding of residential property would be reduced. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM New structure would be able to convey the Regional Storm.	Water surface elevations would decrease upstream of the crossing for all storm events. Flooding of residential property would be reduced. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM New structure would be able to convey the Regional Storm.	Water surface elevations would decrease upstream of the crossing for all storm events. Flooding of residential property would be reduced. Skewed crossing would be hydraulically marginally less effective. Increased runoff due to road widening. Therefore quality and erosion impacts would require mitigation through SWM New structure would be able to convey the Regional Storm.
	Fluvial Geomorphology	The current bridge consists of 2 structures of different age. Current span is 5.3m. Creek is confined by embankment. No opportunity for improvement to the watercourse to address the deficiencies observed.	The wider structure would be able to span the low flow channel and provide adequate erosion setbacks with channel modifications. Limited opportunities for Improvements to watercourse at the replacement structure. Risk of further erosion of Lakeshore Road West embankment will not be addressed. Localized bank erosion protection would be used to address existing northwest bank erosion condition.	The wider structure would be able to span the low flow channel and provide adequate erosion setbacks with channel modifications. Limited opportunities for Improvements to watercourse at the replacement structure. Risk of further erosion of Lakeshore Road West embankment will not be addressed.	The wider structure would be able to span the low flow channel and provide adequate erosion setbacks with channel modifications. Opportunity for improvements to watercourse. Risk of further erosion of Lakeshore Road West embankment could be minimized.
	Fisheries: Habitat is present for several common warm water species and Rainbow Trout.	No impacts on fish or fish habitat.	Channel banks and vegetation will be disturbed to facilitate the structure replacement. Significant disturbance to the riparian vegetation and channel will be required for channel works related to the structure replacement. Fish and fish habitat and vegetation would be temporarily disturbed. In-water timing window would provide protection for both spring and summer spawners and extend from July 1 to March 15.	Channel banks and vegetation will be disturbed to facilitate the structure replacement. Significant disturbance to the riparian vegetation and channel will be required for channel realignment. Channel realignment will provide improved bank stability. Fish and fish habitat and vegetation would be temporarily disturbed. In-water timing window would provide protection for both spring and summer spawners and extend from July 1 to March 15.	Channel banks and vegetation will be disturbed to facilitate the structure replacement. Significant disturbance to the riparian vegetation and channel will be required for channel realignment. Channel realignment will provide improved bank stability. Fish and fish habitat and vegetation would be temporarily disturbed. In-water timing window would provide protection for both spring and summer spawners and extend from July 1 to March 15.
SOCIAL, CULTURAL & ECONOMIC ENVIRONNENT	Land Use	Encroachment into town-owned property No impact to private property.	Encroachment into town-owned property No impact to private property.	Encroachment into town-owned property No impact to private property.	Encroachment into town-owned property No impact to private property.
	Archaeology and Cultural Heritage Resources	No impact to archaeology and cultural heritage resources.	Potential for impact to archaeological resources which can be mitigated through further archaeological investigations	Potential for impact to archaeological resources which can be mitigated through further archaeological investigations	Potential for impact to archaeological resources which can be mitigated through further archaeological investigations
	Access Considerations	No impact to existing entrances.	Minor impacts to the existing entrances	Minor impacts to the existing entrances	Minor impacts to the existing entrances
	Utilities	No impact to existing utilities	Relocation of utilities as required for new structure	Relocation of utilities as required for new structure	Relocation of utilities as required for new structure
	Construction Disruption	No impact to community from construction.	Disruptions to traffic patterns would occur. Traffic control required for staged structure replacement.	Disruptions to traffic patterns would occur. Traffic control required for staged structure replacement.	Disruptions to traffic patterns would occur. Traffic control required for staged structure replacement.
	Safety	No improvement to cyclist safety with new on road cycle lanes	Improvement to cyclist safety with new on road cycle lanes	Improvement to cyclist safety with new on road cycle lanes	Improvement to cyclist safety with new on road cycle lanes
	Travel Delay/ Traffic Capacity	Existing and future capacity issues will be addressed with the proposed road widening along corridor.	Existing and future capacity issues will be addressed with the proposed road widening along corridor.	Existing and future capacity issues will be addressed with the proposed road widening along corridor.	Existing and future capacity issues will be addressed with the proposed road widening along corridor.
TRANSPORTATION	Active Modes of Transportation	No new cycling or pedestrian infrastructure across structure	The need for facilities to allow cycling and pedestrian requirements will be addressed.	The need for facilities to allow cycling and pedestrian requirements will be addressed.	The need for facilities to allow cycling and pedestrian requirements will be addressed.
	Incremental Capital Cost	No incremental cost for this option.	Full Structure Replacement cost TBD	Full Structure Replacement cost TBD	Full Structure Replacement cost TBD
	Compatibility with Town's and Region of Halton Transportation Plans and Policies	Not compatible with Town's Transportation Master Plan, Active Transportation Plan.	Meets the Town's Transportation Master Plan, Active Transportation Plan.	Meets the Town's Transportation Master Plan, Active Transportation Plan.	Meets the Town's Transportation Master Plan, Active Transportation Plan.
STRUCTURAL	Structure Condition: Structure in poor condition and rehab or replacement required. Wing wall failure 2017.	Structure condition not addressed	New structure	New structure	New structure

Emailed: lchishimba@hrca.on.ca
May 4, 2018
Our File: PTB166147

Conservation Halton
2596 Britannia Road West,
Burlington, ON L7P 0G3

Attention: Leah Chishimba, M.A.E.S
Environmental Planner

Dear Leah:

Re: Lakeshore Road West Improvements (Mississauga St to Dorval Drive)
Class Environmental Assessment, Town of Oakville

Please see below the responses to your comments provided to Syed Rizvi on April 20, 2018.

Key Comments:

1. Conservation Halton has not received a complete copy of the full Schedule C Environmental Assessment report for the Lakeshore Road Project. Please ensure that a more complete summary of the project file (ESR) is provided. Please ensure that the final Environmental Assessment includes the following:

    a. Commitments table which specifically identifies a commitment to obtain all required permits related to O.Reg. 162/06 – i.e. permits from Conservation Halton will be required under O.Reg. 162/06 prior to constructing any works within Conservation Halton's regulated. Please note that the following proposed works will require permits from CH; re-alignment of McCraney Creek, removal and re-construction of the Lakeshore Crossing of McCraney Creek, and any other works proposed within the regulated area associated with Bronte, Fourteen Mile and McCraney Creeks, potentially including road and pathway construction, grading works, construction of stormwater management infrastructure and any new outfalls, etc.

    Response: Please review section 6.2.9 of the Draft ESR that was send last week (week of April 23, 2018).

    b. Justification for the proposed road improvements that result in the need to re-construct and enlarge the McCraney Creek crossing.

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a Division of Wood Canada Limited
Registered office: 2020 Winston Park Drive, Suite 700, Oakville, Ontario L6H 6X7
Registered in Canada No. 773289-9; GST: 899879050 RT0008; DUNS: 25-362-6642

Response: Please see justification outlined the Draft ESR.

c. Justification supporting the proposed re-alignment of McCraney Creek as part of the crossing re-construction. The documents provided have not presented an evaluation of potential options for McCraney Creek – minimally the final EA should include a qualitative assessment to confirm re-alignment to be preferred relative to the 'do nothing' or alternate solutions (potentially including a protect in place solution).

Response: Revised assessment table sent with a no realignment of the creek.

2. The impact of the proposed reconstructed McCraney Creek crossing has not been clearly assessed relative to increased flood risk associated with changes to the proposed:

   a. 1:100 year water surface elevation upstream of the bridge relative to hydraulic cross sections 667.8976 & 651.4387; and
   b. proposed 1:2 year through to the 1:100 year (inclusive) water surface elevations downstream of the crossing at hydraulic cross section 510.818. (Reference Appendix C of the Stormwater Management Report).

   Are these increases contained within a municipal creek block? Do these increases impact any existing residences or structures? Conservation Halton requires an impact assessment confirming that these increases do not demonstrate an increase in real flood risk prior to supporting filing of the EA. (Note: The required scope of the assessment would vary pending infrastructure risks, where there are no structures or infrastructure impacted, and where increases are maintained within municipal property, clarifying these points would be sufficient to address the impact assessment, and to allow Conservation Halton to support filing of the EA. Should modelled water level increases impact a structure however, additional analysis – including potential modifications to the proposed crossing structure- will be required to ensure that the increase does not represent a real increase in flood risk. Please contact Conservation Halton should additional guidance on expectations be required.)

   Response: Please see response to Appendix 'A' Comment 8.

3. Conservation Halton has completed only a cursory review of the Preliminary Channel Design contained within the Fluvial Geomorphology Review in Appendix C of the SWM report. Staff defer detailed comment to the channel re-alignment design to the permit process.

   Response: Noted

When making a resubmission please ensure that 3 copies of all materials are provided along with a detailed response to each of the comments within the appendix of this letter.

Response: Noted

APPENDIX A: DETAILED COMMENTS

Conservation Halton Regulation (Ontario Regulation 162/06):
Lakeshore Road West Improvements (Mississauga Street to Dorval Drive) EA, Municipal Class Environmental Assessment, Stormwater Management Report'

1. Section 2.2.3 Fourteen Mile Creek, page 9: Please note that regardless of the flow depth (less than 0.9 m quoted in MNRF Guidelines as the upper depth requirement for emergency vehicle crossing), the anticipated depth velocity product is more than double the upper limit identified by MNRF (0.4 m2/s), and as such, under a regional storm event, the crossing would not be safe for use, even by emergency vehicles. Safe access and egress limitations are also anticipated under more frequent storms.

   Response: The existing Fourteen Mile Creek crossing is overtopped by Regional Storm; while all other storm events (2 year to 100 year) are conveyed by the existing crossing. In discussions with the Town of Oakville, the Town acknowledges that the existing crossing would be overtopped by the Regional Storm and during the peak of the Regional Storm would not be passable by private and/or emergency vehicles. The Town is not proposing to upgrade the structure.

2. Section 2.2.4 McCraney Creek, page 10: Based on the anticipated depths and velocities presented for McCraney Creek, the existing crossing would not provide safe access and egress under the regional storm. Safe access and egress limitations are also anticipated under more frequent storms.

   Response: The McCraney Creek crossing of Lakeshore Road is being proposed to be replaced and would convey the Regional Storm. Safe access and egress for the existing crossing would only impacted by the Regional Storm, while all other events (2 year to 100 year) are conveyed.

3. Section 2.4 Existing Conditions Hydrology, page 11: Please confirm whether or not the Manning's n values recorded with respect to pervious surfaces (0.025) was in error, and if the value should have read 0.25. Should a value of 0.025 have been maintained for pervious travel paths, please justify the selection and provide discussion and analysis confirming that this non-standard parameterization does not negatively impact the accuracy of the model.

   Response: The value noted in the report is a typo and will be corrected.

4. Section 3.1.2 Conservation Halton, page 16: Conservation Halton recommends that regardless of the proximity to the Lake, quantity control be considered where drainage is conveyed across private property. Determination of the level of control required is deferred to the Town of Oakville. Please

note that Conservation Halton will not require quantity control for outfalls to the three regulated watercourses within the study area - Bronte Creek, Fourteen Mile Creek and McCraney Creek.

Response: Wood has reviewed the proposed drainage system along Lakeshore Road. There are two (2) locations where drainage would be conveyed through private property within the receiving drainage system downstream of the Lakeshore Road right-of-way as per the following:

- ***Coronation Park westerly channel, upstream and downstream of Belvedere Drive. As per the Coronation Park Drainage Improvements Class EA, it is proposed that drainage would be diverted from the westerly channel, via a storm sewer located on Lakeshore Road to the intersection of Lakeshore Road and Westminster Drive and subsequently discharge to the easterly channel within Coronation Park. As such, proposed future peak flows would be reduced for the westerly drainage channel located within private property upstream and downstream of Belvedere Drive. A table will be added to the report to document the peak flow results.***
- ***Downstream of St. Jude's Cemetery. To reduce flooding at the intersection of Dorval Drive and Lakeshore Road it has been proposed to twin the storm sewer heading east along Lakeshore Road and to add a storm sewer outlet to St. Jude's Cemetery to the existing drainage channel. Initially it had been understood that the drainage system from the Lakeshore Road right-of-way to the Lake was within Town of Oakville property (understanding within Draft Stormwater Management Report). Upon further assessment and receipt of easement and property information from the Town, it is understood that the drainage system enters the rear lots of private properties upstream of Lakewood Drive and is within an easement downstream of Lakewood Drive to the Lake. Additional hydrologic/hydraulic assessment has been conducted based on more detailed topographic information for the area, and it has been determined that the proposed peak flows for downstream of St. Jude's Cemetery would increase due to the newer sewer outlet from Lakeshore Road. As such quantity controls have been proposed for the north end of St. Jude's Cemetery. Based on preliminary results, proposed flows would be overcontrolled for events greater than the 10 year up to the 100 year, while the 2 to 5 year storm events peak flows would slightly increase, due to the minimal existing peak flows for those events (i.e. 2 year at 0.1 m^3/s). That said, the peak flows for the 2 to the 5 year events should be within the receiving system's flow capacity, therefore resulting in an overall improvement downstream.***

5. Section 3.1.2 Conservation Halton, page 16: Inclusion of erosion control is supported and encouraged, and should be implemented to the extent feasible. Strict adherence to capturing and treating the 25 mm rainfall depth for all new increased impervious areas is not a requirement from Conservation Halton's perspective. Given the location of the infrastructure relative to the watershed system, only minimal erosion risks may be directly attributed to the infrastructure.

Response: Agreed. Noted.

6. Section 4.2 Future Conditions Hydraulics, page 20: The water surface elevations quoted in Table 4.2 are not comparable to the discussion below. Please update the report for consistency and clarity.

Response: Text will be updated for consistency.

7. Section 4.2 Future Conditions Hydraulics, page 20: The assessment of future hydraulic conditions should evaluate the impact of the change relative to all return period events to confirm the anticipated impacts. For instance, the impact of increases in the 1:2 year to 1:100 year return period storm predicted at hydraulic cross section 510.818 should be discussed/analyzed to confirm the proposed design does not negatively impact flood risk at other return events. Similarly the impact upstream at cross sections 667.8976 and 651.4387 under the 1:100 year storm should be discussed.

Response: The report can be updated to include all storm events in the text tables. Please note that Wood had included results for all storm events in the Appendices. Regarding future conditions hydraulic results, please see the response to Comment 8.

8. Appendix C: Comparison of existing vs proposed conditions indicates increases are expected at the following cross sections under the following storm events:

   a. 667.8976 & 651.4387 under the 1:100 year storm;
   b. 595.3819, 570.5971 under the 1:2 year, 1:5 year and 1:10 year storm;
   c. 544.1928 under the 1:2 year, and 1:5 year;
   d. 510.818 under the 1:2 year through to the 1:100 year inclusive

   As discussed above under Key Comment 2, additional analysis is required to confirm that the proposed change in water surface elevation represents no real increase in risk. It is recommended that the analysis be re-run in HEC RAS 5.0.3, as this would appear to eliminate concerns b and c. It is also recommended that an additional cross section be added to the existing or proposed conditions model to allow for a direct comparison of water surface elevations immediately downstream of the proposed crossing. Please address the above concerns in advance of filing the EA.

Response: Wood has revised the McCraney Creek hydraulic modelling to HECRAS 5.0.3 and has added additional cross-sections through interpolation. Based on the updated hydraulic modelling, it is noted that the only increases in flood elevations occur for:

- ***Cross-section 667.8976 under the 100 year storm, with a difference of 0.02 m (located upstream of Rebecca St.***
- ***Cross-section 651.4387 under the 100 year storm, with a difference of 0.01 m***

Based on the minimal differences in flood elevations, it is anticipated that further refinement of the hydraulic modelling at the detailed design stage of the Lakeshore Road crossing would reduce flood elevation differences to 0.01 m or less.

Conservation Halton Advisory Comments under MOU

1. General: Staff are supportive of the proposed low-impact development (LID) measures proposed to manage stormwater throughout the study area (bioretention, infiltration trenches, etc.). Staff agree that these approaches should utilize thermal mitigation requirements and suggest that these parameters be applied to all discharge points, not just Fourteen Mile Creek.

Response: Noted.

2. SWM Report, Table 6.5: The Stormwater Management Report details consideration of two alternatives for each separate road station section. No criteria were provided to compare the impacts of the various alternatives in terms of typical Municipal Schedule C EA process [e.g. Phase 1- 4 (detailed environmental, net impacts, etc.)]. Staff recommend that in whole, an extensive evaluation of the alternatives be presented, beyond the slides submitted in the presentation 'McCraney Creek Structure on Lakeshore Road West'. It does not appear that the work done to-date has captured the breath of potential impacts of the various alternatives.

   Response: Noted. Stormwater management for each road section incurring additional paved area has been conducted with consideration to functionality, meeting water quality objectives of Enhanced water quality treatment, LID practices as agreed to by the Town and within the constraints of the existing and proposed drainage systems. Additional assessment as such is not considered required.

3. Tree Protection Table and Map: The submitted Tree Protection Plan and associated map are not complete. Vegetation inventory must be completed including species, size, location, biological condition (noting potential stresses), presence of rare or significant species, etc. All species greater than 15cm diameter at breast height (dbh) must be illustrated on the plans. It is critical that trees to be removed or preserved should be clearly indicated and labelled on the plan(s). Consideration should be given to locating the staging area outside of the vegetation i.e., in existing cleared areas. Please update the plans with this information and resubmit as part of the detailed design process.

   Response: A tree inventory is provided in a separate document. A complete ELC of the study area is provided in the Terrestrial Existing Conditions Report. The report also includes details of Species at Risk reported along the route.

4. Tree Protection Table and Map: Staff note that much of the subject area qualifies as Significant Woodland. Staff trust that the Region of Halton staff has been circulated this EA submission for review and that they will be commenting on the interpretation and implementation of the Region's Official Plan.

   Response: The Natural Sciences team will conduct an additional review of the Regions Official Plan, and provide updates where warranted.

5. Aquatic and Bat Habitat Survey Memorandum: The Memorandum titled 'Aquatic and Bat Habitat Surveys for Proposed Channel Realignment of McCraney Creek North of Lakeshore Road to Rebecca Street' focusses on the crossing of McCraney Creek only (approximately 200 m section). What are the impacts of the roadway and intersection improvements for the remainder of the natural areas within the 6.2 km project footprint?

   Response: Please refer to the ESR and Terrestrial Existing Conditions Report completed for the entire length of the project.

6. Aquatic and Bat Habitat Survey Memorandum: Staff appreciate the consultant relaying the correspondence with the Ministry of Natural Resources and Forestry (MNRF) and we ask that we be included on future correspondence related to this project.

   Response: Noted

7. Aquatic and Bat Habitat Survey Memorandum: Given the late seasonality of the bat habitat surveys, staff recommend that the results obtained be verified by a follow-up survey during the appropriate field season.

   Response: Addition bat surveys can be completed during detail design when impact zones are refined.

8. Aquatic and Bat Habitat Survey Memorandum: Though, staff are supportive of the enhancement opportunities outlined in Sections 4.1 (Aquatic) and 4.2 (Terrestrial), the EA has not examined alternative methods of implementing the preferred solution, based on the existing environment, public and review agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects. Were alternatives to the replacement structure for the McCraney Creek crossing considered? What were the selected mitigation methods to reduce or eliminate environmental effects?

   Response: The alternative assessment has been provided in the ESR.

9. Aquatic and Bat Habitat Survey Memorandum: Staff acknowledge that there are four trees that may be suitable for bat maternity roosting. For ease of review, please ensure that the tree tag number in this memo corresponds to the tree number and tag number presented in the Tree Protection Table and Map so that we can be mindful of site access, stockpiling and all other indirect potential impacts of the proposed works.

   Response: Upon review, the tag numbers are consistent between the memo, table and map. Does CH request a specific note on the map or dot colour specific to the fourteen trees representing potential bat roosting trees?

10. Aquatic and Bat Habitat Survey Memorandum: No species at risk were identified for the development of the EA, but no surveys were conducted for this purpose. Staff recommend that a screening of the site be conducted prior to detailed design to confirm that there are no new Species at Risk issues (i.e. bank swallows, bats, butternut trees etc.). Staff understand that Eastern Wood Pewee was not encountered on the field inventory; however, may be present due to the suitability of the habitat. Staff recommend that the study team monitor the status of the species of special concern, if this species is eventually assessed as Threatened or Endangered, the definition of its habitat may be revised, potentially affecting the proposed works.

    Response: Please see supporting terrestrial and aquatic reports for the entire project area. The details in these reports should provide sufficient information to the questions provided.

11. General: Staff propose that the project footprint may qualify as candidate significant wildlife habitat for a number of categories. Bronte, McCraney and Fourteen Mile Creeks are all located within 3.25 km of Lake Ontario and meet the size requirements for migratory landbird stopover area. Staff understand that a large number of ash trees have been removed, which has likely resulted in a decrease of the habitat quality. Given that a breeding bird survey was not conducted to confirm these conclusions, staff recommend that the proposed works be considered with respect to potential enhancements and restoration opportunities that serve these habitat features. For example, appropriate mitigation measures such as enhanced plantings, bat boxes and extensive plantings be incorporated into the design to mitigate against any further impacts to this already impacted habitat community.

    Response: Please see terrestrial existing conditions reporting for the entire project area.

12. General: Staff recommend that additional mitigation measures to offset the impacts be discussed to enhance and restore the surrounding natural environment where possible.

    Response: Please see terrestrial existing conditions reporting for the entire project area.

If you have questions or comments on the responses, please let us know.

Sincerely,

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited

Per: Steve Chipps, P.Eng.
Associate, Water Resources

Per: Neal Smith, C.E.T.
Senior Technologist, Transportation

SC/NS/kf

cc: Syed Rizvi, Town of Oakville
Rita Juliao, Town of Oakville
Kristina Parker, Town of Oakville

Conservation Halton

905.336.1158
Fax: 905.336.7014
2596 Britannia Road West
Burlington, Ontario L7P 0G3
conservationhalton.ca

Protecting the Natural Environment from Lake to Escarpment

May 17, 2018

BY MAIL AND EMAIL

Syed Rizvi
Engineering and Construction
Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

Dear Mr. Rizvi:

Re: Lakeshore Road West Improvements (Mississauga St to Dorval Drive) - EA Class Environmental Assessment
Town of Oakville
CH File: MPR 703

Conservation Halton (CH) staff received the following document for review;

- *'Lakeshore Road West Improvements (Mississauga Street to Dorval Drive) EA, Municipal Class Environmental Assessment, Environmental Study Report, Final Draft'*; dated April, 2018; prepared by Wood- Amec foster wheeler; received by CH on April 27, 2018;
- *'Assessment Table – Alternatives for the McCraney Creek crossing'*, prepared by Wood - Amec foster wheeler; received by CH on May 1st, 2018;
- Wood response letter to CH comments of April 20, 2018*:' Lakeshore Road West Improvements (Mississauga St to Dorval Drive) Class Environmental Assessment, Town of Oakville,'* dated and received May 4, 2018.

Staff have had the opportunity to review the documents and offer the key comments below. Additional detailed comments are provided in the attached Appendix A. Please note that the comments provided in the appendix follow the same numbering system as per our previous comments of April 20, 2018.

Key Comments:

1. Thank you for providing the draft Environmental Study Report (ESR) for our review. Staff appreciate that some of the comments in our April 2018 letter have been addressed. We note that comments #1 – 8 in Appendix A were not addressed in the draft report, however staff acknowledge the commitment provided by Town staff that the CH comments will be addressed in the final ESR or at the EA detail design stage accordingly.

We also note that it is acknowledged in the ESR (Table 6.5, Section 6.2.9, page 78) that a permit pursuant to Ontario regulation 162/02 from Conservation Halton will be obtained for works within CH regulated.

2. This comment relates to previous key comment # 2 and also comment # 8 in Appendix A. Based on the new information provided in Wood's letter of May 4, 2018, CH staff has no objection to the Town proceeding with filing of the EA document. As noted in the response letter, the revised hydraulic analysis has resulted in the elimination of the majority of water surface elevation increases; though, the analysis still indicates a 0.01 m increase at hydraulic cross section 651.4387 and 0.02m increase at hydraulic cross section 667.8976. It is noted in wood's letter that through further model refinement at detailed design, it is expected that flood elevation differences may be further reduced.
Staff recommend that the final EA document include the results of the most recent modelling and address report updates and other detailed comments that have been committed to in the Wood's response letter. At the time of detailed design, Conservation Halton will require the updated analysis to demonstrate that the proposed crossing and channel modifications will not result in any real increased risk (due to flooding or erosion) to adjacent private property.

Recommendation:

Conservation Halton staff have no object to the Town filing this Environment Assessment project. Staff note that the Town of Oakville staff and consultants (Wood) have committed to addressing CH's comments as appropriate, either prior to filing of the final EA document or at the detail design stage.

We kindly request that when making a resubmission of the final Environmental Study Report (ESR), 2 hard copies and a digital copy of the document are provided along with a letter or matrix responding to the comments provided.

We trust these comments are of assistance. Should you have any questions, please contact me at extension 2266.

Yours truly,

Leah Chishimba MAES.
Environmental Planner

cc: Kristina Parker, Town of Oakville
Neal Smith, Wood PLC

APPENDIX A: DETAILED COMMENTS

Conservation Halton Regulation (Ontario Regulation 162/06):

Appendix A Detailed Comments # 1- 8 – were not addressed in the draft ESR as part of this submission.

1. Comments # 1 – 7 were provided to clarify the provided analysis and documentation provided. While Wood has indicated that report text will be updated to address many of the above comments, an updated report has not yet been received. Conservation Halton requests that the text in the ESR be updated prior to filing of the Environmental Assessment.

2. Previous comment # 8: Please refer to key comment # 2 in the cover letter. Staff appreciate the additional information provided related to the hydraulic analysis. We recommend that the ESR be updated to include the results of the modelling and address the comments that have been committed to in the Wood's response letter.

Conservation Halton Advisory Comments under MOU

1. CH staff reiterates the suggestion that LID measures be designed to mitigate thermal impacts at all crossings and not just Fourteen Mile Creek. If the Town staff is amenable to this suggestion, we recommend that a commitment to this regard be included in the Commitments Table for this EA.

2. Response Noted. For future EAs, we recommend CH staff be involvement in Phases 2 and 3, especially the identification of the various alternatives and discussion of the criteria to evaluate those alternatives

3. Comment partially addressed. Please note that any species greater than 15 cm DBH in CH's regulated area impacted by the work beyond the McCraney Creek crossing will also need to be inventoried through the permit process. Please add this to a Commitment Table.

4. Comment addressed.

5. Staff agree with the recommendation in the Terrestrial Existing Conditions Report (completed for the entire length of the project) that confirmation of habitat use within the SWH should be conducted at the detailed design stage of the Project to support the effects assessment and the development of environmental protection measures consistent with the municipal, regional, and provincial regulations. CH staff request that this be included to the Commitment Table.

   We also agree with the recommendation in the Aquatic Existing Conditions Report (completed for the entire length of the project), that correspondence with the Town, their consultants, the Ministry of Natural Resources and Forestry (MNRF) and CH continue to provide necessary protection of these areas. This report also recommends that during the Detailed Design phase, a comprehensive assessment of potential impacts should be

undertaken and site-specific mitigation measures developed. CH staff agree and it is requested that this be added to the Commitment Table.

We also agree with the recommendations regarding enhancement opportunities for fish passage and water quality for the McCraney Creek crossing, as discussed in Section 3.2.4.4. of the Aquatic Existing Conditions Report and request that they be added to the Commitment Table as well.

6. Comment addressed.

7. CH staff agrees with the consultant's recommendation and request that these surveys be added to the Commitment Table.

8. Comments # 8 – 10 have been addressed.

wood.

Ministry of the Environment, Conservation and Parks

Ministry of the Environment and Climate Change

Central Region
Technical Support Section

5775 Yonge Street, 8th Floor
North York, OntarioM2M 4J1

Tel.: (416) 326-6700
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Ministère de l'Environnment et de l'Action en Matière de Changement Climatique

Région du Centre
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Ontario

February 8, 2017 File No.: EA 01-06-05

Syed Rizvi, M.Sc., P.Eng.
Transportation Engineer
Town of Oakville
syed.rivzi@oakville.ca

Re: **Lakeshore Road West Improvements (Mississauga Street to Dorval Drive)**
Town of Oakville
Schedule C Municipal Class Environmental Assessment
Response to Notice of Commencement

Dear Mr Rivzi:

This letter acknowledges that the Town of Oakville has initiated a Schedule C project under the Municipal Engineers Association's Municipal Class Environmental Assessment (Class EA) for improvements to the Lakeshore Road West Corridor. The improvements are required to meet the needs of the Town to the year 2031 and the Town will consider a wide range of options to satisfy travel demand within the Lakeshore Road West Corridor and within the study area.

The attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please identify the areas of interest which are applicable to your project and ensure they are addressed. Proponents who address all of the applicable areas of interest can minimize potential delays to their project schedule.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

Your proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to your proposed project**, the MOECC is delegating the procedural aspects of rights-based consultation to you through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information you have provided to date and the Crown`s preliminary assessment you are required to consult with the following communities who have been identified as potentially affected by your proposed project:

- Six Nations of the Grand River
- Mississaugas of the New Credit First Nation
- Haudenosaunee Confederacy Chiefs Council

Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process" which can be found at the following link: https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process

Additional information related to Ontario's Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments

Please also refer to the document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information.

You must contact the Director of Environmental Approvals Branch under the following circumstances subsequent to initial discussions with the communities identified by MOECC:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation has reached an impasse
- A Part II Order request or elevation request is expected

The Director of the Environmental Approvals Branch can be notified either by email with the subject line "Potential Duty to Consult" to EAASIBgen@ontario.ca or by mail or fax at the address provided below:

Email:	EAASIBGen@ontario.ca Subject: Potential Duty to Consult
Fax:	416-314-8452
Address:	Environmental Approvals Branch 135 St. Clair Avenue West, 1st Floor Toronto, ON, M4V 1P5

The MOECC will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play in them.

A draft copy of the Environmental Study Report (ESR) should be sent to this office prior to the filing of the final report, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments. Please also forward the Notice of Completion and final ESR to me when completed.

Should you or any members of your project team have any questions regarding the material above, please contact me at (416) 326-3577 or by email at trevor.bell@ontario.ca.

Sincerely,

Trevor Bell
Environmental Resource Planner and EA Coordinator

Air, Pesticides and Environmental Planning
Central Region Technical Support Section
Ministry of the Environment and Climate Change

c. B. Felker, Senior Environmental Planner, Amec Foster Wheeler
M. K. Kelly, Senior Consultant – Human Environment, Amec Foster Wheeler
P. Martin, Supervisor, APEP, Central Region, MOECC
T. Webb, Manager (A), Halton Peel District Office, MOECC
Central Region EA File
A & P File

AREAS OF INTEREST

It is suggested that you check off each applicable area after you have considered / addressed it.

☐ Source Water Protection (all projects)

The Clean Water Act, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include are Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- As part of the project, the proponent should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed, whether there were any source protection plan policies that applied, and if so, how they impacted the project, as well as identify mitigating measures to address any negative environmental impacts to those sources (considering natural, economic and social/cultural environmental impacts). As you may be aware, in October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. Given this requirement, the proponent should include a section in the Project File/ESR on source water protection.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents should contact the Project Manager for Drinking Water Source Protection at the local source protection authority (i.e., conservation authority).

More Information

For more information on the Clean Water Act, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario's website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the Clean Water Act. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional "local" threat activities, as approved by the MOECC.

Ecosystem Protection and Restoration

- Any impacts to ecosystem form and function must be avoided where possible. The Project File/ESR should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:

    - Areas of Natural and Scientific Interest (ANSIs)
    - Rare Species of flora or fauna
    - Watercourses
    - Wetlands
    - Woodlots

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

Surface Water

- The ESR must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

- Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the Project File/ESR and utilized when designing stormwater control methods. We recommend that a Stormwater Management Plan should be prepared as part of the Class EA process that includes:

    - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
    - Watershed information, drainage conditions, and other relevant background information
    - Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
    - Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the Ontario Water Resources Act (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the Project File/ESR should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

Groundwater

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the ESR.

- If the potential construction or decommissioning of water wells is identified as an issue, the Project File/ESR should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the ESR. In particular, a Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 litres per day.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, an air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization, a quantification of air quality impacts by determining emission rates and conducting dispersion modelling, and an assessment of effects. The assessment will compare to all available standards for any contaminants of concern. Please contact this office during the scoping process to confirm the appropriate level of assessment.

- Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.

- The ESR should consider the potential impacts of increased noise levels during the operation of the undertaking due to potentially higher traffic volumes resulting from this project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Servicing and Facilities

- Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with the Environmental Approvals Access and Service Integration Branch (EAASIB) to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's "D-Series" guidelines – Land Use Compatibility to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

Contaminated Soils

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with *Part XV.1 of the Environmental Protection Act* (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the ministry's District Offices for further consultation if contaminated sites are present.

- Any current or historical waste disposal sites should be identified in the ESR. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites.

- The location of any underground storage tanks should be investigated in the ESR. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry's Spills Action Centre must be contacted in such an event.

- The ESR should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

Mitigation and Monitoring

- Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- All waste generated during construction must be disposed of in accordance with ministry requirements.

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the ESR and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly. The proponent's construction and post-construction monitoring plans should be documented in the ESR.

Planning and Policy

- Parts of the study area may be subject to the Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Greenbelt Plan, Lake Simcoe Protection Plan, or Growth Plan for the Greater Golden Horseshoe. The ESR should demonstrate how the proposed study adheres to the relevant policies in these plans.

- The Provincial Policy Statement (2014) contains policies that protect Ontario's natural heritage and water resources, including designated vulnerable areas mapped in source water protection assessment reports under the *Clean Water Act* (CWA). Applicable policies should be referenced in the ESR, and the proponent should demonstrate how this proposed project is consistent with these policies. Assessment reports can be found on the Conservation Ontario website at: http://www.conservation-ontario.on.ca/uncategorised/143-otherswpregionsindex.

Class EA Process

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. The Master Plan should clearly indicate the selected approach for conducting the plan, in particular by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the *Environmental Assessment Act* (EAA), although the plan itself would not be.

- The ESR should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making. The ESR must also demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all public consultation efforts undertaken during the planning process. Additionally, the ESR should identify all concerns that were raised and how they have been addressed throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The ESR should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the Project File.

- Please include in the ESR a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including MOECC's PTTW and ECAs, conservation authority permits, and approval under the *Canadian Environmental Assessment Act* (CEAA).

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy under the publications link. We encourage you to review all the available guides and to reference any relevant information in the ESR.