Blatchford Bridge NO. B032085
Environmental Assessment Project File Report

County of Wellington
Township of Guelph/ Eramosa, Township of Puslinch
Wellington Road 32
August 2026



Prepared for:
County of Wellington

GFT

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1. INTRODUCTION

1.1. Background

Blatchford Bridge (No. B032085) carries two lanes of traffic on Wellington Road 32 over the Speed River. The structure is considered to be in a North-South direction and is located on the border of the Township of Guelph/Eramosa and Township of Puslinch, 0.8 km South of Wellington Road 124. The Study Area extends approximately 0.5 km around the bridge in all directions. A Key Plan of the Study Area is shown in **Appendix A**.

Blatchford Bridge was constructed in 1949 and is a single span half-through (pony) steel truss structure with an exposed concrete deck. The current bridge has a span of 31.7m and a deck width of 7.7 m. During a recent inspection, the structure was found to be in poor condition with major elements showing signs of significant deterioration. Specifically, there are several significant deficiencies located on the structures' bottom chords, vertical and diagonal truss members, railings, barriers, and bearings. The County of Wellington initiated this Municipal Class Environmental Assessment Study (Class EA Study) in May 2024 to document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

1.2. The Environmental Assessment Act

The Municipal Class Environmental Assessment (EA) Process is an approved decision-making framework in accordance with the Ontario Environmental Assessment Act (EAA) which sets out a standardized planning process for various projects.

The Class EA process provides a self-assessing procedure by which a group or "class" of undertakings can be planned and implemented in a way that fulfills the requirements of the EA Act without proponents having to prepare an individual environmental assessment for approval. In other words, these undertakings do not require formal submission to the Ministry of the Environment for approval. Upon completion of the appropriate process, the undertaking is considered approved.

Since the initiation of the Study, the Ontario Ministry of the Environment, Conservation and Parks (MECP) implemented amendments to the Municipal Class Environmental Assessment (MCEA) in February 2024, to align with the EAA. These amendments aim to streamline the environmental assessment process for municipal infrastructure projects, providing greater clarity and efficiency while maintaining environmental protection standards.'

This Study is being completed in accordance with the Municipal Class Environmental Assessment (2023
The Class EA recognizes that certain undertakings require greater or lesser degrees of assessment, depending on the nature of the work, the estimated cost and the potential impacts on the environment (this refers to all aspects of the environment including natural, social, economic, cultural, and technical). Four categories or "Schedules" of undertakings are defined in the Class EA:

- **Schedule A:** Includes normal or emergency operational and maintenance activities. Environmental effects of these activities are usually minimal. These undertakings are considered approved without the need for any further assessment.
- **Schedule A^{+}:** Introduced in 2007, these projects are also pre-approved. The public is to be advised prior to the implementation of the project.
- **Schedule B:** When the potential for adverse environmental effects exists. This includes improvements and minor expansions of existing facilities. The proponent is required to proceed through a screening process including consultation with those who may be affected by the project.

- **Schedule C:** Includes the construction of new facilities and major expansions to existing facilities. These undertakings have the potential for greater adverse environmental effects and must follow the planning and consultation process outlined in the Class EA.

This project, as outlined in the Municipal Class Environmental Assessment document, has been identified as a Schedule B undertaking since it entails the following,

"Reconstruction or alteration of a structure or the grading adjacent to it when the structure is over 40 years old, where the proposed work will alter the basic structural system, overall configuration or appearance of the structure."

For Municipal road projects, categorized as Schedule B projects, the proponent must complete Phases 1 and 2 as shown on the Planning and Design Process flow chart (see **Appendix B**). The steps of each of these two Phases are identified below:

- **Phase 1:**
  - Identify the problems and opportunities;
  - Discretionary public consultation to review problem.
- **Phase 2:**
  - Identify alternative solutions to the problem;
  - Identify impact of alternatives on the environment;
  - Evaluate alternative solutions, identifying a recommended solution;
  - Consult with review agencies and public;
  - Select preferred solution to problem;
  - Review and confirm selection of the EA Schedule.

Throughout, the proponent is to contact relevant agencies and affected members of the public to identify and attempt to resolve concerns and issues regarding the project before final decisions are made.
For further information on the Municipal Class EA process, readers are referred to the October 2000, as amended in 2007, 2011, and 2015, Municipal Class EA document.

For further information regarding this Class EA Study, please contact either of the project team members below:

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GFT Infrastructure Canada Inc.
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Toronto, ON M5C 2V9T (437) 253-9279
Email: wvanruyven@gftinc.com

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74 Woolwich Street
Guelph ON N1H 3T9
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1.3. Project File Report (PFR)

The Municipal Class EA document stresses the importance of documenting the planning and design process followed in developing a Schedule B project. This allows for traceability. At the end of Phase 2, the formal planning for the project is considered complete. Thereafter, the process of Phase 1 and 2 is finalized and a Notice of Completion is issued.

This Project File Report (PFR) has been prepared to document the Class EA process per the requirements of a Schedule B project. It provides problems & opportunities to be addressed, the existing conditions of the Study

Area, development and evaluation of Alternative Solutions, identification of the Preferred Solution, potential impacts of the Preferred Solution, mitigation measures, monitoring, future work requirements and commitments.

This PFR is being made available for public review beginning in September 2026, and for a period of 30 calendar days. A Notice of Completion identifying the start date of the public review period has been issued on the County's website at [Link], [on social media platforms, sent to local residents, stakeholders, technical agencies, Indigenous Communities] and others interested in the project per the project mailing list included within Appendix G. During the review period, copies of the PFR are available for review at the following location:

- Project website link: www.wellington.ca/BlatchfordEA

1.4. Section 16 Order

If concerns regarding a project cannot be resolved in discussions with the proponent (for this study, the proponent is the County of Wellington), the Municipal Class EA process does include an appeal mechanism. Under the Municipal Class EA, members of the public, interest groups, agencies, and other stakeholders may submit a written request to the Minister of the Environment, Conservation and Parks to require the proponent (the County of Wellington) to comply with Section 16 of the *Environmental Assessment Act* before proceeding with the proposed undertaking (Section 16 Order).

Written requests for a Section 16 Order must be submitted to the Minister within the 30-calendar day review period after the proponent has issued the Notice of Completion. Requests after the 30-calendar day review period will not be considered.

The Minister of the Environment can be contacted as follows:

Minister
Ministry of the Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
Minister.mecp@ontario.ca

Copies of the request must also be sent to the Director of the Environmental Approvals Branch at the Ministry of the Environment, Conservation and Parks at the address below:

Director
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto ON M4V 1P5
EABDirector@ontario.ca

The decision on whether a Section 16 Order is appropriate or necessary rests with the Minister of the Environment, Conservation and Parks. If no Section 16 Order requests are outstanding by the end of the 30 calendar-day review period, the project is considered to have met the requirements of the Class EA, and the County may proceed to subsequent phases of design and construction subject to meeting any commitments documented in this PFR and obtaining the necessary environmental approvals.

Any request made, should also be submitted to the project contacts at the time of submitting an Order request to the Ministry. For further information regarding Section 16 Order requests, including specific submission requirements, please go to: https://www.ontario.ca/page/class-environmental-assessments-section-16-order.

1.5. Project Team

This Class Environmental Assessment Study was managed by GFT, consulting engineers to the County of Wellington. A team of consultant specialists and their associated roles included:

Table 1: Project Team.

Specialist	Role
GFT Infrastructure Canada Inc.	➢ Project Management ➢ EA Process ➢ Civil Engineering (Road, Utilities, Drainage, Structural etc.)
Archaeological Services Inc. (ASI)	➢ Stage 1 & 2 Archaeological Assessment ➢ Cultural Heritage Evaluation ➢ Heritage Impact Assessment
Aboud and Associates	➢ Natural Environment
Callon Dietz	➢ Topographic Survey, Legal Survey

2. PROBLEM AND OPPORTUNITY STATEMENT

Phase 1 of the Class EA process involves the defining of the specific problem and related opportunities for Blatchford Bridge. Upon assessment of the existing structure and an overview of the area features, the problem being addressed is described as follows:

- The bridge is in an advanced state of deterioration;
- The bridge has deficient barrier protection and railings due to impact damage;
- The bridge is posted with a load limit;
- The bridge has narrow shoulders and has substandard roadway width;
- The bridge has required emergency repairs and has a holding strategy.

In general, there are major elements of the Blatchford Bridge that are in an advanced state of deterioration and are approaching the end of their useful service life. These components are in need of maintenance, rehabilitation and/or replacement. In addition, there are several functional/operational deficiencies including substandard roadway width, posted load limit and sub-standard barrier protection and guide rail protection.

The cost of maintaining the current bridge under a rehabilitation approach may meet or exceed the cost of replacement options. The County of Wellington has therefore initiated this Schedule B Class EA Study to define the most appropriate bridge management strategy to carry forward.

3. EXISTING CONDITIONS

3.1. Wellington Road 32

Wellington Road 32 is classified as an arterial road and is considered to be in a North-South alignment with two paved lanes that travel over the Speed River. Wellington Road 32 extends south of Highway 401, near Cambridge and continues until it intersects with Highway 7, northeast of Mosborough.

Immediately around the structure, Wellington Road 32 is orientated in a northwest to southeast direction with the roadway curving into a North-South alignment southeast of the structure. Laird Road West and Wellington Road 124 are the closest intersecting roadways. They intersect Wellington Road 32, 650 m to the south of the structure and 600 m to the north of the structure, respectively.

Blatchford Bridge is located on Wellington Road 32, with a lane and narrow shoulder in each direction. The roadway has a posted speed limit of 60 km/h over the structure limits. The 2022 annual average daily traffic (AADT) in the vicinity of the Blatchford Bridge was approximately 7,219 vehicles/ day.

3.2. Bridge Structure

The Blatchford Bridge was constructed circa 1949 and is classified as a single 31.7 m long span half-through (pony) steel truss structure carrying two lanes of traffic. It is considered to have a North-South alignment. The overall structure is 8.11 m wide center-to-center of truss, and the total depth of the truss is 3.66 m. The roadway over the structure consists of two 3.5 m lanes in each direction with 0.22 m shoulders on each side. There are 150 mm wide concrete curbs on each side of the deck slab, in between the steel trusses. There is no sidewalk on the structure, however, the Speed River Trail is noted to cross over the structure.

It is known that Blatchford Bridge has undergone two rehabilitations. The first known rehabilitation occurred in 1992, when the structure was 43 years old. This involved the replacement of the deck, cleaning and coating of the structural steel, installation of new expansion joints, and rock protection. The second known rehabilitation took place in 2010, when the structure was 61 years old and included the partial replacement of NW and SE bottom chord ends, the partial replacement of diagonal members at four locations, and the partial replacement of the lattice railing. Currently, the bridge is 102 years old and has a posted load limit of 25 t – 37 t – 47 t.

Two site investigations have occurred in the last two years and the existing bridge is generally in fair condition with a number of key elements in poor condition. A detailed visual inspection was completed for Blatchford Bridge in June 2022 and a biennial OSIM inspection occurred in July 2025.

The bottom chords of the truss were in poor condition and exhibited severe corrosion and flaking of structural steel coating. Full depth perforations were identified around all corners of the chords and on connection plates. Corrosion is also typical throughout. It is also noted that emergency repairs were completed to address full depth perforations on the northeast and southwest bottom chords in 2025 and 2026, respectively.

The vertical and diagonal truss members are I-beam members that are exposed to corrosion at connection plates and bracing panel members. Impact damage is also present at the several diagonal members.

The traffic barriers and railing consist of steel posts and lattices. The lattices railings are in poor condition with missing panels and impact damage. This element is also exposed to corrosion in over 50% of its surface area.

Abutment walls and wingwalls exhibit signs of deterioration with delamination, efflorescence, spalls, scaling, and cracks present.

3.3. Land Use

Between 124 and Laird Road, Wellington Road 32 is classified as an arterial road, with a posted speed limit of 60 km/h. The existing land use along Wellington Road 32 is prime agricultural with a mix of rural residences and commercial operations at its intersection with Wellington Road 124. In 2021, a Road Master Action Plan for the County of Wellington was completed. This study contained no recommendations for Wellington Road 32 within the limits of Blatchford Bridge.

The bridge is located within the Speed River Provincially Significant Wetland (PSW) complex, Waterfowl Winter Concentration Area, and White-tailed Deer Wintering Area (Stratum II). Furthermore, the lands buffering the Speed River are classified as Core Greenlands and Greenlands per Schedule B3 and B7 of the Wellington County Official Plan. The Speed River is the most prominent natural feature in the Study Area.

3.4. Cultural Heritage

A Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) were completed by Archaeological Services Incorporated (ASI) for the Blatchford Bridge (appendices E and F). The CHER was required as the structure was constructed before 1956. The CHER summarizes the historical and cultural background of the subject bridge in accordance with the criteria in Ontario Regulation 9/06 of the Ontario Heritage Act (OHA). These criteria were developed for the purpose of identifying and evaluating the cultural heritage value or interest of a property. The following summarizes the key findings of the CHER:

- The Blatchford Bridge is not recognized as a known heritage resource or potential heritage property by the municipality, region, county, province, or federal government (i.e. Ontario Heritage Bridge List). However, the subject bridge is identified as a heritage bridge in "Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory" and the Speed River, which runs underneath the subject bridge, is recognized as a Canadian Heritage River.
- Blatchford Bridge was determined to have design/ physical value, historical/ associative value, and contextual value in accordance with Ontario Regulation 9/06 criteria. Some of these key values include, but are not limited to the following details:
    - Design/ Physical Value:
        - The structure is a rare, unique, representative or early example of a style, type, expression, material or construction method. This bridge meets this criterion because it is the only remaining half-through truss structure in the Townships of Guelph/ Eramosa and Puslinch.
    - Historical/ Associative Value:
        - The structure has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community. This bridge meets this criterion because it was designed by W.H. Keith, Wellington County Engineer who led the repair and replacement of numerous notable bridges in the Wellington County.
        - The structure demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community. This bridge meets this criterion because as previously stated, it was designed by W.H. Keith who is significant to the community for his contributions to bridge repair and replacements in the mid-twentieth century.
    - Contextual Value:
        - The structure does not meet any criterion related to contextual value.

Based on the above mentioned values, the CHER determined that Blatchford bridge has cultural value or interest at a local level. Specifically, the subject bridge is a good representative of a half-through truss bridge in the local context and is historically linked to an engineer of local importance.

The completed CHER determined that Blatchford Bridge warrants further heritage consideration and recommended the completion of a Heritage Impact Assessment (HIA) to assess potential effects on the bridge's heritage attributes and identify suitable mitigation strategies.

The HIA outlined that replacement of the existing structure with modern concrete designs would have significant negative impacts to the cultural heritage of the bridge. The following findings and mitigation measures were identified for consideration if the bridge is replaced with a reinforced precast concrete girder structure:

- Impact on Heritage Attributes:
  - The proposed bridge replacement will result in direct, permanent, and non-reversible impacts to the identified heritage attributes of the existing bridge.
- Replacement Bridge Design:
  - A sympathetically designed replacement bridge is preferred to minimize impacts on historical, associative, and contextual values.
  - Consideration should be given to incorporating visual elements reminiscent of the existing half-through truss design, such as geometric patterns into the concrete barriers or lattice-like railings.
- Salvage and Commemoration:
  - Prior to removal, investigate the feasibility of relocating or salvaging structural elements of the existing bridge for adaptive re-use or commemorative purposes to reduce the negative cultural heritage impacts.
  - Consider salvaging select structural elements like truss panels or sections with riveted connections for incorporation into a commemorative interpretation.
  - Develop a commemorative installation featuring information panels and photographs of the 1949 bridge.
- Documentation:
  - Undertake documentation prior to construction activities to record existing conditions and facilitate potential future reversal of impacts.
- Positive Impacts:
  - The proposed intervention is anticipated to result in positive impacts, including improved functionality and safety of the crossing.
- Stakeholder Consultation:
  - Submit the report to relevant authorities and stakeholders for review and feedback.
  - Share the Cultural Heritage Evaluation Report and this report with heritage committees, Indigenous communities, and other interested parties.

Copies of the CHER and HIA were provided to the Ministry of Citizenship and Multiculturism (MCM)). Copies of CHER and HIA are provided in **Appendix E** and **Appendix F**.

3.5. Archaeology

A combined Stage 1 and 2 Archaeological Assessment was completed by ASI on Wellington Road 32, encompassing approximately 0.91 ha within the bridge corridor and existing road right-of-way. The Stage 2 assessment was conducted on June 26, 2024, in accordance with the *Ontario Heritage Act* and applicable archaeological standards.

The investigation determined that approximately 57% of the Study Area had been previously disturbed by construction activities and therefore did not require archaeological survey, while an additional 11% consisted of permanently wet, low-lying lands with low archaeological potential (**Figure 1**).

Approximately 11% of the Study Area is occupied by the Speed River, where any future impacts would require consideration of marine archaeological potential through a separate assessment process if warranted.

The remaining areas were assessed through judgmental test pit survey to confirm previous disturbance and evaluate archaeological potential. No archaeological resources, artifacts, or intact natural soil horizons were identified during the investigation, and no further archaeological assessment was recommended



Figure 1 Results of the Stage 1-2 Archaeological Assessment

If archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the MCM should be immediately notified.
A copy of the Stage 1 and 2 Archaeological Assessment report was provided to MCM.

3.6. Natural Environment

3.6.1. Approach

A Natural Environment investigation was completed by Aboud and Associates for the Blatchford Bridge. A of the Natural Environment Assessment Report is provided in **Appendix K**.

The study approach to document the existing conditions encompassed the collection and review of background information and completion of environmental field surveys. The background information reviewed included relevant natural environmental databases and documents such as the aerial photography of the site, Grand River Conservation Authority (GRCA) mapping of heritage features and regulation limits, Natural Heritage Information Center (NHIC) website, Ontario Butterfly and Breeding Bird Atlases, Species at Risk (SAR) mapping, as well as direct agency contract with the Ministry of Natural Resources (MNR), MECP, and the GRCA.

The existing conditions of the site are based on secondary source information gathered from government agencies and previous studies, in addition to field information collected in 2024.

The footprint of the proposed works is confined to the crossing area of the watercourse at this site (bridge replacement), therefore the survey generally followed recommendations from the MNR to survey for SAR plants and animals that could occur within the riparian habitat at the bridge site, and for SAR animals that can utilize these types of structures, such as Barn Swallow (which will nest in culverts and often under bridges) and reptiles (which can shelter in cracks and fissures).

The following environmental surveys / assessments were conducted on the following dates:

- Bat Maternity Habitat Survey (March 14, 2024)
- Woodpecker Nesting Cavity Survey (March 14, 2024)
- Significant Wildlife Habitat (SWH) Assessment (March 14, 2024, May 30, 2024, July 23, 2024)
- SAR Habitat Assessment (March 14, 2024, May 30, 2024, July 23, 2024)
- Spring Botanical Inventory (May 30, 2024)
- Ecological Land Classification (May 30, 2024)
- Breeding Bird Survey (June 4, 2024)
- Summer Botanical Inventory (June 18, 2024)
- Aquatic Habitat Assessment (July 23, 2024)

3.6.2. Physiography, Geology and Soils

The Study Area is located within the Speed River valley and is characterized by a combination of floodplain, wetland, and upland landforms associated with the local river system. The area contains Bottomland, Burford, and Granby soil types, which reflect varying drainage conditions across the site. Bottomland and Granby soils are typically found in low-lying floodplain and wetland environments and tend to be poorly drained, while Burford soils occur within upland areas and are generally better drained. These existing soil and physiographic conditions influence vegetation communities, wildlife habitat, drainage patterns, and the suitability of lands for construction activities.

3.6.3. Natural Heritage Features

Background information provided by the Ministry of Northern Development, Mines, Natural Resources, and Forestry, Guelph District and the (GRCA) supplemented by field investigations, confirmed that the Study Area is located within the Speed River Provincially Significant Wetland (PSW) Complex and contains several significant natural heritage features associated with the Speed River corridor. The area includes identified Waterfowl Winter Concentration Area habitat and a White-tailed Deer Wintering Area (Stratum II), reflecting its importance for wildlife. The GRCA further confirmed that the wetland complex within the study area consists of White Cedar Mineral Coniferous Swamp, Willow Mineral Deciduous Swamp, White Cedar-Hardwood Mineral Mixed Swamp, and Tamarack-Hardwood Mineral Mixed Swamp communities. Collectively, these features contribute important ecological functions, including wildlife habitat, flood attenuation, groundwater interactions, and landscape connectivity. The Speed River, classified as a warm-water watercourse, also provides aquatic habitat and supports at least nine documented fish species, further contributing to the ecological significance of the study area.

3.6.4. Vegetation Communities and Flora

3.6.4.1. Vegetation Communities

Vegetation communities within the Study Area were characterized through ELC field investigations. A total of eight vegetation communities were identified, consisting primarily of wetland and riparian habitats associated with the Speed River PSW Complex, as well as disturbed roadside and cultural meadow communities adjacent to Wellington Road 32 (**Figure 2**). The wetland communities were concentrated on both sides of the Speed River and included White Cedar Mineral Coniferous Swamp, Willow Mineral Deciduous Swamp, White Cedar-Hardwood Mineral Mixed Swamp, and Tamarack-Hardwood Mineral Mixed Swamp communities. The more disturbed and upland portions of the study area, primarily adjacent to the roadway approaches and bridge corridor, contained

cultural meadow, disturbed vegetation, and roadside communities. Collectively, these vegetation communities provide important ecological functions, including wildlife habitat, flood attenuation, shoreline stabilization, and ecological connectivity within the Speed River corridor. The predominance of wetland vegetation reflects the location of the study area within the PSW complex and contributes significantly to the ecological value of the surrounding natural heritage system.

3.6.4.2. Flora

Vegetation surveys documented a total of 87 vascular plant species within the Study Area, the majority of which were native species. The recorded plant communities were generally representative of the surrounding wetland, riparian, and disturbed roadside environments. No provincially rare, threatened, or endangered plant species were identified during the field.

3.6.4.3. Invasive Species

Several non-native and invasive plant species were observed within the study area, primarily within disturbed roadside and edge habitats. While invasive species were present, they did not dominate the wetland communities and were generally associated with areas that have experienced historical disturbance.

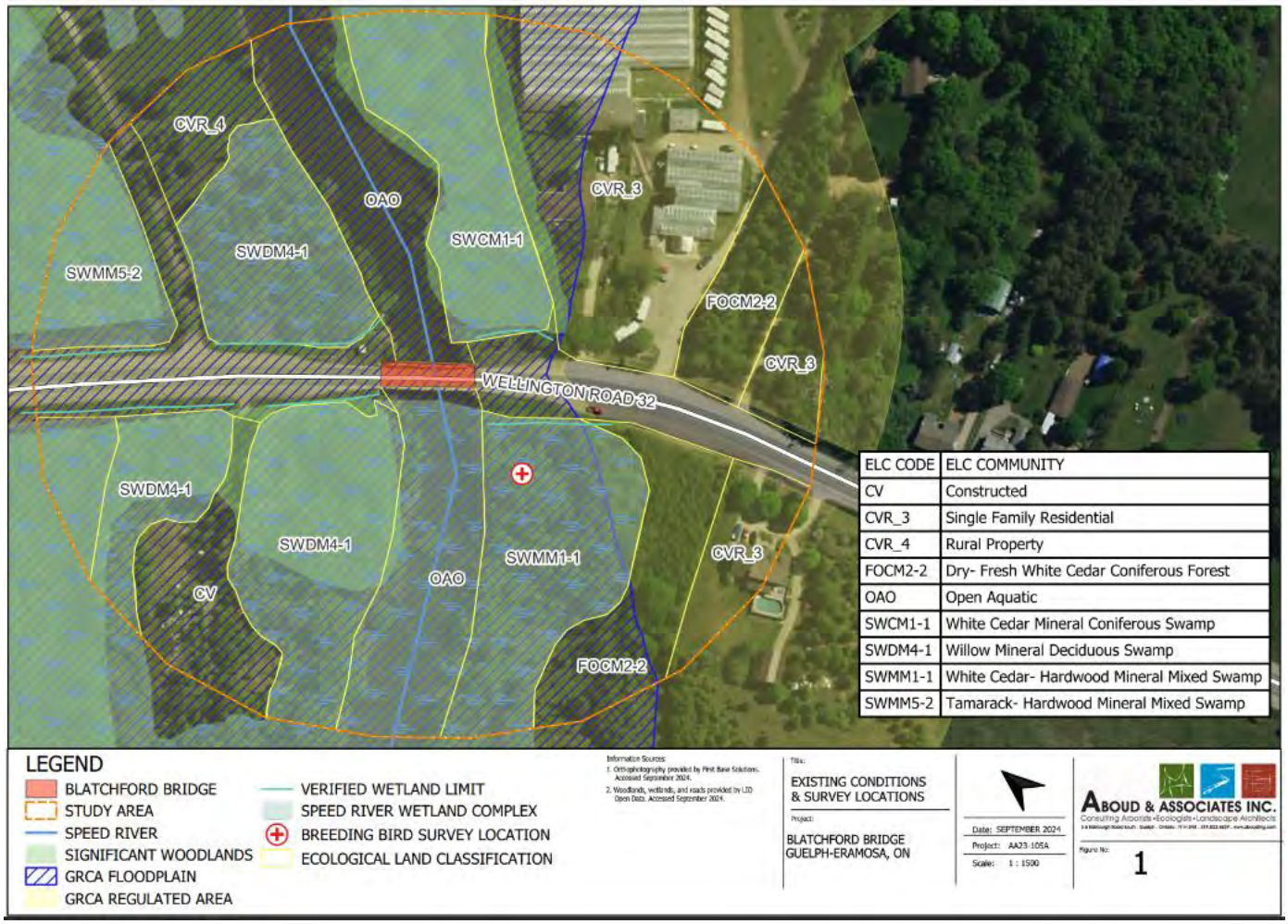


Figure 2 Vegetation Communities

3.6.4.4. Significant Botanical Features

The assessment included a review of available background information and field investigations to determine the presence of significant botanical features, including rare vegetation communities and Species at Risk plants. No provincially significant botanical features, rare plant communities, or Species at Risk plant species were identified within the Study Area. As a result, no significant botanical constraints were identified for the project from a vegetation perspective.

3.6.5. Wildlife

A Breeding Bird Survey (BBS) was conducted at the site and eight species of birds were detected during point counts. Of these species, six of them were presumed to be breeding (Eastern Kingbird, Chipping Sparrow, Song Sparrow, Red-winged Blackbird, Common Grackle, and Common Yellowthroat). It should be noted that the Eastern Kingbird is a GRCA Conservation Priority and a priority species for the Ontario Landbird Conservation Plan (OLCP). Furthermore, the Eastern Kingbird and Ring-Billed Gull are considered Significant in the Wellington County. No SAR birds were observed during the survey, as noted in the next section.

During the Bat Maternity Habitat Survey and the Woodpecker Nesting Cavity Survey, no trees demonstrating the characteristics of candidate bat maternity trees were identified near the bridge and no nesting cavities for either species were identified. Therefore, no additional studies are recommended.

SWH is present for both Deer Winter Congregation Areas and Waterfowl Winter Concentration Areas. Furthermore, Candidate SWH is present in the form of Habitat for Special Concern and Rare Wildlife Species and Turtle Wintering Area, as habitat for Midland Painted Turtle and Snapping Turtle is present in the Study Area. Although no individuals were identified during the investigations, the habitat downstream of the bridge is sand and silt dominated, which provides habitat for these species. Therefore, performing the work outside of the overwintering turtle window and minimizing disturbance to the watercourse will help to mitigate for effects to these species.

3.6.6. Species at Risk

Based on the background review and site assessment, candidate habitat for one SAR listed as threatened or endangered has the potential to occur within the Study Area. Blanding's Turtle are identified as occurring within Wellington County per the MNRF species occurrence mapping. As a result, nesting habitat and overland travel has the potential to occur within the Study Area. However, no records were found within any atlas or citizen science data within 10km of the Study Area, no individuals or nesting sites were observed during site visits, and critical habitat has not been identified within the Study Area per communication with agencies and background review. As a result, they are unlikely to occur within the project limits. However, due to their extensive movement through the ecosystem, Blanding's Turtles can be found anywhere within wetland and woodland habitats and appropriate avoidance mitigation is recommended, including the use of appropriate ESC fencing, installed prior to the turtle nesting season, to delineate the work area to eliminate any risks of Blanding's Turtle wandering inside the work area during seasonal overland movement.

3.6.7. Aquatic Habitat

The aquatic habitat assessment occurred on July 23, 2024, and took place up to 120 m upstream and downstream of the bridge. The Speed River was noted to have strong currents and a deep flow height (greater than 1 m) around the bridge which limited data collection. The river width in the vicinity of the bridge was estimated to be approximately 30 m.

There was evidence of erosion at the Southern bank of the river, downstream of the bridge. Substrates were variable, with cobble and boulder more prevalent on the southern side of the river downstream of the

bridge, and sand and bedrock being more prevalent along the northern bank. Soft sediments like silt and sand were prevalent around the bridge and immediately downstream of it. Submerged vegetation was present within sandy areas at the edge of the Study Area. Boulders were present on the southern bank of the river downstream of the bridge, and a small bar made up of cobbles and boulders was present in the centre of the river immediately upstream of the bridge. Vascular plants within the riparian area included Eastern White Cedar, Crack Willow, Riverbank Grape, Crack Willow, Goldenrod species, and Spotted Joe Pye Weed, and the banks were well vegetated. In-stream fallen tree trunks were present throughout the Study Area.

The substrates, vegetation, and natural debris present in the creek provide moderate habitat for fish species, as the site has highly heterogenous substrates and variable water depths, although in-stream cover and stream shading was low. Fish and crayfish were observed during the site visit.

3.7. Drainage & Hydrology

GFT completed a preliminary hydraulic assessment for the replacement of Blatchford Bridge. In accordance with WC-1 (MTO HDDS, 2023), the Design Flow for Blatchford Bridge is a 50-year storm event and the Check Flow shall be considered as 115% of 100-year storm event. Furthermore, the Regional flow of Blatchford Bridge corresponds to the Hurricane Hazel Stormo, as defined in the Flood Hazard Criteria Zones Map (MRNF, 2002). To evaluate the roadway overtopping and consequent relief flow, the larger of the Check Flow or Regional flow shall be considered. A 2-year return period will be utilized for the temporary drainage works.

GFT received an approved GRCA HEC-RAS model and used the provided flow data for the 2-year through 100-year design storms, as well as the Regulatory storm in the hydraulic assessment. The assessment evaluated the existing bridge and incorporated detailed cross-section data and steady flow analysis. Minor refinements to the model were undertaken within the vicinity of the crossing to reflect current site conditions. These updates included revisions to the upstream and downstream bridge cross-sections, roadway profile, soffit elevation, and bridge span length. It was found that the existing structure does not meet the minimum freeboard of 1.0 m, with no vertical clearance between the bridge soffit and the modeled high-water level under 50-year design storm. The existing structure is predicted to overtop the roadway under the Regional Storm event and does not comply with MRNF flood hazard criteria.

The proposed bridge was also evaluated using the approved GRCA HEC-RAS model and updated span, soffit elevations and clearances. It was found:

- The proposed structure does not meet the minimum freeboard of 1.0 m, with no vertical clearance between the bridge soffit and the modeled high-water level under 50-year design storm.
- The proposed structure is predicted to overtop the roadway under the Regional Storm event, and it does not comply with MRNF flood hazard criteria.
- The proposed structure has no negative impacts compared to the existing bridge, indicating no adverse impacts relative to current conditions.

Based on this evaluation, a sensitivity analysis was performed on the model to assess whether the hydraulic non-compliance identified for the proposed 37 m bridge is primarily driven by incoming flow and bridge-span constraints or by broader river system controls within the hydraulic model. This sensitivity analysis was undertaken using a substantially increased bridge span of 75 m. This span represents more than double the preliminary proposed bridge length and is not intended as a feasible design option, but rather as a diagnostic test to evaluate the influence of bridge opening size on hydraulic performance at the site. The results indicated that the bridge span size is not the controlling factor governing flow-through capacity at this location within the received model apparatus. It was found that water surface elevations are influenced by backwater impacts that limit the effectiveness of increasing bridge span alone as a mitigation measure.

Therefore, the existing structure does not meet the applicable MTO HDDS and MNRF hydraulic requirements and the preliminary proposed structure does not meet the design criteria; however, the proposed condition model results indicate minor improvements and no adverse hydraulic impacts compared to the existing conditions. Please refer to the Hydraulic Assessment (**Appendix D**) for the details related to hydraulic modelling.

3.8. Utilities

GFT reached out to multiple utility owners in the surrounding region and conducted field investigations of the site. The following are the concluding notes:

- Bell communication cables (100PR copper) are present along the East side of the truss for the duration of the bridge. It is anticipated that these will be impacted and temporarily supported during construction.
- Enbridge Gas does not have any existing infrastructure at Blatchford Bridge. The existing NPS 2 PE distribution gas main stops on either side of the bridge. Impacts are not anticipated.
- Hydro One overhead wires are present approximately 6.5 m East of the truss. These are not anticipated to conflict with the structure.
- A GRCA gauge station and hydro pedestal are on the Northeast embankment of the bridge. This is anticipated to conflict with the new structure grading and mitigation strategies such as a retaining wall are being considered to avoid relocation. This will be confirmed in the detailed design stage of the project.
- Rogers Communications confirmed an underground duct is present on the West side of the structure. The exact location will be confirmed in the detailed design stage of the project.

4. IDENTIFICATION AND EVALUATION OF ALTERNATIVE SOLUTIONS

Under Phase 2 of the Municipal Class Environmental Assessment process, all feasible and reasonable planning solutions to address the problems are to be considered. To address the poor conditions of Blatchford Bridge, the following solutions are being considered:

- **Do Nothing**: No improvements would be made to the structure. The structure would continue to be monitored / inspected. Through time, it is expected that load restrictions and eventually, bridge closure would occur as conditions worsen.
- **Bridge Rehabilitation**: Rehabilitation would include replacement of railings to meet modern standards, local repairs to curbs, soffit and substructure, full replacement of the deck and joints, superstructure repairs, coating of structural steel, repairs to erosion and scour at bridge abutments where necessary.
- **Bridge Replacement**: Replacement involves removal of the existing structure and construction of a new structure, at or close to the existing location. The proposed structure replacement type and construction / traffic staging methods would be verified upon completion of the study during the detailed design.

4.1. Assessment and Evaluation of Alternatives

The analysis and evaluation of the alternative solutions was based on a set of evaluation criteria, which is summarized in **Table 2**. The evaluation criteria are described as follows:

- Roadway Geometrics, including drainage, grades, horizontal curves.
- Transportation / Traffic Maintenance, including existing and future traffic operations, emergency vehicle access, flexibility for staged construction.
- Structural, including advanced state of deterioration, structural deficiencies, functional deficiencies, operational deficiencies, barrier deficiencies, guide rail deficiencies, number of spans/piers, span length(s), depth and width of fill at roadway approaches, embankment widening, and general safety concerns.
- Hydraulics, including hydraulic capacity and performance related to future design storms.

- Natural Environment, including direct and/or indirect impacts on watercourses, fisheries, aquatic habitat, terrestrial ecosystems, and shoreline habitat.
- Socio-Economic Environment, including direct and/or indirect impacts related to property, utility facilities, site contamination and noise.
- Cultural Environment, including impact on archaeology, built heritage and cultural landscape resources
- Cost Estimate, including property and construction costs.

Based on findings from the analysis and evaluation of Alternatives using the factors listed above, Alternative 3 (**Bridge Replacement**) has been identified as the preferred alternative solution. Design alternative(s) for the bridge replacement will be developed, reviewed, refined and then carried forward for detailed design and construction. Timing of the detailed design and construction of the new bridge will be subject to annual council review and funding availability.

Table 2: Evaluation of the Alternative Solutions.

Category	Do Nothing	Rehabilitation	Replacement
Transportation/ Traffic Maintenance	➢ No immediate changes ➢ Long term impacts would arise as travel would become limited or close, in the long-term due to deteriorating conditions of the bridge and likely eventual closure ➢ Does not address load posting or narrow width	➢ Some short-term traffic impacts during rehabilitation works (e.g. lane closures or temporary detours) ➢ Local and regional traffic may experience delays during rehabilitation works ➢ Does not address load posting or narrow width	➢ Maintains Bridge in its current location in the long-term ➢ Construction for bridge replacement would involve traffic management such as possible lane restrictions, road closures and temporary detours ➢ Local and regional traffic may experience delays during construction ➢ Long term improved safety and operation ➢ New bridge will be more durable and low maintenance design (no steel coating or main load carrying members exposed to traffic impacts)
Rank:			
Socio-Economic Environment	➢ No immediate changes to existing conditions; however, as structural conditions decline, significant socio-economic impacts would arise. There is potential for further load restrictions and the eventual closure of the bridge due to deteriorating conditions ➢ No impacts to utilities are anticipated ➢ No property impacts ➢ No impacts to accessing the Guelph to Cambridge hiking trail on the southwest embankment	➢ No impacts outside of existing right-of-way ➢ Temporary alteration of travel/ commuter routes and impact to adjacent/alternative route(s) during construction ➢ Temporary impact to local residents, commercial, industrial and agricultural businesses during rehabilitation construction ➢ No impacts to utilities are anticipated ➢ No property impacts ➢ Potential impacts to accessing the Guelph to Cambridge hiking trail	➢ Temporary alteration of travel / commuter routes and impact to adjacent / alternative route(s) during construction ➢ Temporary impact to nearby gravel pits and other local commercial, industrial and agricultural businesses during construction ➢ Noise and dust and other associated inconveniencies during construction ➢ Disruption to local businesses, farm operations and residences during construction ➢ Minor impacts to utilities are anticipated ➢ Potential property impacts ➢ Potential impacts to accessing the Guelph to Cambridge hiking trail
Rank:			

Category	Do Nothing	Rehabilitation	Replacement
Structural	➢ Structural conditions would worsen until more drastic measures would have to be taken such as additional bridge load reduction or closure in order to manage risk to the public ➢ Sub-standard barrier protection and guide rail protection not addressed ➢ Main load bearing components (steel trusses) are exposed to potential traffic impact damage ➢ Could eventually result in severe structural damage or even collapse	➢ Provides short term solution to structural deficiencies; however, does not ultimately address the limited design life and does not address design deficiencies ➢ Only defers but does not avoid eventual structure replacement ➢ Addresses failure of coating system ➢ Addresses failure of traffic barrier ➢ Main load bearing components (steel trusses) are exposed to potential traffic impact damage ➢ Could eventually result in severe structural damage or even collapse	➢ Provides a long-term solution to addresses all structural and design deficiencies of Blatchford Bridge ➢ Opportunity to consider rapid replacement techniques and other means of optimizing construction to manage impacts ➢ New bridge will be more durable and low maintenance design (no steel coating or main load carrying members exposed to traffic impacts) ➢ Provides traffic barriers that comply with current standards ➢ Addresses failure of traffic barrier ➢ Lifespan of new structure is 75 years
Rank:			
Cultural Environment	➢ No archaeological impacts ➢ No impacts to built heritage resources ➢ No impacts to cultural heritage resources	➢ Limited potential archaeological impacts ➢ Consistent with the principle of preservation of material to its highest integrity and would maintain some heritage attributes of the bridge.	➢ Limited potential archaeological impacts ➢ Demolition would result in the loss of bridge heritage attributes ➢ Impacts could be minimized if the new bridge retained its original location and adopted a design that draws from the materials and design inspiration of the current bridge while maintaining legibility (new work that is distinguishable from the old) ➢ Mitigation includes documentation and photographic recording prior to removal
Rank:			

Category	Do Nothing	Rehabilitation	Replacement
Natural Environment	➢ No immediate changes to existing conditions	➢ Potential for indirect impacts (e.g., debris and sediment release with rehabilitation works) can be managed using appropriate mitigation measures (e.g., proper erosion and sediment controls, use of in-water work and animal nesting timing windows). ➢ No permanent impacts on the aquatic habitat of the Speed River	➢ Temporary in-stream works and direct impacts associated with partial removal of existing abutments. Work zone can be isolated from river and the areas will be restored following construction with rock protection. ➢ Minor direct impacts to common roadside and riparian vegetation Areas to be restored following construction with ESC blankets. ➢ Minor direct impacts and potential indirect impacts can be managed using appropriate mitigation and restoration measures (e.g., proper ESC, use of timing windows for works). ➢ Eliminates of deck drains
Rank:			
Hydraulics	➢ Does not meet standards ➢ No changes to existing conditions	➢ Does not meet standards ➢ No changes to existing conditions	➢ Improves capacity, but may not be feasible to meet all standards.
Rank:			
Roadway Geometrics	➢ Substandard width not addressed	➢ Substandard width not addressed	➢ Improves sight distance ➢ Improves cross section to meet standards
Rank:			
Cost Estimate **Net present value of 50-year life cycle cost*	➢ No initial capital costs ➢ Ongoing costs for monitoring and inspections (these have potential to increase due to more frequent inspections required)	➢ Initial capital cost of 2.0 million ➢ Net present value of 3.6 million*	➢ Initial capital cost of 3.8 million ➢ Net present value of 3.7 million*
Rank:			

Alternative Planning Solution	Assessment Summary	Conclusion
Do Nothing	➢ Not a reasonable alternative because significant structural deficiencies would not be addressed. ➢ Would lead to increased load restrictions and eventually, road closure.	➢ Does not address the problem and is not considered an acceptable alternative. Therefore, this alternative is not recommended.
Rehabilitation	➢ Extensive and ongoing rehabilitation would be required. ➢ Rehabilitation would add limited additional service life to the bridge. ➢ Only defers/delays a longer-term solution (i.e. eventual bridge replacement)	➢ Addresses some of the structural deficiencies but would not address operational deficiencies. Therefore, this alternative is not recommended.
Replacement	➢ Existing bridge would be removed and new foundation / abutments would be installed. ➢ All design criteria would be met. ➢ Long term improved safety and operation. ➢ New bridge will be more durable with lower maintenance design. ➢ Traffic delays will occur over multiple construction seasons. Construction staging and traffic management can ease disruption. ➢ Rapid replacement to be considered in next study phase.	➢ Addresses the structural and functional deficiencies; a longer-term solution. ➢ This alternative is selected as the preliminary preferred alternative solution.

4.2. Recommended Solution

Based on this evaluation of alternative solutions in Table 2, the removal and replacement of the Blatchford Bridge has been identified as the recommended solution and will be further developed in the next phase of the study. The proposed bridge replacement shall consist of full removal of the existing structure to 500 mm below finished grade and replacement with a new 36.6 m single span concrete girder bridge supported on reinforced concrete abutments with driven steel H-piles. The total clear opening will be 35.6 m. The proposed bridge will support a 3.5 m wide lane and 2.5 m wide shoulder in each direction with an overall structure width of 13.0 m. The new bridge foundations and abutments will be constructed behind the existing in order to isolate the work from the river and minimize disturbance.

5. CONSULTATION

This section summarizes the consultation carried out during the Class Environmental Assessment process.

5.1. External Agencies

The following **Table 3** summarizes the external agencies contacted and their input. In addition to the agencies listed in the table below, the following stakeholders and government officials were kept informed of study progress:

- Property Owners within and around the Study Area.
- County of Wellington Councilors and relevant staff.
- Mayors for the Township of Puslinch and Guelph/ Eramosa and relevant staff.

Detailed mailing correspondence for all officials and external agencies contacted through this study can be found in **Appendix G**.

Table 3: Agency Contact Summary.

Agency/ Utility	Comment	Further Course of Action
Ministry of Environment, Conservation, and Parks (MECP)	Provided acknowledgment of EA and list of Indigenous Communities to be contacted who have been identified as potentially affected by the project. Comments documented in Appendix G.	
Ministry of Natural Resources and Forestry (MNRF)	No feedback received.	
Ministry of Heritage, Sport, Tourism and Cultural Industries	No feedback received.	
Ministry of Citizenship and Multiculturalism (MCM)	Expressed interest in ensuring archaeological resources, built heritage resources, and cultural heritage landscapes are considered.	Comments noted.
Six Nations of the Grand River	Expressed interest in the EA.	Project updates were shared.
Haudenosaunee Confederacy Chiefs Council	Expressed interest in the EA.	Project updates were shared.

Mississaugas of the Credit First Nation	No feedback received.	
Ontario Provincial Police (OPP)	No feedback received.	
Bell	Facilities identified within Study Area. Cable attached to east side of existing bridge. Comments documented in Appendix G.	Comments noted.
Wightman Telecom	No feedback received.	
Hydro One Networks	Facilities identified within Study Area. Overhead wires east of bridge. Comments documented in Appendix G.	
Rogers Communications	Facilities identified within Study Area. Duct present underground on west side of existing bridge. Comments documented in Appendix G.	
Enbridge	Gas facilities not present on bridge. Pipeline identified to terminate on both ends of bridge.	Removed from mailing list.
Cogeco	No feedback received.	
Grand River Conservation Authority (GRCA)	Discussions with GRCA regarding the flow at the bridge. GFT received the GRCA HEC-RAS model at the location of the bridge.	Comments/feedback noted and applied to the hydraulic analysis.

5.2. Public Involvement

5.2.1. Notice of Study Commencement

The Notice of Study Commencement was issued on May 30, 2024. Notices were sent to provincial and municipal agencies, as well as Indigenous Communities. Local residents were notified by mail and via posting on the County of Wellington website: www.wellington.ca/blatchfordEA. Several comments were received from agencies and members of the public and their request to be involved, or not, in the study were noted.

5.2.2. Online Public Information Centre

Based on the level of interest and nature of the EA Study, the Public Information Centre (PIC) was conducted online with a Public Information Package made available on the County's website for viewing and download starting on March 12, 2026 (URL as shown above).

The Notice of the Online PIC was sent to provincial and municipal agencies, as well as Indigenous Communities and those who requested to be on the mailing list. Local residents were also notified about the PIC by mail and via a posting on the County of Wellington website (URL as shown above). The purpose of the Online PIC was to review the study process, existing conditions, alternative solutions, identification of the preliminary preferred alternative solution, as well as the evaluation criteria for the preferred alternatives. Links to a digital comment sheet were provided on the PIC website. Copies of the notice and PIC materials, are included in **Appendix H**.

One public comment was received following the Notice of Commencement and three submissions were received during the Online Public Information Centre review period. Comments generally supported replacement of the

bridge and identified opportunities to improve pedestrian safety, recreational trail access, parking, and accommodation of agricultural equipment. Copies of public communication records are included in **Appendix G**

5.3. Indigenous Consultation

Indigenous consultation was undertaken with the Mississaugas of the Credit First Nation, Six Nations of the Grand River, and the Haudenosaunee Confederacy Chiefs Council/Haudenosaunee Development Institute. Notices of Study Commencement were issued in May 2024, followed by ongoing engagement throughout the EA process. Six Nations confirmed an interest in the project, while the Haudenosaunee Development Institute identified potential interests related to Haudenosaunee rights and requested consultation, which resulted in direct discussions with the County. Indigenous communities were subsequently notified of the March 2026 Online Public Information Centre and invited to review study findings and provide further input. Copies of Indigenous communication records are included in **Appendix G**.

6. THE PROPOSED UNDERTAKING & NEXT STEPS

6.1. Road Construction

Major road reconstruction has not been considered as part of the EA Study but will be evaluated during preliminary and detailed design. Road reconstruction is expected to be limited and only accommodate the bridge improvements immediately adjacent on approaches of the structure.

6.2. Bridge Work

The replacement of Blatchford Bridge will take into consideration all of the EA findings. During the upcoming preliminary design stage, the final details regarding the type of new replacement structure will be developed and a preliminary General Arrangement drawing will be updated. The replacement bridge will include a two lane (one lane in each direction) structure. The new bridge will be designed to meet current standards for minimum lane widths, minimum shoulder widths, side clearances and drainage. Other parameters that will be considered during the preliminary and final design stages will include the following:

- Geotechnical Investigation and findings;
- Cultural Heritage Investigation findings;
- Foundation type;
- Hydraulics;
- Protection of fisheries and species habitat;
- Drainage and other safety requirements;
- GRCA input;
- Minimum soffit elevation; and
- Depth of proposed superstructure (girders, deck).

During preliminary design and detailed design, consideration shall be given to a compatible replacement structure that requires less maintenance and is more durable than the existing structure. The detailed design of the new replacement would be based the requirements of the Canadian Highway Bridge Design Code (CHBDC) CAN/CSA-S6-25 and the Structural Manual published by the Ministry of Transportation of Ontario.

Timing of the detailed design and construction of the new bridge will be subject to annual council review and funding availability.

A preliminary General Arrangement drawing has been prepared as part of the EA Study, included in **Appendix I**. Design of the new structure will be finalized in detailed design subject to consultation with the County, GRCA, and other relevant agencies.

6.3. Construction Staging

During construction, Wellington Road 32 will likely be closed at the bridge to accelerate construction and reduce the total duration of traffic impacts. Traffic can be detoured to adjacent roads and would likely follow the 28.31 km long signed detour route illustrated in **Figure 1**, which includes travel along Wellington Road 32, Wellington Road 34, Highway 6, and Wellington Road 124. This route avoids the unpaved roads surrounding the bridge. The detour route will be evaluated further during preliminary and detailed design.

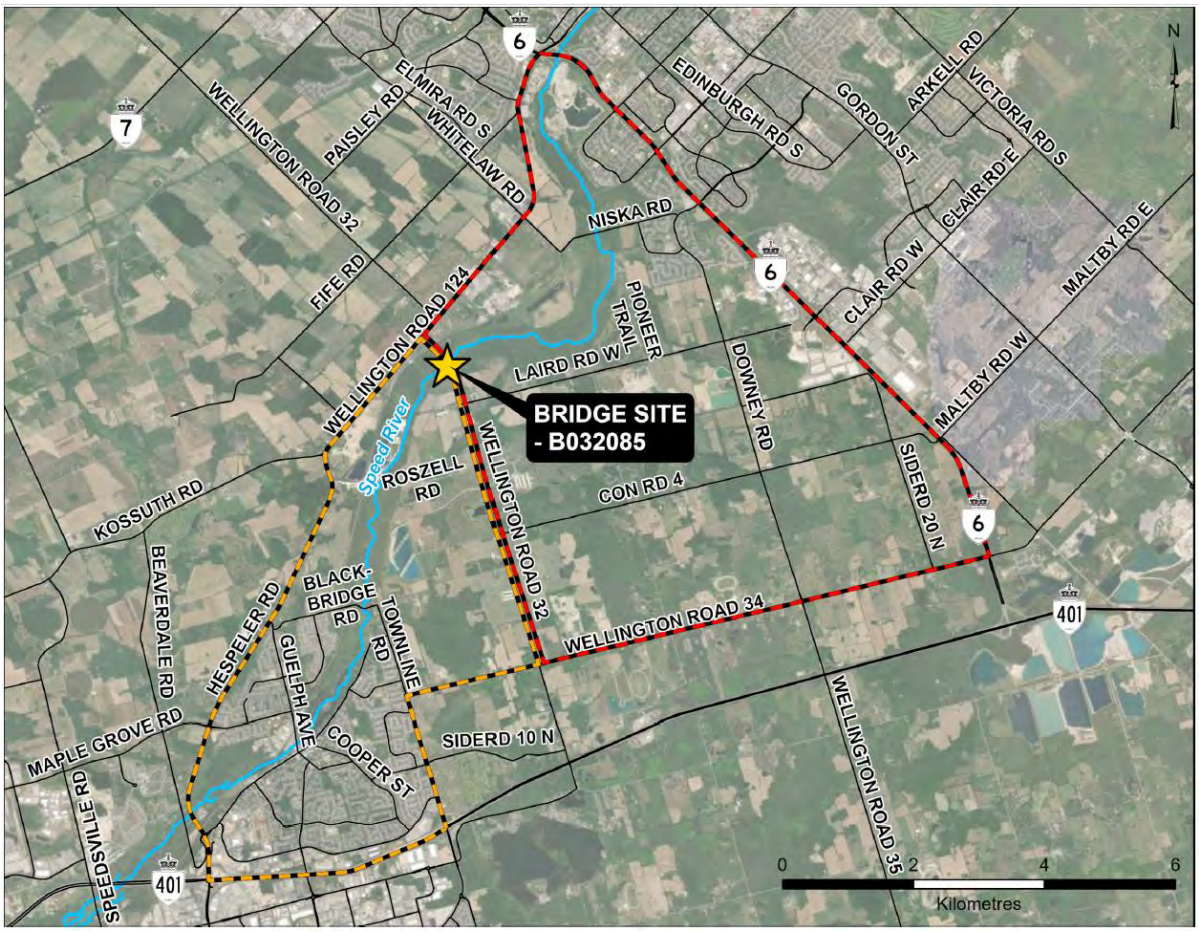


Figure 3 Detour Route

7. IMPACT ASSESSMENT AND MITIGATION MEASURES

7.1. Natural Environment

The structure replacement has the potential for long-term neutral to negative impacts on the PSW adjacent to the bridge on all sides, as this alternative will require the raising on the road, which may lead to encroachment into the wetland, although this will be relatively minor given the size of the wetlands. In general, the anticipated impacts are short term, while construction is ongoing. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will remain the same.

The following mitigation measures are recommended to ensure protection of natural heritage features and function within and adjacent the proposed structure replacement.

- Implement Erosion and Sediment Control Plan (ESC) following guidelines provided in the "Greater Golden Horseshoe Area Conservation Authorities' Erosion and Sediment Control Guideline for Urban Construction".
- ESC measures should be implemented such that they isolate the work area, to reduce the potential for wandering wildlife inside the work area.
- The area of construction disturbance shall be kept to a minimum.
- Control access and movement of equipment and people.
  Minimize the use of heavy equipment in sensitive areas. Equipment is to be limited to the construction allowance area and is not to encroach within the adjacent natural communities.
- No equipment storage within 30 m of wetland limits.
- Works are to be located as far away from the wetland feature boundary as possible.
- Accumulated sediment and debris to be removed before silt fence is removed.
- All disturbed areas will be re-vegetated or restored with site appropriate
- indigenous plants wherever opportunities exist.
- Time activities to avoid wildlife disturbance during critical life stages:
  - No in-water works are permitted from March 15-June 30, as per MNDMNRF timing windows for the protection of fish and fish habitat, and during the timing window for overwintering turtles (September 30-April 1).
  - Avoid removal of trees and vegetation during the generalized breeding bird nesting period from April 1 to August 31 and the bat maternity period from March 15 to November 30. If limited removal of herbaceous vegetation and shrubs is to occur during the general nesting period, a nest search is to be completed by a skilled and experienced biologist/ecologist.
  - Net off the structure by April 1 to prevent any bird nesting.
- Where in water works cannot be conducted per the applicable codes of practice, submit a DFO Request for Review to identify any potential risks to fish and fish habitat.
- If dewatering within the Study Area is deemed necessary, ensure a fish rescue is completed by a qualified biologist/ecologist prior to dewatering being completed.
- Choose designs and materials that will minimize impacts.
- Limit any cleaning solutions or paint used on the structure and take appropriate precautions to avoid products entering the watercourse.

7.2. Hydraulics

As discussed in the previous *Drainage and Hydrology* section, the existing and proposed structure were both analyzed using the GRCA provided flow data for the 2-year through 100-year design storms, as well as the Regulatory storm. In both cases, it was found that the existing and proposed structures do not meet the minimum freeboard of 1.0 m, with no vertical clearance between the bridge soffit and the modeled high-water level under 50-year design storm. As well, the existing and proposed structures are both predicted to overtop the roadway under the Regional Storm event and they do not comply with MRNF flood hazard criteria. Through a bridge span sensitivity analysis, it was found that that the bridge span size is not the controlling factor governing flow-through capacity at this location within the received model apparatus. It was found that water surface elevations are influenced by backwater impacts that limit the effectiveness of increasing bridge span alone as a mitigation measure.

Therefore, the proposed structure has no negative impacts compared to the existing bridge, indicating no adverse impacts relative to current conditions. The proposed structure span does not worsen the existing hydraulic capacity, and the bridge span variable was found to not be a significant influencing factor for hydraulic capacity at this location. Therefore, the proposed structure is considered the Preferred Option. Please refer to the Hydraulic Assessment (**Appendix D**) for the details related to hydraulic modelling.

7.3. Cultural Heritage

The preferred alternative will result in direct, negative, permanent impacts to the cultural heritage value of the structure through the removal the of the 1949 half through truss structure and the cast-in-place concrete substructure, as well as all physical heritage attributes which include the truss chords, diagonals, verticals with lattice webbing, and featuring rivetted connections.

The HIA suggested the following mitigation measures::

- Minimize Heritage Impacts and Incorporate Sympathetic Design: As replacement of the existing bridge is required and will result in unavoidable impacts to its cultural heritage value, the new bridge should be designed to minimize heritage impacts wherever feasible. A sympathetically designed replacement structure is preferred, as it would help maintain the historical, associative, and contextual relationship of the crossing over the Speed River. Given that the proposed concrete girder bridge differs substantially from the existing pony truss bridge, consideration should be given to incorporating visual elements inspired by the existing structure, such as truss-like detailing, decorative concrete finishes, or pedestrian railings that reflect the appearance of the existing steel lattice railings.
- Salvage and Reuse of Heritage Elements: Prior to bridge removal, opportunities should be explored to salvage and preserve representative elements of the existing bridge. Consideration should be given to reusing structural components in future rehabilitation projects, interpretive displays, or commemorative features. The feasibility of salvaging existing plaques and select bridge components should also be investigated for incorporation into future heritage displays or installations.
- Commemoration and Interpretation: To recognize the cultural heritage significance of the existing bridge, a commemorative installation should be considered near the crossing or at another appropriate location. Such an installation could include interpretive signage, historical photographs, salvaged bridge elements, and information describing the history and significance of the 1949 structure and its role within the cultural landscape.
- Design Inspiration from the Existing Bridge: The replacement bridge should, where feasible, incorporate design elements that draw from the character of the existing structure. Through architectural detailing, materials, finishes, or interpretive features, the new crossing should seek to acknowledge and reflect the heritage character of the existing pony truss bridge while meeting modern design, safety, and operational requirements.

In consideration to the HIA recommendations, the replacement structure design applies inspiration from the existing structure but following a similar approach to that of the original construction by using readily available and eomical material with construction techniques common for local contractors. While form liner's were considered, an open steel railing system was preferred in order to minimize impacts to design flow conditions that may overtop the road during Regional events. In addition, a compliant crash tested steel tube railing was preferred over the existing lattice system.

7.4. Archaeology

Based on the Archeological Assessment, the Study Area does not require further archaeological assessment. Should the proposed work extend beyond the current Study Area or should changes to the project design or temporary workspace requirements result in the inclusion of previously un-surveyed lands, these lands should be subject to a Stage 2 archaeological assessment.

7.5. Property

It is anticipated that no additional property will be required for the replacement of Blatchford Bridge. However, the potential impacts to properties will be reviewed again during detailed design.

7.6. Utilities

The proposed bridge replacement is anticipated to impact the GRCA Gauge station on the Northeast embankment. The construction of a retaining wall at this location is being investigated and will be confirmed in the detailed design stage of the project. The location of the underground Rogers duct on the west side of the structure is not exactly known, therefore, it is anticipated that test pits will be required to identify the exact location during construction. This will also be confirmed in the detailed design stage of the project.

8. SUMMARY OF FUTURE COMMITMENTS

The following summarizes the commitments to further work, as outlined in the forgoing.

8.1. Natural Environment

- Incorporate environmental protection measures into the detailed design and construction contract documents.
- Prepare and implement erosion and sediment control (ESC) measures during construction.
- Minimize construction disturbance limits and restrict equipment access to designated work areas.
- Restore and revegetate disturbed areas with appropriate native species, where feasible.
- Minimize encroachment into wetlands and adjacent natural heritage features wherever possible.
- Schedule construction activities in accordance with applicable fisheries, wildlife, bird nesting, bat maternity, and turtle timing windows.
- Implement wildlife exclusion measures, including fencing where appropriate, to prevent wildlife from entering active work areas.
- Complete a fish rescue by qualified personnel if dewatering is required.
- Obtain additional regulatory review and approvals if in-water work cannot be completed within approved timing windows.

8.2. Cultural Heritage

- Consider incorporating sympathetic design features into the replacement bridge that acknowledge the character of the existing pony truss bridge.
- Evaluate opportunities to incorporate heritage-inspired architectural details, railings, finishes, or other design elements into the replacement structure.
- Investigate opportunities to salvage representative bridge elements, including truss components and plaques, prior to bridge removal.
- Consider incorporating salvaged elements into future interpretive, commemorative, or heritage displays.
- Consider development of a commemorative installation recognizing the historical significance of the 1949 bridge.
- Document the existing bridge prior to demolition through completion and retention of the Archaeological Assessment, Cultural Heritage Evaluation Report (CHER), and Heritage Impact Assessment (HIA).
- Provide the heritage documentation to Wellington County and the Wellington County Museum and Archives for future reference.

8.3. Archaeology

- Complete a Stage 2 Archaeological Assessment should future project revisions require previously unassessed lands.
- Immediately cease work if archaeological resources or human remains are encountered during construction.
- Notify a licensed archaeologist and the Ministry of Citizenship and Multiculturalism if archaeological materials are discovered during construction.

8.4. Utilities

- Continue utility coordination through preliminary and detailed design.
- Confirm the location of the Rogers communications duct and identify any required mitigation measures.
- Confirm utility conflicts, protection requirements, and relocation needs in consultation with utility owners.
- Further investigate opportunities to retain the GRCA gauge station through design measures, such as a retaining wall.
- Finalize utility protection and relocation requirements during detailed design.

8.5. Design Development and Approvals

- Refine bridge geometry, roadway tie-ins, foundation design, hydraulics, drainage, construction staging, and utility coordination during subsequent design phases.
- Complete detailed design in consideration of geotechnical, hydraulic, natural environment, archaeology, cultural heritage, and utility requirements.
- Continue consultation with Wellington County, the Grand River Conservation Authority (GRCA), Indigenous communities, utility owners, and regulatory agencies during subsequent project phases.
- Obtain all required permits, approvals, and authorizations prior to construction.
- Confirm construction timing and implementation subject to future Council approval and funding availability.

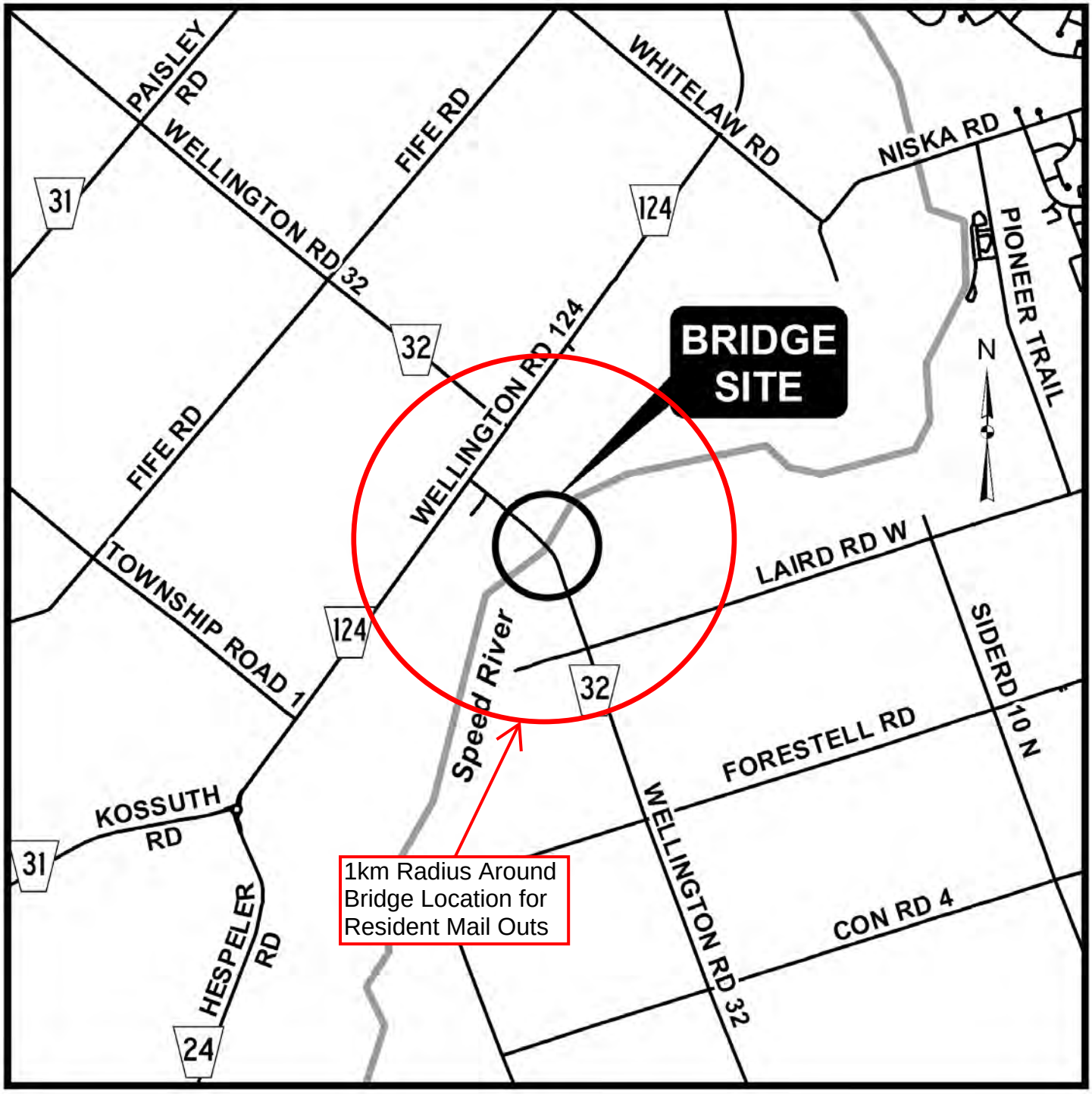
8.6. Consultation

- Continue engagement with Indigenous communities that have expressed an interest in the project.
- Continue consultation with review agencies, stakeholders, utility owners, and affected parties as the project advances.
- Consider and address feedback received through the Class EA process during future phases of project development, where appropriate.

Appendix A

Key Plan

GFT


PAISLEY RD
WELLINGTON RD 32
FIFE RD
WHITELAW RD
NISKA RD
31
124
32
BRIDGE SITE
PIONEER TRAIL
N
WELLINGTON RD 124
FIFE RD
TOWNSHIP ROAD 1
LAIRD RD W
124
Speed River
32
SIDERD 10 N
FORESTELL RD
KOSSUTH RD
31
HESPELER RD
24
WELLINGTON RD 32
CON RD 4
1km Radius Around Bridge Location for Resident Mail Outs

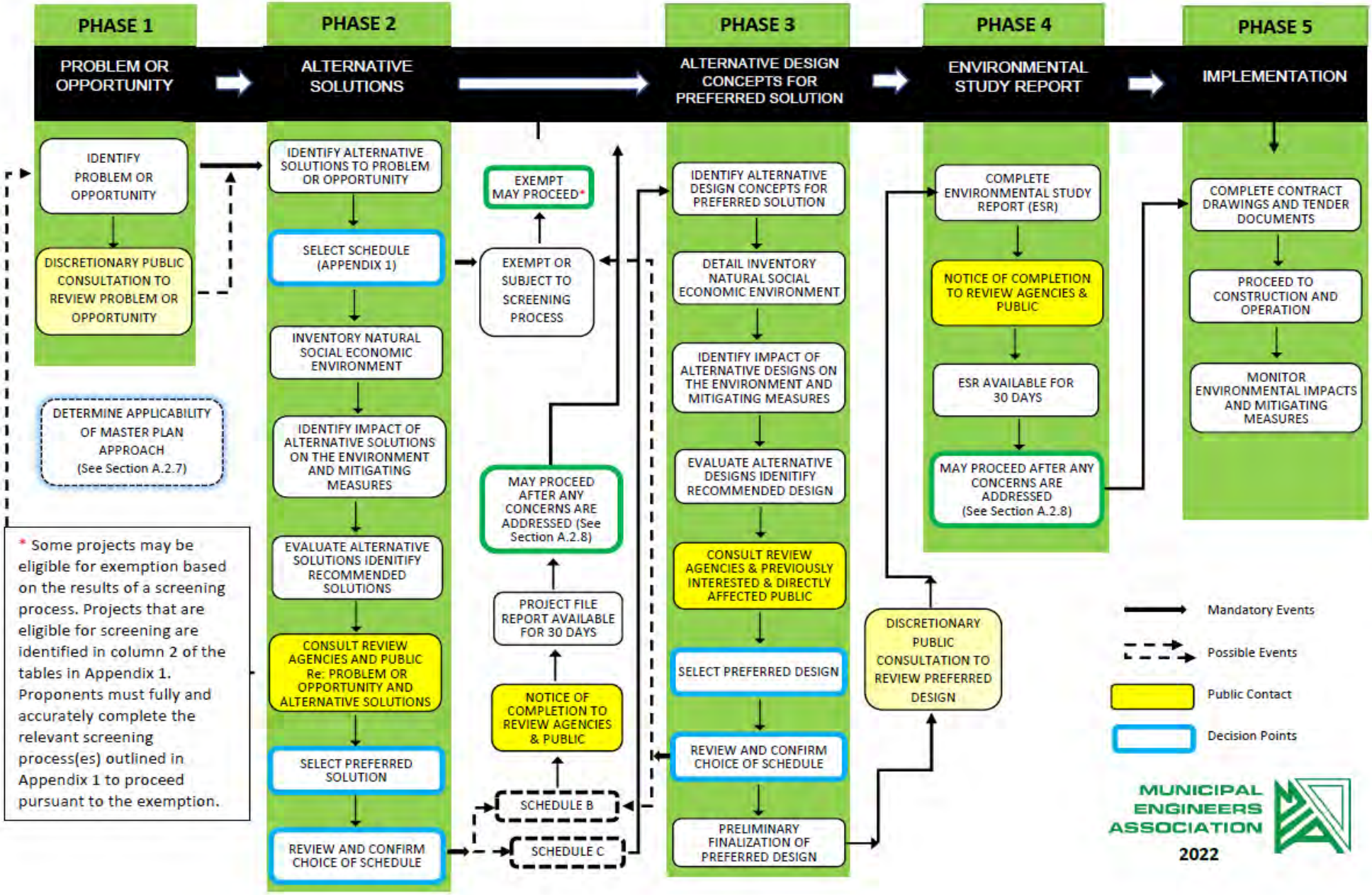
Appendix B

Class Environmental Assessment Process

GFT

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the MCEA



Appendix C

Structure Investigations Report and Site Photos

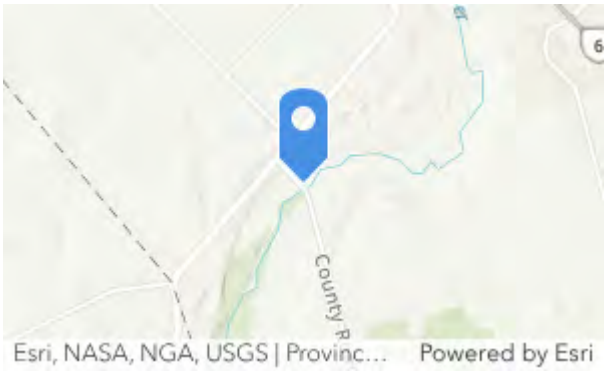
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WELLINGTON COUNTY

Blatchford Bridge
B032085
2025 OSIM Inspection

Wellington Road 32
0.80 km S of Wellington Road 124





Prepared for:
County of Wellington

Prepared by: GFT

Structure_ID:	B032085
MTO Site Number:	35-343
BCI:	61.67

Inventory Data:

Name:	Blatchford Bridge
Road:	Wellington Road 32
Latitude/Longitude:	43.48445349, -80.28224982
Location:	0.80 km S of Wellington Road 124
Owner(s):	Wellington County

Posted Speed:	80	% Trucks:	0
AADT:	7,219 2022	No. of Lanes:	2

Structure Type:	Through Truss	Detour Distance (km):	13
Total Deck Length (m):	32.4	Fill on Structure (m):	0
Overall Str. Width (m):	8.1	Skew Angle (°):	0
Total Deck Area (sq. m.):	262	Direction of Structure:	N-S
Roadway Width (m):	7.4	No. of Spans:	1
Span Length (m):	31.7		

Historical Data:

Year Built:	1949	Last Inspection:	September 12, 2023
Current Load Limit:	25 - 37 - 47	Last Bridge Master Inspection:	2019
Load Limit By-Law #:	0	Last Evaluation:	2025
By-Law Expiry Date:	0	Last Underwater Inspection:	0
Min. Vertical Clearance:	0	Last Condition Survey	1991
Rehab History:	2025 - Targeted repairs to NE bottom chord. 2010 - Partial bottom chord replacement at NW and SE end; diagonal members replaced (4 locations); partial replacement of lattice railing 1992 - Deck replacement, new expansion joints, coat structural steel, roc		
Previous OSIM Data:	2023/62.08	2021/62.50	2019/62.54

Field Inspection Information:

Date of Inspection:	May 15, 2025	
Inspector:	Salvatore Costanzo	
Others in Party:	Sarah Berberich	
Equipment Used:	Hammer, Camera, Measuring Tape	
Weather:	Cloudy	
Temperature:	High: 26°C	Low: 15°C

Additional Investigations:

		Priority		
		None	Normal	Urgent
Material Condition Survey				
	Detailed Deck Condition Survey:			
	Non-Destructive Delamination Survey of Asphalt-Covered Deck:			
	Concrete Substructure Condition Survey:			
	Detailed Coating Condition Survey:			
	Detailed Timber Investigation:			
	Post-Tensioned Strand Investigation:			
Underwater Investigation:				
Fatigue Investigation:				
Seismic Investigation:				
Structure Evaluation:				
Monitoring				
	Monitoring of Deformations, Settlements and Movements:			
	Monitoring of Crack Widths:			

Investigation Notes: Recommend for Annual OSIM.

Overall Structural Notes:

Recommended Work on Structure:	Description:	Evaluate replacement/ rehabilitation.
	Timing:	1 year
Overall Comments:	Structure is in fair to poor condition. MCEA is planned for 2025 and design for the replacement has been initiated. Recommend for Annual OSIM. This structure is on the 10 year plan.	
Date of Next Inspection:	May 15, 2027	

Element Group:	Abutments		Length (m):	0.00	
Element Name:	Abutment Bearings		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	0.00	
Type:	Roller		Total Quantity:	4.00	
Environment:	Severe		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Each	0.00	0.00	3.00	1.00	
Comments:	Light to medium corrosion, spall near NE bearing, SW bearing in poor condition.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Abutments		Length (m):	8.10	
Element Name:	Abutment Walls		Width (m):	0.00	
Location:			Height (m):	2.45	
Material:	Cast-in-place concrete		Count:	2.00	
Type:	Legs of rigid frame		Total Quantity:	39.69	
Environment:	Moderate		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.00	35.69	2.00	2.00	
Comments:	Large spall with exposed rebars at South abutment, spall with exposed rebar at East end of South ballast wall, light scaling on North abutment, spall near NE bearing, narrow horizontal crack along North abutment.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Abutments		Length (m):	0.00	
Element Name:	Wingwalls		Width (m):	4.70	
Location:			Height (m):	1.63	
Material:	Cast-in-place concrete		Count:	4.00	
Type:	Reinforced concrete		Total Quantity:	30.65	
Environment:	Moderate		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.00	21.65	6.00	3.00	
Comments:	Medium scaling, spalling, delamination and map cracks with efflorescence at SW, spalling, delamination and cracks with efflorescence at NW, horizontal cracking and scaling at SW, scaling and spall at NE.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Approaches		Length (m):	6.00	
Element Name:	Wearing Surface (app)		Width (m):	7.44	
Location:			Height (m):	0.00	
Material:	Asphalt		Count:	2.00	
Type:			Total Quantity:	89.28	
Environment:	Severe		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.00	87.28	1.00	1.00	
Comments:	Transverse alligator cracks at end of South approach.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Barriers		Length (m):	15.00	
Element Name:	Railing Systems		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	4.00	
Type:	Steel Flex Beam on steel post		Total Quantity:	60.00	
Environment:	Severe		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
m.	0.00	42.98	14.59	2.43	
Comments:	Light to medium corrosion, disconnected and missing panels at SE, impact damage at SW.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Barriers		Length (m):	31.70	
Element Name:	Railing Systems		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	2.00	
Type:	Steel post and lattice		Total Quantity:	63.39	
Environment:	Severe		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
m.	0.00	45.41	15.41	2.57	
Comments:	Corrosion in railings over approximately 50% of the area, numerous areas of impact damage (~30% replaced) Traffic impact damage to railing at Northeast and Northwest corners.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Beams/MLE's		Length (m):	8.10	
Element Name:	Floor Beams		Width (m):	0.25	
Location:			Height (m):	0.70	
Material:	Steel		Count:	9.00	
Type:	T-type		Total Quantity:	138.51	
Environment:	Benign		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	Sq. m.	0.00	123.51	15.00	0.00
Comments:	Rust staining at connection plates, light to medium corrosion at soffit connections, perforation at NE end floor beams,.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Beams/MLE's		Length (m):	31.70	
Element Name:	Stringers		Width (m):	0.15	
Location:			Height (m):	0.30	
Material:	Steel		Count:	6.00	
Type:	T-type		Total Quantity:	171.18	
Environment:	Benign		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	Each	0.00	154.18	17.00	0.00
Comments:	Good to fair condition.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Bracing		Length (m):	0.00	
Element Name:	Bracings		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	0.00	
Type:	Rectangular-solid		Total Quantity:	4.00	
Environment:	Benign		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	Each	0.00	4.00	0.00	0.00
Comments:	Corrosion at connections, light rust on bracings.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Coatings		Length (m):	0.00	
Element Name:	Structural Steel		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Other		Count:	0.00	
Type:	Epoxy zinc/vinyl		Total Quantity:	307.30	
Environment:	Benign		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Sq. m.	0.00	227.30	40.00	40.00	
Comments:	Flaking of coating at diagonal and bottom chords.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Decks		Length (m):	31.70	
Element Name:	Soffit Thin Slab		Width (m):	0.00	
Location:	Exterior		Height (m):	0.24	
Material:	Cast-in-place concrete		Count:	2.00	
Type:			Total Quantity:	15.22	
Environment:	Benign		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Sq. m.	0.00	14.72	0.50	0.00	
Comments:	Cracking with efflorescence at drain (typ), cold joint at West and East.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Decks		Length (m):	31.70	
Element Name:	Soffit Thin Slab		Width (m):	8.10	
Location:	Interior		Height (m):	0.00	
Material:	Cast-in-place concrete		Count:	0.00	
Type:			Total Quantity:	231.09	
Environment:	Benign		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Sq. m.	0.00	231.09	0.00	0.00	
Comments:					
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Decks			Length (m):	32.40
Element Name:	Wearing Surface			Width (m):	7.44
Location:				Height (m):	0.00
Material:	Cast-in-place concrete			Count:	1.00
Type:				Total Quantity:	241.06
Environment:	Severe			Element BCI:	
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.00	241.06	0.00	0.00	
Comments:	In good condition.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Embankments and Streams			Length (m):	0.00
Element Name:	Embankments			Width (m):	0.00
Location:				Height (m):	0.00
Material:	Weathering Soil			Count:	0.00
Type:				Total Quantity:	4.00
Environment:				Element BCI:	
Condition Data Units	Ex.	Good	Fair	Poor	
Each	0.00	4.00	0.00	0.00	
Comments:	Previous bridge abutments on East embankments.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Embankments and Streams			Length (m):	0.00
Element Name:	Streams and Waterways			Width (m):	0.00
Location:				Height (m):	0.00
Material:	Weathering Soil			Count:	0.00
Type:				Total Quantity:	1.00
Environment:				Element BCI:	
Condition Data Units	Ex.	Good	Fair	Poor	
All	1.00	0.00	0.00	0.00	
Comments:					
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Joints		Length (m):	7.44	
Element Name:	Armouring/ retaining devices		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	6.00	
Type:			Total Quantity:	44.64	
Environment:	Benign		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	m.	0.00	40.64	4.00	0.00
Comments:	Localized abrasions, settlement of North steel armoring of South joint on deck, filled with debris, snow plow damage present on South and North joint.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Joints		Length (m):	7.44	
Element Name:	Concrete End Dams		Width (m):	0.25	
Location:			Height (m):	0.00	
Material:	Cast-in-place concrete		Count:	2.00	
Type:			Total Quantity:	3.72	
Environment:	Severe		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	Sq. m.	0.00	0.00	3.22	0.50
Comments:	Minor popouts and rust staining.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Joints		Length (m):	0.00	
Element Name:	Seals/Sealants		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Hybrid		Count:	0.00	
Type:	Strip seal		Total Quantity:	2.00	
Environment:	Severe		Element BCI:		
Condition	Units	Ex.	Good	Fair	Poor
Data	Each	0.00	0.00	2.00	0.00
Comments:	Joints filled with debris (typ).				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Sidewalks and curbs		Length (m):	31.70	
Element Name:	Curbs		Width (m):	0.15	
Location:			Height (m):	0.15	
Material:	Cast-in-place concrete		Count:	2.00	
Type:			Total Quantity:	19.02	
Environment:	Severe		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Sq. m.	0.00	17.02	1.00	1.00	
Comments:	Delamination on West curb at South end, medium vertical cracks at East curb, spalls at exterior connection with diagonal chords at NE & SE, abrasion typical on curbs.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Trusses/Arches		Length (m):	31.70	
Element Name:	Bottom Chords		Width (m):	0.20	
Location:			Height (m):	0.20	
Material:	Steel		Count:	2.00	
Type:	Channel		Total Quantity:	76.08	
Environment:	Benign		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Sq. m.	0.00	13.58	25.00	37.50	
Comments:	Perforation at SW, NW & SE corner, light to medium corrosion through-out, severe corrosion with perforation at North end of East chord (Targeted repairs were completed to this section after the inspection).				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Trusses/Arches		Length (m):	0.00	
Element Name:	Connections		Width (m):	0.00	
Location:			Height (m):	0.00	
Material:	Steel		Count:	0.00	
Type:	Riveted		Total Quantity:	32.00	
Environment:	Benign		Element BCI:		
Condition Units	Ex.	Good	Fair	Poor	
Data Each	0.00	22.00	6.00	4.00	
Comments:	Rusting with perforation on top at all four supports.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Trusses/Arches		Length (m):	23.78	
Element Name:	Top Chords		Width (m):	0.20	
Location:			Height (m):	0.20	
Material:	Steel		Count:	2.00	
Type:	I-type (tc)		Total Quantity:	57.06	
Environment:	Benign		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.00	43.06	10.00	4.00	
Comments:	Localized surface corrosion, corrosion at bracing panels.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Trusses/Arches		Length (m):	5.60	
Element Name:	Verticals/Diagonals		Width (m):	0.20	
Location:			Height (m):	0.20	
Material:	Steel		Count:	16.00	
Type:	I-type (v/d)		Total Quantity:	107.59	
Environment:	Benign		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.31	80.10	18.53	8.65	
Comments:	Corrosion at connection plates of railings, corrosion at bracing panels members, impact damage at NE & S, rusting with perforation at NE.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	

Element Group:	Trusses/Arches		Length (m):	3.96	
Element Name:	Verticals/Diagonals		Width (m):	0.20	
Location:			Height (m):	0.20	
Material:	Steel		Count:	14.00	
Type:	I-type (v/d)		Total Quantity:	66.57	
Environment:	Benign		Element BCI:		
Condition Data Units	Ex.	Good	Fair	Poor	
Sq. m.	0.19	49.56	11.47	5.35	
Comments:	Vertical.				
Recommended Works:	0		Maintenance Needs:	0	
Recommended Timing:	0		Maintenance Timing:	0	



View from South.



West elevation.



View from North.



East elevation.



SW bearing.



SE bearing.



SE bearing plate.



NW bearing.



NE bearing with minor spall.



South abutment.



Narrow vertical cracking on South abutment.



Concrete staining on South abutment.



Large spall on South abutment.



Spall at NE.



Horizontal crack along North abutment.



SW wingwall spalls with delamination.



SW wingwall scaling and delamination.



SW wingwall vertical stained cracking.



Typical cracking on wingwalls.



SE wingwall.



SW cracking.



NE wingwall spall and scaling.



NW wingwall.



NW wingwall spall and cracking.



Impact damage on SW guide rail.



Impact damage at SE guide rail end.



West railing with rust and impact damage.



East railing with rust and impact damage.



Floor beam rusted connection with bottom and vertical cord (typ).



Typical stringers.



Light bracing rust.



Flaking (typ).



Cold joint on West exterior soffit.



East exterior soffit cold joint.



Load restriction sign.



SE embankment with previous bridge structure.



NE embankment.



East upstream.



West downstream.



South joint with chip marks from snow plows.



North armour damage.



Scaling on South dam.



South end dam.



Concrete spalled from North joint.



South joint filled with debris.



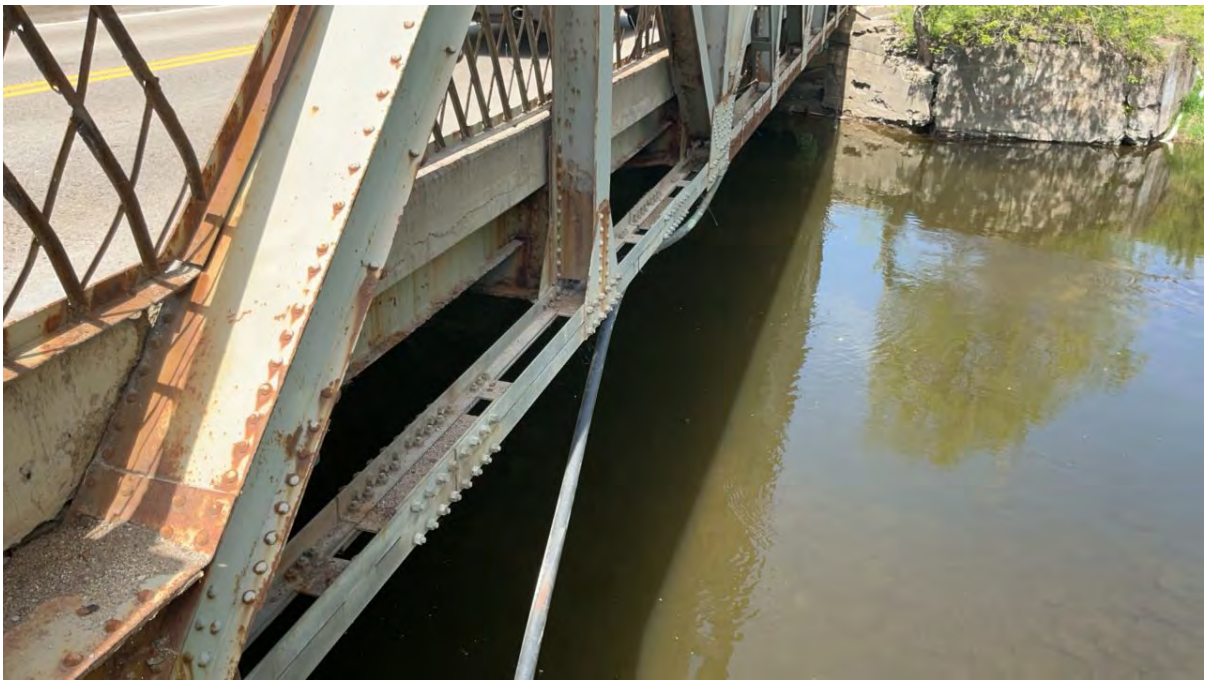
North seal.



Typical soffit.



West joint.



East bottom chord.



Utilities along East chord.



SE end perforation.



SW end perforation.



NE end perforations.



NW end perforations.



East top chord.



West top chord.



East vertical/ diagonals with rust (typ).



Rust staining on vertical and diagonals (typ).



North abutment.



South abutment.



NW wingwall.



SW wingwall.



NE wingwall.



South approach.



North approach.



SW guide rail.



SE guide rail.



NW guide rail.



NE guide rail.



South floor beams.



North floor beams.



South stringers.



South stringers middle.



North stringers.



North stringers middle.



South bracing.



South bracing middle.



North bracing.



West exterior soffit.



East exterior soffit.



Interior soffit.



Wearing surface.



NW embankment.



SW embankment.



West waterway.



East curb.



West bottom chords.



West abandoned utilities.



East bottom chord.



West top chords.



East top chords.



NE bottom chord repair

Appendix D

Hydraulics Assessment

GFT

Municipal Class Environmental Assessment of Blatchford Bridge – Hydraulics Assessment	
Date:	January 23, 2026
To:	William Van Ruyven, Project Manager
From:	Evan May, Drainage Engineering Lead
Firm Project No.	078320
Client Reference No.	B032085

1 INTRODUCTION

County of Wellington retained Gannett Fleming to provide consulting engineering services for the detailed design of Blatchford Bridge located on Wellington Road 32, bordering the Township of Guelph/Eramosa and Township of Puslinch, 0.8 km South of Wellington Road 124 (Figure 1). The crossing falls within the jurisdiction of the Grand River Conservation Authority (GRCA).

The Blatchford Bridge (No. B032085), constructed circa 1949, is a single-span, 31.7 m steel truss structure with an exposed concrete deck over the Speed River. The latest OSIM inspection was completed in 2025, the resulting Bridge Condition Index (BCI) score of 61.67 indicates the bridge is in fair to poor condition. The bridge exhibits severe steel deterioration, and is approaching the end of its service life. Municipal Class Environmental Assessment (MCEA) was planned for 2025, and the design of the replacement has been initiated to ensure continued safety and serviceability.

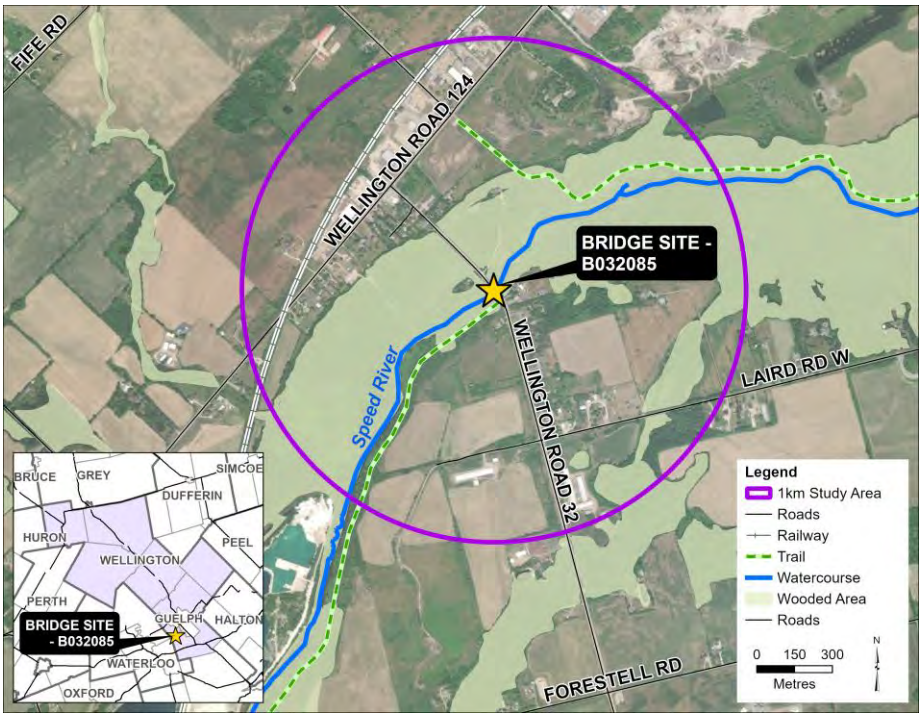


Figure 1: Project Site

1.1 Objectives

The purpose of this technical memorandum is to provide a preliminary assessment of the replacement of Blatchford Bridge (Structure ID: B032085). The memorandum summarizes the design criteria, existing site conditions, potential hydraulic impacts, identifies gaps in the current information, and preliminary design recommendations.

1.2 Criteria Summary

This section identifies the applicable standards and guidelines for design criteria development and the design criteria of the sites.

1.2.1 Applicable Standards and Guidelines

- MTO's *Highway Drainage Design Standards* (2023)
- MTO *Drainage Management Manual* (1997), and,
- Ministry of the Environment Conservation and Parks (MECP) *Stormwater Management Manual* (2003).
- National Cooperate Highway Research Program (NCHRP) *Countermeasures to Protect Bridge Abutments from Scour – Report 587* (2007).
- Ministry of Natural Resources and Forestry (MRNF) *Technical Guide River & Stream Systems: Flooding Hazard Limit*, (2002).
- Grand River Conservation Authority (GRCA) *Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation - Ontario Regulation 41/24* (2024).

1.2.2 Hydraulic Crossing Design Criteria

1.2.2.1 Design Flows

Wellington Road 32 is classified as a rural arterial road within the project limit. In accordance with WC-1 (MTO HDDS, 2023), the Design Flow for culverts and bridges on watercourses with total span larger than 6 m is 50-year storm event.

1.2.2.2 Check Flow and Regional Flow and Relief Flow

According to WC-1 (MTO HDDS, 2023), the Check Flow shall be considered as 115% of 100-year storm event. The regional flow corresponds to the Hurricane Hazel Stormo, as defined in the Flood Hazard Criteria Zones Map (MRNF, 2002). To evaluate the roadway overtopping and consequent relief flow, the larger of the Check Flow or Regional flow shall be considered.

In accordance with WC-13 (MTO HDDS, 2023), the maximum depth of flow on the roadway shall not exceed 0.3 m and the product of depth x velocity shall not exceed 0.8 m^2/s.

Additional criteria for flood hazard safety per the MNRF flood hazard criteria requires the following:

- Maximum depth < 0.3 m but velocity cannot exceed 4.5 m/s and if depth is 0.3 to 0.6 m but the velocity cannot 0.6 m/s.
- Velocity cannot exceed 4.5 m/s at depths of < 0.3 and velocity cannot exceed 0.6 m/s at depths of 0.3 to 0.6 m.
- People's Safety, Low Risk at < 0.4 m*m/s.

1.2.2.3 Minimum Freeboard and Clearance

According to WC-2 (HDDS, 2023), the freeboard for bridges on Rural-Arterial Roads is equal to or greater than 1 m (High Vulnerability), which is measured from the edge of travelled lane to the High-Water Level (HWL) as minimum freeboard.

Also, the minimum required clearance for freeways is equal to or greater than 1 m for Design Flow. Clearance is measured from HWL to the lowest point on soffit. If the water level caused by ice jam is higher than HWL, ice jam water level should be used for measuring clearance. Figure 2 illustrates a visual representation of these criteria.

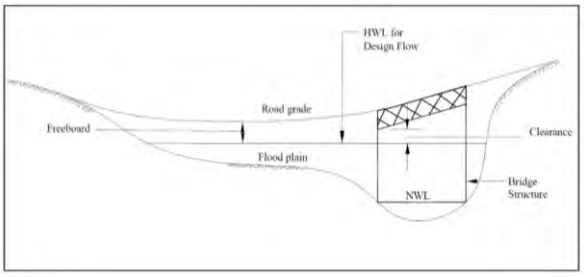


Figure 2: Freeboard and Clearance for Design Storms

1.2.2.4 Scour Protection

Scour Protection has been developed per HEC-18 and HEC-23 as the guideline for evaluating the scour at bridge. As noted in HEC-18, National Cooperative Highway Research Program (NCHRP) has provided state-of-practice for estimating the scour at bridges. NCHRP report 587 has been adopted as the reference to address the scour estimate and scour protection at bridge abutments.

As noted in MTO HDDS WC-3, the scour protection for structure foundation, including abutment, pier, and retaining wall should be determined based on the Design Flow and modified, if necessary, to ensure that structural failure will not occur as a result of Check Flow.

1.2.2.5 Temporary Works

The MTO HDDS 2023, TW-1 identifies the return period for the sizing of the temporary drainage works during construction. The minimum return period for temporary drainage works depends on the duration of the construction and the potential consequences (low, medium, or high) in terms of public safety, traffic delays, property damage due to flooding, and environmental impacts. The worst-case impact from the four categories shall be used to select the return period that shall guide the design. TW-1 provides the requirement for the minimum return period for temporary drainage works as following Table 1.

As the primary construction period where cofferdams will be required relates to the installation of embankment rock protection and abutments, it is expected that the construction period will be < 2 months for this activity, with a low consequence, and as result a 2- Year return period is recommended.

Table 1: Minimum Return Period for Temporary Drainage Works

Facility	Duration of Construction	Return Period (Years)		
		Consequence		
		Low	Medium	High
Design Flow for Temporary Works	Less than 2 months	2	2	2
	Up to 4 months	2	5	5
	Up to 8 months	5	5	10
	Up to 12 months	5	5	20
	Up to 18 months	5	10	25
	Greater than 18 months	10	10	25

2 EXISTING SITE CONDITIONS

The bridge consists of a single span half-through steel truss structure with an exposed concrete deck. An overview of existing site conditions is illustrated in Figure 3 to 10. Several components of the Blatchford Bridge are approaching the end of their service life due to advanced deterioration and require replacement.

The existing structure has a clear span of 30.38 m span, measured between the inside faces of the abutments, and a soffit elevation of 296.75 m.

2.1 Hydrologic Assessment

Flow data for the 2-year through 100-year design storms as well as the Regulatory storm, were provided in the approved GRCA HEC-RAS model. These flow values were used in the hydraulic assessment.

2.2 Hydraulic Assessment

The hydraulic performance of the existing bridge was evaluated using the GRCA-approved HEC-RAS hydraulic model incorporating detailed cross-section data and steady flow analysis. Minor refinements to the model were undertaken within the vicinity of the crossing to reflect current site conditions. These updates included revisions to the upstream and downstream bridge cross-sections, roadway profile, soffit elevation, and bridge span length.

The assessment results are summarized in Section 3, Table 2 and indicate the following:

- The existing structure does not meet the minimum freeboard of 1.0 m, with no vertical clearance between the bridge soffit and the modeled high-water level under 50-year design storm.
- The existing structure is predicted to overtop the roadway under the Regional Storm event and does not comply with MRNF flood hazard criteria.



Figure 3: B032085 – East elevation (upstream) of existing Bridge



Figure 4: B032085 – West (downstream) elevation of existing Bridge

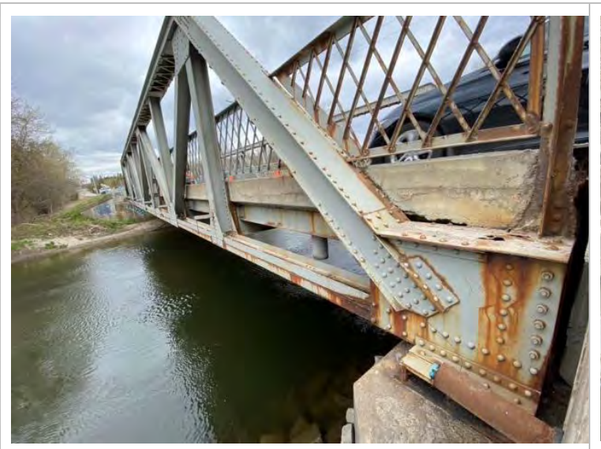


Figure 5: B032085 – West (downstream) fascia, light to severse corrosion on truss beams



Figure 6: B032085– East (upstream) fascia, light to severe corrosion on truss beams



Figure 7: B032085 – Northwest wingwall of existing Bridge



Figure 8: B032085 – Southwest wingwall of existing Bridge



Figure 9: B032085 – Southeast wingwall of exisiting Bridge



Figure 10: B032085–Northeast wingwall of existing Bridge

3 PROPOSED SITE CONDITIONS

The preliminary design of the proposed replacement bridge was evaluated in GRCA-approved HEC-RAS hydraulic model. The proposed structure has a span of 35.6 m, measured from the inside faces of abutments, and a soffit elevation of 296.75 m. The proposed bridge layout is illustrated on the General Arrangement (GA) drawing provided in **Attachment 1.**

3.1 Hydraulic Modelling

HEC-RAS modelling for Blatchford Bridge was assessed for the 50-year design flow and the Regional Storm event. The MTO designated Check Flow (115% of 100-year flow) was not considered in this assessment as the Regional Storm exceeded this flow and therefore the governing flow rate.

Hydraulic performance results are summarized in Table 2 and indicate the following:

- The proposed structure does not meet the minimum freeboard of 1.0 m, with no vertical clearance between the bridge soffit and the modeled high-water level under 50-year design storm.
- The proposed structure is predicted to overtop the roadway under the Regional Storm event, and it does not comply with MRNF flood hazard criteria.
- The proposed structure has no negative impacts compared to the existing bridge, indicating no adverse impacts relative to current conditions.

The revised HEC-RAS model will be included in this submission as **Attachment 2.**

Table 2: Proposed Bridge Crossings Summary

Crossing	Span*	Rise	Soffit El.	Trav Lane El.	Design Storm - 50 Year Event			Regional								
					W/S El. U/S	Clearance (From Soffit)	Freeboard	W/S El.	Roadway Over Top	Depth	MNRF[1] Criteria Depth	Average Velocity	MNRF[2] Criteria Velocity	Depth x Average Velocity	MNRF[3] Criteria D x V	MNRF[6] Criteria
	m	m	m	m	m	m	m	m	Y/N	m	Y/N	m/s	Y/N	m *m/s	Y/N	Y/N
Existing Bridge	30.38	4.53	296.75	298.14	297.38	-0.63	0.76	298.69	Y	0.55	N	0.88	N	0.48	N	N
Proposed Bridge	35.60	4.53	296.75	298.14	297.34	-0.59	0.80	298.65	Y	0.51	N	0.86	N	0.44	N	N

[*] Span is measured between inside faces of abutments

MNFR Flood Hazard Assessment Criteria
[1] MNRF Criteria; Maximum Depth; *< 0.3 m but velocity cannot exceed 4.5 m/s and* ***if depth is 0.3 to 0.6 m but the velocity cannot 0.6 m/s.***
[2] MNRF Criteria; *velocity cannot exceed 4.5 m/s at depths of < 0.3 and* ***velocity cannot exceed 0.6 m/s at depths of 0.3 to 0.6 m****.*
[3] MNRF Criteria; *People's Safety,* ***Low Risk at < 0.4 m*m/s.***

3.2 Sensitivity Analysis – Increased Bridge Span

A sensitivity analysis was performed on the model to assess whether the hydraulic non-compliance identified for the proposed 37 m bridge is primarily driven by incoming flow and bridge-span constraints or by broader river system controls within the hydraulic model. This sensitivity analysis was undertaken using a substantially increased bridge span of 75 m.

This span represents more than double the preliminary proposed bridge length and is not intended as a feasible design option, but rather as a diagnostic test to evaluate the influence of bridge opening size on hydraulic performance at the site. This assessment has been undertaken to support the review by GRCA and to provide additional context for understanding the hydraulic considerations governing the site, given that the preliminary bridge configuration does not satisfy applicable MTO HDDS and MNRF hydraulic performance criteria.

The hydraulic model was updated to replace the proposed 37 m bridge with a 75 m span structure, while maintaining the same deck level, soffit elevation, and channel geometry. Simulations were conducted for the 50-year design and the regulatory flow event. Model results indicate that, despite the significant increase in bridge span, the 75 m bridge does not achieve compliance with the design criteria.

Overtopping of the bridge deck remains present during the regulatory flow, with no vertical clearance achieved between the bridge soffit and the simulated water surface under the 50-year design flow. Compared to the 37 m bridge scenario, only marginal reductions in water levels were observed, with no meaningful improvement in hydraulic conveyance through the bridge opening.

The limited sensitivity of model results to the increased bridge span indicates that bridge span size is not the controlling factor governing flow-through capacity at this location within the received model apparatus. The results suggest that:

- Water surface elevations could be influenced by backwater impacts rather than local constriction effects at the bridge; or
- Due to the existing model having instabilities at and/or upstream of the existing structure.

When reviewing the downstream channel from the site, the anticipated backwater impacts at the site occur from the presence of a downstream channel constriction at the James Aggregate Site located approximately 1.2 km from the site. The constriction is modelled in HEC-RAS as an obstruction and provides a visually apparent backwater that propagates upstream to the bridge location. This backwater effect impacts bridge flow-through capacity during high-flow events at the site and limits the effectiveness of increasing bridge span alone as a mitigation measure.

However, in reviewing if this was the primary impact to the reduction of bridge flow through capacity, a scenario was run where the constriction was removed and bridge tailwater conditions were drastically reduced. The results of this scenario demonstrated negligible improvements to the bridge headwater elevations. This indicates that a more fundamental issue relating to the existing model set up, likely due to the river cross sections leading up to the bridge which could be of concern. At this stage of design development, it is beyond the scope of work to address underlying model issues. The sensitivity analysis therefore concludes that the existing model will be used as a comparison tool to evaluate if the proposed structure will not make conditions worse than the existing structure.

Results of the sensitivity analysis are illustrated in Table 3 and Table 4.

Table 33: HEC-RAS Results of 75m-span Bridge

Crossing	Span*	Rise	Soffit El.	Trav Lane El.	Design Storm - 50 Year Event			Regional								
					W/S El. U/S	Clearance (From Soffit)	Freeboard	W/S El.	Roadway Over Top	Depth	MNRF[1] Criteria Depth	Average Velocity	MNRF[2] Criteria Velocity	Depth x Average Velocity	MNRF[3] Criteria D x V	MNRF[6] Criteria
	m	m	m	m	m	m	m	m	Y/N	m	Y/N	m/s	Y/N	m *m/s	Y/N	Y/N
75 m Span Bridge	75.00	4.53	296.75	298.14	297.21	-0.46	0.93	298.50	Y	0.36	N	0.82	N	0.30	Y	N

[*] Span is measured between inside faces of abutments

MNFR Flood Hazard Assessment Criteria
[1] MNRF Criteria; Maximum Depth; *< 0.3 m but velocity cannot exceed 4.5 m/s and* ***if depth is 0.3 to 0.6 m but the velocity cannot 0.6 m/s.***
[2] MNRF Criteria; *velocity cannot exceed 4.5 m/s at depths of < 0.3 and* ***velocity cannot exceed 0.6 m/s at depths of 0.3 to 0.6 m****.*
[3] MNRF Criteria; *People's Safety,* ***Low Risk at < 0.4 m*m/s.***

Table 44: Sensitivity Comparison under Regulatory Flow Event

Performance	W.S. US. (m)*	E.G. Elev (m)	Q Total (m^3/s)	Q Bridge (m^3/s)	Q Weir (m^3/s)
Existing Condition (30.38 m Bridge Span)	298.69	298.77	653.00	313.91	339.09
Proposed Condition (35.60 m Bridge Span)	298.65	298.72	653.00	333.36	319.64
Sensitivity Analysis (75.00 m Bridge Span)	298.50	298.59	653.00	399.17	253.83

[*] Road Elevation at 298.14 m

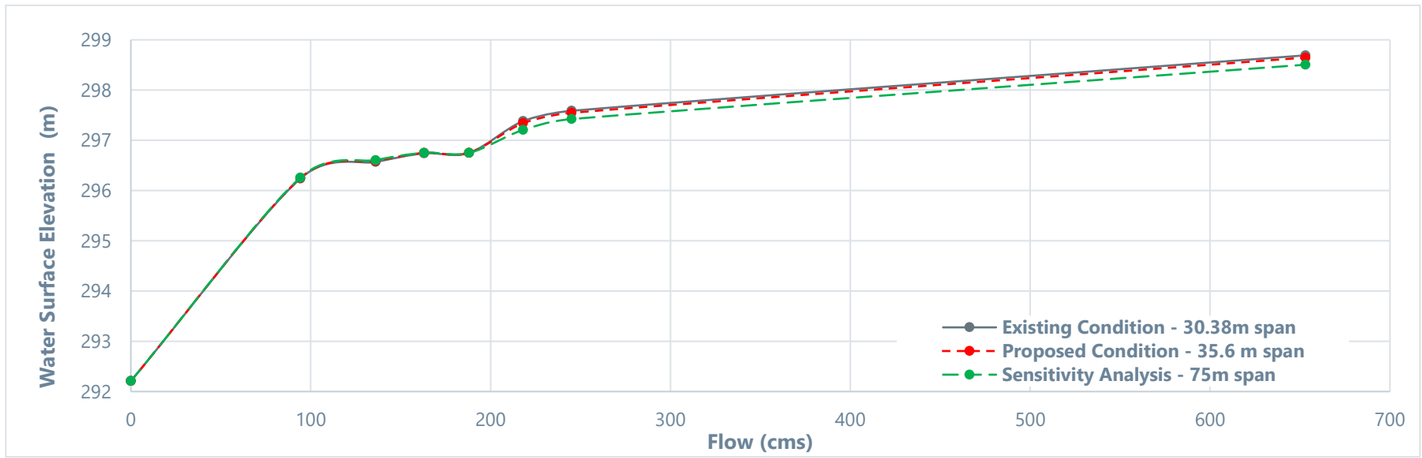


Figure 12: Rating Curves under Regulatory Flow Event

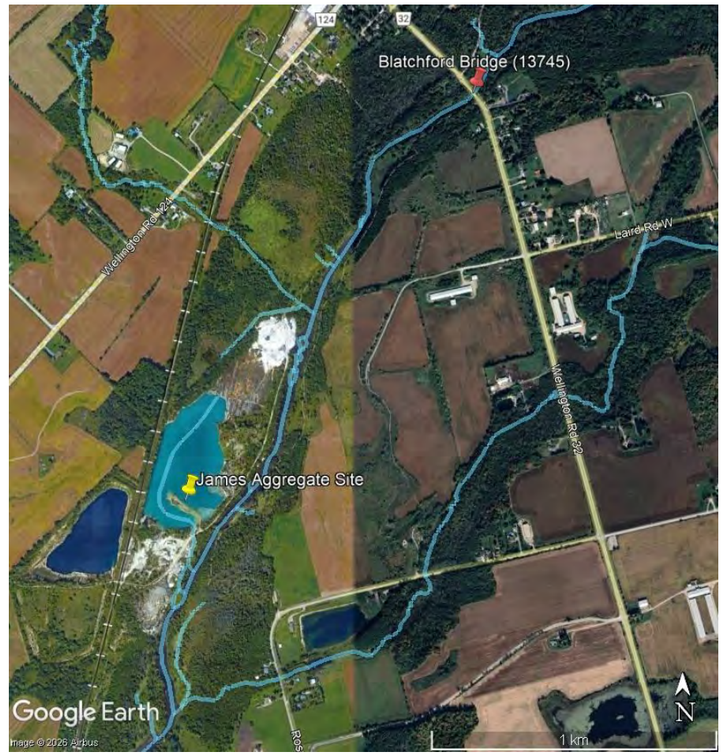


Figure 11: Location of Blatchford Bridge and Downstream Constriction

3.3 Scour Assessment

A detailed scour assessment has not been completed at this stage. Scour estimation and evaluation will be undertaken during the detailed design phase. The assessment will consider contraction scour, abutment scour, and long-term general scour for channel stability and to inform scour protection design.

4 CONCLUSION

This technical memorandum was prepared to support the Municipal Class Environmental Assessment for the replacement of Blatchford Bridge (Structure ID: B032085) on Wellington Road 32 by summarizing the hydraulic assessment. The assessment evaluated existing and proposed conditions, applicable design criteria, and potential hydraulic impacts in accordance with MTO and MNRF requirements.

Based on the review and analysis completed, the following conclusions are drawn:

- The existing structure does not meet the applicable MTO HDDS and MNRF hydraulic requirements.
- The preliminary proposed structure does not meet the design criteria; however, the proposed condition model results indicate minor improvements and no adverse hydraulic impacts compared to the existing conditions.
- The sensitivity analysis demonstrates that even a substantial increase in bridge span does not resolve the identified hydraulic non-compliances. Potential underlying issues within the existing model limit flow through capacity at site B032085. The findings provide technical support for GRCA consideration of the proposed works within the site-specific hydraulic limitations.
- A detailed scour assessment will be completed during the detailed design stage of the project.

Regards,



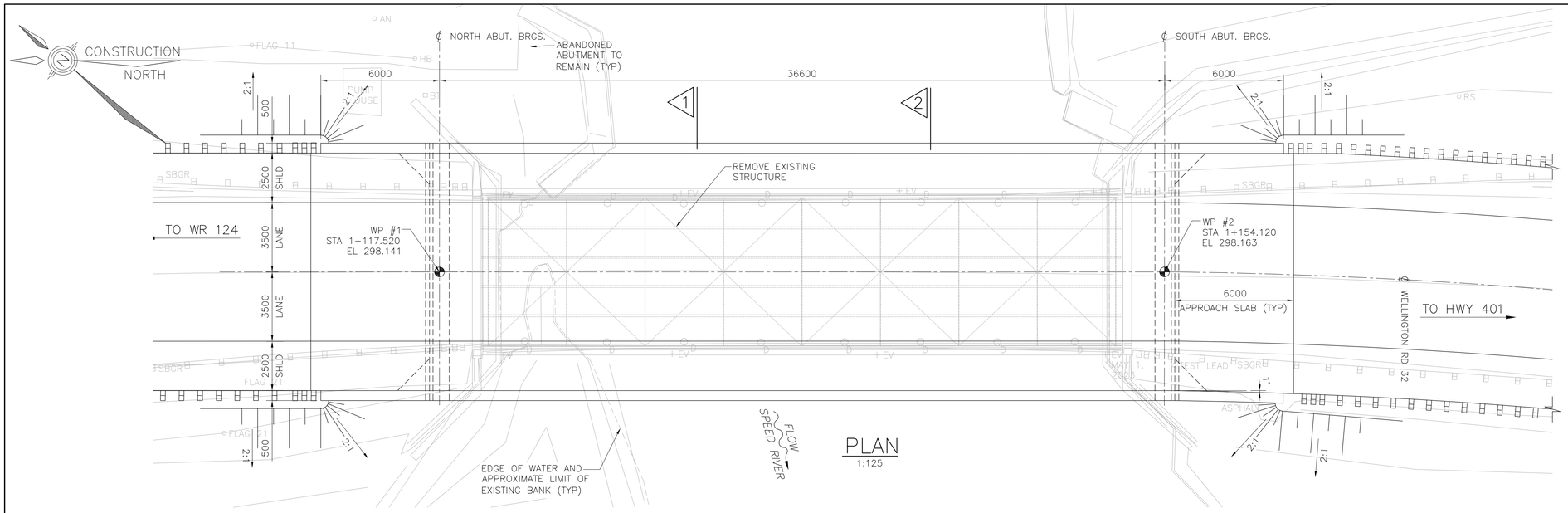
Evan May, P.Eng.

Principal Drainage Engineer, Gannett Fleming

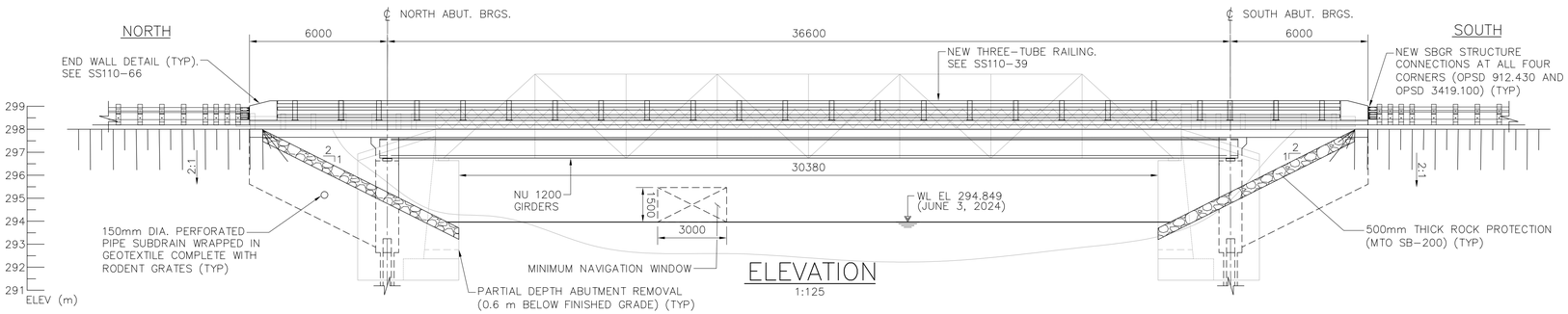
Included Attachments:

Attachment 1 – Proposed Bridge General Arrangements

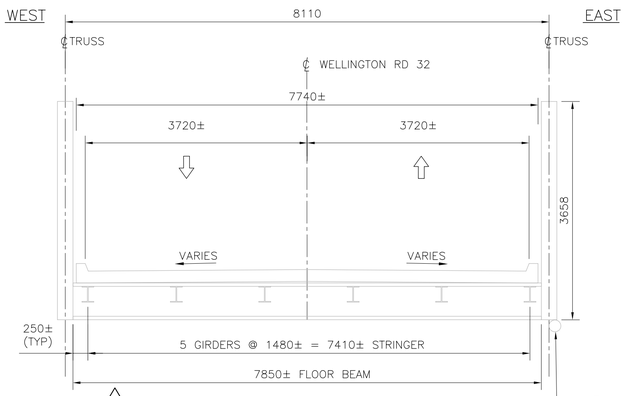
Attachment 2 – Digital HEC-RAS Model



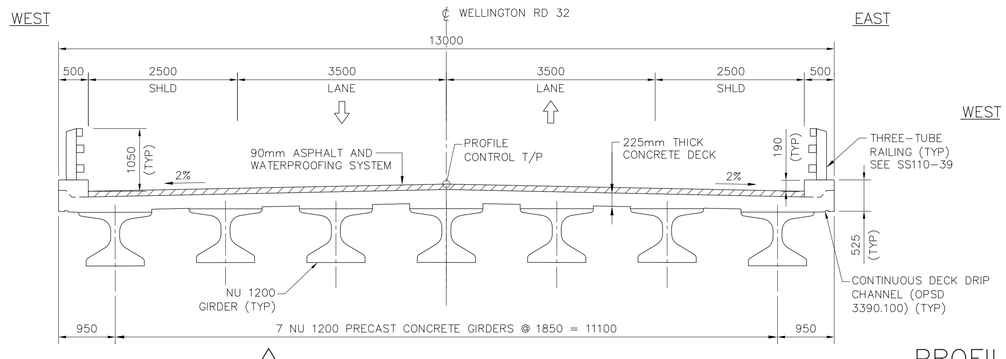
PLAN
1:125



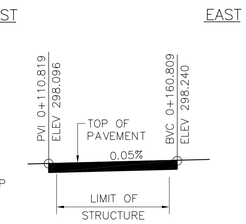
ELEVATION
1:125



1 TYPICAL EXISTING SECTION
1:50



2 TYPICAL PROPOSED SECTION
1:50



PROFILE OF COUNTY RD 32
N.T.S.

GENERAL NOTES:

DESIGN CODE:
CHBDC 2025 CAN/CSA S6-25 LIVE LOAD: CL-625-ONT

CLASS OF CONCRETE:
ALL CONCRETE UNLESS OTHERWISE NOTED 35 MPa AT 28 DAYS.
CLASS C-1 PER CSA 23.1

CLEAR COVER TO REINFORCING STEEL:
DECK:

TOP	70	±	20
BOTTOM	40	±	10
REMAINDER, UNLESS OTHERWISE NOTED:	70	±	20

REINFORCING STEEL:
1. REINFORCING STEEL SHALL BE WELDABLE GRADE 500W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS B.
3. STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500MPa, UNLESS OTHERWISE SPECIFIED.
4. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
5. BAR MARKS WITH PREFIX G DENOTE GRADE III GLASS FIBRE REINFORCED POLYMER BARS (E=60GPa).
6. GLASS FIBRE REINFORCED POLYMER REINFORCING BARS SHALL BE GRADE I, GRADE II, OR GRADE III AS SPECIFIED IN THE CONTRACT DRAWINGS. THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH DRAWINGS, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. NO BACKFILL SHALL BE PLACED BEHIND END OF DECK UNTIL DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED STRENGTH.
5. SUBDRAINS SHALL BE EXTENDED TO THE LIMIT OF GRADING FROM SLOPE TO SLOPE AND INSTALLED COMPLETE WITH RODENT GRATING (TYPICAL).
6. ROCK PROTECTION (MTO WB-200) TO BE PLACED TO A MINIMUM DEPTH OF 500mm AS SHOWN. WB-200 LAYER TO BE TOP DRESSED WITH A 100mm THICK LAYER OF TABLE A SUBSTRATE.

LIST OF DRAWINGS:
1. GENERAL ARRANGEMENT

LIST OF ABBREVIATIONS:

BRGS	DENOTES BEARINGS
WP	DENOTES WORKING POINT
T/P	DENOTES TOP OF PAVEMENT
T/FTG.	DENOTES TOP OF FOOTING
HWL	DENOTES HIGH WATER LEVEL
SBGR	DENOTES STEEL BEAM GUIDE RAIL
SHLD	DENOTES SHOULDER

APPLICABLE STANDARD DRAWINGS:
OPSD – 0219.130 HEAVY DUTY SILT FENCE BARRIER
OPSD – 0219.240 DEWATERING TRAP
OPSD – 0219.260 TURBIDITY CURTAIN
OPSD – 0219.261 TURBIDITY CURTAIN, SEAM DETAIL
OPSD – 0912.430 GUIDE RAIL SYSTEM, STEEL BEAM STRUCTURE CONNECTION
OPSD – 3101.150 WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT
OPSD – 3102.100 WALLS, ABUTMENT, BACKFILL DRAIN
OPSD – 3190.100 WALLS, RETAINING AND ABUTMENT WALL DRAIN
OPSD – 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD – 3390.100 DECK DRIP CHANNEL
OPSD – 3419.100 BARRIERS AND RAILINGS STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
OPSD – 3950.100 CONCRETE EXPANSION AND CONSTRUCTION JOINT ON STRUCTURE.

METRIC
ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.

NO.	DESCRIPTION	DATE	INITIAL
	REVISIONS		

SCALE	AS SHOWN	DESIGNED	AW
DATE	JANUARY 2026	CHECKED	WVR
DRAFTING	SC	DESIGN CODE	CAN/CSA S6-19
CHECKED	WVR		078320
FIELD BK.	PAGE	PROJECT	
BENCH M	297.058, 301.051		

COUNTY OF WELLINGTON

REPLACEMENT OF BLATCHFORD BRIDGE STRUCTURE NO. B032085

GENERAL ARRANGEMENT

CW2026-0XX
PROJECT NO.

DRAWING NO.
S1

Appendix E

Cultural Heritage Evaluation Report

GFT

Cultural Heritage Evaluation Report

Blatchford Bridge
(Structure Number B032085)

County of Wellington, Ontario

Draft Report

Prepared for:

Gannett Fleming Canada ULC
200 Bay Street, Suite 1600
Toronto ON M5J 2J3

Archaeological Services Inc. File: 23CH-105

June 2024 (Updated August 2024)



Executive Summary

Archaeological Services Incorporated was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Cultural Heritage Evaluation Report (C.H.E.R.) for the Blatchford Bridge (Structure Number 032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario. The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. As the subject bridge was constructed before 1956, it requires a C.H.E.R. to determine cultural heritage value or interest as part of this Environmental Assessment (Municipal Engineers Association, 2023).

This report includes an evaluation of the cultural heritage value or interest of the structure as determined by the criteria in Ontario Regulation 9/06 of the *Ontario Heritage Act.* This evaluation determined that the bridge has design/physical and historical/associative value in the local context. In particular, the subject bridge is a good representative of a half-through (pony) truss bridge in the Township of Guelph/Eramosa and the Township of Puslinch, and is historically linked to an engineer of local importance.

Based on the results of the assessment, the following recommendations have been developed:

1. A Heritage Impact Assessment (H.I.A.) should be completed for Blatchford Bridge during the preliminary design phase. The H.I.A. will help to identify alternatives as well as mitigation and monitoring commitments to avoid or lessen impacts on the heritage attributes of the bridge, based on the proposed Statement of Cultural Heritage Value or Interest. This assessment should be completed by a qualified person who has relevant and recent experience in the conservation of road bridges (see Section 3.0 of the

Standards and Guidelines for Conservation of Provincial Heritage Properties (Ministry of Citizenship and Multiculturalism, 2014) as a guide for best practice) and submitted to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee for review and approval and to the Ministry of Citizenship and Multiculturalism (M.C.M.) for review.

2. The proponent should submit this report for review and comment to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, the M.C.M., and to any other relevant stakeholder that has an interest in the heritage of the subject bridge. Any feedback will be incorporated into this report prior to finalization. The final report should be submitted to the Wellington County Museum and Archives for archival purposes.

Report Accessibility Features

This report has been formatted to meet the Information and Communications Standards under the *Accessibility for Ontarians with Disabilities Act*, 2005 (A.O.D.A.). Features of this report which enhance accessibility include: headings, font size and colour, alternative text provided for images, and the use of periods within acronyms. Given this is a technical report, there may be instances where additional accommodation is required in order for readers to access the report's information. If additional accommodation is required, please contact Annie Veilleux, Manager of the Cultural Heritage Division at Archaeological Services Incorporated, by email at aveilleux@asiheritage.ca or by phone 416-966-1069 ext. 255.

Project Personnel

- **Senior Project Manager**: Lindsay Graves, M.A., C.A.H.P., Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division
- **Project Coordinator:** Jessica Bisson, B.F.A. (Hon), Cultural Heritage Technician, Division Coordinator – Cultural Heritage Division
- **Project Manager**: Kirstyn Allam, B.A. (Hon), Advanced Dipl. Applied Museum Studies, Cultural Heritage Analyst, Project Manager - Cultural Heritage Division
- **Field Review**: Lindsay Graves, Becca Clark, B.A. (Hon), Adv. Dipl. Applied Museum Studies, Cultural Heritage Technical Writer & Researcher, Project Administrator – Cultural Heritage Division
- **Historical Research**: Becca Clark
- **Report Production**: Becca Clark
- **Graphics Production**: Andrew Clish, B.E.S., Senior Archaeologist - Planning Assessment Division
- **Report Reviewer(s)**: Lindsay Graves, Kirstyn Allam

For further information on the Qualified Persons involved in this report see Appendix A.

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1.0 Introduction

Archaeological Services Incorporated was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Cultural Heritage Evaluation Report (C.H.E.R.) for the Blatchford Bridge (Structure Number 032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario (Figure 1). The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. As the subject bridge was constructed before 1956, it requires a C.H.E.R. to determine cultural heritage value or interest as part of this Environmental Assessment (Municipal Engineers Association, 2023).

1.1 Project Overview

The Schedule B Municipal Class Environmental Assessment Study for the Blatchford Bridge is being completed to confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement and evaluate associated impacts. The 2021 Biennial Inspection evaluated the bridge as being in fair condition. The 2023 Biennial Inspection presented a Bridge Condition Index (B.C.I.) of 62.08 and recommended replacement or rehabilitation of the subject bridge within one to five years (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021).

The subject bridge is not identified as a built heritage resource by the municipality and is not included on the *Ontario Heritage Bridge List* (Ministry of Transportation, 2010). The C.H.E.R. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. A Municipal Bridges Criteria for Evaluating Potential Cultural Heritage Resources Checklist can be found in Appendix B. Research was completed to investigate, document, and evaluate the cultural

heritage value of the subject bridge. The C.H.E.R. was conducted by Kirstyn Allam, Cultural Heritage Analyst, and Becca Clark, Cultural Heritage Technician, under the senior project management of Lindsay Graves, Senior Project Manager, of the Cultural Heritage Division, A.S.I.



Figure 1: Location of Blatchford Bridge on Wellington Road 32 between Wellington Road 124 and Laird Road West, County of Wellington. Source: (c) Open Street Map contributors, Creative Commons n.d.

1.2 Legislation and Policy Context

Pursuant to the *Environmental Assessment Act* (Ministry of the Environment 1990), applicable infrastructure projects are subject to heritage assessment and/or evaluation to identify built heritage resources and cultural heritage landscapes and to determine related impacts on identified heritage properties (Ministry of Transportation, 2007). Infrastructure projects have the potential to impact built heritage resources and cultural heritage landscapes in a variety of ways such as loss or displacement of resources through removal or demolition and the disruption of resources by introducing physical, visual, audible, or atmospheric elements that are not in keeping with the resources and/or their setting.

The analysis used throughout the cultural heritage evaluation process addresses cultural heritage resources under other various pieces of legislation and their supporting guidelines. These policies form the broad context which frame this assessment, and are included as relevant to this undertaking based on professional opinion and with regard for best practices:

- *Provincial Policy Statement* (Ministry of Municipal Affairs and Housing, 2020);
- *Environmental Assessment Act* (Ministry of the Environment 1990);
- *Ontario Heritage Act* (Ontario Heritage Act, R.S.O. c. O.18, [as Amended in 2023], 1990);
- *Ontario Heritage Tool Kit* (Ministry of Citizenship and Multiculturalism, 2006);
- *Ontario Heritage Bridge Guidelines* (Ministry of Culture and Ministry of Transportation, 2008);
- *Municipal Bridges Criteria for Evaluating Potential for Cultural Heritage Resources* (Municipal Engineers Association, 2023); and
- *Ontario Regulation 160/02, Standards for Bridges* (Public Transportation and Highway Improvement Act, R.S.O. 1990, c.P.50, 2002).

1.3 Approach to Cultural Heritage Evaluation Reports

The scope of a C.H.E.R. is guided by the *Ontario Heritage Tool Kit* (Ministry of Citizenship and Multiculturalism, 2006).

Generally, C.H.E.R.s include the following components:

- A general description of the history of the subject bridge as well as detailed historical summaries of property ownership and building(s) development;
- A description of the cultural heritage landscapes and built heritage resources that are under evaluation in this report;
- Representative photographs of the exterior and interior of a building or structure, and character-defining architectural details;
- A cultural heritage resource evaluation guided by the *Ontario Heritage Act* criteria;
- A summary of heritage attributes;
- Historical mapping, photographs; and
- A location plan.

Using background information and data collected during the site visits, the property is evaluated using criteria contained within Ontario Regulations 9/06 of the *Ontario Heritage Act*. The criteria require a full understanding, given the resources available, of the history, design and associations of all cultural heritage resources of the property in the community context. If a property meets one criterion in Ontario Regulation 9/06, it is eligible for inclusion on a municipal heritage register as a non-designated, listed property. If a property meets two or more criteria, then it is eligible for designation under the *Ontario Heritage Act* (Ministry of Citizenship and Multiculturalism, 1990).

2.0 Community Engagement

The following section outlines the community consultation that was undertaken to gather and review information about the subject bridge.

2.1 Information Gathering

The following stakeholders were contacted with inquiries regarding the heritage status and for information concerning the subject bridge and any additional adjacent built heritage resources or cultural heritage landscapes:

- Laura Emery, Communications and Committee Coordinator, Puslinch Township (email communication 27 and 28 May 2024). Email correspondence confirmed that there are no previously identified heritage resources or concerns regarding the subject bridge area within Puslinch Township.
- Amanda Roger, Planning Technician, Township of Guelph/Eramosa (email communication May 29 2024). Email correspondence did not provide any information about known built heritage resources or cultural heritage landscapes surrounding the area; correspondence instead redirected any research to the County of Wellington.
- Zachary Prince, Senior Planner, County of Wellington (email communication May 30 2024). An inquiry was made to confirm the presence of any cultural heritage resources surrounding the subject bridge. At the time of report submission, correspondence is outstanding.
- The Ministry of Citizenship and Multiculturalism (email communication 27 May 2024). Email correspondence confirmed that no properties have been designated by the Minister and that they are not aware of any known Provincial Heritage Properties within or adjacent to the subject bridge. Email correspondence did bring attention to the potential cultural heritage value or interest of the bridge as it is identified in Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013).

- Samuel Bayefsky, Real Property Coordinator, Ontario Heritage Trust (email communications 27 and 30 May 2024). A response indicated that there are no conservation easements or Trust-owned properties adjacent to the subject structure.

2.2 Agency Review

The draft report will be submitted to the County of Wellington, the Township of Guelph/Eramosa, the Township of Puslinch, Wellington County Information, Heritage and Seniors Committee, the Puslinch Heritage Committee, and Heritage Guelph/Eramosa for review and comment. Any feedback received will be considered and incorporated into this report as appropriate. The final cultural heritage evaluation report will be submitted to the Ministry of Citizenship and Multiculturalism, and the County of Wellington for their information.

2.3 Indigenous Nations Engagement

Indigenous Nation Engagement for this project is being completed by Gannett Fleming Canada ULC to Indigenous Nations that have an interest in the subject bridge. At the time of submission, Gannett Fleming Canada ULC has prepared draft notices of commencement of the project (email communication with Gannett Fleming Canada ULC 27 May 2024) for the Mississaugas of the Credit First Nation, Six Nations of the Grand River and Haudenosaunee Confederacy Chiefs Council c/o Haudenosaunee Development Institute. If any of the above mentioned Indigenous Nations express interest in the project, this draft Cultural Heritage Evaluation Report should be provided for review and feedback.

3.0 Description of the Structure and Crossing

The following section provides a description of the subject bridge and crossing.

3.1 Existing Conditions

The Blatchford Bridge is a single-span half-through (also called a Warren pony) truss bridge with cast-in-place concrete abutments and wingwalls (Figure 9). The bridge carries Wellington Road 32 over the Speed River. The subject bridge was constructed by the Dominion Bridge Company Ltd. in 1949 based on the designs of William Hargreave (W.H.) Keith. The bridge underwent a partial replacement of the lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010 (WSP Canada Inc., 2021).

The Blatchford Bridge is located 0.8 kilometres south of Wellington Road 124 and straddles the Townships of Guelph/Eramosa and Puslinch, County of Wellington. The bridge is within a rural context with naturalized lands and large rural residential properties surrounding the immediate vicinity. North of the bridge at the intersection of Wellington Roads 32 and 124 the area is industrialized. The private residential properties to the northeast and northwest of the bridge are heavily wooded and not visible from the right-of-way. The Speed River has a general northeast-southwest orientation under the bridge, with the watercourse curving south after being carried southwest beneath the bridge. The Guelph to Cambridge Hiking Trail crosses the deck of the bridge from the north and continues west along the south bank of the Speed River. Below the east side of the bridge on the northeast and southeast banks of the river there are remnants of a previous bridge. South of the bridge there are large expanses of farmland with some smaller residential parcels interspersed.



Figure 2: Aerial image of the subject bridge in the County of Wellington (Google Maps).

3.2 Heritage Recognitions

The subject bridge is not recognized as a known heritage resource or potential heritage property by the municipality, region, county, province, or federal government. The subject bridge is identified as a heritage bridge in Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013). The description of the bridge from the Grand River Watershed Heritage Bridge Inventory is provided in Appendix C.

3.3 Adjacent Lands

The subject bridge is located in a rural agricultural context with a naturalized landscape to the north and active farmscapes to the south of the subject bridge along Wellington Road 32. No adjacent properties are listed or designated under the *Ontario Heritage Act.* The Speed River, which runs underneath the subject bridge, is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989).

4.0 Research

This section provides: the results of primary and secondary research; a discussion of historical or associative value; a discussion of physical and design value; a discussion of contextual value; and results of comparative analysis.

4.1 List of Key Sources, Report Limitations, and Site Visit Information

The following section describes the sources consulted and research activities undertaken for this report.

4.1.1 Key Sources

Background historical research, which includes consulting primary and secondary source documents, photos, and historic mapping, was undertaken to identify early settlement patterns and broad agents or themes of change in the subject bridge. In addition, online historical research was undertaken through the websites of the following libraries and archives to build upon information gleaned from other primary and secondary materials:

- Wellington County Museum and Archives (email communication 27 May 2024). Information was provided regarding primary and secondary sources for pre-amalgamation Guelph Township.
- Guelph Public Library (collection accessed 6 June 2024). Research conducted via City Council Minutes yielded no results.
- Puslinch Public Library (email communication 28 May 2024). Inquiry resulted in a recommendation to contact the Puslinch Historical Society.
- Puslinch Historical Society (email communication 29 May 2024). Inquiry resulted in reception of primary and secondary materials.

Available federal, provincial, and municipal heritage inventories and databases were also consulted to obtain information about the properties. These included:

- Township of Guelph/Eramosa Municipal Heritage Register (Township of Guelph-Eramosa, n.d.);
- Township of Puslinch Heritage Register (Puslinch Township, 2024);
- Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013);
- The *Ontario Heritage Act Register* (Ontario Heritage Trust, n.d.b);
- The *Places of Worship Inventory* (Ontario Heritage Trust, n.d.c);
- The inventory of Ontario Heritage Trust easements (Ontario Heritage Trust, n.d.a);
- The Ontario Heritage Trust's *An Inventory of Provincial Plaques Across Ontario*: a PDF of Ontario Heritage Trust Plaques and their locations (Ontario Heritage Trust, 2023);
- Parks Canada's *Directory of Federal Heritage Designations*, an online database that identifies National Historic Sites, National Historic Events, National Historic People, Heritage Railway Stations, Federal Heritage Buildings, and Heritage Lighthouses (Parks Canada, n.d.b);
- Parks Canada's *Historic Places* website, an online register that provides information on historic places recognized for their heritage value at all government levels (Parks Canada, n.d.a); and
- Inventory of bridges included at *Historicbridges.com*.

No previous consultant reports associated with potential above-ground cultural heritage resources and archaeological resources within and/or adjacent and/or in the vicinity of the subject bridge in the Township of Guelph/Eramosa and Township of Puslinch, County of Wellington were available for review as part of this assessment.

A full list of references consulted can be found in Section 8.0 of this document.

4.1.2 Research and Report Limitations

No research or reporting limitations were identified for this assessment.

4.1.3 Site Visit

A site visit to the subject bridge was conducted on 23 May 2024 by Lindsay Graves and Becca Clark of Archaeological Services Incorporated (A.S.I.). The site visit included photographic documentation of the structure from the Wellington Road 32 right-of-way and the Guelph to Cambridge Hiking Trail. Permission to Enter was not required for adjacent properties, as all work was conducted from the publicly-accessible right-of-way.

4.2 Discussion of Historical or Associative Value

Historically, the bridge was located on and between Lot 10, Division B South of Waterloo Road in Guelph Township, and Lots 5 to 6, Concession 5 in the Township of Puslinch, within Wellington County. It is now located on the boundary of the Township of Guelph/Eramosa and the Township of Puslinch.

4.2.1 Summary of Early Indigenous History in Southern Ontario

Current archaeological evidence indicates humans were present in southern Ontario approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy woodworking tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These

activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest archaeological evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is interpreted by archaeologists to be indicative of increased social organization and the investment of labour into social infrastructure (Brown, 1995, p. 13; Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), larger settlement sites focused on horticulture begin to dominate the archaeological record. Seasonal dispersal of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., archaeological research focusing on these horticultural societies note that this episodic community dispersal was no longer practised and these

populations now occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of these First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. Other First Nation communities continued to practice residential mobility and to harvest available resources across landscapes they returned to seasonally/annually.

By 1600 C.E., the Confederation of Nations were encountered by the first European explorers and missionaries in Simcoe County. Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained “la nation neutre”. Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral or Attawandaron people were settled village agriculturalists. By the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee and the Attawandaron and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to their dispersal from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

The subject bridge is within the boundaries of Treaty #3, the Between the Lakes Purchase, of 1792.

Following the American Revolutionary War, the British Crown needed to find lands on which to settle United Empire Loyalists, including approximately 2,000 members of the Six Nations confederacy who had fought alongside British troops. Led by Sir Frederick Haldimand who was the governor of Quebec at that time, the Crown was initially planning on providing lands for Loyalist settlers in Quebec and Southeastern Ontario, including providing land in the Bay of Quinte for Six Nations refugees. This was not suitable for many of the members of Six

Nations and a contingent of approximately 1,800 community members, led by Chief Joseph Brant, requested land north of Lake Erie along the Grand River. Brant felt that the location in the Bay of Quinte was too isolated and that his followers could be better served by being closer to the Six Nations communities that chose to remain in the United States in western New York (Surtees, 1984, p. 21).

Recognizing that under the terms of the Royal Proclamation the land needed to be purchased prior to settlement, Colonel John Butler was sent to negotiate with the Mississaugas of the Credit for lands east of Lake Ontario and north of Lake Erie. On May 22, 1784, the Mississaugas of the Credit agreed to cede approximately 3,000,000 acres (1,214,057 hectares) of land containing all or part of Brant, Elgin, Middlesex, Oxford, and Wellington Counties as well as the Regions of Haldimand-Norfolk, Halton, Hamilton-Wentworth, Niagara, and Waterloo. In exchange for these lands, the Mississaugas received £1180.74 worth of trade goods (Crown-Indigenous Relations and Northern Affairs 2016; Surtees 1984). Of the 3,000,000 acres (1,214,057 hectares), approximately 550,000 acres (222,577 hectares) was set aside for the settlement of Six Nations people.

However, due to uncertainties with the description of the lands in the original surrender, Treaty #3 was renegotiated on December 7, 1792, to clarify what was ceded. This largely revolved around the northern boundary of the Treaty area and in particular the area set aside for Six Nations settlement along the Grand River (see Haldimand Tract and Treaty #4). The signees on the side of the British included Lieutenant Governor John Graves Simcoe, John Butler, Robert Kerr, Peter Russell, John McGill, and Davie William Smith. The signees on the side of the Mississauga included Chiefs Wabakayne, Wabanip, Kautabus, Wabaniship and Mottotow (Crown-Indigenous Relations and Northern Affairs, 2016; Mississaugas of the Credit First Nation, 2017; Surtees, 1984).

The original text stipulated that the north-west boundary of the parcel was an imaginary line between Burlington Bay and the Thames River, which is inconsistent with the geography of the area. The boundaries of the parcel were

corrected to create a polygon encompassing the Niagara peninsula up to Burlington Bay and then up north to the present-day town of Arthur then south to the present-day town of Woodstock to finally meet Lake Erie at Port Bruce. (Crown-Indigenous Relations and Northern Affairs, 2016; Native Land Digital, 2018).

4.2.2 Euro-Canadian Settlement

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed existing transit routes established by Indigenous peoples and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (A.S.I., 2006). Early European settlements occupied similar locations as Indigenous settlements as they were generally accessible by trail or water routes, and would have been in locations with good soil and suitable topography to ensure adequate drainage.

Throughout the period of initial European settlement, Indigenous groups continued to inhabit Southern Ontario, and continued to fish, gather, and hunt within their traditional and treaty territories, albeit often with legal and informal restrictions imposed by colonial authorities and settlers. In many cases, Indigenous peoples acted as guides and teachers, passing on their traditional knowledge to Euro-Canadian settlers, allowing them to sustain themselves in their new homes. Indigenous peoples entered into economic arrangements and partnerships, and often inter-married with settlers. However, pervasive and systemic oppression and marginalization of Indigenous peoples also characterized Euro-Canadian colonization, with thousands being displaced from their lands, denied access to traditional and treaty hunting, fishing, and collecting grounds, and forced to assimilate with Euro-Canadian culture through mandatory attendance at Day and Residential Schools (Ray, 2005; Rogers & Smith, 1994).

Historically, the subject bridge was located on and between Lot 10, Division B S of Waterloo Road in Guelph Township, Wellington County, and Lots 5 & 6, Concession 5 in the Township of Puslinch, Wellington County.

4.2.3 Township of Guelph

Historically, the subject bridge is located in the Townships of Guelph and Puslinch.

Guelph Township is named after the Royal House of Brunswick, family of the English monarch, George IV. Guelph Township was surveyed by John MacDonald in 1830. The land in the township was purchased by the Canada Company, which consisted of a group of British speculators who acquired more than two million acres of land in Upper Canada for colonization purposes (Mika & Mika, 1981). Many settlers arrived in the township before it was surveyed. The first Euro-Canadian settler in the township was Samuel Rife, who squatted near the western limits of the township around the year 1825. In 1827 a group of Scottish settlers called the La Guayrans were resettled in Guelph Township from Venezuela by the Canada Company.

Waterloo Road, formerly Broad Road, was built by Absalom Shade and was finished around 1827, the year the Town of Guelph was founded (Mika & Mika, 1981). Many settlers arrived in the township between the years 1827 and 1830. Guelph became the centre of the surrounding agricultural area and in 1851 was incorporated as a village. By 1879 the population of Guelph reached almost 10,000 and it was incorporated as a city. In 1887 the city built the Guelph Junction Railway, connecting the city to the Canadian Pacific Railway. The early 1900s saw the City of Guelph become an industrial epicentre, mainly in the production of furniture and gasoline engines for farm use.

The city expanded in the 1970s, annexing parts of the Township of Puslinch and the Township of Guelph. The Township of Guelph/Eramosa was incorporated in 1999 from the former townships of Guelph, Eramosa and parts of Pilkington and Nichol.

4.2.4 Township of Puslinch

The Township of Puslinch was surveyed between 1828 and 1831 and was named for Puslinch in Devonshire, England. The township is reported to have once been mostly a Clergy Reserve. Settlement began in or around 1828, and the first clergy reserve lot was sold in 1829. Township lands were not offered for sale until the survey was completed, two years later. Rowland Wingfield was the first to receive a patent in the township in 1832 for Lot 8, Concession 5. He was the first importer of thoroughbred cattle into Canada. Other early settlers included John MacFarlane, John and William Gordon, Peter Byrn, John Arkell, Thomas Arkell, and F. W. Stone. The township's first school was held in the early 1830's on Lot 18, Concession 8. It was later moved to a log building which also served as a church on Lot 17, Concession 7. From 1840 to 1849 Puslinch was represented on the Wellington District Council. After which its representatives sat on the Waterloo County Council until 1852 when the township was included in the United Counties of Wellington, Waterloo and Grey. In 1853 Puslinch officially became a part of the United Counties of Wellington and Grey. Finally, in 1854, Puslinch became one of the townships that formed the newly independent County of Wellington. During these changes Puslinch elected their first township council in 1849. Until a township hall was built in 1867 the council met at McMeekin's tavern, occasionally meeting at one of the other fifteen or so taverns operating in the township at that time (Mika & Mika, 1983).

Puslinch saw an increase in business surrounding the Credit Valley Railway system after its installation in 1880 (Puslinch Historical Society, n.d.). The Puslinch Railway Station became a shipping point for live stock and grain trade throughout southern Ontario. However, by 1925, Highway No. 6 was paved and created an overhead crossing of the railway. This created an extra hill that prevented trains from stopping in the town. This caused a cease in all associated business like livestock shipping and grain trade. In 1966 the Board of Transport Commission for Canada gave approval for the removal of the railroad station at Puslinch. The hamlet of Puslinch housed less than 100 people by the 1970s and those who lived there attended school and church in either Morriston or Freelton.

4.2.5 The Grand River Watershed

The subject bridge crosses the Speed River which is part of the Grand River watershed. The Grand River watershed is the largest watershed in southern Ontario at 6,800 square kilometres including the cities of Brantford, Cambridge, Guelph, Kitchener, and Waterloo. The Grand River watershed includes all the land drained by the Grand River and its tributaries. It begins in Dufferin County in the Dufferin Highlands and travels south 310 kilometres before emptying into Lake Erie at Port Maitland. The Conestogo, Nith, Speed and Eramosa rivers are the major four which feed into the Grand. Roughly 70 percent of the watershed is made of intensive agricultural areas (Grand River Conservation Authority, 2020).

The Grand River was an important transportation route and a critical resource extraction area for generations of Indigenous people. Historically, the Grand River has been utilized as a navigable waterway, as a power source (such power sites served as settlement nuclei), and above Brantford as a course for driving logs (Chapman & Putnam, 1984). It is also the focus of the Haldimand Tract; an area of six miles (10 kilometres) on either side of the river that was awarded to the Haudenosaunee in 1784 (Filice 2016; Lytwyn 2005). The Grand River (and its tributaries the Nith, Conestogo, Speed and Eramosa Rivers) was designated as a Canadian Heritage River in 1994 for its cultural history and recreation (Canadian Heritage Rivers System, 2016).

4.2.6 Dominion Bridge Company

The Blatchford Bridge was built by the Dominion Bridge Company. Founded in the nineteenth century, the Dominion Bridge Company was a Canadian steel bridge constructor originally based in Toronto in 1879 under the name Toronto Bridge Company. It moved to Lachine, Quebec in 1883. The company was then renamed the Dominion Bridge Company (A.S.I., 2018).

The company built numerous skyscrapers and bridges across Canada. It built all Canadian Pacific rail bridges between Montreal and Vancouver, and in 1886 it began construction on Canadian Pacific's cantilevered bridge over the St.

Lawrence River. In 1898, the company was awarded the contract to design and build the Royal Alexandra Interprovincial Bridge in Ottawa, one of Canada's most notable bridges. The Alexandra Bridge is a National Historic Civil Engineering Site. The Dominion Bridge Company opened a manufacturing site in Toronto after 1910. In 1925, the company built the Jacques Cartier Bridge in Montreal. It declined after 1975 and went bankrupt in 1998 (A.S.I., 2018). The company was bought after declaring bankruptcy and was sold again in 2003. The purchaser was Cintube, a former partner of the Dominion Bridge Company (Unterman McPhail Associates, 2019).

4.2.7 W.H. Keith

The Blatchford Bridge was built in 1949 by the Dominion Bridge Company according to the designs of William Hargreave (W.H.) Keith, Wellington County Engineer. The subject bridge was designed in order to replace the original bridge onsite (Hutchinson, 1998). Keith led the repair and replacement of a number of bridges within Wellington County in his time as County Engineer including Blatchford Bridge (1949), Bosworth Bridge (1949), Salem Bridge (1952), Rothsay Bridge (1953), Emerson Simmons Bridge (1952), and Flax Bridge (1954) (Benjamin et al., 2013).

4.2.8 Historical Chronology and Setting of the Subject Crossing

The following provides a brief overview of the historical chronology of the subject crossing, as provided in available sources, as well as a mapping review.

The subject bridge was constructed in 1949 and is a replacement of an earlier structure on Wellington Road 32 within the historical Townships of Guelph and Puslinch, County of Wellington.

The 1861 *Tremaine's Map of the County of Wellington* (Tremaine, 1861) and the 1877 *Illustrated Historical Atlas of the County of Wellington* (Walker and Miles, 1877) were reviewed to determine the historical setting of the subject bridge in the nineteenth century (Figure 3 and Figure 4). It should be noted, however,

that not all features of interest were mapped systematically in the Ontario series of historical atlases, given that they were financed by subscription, and subscribers were given preference with regard to the level of detail provided on the maps. Moreover, not every feature of interest would have been within the scope of the atlases.

The nineteenth-century maps demonstrate that while no bridge is indicated over the river in either the 1861 or 1877 mapping, an established road can be seen in both maps that crosses the river in the same area as the subject bridge, suggesting the presence of an earlier bridge. The north-south alignment of the road is reflected in this mapping along with the east-west alignment of the Speed River underneath. The subject bridge is surrounded by rural agricultural land with few structures.

In addition to nineteenth-century mapping, historical topographic mapping and aerial photographs were examined. This report presents maps and aerial photographs from 1916, 1936, 1954, and 1975 (Figure 5 to Figure 8). Generally, these maps demonstrate that the subject bridge retained a rural agricultural context throughout the late-nineteenth century and into the late-twentieth century.

The 1916 topographic map of Galt demonstrates that an iron bridge is present over the Speed River at this point (Figure 5). The represented bridge predates the subject bridge, suggesting again that an earlier structure was demolished before the subject bridge was installed. The remnants of a previous bridge sit adjacent to the current bridge wingwalls, indicating the presence of an earlier bridge from the early twentieth century. Wooded areas surround the subject bridge on both sides of Wellington Road 32 and the Speed River. Beyond that the bridge is located within an agricultural context with scattered wooden and stone/brick buildings marking the terrain along Wellington Roads 32 and 124. The Grand Trunk Railway curves from northeast to southwest across Wellington Road 124 southwest of the subject bridge.

The 1936 topographic map of Galt again demonstrates that a previous iron bridge is present over the Speed River (Figure 6). Wellington Road 32 is represented as a dirt road while Wellington Road 124 is represented as a paved main highway with electric power lines on steel towers. The railway is now owned by Canadian National. The number of structures surrounding the subject bridge did not increase during this period.

The Blatchford Bridge was built in 1949 by the Dominion Bridge Company according to the designs of William Hargreave (W.H.) Keith. The construction of the subject bridge is described in Section 4.3.5. The 1954 aerial photograph of Southern Ontario reflects the wooded and rural agricultural setting of the area surrounding the subject bridge and captures the bridge for the first time in the mapping (Figure 7). While a clear indication of the type of bridge cannot be found, Wellington Road 32 runs uninterrupted over the Speed River. Wellington Road 124 and the Canadian National Railway Line are visible northwest of the subject bridge. A small number of new structures are visible throughout the surrounding area, which remains largely wooded and agricultural.

The 1975 topographic map of Cambridge-Preston again shows the subject bridge in a rural agricultural setting (Figure 8). The majority of the bridge is within Guelph Eramosa Township, however a small portion crosses over to Puslinch Township. Along the banks of the Speed River the landscape remains largely untouched. Heading both north and south from the subject bridge there is an increase in the number of residential and industrial buildings along Wellington County Road 124 and Wellington County Road 32. Wellington County Road 32 is now marked as a paved highway as is Wellington County Road 124.

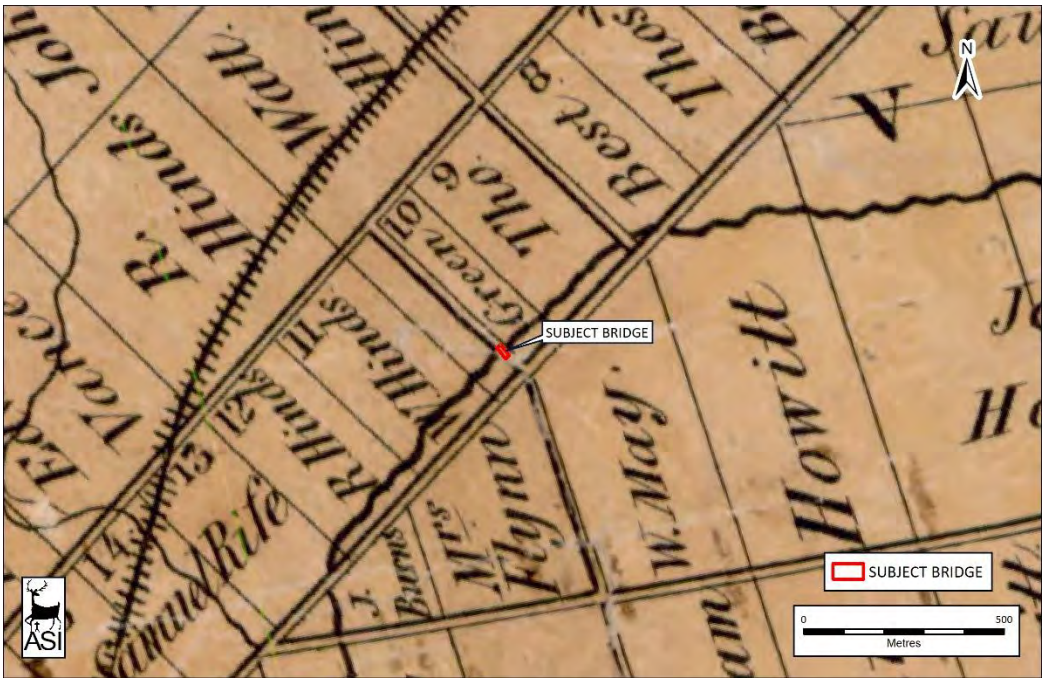


Figure 3: The location of the subject bridge overlaid on the 1861 *Tremaine's Map of the County of Wellington.* Source: (Tremaine, 1861)



Figure 4: The location of the subject bridge overlaid on the 1877 *Illustrated Historical Atlas of the County of Wellington.* Source: (Walker and Miles, 1877)



Figure 5: The location of the subject bridge overlaid on the 1916 topographical map of Galt. Source: (Department of Militia and Defence, 1916)

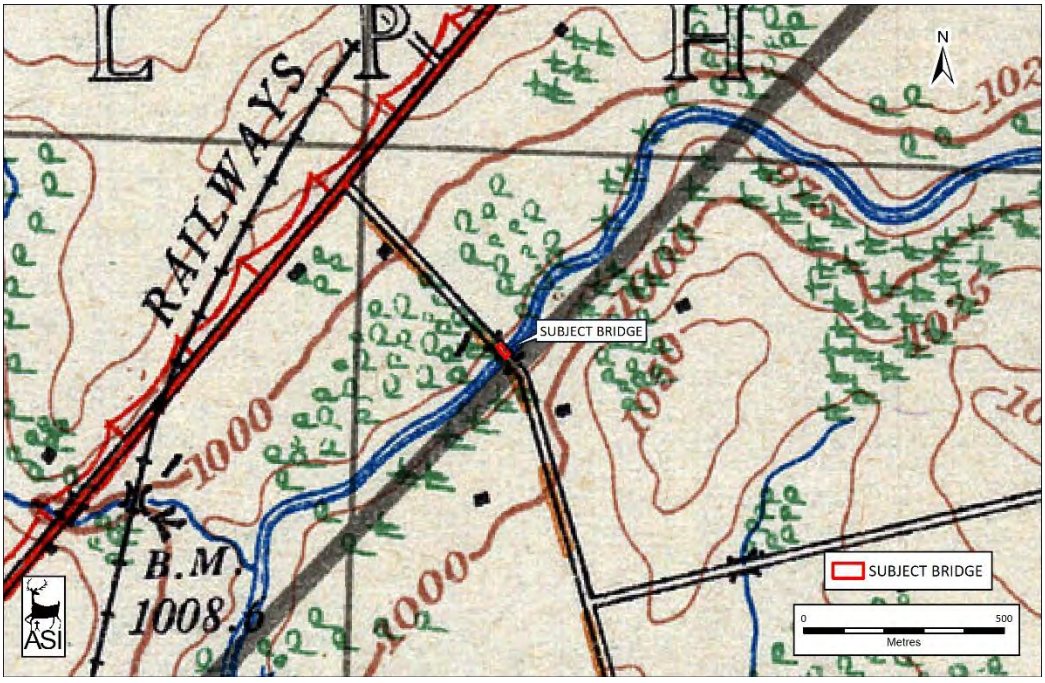


Figure 6: The location of the subject bridge overlaid on the 1936 topographical map of Galt. Source: (Department of National Defence, 1936)

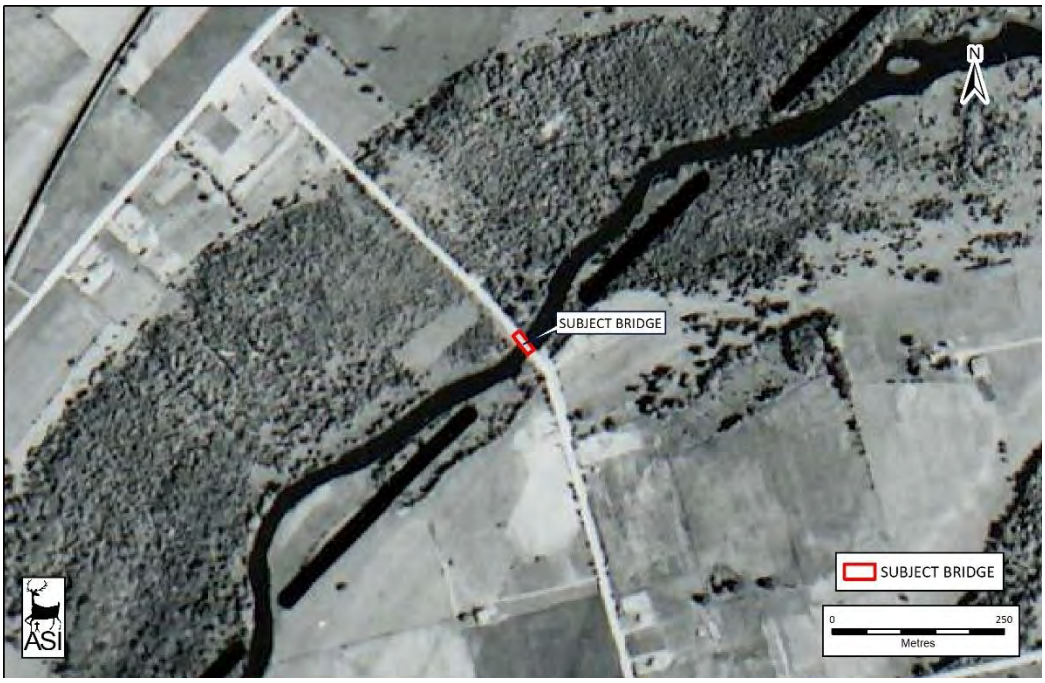


Figure 7: The location of the subject bridge overlaid on the 1954 aerial photograph of Southern Ontario. Source: (Hunting Survey Corporation Limited, 1954)

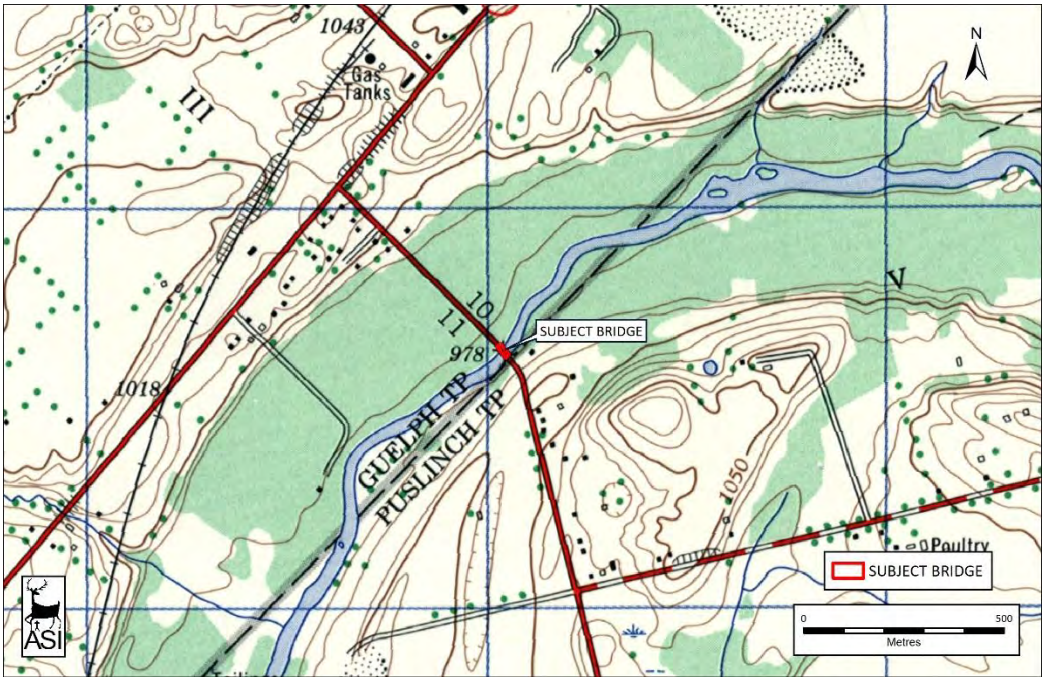


Figure 8: The location of the subject bridge overlaid on the 1975 topographic map of Cambridge-Preston. Source: (Department of Energy, Mines and Resources, 1975)

4.3 Discussion of Physical and Design Value

Original structural drawings, rehabilitation drawings, and the 2021 and 2023 Ontario Structure Inspection Manual (O.S.I.M.) reports of the subject bridge were reviewed as part of this assessment to evaluate and describe the physical and design value of the subject bridge (Gannett Fleming Canada ULC, 2023; McCormick Rankin Consulting Engineers, 1992; WSP Canada Inc., 2021). A field review was undertaken to conduct photographic documentation of the bridge crossing and to collect data relevant for completing a heritage evaluation of the structure. The following description of the structure, including the dates of interventions, and existing conditions is based on a combination of the results of the field review and historical background research on the subject bridge. A selection of original structural and rehabilitation drawings are provided in Appendix D and photographic documentation of the current conditions of the bridge is provided in Figure 9 to Figure 18. Further, photographs of comparative half-through truss structures in Wellington County are also provided in Section 4.5.1.

4.3.1 Physical Characteristics

The Blatchford Bridge is a single-span Warren pony half-truss bridge resting on concrete abutments with a north-south alignment. The bridge carries Wellington County Road 32 over the Speed River and has a span length of 31.7 metres. The subject bridge has an overall length of 32.4 metres and an overall width of 8.1 metres (Gannett Fleming Canada ULC, 2023).

The superstructure of the subject bridge features a steel half-through truss with steel stringers; riveted plate girders; and steel riveted truss connections with rusting/perforation on top of all four supports, diagonals and verticals with corrosion at the connection plates of the railings, corrosion at the bracing panels, impact damage at the northeast and south sides, and rusting with perforation at the northeast side; as well as two plaques commemorating the date of construction and the builder of the bridge, the Dominion Bridge Company, located at the northwest and southeast corners of the bridge and a

Suburban Road Commission commemoration plaque at the southeast corner (Gannett Fleming Canada ULC, 2023).

The substructure of the subject bridge contains steel roller bearings with light to medium corrosion and spall near the northeast bearing; cast-in-place concrete abutment walls measuring 2.45 metres high with a large spall with exposed rebars at the south abutment, a spall with exposed rebar at the east end of the south ballast wall, light scaling on the north abutment, and spall near the northeast bearing; and cast-in-place reinforced concrete wingwalls measuring 1.63 metres high and 4.7 metres wide with medium scaling, spalling, delamination and map cracks with efflorescence at the southwest side, spalling, delamination and cracks with efflorescence at the northwest side, and horizontal cracking and scaling at the southwest side (Gannett Fleming Canada ULC, 2023).

The deck of the subject bridge is cast-in-place concrete with an asphalt wearing surface and carries one lane of traffic in each direction heading north-south with steel lattice barriers along each truss. The steel lattice barriers show corrosion over approximately 50% of the railings, numerous areas of impact damage (~30% replaced), and traffic impact damage to the railing at the northeast and northwest corners. There are no sidewalks along the bridge and the concrete curbs measure 0.15 metres in width. The curbs show delamination on the west curb at the south end, medium vertical cracks at the east curb, and spalls at the exterior connection with diagonal chords at the northeast and southeast sides. There is hazard signage in advance of the north and south approaches. The approaches are at grade with an asphalt wearing surface and steel flex beam on steel post guard rails. Along the north and south approaches to the bridge the maximum load allowed is marked. Signage on the south approach indicates that the bridge is prone to icing over and that the road curves ahead. There are hazard signs at the ends of both approaches (Gannett Fleming Canada ULC, 2023).

4.3.2 Existing Conditions Photographs



Figure 9: Oblique view of the west elevation, looking southeast (A.S.I., 2024).



Figure 10: Oblique view of the east elevation, looking south (A.S.I., 2024).

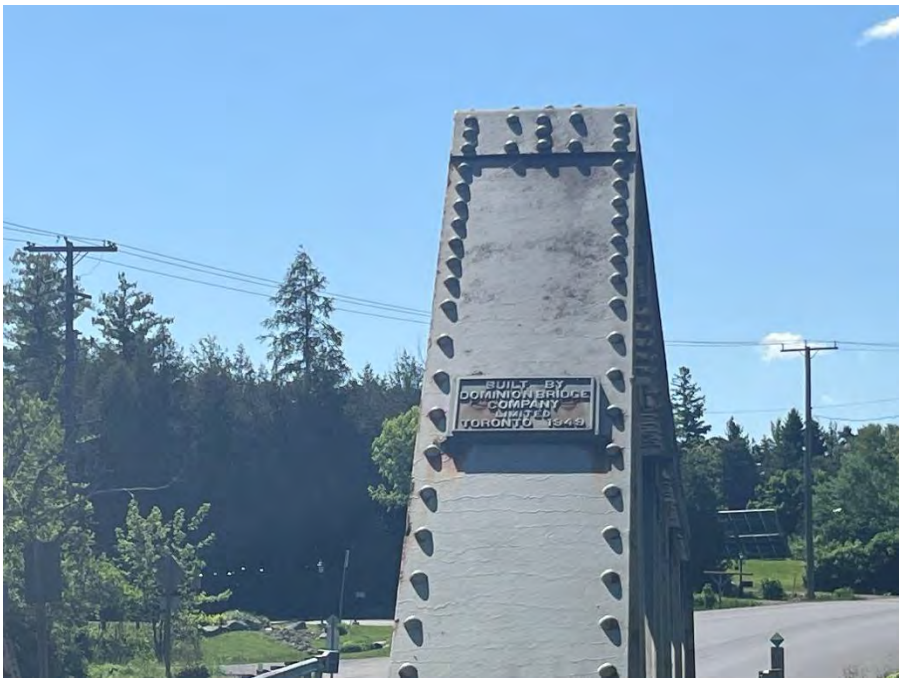


Figure 11: View of a date plaque on the northwestern corner of the bridge (A.S.I., 2024).



Figure 12: Detail of the steel lattice railing (A.S.I., 2024).



Figure 13: Under the subject bridge looking east at remnants of the previous bridge (A.S.I., 2024).



Figure 14: View to the southern abutment, looking south (A.S.I., 2024).



Figure 15: Gusset plate with riveted and bolted connections (A.S.I., 2024).



Figure 16: Detail of the vertical and diagonal chords. Note the damage to the lattice railing (A.S.I., 2024).



Figure 17: View of the bridge deck from the northern approach (A.S.I., 2024).



Figure 18: View of southern approach to bridge, looking north (A.S.I., 2024).

4.3.3 Early Ontario Bridges and Culverts

Bridges were a necessity from the earliest days of road construction and were important to economic and social life, especially as mills were situated along the rivers. Crossing rivers by bridge was easier than fording. Settlements sprang up where the mills were serviced by bridges. Construction of railways in Ontario began in the 1850s which made it necessary to have reliable bridges able to withstand the weight of locomotives. In addition, good road bridges were required so farmers could transport their produce to local railway stations (Region of Waterloo: Planning, Housing, and Community Services, 2004). Most road bridge designs that evolved were based on principles derived from railroad construction. In Ontario, the timber bridge dominated the landscape in rural areas from 1780 to 1880, and persisted into the early twentieth century (Cuming, 1983). Most nineteenth-century bridges in southern Ontario were built of timber. Short spans were beam structures, and longer spans employed simple trusses, such as King and Queen Post trusses. Stone and wrought iron materials were also employed, but due to higher costs and a lack of skilled craftsmen such structures were generally restricted to market towns (T.R.C.A., 2011). By the 1890s, steel and concrete were becoming the materials of choice when constructing bridges given that both were less expensive and more durable than their wood and wrought iron predecessors (T.R.C.A., 2011). Steel truss structures were very common by 1900, as were steel girder bridges. After the First World War, the increase in personal vehicles meant that stronger bridges were necessary. The Pratt truss and the Warren truss dominated the early twentieth century and were typically used for spans up to 400 feet (Comp & Jackson, 1977). The use of concrete in bridge construction was introduced at the beginning of the twentieth century, and by the 1930s, it was challenging steel as the primary bridge construction material in Ontario. Today, concrete is the primary bridge building material on Ontario roads (T.R.C.A., 2011).

4.3.4 Truss Bridge Construction

Steel truss and steel girder structures were very common by 1900, and early truss bridges were commonly made from a series of straight steel bars. In

general, most steel truss bridges were constructed at the turn of the twentieth century. After the First World War the increase in personal vehicles meant that stronger bridges were necessary. The Pratt truss and the Warren truss dominated the early twentieth-century and were typically used for spans up to 400 feet (Comp & Jackson, 1977).

The Warren truss design has been widely used and adapted in North America, particularly in the twentieth century. The design was patented by James Warren and Theobald Willoughby Monsani in 1848 and consists of a "W" pattern of alternately placed members in tension and compression (Cleary, 2007). The addition of a vertical member intersecting the horizontal members was a common modification to the design. The Warren truss type became the design of choice for steel rail and road bridges in the mid-twentieth century, with Warren deck trusses common for multiple span structures (Cleary, 2007).

A Warren pony (half-through) truss bridge consists of a deck between the top of and bottom chords with no top lateral bracing. These bridges required less labour and material to erect than through trusses and were subsequently more cost effective. However, due to a lack of added stability, these bridges were suitable only for shorter spans. The half-through truss became popular in the early twentieth century, though their popularity waned with the widespread adoption of concrete as a primary building material by the 1930s.

4.3.5 Bridge Construction, Evolution, and Alterations

The subject bridge was constructed in 1949 by the Dominion Bridge Company using the designs of engineer William Hargreave (W.H.) Keith to replace an older structure. The remains of a previous structure are present on the east side of the subject bridge, as the alignment of the subject bridge shifted slightly from the previous structure (Figure 6). The bridge underwent a partial replacement of the lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010 (WSP Canada Inc., 2021).

4.4 Discussion of Contextual Value

The following section discusses the contextual value of the subject bridge.

4.4.1 Setting and Character of the Bridge and Surroundings

The subject bridge carries Wellington County Road 32 over the Speed River at the border of Guelph Eramosa Township and Puslinch Township in a rural agricultural portion of the County of Wellington, approximately 0.8 kilometres southeast of Wellington Road 124. The surrounding area generally consists of wooded and agricultural lands along with industrial and commercial facilities to the north, agricultural lands to the south, and is bound by vegetation associated with the banks of the Speed River (Figure 19). The Guelph to Cambridge Hiking Trail crosses the deck of the bridge from the north and continues west along the south bank of the Speed River.

The Speed River flows in a northeast-southwest alignment through Guelph and south towards Cambridge. The river is approximately 16.5 metres wide at its intersection with Wellington County Road 32. The banks of the river are naturalized with lush vegetation and a hiking trail along the southwest bank. The Grand River Watershed, including the Speed River, is the largest river system in southern Ontario and has been a source of transportation and resource extraction since time immemorial. The Grand River including the Speed River is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989). At its intersection with Wellington County Road 32, the Speed River serves as a boundary between Guelph/Eramosa Township and Puslinch Township.

The bridge crossing surrounding context includes naturalized banks following the Speed River surrounded by rural agricultural landscape and some interspersed industrial commercial facilities to the north of the subject bridge. The City of Guelph lies approximately two-and-a-half kilometres to the north and the City of Cambridge lies approximately four kilometres to the south of the subject bridge.

The subject crossing retains the rural setting that was established in the nineteenth century (Figure 21); however, the subject structure is not an original or early structure at this crossing. While the subject bridge supports this character by carrying the road over the river, this twentieth-century structure is not directly tied to the nineteenth-century context and is not evocative of nineteenth-century themes of transportation, settlement, or agriculture.



Figure 19: South facing approach to the subject bridge surrounded by vegetation (A.S.I., 2024).



Figure 20: The Speed River, looking north from Blatchford Bridge (A.S.I., 2024).



Figure 21: The Speed River, looking south from Blatchford Bridge (A.S.I., 2024).



Figure 22: Wellington Road 32, looking north from north of Blatchford Bridge (A.S.I., 2024).

4.4.2 Community Landmark

The Blatchford Bridge is not considered to be a landmark within the local context. The subject bridge has a moderate traffic volume of 7,219 vehicles per day (Gannett Fleming Canada ULC, 2023) and is believed to be viewed on a daily basis by a moderate number of motorists. While a familiar structure to local motorists, this portion of Wellington Road 32 does not experience the significant traffic volumes as nearby Wellington Road 124 does to the north, which is a more commonly utilized roadway to access Cambridge from Guelph. The subject bridge stands on the borders between the Township of Guelph/Eramosa and the Township of Puslinch and may act as an unofficial marker of the entry point to Puslinch from Guelph for local residents, but is not a significant gateway feature between neighbourhoods or streetscapes.

4.5 Comparative Analysis

As mentioned above in, Section 4.3.1, the Blatchford Bridge is a single-span steel half-through truss bridge that measures approximately 32.4 metres in length

and 8.1 metres in width that was constructed in 1949 to carry two lanes of traffic (Gannett Fleming Canada ULC, 2023). For the purposes of this comparative analysis, similar half-through truss bridges in the Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013) and the Wellington County O.S.I.M. Inventory (County of Wellington, 2023) were reviewed. According to this comparative sample, there are eight comparable half-through truss structures in the County of Wellington. The Blatchford Bridge is the only remaining half-through truss bridge in the Townships of Guelph/Eramosa and Puslinch. A list of bridges used in this comparative analysis is provided in Appendix E

4.5.1 Comparable Half-Through Truss Structures

The eight comparative half-through truss structures reviewed as part of this analysis have construction dates ranging from 1900 to 1954, with a median construction date of 1952. The subject bridge, constructed in 1949, ranks fourth in terms of date of construction, and is therefore not significant in terms of age. The Dirksen Farm Bridge, constructed in 1900, is the oldest half-through truss bridge in this comparative analysis (Figure 23).

Comparative structures in this analysis have lengths of between 17 metres and 65.3 metres, with a median length of 26.85 metres. The subject bridge, with a length of 32.4 metres, ranks fourth in terms of length, and is therefore not significant in terms of overall length. The Emerson Simmon's Bridge, with a length of 65.3 metres, is the longest half-through truss bridge in this comparative analysis (Figure 24).

Comparative structures in this analysis have between one and two spans, with a median of one span. The subject bridge has one span is therefore not significant in this respect. The Emerson Simmon's Bridge, with a total of two spans, has the greatest number of spans in this comparative analysis (Figure 24).

Examples of half-through truss bridges of similar scale to the subject bridge in the County of Wellington in general are available in the inventories of

Historicbridges.org. Some examples of similar structures that were constructed to carry a roadway over a waterway include the following:

- Mallet River Bridge, a single-span half-through truss bridge that carries Sideroad 6 over Mallet River in Mapleton. The bridge length is 17 metres, and the date of construction is 1910 (Figure 25).
- Bosworth Bridge, a single-span half-through truss bridge that carries Wellington Road 7 over a tributary of Conestogo Lake in Mapleton. The bridge length is 42.1 metres, and the date of construction is 1949 (Figure 26). This bridge is no longer extant as it was removed and replaced in 2024 with a new structure.
- Townline Bridge, a single-span half-through truss bridge that carries the Wellington Road 6 over Bethel Creek in Wellington North. The bridge length is 31.1 metres, and the date of construction is 1950 (Figure 27).
- Rothsay Bridge, a single-span half-through truss bridge that carries Wellington Road 7 over a tributary of Conestogo Lake in Mapleton. The bridge length is 18.7 metres, and the date of construction is 1953 (Figure 28).
- Moorefield Bridge, a single-span half-through truss bridge that carries Wellington Road 10 over a tributary of Conestogo Lake in Mapleton. The bridge length is 22.6 metres, and the date of construction is 1954 (Figure 29).
- Flax Bridge, a single-span half-through truss bridge that carries Wellington Road 11 over Mitchell's Creek in Mapleton. The bridge length is 22.3 metres, and the date of construction is 1954 (Figure 30).



Figure 23: Dirksen Farm Bridge (Melissa Davies, 2012).



Figure 24: Emerson Simmon's Bridge (Melissa Davies, 2012).



Figure 25: Mallet River Bridge (Melissa Davies, 2012).



Figure 26: Bosworth Bridge prior to replacement (Google Streetview).



Figure 27: Townline Bridge (Google Streetview).



Figure 28: Rothsay Bridge (Google Streetview).



Figure 29: Moorefield Bridge (Google Streetview).



Figure 30: Flax Bridge (Google Streetview).

4.5.2 Summary

Based on the inventory of half-through truss bridges above, the subject bridge is one of nine comparative half-through truss bridges in this sample. Truss bridges were common structures by 1900. Their popularity waned after the adoption of concrete as a primary building material by the 1930s and they were less commonly built. When examined in the context of road truss structures within Wellington County, the subject bridge is not significant in the local context in terms of age of construction, overall length, or number of spans. However, as the only remaining half-through truss bridge within the Townships of Guelph/Eramosa and Puslinch, the Blatchford Bridge is significant as being the only remaining bridge of its type in the local community.

5.0 Heritage Evaluation

The evaluation of Blatchford Bridge using the criteria set out in Ontario Regulation 9/06 is presented in the following section (Section 5.1). The following evaluation has been prepared in consideration of data regarding the design, historical/associative, and contextual values in the Township of Guelph/Eramosa and Township of Puslinch, County of Wellington.

5.1 Ontario Regulation 9/06

Evaluation of Blatchford Bridge using Ontario Regulation 9/06 of the *Ontario Heritage Act.*

1. The property has design value or physical value because it:

i. is a rare, unique, representative or early example of a style, type, expression, material or construction method:
   - The Blatchford Bridge is a single-span half-through truss structure constructed in 1949. Based on a review of comparative structures in the wider region, the subject bridge is not the oldest nor the longest surviving example of a half-through truss bridge within the County of Wellington. However, this bridge is significant as the only remaining

half-through truss structure in the Townships of Guelph/Eramosa and Puslinch. Furthermore, the bridge is a good representative example of the half-through truss style and rehabilitation efforts have been sympathetic to the original bridge design (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021).

- The subject bridge meets this criterion.

ii. displays a high degree of craftsmanship or artistic merit:
- The subject bridge is constructed with common materials and is a simple, single-span structure that lacks ornamentation or decoration. It exhibits a low degree of artistic merit and was not constructed with a greater than industry standard degree of craftsmanship.
- The subject bridge does not meet this criterion.

iii. demonstrates a high degree of technical or scientific achievement:
- The subject bridge exhibits a low degree of technical or scientific achievement given its short span, common construction materials, common structure type, and the easy access and gentle flow of the watercourse below.
- The subject bridge does not meet this criterion.

2. The property has historical value or associative value because it:

i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community:
- The subject bridge was designed by W.H. Keith, Wellington County Engineer, in order to replace the original bridge onsite (Hutchinson, 1998). Keith led the repair and replacement of a number of bridges within Wellington County in his time as County Engineer, including Blatchford Bridge (1949), Bosworth Bridge (1949), Salem Bridge (1952), Rothsay Bridge (1953), Emerson Simmons Bridge (1952), and Flax Bridge (1954) (Benjamin et al., 2013).
- The subject bridge does meet this criterion.

ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture:
- There is no indication that the subject bridge has the potential to yield information that contributes to an understanding of community or culture.
- The subject bridge does not meet this criterion.

iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community:
- The subject bridge was designed by Wellington County Engineer W.H. Keith who has been previously identified in this report as significant to the community for his contributions to bridge repair and replacements in the mid-twentieth century. The subject bridge is an example of the lasting quality of Keith's designs.
- The subject bridge does meet this criterion.

3. The property has contextual value because it:

i. is important in defining, maintaining or supporting the character of an area:
- The subject bridge carries Wellington Road 32 over the Speed River on the border of the Township of Guelph/Eramosa and the Township of Puslinch in a rural and agricultural area of the two townships. The bridge is not considered to define or maintain the rural or agricultural character of the area.
- The subject bridge does not meet this criterion.

ii. is physically, functionally, visually or historically linked to its surroundings:
- The location of the subject bridge has served as a historical bridging point for vehicles and farm equipment over the Layton River since the mid- to late-nineteenth century and is physically associated with Saintfield Road, a historically-surveyed roadway. However, the subject bridge is not an original structure at this crossing, and as such, it is not significantly linked to its surroundings.

- The subject bridge does not meet this criterion.

iii. is a landmark:
- The subject bridge can be considered a familiar structure to local residents; however, it is not considered to be a significant gateway feature or to act as a significant physical or contextual division between neighbourhoods or streetscapes.
- The subject bridge does not meet this criterion.

Based on available information, it has been determined that Blatchford Bridge meets the criteria contained in Ontario Regulation 9/06 of the *Ontario Heritage Act* for design/physical and historical/associative value.

6.0 Conclusions and Recommendations

This evaluation was prepared in consideration of data regarding the design, historical/associative, and contextual values within the Townships of Guelph/Eramosa and Puslinch and the County of Wellington. This evaluation determined that Blatchford Bridge meets the criteria outlined in Ontario Regulation 9/06 of the *Ontario Heritage Act*, and therefore has cultural heritage value or interest at the local level.

The following recommendations are proposed:

1. A Heritage Impact Assessment (H.I.A.) should be completed for Blatchford Bridge during the preliminary design phase. The H.I.A. will help to identify alternatives as well as mitigation and monitoring commitments to avoid or lessen impacts on the heritage attributes of the bridge, based on the proposed Statement of Cultural Heritage Value or Interest. This assessment should be completed by a qualified person who has relevant and recent experience in the conservation of road bridges (see Section 3.0 of the *Standards and Guidelines for Conservation of Provincial Heritage Properties* (Ministry of Citizenship and Multiculturalism, 2014) as a guide for best practice) and submitted to planning staff at the County of

Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee for review and approval and to the Ministry of Citizenship and Multiculturalism (M.C.M.) for review.

2. The proponent should submit this report for review and comment to planning staff at the County of Wellington, the planning staff at the Township of Guelph/Eramosa, the planning staff at the Township of Puslinch, County of Wellington Information, Heritage, and Seniors Committee, the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, the M.C.M., and to any other relevant stakeholder that has an interest in the heritage of the subject bridge. Any feedback will be incorporated into this report prior to finalization. The final report should be submitted to the Wellington County Museum and Archives for archival purposes.

7.0 Draft Statement of Cultural Heritage Value and Heritage Attributes

The Blatchford Bridge on the border of the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington meets three out of nine criteria outlined in Ontario Regulation 9/06, which considers the bridge within the local context. As such the subject bridge should be considered to have cultural heritage value or interest at the local level. In particular, the subject bridge is a good representative of a half-through truss bridge in the local context and is historically linked to an engineer of local importance.

This section provides the description of the property, a description of its cultural heritage value or interest, and a list of associated heritage attributes.

Description of Property

The Blatchford Bridge (Structure Number B032085) is a single-span half-through truss bridge with concrete abutments and wingwalls. The bridge carries Wellington Road 32 over the Speed River. The subject bridge was constructed by Dominion Bridge Company Ltd. in 1949 based on the designs of William Hargreave (W.H.) Keith. The subject bridge underwent a partial replacement of lattice railing in 1992, and partial bottom chord replacement at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010.

The Blatchford Bridge is located 0.8 kilometres south of Wellington Road 124 in the County of Wellington. The bridge permits access along Wellington County Road 32 over the Speed River. The Speed River is recognized as a Canadian Heritage River (The Grand as a Canadian Heritage River, 1989).

Cultural Heritage Value or Interest

The Blatchford Bridge has physical and design value as a good representative example of an altered mid-twentieth century half-through truss bridge in the local context. Repairs and alterations made in 1992 and 2010 are sympathetic to the original design and therefore do not detract from the design value of the bridge.

Half-through (pony) truss bridges were commonly constructed in the late nineteenth and early twentieth centuries to carry roadways due to their durability, low cost, ease of construction, and readily-available construction materials. Further, their modular design meant that construction could also largely be completed by the manufacturer and delivered to site with many elements prefabricated, greatly speeding up construction. While popular in the late nineteenth and early twentieth centuries, these structures are increasingly becoming a rare feature in the Ontario landscape as they are replaced by more cost-effective concrete or steel girder structures when they reach the end of their useful service life.

The subject bridge has historical and associative value as it was designed by Wellington County Engineer W.H. Keith who contributed greatly to bridge construction and repair in the twentieth century locally.

Heritage Attributes

Physical attributes of Blatchford Bridge that express the design value of the structure include:

- The 1949 single-span half-through truss structure including truss chords, diagonals, verticals with lattice railings, date plaques, and featuring riveted connections.
- Location along Wellington Road 32 allowing vehicular traffic over the Speed River.

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Appendix A: Qualified Persons Involved in the Project

Lindsay Graves, M.A., C.A.H.P.
Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Evaluation Report is **Lindsay Graves** (M.A., Heritage Conservation), Senior Cultural Heritage Specialist and Assistant Manager for the Cultural Heritage Division. She was responsible for: overall project scoping and approach; development and confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfill Class Environmental Assessment processes and has served as Project Manager for over 100 heritage assessments during her time at Archaeological Services Incorporated (A.S.I.). Lindsay is a member of the Canadian Association of Heritage Professionals.

Kirstyn Allam, B.A. (Hon), Advanced Dipl. in Applied Museum Studies
Cultural Heritage Analyst - Cultural Heritage Division

The Project Manager for this Cultural Heritage Evaluation Report is **Kirstyn Allam** (B.A. (Hon.), Advanced Diploma in Applied Museum Studies), who is a

Cultural Heritage Analyst and Project Manager within the Cultural Heritage Division. She was responsible for the day-to-day management activities, including scoping of research activities and site surveys and drafting of study findings and recommendations. Kirstyn Allam's education and experience in cultural heritage, historical research, archaeology, and collections management has provided her with a deep knowledge and strong understanding of the issues facing the cultural heritage industry and best practices in the field. Kirstyn has experience in heritage conservation principles and practices in cultural resource management, including three years' experience as a member of the Heritage Whitby Advisory Committee. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario. Kirstyn is an intern member of the Canadian Association of Heritage Professionals (C.A.H.P.).

Becca Clark, B.A. (Hons)
Cultural Heritage Technical Writer and Researcher - Cultural Heritage Division

The Cultural Heritage Technician for this project is Becca Clark (B.A. Hons, Adv. Diploma Applied Museum Studies), who is a Cultural Heritage Technical Writer and Researcher and Project Administrator within the Cultural Heritage Division. She was responsible for preparing research and technical reporting. With her educational and working background, Becca provides an understanding of Ontario history and built heritage as well as skilled research and analysis. Her time as a museum professional focused on local history in Southern Ontario and how it may be represented by objects and built heritage. In 2021, Becca researched, designed, and produced the Guelph Civic Museum's exhibition "The Origin of Fan: Folding Form and Function". She has since translated her knowledge of Southern Ontario's history into built heritage research. In 2023, she joined ASI's Cultural Heritage team as a Cultural Heritage Technician.

Appendix B: Municipal Heritage Bridges Criteria for Evaluating Potential for Cultural Heritage Resources Checklist

Municipal Bridges
Criteria for Evaluating Potential for Cultural Heritage Resources
(revised July 7, 2023)

This checklist was prepared by the Municipal Engineers Association in consultation with the Ministry of Citizenship and Multiculturalism (MCM) to assist with undertaking cultural heritage due diligence as per the requirements of the Municipal Class Environmental Assessment.

Project Name: Blatchford Bridge Replacement or Rehabilitation

Location: Wellington Road 32 0.8km south of Wellington Road 124

Municipality: Township of Guelph/Eramosa and the Township of Puslinch

Project Engineer: Gannett Fleming

Checklist completed by: Archaeological Services Inc.

Date: June 27, 2024

NOTE: Complete all sections of Checklist. Both Built Heritage Resources/Cultural Heritage Landscapes (B) and Archaeological (C) Sections must be satisfied before proceeding.

Questions apply to the entire study area including temporary storage or work areas as well as temporary roads/detours, except as otherwise stated.

Please have the following available, when requesting information related to the screening questions below:
• a clear map showing the location and boundary of the property or project area
• large scale and small scale showing nearby township names for context purposes
• the municipal addresses of all properties within the project area
• the lot(s), concession(s), and parcel number(s) of all properties within a project area
Answer each question in succession and follow the instructions in blue. Continue until all questions are answered or a definitive conclusion is reached.

Refer to the Appendix for additional details and resources to assist in answering select questions.

Font Colour
Green – MEA's Advice
Blue - Instructions

PART A – MUNICIPAL CLASS EA ACTIVITY SELECTION

Which of the following describes the proposed project?	MCEA Schedule	Selection
1. Normal or emergency operation and maintenance of linear paved facilities, cycling lanes/facilities & multi-purpose paths, sidewalks, parking lots and related facilities located within or outside existing rights- of-way • *Related facilities include bridges.* **Maintenance** means work that extends the life of the structure or keeps the structure safe for intended use. **Repairs** means work that fixes or replaces components of the structure to return the structure to its original condition	Schedule A Complete Part C of this checklist to determine whether an archaeological assessment is required.	☐
24a Retirement of existing roads and road related facilities. • *Related facilities include bridges* • *Proponents should consider cultural heritage value in accordance with MEA's Municipal Heritage Bridge Checklist developed with the Ministry of Citizenship and Multiculturalism (MCM) and posted on the MEA website. Completion of the checklist does not mean approval or permission from MCM to remove a bridge with potential heritage value* **RETIREMENT** Means the taking out of operation, abandonment, removal, demolition or disposal of a road, bridge, sewage, stormwater management or water facility for which approval under the EAA would have been necessary for its	Exempt – Schedule A+ Complete Parts B of this checklist if the bridge is > 40 years old and C of this checklist if the project involves excavation activities to determine whether any technical cultural heritage studies are required prior to removal of the bridge	☐

establishment and includes sale, lease, or other transfer of the facility for purposes of taking out of operation, abandonment, removal, demolition or disposal.		
25b Construction or removal of sidewalks, multi-purpose paths or cycling facilities including water crossings outside existing right-of-way and/or in a utility or rail corridor	Schedule A+ if <$4.1m Schedule B if >$4.1m Schedule C if >$12m *This clause does not include qualifiers such as property requirements or proximity to sensitive features. Instead cost of project triggers classification*	☐
30. Reconstruction of a water crossing where the reconstructed facility will be for the same purpose, use, capacity and at the same location • Capacity refers to either hydraulic or road capacity but does not include alterations to include or remove facilities for cycling, pedestrians or to support utilities • This includes ferry docks **BRIDGE CAPACITY** Means the number of through travel lanes for vehicles on the bridge. Adjusting lane width to current standards that do not increase the number of travel lanes and cycling, parking or turning lanes are not through travel lanes. Increasing the width of a narrow bridge (one lane with two way traffic) to the current standard to accommodate two way traffic (two lane) is not considered an increase in capacity. **OPERATION** Means use, maintenance, repair, and management of a municipal facility where the purpose, use, capacity and location remain the same. Same purpose, use, capacity and location refers to the replacement or upgrading of a structure or facility or its	Item 30 applies to bridges <40 yrs old. Exempt – Schedule A+ If the project involves excavation, complete Part C of this checklist to determine whether an archaeological assessment is required. *Hydraulic capacity of a bridge is controlled by the openings between abutment walls and piers. The bridge elevation needs to be set a minimum clearance above high-water elevations. Further adjusting the elevation of the bridge to match road grades will not change the hydraulic characteristics. However, if the hydraulic capacity of the bridge is part of the flood control system for the water course and the openings between abutment walls and priers is changing then item 63 "Modify existing water crossings for the purposes of flood control" from the Water/Wastewater table applies and the project is Schedule B.* ***Substantial Change -** Within the existing road allowance or utility corridor, a substantial change could be considered a change of more than approximately >10%.*	☐

performance, where the objective and application remain unchanged, and the volume, size and capability do not exceed the minimum municipal standard (defined above), or the existing rated capacity (defined above), and there is no substantial change in location	*For example, a road allowance 20m wide and 1 km long has an area of 20,000 m^2 and a change of < 2000m^2 would be <10%* ***Property Acquisition** – No EA process is required for property purchase. If the proponent acquires property through separate process (negotiation with owner or planning policies for minimum width of road allowances) such that the proponent owns the property required for a project before the Notice of Completion then no property acquisition is required for the project. For many project types, this could mean the project would be classified as Schedule A or A+ (exempt). If there is dispute about the property acquisition then a Schedule B process should be followed to support the acquisition (expropriation).* ***Utility Corridor** – A utility corridor may include property that is non-linear, for example a rectangular area for a Stormwater Management Pond.*	
31a Reconstruction of, or alteration to a structure or the grading adjacent to it, when the structure is over 40 years old and has been found not to have cultural heritage value or interest *To determine whether a bridge has "cultural heritage value" refer to the MEA's municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website*	Item 31 applies to bridges >40 yrs old. Exempt – Schedule A+ Complete Parts B and C of this checklist to determine whether any technical cultural heritage studies are required.	☐

31b Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old, the structure is found to have cultural heritage value or interest, and the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment *To determine whether a bridge has "cultural heritage value", refer to the MEA's municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website*	Exempt - Schedule A+ after completing Archaeological Screening Process (ASP) and provided the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment Complete Parts B and C of this checklist to determine whether any technical cultural heritage studies are required.	☐
31c Reconstruction of, or alteration to a structure or the grading adjacent to it, when the structure is over 40 years old the structure is found to have cultural heritage value or interest, but heritage attributes will not be conserved in accordance with the recommendations of a Heritage Impact Assessment *To determine whether a bridge has "cultural heritage value", refer to the MEA's municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website*	Schedule B The Schedule B process requires due consideration of all aspects including Heritage, which involves the completion of a Heritage Impact Assessment where cultural heritage value or interest has been identified. Proponents should always strive to conserve/recognize cultural heritage attributes.and comply with 31b.	☒
32a. Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use	Schedule A+ if <$3.0m No qualifiers	☐

32b Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use, and where the underpass or overpass would not be located in or adjacent to an environmentally sensitive natural area, potential built heritage resource or cultural heritage landscape or other sensitive land use, or on lands with archaeological potential • *To determine whether there is "archaeological potential" refer to MCM's Criteria for Evaluating Archaeological Potential checklist* *Refer to new definition of "environmentally sensitive natural area" in the Glossary*	Applies to projects >$3M Schedule A+ after completing Archaeological Screening Process (ASP). Otherwise Schedule B Use the checklists at the following links to determine archaeological potential, and potential for built heritage resources and cultural heritage landscapes: • Criteria for Evaluating Archaeological Potential • Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes **A1-2 Archaeological Screening Process (ASP)** The projects that are identified as eligible for screening, subject to the archaeological screening process (identified as "ASP") may be exempt from the requirements of the EAA as determined by the archaeological screening process set out below. In order to proceed with a project that is identified as eligible for screening, a proponent must either; (i) carry out the process for a Schedule B/C project; or (ii) complete the archaeological screening process and follow the directions set out in the screening process. If the outcome of the screening process is that the project is exempt from the requirements of the EAA, the proponent may proceed with the undertaking/project without further application of the EAA to the project	☐

32c Construction of underpasses or overpasses for pedestrian, cycling, recreational or agricultural use, and where the underpass or overpass would be located in or adjacent to an environmentally sensitive natural area, potential built heritage resource or cultural heritage landscape or other sensitive land use, or on lands with archaeological potential • *To determine whether there is "archaeological potential" refer to MCM's Criteria for Evaluating Archaeological Potential checklist* *Refer to new definition for "environmentally sensitive natural area" in the Glossary*	Applies to projects >$3M Schedule B	☐
35 Reconstruction of a water crossing where the reconstructed facility will not be for the same purpose, use, capacity or at the same location • *Capacity refers to either hydraulic or road capacity but does not include alterations to include or remove facilities for cycling, pedestrians or to support utilities* • *This includes ferry docks*	Schedule B The heading for 35, 36a and 36b projects is "RECOONSTNRUCTION OF BRIDGES WITH INCREASE TO TRAVEL LANES". The increase to travel lanes triggers Schedule B regardless of Heritage or other features. The Schedule B process requires due consideration of all aspects including Heritage, which involves the completion of a Heritage Impact Assessment where cultural heritage value or interest has been identified. Proponents should always strive to conserve/recognize cultural heritage attributes	☐
36a Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old and has cultural heritage value or interest and the heritage attributes will **not be** conserved in accordance with the recommendations of a Heritage Impact Assessment	Schedule B See note Project 35	☐

• *To determine whether a bridge has "cultural heritage value", refer to the MEA's municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website*		
36b Reconstruction of, or alteration to a structure or the grading adjacent to it when the structure is over 40 years old and is not found to have cultural heritage value or interest or is found to have cultural heritage value or interest but the heritage attributes will be conserved in accordance with the recommendations of a Heritage Impact Assessment • *To determine whether a bridge has "cultural heritage value", refer to the MEA's municipal heritage bridge checklist developed with the Ministry of Citizenship and Multiculturalism and posted on the MEA website*	Schedule B See note Project 35	☐
37. Construction of new water crossings • This includes ferry docks • This does not apply to culverts. See Projects # 8 and 20.	Schedule B	☐
38. Construction of new grade separations and interchanges	Schedule B	☐

☐

PART B – SCREENING FOR BUILT HERITAGE RESOURCES AND CULTURAL HERITAGE LANDSCAPES

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person to undertake technical cultural heritage studies as identified at the end of Part B.

Screening Questions	**Response**	
Part B1: Screening for Recognized Cultural Heritage Value or Interest		
1. Is the proposed undertaking consistent with an approved conservation plan, if one exists?	Yes ☐	No ☒
If you answered **YES**, then it is not necessary to complete the remaining questions in the checklist. The proponent will include this information in the project file and follow the recommendations of the conservation plan during project planning and implementation.		
If you answered **NO**, continue to question 2.		
2. Has the bridge and the study area been evaluated before and found not be of cultural heritage value or interest (CHVI)?	Yes ☐	No ☒
If you answered **YES**, it is not necessary to complete the remaining questions in the Part B. The proponent will summarize the previous evaluation and add this checklist to the project file, with appropriate documentation demonstrating that a cultural heritage evaluation was undertaken. Proceed to Part C: Screening for Archaeological Resources.		
If you answered **NO**, continue to question 3.		
3. Is the bridge, or a parcel of land in the study area:		
a. designated under the *Ontario Heritage Act*?	Yes ☐	No ☒
b. subject to an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act?*	Yes ☐	No ☒
c. included on a register or inventory of heritage properties maintained by the municipality?	Yes ☐	No ☒
d. subject to a notice of • intention to designate (under Part IV of the *Ontario Heritage Act)*? • a Heritage Conservation District study area by-law (under Part V of the *Ontario Heritage Act*)?	Yes ☐	No ☒

e. included in MCM's list of provincial heritage properties?	Yes ☐	No ☒
f. designated under the *Heritage Railway Stations Protection Act*?	Yes ☐	No ☒
g. designated under the *Heritage Lighthouse Protection Act*?	Yes ☐	No ☒
h. identified as a Federal Heritage Building by Federal Heritage Buildings Review Office?	Yes ☐	No ☒
i. a National Historic Site or part of one?	Yes ☐	No ☒
j. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?	Yes ☐	No ☒
If you answered **YES** to any of the questions 3a through 3h, a Heritage Impact Assessment is necessary. Proceed to Part C.		
If you answered **YES** to either of questions 3i or 3j, follow the direction in the conservation and management documents for the National Historic Site or UNESCO World Heritage Site. Proceed to Part C.		
If you answered **NO** to all of the above questions, continue to Part B2		

Part B2: Screening for potential Cultural Heritage Value or Interest		
4. Will the proposed project involve a bridge structure that was: a) constructed less than 40 years ago?	Yes ☐	No ☒
b) constructed after 1956 with a plain concrete substructure, and the superstructure construction is with common steel and/or concrete products involving one of the following four bridge types? - Rigid Frame - Precast Girders with Concrete Deck - Culvert or Simple Span - Steel Girders/Concrete Deck	Yes ☐	No ☒
If you answered **YES** to 4 (a) or (b), continue this Part.		
If you answered **NO** to both 4 (a) and (b), the bridge has potential CHVI. Proceed to Part B3 to screen for potential impacts.		
5. Will the project involve replacement of a bridge's substructure, or any alteration of adjacent lands?	Yes ☐	No ☐
If you answered **YES**, continue this Part to screen for potential CHVI of the property/location.		
If you answered **NO**, proceed to Part C.		

6. Is the bridge or project area described by an on-site municipal, provincial or federal commemorative or interpretive plaque?	Yes ☐	No ☐
7. Does the project area contain a parcel of land that has or is adjacent to a known burial site or cemetery?	Yes ☐	No ☐
8. Does the proposed project involve a crossing of a Canadian Heritage River?	Yes ☐	No ☐
9. Is there local or Indigenous knowledge or accessible documentation suggesting that the property (or project area) is situated on a parcel of land that:		
a. Is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area? (For example: buildings or landscape features accessible to the public or readily noticeable and widely known, complexes of buildings, monuments, ruins)	Yes ☐	No ☐
b. Has a special association with a community, person or historical event? (For example: Indigenous sacred site, traditional-use area, battlefield, birthplace of an individual of importance to the community, etc.)	Yes ☐	No ☐
c. Contains or is part of a cultural heritage landscape (for example, an Indigenous trail, historic road or rail corridor, park, designed garden, unique landform, or any other area in which multiple features are valued together for their interrelationship, meaning or association)?	Yes ☐	No ☐
If you answered **YES** to one or more of questions 6, 7, 8 or 9, there is potential for built heritage resources and/or cultural heritage landscapes in the study area. Continue to Part B3 to screen for potential impacts.		
If you answered **NO**, there is a low potential for built heritage resources and/or cultural heritage landscapes to be impacted. Proceed to Part C.		

B3 Screening for potential Cultural Heritage Impacts to the Bridge Structure		
10. a) Will the proposed project leave the substructure of the bridge unchanged?	Yes ☐	No ☒
b) Is the substructure of the bridge constructed with plain concrete with no untypical elements?	Yes ☒	No ☐
If you answered **YES** to either 10 (a) or (b), proceed to question 11.		
If you answered **NO** to both 10 (a) and (b), there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Continue to Part C.		
11. a) Is the superstructure of the bridge constructed with common steel and/or concrete products involving one of the following four bridge types? - Rigid Frame - Precast with Concrete Deck - Culvert or Simple Span - Steel Girders/Concrete Deck	Yes ☐	No ☒
b) Will the finished product replicate the existing superstructure?	Yes ☐	No ☒
If you answered **YES** to **both** 11 (a) and (b), continue to 12.		
If you answered **NO** to **either** 11 (a) or (b), there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Proceed to Part C.		
12. a) Is work proposed on the parapet walls/railings of the bridge?	Yes ☐	No ☐
b) If YES to (a), are the parapet walls/railings contain materials other than plain concrete and steel, or any untypical elements?	Yes ☐	No ☐
If you answered **YES** to both 12 (a) and (b), continue to question 12 (c).		
If you answered **NO** to either 12 (a) or (b), there is low potential for cultural heritage impacts on the bridge structure. Proceed to Part C.		
c) Is the purpose of the work being done on the parapet walls/railings to upgrade them to meet current crash test standards?	Yes ☐	No ☐
If you answered **YES**, proceed with reconstructing the parapet walls/railings to a **sympathetic design**; see guidance in the Appendix. Hire a qualified person(s) to undertake a CHER if this is not practicable. Proceed to Part C.		
If you answered **NO**, there is potential for cultural heritage impacts on the bridge structure. You need to hire a qualified person(s) to undertake a CHER for the existing bridge area. Continue to Part C: Screening for Archaeological Resources.		

PART C – SCREENING FOR ARCHAEOLOGICAL RESOURCES

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a licensed archaeologist to undertake an archaeological assessment. See description of this process in the Appendix.

Screening Questions	**Response**	
1. Will the proposed project involve disturbance to the bed of a waterbody, including a river or creek?	Yes ☐	No ☐
If you answered **YES**, complete MCM's *Criteria for Evaluating Marine Archaeological Potential* to determine whether it is necessary to complete a marine archaeological assessment. Continue with this Part to determine whether it is necessary to complete a terrestrial archaeological assessment.		
If you answered **NO**, continue to 2.		
2. Has an archaeological assessment been prepared for this proposed study area that recommends that there are no further concerns about impacts and that has been entered into the Ontario Public Register of Archaeological Reports maintained by MCM?	Yes ☒	No ☐
If you answered **YES**, then it is not necessary to complete the remaining questions in the checklist. The proponent will summarize this conclusion and include this checklist with the appropriate documentation (e.g. MCM letter indicating that the report has been entered into the Register) to the project file. The summary and appropriate documentation will be maintained by the proponent.		
If you answered **NO**, continue to question 3.		
3. Are there known archaeological sites within 300 metres of the proposed project?	Yes ☐	No ☐
If you answered **YES**, an archaeological assessment is required. It is not necessary to complete the remaining questions in the checklist		
If you answered **NO**, continue to question 4. Include the information used to answer question 3 (e.g. a response from MCM or the municipality to an inquiry on this topic) with EA documentation.		
4. Will the proposed project, decision or activity result in significant ground disturbance?	Yes ☐	No ☐
If you answered **YES**, continue to question 5. Documentation to support an answer of YES is not required.		
If you answered **NO**, an archaeological assessment is NOT required and it is not necessary to fill out the remainder of the checklist. The proponent will summarize this conclusion and include appropriate documentation demonstrating that no ground disturbance will take place to the project file.		
5. Have all areas to be impacted by ground disturbing activities been subjected to recent extensive and intensive disturbances and to depths greater than the depths of the proposed activities?	Yes ☐	No ☐
If you answered **YES**, an archaeological assessment is NOT required. The checklist and any supporting documentation demonstrating that no activities will go deeper than past ground disturbances or will occur in previously undisturbed lands is to be included in the summary.		
If you answered **NO**, then there is potential for archaeological resources and an archaeological assessment is required.		

Appendix: Additional instructions, information sources, and definitions to assist in answering checklist questions

Part A	
1	**Maintenance** means work that extends the life of the structure or keeps the structure safe for intended use. **Repairs** means work that fixes or replaces components of the structure to return the structure to its original condition.
2	**Rehabilitation** means a modification, alteration, or improvement of the condition of a structure or bridge subsystem that is designed to correct deficiencies in order to achieve a particular design life and live load level. **Vehicle capacity** means the number of through travel lanes for vehicles on the bridge. Adjusting lane width to current standards does not increase the number of travel lanes and cycling, parking, or turning lanes are not through travel lanes. Increasing the width of a narrow bridge (one lane with two-way traffic) to the current standard to accommodate two-way traffic (two lane) is not considered an increase in capacity.
Part B	
1	Municipal heritage staff and municipal heritage committees can help determine whether an approved conservation plan, or previous cultural heritage evaluation, exist.
2	A previous evaluation might have been carried out by: • A heritage consultant, in a CHER prepared for a previous consultant/applicant • The Municipal Heritage Committee, in considering the property for inclusion on the municipality's Heritage Register • The municipality, in a Bridge Infrastructure Master Plan Evaluations should use the criteria in Ontario Regulation 9/06. Re-evaluation is necessary if new information is available or there is evidence that heritage attributes have changed.
3	Where to find information: a) For OHA-designated properties contact the municipal clerk, or search the Ontario Heritage Trust (OHT) Register at https://www.heritagetrust.on.ca/en/pages/tools/ontario-heritage-act-register b) - For municipal easements, contact the municipal clerk - For OHT easements, contact the OHT Provincial Heritage Registrar at registrar@heritagetrust.on.ca or see https://www.heritagetrust.on.ca/en/property-types/easement-properties - Easements can also be identified through the local land registry (title search) c) For listed or inventoried properties, contact the municipal clerk or heritage staff

	d) For properties subject to a notice of intention to designate or notice of Heritage Conservation District Study, contact the municipal clerk or heritage staff e) For provincial heritage properties, contact the MCM Registrar at registrar@ontario.ca f) For all federal designations, search the Directory of Federal Heritage Designations at https://www.pc.gc.ca/apps/dfhd/default_eng.aspx g) See (f) above h) See (f) above i) See (f) above j) For UNESCO World Heritage Sites see the UNESCO website: http://whc.unesco.org/en/statesparties/CA (note: as of 2020, Ontario's only UNESCO World Heritage Sites are the Rideau Canal and Pimachiowin Aki)
6	Plaque locations can be found from the following sources: • Municipal heritage committees or local heritage organizations • Ontario Heritage Trust: https://www.heritagetrust.on.ca/en/online-plaque-guide • Historic Sites and Monuments Board of Canada: http://www.pc.gc.ca/apps/dfhd/default_eng.aspx
7	Cemeteries can be located through the Bereavement Authority of Ontario's Public Register of licensed cemeteries: https://licensees.bereavementauthorityontario.ca/public-register If cemetery limits are unclear, an Investigation Authorization issued by the Bereavement Authority of Ontario may be required. In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.
8	A list of the Canadian Heritage Rivers in Ontario can be found at http://chrs.ca/the-rivers-ontario/.
9	For information, contact: • Elders in Indigenous Communities or community researchers who may have information on potential cultural heritage resources. Please note that Indigenous traditional knowledge may be considered sensitive. • municipal heritage committees or local heritage organizations • Ontario Historical Society's "Heritage Directory" - for a list of historical societies and heritage organizations in the province: https://ontariohistoricalsociety.ca/directory-and-map/ Information specific to trails may be obtained through Ontario Trails at https://www.ontariotrails.on.ca/index.php?url=trails

10 11 12	If the checklist indicates the need to hire a qualified person to undertake a Cultural Heritage Evaluation Report (CHER), do this during the EA study and follow its recommendations, which may include completing a Heritage Impact Assessment (HIA) if the structure or property is found to have cultural heritage value or interest (CHVI) and may be impacted by the project. Both the CHER and the HIA should be included in EA documentation and inform the decision-making in the EA process.
12 (c)	To develop a **sympathetic design** for railings, the proponent should first consider retaining the existing railing. If the existing railing is tall enough for pedestrian safety, consider providing a new barrier wall between road and sidewalk if adequate space and bridge capacity is available, and snow clearing operations can continue. If inadequate space and structural capacity exists, or snow clearing cannot be accommodated, or pedestrian Ontario Building Code (OBC) safety requirements are not met, then the existing railings should be removed and replaced with a new Canadian Highway Bridge Design Code- and OBC- (if applicable) compliant barrier with a design that, as much as possible, uses the same materials and elements (e.g. vertical steel posts) as the original railing.

Part C	
If this Part indicates the need for an archaeological assessment, you will need to hire an archaeologist licensed under the Ontario Heritage Act. This licensee will follow the archaeological assessment process laid out in the *Standards and Guidelines for Consultant Archaeologists* and submit archaeological assessment reports directly to MCM for technical review. Archaeological assessment follows a phased approach that begins with evaluation of archaeological potential and proceeds as necessary to a field survey, an assessment of any sites identified, and mitigation measures such as excavation, with each phase resulting in recommendations as to whether the next is necessary. MCM will inform the client/proponent when review of and any necessary revisions to archaeological assessment reports have been completed. Archaeological assessment reports should be included in EA documentation. You can find information on archaeological assessments, and a list of licensed Archaeologists in Ontario, on MCM's website at https://www.ontario.ca/page/archaeological-assessments and https://www.ontario.ca/page/archaeologists-licensed-ontario .	
2	Information can be obtained from MCM by emailing archaeology@ontario.ca .
3	The municipality may be able to answer Question 3 if it has a data sharing agreement with MCM.
4	**Significant ground disturbance** means to interfere with or alter the existing condition of the ground, whether it is above or below water, through human actions that have potential to affect cultural heritage resources, and includes, but not limited to: altering the existing grade of land power spraying placing or dumping fill allowing heavy vehicle traffic drainage ditch construction scarification and soil mechanics studies compacting, excavating or removing topsoil dredging removing vegetation trenching (e.g. for services) trail construction A ground disturbance does not include: normal, regular farming practices such as ploughing or tilling or gardening
5	**Recent** means since 1960. **Extensive** means over all or most of the area. **Intensive** means thorough or complete disturbance.

Appendix C: Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory

Blatchford Bridge



Photograph by Lindsay Benjamin, 2012

General Information	Physical Details
Bridge No. PL1	**Type**: Warren Pony Truss
Ownership: County of Wellington	**Span**: Single
Construction Date: 1949	**Dimensions**: 32.4m x 8.1m (LxW)
Water Crossing: Speed River	**Materials**: Steel, Reinforced Concrete

Evaluation Form	Check
Design/Physical Value	
I. Is a rare, unique, representative or early example of a style, type, expression, material or construction method	✓
II. Displays a high degree of craftsmanship or artistic merit	
III. Demonstrates a high degree of technical or scientific achievement	
Historic/Associative Value	
I. Has direct association with a theme, event, belief, person, activity, organization, or institution that is significant to the community	
II. Yields, or has the potential to yield, information that contributes to an understanding of the community or culture	
III. Demonstrates or reflects the work or ideas of an architect, artist, engineer, builder, designer or theorist who is significant to a community	✓
Contextual Value	
I. Is important in defining, maintaining or supporting the character of an area	✓
II. Is physically, functionally, visually or historically linked to its surroundings	
III. Is a landmark	

General Description

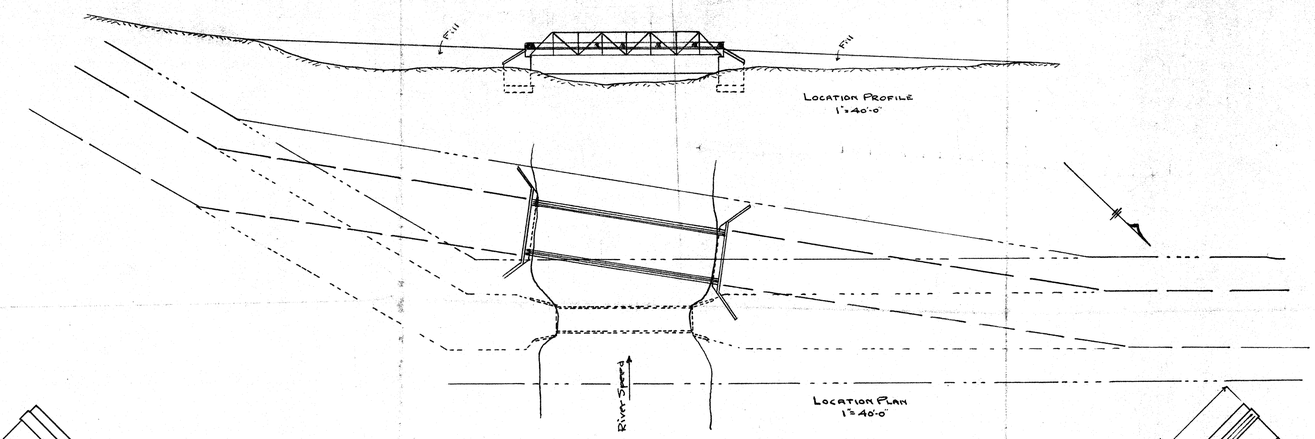
The Blatchford Bridge is located on County Road 32, 0.80 km south of County Road 124. It was constructed in 1949 and is one of two remaining steel truss bridges in the Township of Puslinch, and represents the only pony truss. The Blatchford Bridge is similar in appearance to other pony trusses in Wellington County and built during the same time period, generally between 1949 and 1954.

The Dominion Bridge Company Ltd. constructed this steel pony truss bridge for the County of Wellington. Established in 1886, this company was a Canadian steel bridge constructor based in Lachine, Quebec, and eventually growing to have plants located across Canada. Contractor A.H. MacLellan and County Engineer, W.H. Keith, are credited with working on this bridge and many other truss bridges in the County. The Blatchford Bridge underwent repairs in 1992.

Located directly east of the bridge, remnant concrete abutments remain indicating the alignment of a previous bridge parallel to the Blatchford Bridge.

Sources: *GRCA Heritage Bridge Inventory*
County of Wellington, 2007 Bridge Appraisals

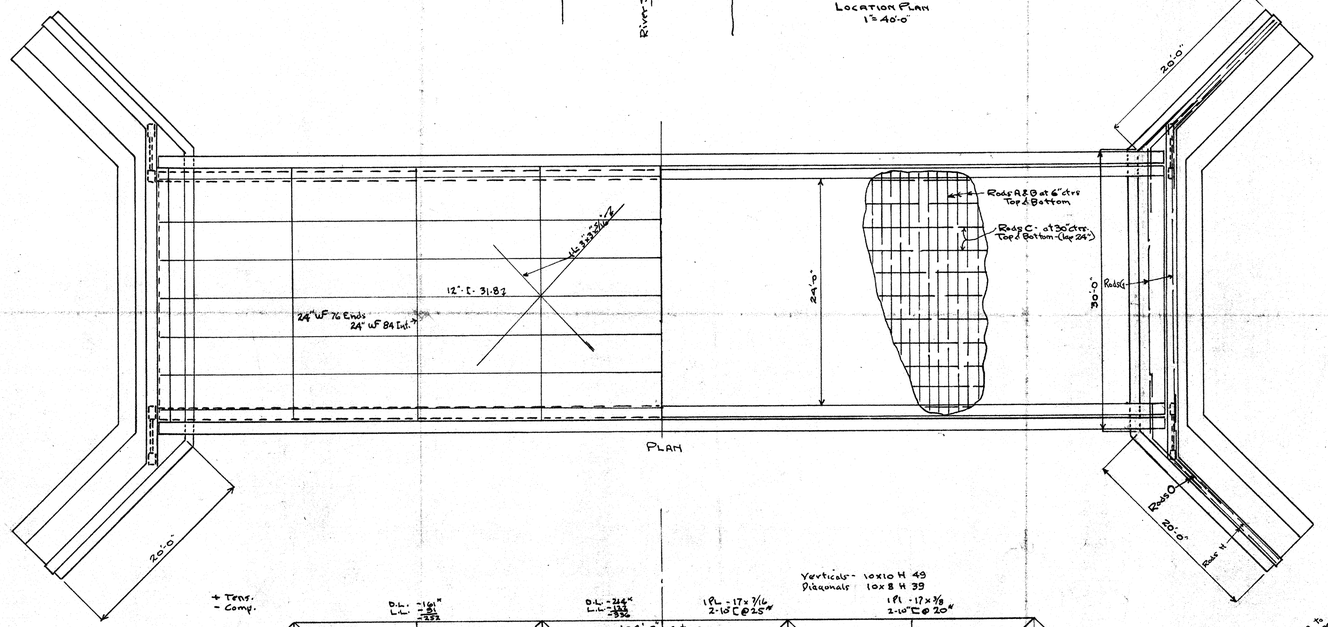
Appendix D: Select Structural Drawings



LOCATION PROFILE
1"=40'-0"

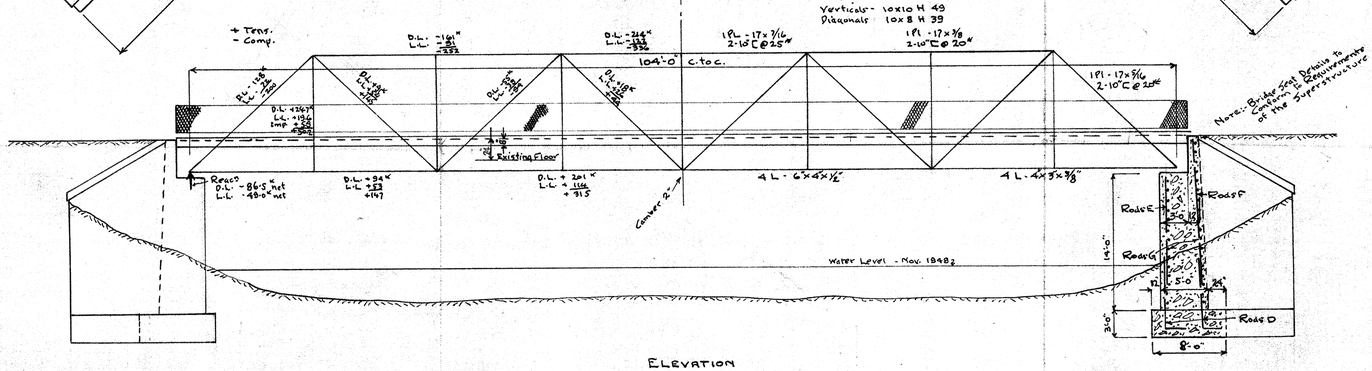
LOCATION PLAN
1"=40'-0"

LIST OF REINFORCING						
Letter	Location	Size	Number	Length	Spacing	Shape
A	Slab	3/8"Ø	206	25'-6"	6"	12" 12"
B	"	5/8"Ø	206	23'-0"	6"	Straight
C	"	1/2"Ø	130	22'-8"	30"	"
D	Footings	3/4"Ø	256	10'-0"	12"	24"
E	Abuts & Wing Ends	5/8"Ø	128	12'-0"	12"	Straight
F	Abuts. & Wings	5/8"Ø	128	16'-0"	12"	"
G	Abutments	5/8"Ø	72	30'-0"	12"	"
H	Wings	5/8"Ø	144	15'-0"	12"	"
J	Rails	5/8"Ø	16	2'-6"	⌐	"
K	Posts	3/8"Ø	16	5'-6"	⌐	"
L	Bridge Seat	3/4"Ø	28	6'-0"	⌐	"
M	" "	1/2"Ø	24	7'-6"	12"	24" 18" 7'-0" 15° 75°
O	Corners	5/8"Ø	140	14'-0"	12"	

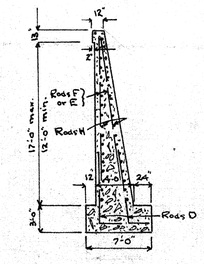


PLAN

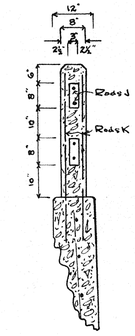
SECTION



ELEVATION



SECTION OF WING



DETAIL OF POST & RAILS
½"=1'-0"



DETAIL OF REINFORCING UNDER TRUSS ENDS
½"=1'-0"

CONCRETE - Approx. 400 Cubic Yards

THE GUELPH and WELLINGTON SUBURBAN ROAD COMMISSION
BLATCHFORD BRIDGE
ROAD # 68
Lot 10, Con. III, Div. B. Twp. GUELPH
⅛"=1'-0"
JUNE, 1949

REFERENCE DWG. 2451-8

GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

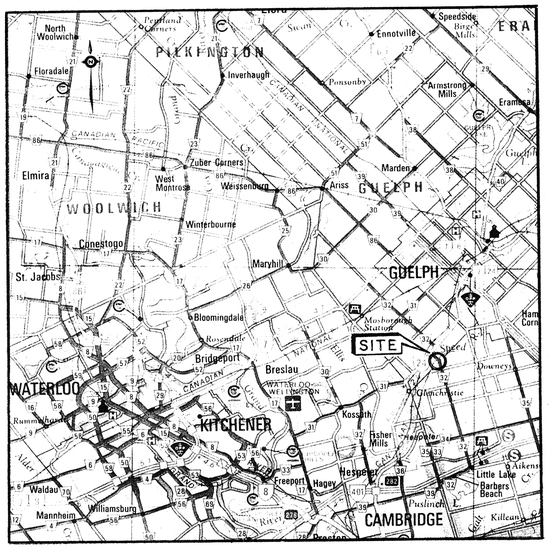
CONTRACT FOR

REPAIRS TO STRUCTURE No. 32085

BLATCHFORD BRIDGE

ON COUNTY ROAD 32 OVER SPEED RIVER

CONTRACT No. 92-60



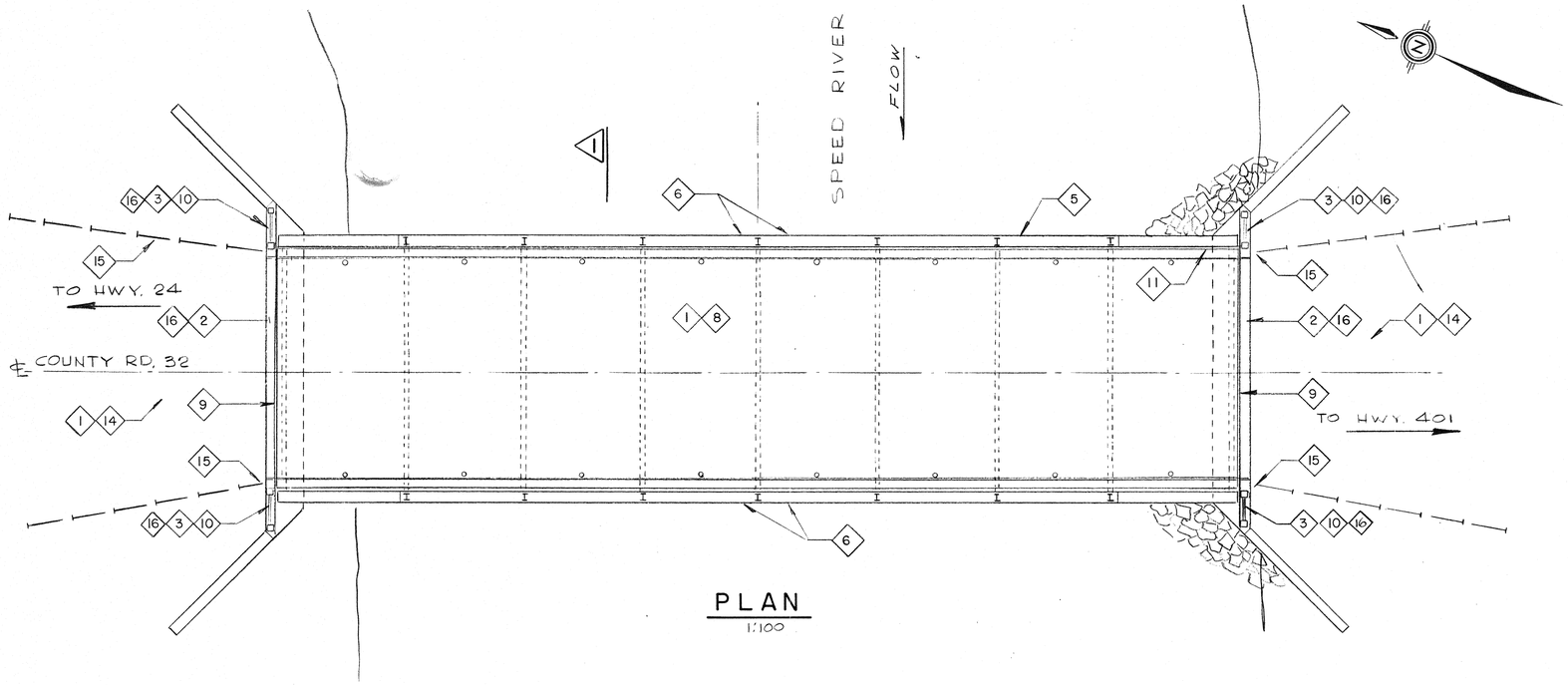
KEY PLAN

G. OUGH P.ENG
WELLINGTON COUNTY ENGINEER

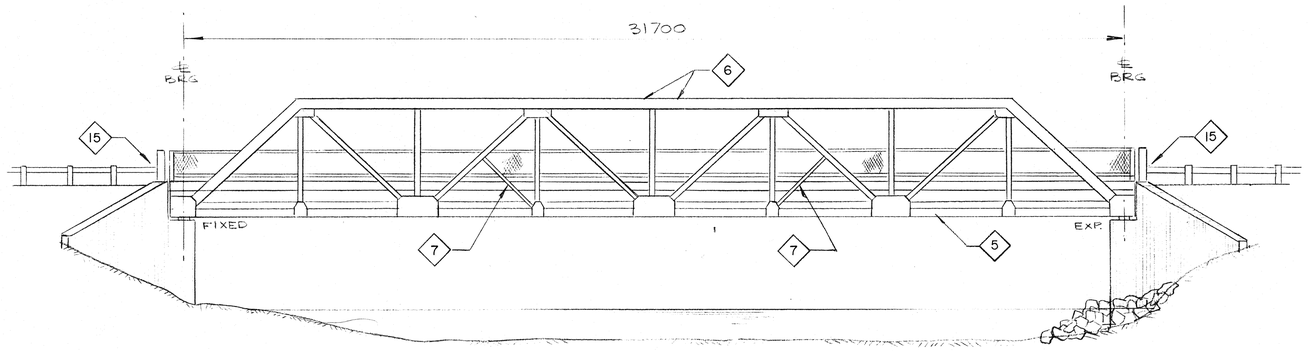
JAN. 1992
DATE

ISSUED FOR CONSTRUCTION

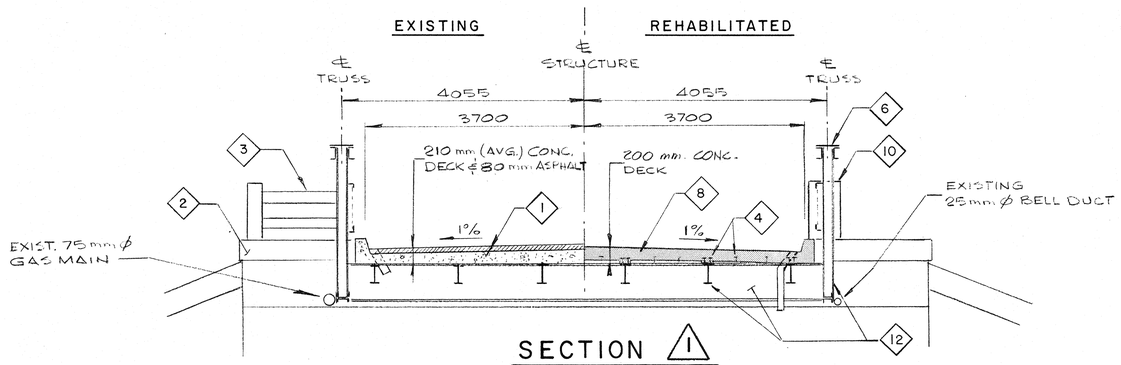
McCORMICK RANKIN
CONSULTING ENGINEERS



PLAN
1:100



ELEVATION
1:100



SECTION 1
1:50

GENERAL NOTES

1. CLASS OF CONCRETE - 30 MPa.
2. REINFORCING STEEL SHALL BE CLASS 400. BARS MARKED WITH SUFFIX 'C' DENOTE EPOXY COATED BARS.
3. STRUCTURAL STEEL TO BE IN ACCORDANCE WITH CSA CAN3-G40.21-M81 GRADE 300W.
4. CLEAR COVER TO REINFORCING STEEL

   DECK TOP 55±5
   BOTTOM 55±5

   REMAINDER 70±20
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS OF THE EXISTING STRUCTURE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. COUNTY ROAD 32 WILL BE CLOSED FOR REPLACEMENT OF THE DECK SLAB AND INSTALLATION OF NEW EXPANSION JOINTS. THE REMAINDER OF THE WORK WILL BE STAGED TO MAINTAIN ONE LANE OF TRAFFIC CONTROLLED BY TEMPORARY TRAFFIC SIGNALS.
7. SIGNAGE REQUIRED FOR THE COMPLETE CLOSURE STAGE ONLY WILL BE SUPPLIED AND MAINTAINED BY THE COUNTY OF WELLINGTON.
8. THE STRUCTURE HAS BEEN STRUCTURALLY EVALUATED IN ACCORDANCE WITH OHBDC, 1983, SECTION 14. UPON REPAIRS IN ACCORDANCE WITH THIS CONTRACT THE STRUCTURE WILL NOT REQUIRE POSTING.
9. EXISTING UTILITIES TO BE MAINTAINED AND PROTECTED DURING ALL PHASES OF THE WORK.

WORK DESCRIPTION

1. REMOVE EXISTING CONCRETE DECK AND ASPHALT. REMOVE ASPHALT AT APPROACHES.
2. REMOVE TOPS OF BALLAST WALLS.
3. REMOVE EXISTING CONCRETE RAILS AND POSTS.
4. MODIFY EXISTING STRINGERS AND FLOORBEAMS BY WELDING SHEAR STUDS TO TOP FLANGES.
5. REPLACE DETERIORATED/BROKEN BOTTOM CHORD MEMBER IN EAST TRUSS.
6. ADD NEW COVER PLATES TO TOP CHORDS IN CENTRE TWO BAYS OF TRUSSES.
7. INSTALL BRACING AT TRUSS DIAGONAL (2 IN EACH TRUSS).
8. CONSTRUCT NEW REINFORCED CONCRETE DECK SLAB WITH DECK DRAINS.
9. INSTALL NEW EXPANSION JOINTS.
10. CONSTRUCT NEW REINFORCED CONCRETE END POSTS.
11. REPLACE DAMAGED HANDRAIL SECTION.
12. ABRASIVE BLAST CLEAN AND COAT ALL STRUCTURAL STEEL.
13. PLACE ROCK PROTECTION AT SOUTH ABUTMENT.
14. REPAVE APPROACHES.
15. MODIFY EXISTING STEEL BEAM GUIDERAIL AT NW, SW AND SE APPROACHES AND ATTACH TO NEW END POSTS. INSTALL NEW STEEL BEAM GUIDERAIL AT NE APPROACH.
16. RECONSTRUCT TOP OF BALLAST WALLS.

QUANTITIES FOR LUMP SUM TENDER ITEMS

CONCRETE IN BALLAST WALLS AND END POSTS	4 m³
CONCRETE IN DECK	55 m³
COATING SYSTEM EPOXY / VINYL (SYSTEM 3)	880 m²

LIST OF DRAWINGS

1. GENERAL ARRANGEMENT
2. CONSTRUCTION STAGING
3. CONCRETE DETAILS
4. STRUCTURAL STEEL DETAILS I
5. STRUCTURAL STEEL DETAILS II
6. EXPANSION JOINTS
7. TRAFFIC SIGNALS - TEMPORARY
8. EXISTING STRUCTURE DRAWING

LICENSED PROFESSIONAL ENGINEER C. CRESPI 92-01-21 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.S. STOFKO 92-01-21 PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE	INITIAL

REVISIONS

McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE	AS SHOWN
DATE	JAN. 17, 1992
DWG.	W.C.D.
CKD.	R.S.S.
FLD. BK	PAGE
BENCH M	
PROJECT	

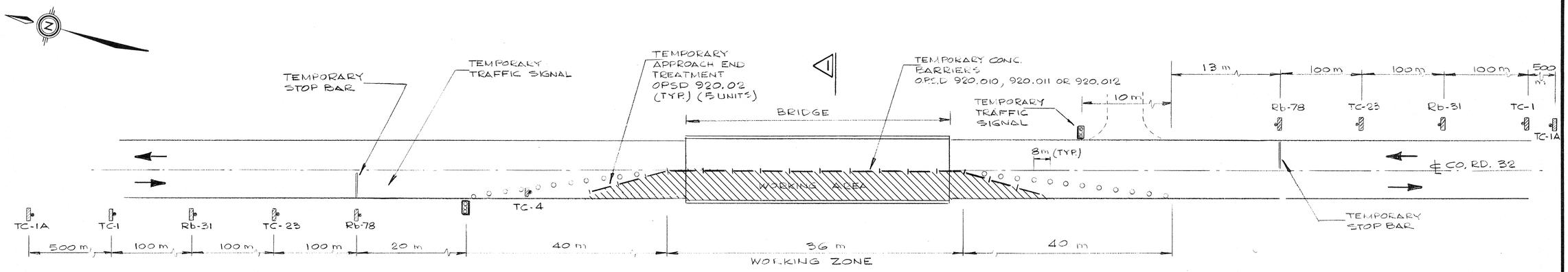
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

GENERAL ARRANGEMENT

92-60
CONTRACT NO.

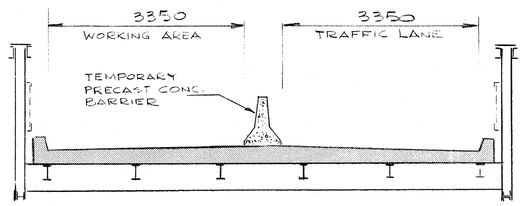
DRAWING NO.
2451 - 1



PLAN - STAGE II

N.T.S

STAGE III SIMILAR WITH TRAFFIC ON WEST SIDE



SECTION 1

1:50

STAGE II SHOWN

STAGE III OPPOSITE HAND

GENERAL NOTES:

1. FOR TEMPORARY TRAFFIC SIGNAL INSTALLATION SEE DRAWING 2451-7.
2. EXACT LOCATION OF TEMPORARY SIGNS TO BE APPROVED BY THE ENGINEER BEFORE IMPOSING LANE RESTRICTIONS.
3. A MINIMUM OF ONE SINGLE LANE TRAFFIC SHALL BE MAINTAINED THROUGHOUT STAGES II AND III.
4. THE CONTRACTOR SHALL RESTRICT HIS WORK OPERATIONS TO THE DESIGNATED WORK AREA. CONSTRUCTION VEHICLES WILL NOT BE ALLOWED TO STOP, UNLOAD OR WORK WITHIN THE ACTIVE LANE AT ANY TIME.
5. ALL SIGNING TO BE IN ACCORDANCE WITH THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", THE "TRAFFIC CONTROL MANUAL OF ROADWAY WORK OPERATIONS" AND THE SPECIFICATIONS.

CONSTRUCTION STAGING

1. STAGE I - ROAD CLOSED TO TRAFFIC
   - i) REMOVE CONCRETE DECK, TOPS OF BALLAST WALLS, ASPHALT AT APPROACHES.
   - ii) UNDERTAKE MODIFICATIONS TO STRUCTURAL STEEL AND INSTALL SHEAR STUDS.
   - iii) INSTALL NEW EXPANSION JOINTS AND PLACE NEW DECK AND BALLAST WALLS.
2. STAGE II - SINGLE TRAFFIC LANE WEST SIDE
   - i) ERECT SIGNS, TRAFFIC SIGNALS, BARRIERS
   - ii) ABRASIVE BLAST CLEAN AND COAT STRUCTURAL STEEL IN EAST TRUSS.
3. STAGE III - SINGLE TRAFFIC LANE EAST SIDE
   - i) MOVE SIGNS, BARRIERS, TRAFFIC SIGNALS
   - ii) ABRASIVE BLAST CLEAN AND COAT STRUCTURAL STEEL IN WEST TRUSS.
4. GENERAL

   THE FOLLOWING WORK MAY BE UNDERTAKEN UNDER ANY OR ALL OF THE ABOVE STAGES:

   - REMOVAL OF EXISTING CONCRETE RAIL PANELS.
   - PLACING NEW CONCRETE END POSTS.
   - REPLACEMENT OF DAMAGED HANDRAIL SECTION (STAGE I OR II).
   - ABRASIVE BLAST CLEANING AND COATING STRUCTURAL STEEL IN DECK UNDERSIDE (WEATHER PERMITTING).
   - ROCK PROTECTION AT SOUTH ABUTMENT.
   - STEEL BEAM GUIDERAILS
   - PAVING

LICENSED PROFESSIONAL ENGINEER C. CRESPI 92-01-21 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.S. STOFKO 92-01-21 PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE	INITIAL
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CONSULTING ENGINEERS

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CKD.	R.S.S.
FLD BK	PAGE
BENCH M	

PROJECT

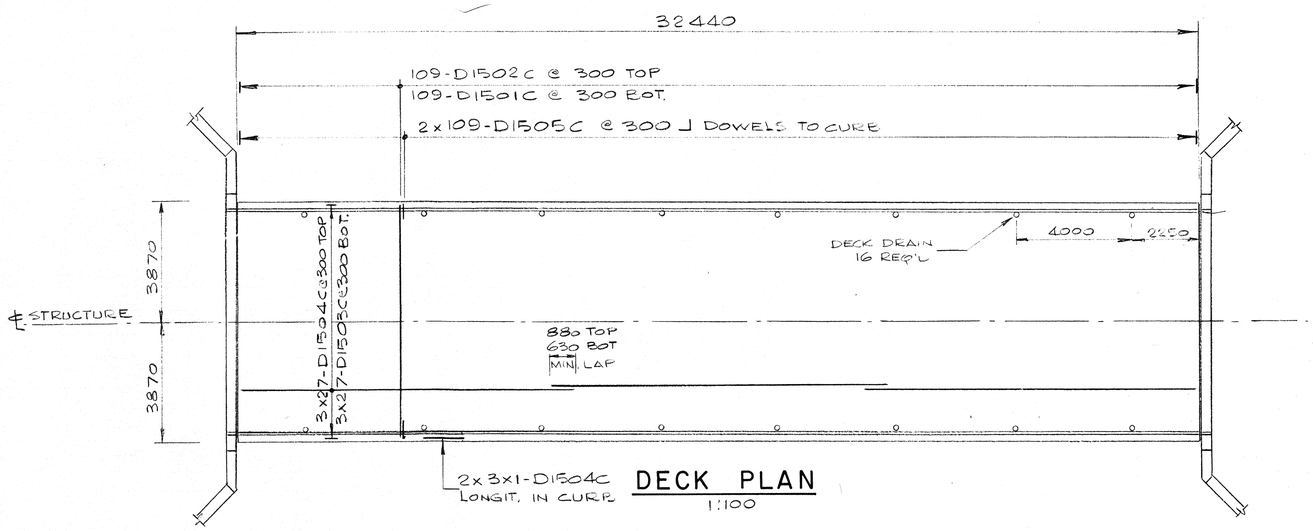
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

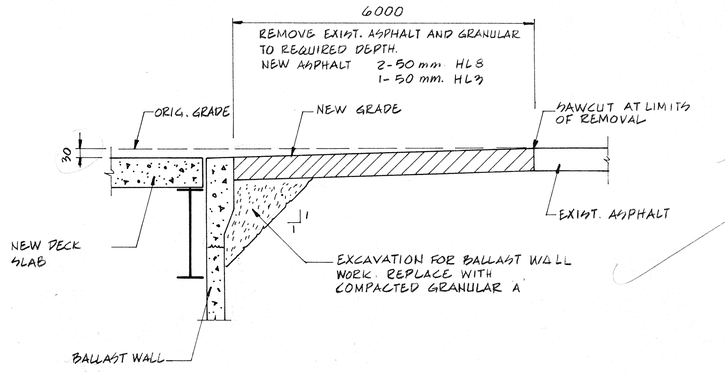
CONSTRUCTION STAGING

92-60
CONTRACT NO.

DRAWING NO.
2451-2



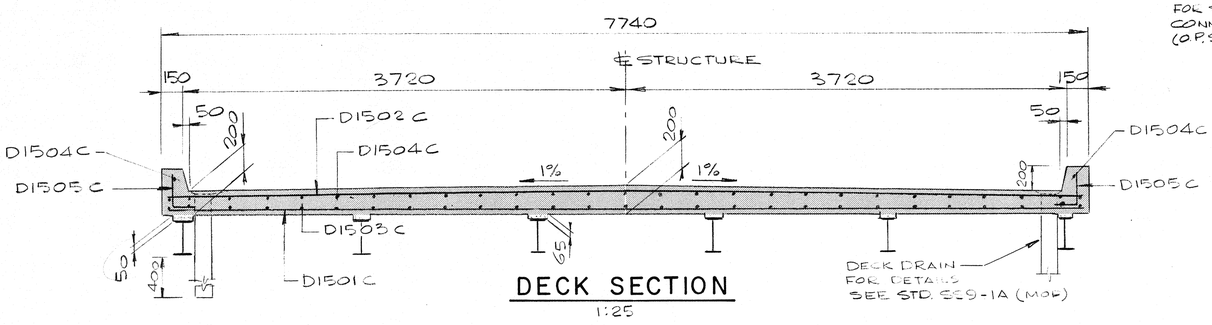
DECK PLAN
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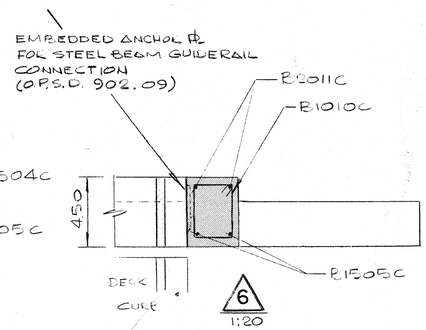
PAVING DETAIL
N.T.S.

NOTES:

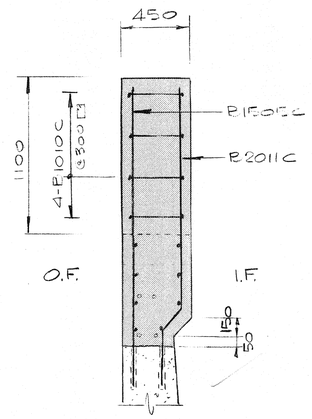
1. GROUT SHALL BE HILTI H.I.T. SYSTEM OR APPROVED EQUAL. HOLE DIAMETERS SHALL BE AS SPECIFIED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. REFER TO SPECIFICATIONS FOR PREPARATION OF EXISTING SURFACES PRIOR TO PLACING NEW CONCRETE.



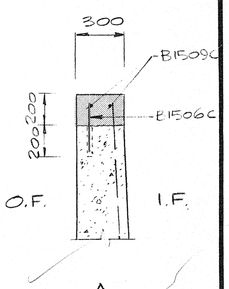
DECK SECTION
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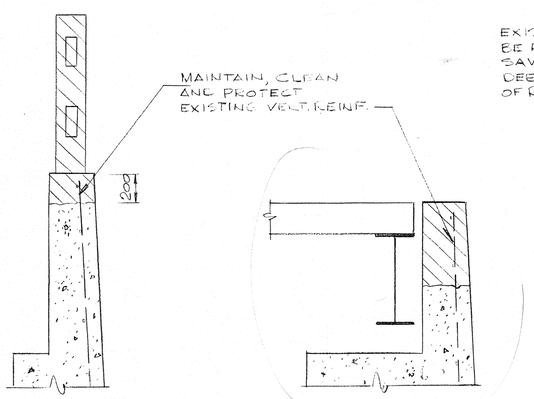
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5
1:20

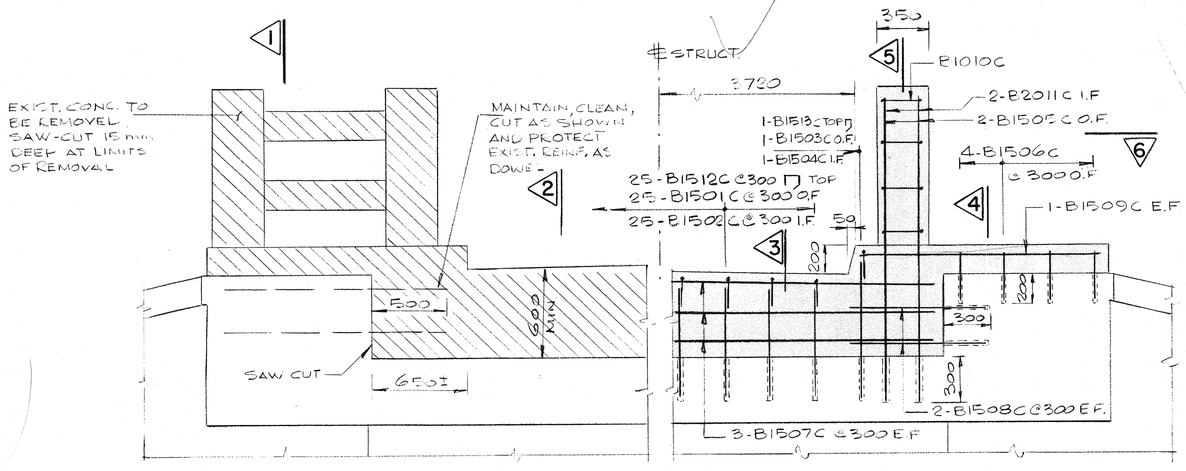


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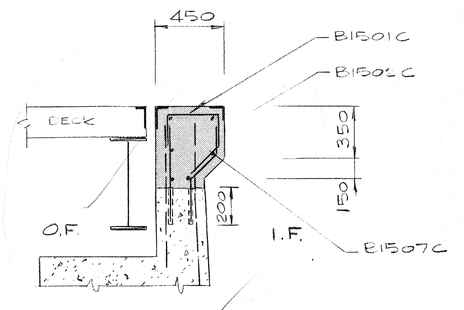
1
1:20

2
1:20



EXISTING NEW

ELEVATION BALLAST WALL
1:20



3
1:20

C. CRESPI — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — 92-01-21

R.S. STOFKO — LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE	INITIAL
	REVISIONS		

McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE	AS SHOWN
DATE	JAN. 17, 1991
DWG.	W.C.D.
CKD.	
FLD. BK.	PAGE
BENCH M	
PROJECT	

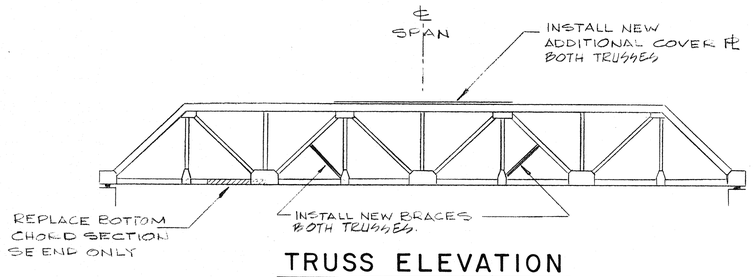
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

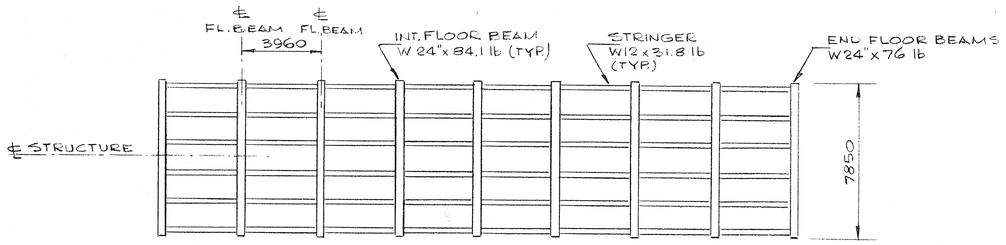
CONCRETE DETAILS

92-60
CONTRACT NO.

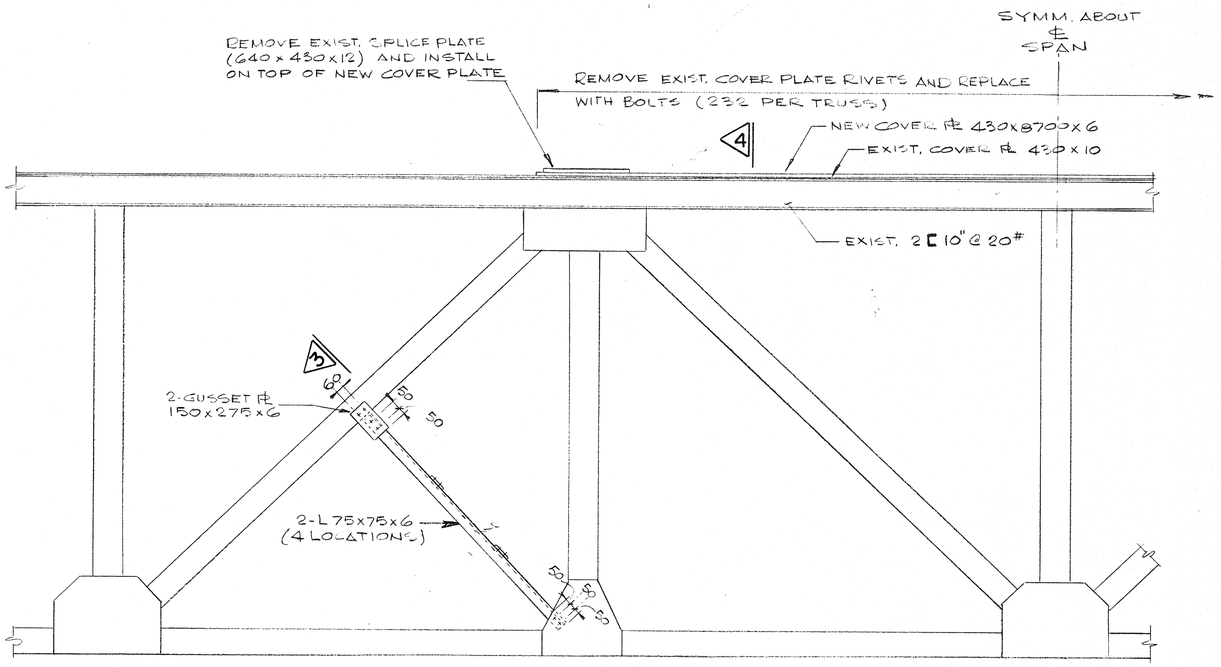
DRAWING NO.
2451-3



TRUSS ELEVATION
1:150

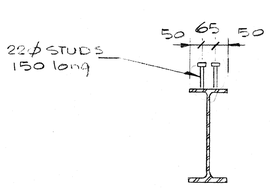


EXISTING FLOOR SYSTEM PLAN
1:150

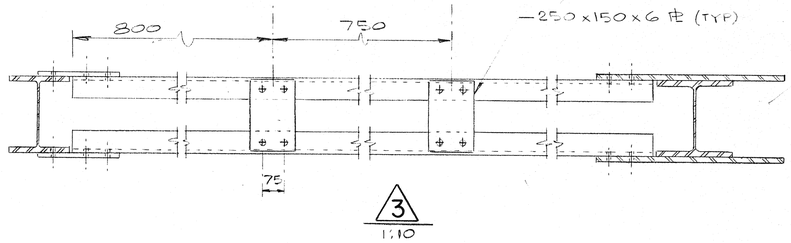


PARTIAL TRUSS ELEVATION
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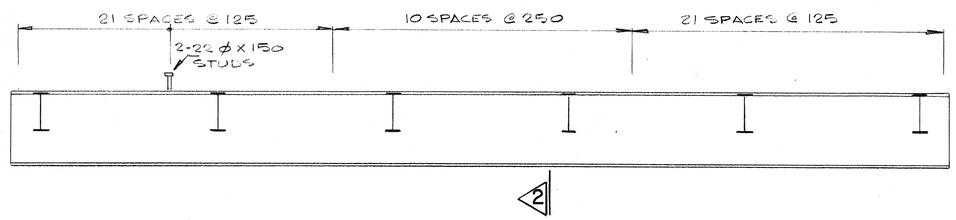
TYPICAL STRINGER ELEVATION
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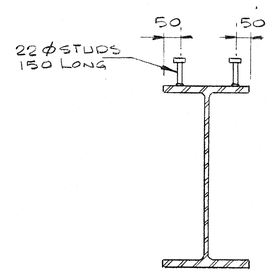
SECTION 1
1:10



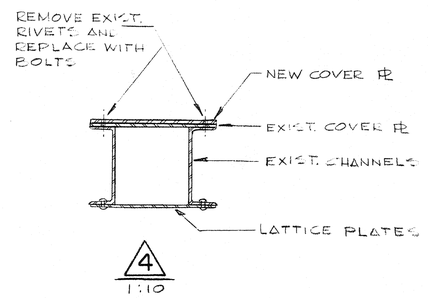
3
1:10



TYPICAL FLOOR BEAM ELEVATION
1:25



SECTION 2
1:10



4
1:10

NOTES:

1. ALL MODIFICATIONS TO STRUCTURAL STEEL TO BE CARRIED OUT AFTER COMPLETE REMOVAL OF EXISTING DECK AND PRIOR TO CASTING NEW DECK.
2. EXISTING RIVETS TO BE REMOVED WITHOUT ENLARGING EXISTING HOLES.
3. REAM EXISTING HOLES TO 22 mm DIAMETER AFTER RIVET REMOVED AND NEW ANGLE IN PLACE.
4. INSTALL NEW 20M-A325 BOLTS IN ACCORDANCE WITH CSA STD. CAN3-S16.1-M-84.
5. NEW STEEL TO BE IN ACCORDANCE WITH CSA STD. G40.21 GRADE 350W.
6. REAM EXISTING RIVET HOLES AT GUSSET PLATES TO 22 mm DIAMETER AFTER REMOVAL OF RIVETS AND NEW MEMBER IS IN PLACE.
7. SHEAR CONNECTORS SHALL BE IN ACCORDANCE WITH MTO DESIGNATED SOURCES LIST #9.10.75 USING FUSION WELD PROCESS.

LICENSED PROFESSIONAL ENGINEER C. CRESPI 92-01-21 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.S. STOFKO 92-01-21 PROVINCE OF ONTARIO

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REVISIONS

McCORMICK RANKIN
CONSULTING ENGINEERS

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DWG.	W. C. D.
CKD.	
FLD. BK.	PAGE
BENCH M	

PROJECT

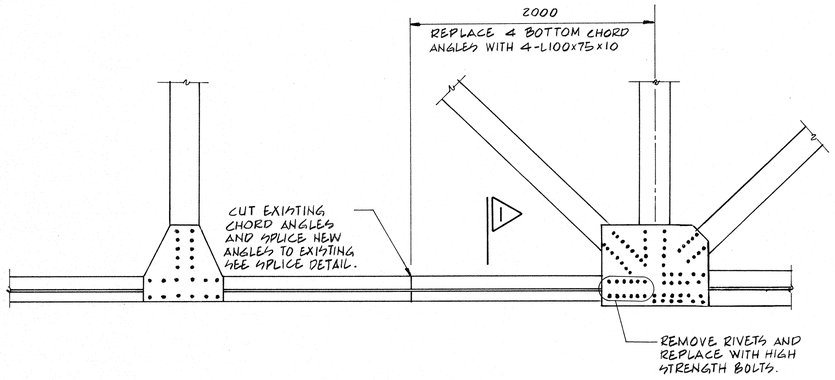
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

STRUCTURAL STEEL DETAILS I

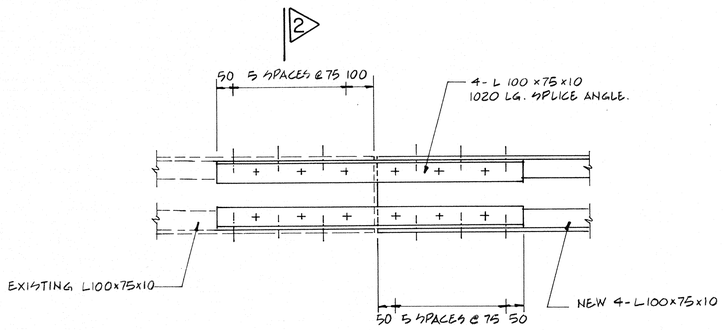
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CONTRACT NO.

DRAWING NO.
2451-4



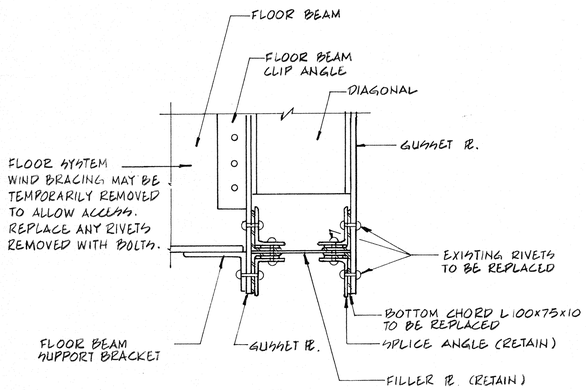
PARTIAL ELEVATION BOTTOM CHORD

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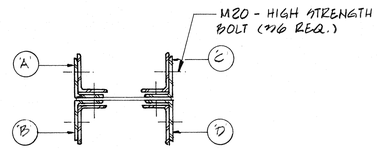
SPLICE PLAN

1:10



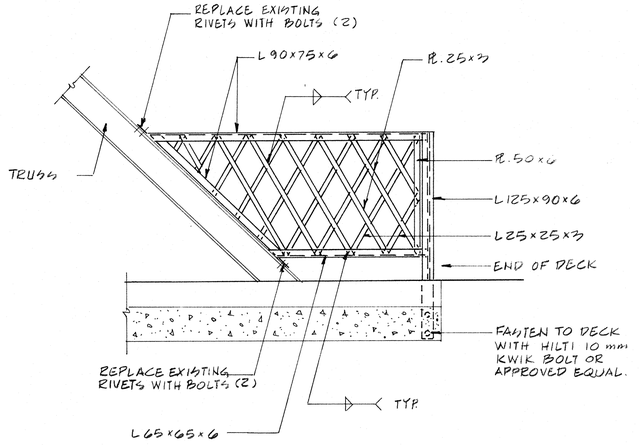
SECTION 1

1:7.5



SECTION 2

1:7.5



HANDRAIL REPAIR

(SOUTH-EAST CORNER ONLY)

SEQUENCE OF CONSTRUCTION FOR BOTTOM CHORD REPAIR

1. REFER TO DWG. 4 FOR NOTES.
2. CUT ANGLE 'A' AS SHOWN.
3. REMOVE RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLE 'A' AT CONNECTION AND REMOVE ANGLE.
4. INSTALL NEW ANGLE 'A'. INSTALL BOLTS ON VERTICAL LEG AT BOTH ENDS OF NEW MEMBER AND BOTH SIDES OF SPLICE.
5. CUT ANGLE 'B' AS SHOWN.
6. REMOVE RIVETS ON VERTICAL LEGS OF ANGLE 'B' AT CONNECTION AND REMOVE ANGLE.
7. INSTALL NEW ANGLE 'B', INSTALL BOLTS ON VERTICAL AND HORIZONTAL LEGS AT BOTH ENDS OF NEW MEMBER AND BOTH SIDES OF SPLICE.
8. REPEAT STEPS 2-7 INCLUSIVE FOR ANGLES 'C' AND 'D'.

REINFORCING STEEL SCHEDULE

MARK	NO. BARS	SIZE	LENGTH	TYPE	A	B	C	D	E	F	G	H	J	K	L	M	O	R
BALLAST WALLS & POSTS																		
B1501C	50	15	700	STR														
B1502C	50	15	690	6	–	250	240	200			–							
B1503C	4	15	900	STR														
B1504C	4	15	890	6	–	250	240	400			–							
B1505C	8	15	2130	STR														
B1506C	16	15	330	STR														
B1507C	12	15	7600	STR														
B1508C	16	15	1000	STR														
B1509C	8	15	1600	STR														
B1010C	16	10	1300	T1	130	310	210	310	210		130							
B2011C	8	20	2150	6	–	1600	200	350			–	140						
B1512C	50	15	1230	16	400	310	240	280										
B1513C	4	15	1630	16	600	310	440	280										
DECK & CURBS																		
D1501C	109	15	7600	STR														
D1502C	109	15	7600	STR														
D1503C	81	15	11200	STR														
D1504C	87	15	11400	STR														
D1505C	218	15	535	17		275	260	–										

NOTES :-

BENDING DETAILS AND NOTES ARE AS OUTLINED IN THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES" (A.C.I. 315-65) AS ISSUED BY THE AMERICAN CONCRETE INSTITUTE WITH THE FOLLOWING EXCEPTIONS AND ADDITIONS :-

7. (REVISED AS FOLLOWS)
   NO ALLOWANCE FOR BEND CURVATURE HAS BEEN MADE EXCEPT FOR STANDARD HOOK AND RADII IN EXCESS OF SAME. ALLOWANCE FOR BAR EXTENSION DUE TO BENDING (CREEP) SHALL BE MADE BY THE FABRICATOR.
8. SPACERS TO BE PROVIDED WITH ALL SPIRALS AS SPECIFIED IN A.C.I. 315 - 65
9. WEIGHT OF SPIRALS AND SPACERS NOT INCLUDED IN THE "WEIGHT OF STEEL"
10. ALL REINFORCING SHALL CONFORM TO C.S.A. G-30-12M GRADE 400MPa.

LICENSED PROFESSIONAL ENGINEER C. CRESPI 92-01-21 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.S. STOFKO 92-01-21 PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE	INITIAL

REVISIONS

McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE	AS SHOWN
DATE	JAN. 17, 1992
DWG.	K.V.
CKD.	
FLD. BK.	PAGE
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PROJECT	

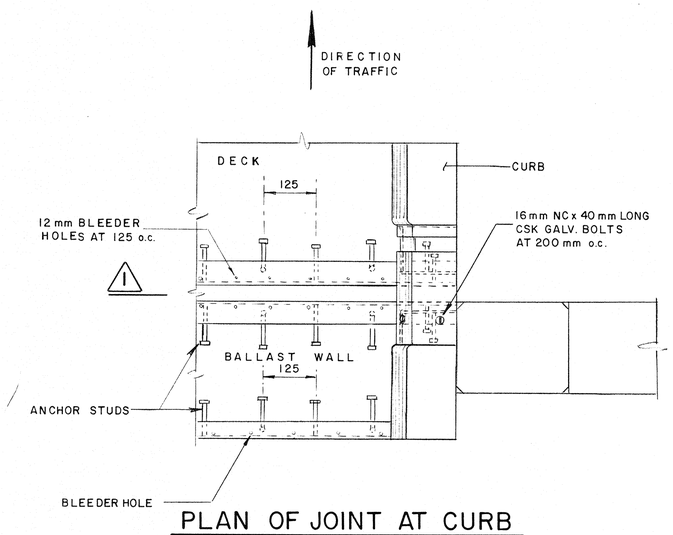
GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

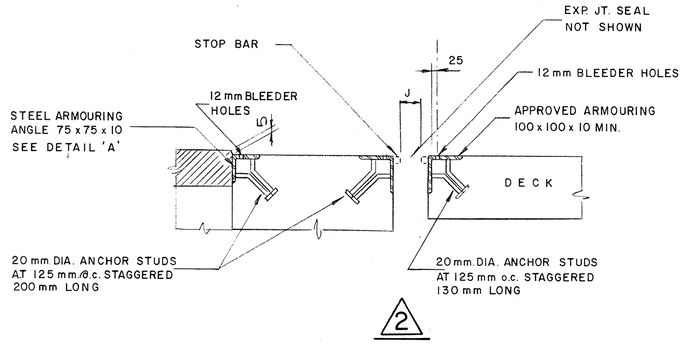
STRUCTURAL STEEL DETAILS II

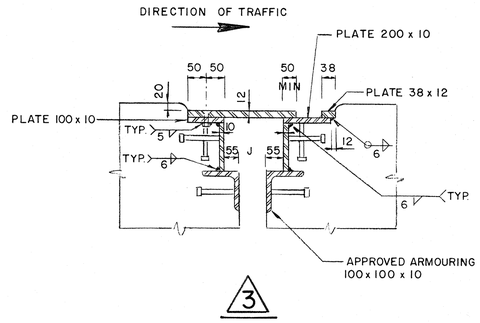
92 - 60
CONTRACT NO.

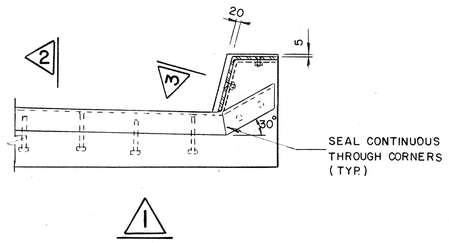
DRAWING NO.
2451-5

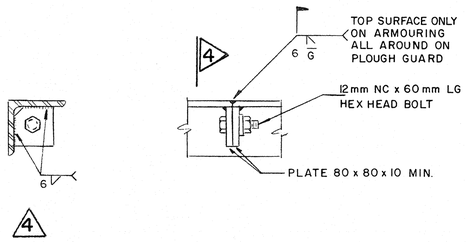


PLAN OF JOINT AT CURB

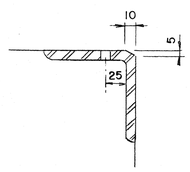








SPLICE DETAIL



DETAIL 'A'

NOTES:

1. EXPANSION JOINT SHALL BE IN ACCORDANCE WITH THE DESIGNATED SOURCE FOR MATERIALS LIST DSM 9.40.27 TYPE C.
2. STEEL SHALL BE IN ACCORDANCE WITH CSA STANDARD CAN3-G40.21-M87 GRADE 300 W.
3. STEEL COVER PLATES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA STANDARD G164-M. ALL OTHER STEEL SURFACES OF JOINT ASSEMBLY SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH CSA STANDARD G164-M OR ZINC METALLIZED AFTER FABRICATION IN ACCORDANCE WITH CSA STANDARD G189.
4. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CSA STANDARD G30.16-M GRADE 400.
5. STUDS SHALL BE IN ACCORDANCE WITH DSM 9.10.75 USING FUSION WELD PROCESS.
6. WELDING SHALL BE OF A LOW HYDROGEN CLASSIFICATION AND IN ACCORDANCE WITH CSA STANDARD W59-M1989 (E480XX ELECTRODES).
7. JOINT ASSEMBLIES SHALL BE COMPLETELY SHOP ASSEMBLED (EXCEPT FOR SEALS) AND PRESET TO DIMENSION 'J' FOR 15°C AND ADJUSTED IN THE FIELD TO SUIT INSTALLATION TEMPERATURE.
8. SEALS SHALL BE PREFORMED NEOPRENE SEALS IN ACCORDANCE WITH OPSS-1210 AND SHALL EACH BE INSTALLED IN ONE CONTINUOUS PIECE.
9. SEALS SHALL BE INSTALLED AFTER JOINT ASSEMBLY HAS BEEN CAST IN PLACE AND STYROFOAM OR FILLER BETWEEN BRIDGE AND BALLAST WALL REMOVED AND EXPANSION GAP PROPERLY CLEARED.
10. THE 'J' DIMENSIONS SHOWN ON SHOP DRAWINGS ARE TO BE USED FOR CONSTRUCTION.
11. JOINT ASSEMBLY SHALL BE INSTALLED TO MATCH ELEVATION AND GRADE OF CONCRETE END DAMS.
12. FINAL WIDTH ADJUSTMENT (DIM. 'J') SHALL BE MADE AND SETTING DEVICES TIGHTENED, JUST PRIOR TO PLACING 30 MPa CONCRETE.
13. INSTALLATION TEMPERATURE SHALL BE TAKEN AS MEAN SHADE AIR TEMPERATURE AT STRUCTURE PRIOR TO JOINT INSTALLATION AS FOLLOWS:

    FOR CONCRETE STRUCTURES - 48 HOURS
    FOR STEEL STRUCTURES - 24 HOURS

14. ALL CONSTRUCTION JOINT SURFACES SHALL BE ABRASIVE BLAST CLEANED AND COATED WITH CEMENT MORTAR IMMEDIATELY BEFORE PLACING CONCRETE.
15. ALL STEEL SURFACES IN CONTACT WITH NEOPRENE SEAL SHALL BE CLEANED PRIOR TO INSTALLATION OF THE SEAL AND PROTECTED DURING PLACING OF CONCRETE.
16. FOR SKEWED STRUCTURE, DETAILS SHALL BE ADJUSTED TO SUIT GEOMETRY OF STRUCTURE.
17. BOLT THREADS AND UNDERSIDE OF HEADS SHALL BE LIBERALLY COATED WITH ANTISEIZE COMPOUND MEETING U.S. MILITARY SPECIFICATION MIL-A-970D JUST PRIOR TO SEAL INSTALLATION.
18. SPLICES IN ARMOURING SHALL BE WELDED BEFORE PLACING OF CONCRETE IN BLOCKOUTS. FOR LOCATION OF SPLICES SEE GENERAL ARRANGEMENT DRAWING.
19. SETTING DEVICES SHALL BE RELEASED NOT LATER THAN 4 HOURS AFTER PLACING CONCRETE IN BLOCKOUTS.
20. AFTER REMOVAL OF SETTING DEVICES AND SPACER WASHERS, BOLT HOLES AND BLEEDER HOLES SHALL BE DRILLED OUT TO A DEPTH OF 20 mm AND THEN CLEANED OUT USING OIL-FREE COMPRESSED AIR. VOIDS SHALL BE FILLED IN WITH SIKADUR 35 HIMOD LV EPOXY, SUPPLIED BY SIKA CANADA INC., 2395 DREW ROAD, UNIT 6, MISSISSAUGA, ONTARIO.

* TABLE OF 'J' DIMENSIONS (mm)

EXP. JOINT LOCATION	MTO GAP** RATING (mm)		DESIGN*** MOVEMENT	INSTALLATION TEMPERATURE (°C)					
	MIN.	MAX.	TOTAL	5°	10°	15°	20°	25°	30°
NORTH	40	75	0	50	50	50	50	50	50
SOUTH	40	75	30	59	57	55	53	51	49

* DIMENSION 'J' MEASURED PERPENDICULAR TO CENTRELINE EXPANSION JOINT WHERE MIN. AND MAX. FOR JOINT SUPPLIED DIFFER FROM THOSE SHOWN IN TABLE, 'J' DIMENSIONS SHALL BE REVISED BY CONTRACTOR AND SHOWN ON SHOP DRAWINGS.

** MTO GAP MEASURED BETWEEN INNER FACES OF OUTER STEEL EXTRUSION IS TAKEN FROM DSM 9.40 27, TYPE C.

*** DESIGN MOVEMENT IS THE CALCULATED MOVEMENT OF THE STRUCTURE.

LICENSED PROFESSIONAL ENGINEER C. CRESPI 92-01-21 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER R.S. STOFKO 92-01-21 PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE	INITIAL
	REVISIONS		

McCORMICK RANKIN
CONSULTING ENGINEERS

SCALE	HOR. VERT.
DATE	JAN. 17, 1992
DWG.	W.C.D.
CKD.	R.S.S.
FLD. BK	PAGE
BENCH M	
PROJECT	

GUELPH SUBURBAN ROADS COMMISSION
COUNTY OF WELLINGTON

REPAIRS TO STRUCTURE N° 32085
BLATCHFORD BRIDGE
ON COUNTY ROAD 32 OVER SPEED RIVER

EXPANSION JOINTS

92-60
CONTRACT NO.

DRAWING NO.
2451-6

COUNTY OF WELLINGTON

CONTRACT FOR

REHABILITATION OF

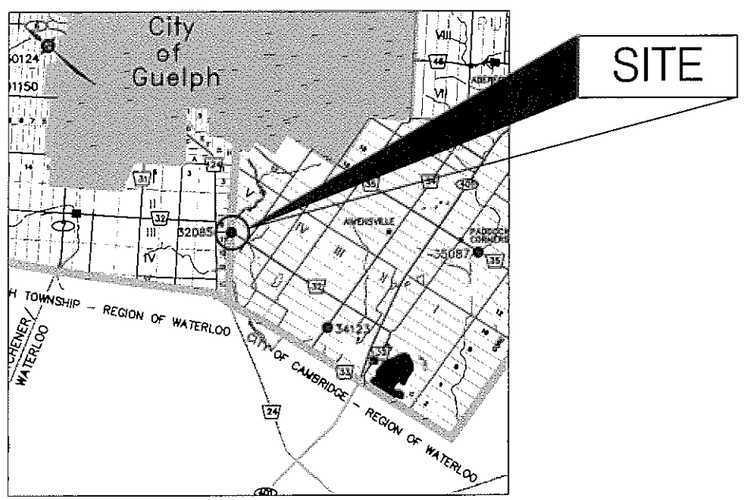
BLATCHFORD BRIDGE

ON COUNTY ROAD 32 OVER SPEED RIVER

STRUCTURE No. B032085

WELLINGTON ROAD 32

PROJECT No. CW2010-041



KEY PLAN

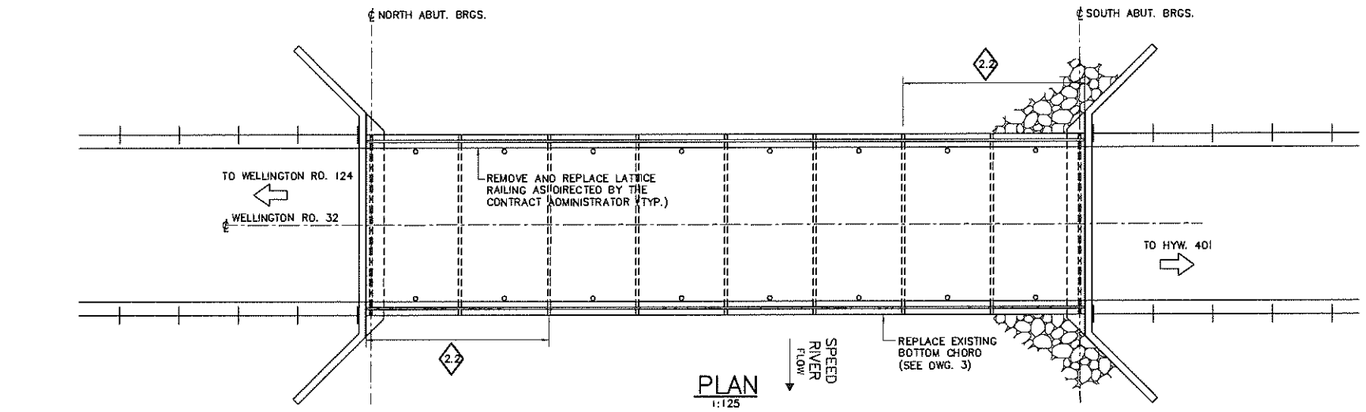
GORDON. J. OUGH, P. Eng.
WELLINGTON COUNTY ENGINEER

AUGUST 2010
DATE

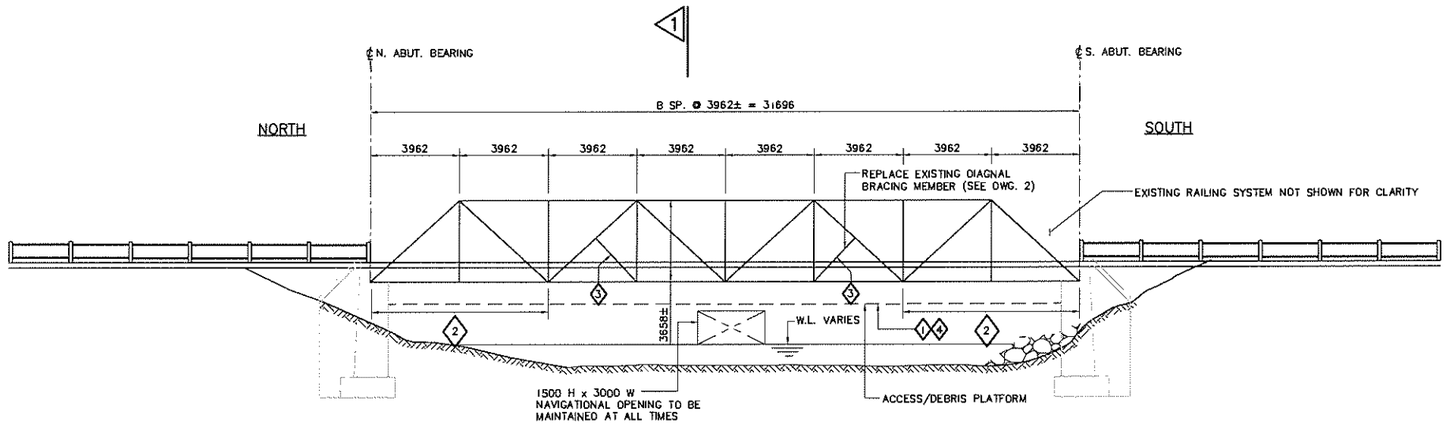
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AS-BUILT DRAWINGS

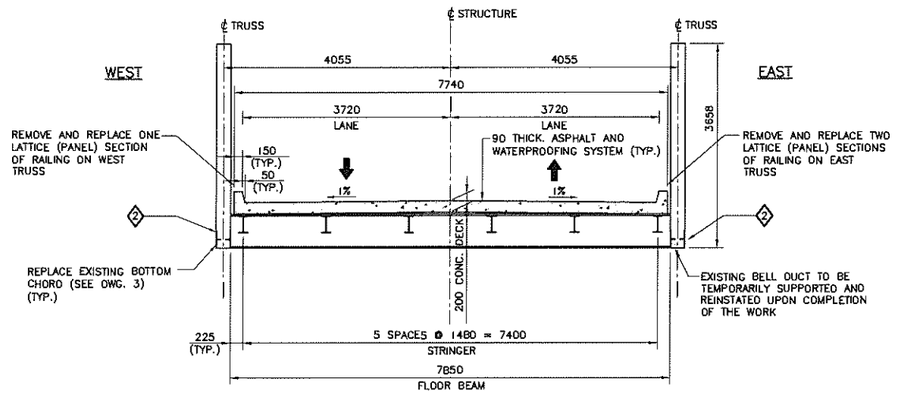
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PLAN
1:125



ELEVATION
1:125



1 SECTION – EXISTING
1:50

CONSTRUCTION NORTH

GENERAL NOTES:

1. DIMENSIONS AND UNITS:
   DRAWINGS ARE PREPARED USING THE METRIC SYSTEM.

   ALL DIMENSIONS ARE GIVEN IN MILLIMETERS, UNLESS NOTED.

   DRAWINGS ARE NOT TO BE SCALED.

2. FIELD MEASUREMENT:
   DETAILS AND DIMENSIONS OF EXISTING BRIDGE COMPONENTS PROVIDED HEREIN ARE EXTRACTED FROM THE PREVIOUS ORIGINAL AND REHABILITATION DRAWINGS. DEVIATIONS RESULTING FROM: SHOP DETAILING; FABRICATION ERRORS; FIELD ADJUSTMENTS; CONSTRUCTION AND ERECTION TOLERANCES, AND; ALTERATIONS MADE SINCE ORIGINAL CONSTRUCTION, ARE NOT REFLECTED.

   ORIGINAL DRAWINGS ARE NOT AVAILABLE, ACCORDINGLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL FIELD MEASUREMENTS AND VERIFICATION THAT GOVERN FIT AND LOCATION OF ALL NEW WORK PRIOR TO THE PREPARATION OF SHOP AND DETAIL DRAWINGS.

   FIELD MEASUREMENTS SHALL SUPERSEDE DIMENSIONS SHOWN HEREIN.

3. DAMAGE TO EXISTING COMPONENTS THAT ARE TO REMAIN IN PLACE OR ARE DESIGNATED FOR SALVAGE, SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER.

4. WHERE MATERIALS OR COMPONENTS ARE DISMANTLED TO PERMIT OR FACILITATE THE PERFORMANCE OF THE WORK OF THIS CONTRACT, THE REMOVAL, STORAGE AND REINSTALLATION OF THE MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IN THE EVENT OF THEFT, VANDALISM OR DAMAGE OF THESE MATERIALS OR COMPONENTS, THEY SHALL BE REPLACED OR REPAIRED AT NO COST TO THE OWNER. EXISTING FASTENERS SHALL NOT BE REUSED.

5. NEW BOLT HOLES, EITHER IN NEW OR EXISTING WORK, SHALL BE DRILLED OR SUB-PUNCHED, THEN REAMED. BURNING SHALL BE STRICTLY PROHIBITED.

6. FOLLOWING REMOVALS OF VARIOUS COMPONENTS DESIGNATED TO BE REMOVED, ALL ABANDONED HOLES SHALL BE REAMED AND THEN FILLED WITH A NEW BOLT OF NOMINAL SIZE 2mm LESS THAN THE NOMINAL SIZE OF THE ABANDONED HOLE. MAXIMUM LENGTH OF A NEW BOLT SHALL BE SUCH THAT THE BOLT SHANK DOES NOT PROTRUDE MORE THAN 10mm BEYOND THE NUT WHEN INSTALLED.

7. FOLLOWING REMOVAL OF EXISTING FASTENERS, ALL EXISTING HOLES SHALL BE REAMED TO REMOVE ALL RUST AND TO PROVIDE A CIRCULAR HOLE WITH UNIFORM SIDES ACROSS ALL STEEL PLIES.

8. WHERE AN EXISTING COMPONENT DESIGNATED FOR REMOVAL IS CONNECTED BY WELD(S), WELDS SHALL BE GROUND FLUSH WITH SURFACE(S) OF THE COMPONENT TO REMAIN.

9. NEW STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA-G40.20/G40.21 OR ASTM A572M. STRUCTURAL STEEL SHALL BE GRADE 350W UNLESS NOTED OTHERWISE. ALL NEW STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A123.

10. ALL EXISTING STRUCTURAL STEEL AGAINST WHICH NEW STEEL IS TO BE PLACED SHALL BE CLEANED OF EXISTING COATINGS AND RUST SCALE BY VACUUM SHROUDED POWER TOOL CLEANING. ALL POWER TOOL BRUSHED AREAS SHALL BE FIELD COATED (BRUSH APPLICATION) AFTER INSTALLATION (2 COATS) USING A SELF PRIMING COATING.

11. NEW HIGH STRENGTH BOLTS:
    HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325 TYPE 1.

    BOLT SIZE SHALL BE 22mm (7/8") UNLESS NOTED OTHERWISE.

    BOLT THREADS SHALL BE EXCLUDED FROM THE SHEAR PLANE.

    ALL BOLTS, NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ASTM A123.

    TWO HARDENED WASHERS SHALL BE REQUIRED, ONE UNDER EACH END OF BOLT.

12. CONTRACTOR TO VERIFY ALL DIMENSIONS & CONDITIONS ON SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ALL DISCREPANCIES.

13. WELLINGTON ROAD 32 WILL BE CLOSED FOR THE DURATION OF THE WORK.

14. ANY IN-STREAM WORK IS PROHIBITED.

SCOPE OF WORK:

1. INSTALL ACCESS/DEBRIS PLATFORMS TO PROTECT THE ENVIRONMENT.
2. REMOVE AND REPLACE BOTTOM CHORD AT TWO (2) LOCATIONS.
3. REMOVE AND REPLACE EXISTING DIAGONAL BRACING MEMBER AT FOUR (4) LOCATIONS.
4. REMOVE TEMPORARY ACCESS PLATFORMS AND DEBRIS PLATFORMS.

LIST OF DRAWINGS

1. GENERAL ARRANGEMENT
2. TRUSS REPAIR DETAILS I
3. TRUSS REPAIR DETAILS II
4. TRUSS REPAIR DETAILS III

AS-BUILT DRAWING
CONTRACTOR: CLEARWATER STRUCTURES INC.
WORK COMMENCED: AUGUST 2010
WORK COMPLETED: SEPTEMBER 2010

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NO.	REVISIONS DESCRIPTION	DATE	INITIAL
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1.	ISSUED FOR CONSTRUCTION	08/04/10	G.T.

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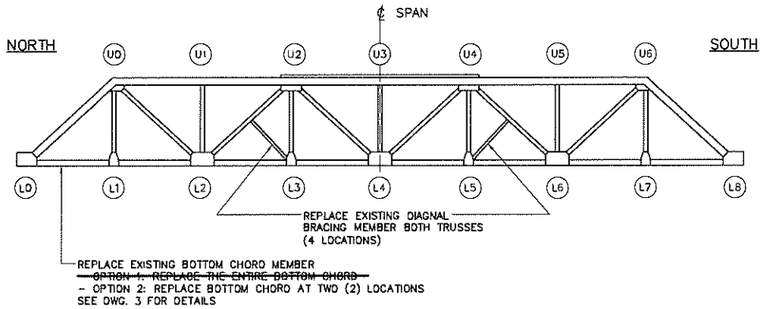
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PROJECT

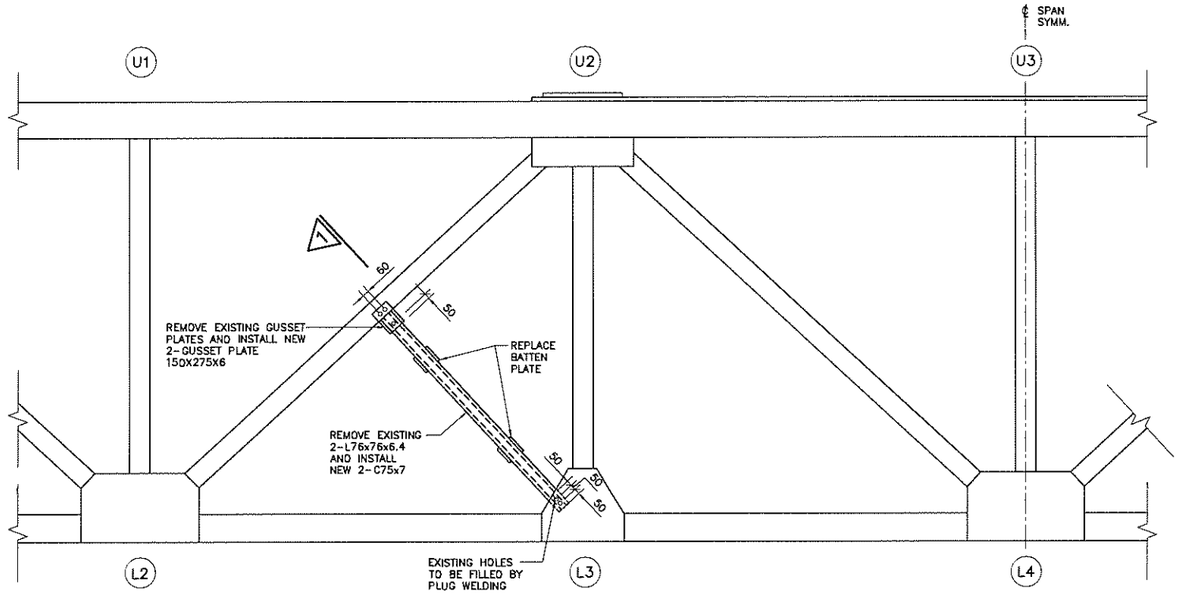
COUNTY OF WELLINGTON
REHABILITATION OF STRUCTURE NO. 32085
BLATCHFORD BRIDGE
WELLINGTON ROAD 32 OVER SPEED RIVER
GENERAL ARRANGEMENT

CONTRACT NO. CW2010-041
DRAWING NO. 1

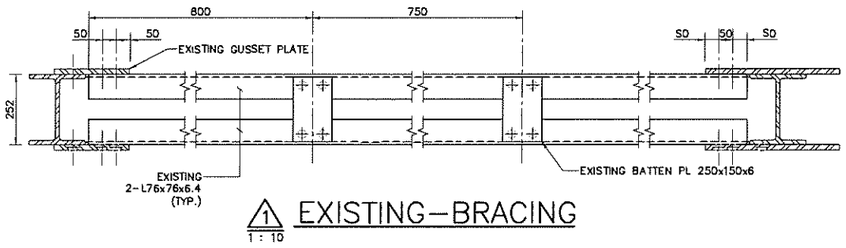
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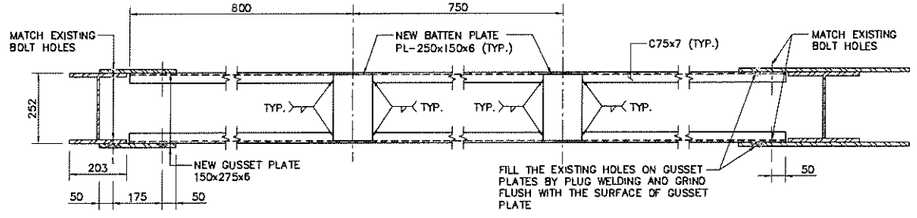
TRUSS ELEVATION
1:125



PARTIAL TRUSS ELEVATION
1:25



1 EXISTING-BRACING
1 : 10



1 NEW-BRACING
1 : 10

NOTES:

REFER TO DWG.1 FOR GENERAL CONSTRUCTION NOTES.

SEQUENCE OF CONSTRUCTION FOR BRACING MEMBERS (4 LOCATIONS)

1. REMOVE EXISTING M20 BOLTS AND EXISTING BRACING MEMBERS.
2. FILL THE EXISTING TWO (2) BOLTS HOLES BY PLUG WELDING AND GRIND FLUSH WITH THE SURFACE AS SHOWN.
3. REAM REMAINING BOLT HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
4. INSTALL NEW BRACING MEMBERS (2-C75x7) WITH NEW M22 BOLTS AS SHOWN.
5. REPEAT STEP 1 TO 4 FOR OTHER BRACING MEMBER LOCATIONS.

AS-BUILT DRAWING
CONTRACTOR: CLEARWATER STRUCTURES INC.
WORK COMMENCED: AUGUST 2010
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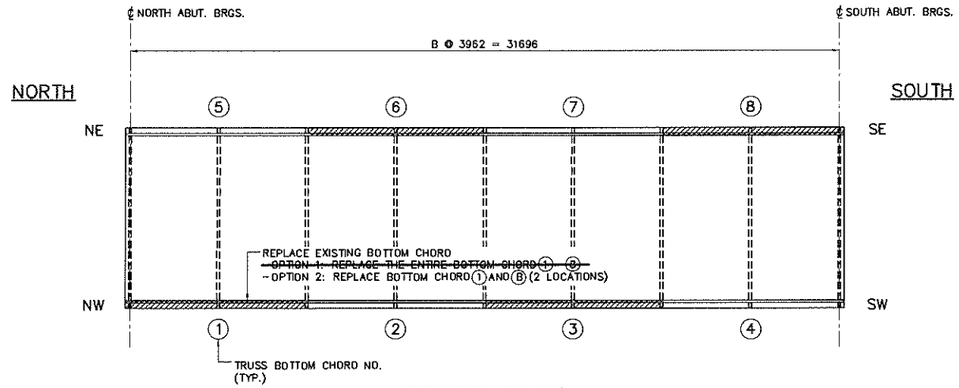
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COUNTY OF WELLINGTON
REHABILITATION OF STRUCTURE NO. 32085
BLATCHFORD BRIDGE
WELLINGTON ROAD 32 OVER SPEED RIVER

TRUSS REPAIR DETAILS I

CW2010-041
CONTRACT NO.
DRAWING NO.
2

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DATE PLOTTED: 12/21/2010 11:28:59 AM BY: LIZAROWSKAE



TRUSS PLAN
1:125

SEQUENCE OF CONSTRUCTION FOR BOTTOM CHORD REPLACEMENT:

OPTION 1:

~~STEP 1. REPLACE BOTTOM CHORD 1 4 5 AND 8~~

~~SEE PROCEDURE OF OPTION 2~~

~~STEP 2 REPLACE BOTTOM CHORD 2 AND 3~~

~~1. CUT EXISTING ANGLES C AND D AT S4 AND S5 LOCATIONS.~~
~~2. REMOVE EXISTING RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES C AND D OF TRUSS BOTTOM CHORD 2 AND 3 AT NODES L2, L3 AND L4. PROVIDE TEMPORARY SUPPORT FOR LATERAL BRACING IF NECESSARY.~~
~~3. REMOVE EXISTING ANGLES C AND D, EXISTING FILLER PLATES, EXISTING BATTEN PLATES FROM TRUSS BOTTOM CHORD 2 AND 3~~
~~4. REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.~~
~~5. INSTALL NEW ANGLES C AND D 2-L152x102x13, NEW FILLER PLATES, NEW BATTEN PLATES WITH NEW M22 BOLTS.~~
~~6. SPLICE NEW ANGLES C AND D AT LOCATIONS OF S4 AND S5 AS SHOWN ON DWG. 4 (SPLICE VERTICAL LEGS ONLY).~~
~~7. CUT EXISTING ANGLES A AND B AT LOCATIONS OF S3 S4 S5 AND S6~~
~~8. REMOVE EXISTING RIVETS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES A AND B OF TRUSS BOTTOM CHORD 2 AND 3~~
~~9. REMOVE EXISTING ANGLES A AND B FROM TRUSS BOTTOM CHORD 2 AND 3~~
~~10. REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.~~
~~11. INSTALL NEW ANGLES A AND B, 2-L152x102x13, WITH NEW M22 BOLTS.~~
~~12. SPLICE ANGLES A AND B AT LOCATIONS OF S3 S4, S5 AND S6 AS SHOWN ON DWG. 4 (SPLICE BOTH VERTICAL AND HORIZONTAL LEGS).~~

~~STEP 3 REPLACE BOTTOM CHORD 6 AND 7~~

~~FOLLOW THE SAME PROCEDURE FROM 1 TO 12 BUT FOR BOTTOM CHORD 6 AND 7~~

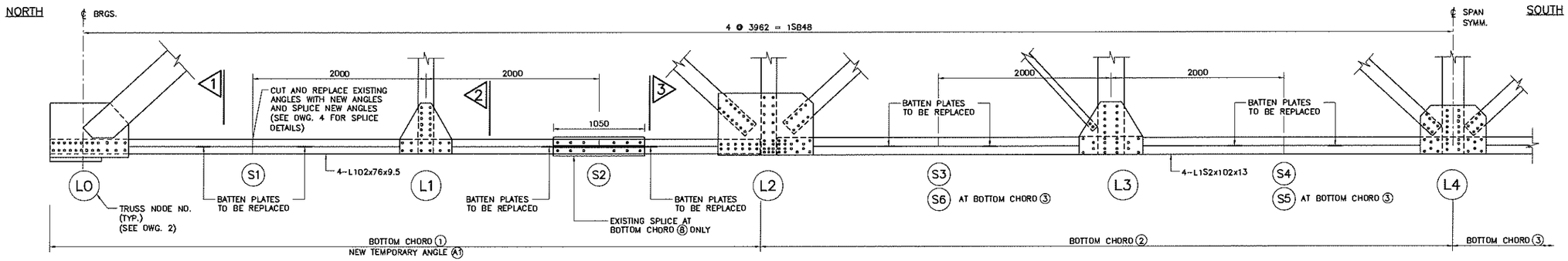
OPTION 2:

STEP 1. REPLACE BOTTOM CHORD 1

1. REMOVE EXISTING RIVETS AND BOLTS ON VERTICAL LEGS OF ANGLE A OF TRUSS BOTTOM CHORD 1 AT NODES L0, L1 AND L2.
2. REAM HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS
3. INSTALL NEW TEMPORARY ANGLE A1, L102x76x9.5, WITH M22 BOLTS CONTINUOUS FROM L0 TO L2.
4. INSTALL JACKING STIFFENER AT ABUTMENT NEAR BOTTOM CHORD 1 AS SHOWN ON TYPICAL JACKING ARRANGEMENT. JACK CORNER OF BRIDGE SUFFICIENTLY TO TO RELEIVE LOAD ON BEARING. JACK SHALL HAVE A MIN. CAPACITY OF 2 x JACKING LOAD SHOWN.
5. CUT EXISTING ANGLES C AND D AT LOCATION S1
6. REMOVE EXISTING RIVETS AND BOLTS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES C AND D AT NODES L0, L1 AND L2. PROVIDE TEMPORARY SUPPORT FOR LATERAL BRACING AT FLOOR BEAM LOCATIONS IF NECESSARY.
7. REMOVE EXISTING ANGLES C AND D EXISTING FILLER PLATES, EXISTING BATTEN PLATES AND TWO (2) BOTTOM SPLICE ANGLES AT NODE L2
8. REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
9. INSTALL NEW ANGLES C AND D 2-L102x76x9.5, NEW FILLER PLATES, NEW BATTEN PLATES AND NEW TWO BOTTOM SPLICE ANGLES AT NODE L2 WITH NEW M22 BOLTS.
10. SPLICE ANGLES C AND D AT LOCATION S1 AS SHOWN ON DWG 4 (SPLICE VERTICAL LEGS ONLY).
11. REMOVE BOLTS ON VERTICAL LEGS OF ANGLE A AND REMOVE TEMPORARY ANGLE A1.
12. CUT ANGLES A AND B AT LOCATIONS OF S1 AND S2
13. REMOVE EXISTING RIVETS AND BOLTS ON HORIZONTAL AND VERTICAL LEGS OF ANGLES A AND B AT NODES L0, L1, AND L2.
14. REMOVE EXISTING ANGLES A AND B AND TWO (2) TOP SPLICE ANGLES AT NODE L2
15. REAM EXISTING HOLES TO 24mm DIAMETER TO SUIT M22 BOLTS.
16. INSTALL NEW ANGLES A AND B, 2-L102x76x9.5, AND NEW TWO TOP SPLICE ANGLES AT NODE L2 WITH NEW M22 BOLTS.
17. SPLICE ANGLES A AND B AT LOCATIONS OF S1 AND S2 (SPLICE BOTH VERTICAL AND HORIZONTAL LEGS).
18. LOWER BRIDGE AND REMOVE JACK.

STEP 2. REPLACE BOTTOM CHORD B

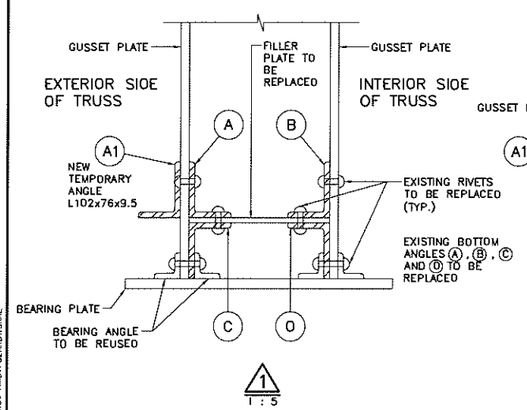
FOLLOW THE SAME PROCEDURES 1 TO 18 OF STEP 1 FOR BOTTOM CHORD B AT SOUTHEAST CORNER.



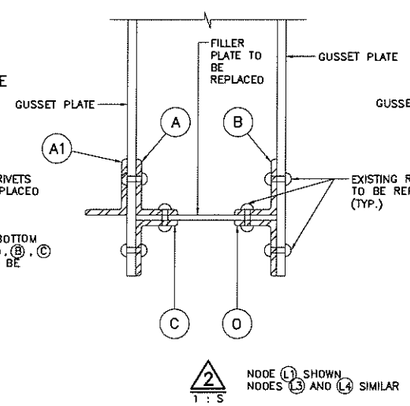
BOTTOM CHORD ELEVATION
1 : 25

WEST BOTTOM CHORD SHOWN
EAST BOTTOM CHORD SIMILAR

* CONTRACTOR SHALL MEASURE DIMENSIONS OF ALL THE EXISTING SPLICE PLATES, FILLER PLATES AND BATTEN PLATES, AND SHALL REPLACE THEM WITH THE SAME DIMENSIONS OF NEW STRUCTURE STEEL.

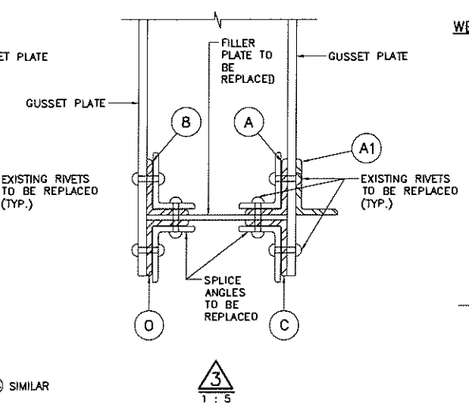


1 : 5

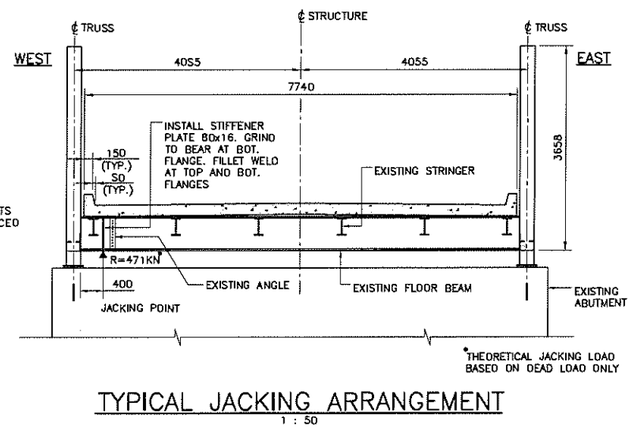


2 1 : 5

NODE L1 SHOWN
NODES L3 AND L4 SIMILAR



3 1 : 5



TYPICAL JACKING ARRANGEMENT
1 : 50

AS-BUILT DRAWING
CONTRACTOR: CLEARWATER STRUCTURES INC.
WORK COMMENCED: AUGUST 2010
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BENCH M	
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COUNTY OF WELLINGTON
REHABILITATION OF STRUCTURE NO. 32085
BLATCHFORD BRIDGE
WELLINGTON ROAD 32 OVER SPEED RIVER

TRUSS REPAIR DETAILS II

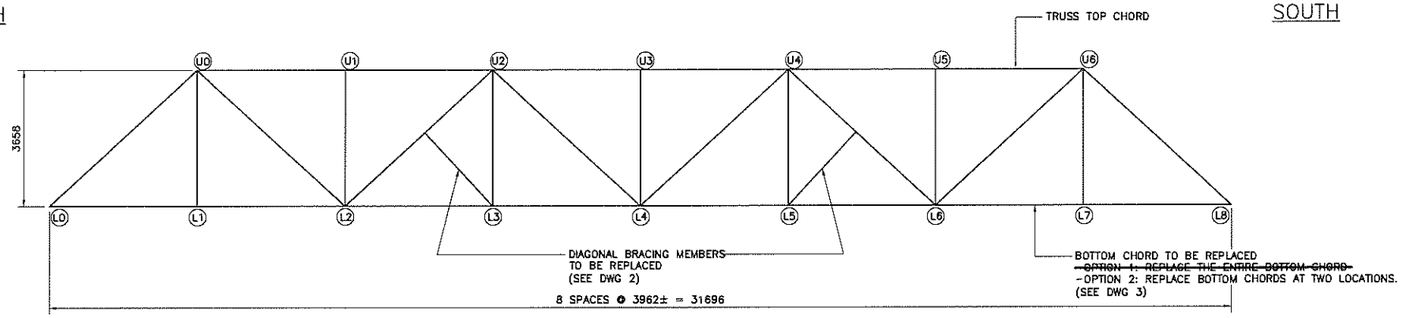
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DATE PLOTTED: 12/21/2010 11:28:39 AM BY: UZAROWSKAE

NORTH

SOUTH



TRUSS ELEVATION
1:75

~~BOTTOM CHORD REPLACEMENT – OPTION 1~~

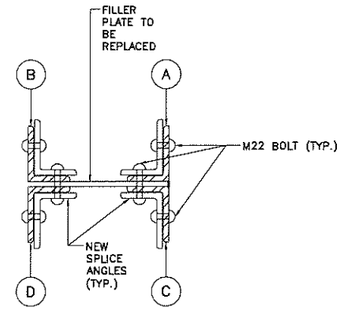
RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
L0	72	72
L1	36	36
L2	100	100
L3	44	44
L4	56	56
L5	44	44
L6	100	100
L7	36	36
L8	72	72
BATTEN PLATES	96	96
TEMPORARY ANGLE	48	48
NEW SPLICE*	280	280

* NEW BOLT INSTALLATION

BOTTOM CHORD REPLACEMENT – OPTION 2

RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
L0	–	72
L1	–	36
L2	–	100
L6	100	–
L7	36	–
L8	72	–
BATTEN PLATES	24	24
TEMPORARY ANGLE	24	24
NEW SPLICE*	60	60

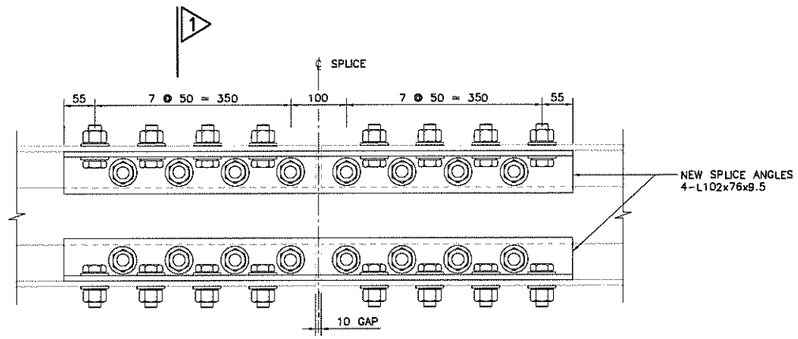
* NEW BOLT INSTALLATION



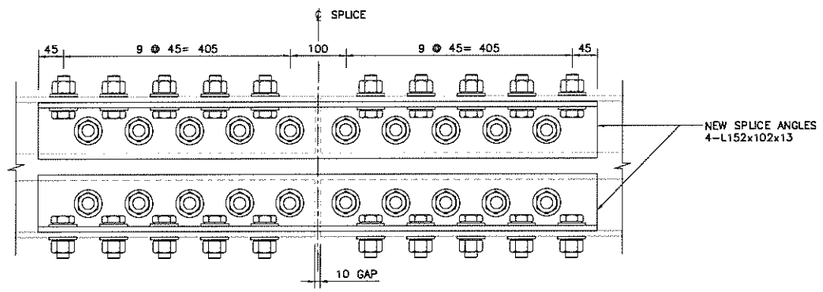
1 (TYPICAL SECTION)
1 : 5

DIAGNAL BRACING MEMBER REPLACEMENT (4 LOCATIONS)

RIVETS/BOLTS REPLACEMENT		
LOCATION	EAST TRUSS	WEST TRUSS
BRACING MEMBER	24	24



SPLICE PLAN (LOCATIONS (S1) AND (S2))
1 : 5



SPLICE PLAN (LOCATIONS (S3) (S4) (S5) AND (S6))
1 : 5

AS-BUILT DRAWING
CONTRACTOR: CLEARWATER STRUCTURES INC.
WORK COMMENCED: AUGUST 2010
WORK COMPLETED: SEPTEMBER 2010

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McCORMICK RANKIN CORPORATION
A member of MMMGROUP

SCALE	AS SHOWN
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CHECKED	GT
FIELD BK.	PAGE
BENCH M	

PROJECT

COUNTY OF WELLINGTON
REHABILITATION OF STRUCTURE NO. 32085
BLATCHFORD BRIDGE
WELLINGTON ROAD 32 OVER SPEED RIVER

TRUSS REPAIR DETAIL III

CW2010-041
CONTRACT NO.
DRAWING NO.
4

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Appendix E: Comparable Half-Through Truss Bridge Inventory

Compiled by Archaeological Services Inc. based on the 2023 Wellington County OSIM Inventory Summary (County of Wellington, 2023) and Arch Truss and Beam: The Grand River Watershed Heritage Bridge Inventory (Benjamin et al., 2013).

Table 1: Half-Through Truss Bridges from the 2023 Wellington OSIM Inventory Summary

Bridge ID	Bridge Name	Year Built	Deck Length	Deck Width	# Spans
B006009	Townline Bridge	1950	31.1m	7.5m	1
B007028	Bosworth Bridge	1949	42.1m	8.6m	1
B010023	Moorefield Bridge	1954	22.6m	8.3m	1
B011025	Flax Bridge	1954	22.3m	7.9m	1
B011029	Simmon's Bridge	1952	65.3m	7.8m	2
B035087	**Blatchford Bridge**	**1949**	**31.7m**	**8.1m**	**1**

Table 2: Half-Through Truss Bridges from Arch, Truss and Beam: The Grand River Watershed Heritage Bridge Inventory

Bridge ID	Bridge Name	Year Built	Deck Length	Deck Width	# Spans
ML1	Rothsay Bridge	1952	18.7m	8.3m	1
WN9	Dirksen Farm Bridge	1900	Unknown	Unknown	1
MB002	Mallet River Bridge	1910	17m	5.5m	1

Appendix F

Heritage Impact Assessment

GFT

Heritage Impact Assessment

Blatchford Bridge
(Structure Number B032085)

County of Wellington, Ontario

Draft Report

Prepared for:

Gannett Fleming Canada ULC
200 Bay Street, Suite 1600
Toronto ON M5J 2J3

Archaeological Services Inc. File: 24CH-122

August 2024



Executive Summary

Archaeological Services Incorporated (A.S.I.) was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Heritage Impact Assessment (H.I.A.) for the Blatchford Bridge (Structure Number B032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario. The H.I.A. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. The structure is owned and maintained by the County of Wellington.

A Cultural Heritage Evaluation Report (C.H.E.R.) completed by A.S.I. determined that the Blatchford Bridge meets three criteria outlined in Ontario Regulation 9/06 of the *Ontario Heritage Act*, and therefore retains cultural heritage value or interest at the local level (Archaeological Services Inc., 2024). In particular, the subject bridge has physical and design value as the only surviving half-through truss bridge in the Townships of Guelph/Eramosa and Puslinch. The Blatchford Bridge has historical or associative value as it was designed by W.H. Keith, Wellington County Engineer. As the bridge was determined to have cultural heritage value or interest, the C.H.E.R. recommended that an H.I.A. be completed to provide an assessment of how the proposed work will impact the subject bridge's cultural heritage value or interest. This report fulfils that recommendation.

The property requires a Heritage Impact Assessment (H.I.A.) to provide an assessment of how the proposed work will impact the property's cultural heritage value. The recommended preferred alternative includes the complete removal of the subject bridge and replacement with a new bridge at the crossing. The subject bridge is being assessed as a requirement of the *Municipal Bridges Criteria for Evaluating Potential for Cultural Heritage Resources* (Municipal Engineers Association, 2023) and *Ontario Regulation 160/02, Standards for Bridges* (Public Transportation and Highway Improvement Act, R.S.O. 1990, c.P.50, 2002).



The recommended preferred alternative is anticipated to result in direct, permanent, negative impacts to the cultural heritage attributes of the extant structure through the complete removal of the bridge and its replacement with a reinforced precast concrete girder structure at the crossing. Mitigation measures outlined in this report have been prepared to further minimize these impacts and should be implemented as appropriate to the extent practicable to ensure impacts to the cultural heritage value of the crossing are reduced. The recommended preferred alternative is also considered to result in positive impacts by providing continued use of Wellington County Road 32 as a crossing point by allowing vehicular travel over the Speed River.

The following recommendations and mitigation measures have been developed and should be implemented:

1. Where feasible, the proposed undertaking should be designed and executed to ensure the fewest direct and permanent, non-reversible impacts to the identified heritage attributes of the subject bridge. As the proposed undertakings will result in the removal and replacement of the subject bridge, the proposed undertakings are anticipated to result in direct, permanent, non-reversible impacts to the subject bridge.

2. As rehabilitating and retaining the subject bridge was determined to be infeasible as the bridge has exceeded its service life, replacement should be carried forward with an emphasis on sympathetic design in all elements. A sympathetically-designed replacement structure at the crossing is preferred from a cultural heritage perspective, as it would reduce impacts to the historical/associative and contextual values of the crossing over the Speed River. Consideration should be given to incorporating visual elements that are representative or sympathetic with a half-through truss in the replacement superstructure. Consideration should also be given to employing concrete finishes on the parapet wall of the replacement bridge that are representative of the geometric designs of a truss, or to incorporating pedestrian railings

that are sympathetic to the steel lattice railings, and implemented where feasible. This could be achieved through the use of a form liner with geometric patterns to evoke a truss pattern as a way to incorporate some of the Blatchford Bridge design elements into the proposed replacement bridge.

3. Prior to removal, consideration should be given to relocating the subject bridge for adaptive re-use as a pedestrian or cycling bridge at another crossing. If relocating the superstructure for re-use is determined to be infeasible based on an evaluation of the structural condition of steel elements, consideration should be given to salvaging select structural elements of the superstructure for use in rehabilitating a similar structure at another crossing or use in commemorative or interpretive displays. In this respect, the County of Wellington should investigate the feasibility of salvaging select structural elements in the superstructure including truss panels or sections with riveted connections for incorporation in a commemorative interpretation at the bridge site or in another appropriate location. The County of Wellington should also investigate the feasibility of salvaging the existing plaques to be incorporated into a future commemorative installation.

4. To reduce negative impacts to the cultural heritage value of the crossing, suitable commemoration should be implemented. In this respect, consideration should be given to developing a commemorative installation at a suitable area near the bridge featuring information panels and photographs of the 1949 subject bridge. Consultation should be completed with the County of Wellington regarding requirements for any potential commemorative interpretation.

5. Where interventions are undertaken that will result in alterations to construction material and fabric, documentation should be undertaken in advance of construction activities. The purpose of documentation is to record existing conditions of the structure at a level of detail for the purposes of implementing a program to reverse impacts in the future

due to changes in technology or operational priorities. The C.H.E.R. (Archaeological Services Inc., 2024) and this H.I.A. are considered to be sufficient documentation in this regard.

6. The proposed intervention is anticipated to result in some positive impacts to the subject crossing. A replacement bridge with the inclusion of modern materials to meet modern design codes will improve the functionality and safety of the crossing for local residents while maintaining the continued crossing of the Speed River to the north of the historic rural settlement of Puslinch.

7. The proponent should submit this report to staff at the Township of Guelph/Eramosa, the Township of Puslinch, the County of Wellington, and to the Ministry of Citizenship and Multiculturalism for review. The C.H.E.R. and this report should also be shared with the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, Indigenous communities, and other stakeholders with an interest in this project. Any feedback will be considered and incorporated into the report, where appropriate. The final report should be submitted to the County of Wellington for future reference.

Report Accessibility Features

This report has been formatted to meet the Information and Communications Standards under the *Accessibility for Ontarians with Disabilities Act*, 2005 (A.O.D.A.). Features of this report which enhance accessibility include headings, font size and colour, alternative text provided for images, and the use of periods within acronyms. Given this is a technical report, there may be instances where additional accommodation is required in order for readers to access the report's information. If additional accommodation is required, please contact Annie Veilleux, Manager of the Cultural Heritage Division at Archaeological Services Inc., by email at aveilleux@asiheritage.ca or by phone 416-966-1069 ext. 255.

Project Personnel

- **Senior Project Manager**: Lindsay Graves, M.A., C.A.H.P., Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division
- **Project Coordinator:** Jessica Bisson, B.F.A. (Hon), Cultural Heritage Technician, Division Coordinator – Cultural Heritage Division
- **Project Manager**: Kirstyn Allam, B.A. (Hon), Advanced Dipl. Applied Museum Studies, Cultural Heritage Analyst, Project Manager - Cultural Heritage Division
- **Field Review**: Lindsay Graves, Becca Clark, B.A. (Hon), Adv. Dipl. Applied Museum Studies, Cultural Heritage Technical Writer & Researcher, Project Administrator – Cultural Heritage Division
- **Report Production**: Becca Clark
- **Graphics Production**: Andrew Clish, B.E.S., Senior Archaeologist - Planning Assessment Division
- **Report Reviewer(s)**: Lindsay Graves, Kirstyn Allam

Additional information about Qualified Persons Involved in the Project is located in Appendix A.

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1.0 Introduction

Archaeological Services Incorporated (A.S.I.) was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington to conduct a Heritage Impact Assessment (H.I.A.) for the Blatchford Bridge (Structure Number B032085) in the Township of Guelph/Eramosa and the Township of Puslinch, in the County of Wellington, Ontario (Figure 1). The H.I.A. is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge. The structure is a single-span half-through (pony) truss bridge with exposed concrete deck constructed in 1949 and carries one traffic lane per direction of Wellington Road 32 over the Speed River. The structure is owned and maintained by the County of Wellington.

A Cultural Heritage Evaluation Report (C.H.E.R.) completed by A.S.I. determined that the Blatchford Bridge meets three criteria outlined in Ontario Regulation 9/06 of the *Ontario Heritage Act*, and therefore retains cultural heritage value or interest at the local level (Archaeological Services Inc., 2024). In particular, the subject bridge has physical and design value as the only surviving half-through truss bridge in the Townships of Guelph/Eramosa and Puslinch. The Blatchford Bridge also has historical or associative value as it was designed by W.H. Keith, Wellington County Engineer. As the bridge was determined to have cultural heritage value or interest, the C.H.E.R. recommended that an H.I.A. be completed to provide an assessment of how the proposed work will impact the subject bridge's cultural heritage value or interest. This report fulfils that recommendation.

The recommended preferred alternative includes the complete removal of the subject bridge and replacement with a new bridge at the crossing. The subject bridge is being assessed as a requirement of the *Municipal Bridges Criteria for Evaluating Potential for Cultural Heritage Resources* (Municipal Engineers Association, 2023) and *Ontario Regulation 160/02, Standards for Bridges* (Public Transportation and Highway Improvement Act, R.S.O. 1990, c.P.50, 2002).

The recommended preferred alternative is anticipated to result in direct, permanent, negative impacts to the cultural heritage attributes of the extant structure through the complete removal and replacement with a reinforced precast concrete girder structure at the crossing. Mitigation measures outlined in this report have been prepared to further minimize these impacts and should be implemented as appropriate to the extent practicable to ensure impacts to the cultural heritage value of the crossing are reduced. The recommended preferred alternative is also considered to result in positive impacts by providing continued use of Wellington County Road 32 as a crossing point by allowing vehicular travel over the Speed River.

1.1 Description of Property

The Blatchford Bridge (Structure Number B032085) is a single-span half-through truss structure that carries two lanes of vehicular traffic on Wellington Road 32 over the Speed River on the border of the Township of Guelph/Eramosa and the Township of Puslinch (Figure 1 and Figure 2). The structure measures 32.4 metres in overall length an overall width of 8.1 metres. The subject bridge was constructed in 1949 and underwent rehabilitations in 1992 and 2010. The subject structure is not identified as a listed or designated structure either township. A 2023 Ontario Structure Inspection Manual (O.S.I.M.) evaluated the bridge with a Bridge Condition Index (B.C.I.) of 62.08 and recommended rehabilitation or replacement the bridge within one to five years (Gannett Fleming Canada ULC, 2023).

Blatchford Bridge carries two lanes of traffic on Wellington Road 32 over the Speed River. The structure is considered to be in a north-south direction and is located on the border of the Township of Guelph/Eramosa and Township of Puslinch, 0.8 kilometres south of Wellington Road 124.

During a recent inspection, the structure was found to be in poor condition with major elements showing signs of significant deterioration. Specifically, there are several significant deficiencies located on the structures' bottom chords, vertical and diagonal truss members, railings, barriers, and bearings. The County of

Wellington initiated this Municipal Class Environmental Assessment Study (Class E.A. Study) in May 2024 to document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

The subject bridge is adjacent to rural wooded and agricultural properties and is within a rural, agricultural landscape with industrial and commercial facilities to the north of the Speed River. The Speed River flows in a general northeast-southwest orientation at the location of the crossing.



Figure 1: Blatchford Bridge, looking west (A.S.I. 2024).

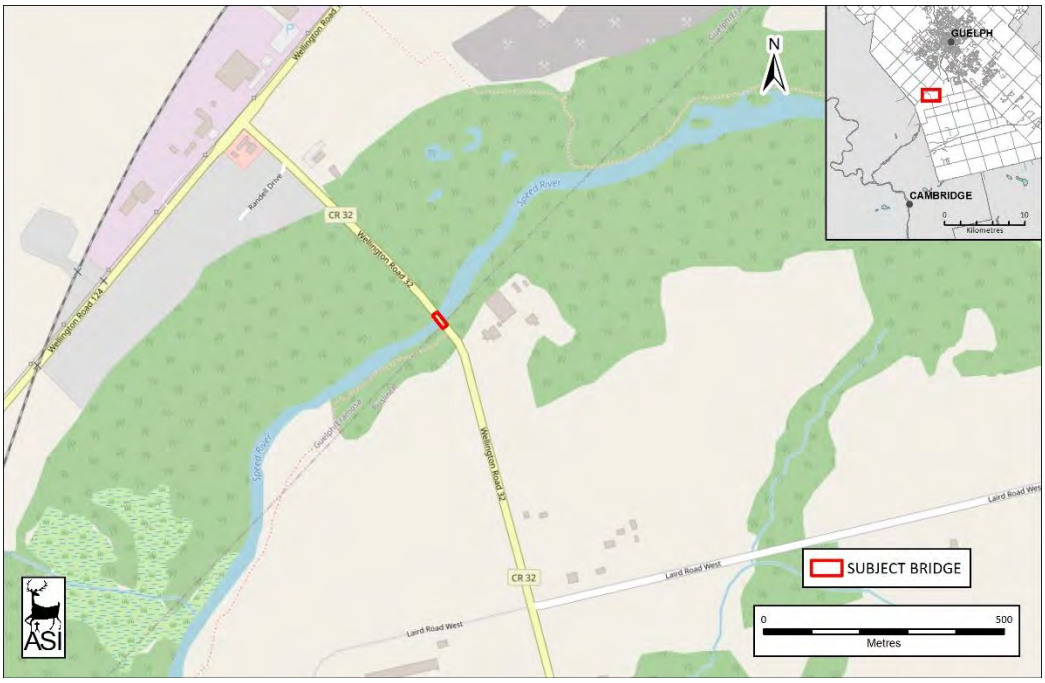


Figure 2: Location of Blatchford Bridge. Source: (c) Open Street Map contributors, Creative Commons n.d.

2.0 Draft Statement of Cultural Heritage Value

The Blatchford Bridge on the border of the Township of Guelph-Eramosa and the Township of Puslinch, within the County of Wellington meets three out of nine criteria outlined in Ontario Regulation 9/06, which considers the bridge within the local context. As such, the subject bridge should be considered to have cultural heritage value or interest at the local level. The following Statement of Cultural Heritage Value was prepared by Archaeological Services Incorporated for the Cultural Heritage Evaluation Report (C.H.E.R.) (Archaeological Services Inc., 2024). This section provides the description of the property, a description of its cultural heritage value or interest, and a list of associated heritage attributes. The bridge's location is provided in Figure 2 and Figure 3.

Description of Property

The Blatchford Bridge is a single-span half-through truss structure resting on cast-in-place concrete abutments and wingwalls. The bridge measures 32.4

metres in overall length with a width of 8.1 metres and carries vehicular traffic over the Speed River in a north-south alignment. The bridge is located on the border of the Township of Guelph-Eramosa and the Township of Puslinch, along Wellington County Road 32 between Wellington County Road 124 and Laird Road West. The Blatchford Bridge was constructed in 1949 and underwent rehabilitation in 1992 and 2010 (Gannett Fleming Canada ULC, 2023; McCormick Rankin Consulting Engineers, 1992; WSP Canada Inc., 2021).

Cultural Heritage Value

The Blatchford Bridge has physical and design value as a good representative example of an altered mid-twentieth century half-through truss bridge in the local context. Repairs and alterations made in 1992 and 2010 are sympathetic to the original design and therefore do not detract from the design value of the bridge.

Half-through (pony) truss bridges were commonly constructed in the late nineteenth and early twentieth centuries to carry roadways due to their durability, low cost, ease of construction, and readily-available construction materials. Further, their modular design meant that construction could also largely be completed by the manufacturer and delivered to site with many elements prefabricated, greatly speeding up construction. While popular in the late nineteenth and early twentieth centuries, these structures are increasingly becoming a rare feature in the Ontario landscape as they are replaced by more cost-effective concrete or steel girder structures when they reach the end of their useful service life.

The subject bridge has historical and associative value as it was designed by Wellington County Engineer W.H. Keith who contributed greatly to bridge construction and repair in the twentieth century locally.

Heritage Attributes

Physical attributes of Blatchford Bridge that express the design value of the structure include:

- The 1949 single-span half-through truss structure including truss chords, diagonals, verticals with lattice railings, date plaques, and featuring riveted connections.
- Location along Wellington Road 32 allowing vehicular traffic over the Speed River.



Figure 3: Satellite image of the subject bridge on the border of the Township of Guelph/Eramosa and the Township of Puslinch (Google Maps)

3.0 Assessment of Existing Condition

Rehabilitation drawings and the 2021 and 2023 Ontario Structure Inspection Manual (O.S.I.M.) inspection report of the subject bridge were reviewed as part of this assessment (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021). A field review was undertaken in May 2024 to conduct photographic documentation of the bridge crossing and to collect data relevant for completing the Cultural Heritage Evaluation Report (C.H.E.R.) of the structure. The following description of the construction, including the dates of interventions, and existing conditions is based on a combination of the results of the field review and historical background research on the subject bridge. Available rehabilitation drawings are provided in Appendix D of the C.H.E.R. (Archaeological Services Inc., 2024) along with photographic documentation of the bridge provided in Figure 9 to Figure 18 of the C.H.E.R., neither of which is duplicated in this report.

The Blatchford Bridge is a single-span half-through truss structure that carries two lanes of vehicular traffic over the Speed River on the border of the Township of Guelph-Eramosa and the Township of Puslinch. The Blatchford Bridge is located between Wellington County Road 124 and Laird Road West. The subject bridge measures 32.4 metres in overall deck length with a width of 8.1 metres (Gannett Fleming Canada ULC, 2023).

The substructure of the bridge features cast-in-place concrete abutments, ballast walls, and wingwalls. The bridge rests on steel roller bearings.

The superstructure of the subject bridge features a steel half-through truss with steel stringers; riveted plate girders; and steel riveted truss connections with rusting/perforation on top of all four supports, diagonals and verticals with corrosion at the connection plates of the railings, corrosion at the bracing panels, impact damage at the northeast and south sides, and rusting with perforation at the northeast side; as well as two plaques commemorating the date of construction and the builder of the bridge, the Dominion Bridge Company, located at the northwest and southeast corners of the bridge and a Suburban Road Commission commemoration plaque at the southeast corner.

The approaches are at grade with an asphalt wearing surface and steel flex beam on steel post guard rails. Along the north and south approaches to the bridge the maximum load allowed is marked. Signage on the south approach indicates that the bridge is prone to icing over and that the road curves ahead. There are hazard signs at the ends of both approaches (Gannett Fleming Canada ULC, 2023).

The following conditions summary of the bridge is provided in the 2023 O.S.I.M. (Gannett Fleming Canada ULC, 2023):

- The steel riveted truss connections have rusting/perforation on top of all four supports;
- Diagonals and verticals show corrosion at the connection plates of the railings, corrosion at the bracing panels, impact damage at the northeast and south sides, and rusting with perforation at the northeast side;
- Steel roller bearings with light to medium corrosion and spall near the northeast bearing;
- Cast-in-place concrete abutment walls measuring 2.45 metres high with a large spall with exposed rebars at the south abutment, a spall with exposed rebar at the east end of the south ballast wall, light scaling on the north abutment, and spall near the northeast bearing;
- Cast-in-place reinforced concrete wingwalls measuring 1.63 metres high and 4.7 metres wide with medium scaling, spalling, delamination and map cracks with efflorescence at the southwest side, spalling, delamination and cracks with efflorescence at the northwest side, and horizontal cracking and scaling at the southwest side;
- The steel lattice barriers show corrosion over approximately 50% of the railings, numerous areas of impact damage (~30% replaced), and traffic impact damage to the railing at the northeast and northwest corners; and,
- The curbs show delamination on the west curb at the south end, medium vertical cracks at the east curb, and spalls at the exterior connection with diagonal chords at the northeast and southeast sides.

According to the 2021 O.S.I.M. report, the bridge underwent a partial replacement of the lattice railing in 1992, and partial bottom chord replacement

at the northwest and southeast ends, diagonal member replacement, deck replacement, new expansion joints, structural steel coating, and rock protection in 2010 (WSP Canada Inc., 2021).

4.0 Description and Purpose of Proposed Activity

The proposed replacement of the subject bridge is being undertaken as part of the Schedule B Municipal Class Environmental Assessment Study for the replacement or rehabilitation of the Blatchford Bridge.

The preferred alternative is the complete replacement of the Blatchford Bridge at this crossing. Email communications with Gannett Fleming Canada ULC on 13 August 2024 noted that during a recent inspection, the structure was found to be in poor condition with major elements showing signs of significant deterioration. Specifically, there are several significant deficiencies located on the structures' bottom chords, vertical and diagonal truss members, railings, barriers, and bearings.

The proposed replacement structure design is for a precast concrete girder bridge with one lane in each direction of traffic with shoulders along each side. The replacement structure will have a similar span and capacity and will be in generally the same location as the subject bridge. A preliminary design drawing is included in Appendix B.

The proposed replacement bridge is anticipated to be 50 metres in overall length, which is an increase from the 38 metre overall length of the existing bridge (Gannett Fleming Canada ULC, 2024). The proposed total width is 12.6 metres, which is an increase from the 8.1 metre total width of the existing bridge. These changes are not anticipated to affect the hydraulic capacity of the structure.

The proposed replacement substructure will be a precast reinforced concrete girder bridge with concrete abutments. The abutments will be further reinforced with thick rock protection. The replacement structure will maintain the existing

alignment of Wellington Road 32 with a new, lower steel railing to replace the truss system.

5.0 Impact Assessment

5.1 Approach to Impact Assessment

To assess the potential impacts of the proposed works on the cultural heritage value of the Blatchford Bridge, the identified heritage attributes outlined in Section 2.0 were considered against a range of possible impacts. The scope of this Heritage Impact Assessment (H.I.A.) is provided by the Ministry of Citizenship and Multiculturalism's *Ontario Heritage Toolkit* (Ministry of Culture, 2006). An H.I.A. is a useful tool to help identify cultural heritage value and provide guidance in supporting environmental assessment work. As part of an H.I.A., proposed site alterations and project alternatives are analysed to identify impacts of the undertaking on the heritage resource and its heritage attributes. The impact of the proposed development on the built heritage resource (B.H.R.) or cultural heritage landscape (C.H.L.) is assessed, with attention paid to identifying potential negative impacts, which may include, but are not limited to:

- Destruction of any, or part of any, significant heritage attributes or features;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;
- Shadows created that alter the appearance of a heritage attribute or change the viability of an associated natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use (such as rezoning a church to a multi-unit residence) where the change in use negates the property's cultural heritage value;

- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect a cultural heritage resource, including archaeological resources.

Where negative impacts of the development on the B.H.R. or C.H.L. and/or attributes are identified, mitigative or avoidance measures or alternative development or site alteration approaches are considered.

Indirect adverse impacts are identified where activities on or near the structure may adversely affect its cultural heritage value or interest and/or heritage attributes. Positive impacts may also result where a structure's cultural heritage value or interest and/or heritage attributes is conserved or enhanced. As the subject bridge was determined to have cultural heritage value or interest, the proposed structure replacement should be planned in a manner that is visually, physically, and functionally sympathetic to the original structure at the crossing.

5.2 Impact Assessment Analysis

The results of the impact assessment are based on the information provided in the Blatchford Bridge Cultural Heritage Evaluation Report (C.H.E.R.) (Archaeological Services Inc., 2024), the 2023 and 2021 Ontario Structure Inspection Manual Inspection Report (O.S.I.M.) (Gannett Fleming Canada ULC, 2023; WSP Canada Inc., 2021), and the preliminary structural drawings provided by Gannett Fleming Canada ULC (Gannett Fleming Canada ULC, 2024). It considers possible direct adverse impacts, indirect adverse impacts, and positive impacts. See Section 2.0 for a description of the cultural heritage attributes identified for the subject bridge.

The C.H.E.R. determined the subject bridge has physical, design, and historical and associative value as the only surviving half-through truss bridge in Townships of Guelph/Eramosa and Puslinch and as a structure that was designed by Wellington County Engineer W. H. Keith. The proposed alterations to the structure involve the complete removal of the bridge, including the original 1949 half-through truss structure and the cast-in-place concrete substructure. The complete removal of the subject bridge is considered to be a direct, permanent,

negative impact to the identified cultural heritage value or interest of the structure. All physical heritage attributes which include the truss chords, diagonals, verticals with lattice webbing, date plaques, and featuring rivetted connections are anticipated to be completely removed.

While the proposed removal of the subject bridge will negatively impact the physical, design, and historical/associative value of the subject bridge, a sympathetically-designed replacement bridge with suitable commemoration and interpretation highlighting the physical design of the bridge and its connection to W.H. Keith, would lessen some of the impacts of the loss of the structure and provide an opportunity to highlight Keith's significance in Wellington County. Currently the proposed replacement reinforced precast concrete girder structure is not considered to by sympathetically designed.

The proposed replacement substructure will be cast-in-place reinforced concrete girder bridge with concrete abutments with thick rock protection. This is a significant change from the 1949 structure, which features concrete abutments that are perpendicular to the watercourse and appear to lack thick rock protection or other bank stabilization. The replacement cast-in-place concrete abutments are not considered to be sympathetic to the 1949 structure.

6.0 Considered Alternatives and Mitigation Measures

Where feasible, the preferred alternative for any bridge with identified cultural heritage value or interest should involve rehabilitating and retaining the structure in situ to maintain the physical/design value, historical, and contextual values of the bridge and crossing. Retention and sympathetic rehabilitation with allowances made for inclusion of modern materials to meet current design and safety codes is the preferred option from a heritage perspective as it would retain the heritage attributes identified in Section 2.0 and retain the physical and design value of the subject bridge.

As the subject bridge has exceeded its intended service life, continued rehabilitation is not considered to be a cost-effective long-term solution due to the number of elements in need of replacement to ensure public safety. As such, the option to rehabilitate or repurpose has been eliminated from consideration as it does not suitably fulfil the problem statement. The preferred alternative including replacement with a new structure was determined to be the preferred option when weighted against all evaluation criteria (email communication with Gannett Fleming Canada ULC 13 August 2024).

The preferred alternative will result in direct, negative, permanent impacts to the cultural heritage value of the structure through the removal the of the 1949 half-through truss structure and the cast-in-place concrete substructure, as well as all physical heritage attributes which include the truss chords, diagonals, verticals with lattice webbing, and featuring rivetted connections. A sympathetically-designed replacement bridge would maintain this historical bridging point over the Speed River and provide the crossing that is required in the rural agricultural context.

As the retention of the subject bridge following rehabilitation was demonstrated to be infeasible, complete removal with construction of a replacement structure should be considered as a suitable means of reducing the impacts to the historical/associative value of the crossing. A sympathetic replacement superstructure should be considered to be compatible with the style and character of the subject bridge, be based on physical and documentary evidence such as photographs and original structural drawings, and be mindful of the context, scale, massing, and material of the original structure (Ministry of Culture and Ministry of Transportation, 2008). In this respect, the proposed replacement with a concrete girder bridge with a larger scale and massing than the original bridge, on the same alignment, is not considered to be a sympathetic replacement structure type. Consideration should be given to incorporating visual elements that are representative or sympathetic with a half-through truss in the replacement superstructure. Consideration should also be given to employing concrete finishes on the parapet wall of the replacement bridge that are representative of the geometric designs of a truss, or to incorporating pedestrian

railings that are sympathetic to the steel lattice railings, and implemented where feasible. This could be achieved through the use of a form liner with geometric patterns to evoke a truss pattern as a way to incorporate some of the Blatchford Bridge design elements into the proposed replacement bridge.

To reduce negative impacts to the cultural heritage value of the crossing, the development of suitable commemoration should be considered. A replacement bridge featuring suitable commemoration and interpretation would sufficiently reduce negative impacts to the historical and associative value of the crossing as it will continue to serve as a crossing point over the Speed River to the north of the historic rural settlement of Puslinch. Consultation should be completed with the County of Wellington regarding commemorative interpretation.

Prior to removal, consideration should be given to relocating the subject bridge for adaptive re-use as a pedestrian or cycling bridge at another crossing. If relocating the superstructure for re-use is determined to be infeasible based on an evaluation of the structural condition of steel elements, consideration should be given to salvaging select structural elements of the superstructure for use in rehabilitating a similar structure at another crossing or use in commemorative or interpretive displays. In this respect, the County of Wellington should investigate the feasibility of salvaging select structural elements in the superstructure including truss panels or sections with riveted connections for incorporation in a commemorative interpretation at the bridge site or in another appropriate location. The County of Wellington should also investigate the feasibility of salvaging the existing plaques to be incorporated into a future commemorative installation.

Prior to removal, full recording of the structure would ensure proper documentation for archival purposes and ensure suitable material is available for inclusion with a commemoration strategy. The C.H.E.R. (Archaeological Services Inc., 2022) and this H.I.A. are considered to be sufficient documentation.

7.0 Summary of Background Information Gathering

Information gathering and engagement with municipal and provincial authorities, Indigenous Nations, and other stakeholders was completed as part of the Blatchford Bridge (Structure Number B032085) Cultural Heritage Evaluation Report (C.H.E.R.) in June 2024, and included email communications with planning staff at the Township of Guelph/Eramosa, the Township of Puslinch, planning staff at the County of Wellington, the Ministry of Citizenship and Multiculturalism, and the Ontario Heritage Trust (see Section 2.1 of the C.H.E.R. for a full record of consultation). Information gathering determined that the subject bridge was not listed by the municipality, designated under Part IV of the *Ontario Heritage Act,* or subject to any other level of heritage recognition. Further, no properties directly adjacent to the bridge have any heritage recognition.

The Notice of Commencement for this project was submitted by Gannett Fleming Canada ULC to Indigenous Nations that have an interest in the subject bridge. No feedback had been received by Gannett Fleming Canada ULC regarding the cultural heritage component of this project at the time of report submission. Any feedback received from Indigenous groups during the anticipated public engagement will be incorporated into this report as appropriate.

Additional community engagement will be undertaken through submission of this report for review and comment to municipal planning staff, the Ministry of Citizenship and Multiculturalism, and any other relevant stakeholders with an interest in this project. Engagement will also be undertaken through public meetings conducted as part of the. This report should also be shared with the Township of Guelph Eramosa Historical Society, the Puslinch Heritage Committee, Indigenous communities, and other stakeholders with an interest in this project. This section will be updated following receipt of any feedback, and the report updated as appropriate.

8.0 Recommendations

The recommended preferred alternative is anticipated to result in direct, permanent, negative impacts to the cultural heritage attributes of the extant structure through the complete removal of the bridge and its replacement with a reinforced precast concrete girder structure at the crossing. As the retention of the subject bridge following rehabilitation was demonstrated to be infeasible, complete removal with construction of a sympathetically-designed replacement structure and the development of suitable commemoration or interpretation, including the salvage of the existing plaques, should be carried forward. Mitigation measures outlined in this report have been prepared to further minimize these impacts and should be implemented as appropriate to the extent practicable to ensure impacts to the cultural heritage value of the crossing are reduced. The recommended preferred alternative is also considered to result in positive impacts by providing continued use of Wellington County Road 32 as a crossing point by allowing vehicular travel over the Speed River.

The following recommendations and mitigation measures have been developed and should be implemented:

1. Where feasible, the proposed undertaking should be designed and executed to ensure the fewest direct and permanent, non-reversible impacts to the identified heritage attributes of the subject bridge. As the proposed undertakings will result in the removal and replacement of the subject bridge, the proposed undertakings are anticipated to result in direct, permanent, non-reversible impacts to the subject bridge.

2. As rehabilitating and retaining the subject bridge was determined to be infeasible as the bridge has exceeded its service life, replacement should be carried forward with an emphasis on sympathetic design in all elements. A sympathetically-designed replacement structure at the crossing is preferred from a cultural heritage perspective, as it would reduce impacts to the historical/associative and contextual values of the

crossing over the Speed River. In this respect, the proposed replacement concrete girder bridge is not considered to be a suitably sympathetic replacement. Consideration should be given to incorporating visual elements that are representative or sympathetic with a half-through truss in the replacement superstructure. Consideration should also be given to employing concrete finishes on the parapet wall of the replacement bridge that are representative of the geometric designs of a truss, or to incorporating pedestrian railings that are sympathetic to the steel lattice railings, and implemented where feasible. This could be achieved through the use of a form liner with geometric patterns to evoke a truss pattern as a way to incorporate some of the Blatchford Bridge design elements into the proposed replacement bridge.

3. Prior to removal, consideration should be given to relocating the subject bridge for adaptive re-use as a pedestrian or cycling bridge at another crossing. If relocating the superstructure for re-use is determined to be infeasible based on an evaluation of the structural condition of steel elements, consideration should be given to salvaging select structural elements of the superstructure for use in rehabilitating a similar structure at another crossing or use in commemorative or interpretive displays. In this respect, the County of Wellington should investigate the feasibility of salvaging select structural elements in the superstructure including truss panels or sections with riveted connections for incorporation in a commemorative interpretation at the bridge site or in another appropriate location. The County of Wellington should also investigate the feasibility of salvaging the existing plaques to be incorporated into a future commemorative installation.

4. To reduce negative impacts to the cultural heritage value of the crossing, suitable commemoration should be implemented. In this respect, consideration should be given to developing a commemorative installation at a suitable area near the bridge featuring information panels and photographs of the 1949 subject bridge. Consultation should

be completed with the County of Wellington regarding requirements for any potential commemorative interpretation.

5. Where interventions are undertaken that will result in alterations to construction material and fabric, documentation should be undertaken in advance of construction activities. The purpose of documentation is to record existing conditions of the structure at a level of detail for the purposes of implementing a program to reverse impacts in the future due to changes in technology or operational priorities. The C.H.E.R. (Archaeological Services Inc., 2024) and this H.I.A. are considered to be sufficient documentation in this regard.

6. The proposed intervention is anticipated to result in some positive impacts to the subject crossing. A replacement bridge with the inclusion of modern materials to meet modern design codes will improve the functionality and safety of the crossing for local residents while maintaining the continued crossing of the Speed River to the north of the historic rural settlement of Puslinch.

7. The proponent should submit this report to staff at the Township of Guelph/Eramosa, the Township of Puslinch, the County of Wellington, and to the Ministry of Citizenship and Multiculturalism for review. The Cultural Heritage Evaluation Report and this report should also be shared with the Guelph Eramosa Heritage Committee, and the Township of Puslinch Heritage Advisory Committee, Indigenous communities, and other stakeholders with an interest in this project. Any feedback will be considered and incorporated into the report, where appropriate. The final report should be submitted to the County of Wellington for future reference.

9.0 References

Archaeological Services Inc. (2022). Cultural Heritage Evaluation Report Indian River Bridge (Structure 099017) Township of Douro-Dummer and Township of Otonabee-South Monaghan County of Peterborough, Ontario.

Archaeological Services Inc. (2024). Cultural Heritage Evaluation Report: Blatchford Bridge (Structure Number B032085) [C.H.E.R.].

Gannett Fleming Canada ULC. (2023). Wellington County Blatchford Bridge B032085 2023 OSIM Inspection.

Gannett Fleming Canada ULC. (2024). Structural Drawings, Blatchford Bridge Structure No. B032085.

McCormick Rankin Consulting Engineers. (1992). Blatchford Bridge Repair Rehabiltation Drawings [Architectural Drawings].

Ministry of Culture. (2006). Property Evaluation. http://www.mtc.gov.on.ca/en/publications/Heritage_Tool_Kit_HPE_Eng.pdf

Ministry of Culture and Ministry of Transportation. (2008). Ontario Heritage Bridge Guidelines (OHBG) (Interim – January 11 2008).

Municipal Engineers Association. (2023, April 27). Municipal Bridges Criteria for Evaluating Potential for Cultural Heritage Resources (revised April 27, 2023).

Public Transportation and Highway Improvement Act, R.S.O. 1990, c.P.50, Ontario Regulation 160/02, Standards for Bridges. (2002). https://www.ontario.ca/laws/regulation/r02160

WSP Canada Inc. (2021). Blatchford Bridge Municipal Structure Inspection Form.

Appendix A: Qualified Persons Involved in the Project

Lindsay Graves, M.A., C.A.H.P.
Senior Cultural Heritage Specialist, Assistant Manager - Cultural Heritage Division

The Senior Project Manager for this Cultural Heritage Report is **Lindsay Graves** (M.A., Heritage Conservation), Senior Cultural Heritage Specialist and Assistant Manager for the Cultural Heritage Division. She was responsible for: overall project scoping and approach; development and confirmation of technical findings and study recommendations; application of relevant standards, guidelines and regulations; and implementation of quality control procedures. Lindsay is academically trained in the fields of heritage conservation, cultural anthropology, archaeology, and collections management and has over 15 years of experience in the field of cultural heritage resource management. This work has focused on the assessment, evaluation, and protection of above ground cultural heritage resources. Lindsay has extensive experience undertaking archival research, heritage survey work, heritage evaluation and heritage impact assessment. She has also contributed to cultural heritage landscape studies and heritage conservation plans, led heritage commemoration and interpretive programs, and worked collaboratively with multidisciplinary teams to sensitively plan interventions at historic sites/places. In addition, she is a leader in the completion of heritage studies required to fulfill Class Environmental Assessment processes and has served as Project Manager for over 100 heritage assessments during her time at A.S.I. Lindsay is a member of the Canadian Association of Heritage Professionals.

Kirstyn Allam, B.A. (Hon), Advanced Dipl. in Applied Museum Studies
Cultural Heritage Analyst - Cultural Heritage Division

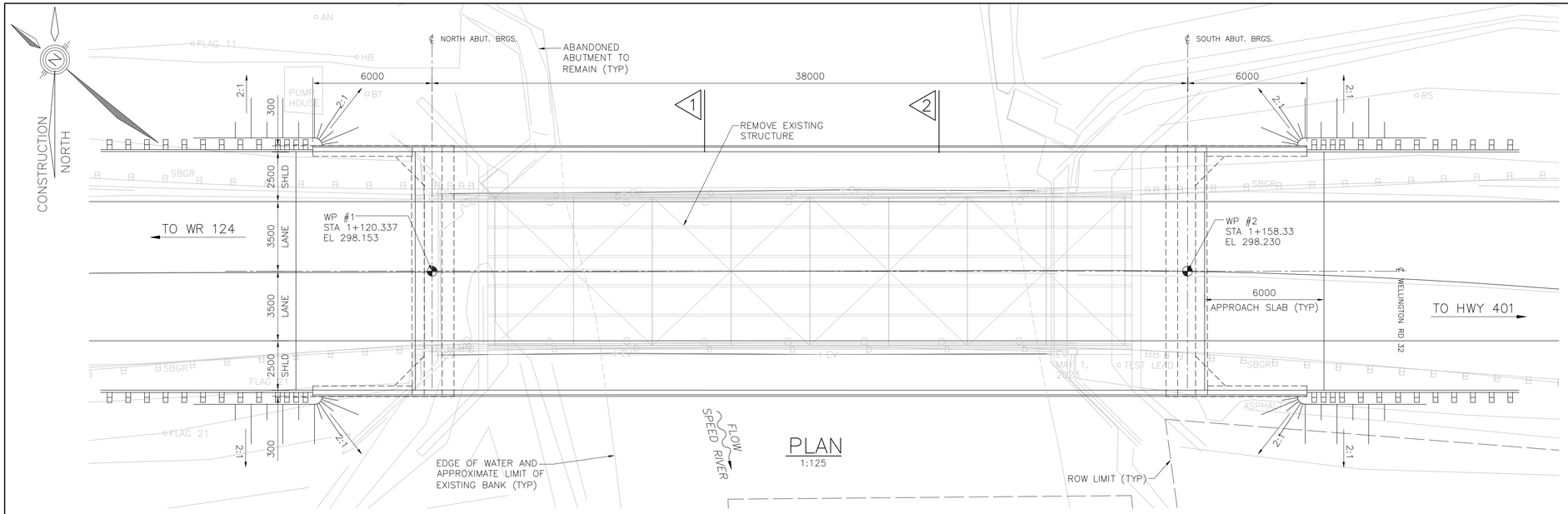
The Project Manager for this Cultural Heritage Evaluation Report is **Kirstyn Allam** (B.A. (Hon.), Advanced Diploma in Applied Museum Studies), who is a Cultural Heritage Analyst and Project Manager within the Cultural Heritage

Division. She was responsible for the day-to-day management activities, including scoping of research activities and site surveys and drafting of study findings and recommendations. Kirstyn Allam's education and experience in cultural heritage, historical research, archaeology, and collections management has provided her with a deep knowledge and strong understanding of the issues facing the cultural heritage industry and best practices in the field. Kirstyn has experience in heritage conservation principles and practices in cultural resource management, including three years' experience as a member of the Heritage Whitby Advisory Committee. Kirstyn also has experience being involved with Stage 1-4 archaeological excavations in the Province of Ontario. Kirstyn is an intern member of the Canadian Association of Heritage Professionals (C.A.H.P.).

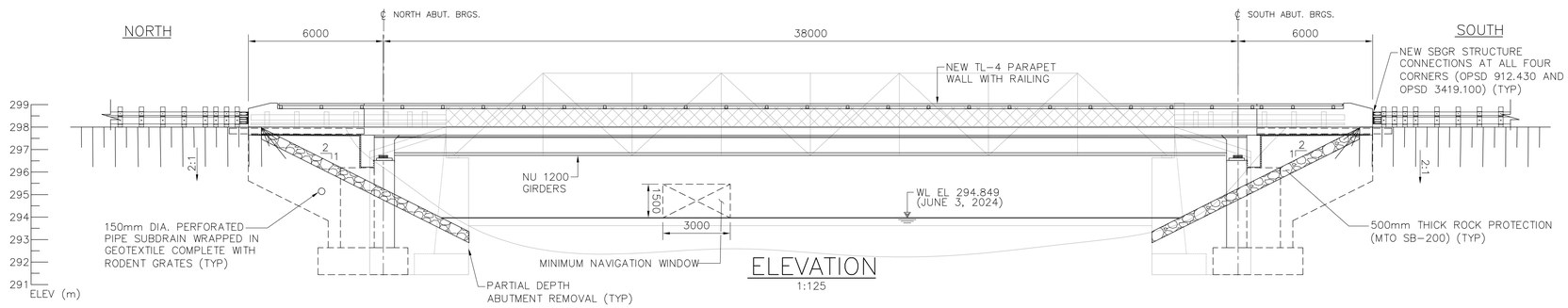
Becca Clark, B.A. (Hons)
Cultural Heritage Technical Writer and Researcher - Cultural Heritage Division

The Cultural Heritage Technician for this project is Becca Clark (B.A. Hons, Adv. Diploma Applied Museum Studies), who is a Cultural Heritage Technical Writer and Researcher and Project Administrator within the Cultural Heritage Division. She was responsible for preparing research and technical reporting. With her educational and working background, Becca provides an understanding of Ontario history and built heritage as well as skilled research and analysis. Her time as a museum professional focused on local history in Southern Ontario and how it may be represented by objects and built heritage. In 2021, Becca researched, designed, and produced the Guelph Civic Museum's exhibition "The Origin of Fan: Folding Form and Function". She has since translated her knowledge of Southern Ontario's history into built heritage research. In 2023, she joined ASI's Cultural Heritage team as a Cultural Heritage Technician.

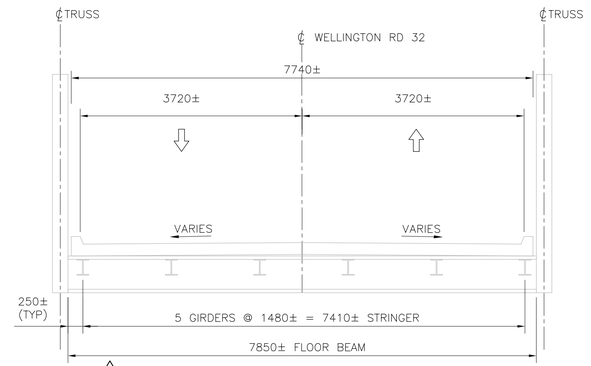
Appendix B: Preliminary Design for Replacement Bridge



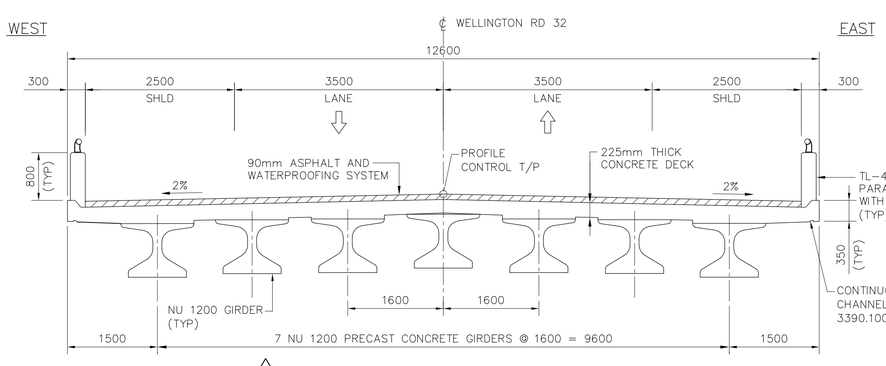
PLAN
1:125



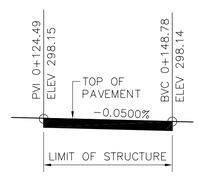
ELEVATION
1:125



1 TYPICAL EXISTING SECTION
1:50



2 TYPICAL PROPOSED SECTION
1:50



PROFILE OF COUNTY RD 32
N.T.S.

GENERAL NOTES:

DESIGN CODE:
CHBDC 2019 CAN/CSA S6-19 LIVE LOAD: CL-625-ONT

CLASS OF CONCRETE:
ALL CONCRETE UNLESS OTHERWISE NOTED 35 MPa.
CLASS C-1 PER CSA 23.1

CLEAR COVER TO REINFORCING STEEL:

DECK:			
TOP	70	±	20
BOTTOM	40	±	10
REMAINDER, UNLESS OTHERWISE NOTED:	70	±	20

REINFORCING STEEL:
1. REINFORCING STEEL SHALL BE WELDABLE GRADE 500W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS B.
3. STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500MPa, UNLESS OTHERWISE SPECIFIED.
4. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
5. BAR MARKS WITH PREFIX G DENOTE GRADE III GLASS FIBRE REINFORCED POLYMER BARS (E=60GPa).
6. GLASS FIBRE REINFORCED POLYMER REINFORCING BARS SHALL BE GRADE I, GRADE II, OR GRADE III AS SPECIFIED IN THE CONTRACT DRAWINGS. THE NOMINAL DIAMETER, TENSILE MODULUS OF ELASTICITY AND GUARANTEED MINIMUM TENSILE STRENGTH SHALL BE AS SPECIFIED IN THE CONTRACT DOCUMENTS.
7. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH DRAWINGS, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. NO BACKFILL SHALL BE PLACED BEHIND END OF DECK UNTIL DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED STRENGTH.
5. SUBDRAINS SHALL BE EXTENDED TO THE LIMIT OF GRADING FROM SLOPE TO SLOPE AND INSTALLED COMPLETE WITH RODENT GRATING (TYPICAL).
6. ROCK PROTECTION (MTO WB-200) TO BE PLACED TO A MINIMUM DEPTH OF 500mm AS SHOWN. WB-200 LAYER TO BE TOP DRESSED WITH A 100mm THICK LAYER OF TABLE A SUBSTRATE.

LIST OF DRAWINGS:
1. GENERAL ARRANGEMENT

LIST OF ABBREVIATIONS:

BRGS	DENOTES BEARINGS
WP	DENOTES WORKING POINT
T/P	DENOTES TOP OF PAVEMENT
T/FTG.	DENOTES TOP OF FOOTING
HWL	DENOTES HIGH WATER LEVEL
SBGR	DENOTES STEEL BEAM GUIDE RAIL
SHLD	DENOTES SHOULDER

APPLICABLE STANDARD DRAWINGS:
OPSD – 0219.130 HEAVY DUTY SILT FENCE BARRIER
OPSD – 0219.180 STRAW BALE FLOW CHECK DAM
OPSD – 0219.240 DEWATERING TRAP
OPSD – 0219.260 TURBIDITY CURTAIN
OPSD – 0219.261 TURBIDITY CURTAIN, SEAM DETAIL
OPSD – 0912.430 GUIDE RAIL SYSTEM, STEEL BEAM STRUCTURE CONNECTION
OPSD – 3101.150 WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT
OPSD – 3102.100 WALLS, ABUTMENT, BACKFILL DRAIN
OPSD – 3190.100 WALLS, RETAINING AND ABUTMENT WALL DRAIN
OPSD – 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD – 3390.100 DECK DRIP CHANNEL
OPSD – 3419.100 BARRIERS AND RAILINGS STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
OPSD – 3950.100 CONCRETE EXPANSION AND CONSTRUCTION JOINT ON STRUCTURE.

METRIC
ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.

NO.	DESCRIPTION	DATE	INITIAL
	REVISIONS		

GANNETT FLEMING

SCALE	SCALE	DESIGNED	DESIGNED BY
DATE	DATE	CHECKED	WVR
DRAFTING	SC	DESIGN CODE	CAN/CSA S6-19
CHECKED	WVR		Project
FIELD BK.		PROJECT	
BENCH M	297.058, 301.051		

COUNTY OF WELLINGTON

REPLACEMENT OF BLATCHFORD BRIDGE STRUCTURE NO. B032085

GENERAL ARRANGEMENT

CW2024-0XX
PROJECT NO.

DRAWING NO.
S1

Appendix G

Stakeholder and Indigenous Community Consultation

GFT

Stakeholder and Agency Contact List

GFT

First Name	Last Name	Job Title	Agency/Company	Address	City	Province	Postal Code	Email
Agencies								
General Contact			Ministry of Environment, Conservation and Parks					eanotification.cregion@ontario.ca
General Contact			Ministry of Indigenous Affairs	160 Bloor Street East, 9th floor	Toronto	ON	M7A 2E6	
Karina	Cerniavskaja	District Planner	Ministry of Natural Resources	1 Stone Road West	Guelph	ON	N1G 4Y2	karina.cerniavskaja@ontario.ca MNRF.Ayl.Planners@ontario.ca
Melinda	Thompson	Management Biologist						melinda.thompson@ontario.ca
Jamie Rose	Wedgewood	Integrated Resource Management Technical Specialist						jamie.r.wedgewood@ontario.ca
Jennifer	Davey	Administrative Assistant	Ontario Provincial Police	777 Memorial Avenue, 1st floor	Orillia	ON	L3V 7V3	jennifer.davey@opp.ca
Vanessa	Wismer	Resource Planner	Grand River Conservation Authority (GRCA)	400 Clyde Road	Cambridge	ON	N1R 5W6	vwismer@grandriver.ca
Tony	Zammit							tzammit@grandriver.ca
Karla	Barboza	Team Lead	Ministry of Citizenship and Multiculturism	401 Bay Street	Toronto	ON	M7A 0A7	karla.barboza@ontario.ca
Joseph	Harvey	Heritage Planner						Joseph.Harvey@ontario.ca
Emergency Servies								
General Contact			Guelph-Eramosa Fire Services	8348 Wellington Road 124, PO Box 700	Rockwood	ON	N0B 2K0	Guelpheramosafd@get.on.ca
Stephen	Dewar	EMS Chief	Guelph-Wellington Emergency Medical Services	160 Clair Road West	Guelph	ON	N1L 1G1	stephen.dewar@guelph.ca
Municipality – Town of Puslinch								
Glenn	Schwendinger	CAO	Town of Puslinch Council	7404 Wellington Road 34	Puslinch	ON	N0B 2J0	gschwendinger@puslinch.ca
Utility Services								
Paul	Rhody	Manager	Wightman Telecom	100 Elora Street North	Minto	ON	N0G 1M0	prhody@whitman.ca
Penny	Dietrich	Co-ordinator - Access Network	Bell Aliant	109 Scott Street, P.O. Box 1180	Walkerton	ON	N0G 2V0	
Steven	Bain		Bell					steven.bain@bell.ca
Renee	Bergeron	Manager	Bell Canada	21 First Avenue	Orangeville	ON	L9W 1H7	renee.bergeron@bell.ca
Franklin	Brown		Bell IM Orangeville					franklin.brown@bell.ca
Richard	Banks	General Manager	Mornington Communications Co-operative Limited	16 Mill Street East, P.O. Box 70	Milverton	ON	N0K 1M0	

Walter	Kloostra	Manager, Transmission Lines Sustainment	Hydro One Networks Inc.	483 Bay Street, North Tower, 15th Floor	Toronto	ON	M5G 2P5	w.d.kloostra@hydroone.com
General Contact			Hydro One Networks Inc.					SecondaryLandUse@HydroOne.com
Kevin	Schimus		Enbridge					Kevin.Schimus@enbridge.com
Jamie	Rochford	Senior Planning Specialist	Enbridge	101 Honda Boulevard	Markham	Ontario	L6C 0M6	jamie.rochford@enbridge.com
Rachel	Barth	Systems Planner	Rogers Communications					rachel.barth@rci.rogers.com
Steve	Gionomo							steve.gionomo@rci.rogers.com
Dan	Mozzoni							dan.mozzoni@rci.rogers.com
Brendon	Condon							Brendon.Condon@rci.rogers.com
Briana	Murray	Systems Planner		85 Grand Crest Place	Kitchener	ON	N2G 4A8	briana.murray@rci.rogers.com
Indira	Sharma		Telecon	777 Weston Road	Vaughan	ON	L4L 0G9	telusutilitymarkups@Telecon.ca
General Contact			Telus					Engineering.Requests@telus.com.
Princess	Marie	Damage Prevention Coordinator						princessmarie.lamera@telus.com
Lisa	Gillis	Network System Planner	Cogeco	695 Lawrence Road,	Hamilton	ON	L8K 6P1	lisa.gillis@cogeco.com
								utility.circulations@cogecodata.com
Wellington County Council								
Chris	White	Warden, 'Wellington County Warden	Township of Guelph Eramosa	74 Woolwich Street	Guelph	ON	N1H 3T9	chrisw@wellington.ca
Matthew	Bulmer	Councillor, Ward 7	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	matthewb@wellington.ca
Doug	Breen	Councillor, Ward 8	Wellington County	74 Woolwich Street	Guelph	ON	N1H 3T9	dougb@wellington.ca
Township of Guelph Eramosa Council								
Chris	White	Guelph Eramosa		225 Mary Street, PO Box 656	Rockwood	ON	N0B 2K0	chris.white@get.on.ca
Bruce	Dickieson	Ward 1		5284 Wellington Road 32	Guelph	ON	N1H 6J4	bruce.dickieson@get.on.ca
Corey	Woods	Ward 2		5754 Jones Baseline, R.R.#5	Guelph	ON	N1H 6J2	corey.woods@get.on.ca
Steven A.	Liebig	Ward 3		8175 Indian Trail, R.R. #5	Rockwood	ON	N0B 2K0	steven.liebig@get.on.ca
Mark	Bouwmeester	Ward 4		251 Brady Street	Rockwood	ON	N0B 2K0	mark.bouwmeester@get.on.ca
Township of Puslinch Council								
James	Seeley	Mayor		7404 Wellington Road 34	Puslinch	ON	N0B 2J0	jseeley@puslinch.ca
Russel	Hurst	Councillor		7404 Wellington Road 34	Puslinch	ON	N0B 2J0	rhurst@puslinch.ca
Jessica	Goyda	Councillor		7404 Wellington Road 34	Puslinch	ON	N0B 2J0	jgoyda@puslinch.ca

John	Sepulis	Councillor		7404 Wellington Road 34	Puslinch	ON	N0B 2J0	jsepulis@puslinch.ca
Sara	Bailey	Councillor		7404 Wellington Road 34	Puslinch	ON	N0B 2J0	sbailey@puslinch.ca

Indigenous Community Contact List

Title	First Name	Last Name	Organization	Address	City	Province	Postal Code	Email
Mississaugas of the Credit First Nation								
Chief	Margaret	Sault	**Mississaugas of the Credit First Nation**	2789 Mississauga Road, R.R #6	Hagersville	ON	N0A 1H0	MargaretS@mncfn.ca
	Larry	Sault						larryS@mncfn.ca
General Contact								Communications@mncfn.ca
Six Nations of the Grand River								
Chief	Sheri-Lyn	Hill	**Six Nations of the Grand River**	1695 Chiefswood Road, PO Box 5000	Ohsweken	ON	N0A 1M0	sngr.chief@sixnations.ca specialassistant@sixnations.ca
	Lonny	Bomberry:						Lonnybomberry@sixnations.ca
	Tanya	Hill-Montour						Tanyahill-montour@sixnation.ca
	Dawn	LaForme						Dlaforme@sixnations.ca
Haudenosaunee Development Institute								
Haudenosaunee Development Institute, Monitoring Program Coordinator			**Haudenosaunee Development Institute**	16 Sunrise Court, PO Box 714	Oshweken	ON	N0A 1M0	info@hdi.land

Ministry of the Environment, Conservation, and Parks

GFT

From: Van Ruyven, William
Sent: Friday, May 31, 2024 10:13 AM
To: Ungar, Amanda (She/Her) (MECP); eanotification.wcregion@ontario.ca
Cc: Del Villar Cuicas, Joan (MECP); Joe de Koning
Subject: RE: PIF for Blatchford Bridge Municipal Class Environmental Assessment
Attachments: streamlined_ea_project_information_form_2_Blatchford_May 31, 2024.xlsx

Hi Amanda,

Thank you for the information. I've attached the PIF and copied the west central notice email.

Kind Regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

From: Ungar, Amanda (She/Her) (MECP) <Amanda.Ungar@ontario.ca>
Sent: Friday, May 31, 2024 9:55 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>; Joe de Koning <joedk@wellington.ca>
Cc: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Subject: PIF for Blatchford Bridge Municipal Class Environmental Assessment

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning,

I am reaching out to inform you that the Blatchford Bridge Municipal Class Environmental Assessment is the West-Central region and to request the Project Information Form (PIF) for it, as only the Notice of Commencement was sent. If you could please provide the PIF as well, it would be greatly appreciated.

For future reference, please also find attached the instructions for providing Class EA notices to the Ministry of the Environment, Conservation and Parks for further information.

Thank you,

Amanda Ungar (she/her)
--

Assistant Project Officer
Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
amanda.ungar@ontario.ca

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

Ontario

Instructions for Providing Class EA Notices to the Ministry of the Environment, Conservation and Parks

The following protocol for providing Class EA notifications to the Ministry of the Environment, Conservation and Parks is in effect as of **May 1, 2018.** Important information is below. Please read carefully.

You must follow the process described below and submit an electronic version of the Notice and completed Project Information Form to the appropriate Regional EA Notification email address. These email addresses are provided below.

All Notices of Commencement and Completion are to follow this process. Please feel free to pass along this information to your colleagues. Thank you.

Notification Procedure:

The Ministry of the Environment, Conservation and Parks becomes aware of streamlined environmental assessments (e.g., class environmental assessment projects, electricity projects and waste management projects) through notifications by project owners. Notifying the ministry is an important step in the streamlined environmental assessment processes. As part of the ministry's ongoing efforts to improve processes and ensure the ministry has an opportunity to provide input on projects undergoing streamlined environmental assessments, the ministry has established dedicated email accounts in each regional office. These accounts will be used to receive notices as required in your class environmental assessment process along with a new "Project Information Form". As of May 1, 2018, proponents must use this new process.

4 Step Process for Submitting Notices for Streamlined EAs

To submit your notice, you must do the following:

1. **Download and complete the Project Information Form.** (The Form can be found here under "Streamlined EAs". It is an excel spreadsheet with columns that need to be filled out by the proponent. The form has been developed for ease of use (i.e. drop-down pick list for most fields). Instructions on filling out the form are contained in 2 tabs within the form itself).

2. **Create an email. The subject line of your email must include in this order: Project location, Type of streamlined EA, and Project name**

   For example:

   - York Region, MEA Class EA, Elgin Mills Rd East (Bayview to Woodbine)
   - Durham Region, Electricity Screening Process, New Cogeneration Station
   - City of Ottawa, Waste Management Screening Process, Landfill Expansion

3. **Attach the completed Project Information Form (in excel format) and a copy of your project notice (in PDF format) to the email.**

4. **Send by email to the appropriate ministry regional office:**

   Central Region – eanotification.cregion@ontario.ca

   Eastern Region – eanotification.eregion@ontario.ca

   Northern Region – eanotification.nregion@ontario.ca

   South West Region – eanotification.swregion@ontario.ca

   West Central Region – eanotification.wcregion@ontario.ca

Notes:

- The hyperlink to the MECP District Officer Locator website, can be used to assist with determining what ministry region your project is located.
- The minimum requirement is to send project initiation and completion notices (and where applicable, Revised Notice of Completion, Notice of Filing of Addendum, Statement of Completion). All other notices (e.g. Notice of PIC/OH) can be sent to the Regional email address but not required.
- If your project is located in more than one ministry region, you need to submit your notices to all appropriate regions.

Van Ruyven, William

From: Del Villar Cuicas, Joan (MECP) <Joan.DelVillarCuicas@ontario.ca>
Sent: Tuesday, June 4, 2024 4:20 PM
To: Joe de Koning
Cc: Van Ruyven, William; Todd, Aaron (MECP)
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Attachments: MECP Acknow. of NOC Blatchford Bridge.pdf; A Proponent's Introduction to the Delegated Aspects of Consultation with....pdf; Client Guide to Preliminary Screening-May 2019.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Please find attached MECP's Letter of Acknowledgement and attachments in response to the Notice of Commencement for the County of Wellington, MEA Class EA for Blatchford Bridge.

Please do not hesitate to contact me if you have any questions.

Regards,

Joan Del Villar Cuicas (she/her)
Regional Environmental Planner
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca|Phone: 365-889-1180

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 6:58 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

7th Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

7ème étage
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
Téléc. : 416 314-8452

June 4, 2024

Joe de Koning
Manager of Roads
County of Wellington
joedk@wellington.ca

BY EMAIL ONLY

Re: Blatchford Bridge Municipal Class Environmental Assessment
County of Wellington
Municipal Class Environmental Assessment, Schedule B
Acknowledgement of Notice of Commencement

Dear Joe de Koning,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the County of Wellington (proponent) has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Class Environmental Assessment (Class EA).

The **updated (August 2022)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. Information is provided at the end of the Areas of Interest document relating to the Notice of Completion**.**

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.

The 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 the proposed project**, the MECP is delegating the procedural aspects of rights-based consultation to the proponent 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 provided to date and the Crown`s preliminary assessment the proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River (both elected and traditional/HCCC (Haudenosaunee Confederacy Chiefs Council))

Steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the "Code of Practice for Consultation in Ontario's 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 attached document "A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities" for further information, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances after initial discussions with the communities identified by the MECP:

- 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 with Indigenous communities or other stakeholders has reached an impasse; or
- A Section 16 Order request is expected based on impacts to Aboriginal or treaty rights

The MECP 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 should additional steps and activities be required.

A draft of the report should be sent directly to me prior to the release of the final report through the issuance of the Notice of Completion, allowing a minimum of 30 days for the ministry's technical reviewers to provide comments on the draft report.

Please also ensure a copy of the Notice of Completion is sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca) after the draft report and Notice of Completion is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at Joan.DelVillarCuicas@ontario.ca.

Sincerely,



Joan Del Villar Cuicas
Regional Environmental Planner – West Central Region
Project Review Unit, Environmental Assessment Branch

Cc: Aaron Todd, Manager, Guelph District Office, MECP
William Van Ruyven, Consultant Project Manager, Gannett Fleming Canada ULC, wvanruyven@gfnet.com

Enclosed: Areas of Interest

Attached: Client's Guide to Preliminary Screening for Species at Risk

A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. August 2022)

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

Planning and Policy

- Applicable plans and policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.
    - Projects located in MECP Central, Eastern or West Central Region may be subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)**.
    - Projects located in MECP Central or Eastern Region may be subject to the **Oak Ridges Moraine Conservation Plan (2017)** or the **Lake Simcoe Protection Plan (2014)**.
    - Projects located in MECP Central, Southwest or West Central Region may be subject to the **Niagara Escarpment Plan (2017)**.
    - Projects located in MECP Central, Eastern, Southwest or West Central Region may be subject to the **Greenbelt Plan (2017)**.
    - Projects located in MECP Northern Region may be subject to the **Growth Plan for Northern Ontario (2011).**

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

Source Water Protection

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 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 that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA 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.

- 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, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and 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. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

    - If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- 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 Source Protection Information Atlas, which is an online mapping tool available to the public. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the “Map Legend” bar on the left. 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 must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

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 MECP.

Climate Change

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

    1. Consider during the assessment of alternative solutions and alternative designs, the following:
        a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
        b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
    2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative 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 and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. **Please contact this office for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of potential mitigation measures.

- As a common practice, "air quality" should be used an evaluation criterion for all road projects.

- 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 MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

Ecosystem Protection and Restoration

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

- Natural heritage and hydrologic 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:
    - Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
    - Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
    - Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

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, for projects located in Central Region you may consider the provisions of the Rouge Park Management Plan if applicable.

Species at Risk

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

Surface Water

- The report must include enough 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 report and utilized when designing stormwater control methods. **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 a proposed sewage treatment plant is listed in Table 1 of the regulation, the report should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information. Additionally, an

Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

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 report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report 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 report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that have been prescribed by the Water Taking EASR Regulation – *O. Reg. 63/16*. These prescribed water-taking activities require registration in the EASR instead of a PTTW. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by

this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

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

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. 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. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
  - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. 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.

- 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 appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- 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 MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides 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.

Mitigation and Monitoring

- 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 report 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.

- 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.

- The proponent's construction and post-construction monitoring plans must be documented in the report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout

the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

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**, 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 Section 16 Order Requests under the Environmental Assessment Act, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.

- The report should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage 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 report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

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

Notice of Completion
Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address.

The public can request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Section 16 Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Section 16 Order requests on those matters should be addressed in writing to:

Minister of the Environment, Conservation and Parks

777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of the Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

A PROPONENT'S INTRODUCTION TO THE DELEGATION OF PROCEDURAL ASPECTS OF CONSULTATION WITH ABORIGINAL COMMUNITIES

DEFINITIONS

The following definitions are specific to this document and may not apply in other contexts:

Aboriginal communities – the First Nation or Métis communities identified by the Crown for the purpose of consultation.

Consultation – the Crown's legal obligation to consult when the Crown has knowledge of an established or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. This is the type of consultation required pursuant to s. 35 of the *Constitution Act, 1982*. Note that this definition does not include consultation with Aboriginal communities for other reasons, such as regulatory requirements.

Crown – the Ontario Crown, acting through a particular ministry or ministries.

Procedural aspects of consultation – those portions of consultation related to the process of consultation, such as notifying an Aboriginal community about a project, providing information about the potential impacts of a project, responding to concerns raised by an Aboriginal community and proposing changes to the project to avoid negative impacts.

Proponent – the person or entity that wants to undertake a project and requires an Ontario Crown decision or approval for the project.

I. PURPOSE

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that may adversely impact that right. In outlining a framework for the duty to consult, the Supreme Court of Canada has stated that the Crown may delegate procedural aspects of consultation to third parties. This document provides general information about the Ontario Crown's approach to delegation of the procedural aspects of consultation to proponents.

This document is not intended to instruct a proponent about an individual project, and it does not constitute legal advice.

II. WHY IS IT NECESSARY TO CONSULT WITH ABORIGINAL COMMUNITIES?

The objective of the modern law of Aboriginal and treaty rights is the *reconciliation* of Aboriginal peoples and non-Aboriginal peoples and their respective rights, claims and interests. Consultation is an important component of the reconciliation process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. For example, the Crown's duty to consult is triggered when it considers issuing a permit, authorization or approval for a project which has the potential to adversely impact an Aboriginal right, such as the right to hunt, fish, or trap in a particular area.

The scope of consultation required in particular circumstances ranges across a spectrum depending on both the nature of the asserted or established right and the seriousness of the potential adverse impacts on that right.

Depending on the particular circumstances, the Crown may also need to take steps to accommodate the potentially impacted Aboriginal or treaty right. For example, the Crown may be required to avoid or minimize the potential adverse impacts of the project.

III. THE CROWN'S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

The Crown has the responsibility for ensuring that the duty to consult, and accommodate where appropriate, is met. However, the Crown may delegate the procedural aspects of consultation to a proponent.

There are different ways in which the Crown may delegate the procedural aspects of consultation to a proponent, including through a letter, a memorandum of understanding, legislation, regulation, policy and codes of practice.

If the Crown decides to delegate procedural aspects of consultation, the Crown will generally:

- Ensure that the delegation of procedural aspects of consultation and the responsibilities of the proponent are clearly communicated to the proponent;
- Identify which Aboriginal communities must be consulted;
- Provide contact information for the Aboriginal communities;
- Revise, as necessary, the list of Aboriginal communities to be consulted as new information becomes available and is assessed by the Crown;
- Assess the scope of consultation owed to the Aboriginal communities;

- Maintain appropriate oversight of the actions taken by the proponent in fulfilling the procedural aspects of consultation;
- Assess the adequacy of consultation that is undertaken and any accommodation that may be required;
- Provide a contact within any responsible ministry in case issues arise that require direction from the Crown; and
- Participate in the consultation process as necessary and as determined by the Crown.

IV. THE PROPONENT'S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

Where aspects of the consultation process have been delegated to a proponent, the Crown, in meeting its duty to consult, will rely on the proponent's consultation activities and documentation of those activities. The consultation process informs the Crown's decision of whether or not to approve a proposed project or activity.

A proponent's role and responsibilities will vary depending on a variety of factors including the extent of consultation required in the circumstance and the procedural aspects of consultation the Crown has delegated to it. Proponents are often in a better position than the Crown to discuss a project and its potential impacts with Aboriginal communities and to determine ways to avoid or minimize the adverse impacts of a project.

A proponent can raise issues or questions with the Crown at any time during the consultation process. If issues or concerns arise during the consultation that cannot be addressed by the proponent, the proponent should contact the Crown.

a) What might a proponent be required to do in carrying out the procedural aspects of consultation?

Where the Crown delegates procedural aspects of consultation, it is often the proponent's responsibility to provide notice of the proposed project to the identified Aboriginal communities. The notice should indicate that the Crown has delegated the procedural aspects of consultation to the proponent and should include the following information:

- a description of the proposed project or activity;
- mapping;
- proposed timelines;
- details regarding anticipated environmental and other impacts;
- details regarding opportunities to comment; and
- any changes to the proposed project that have been made for seasonal conditions or other factors, where relevant.

Proponents should provide enough information and time to allow Aboriginal communities to provide meaningful feedback regarding the potential impacts of the project. Depending on the nature of consultation required for a project, a proponent also may be required to:

- provide the Crown with copies of any consultation plans prepared and an opportunity to review and comment;
- ensure that any necessary follow-up discussions with Aboriginal communities take place in a timely manner, including to confirm receipt of information, share and update information and to address questions or concerns that may arise;
- as appropriate, discuss with Aboriginal communities potential mitigation measures and/or changes to the project in response to concerns raised by Aboriginal communities;
- use language that is accessible and not overly technical, and translate material into Aboriginal languages where requested or appropriate;
- bear the reasonable costs associated with the consultation process such as, but not limited to, meeting hall rental, meal costs, document translation(s), or to address technical & capacity issues;
- provide the Crown with all the details about potential impacts on established or asserted Aboriginal or treaty rights, how these concerns have been considered and addressed by the proponent and the Aboriginal communities and any steps taken to mitigate the potential impacts;
- provide the Crown with complete and accurate documentation from these meetings and communications; and
- notify the Crown immediately if an Aboriginal community not identified by the Crown approaches the proponent seeking consultation opportunities.

b) What documentation and reporting does the Crown need from the proponent?

Proponents should keep records of all communications with the Aboriginal communities involved in the consultation process and any information provided to these Aboriginal communities.

As the Crown is required to assess the adequacy of consultation, it needs documentation to satisfy itself that the proponent has fulfilled the procedural aspects of consultation delegated to it. The documentation required would typically include:

- the date of meetings, the agendas, any materials distributed, those in attendance and copies of any minutes prepared;
- the description of the proposed project that was shared at the meeting;
- any and all concerns or other feedback provided by the communities;
- any information that was shared by a community in relation to its asserted or established Aboriginal or treaty rights and any potential adverse impacts of the proposed activity, approval or disposition on such rights;

- any proposed project changes or mitigation measures that were discussed, and feedback from Aboriginal communities about the proposed changes and measures;
- any commitments made by the proponent in response to any concerns raised, and feedback from Aboriginal communities on those commitments;
- copies of correspondence to or from Aboriginal communities, and any materials distributed electronically or by mail;
- information regarding any financial assistance provided by the proponent to enable participation by Aboriginal communities in the consultation;
- periodic consultation progress reports or copies of meeting notes if requested by the Crown;
- a summary of how the delegated aspects of consultation were carried out and the results; and
- a summary of issues raised by the Aboriginal communities, how the issues were addressed and any outstanding issues.

In certain circumstances, the Crown may share and discuss the proponent's consultation record with an Aboriginal community to ensure that it is an accurate reflection of the consultation process.

c) Will the Crown require a proponent to provide information about its commercial arrangements with Aboriginal communities?

The Crown may require a proponent to share information about aspects of commercial arrangements between the proponent and Aboriginal communities where the arrangements:

- include elements that are directed at mitigating or otherwise addressing impacts of the project;
- include securing an Aboriginal community's support for the project; or
- may potentially affect the obligations of the Crown to the Aboriginal communities.

The proponent should make every reasonable effort to exempt the Crown from confidentiality provisions in commercial arrangements with Aboriginal communities to the extent necessary to allow this information to be shared with the Crown.

The Crown cannot guarantee that information shared with the Crown will remain confidential. Confidential commercial information should not be provided to the Crown as part of the consultation record if it is not relevant to the duty to consult or otherwise required to be submitted to the Crown as part of the regulatory process.

V. WHAT ARE THE ROLES AND RESPONSIBILITIES OF ABORIGINAL COMMUNITIES' IN THE CONSULTATION PROCESS?

Like the Crown, Aboriginal communities are expected to engage in consultation in good faith. This includes:

- responding to the consultation notice;
- engaging in the proposed consultation process;
- providing relevant information;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights; and
- discussing ways to mitigate any adverse impacts.

Some Aboriginal communities have developed tools, such as consultation protocols, policies or processes that provide guidance on how they would prefer to be consulted. Although not legally binding, proponents are encouraged to respect these community processes where it is reasonable to do so. Please note that there is no obligation for a proponent to pay a fee to an Aboriginal community in order to enter into a consultation process.

To ensure that the Crown is aware of existing community consultation protocols, proponents should contact the relevant Crown ministry when presented with a consultation protocol by an Aboriginal community or anyone purporting to be a representative of an Aboriginal community.

VI. WHAT IF MORE THAN ONE PROVINCIAL CROWN MINISTRY IS INVOLVED IN APPROVING A PROPONENT'S PROJECT?

Depending on the project and the required permits or approvals, one or more ministries may delegate procedural aspects of the Crown's duty to consult to the proponent. The proponent may contact individual ministries for guidance related to the delegation of procedural aspects of consultation for ministry-specific permits/approvals required for the project in question. Proponents are encouraged to seek input from all involved Crown ministries sooner rather than later.

Client's Guide to Preliminary Screening for Species at Risk

Ministry of the Environment, Conservation and Parks

Species at Risk Branch, Permissions and Compliance

DRAFT - May 2019

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1.0 Purpose, Scope, Background and Context

1.1 Purpose of this Guide

This guide has been created to:

- help clients better understand their obligation to gather information and complete a preliminary screening for species at risk before contacting the ministry,
- outline guidance and advice clients can expect to receive from the ministry at the preliminary screening stage,
- help clients understand how they can gather information about species at risk by accessing publicly available information housed by the Government of Ontario, and
- provide a list of other potential sources of species at risk information that exist outside the Government of Ontario.

It remains the client's responsibility to:

- carry out a preliminary screening for their projects,
- obtain best available information from all applicable information sources,
- conduct any necessary field studies or inventories to identify and confirm the presence or absence of species at risk or their habitat,
- consider any potential impacts to species at risk that a proposed activity might cause, and
- comply with the *Endangered Species Act* (ESA).

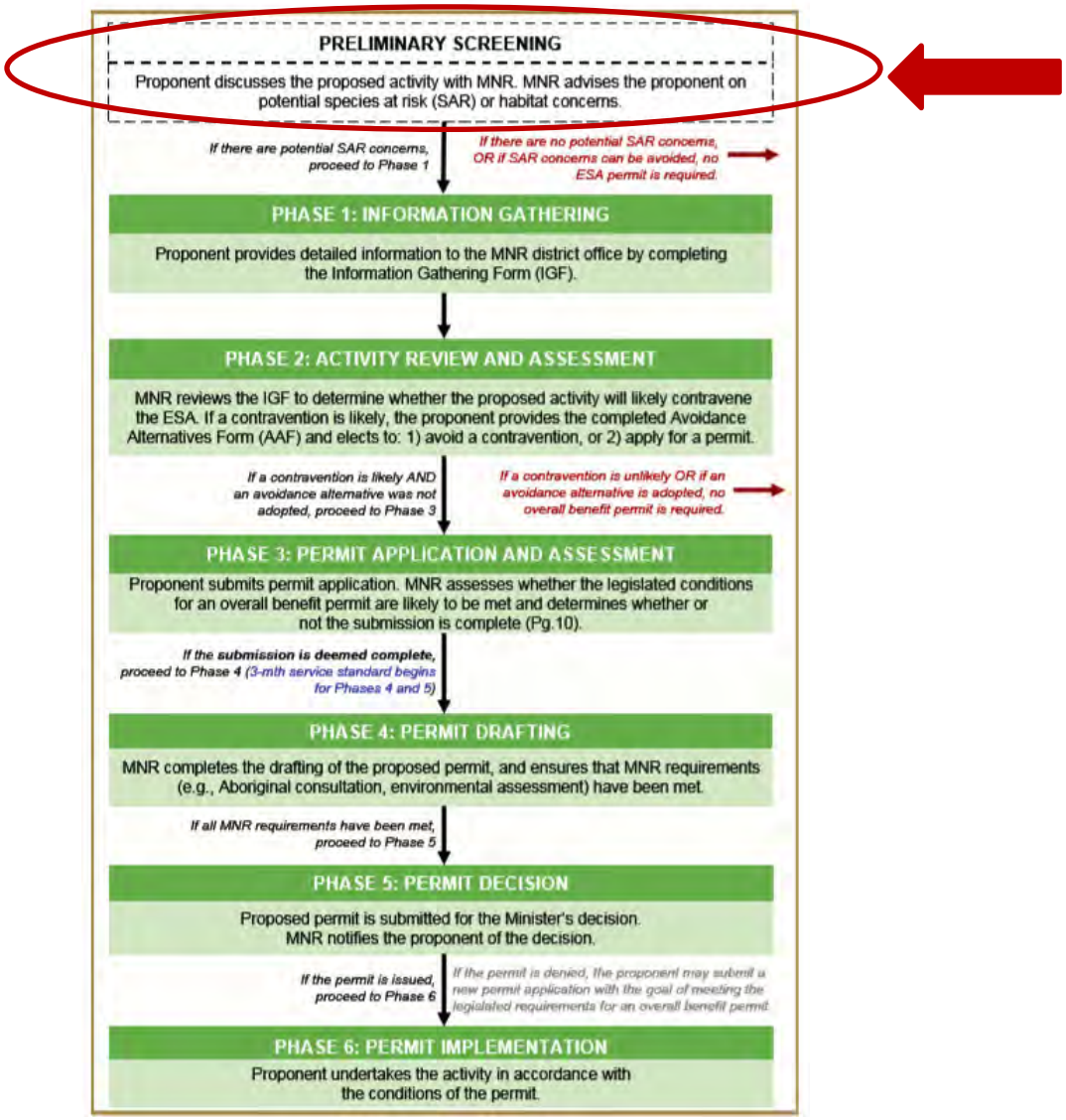
To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide, at a minimum, prior to contacting Government of Ontario ministry offices for further information or advice.

1.2 Scope

This guide is a resource for clients seeking to understand if their activity is likely to impact species at risk or if they are likely to trigger the need for an authorization under the ESA. It is not intended to circumvent any detailed site surveys that may be necessary to document species at risk or their habitat nor to circumvent the need to assess the impacts of a proposed activity on species at risk or their habitat. This guide is not an exhaustive list of available information sources for any given area as the availability of information on species at risk and their habitat varies across the province. This guide is intended to support projects and activities carried out on Crown and private land, by private landowners, businesses, other provincial ministries and agencies, or municipal government.

1.3 Background and Context

To receive advice on their proposed activity, clients must first determine whether any species at risk or their habitat exist or are likely to exist at or near their proposed activity, and whether their proposed activity is likely to contravene the ESA. Once this step is complete, clients may contact the ministry at SAROntario@ontario.ca to discuss the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. At this stage, the ministry can provide advice and guidance to the client about potential species at risk or habitat concerns, measures that the client is considering to avoid adverse effects on species at risk or their habitat and whether additional field surveys are advisable. This is referred to as the "Preliminary Screening" stage. For more information on additional phases in the diagram below, please refer to the *Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits* policy available online at https://www.ontario.ca/page/species-risk-overall-benefit-permits. Please note: any reference to MNR in the diagram is replaced by MECP.



2.0 Roles and Responsibilities

To provide the most efficient service, clients should initiate species at risk screenings and seek information from all applicable information sources identified in this guide prior to contacting Government of Ontario ministry offices for further information or advice.

Step 1: Client seeks information regarding species at risk or their habitat that exist, or are likely to exist, at or near their proposed activity by referring to all applicable information sources identified in this guide.

Step 2: Client reviews and consider guidance on whether their proposed activity is likely to contravene the ESA (see section 3.4 of this guide for guidance on what to consider).

Step 3: Client gathers information identified in the checklist in section 4 of this guide.

Step 4: Client contacts the ministry at SAROntario@ontario.ca to discuss their preliminary screening. Ministry staff will ask the client questions about the main purpose, general methods, timing and location of their proposed activity as well as information obtained about species at risk and their habitat at, or near, the site. Ministry staff will also ask the client for their interpretation of the impacts of their activity on species at risk or their habitat as well as measures the client has considered to avoid any adverse impacts.

Step 5: Ministry staff will provide advice on next steps.

Option A: Ministry staff may advise the client they can proceed with their activity without an authorization under the ESA where the ministry is confident that:

- no protected species at risk or habitats are likely to be present at or near the proposed location of the activity; or
- protected species at risk or habitats are known to be present but the activity is not likely to contravene the ESA; or
- through the adoption of avoidance measures, the modified activity is not likely to contravene the ESA.

Option B: Ministry staff may advise the client to proceed to Phase 1 of the overall benefit permitting process (i.e. Information Gathering in the previous diagram), where:

- there is uncertainty as to whether any protected species at risk or habitats are present at or near the proposed location of the activity; or
- the potential impacts of the proposed activity are uncertain; or
- ministry staff anticipate the proposed activity is likely to contravene the ESA.

3.0 Information Sources

Land Information Ontario (LIO) and the Natural Heritage Information Centre (NHIC) maintain and provide information about species at risk, as well as related information about fisheries, wildlife, crown lands, protected lands and more. This information is made available to organizations, private individuals, consultants, and developers through online sources and is often considered under various pieces of legislation or as part of regulatory approvals and planning processes.

The information available from LIO or NHIC and the sources listed in this guide should not be considered as a substitute for site visits and appropriate field surveys. Generally, this information can be regarded as a starting point from which to conduct further field surveys, if needed. While this data represents best available current information, it is important to note that a lack of information for a site does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. The absence of species at risk location data at or near your site does not necessarily mean no species at risk are present at that location. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats.

Information on the location (i.e. observations and occurrences) of species at risk is considered sensitive and therefore publicly available only on a 1km square grid as opposed to as a detailed point on a map. This generalized information can help you understand which species at risk are in the general vicinity of your proposed activity and can help inform field level studies you may want to undertake to confirm the presence, or absence of species at risk at or near your site.

Should you require specific and detailed information pertaining to species at risk observations and occurrences at or near your site on a finer geographic scale; you will be required to demonstrate your need to access this information, to complete data sensitivity training and to obtain a Sensitive Data Use License from the NHIC. Information on how to obtain a license can be found online at https://www.ontario.ca/page/get-natural-heritage-information.

Many organizations (e.g. other Ontario ministries, municipalities, conservation authorities) have ongoing licensing to access this data so be sure to check if your organization has this access and consult this data as part of your preliminary screening if your organization already has a license.

3.1 Make a Map: Natural Heritage Areas

The Make a Natural Heritage Area Map (available online at https://www.ontario.ca/page/make-natural-heritage-area-map provides public access to natural heritage information, including species at risk, without the user needing to have Geographic Information System (GIS) capability. It allows users to view and identify generalized species at risk information, mark areas of interest, and create and print a custom map directly from the web application. The tool also shows topographic information such as roads, rivers, contours and municipal boundaries.

Users are advised that sensitive information has been removed from the natural areas dataset and the occurrences of species at risk has been generalized to a 1-kilometre grid to mitigate the risks to the species (e.g. illegal harvest, habitat disturbance, poaching).

The web-based mapping tool displays natural heritage data, including:

- Generalized Species at risk occurrence data (based on a 1-km square grid),
- Natural Heritage Information Centre data.

Data cannot be downloaded directly from this web map; however, information included in this application is available digitally through Land Information Ontario (LIO) at https://www.ontario.ca/page/land-information-ontario.

3.2 Land Information Ontario (LIO)

Most natural heritage data is publicly available. This data is managed in a large provincial corporate database called the LIO Warehouse and can be accessed online through the LIO Metadata Management Tool at https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home. This tool provides descriptive information about the characteristics, quality and context of the data. Publicly available geospatial data can be downloaded directly from this site.

While most data are publicly available, some data may be considered highly sensitive (i.e. nursery areas for fish, species at risk observations) and as such, access to some data maybe restricted.

3.3 Additional Species at Risk Information Sources

- The Breeding Bird Atlas can be accessed online at http://www.birdsontario.org/atlas/index.jsp?lang=en
- eBird can be accessed online at https://ebird.org/home
- iNaturalist can be accessed online at https://www.inaturalist.org/
- The Ontario Reptile and Amphibian Atlas can be accessed online at https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas
- Your local Conservation Authority. Information to help you find your local Conservation Authority can be accessed online at https://conservationontario.ca/conservation-authorities/find-a-conservation-authority/

  Local naturalist groups or other similar community-based organizations
- Local Indigenous communities
- Local land trusts or other similar Environmental Non-Government Organizations
- Field level studies to identify if species at risk, or their habitat, are likely present or absent at or near the site.
- When an activity is proposed within one of the continuous caribou ranges, please be sure to consider the caribou Range Management Policy. This policy includes figures and maps of the continuous caribou range, can be found online at https://www.ontario.ca/page/range-management-policy-support-woodland-caribou-conservation-and-recovery

3.4 Information Sources to Support Impact Assessments

- Guidance to help you understand if your activity is likely to adversely impact species at risk or their habitat can be found online at https://www.ontario.ca/page/policy-guidance-harm-and-harass-under-endangered-species-act and https://www.ontario.ca/page/categorizing-and-protecting-habitat-under-endangered-species-act
- A list of species at risk in Ontario is available online at https://www.ontario.ca/page/species-risk-ontario. On this webpage, you can find out more about each species, including where is lives, what threatens it and any specific habitat protections that apply to it by clicking on the photo of the species.

4.0 Check-List

Please feel free to use the check list below to help you confirm you have explored all applicable information sources and to support your discussion with Ministry staff at the preliminary screening stage.

- ✓ Land Information Ontario (LIO)
- ✓ Natural Heritage Information Centre (NHIC)
- ✓ The Breeding Bird Atlas
- ✓ eBird
- ✓ iNaturalist
- ✓ Ontario Reptile and Amphibian Atlas
- ✓ List Conservation Authorities you contacted:_____

  _____
- ✓ List local naturalist groups you contacted:_____

  _____
- ✓ List local Indigenous communities you contacted:_____

  _____
- ✓ List any other local land trusts or Environmental Non-Government Organizations you contacted:_____

  _____
- ✓ List and field studies that were conducted to identify species at risk, or their habitat, likely to be present or absent at or near the site: _____

  _____
- ✓ List what you think the likely impacts of your activity are on species at risk and their habitat (e.g. damage or destruction of habitat, killing, harming or harassing species at risk):_____

  _____

Ministry of Natural Resources

GFT

From: Van Ruyven, William
Sent: Friday, May 31, 2024 3:07 PM
To: Bale, Sarah (MNRF)
Cc: Joe de Koning
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Thank you, Sarah,

We will work with our natural environment specialist to evaluate the natural heritage and ensure we are compliant with the requirements.

Have a nice weekend,

William Van Ruyven

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

From: Bale, Sarah (MNRF) <Sarah.Bale@ontario.ca>
Sent: Friday, May 31, 2024 1:56 PM
To: Joe de Koning <joedk@wellington.ca>
Cc: Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Joe/William:

The Ministry of Natural Resources and Forestry (MNRF) received the Notice of Commencement for Wellington Rd 32, Blatchford Bridge No. B032085 on May 31, 2024. Thank you for circulating this to our office. Please note the ministry has not completed a screening of natural heritage, natural hazards, other natural resource values, or applicable ministry permits or approvals at this time.

This response provides information to guide you in identifying ministry interests and engaging the ministry for advice as needed. MNRF has prepared the attached document to provide proponents an overview of MNRF mandated interests and the ministry's commenting role in respect of external requests for comment for projects subject to the *Environmental Assessment Act*.

Please note it is the proponent's responsibility to be aware of, and comply with, all relevant federal or provincial legislation, municipal by-laws and/or other agency approvals.

After reviewing the information provided, if you have identified that your project would not impact any MNRF interests there is no need to circulate any subsequent notices to our office. If you have identified MNRF interests and/or may require permit(s) or further technical advice, please direct your specific questions to the undersigned.

If you have any questions or concerns, please feel free to contact me.

Best Regards,

Sarah Bale
Regional Planner | Land Use Planning and Strategic Issues Section Southern Region
Ministry of Natural Resources and Forestry | Ontario Public Service
613-504-2254 | sarah.bale@ontario.ca

Ontario

Taking pride in strengthening Ontario, its places and its people

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From: Hartman, Gillian (She/Her) (MNRF) <Gillian.Hartman@ontario.ca>
Sent: Friday, May 31, 2024 9:39 AM
To: Southern Region Planning Inbox (MNRF) <SR.Planning@ontario.ca>
Subject: FW: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

---

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 8:43 AM
To: Hartman, Gillian (She/Her) (MNRF) <Gillian.Hartman@ontario.ca>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: FW: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Morning Gillian,

I received an auto reply for the MNRF.Ayl.Planners@ontario.ca address indicating it is being decommissioned and redirecting this notice to you. Please see the email below and attached notice.

Kind regards,
William Van Ruyven

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 6:58 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <JoeDK@wellington.ca>
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Ministry of Natural Resources and Forestry

Land Use Planning and Strategic Issues Section
Southern Region

Regional Operations Division
300 Water Street
Peterborough, ON K9J 3C7
Tel.: 705 761-4839

Ministère des Richesses naturelleset des Forêts

Section de l'aménagement du territoire et des questions stratégiques
Région du Sud

Division des opérations régionales
300, rue Water
Peterborough (ON) K9J 3C7
Tél. : 705 761-4839

Ontario

May 31, 2024

Joe de Koning, P. Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph, Ontario N1H 3T9
T. 519-837-2601 x 2270
joedk@wellington.ca

SUBJECT: County of Wellington, Wellington Road 32, Blatchford Bridge No. B032085; Township of Guelph/Eramosa and Township of Puslinch, Ontario | Schedule B Municipal Class Environmental Assessment

The Ministry of Natural Resources and Forestry (MNRF) received the Notice of Study Commencement on May 31, 2024. Thank you for circulating this to our office. Please note that we have not competed a screening of natural heritage or other resource values for the project at this time. This response, however, does provide information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, as well as engaging with the Ministry for advice as needed.

Please also note that it is the proponent's responsibility to be aware of, and comply with, all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

Natural Heritage

MNRF's natural heritage and natural resources GIS data layers can be obtained through the Ministry's Land Information Ontario (LIO) website. You may also view natural heritage information online (e.g., Provincially Significant Wetlands, ANSI's, woodlands, etc.) using the Make a Map: Natural Heritage Areas tool.

We recommend that you use the above-noted sources of information during the review of your project proposal.

Natural Hazards

A series of natural hazard technical guides developed by MNRF are available to support municipalities and conservation authorities implement the natural hazard policies in the Provincial Policy Statement (PPS). For example, standards to address flood risks and the potential impacts and costs from riverine flooding are addressed in the *Technical Guide River and Stream Systems: Flooding Hazard Limit (2002)*. We recommend that you consider these technical guides as you assess specific improvement projects that can be undertaken to reduce the risk of flooding.

Petroleum Wells & Oil, Gas and Salt Resources Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best-known data on any wells recorded by MNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the library website to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Fish and Wildlife Conservation Act

Please note, that should the project require:

- The relocation of fish outside of the work area, a Licence to Collect Fish for Scientific Purposes under the *Fish and Wildlife Conservation Act* will be required.
- The relocation of wildlife outside of the work area (including amphibians, reptiles, and small mammals), a Wildlife Collector's Authorization under the *Fish and Wildlife Conservation Act* will be required.

Public Lands Act & Lakes and Rivers Improvement Act

Some Project may be subject to the provisions of the *Public Lands Act* or *Lakes and River Improvement Act*. Please review the information on MNRF's web pages provided below regarding when an approval is, or is not, required. Please note that many of the authorizations under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/page/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of MNRF's interests stated above, there is no need to circulate any subsequent notices to our office. If you have identified any of MNRF's interests and/or may require permit(s) or further technical advice, please direct your specific questions to the undersigned.

If you have any questions or concerns, please feel free to contact me.

Best Regards,



Regional Planner | Land Use Planning and Strategic Issues Section Southern Region
Ministry of Natural Resources and Forestry | Ontario Public Service
613-504-2254 | sarah.bale@ontario.ca

Ministry of Citizenship and Multiculturalism

GFT

Van Ruyven, William

From: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca> on behalf of Registrar (MCM) <Registrar@ontario.ca>
Sent: Monday, June 3, 2024 8:43 AM
To: Becca Clark
Cc: Kirstyn Allam; Van Ruyven, William; Registrar (MCM); Harvey, Joseph (MCM)
Subject: MCM Response: Blatchford Bridge Inquiry, Wellington County
Attachments: 23CH105_Fig1.jpg

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

MCM File 0021813 - Wellington Road 32, Blatchford Bridge No. B032085

Hi Becca,

Hope this email finds you well!

As you may know, the Ministry developed screening checklists to assist property owners, developers, consultants and others to identify known and potential cultural heritage resources:
· Criteria for Evaluating Archaeological Potential
· Criteria for Evaluating Marine Archaeological Potential
· Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes

I have used the document above (Built Heritage Resources and Cultural Heritage Landscapes) in order to respond to your question:

- Question 3a. i. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value e.g. a property that is designated by order of the Minister of Citizenship and Multiculturalism as being of cultural heritage value or interest of provincial significance [s.34.5]?
  MCM Response: To date, no properties have been designated by the Minister.

- Question 3a.v. Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value included in the Ministry of Citizenship and Multiculturalism's list of provincial heritage properties?
  MCM Response: At this time, we are not aware of any provincial heritage property within or adjacent to the study area.

  Please note that if the subject lands or parts of the subject lands are owned or controlled by an Ontario Ministry or Prescribed Public Body (PPB) on behalf of the Crown (the list of PPBs is available as O. Reg. 157/10), a Ministry or PPB may have responsibilities under the Standards and Guidelines for Conservation of Provincial Heritage Properties.

The Blatchford Bridge has potential cultural heritage value or interest. Please refer to pages 208-209 of the Arch, Truss & Beam – The Grand River Watershed Heritage Bridge Inventory (March 2013).

Regarding other protected heritage properties (e.g., designated under Part IV or V of the OHA; easement properties) and provincial plaques within or adjacent to the study area, you should contact the Ontario Heritage Trust, Provincial Heritage Registrar at registrar@heritagetrust.on.ca and the municipal planner.

MCM would appreciate if any technical cultural heritage studies (e.g., Cultural Heritage Report, Heritage Impact Assessment) be sent for our review as part of an environmental assessment process.

I hope this helps. Let me know if you have any questions.

Kind regards,
Karla

Karla Barboza, MCIP, RPP, CAHP (she/her)
Team Lead, Heritage | Heritage Branch | Citizenship, Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
416-660-1027 | karla.barboza@ontario.ca

Ontario

From: Becca Clark <bclark@asiheritage.ca>
Sent: Monday, May 27, 2024 10:23 AM
To: Registrar (MCM) <Registrar@ontario.ca>
Cc: Kirstyn Allam <kallam@asiheritage.ca>; wvanruyven@GFNET.com
Subject: Blatchford Bridge Inquiry, Wellington County

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good morning Karla,

ASI has been retained by Gannett Fleming to conduct a Cultural Heritage Evaluation Report as part of the Blatchford Bridge (Structure #B032085) project in the County of Wellington. I have attached a map that outlines the study area where we are conducting our assessment. Following a search of previously identified cultural heritage resources within the study area using local, municipal, and provincial heritage inventories and other previously completed cultural heritage reports, it has been determined that there are no properties of provincial significance within the study area.

I am reaching out today to confirm that we have not missed any known cultural heritage resources that have been recognized at the provincial level within the study area in our search. Can you confirm that the subject bridge is not a provincial heritage property or designated by the Minister, and that it is not adjacent to any such properties? We are currently targeting the end of June for the completion of our Cultural Heritage Report and would appreciate any feedback you may be able to provide by then.

Kind regards,
Becca Clark

Becca Clark, BA she/her
Technical Writer and Researcher | Project Administrator - Cultural Heritage Division

ASI • Providing Archaeological & Cultural Heritage Services
BClark@asiheritage.ca • 416 966 1069 x 228 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca

From: Van Ruyven, William
Sent: Monday, July 22, 2024 3:25 PM
To: Harvey, Joseph (MCM)
Cc: Joe de Koning; Mucsi, Greg
Subject: RE: File 0021813: Blatchford Bridge (B032085) Municipal Class Environmental Assessment -CHER Review

Hi Joseph,

Thank you for your review and input on the CHER. You're comments will be relayed to the author and incorporated in the final report.

Kind regards,

William

William Van Ruyven, P.Eng., PMP
Gannett Fleming
c 647.280.5895

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From: Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>
Sent: Monday, July 22, 2024 1:34 PM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <joedk@wellington.ca>; Mucsi, Greg <gmucsi@GFNET.com>
Subject: RE: File 0021813: Blatchford Bridge (B032085) Municipal Class Environmental Assessment - CHER Review

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

William Van Ruyven,

Please find attached our comments on the Cultural Heritage Evaluation Report prepared in support of the above referenced undertaking.

Please do not hesitate to contact me with any questions or concerns.

Regards,

Joseph Harvey
Heritage Planner | Heritage Branch | Citizenship Inclusion and Heritage Division

Ministry of Citizenship and Multiculturalism | Ontario Public Service
613.242.3743 | Joseph.Harvey@ontario.ca

Ontario

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Thursday, July 4, 2024 3:18 PM
To: Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>
Cc: Joe de Koning <joedk@wellington.ca>; Mucsi, Greg <gmucsi@GFNET.com>
Subject: RE: File 0021813: Blatchford Bridge (B032085) Municipal Class Environmental Assessment - CHER Review

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Hi Joseph,

See the attached CHER for your review and comment.

Kind regards,
William

William Van Ruyven, P.Eng., PMP
Gannett Fleming
c 647.280.5895

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From: Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>
Sent: Tuesday, June 18, 2024 2:21 PM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: FW: File 0021813: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

William Van Ruyven,

Please find attached our initial advice on the above referenced undertaking.

Please do not hesitate to contact me with any questions or concerns.

Regards,

Joseph Harvey
Heritage Planner | Heritage Branch | Citizenship Inclusion and Heritage Division
Ministry of Citizenship and Multiculturalism | Ontario Public Service
613.242.3743 | Joseph.Harvey@ontario.ca

Ontario

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 6:58 AM
To: Barboza, Karla (She/Her) (MCM) <Karla.Barboza@ontario.ca>; katherine.kirzati@ontario.ca; Harvey, Joseph (MCM) <Joseph.Harvey@ontario.ca>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Ministry of Citizenship and Multiculturalism

Heritage Planning Unit
Heritage Branch
Citizenship, Inclusion and Heritage Division
5th Flr, 400 University Ave
Tel.: 613.242.3743

Ministère des Affaires civiques et du Multiculturalisme

Unité de la planification relative au patrimoine
Direction du patrimoine
Division des affaires civiques, de l'inclusion et du patrimoine
Tél.: 613.242.3743

Ontario

June 18, 2024 EMAIL ONLY

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
joedk@wellington.ca

MCM File	**:**	**0021813**
Proponent	**:**	**County of Wellington**
Subject	**:**	**Notice of Study Commencement – Schedule B – Municipal Class Environmental Assessment**
Project	**:**	**Wellington Road 32, Blatchford Bridge No. B032085**
Location	**:**	**County of Wellington**

Dear Joe de Koning:

Thank you for providing the Ministry of Citizenship and Multiculturalism (MCM) with the Notice of Study Commencement for the above-referenced project.

MCM's interest in this environmental assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- archaeological resources (including land and marine);
- built heritage resources (including bridges and monuments); and
- cultural heritage landscapes.

Project Summary
The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Identifying Cultural Heritage Resources
While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation.

Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to these communities.

Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Municipal Heritage Bridges: Cultural, Heritage & Archaeological Resources Assessment Checklist
Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources. The Municipal Engineers Association prepared a checklist in consultation with MCM to assist with undertaking cultural heritage due diligence as per the requirements of the Municipal Class EA. Further information can be found in their website:

- Municipal Bridges – Criteria for Evaluating Potential for Cultural Heritage Resources (revised July 7, 2023) – Checklist: https://municipalclassea.ca/files/Clarifications/2023/15%20-%20Municipal%20Bridge%20Checklist%20Accepted%20by%20MCM%20July%207%202023.pdf
- Heritage Bridges presentation material: https://municipalclassea.ca/files/Clarifications/2023/14%20-%20Webinar%20-%20Heritage%20Bridge%20Checklist%20April%2027%202023%20final%20for%20May%2016%202023%20webinar.pdf

Part A – Municipal Class EA Activity Selection
Please use the checklist referenced above to determine the Municipal Class EA schedule (A, A+, B or C) for the project. Completing the remainder of this checklist determines what technical cultural heritage studies may be required.

Part B - Screening for Built Heritage Resources and Cultural Heritage Landscapes
If Part B of the checklist determines that the bridge or study area warrants the preparation of a Cultural Heritage Evaluation Report (CHER), and the undertaking of a Heritage Impact Assessment (HIA), please note that CHERs and HIAs are to be prepared by qualified heritage consultants. Please send CHERs and/or HIAs to MCM for review and comment and make copies available to local organizations or individuals who have expressed an interest in cultural heritage as early as possible during the planning phase and prior to the completion of the EA process.

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person to undertake technical cultural heritage studies as identified at the end of Part B.

Part C – Screening for Archaeological Resources
If Part C of the checklist determines that an archaeological assessment is required, you will need to hire an archaeologist licensed under the *Ontario Heritage Act*.

For more information on archaeological assessments and a list of licensed archaeologists in Ontario:

- https://www.ontario.ca/page/archaeological-assessments and
- https://www.ontario.ca/page/archaeologists-licensed-ontario

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a licensed archaeologist to undertake an archaeological assessment.

Environmental Assessment Reporting
After completing the checklist, please update MCM on the project Class EA schedule and whether any technical cultural heritage studies will be completed for the project.

All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please provide all technical cultural heritage studies to MCM as early as possible during the planning phase and prior to the issuance of a Notice of Completion or any ground disturbing activities.

If the screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Please note that the responsibility for administration of the *Ontario Heritage Act* and matters related to cultural heritage have been transferred from the Ministry of Tourism, Culture and Sport (MTCS) to the Ministry of Citizenship and Multiculturalism (MCM). Please remove Katherine Kirzati as she has retired from the Ontario Public Service from circulation and send any notices, reports and/or documentation to both Karla Barboza and me.

- Karla Barboza, Team Lead - Heritage | Heritage Planning Unit (Citizenship and Multiculturalism) | 416-660-1027 | karla.barboza@ontario.ca
- Joseph Harvey, Heritage Planner | Heritage Planning Unit (Citizenship and Multiculturalism) | 613. 242. 3743 | joseph.harvey@ontario.ca

Thank you for consulting MCM on this project. Please continue to do so through the EA process and contact me for any questions or clarification.

Sincerely,

Joseph Harvey
Heritage Planner
Heritage Planning Unit
joseph.harvey@Ontario.ca

Copied to: William Van Ruyven, Consultant Project Manager, Gannett Fleming Canada ULC

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. The Ministry of Citizenship and Multiculturalism (MCM) makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MCM be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out an archaeological assessment, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33* requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play in the disposition of the remains, in accordance with *Ontario Regulation 30/11* the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*.

Enbridge

GFT

From: Van Ruyven, William
Sent: Friday, May 31, 2024 8:24 AM
To: Kevin Schimus
Cc: Joe de Koning
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Thanks Kevin, appreciate the quick reply as always.

William Van Ruyven, P.Eng., PMP
Gannett Fleming
c 647.280.5895

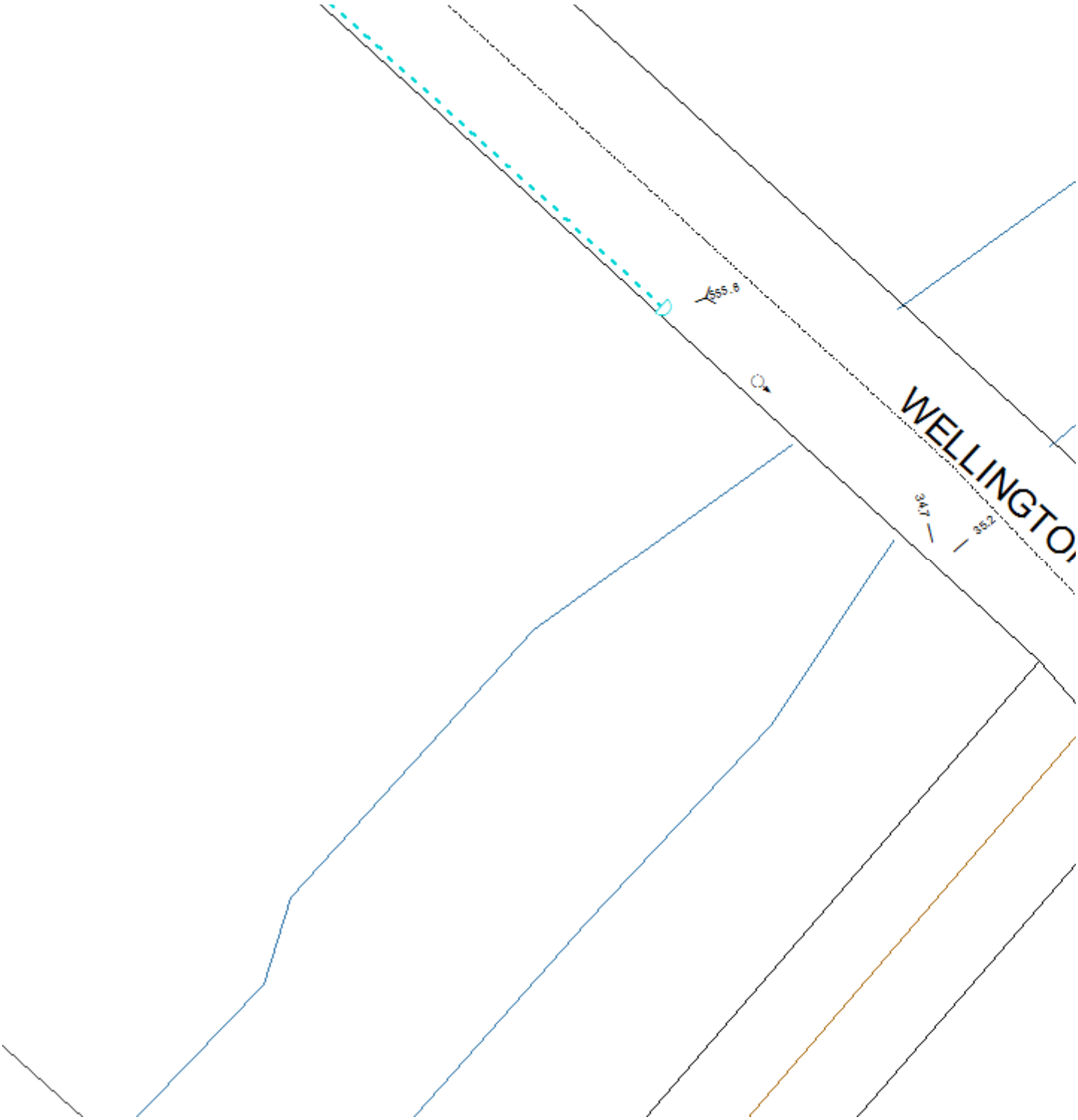
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From: Kevin Schimus <Kevin.Schimus@enbridge.com>
Sent: Friday, May 31, 2024 8:19 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi William,

Enbridge Gas does not have any existing infrastructure on this bridge. The existing NPS 2 PE distribution gas main stops on either side. You can remove me from distribution list for this project.



Regards,

Kevin Schimus
Sr. Advisor, Construction and Project Management
Southeast Region Construction and Growth

Enbridge Gas Inc
Cell: 519-635-9488 | Kevin.Schimus@enbridge.com
603 Kumpf Drive, Waterloo, Ontario, N2V 1K3

enbridgegas.com
Safety. Integrity. Respect. Inclusion.

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 6:58 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: [External] Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

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Were you expecting this email? TAKE A CLOSER LOOK. Is the sender legitimate?
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Good Morning,

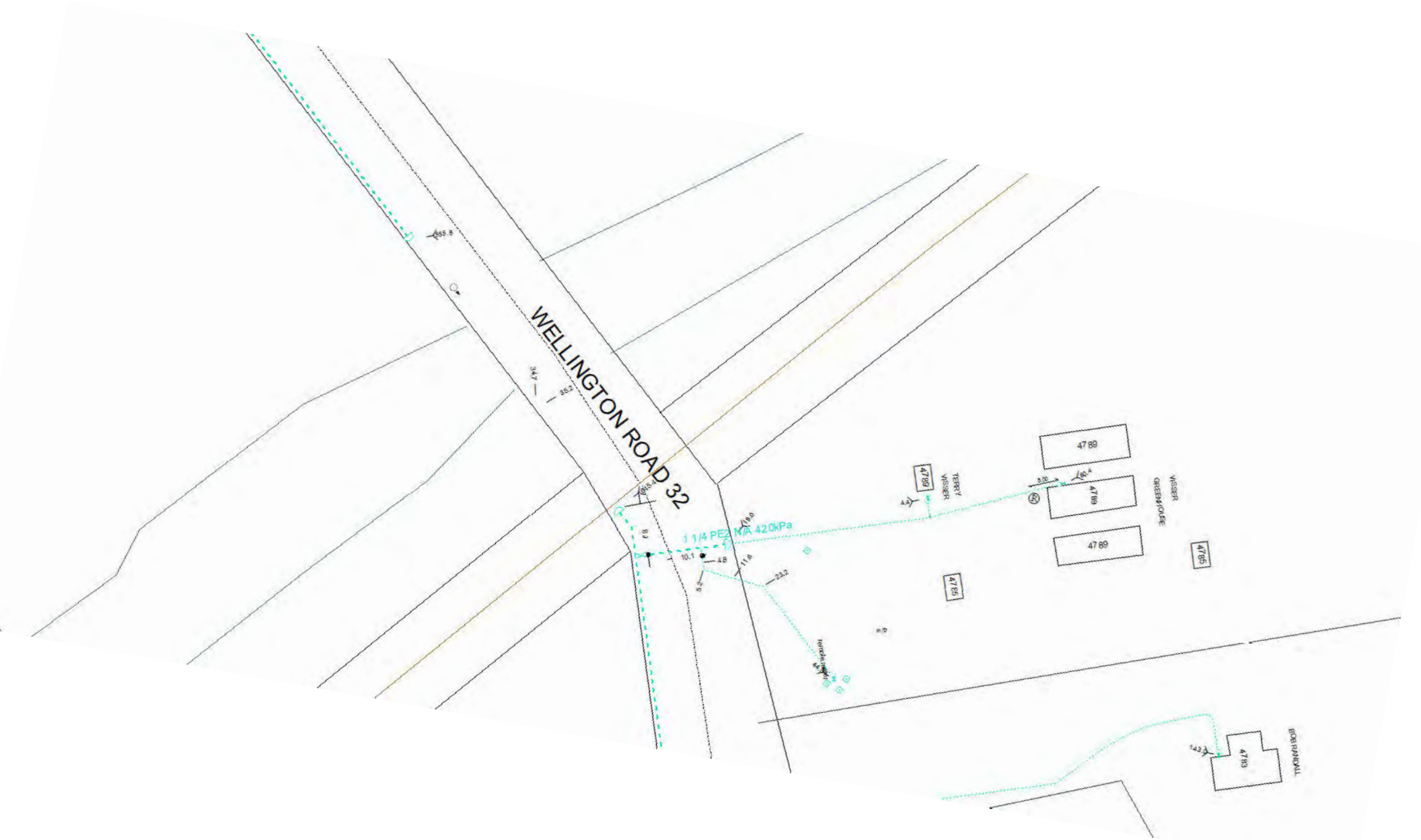
This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279


WELLINGTON ROAD 32
1 1/4 PE2 NA 420kPa
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TERRY VISSER
VISSER GREENHOUSE
BOB FARRALL
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6.4
5.8
14.3

Bell

GFT

Outlook

RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Bell

From Creed, Katelyn <katelyn.creed@bell.ca>
Date Mon 3/2/2026 10:12 AM
To Salvatore Costanzo <scostanzo@gftinc.com>

2 attachments (12 KB)
image002.jpg; image003.png;

> **[EXTERNAL EMAIL]:** This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good Morning Salvatore,

It looks like we have 100PR copper cable that runs through a duct on the east side of the current structure.

Let me know if you need any other details

Thank you

Bell

Katelyn Creed

Implementation Manager,

Network Provisioning

Flr 3,20 Cork St East

Guelph, N1H-2W7

M: 226-388-0180

katelyn.creed@bell.ca

From: Salvatore Costanzo <scostanzo@gftinc.com >
Sent: March-02-26 10:06 AM
To: Creed, Katelyn <katelyn.creed@bell.ca >
Subject: [EXT]RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Bell

Hi Katelyn,

Just wondering if you have availability to confirm this request this week?

Regards,

Salvatore Costanzo

Bridge Designer

1 Adelaide Street East, Suite 2320, Toronto, ON M5C 2V9

E: scostanzo@gftinc.com

C: 519-546-9141

gftinc.com | Stay connected: *LinkedIn* | *Instagram* | *Facebook*



Ingenuity That Shapes Canada

From: Salvatore Costanzo
Sent: Thursday, February 26, 2026 3:14 PM

To: Creed, Katelyn <katelyn.creed@bell.ca>
Subject: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Bell

Hi Katelyn,

We are currently working with the County of Wellington to prepare the rehabilitation/replacement design for the Blatchford Bridge Structure:

- *Blatchford Bridge (B032085), 600m South of Wellington Road 124. Location: 43°29'03.4 "N 80°16'55.9 "W - Google Maps

I believe I have previously reach out a few years ago but didn't get a response from another contact. I would appreciate your assistance in identifying any existing or planned utilities within 100 m of the structure so that we can evaluate any potential impacts.

Please let me know if you require any more information.

Thank you,

Salvatore Costanzo

Bridge Designer

1 Adelaide Street East, Suite 2320, Toronto, ON M5C 2V9

E: scostanzo@gftinc.com

C: 519-546-9141

gftinc.com | Stay connected: *LinkedIn* | *Instagram* | *Facebook*

Ingenuity That Shapes Canada

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External Email: *Please use caution when opening links and attachments /* ***Courriel externe:*** *Soyez prudent avec les liens et documents joints*

Telus

GFT

From: Van Ruyven, William
Sent: Friday, May 31, 2024 4:01 PM
To: Engineering Requests
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Thank you for the prompt response. We will follow up with OneCall accordingly.
Kind regards,

William Van Ruyven, P.Eng., PMP

Information from this correspondence may be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

From: alryan.pineda@telus.com <alryan.pineda@telus.com> **On Behalf Of** Engineering Requests
Sent: Friday, May 31, 2024 11:01 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Subject: Re: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi

TELUS has no underground infrastructure in the area of your proposed work.

Kindly request a locate from One Call first. Also, submit a formal plan of your proposed work area.

TELUS Planning Requests & Utility Mark-ups

TELUS Planning requests are now part of the Ontario One call website (Ontario One Call). Please submit all TELUS planning inquiries using the existing "Request a Locate" process. You will receive an automated response from TELUS within minutes of your submission. If there are any potential conflict after review of our response, email Engineering.Requests@telus.com for further assistance.

Thank you.

On Fri, May 31, 2024 at 7:01 AM Van Ruyven, William <wvanruyven@gfnet.com> wrote:

> Good Morning,
>
> This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:

www.wellington.ca/blatchfordEA

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

Kind regards,

William Van Ruyven, P.Eng., PMP

Consultant Project Manager

Gannett Fleming Canada ULC

Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Hydro One

GFT

Outlook

RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Hydro One

From SECONDARY LAND USE Department <Department.SecondaryLandUse@hydroone.com>
Date Wed 10/16/2024 2:39 PM
To Costanzo, Salvatore T. <scostanzo@GFNET.com>
Cc SECONDARY LAND USE Department <Department.SecondaryLandUse@hydroone.com>

2 attachments (283 KB)
20240605-NoticeOfCommence-Wellington Road 32, Blatchford Bridge.pdf; 19818.pdf;

IRONSCALES couldn't recognize this email as this is the first time you received an email from this sender Department.SecondaryLandUse @ hydroone.com

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good afternoon,

Please find attached Hydro One Response on June 5, 2024, and map for your reference.

If you require further information, please let me know.

Thanks,

Susan

From: Costanzo, Salvatore T. <scostanzo@GFNET.com >
Sent: Wednesday, October 16, 2024 1:33 PM
To: w.d.kloostra@hydroone.com
Cc: SECONDARY LAND USE Department <Department.SecondaryLandUse@hydroone.com >
Subject: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Hydro One

You don't often get email from scostanzo@gfnet.com. Learn why this is important

*** Exercise caution. This is an EXTERNAL email. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hello,

Gannett Fleming is currently working with the County of Wellington to prepare the rehabilitation/replacement design for the Blatchford Bridge Structure:

- * Blatchford Bridge (B032085), 600m South of Wellington Road 124. Location: 43°29'03.4 "N 80°16'55.9 "W - Google Maps

I would appreciate your assistance in identifying any existing or planned utilities within 100 m of the structure so that we can evaluate any potential impacts.

Please let me know if you require any more information.

Thank you,

Salvatore Costanzo | Associate Designer, Bridge

Gannett Fleming TranSystems

Royal Bank Plaza, Suite 1600, South Tower, 200 Bay Street, Toronto, ON M5J 2J3
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Hydro One Networks Inc.

483 Bay Street
8th Floor South Tower
Toronto, Ontario M5G 2P5

HydroOne.com

June 05, 2024

Re: Wellington Road 32, Blatchford Bridge

Attention:
Joe de Koning, P.Eng.
Manager of Roads
County of Wellington

Thank you for sending us notification regarding Wellington Road 32, Blatchford Bridge. In our preliminary assessment, we have confirmed that Hydro One has existing distribution assets within your study area.

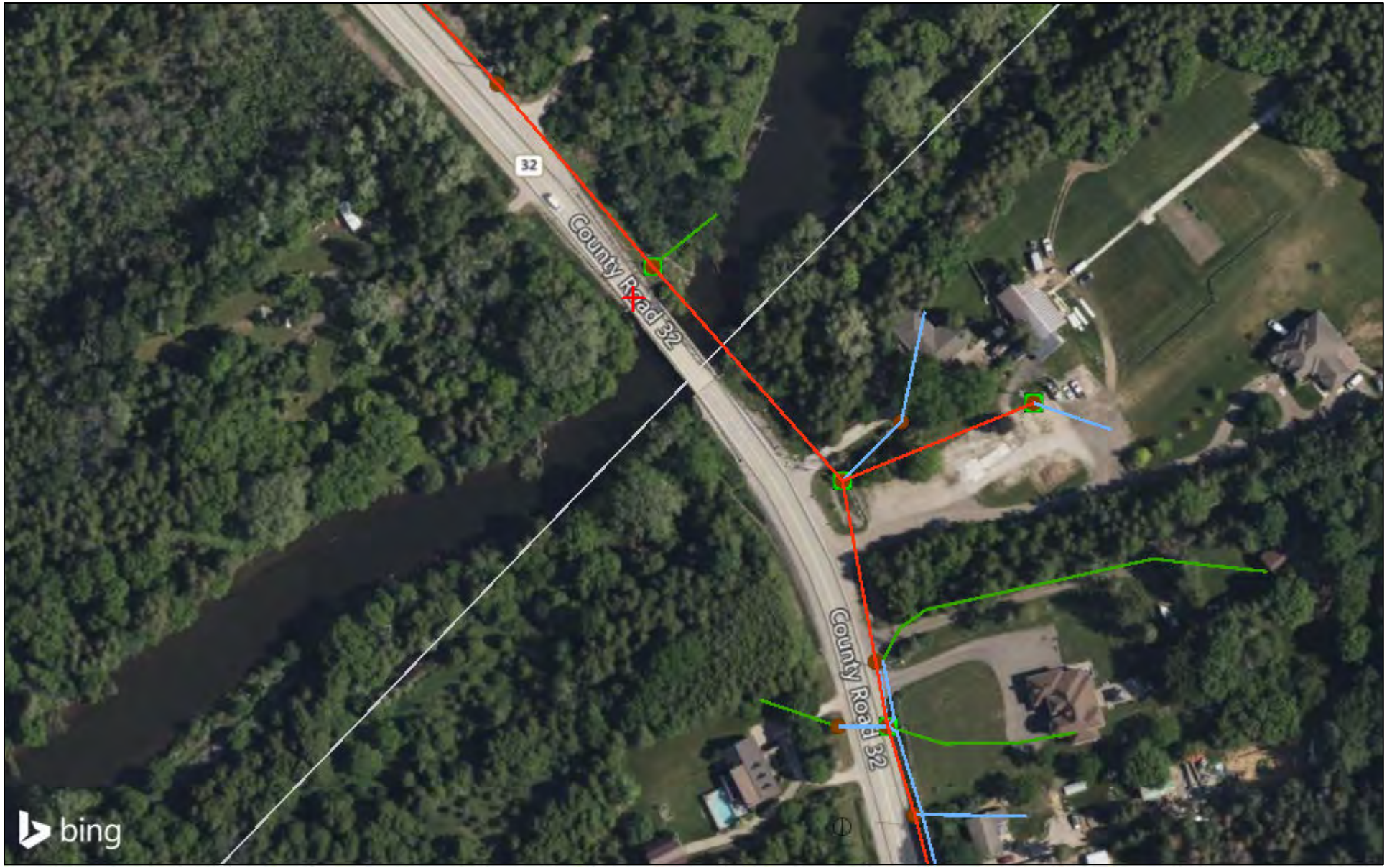
At this time, we do not have sufficient information to comment on the potential resulting impacts that your project may have on our infrastructure. As such, we must stay informed as more information becomes available so that we can advise if any of the alternative solutions present actual conflicts with our assets, and if so; what resulting measures and costs could be incurred by the proponent. Note that this response does not constitute approval for your plans and is being sent to you as a courtesy to inform you that we must continue to be consulted on your project.

Hydro One must be consulted during all stages of your project. Please ensure that all future communications about this and future project(s) are sent to us electronically to secondarylanduse@hydroone.com

Sent on behalf of,

Secondary Land Use
Asset Optimization
Strategy & Integrated Planning
Hydro One Networks Inc.

Landscape PDF



October 16, 2024

1:2,257

0 0.0175 0.035 0.07 mi

0 0.03 0.06 0.12 km

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Rogers

GFT

Outlook

RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

From Brian A Murray <BrianA.Murray@rci.rogers.com>
Date Wed 10/16/2024 8:57 AM
To Costanzo, Salvatore T. <scostanzo@GFNET.com>

1 attachment (1 KB)
image001.png;

IRONSCALES couldn't recognize this email as this is the first time you received an email from this sender BrianA.Murray @ rci.rogers.com

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hey Salvatore:

We do not have any existing structure within 100m of the bridge, but we are planning to cross the bridge at a later date to be determined.

Thanks,

Brian Murray
System Planner, Outside Plant Engineering SWO
Rogers Communications
85 Grand Crest Place Kitchener ON, N2G 4A8
e briana.murray@rci.rogers.com
m 226-339-6681
o 519-895-3278

ROGERS

From: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com >
Sent: Thursday, October 10, 2024 4:39 PM
To: Brendon Condon <Brendon.Condon@rci.rogers.com >; Brian A Murray <BrianA.Murray@rci.rogers.com >
Cc: steve.gionomo@rci.rogers.com; Costanzo, Salvatore T. <scostanzo@GFNET.com >
Subject: RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Brendon/Brian,

Can one of you guys look at this request. Its in-between Guleph and Cambridge.

Thanks,

Dan Mozzoni
System Planner, Outside Plant Engineering
Rogers Communications Canada Inc.
141 Hester St, Hamilton
e dan.mozzoni@rci.rogers.com
m 289 237-2197

ROGERS

From: Costanzo, Salvatore T. <scostanzo@GFNET.com>
Sent: Thursday, October 10, 2024 12:55 PM
To: steve.gionomo@rci.rogers.com
Cc: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com>; Brendon Condon <Brendon.Condon@rci.rogers.com>
Subject: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Hello,

Gannett Fleming is currently working with the County of Wellington to prepare the rehabilitation/replacement design for the Blatchford Bridge Structure:

- * Blatchford Bridge (B032085), 600m South of Wellington Road 124. Location: 43°29'03.4 "N 80°16'55.9 "W - Google Maps

I would appreciate your assistance in identifying any existing or planned utilities within 100 m of the structure so that we can evaluate any potential impacts.

Please let me know if you require any more information.

Thank you,

Salvatore Costanzo | Associate Designer, Bridge

Gannett Fleming TranSystems

Royal Bank Plaza, Suite 1600, South Tower, 200 Bay Street, Toronto, ON M5J 2J3
C 519.546.9141 | scostanzo@gfnet.com
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Outlook

Re: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

From Fadi Jacob <fjacob@wirecommca.com>
Date Fri 2/27/2026 12:24 PM
To Dan Mozzoni <Dan.Mozzoni@rci.rogers.com>
Cc Salvatore Costanzo <scostanzo@gftinc.com>

8 attachments (6 MB)

image001.png; image002.png; newwirecommlogotransparent_7ae1660c-7bd4-4588-b315-b00fd4224a0f.png; 058_line_9bae9502-1e3a-48a3-ba5e-34ed9cd44185.png; 058_sm_fb_b4c5bf88-e415-4f62-8f86-6308c9fe4a38.png; 058_sm_in_e5fb2776-0c46-4412-a144-562ec71bfa8c.png; goldbanner_2dc5c1b7-6c98-4df1-972e-58772ceea0e1.jpg; Blatchford Bridge (B032085).dwg;

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Hello Salvatore,

Thank you for taking my phone call.

Please see existing rogers infrastructure in this area & let me know if you need anything else from us.

Thank you once again, and have a great weekend!

wirecomm
Proud Members of the UniTek Family

Fadi Jacob
FHA Partner

Wirecomm Systems Inc.
107 Corstate Ave, Concord, ON L4K 4Y2

www.unitekglobalservices.com



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From: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com >
Sent: February 27, 2026 9:52 AM
To: Fadi Jacob <fjacob@wirecommca.com >
Cc: Salvatore Costanzo <scostanzo@gftinc.com >
Subject: Re: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Good morning, Jacob,

I would like to engage Wirecomm on this project in the County of Wellington regarding potential Rogers conflict(s) with county bridge works. If you can please review and identify if there are any conflicts that may require relocation. The County has provided the info below for your reference. I will provide you with a project and permit numbers if required.

We are currently working with the County of Wellington to prepare the rehabilitation/replacement design for the Blatchford Bridge Structure:

- * Blatchford Bridge (B032085), 600m South of Wellington Road 124. Location: 43°29'03.4 "N 80°16'55.9 "W - Google Maps

I believe I have previously reach out a few years ago but didn't get a response from another contact. I would appreciate your assistance in identifying any existing or planned utilities within 100 m of the structure so that we can evaluate any potential impacts.

Please let me know if you require any more information.

Thanks
Dan

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From: Salvatore Costanzo <scostanzo@gftinc.com >
Sent: Friday, February 27, 2026 9:38:09 AM
To: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com >; Brendon Condon <Brendon.Condon@rci.rogers.com >
Subject: RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Thank you, do you have an anticipated timeline to hear back from the consultant?

Regards,

Salvatore Costanzo

Bridge Designer

1 Adelaide Street East, Suite 2320, Toronto, ON M5C 2V9

E: scostanzo@gftinc.com

C: 519-546-9141

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Ingenuity That Shapes Canada

From: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com >
Sent: Friday, February 27, 2026 9:37 AM
To: Salvatore Costanzo <scostanzo@gftinc.com >; Brendon Condon <Brendon.Condon@rci.rogers.com >
Subject: Re: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

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Hi Salvatore,

I will forward this request to my consultant to review the potential conflict(s). If we do identify areas of conflict, then we will proceed with a proposed engineering design to relocate Rogers existing infrastructure.

Thanks

Dan

Get Outlook for iOS

From: Salvatore Costanzo <scostanzo@gftinc.com>
Sent: Friday, February 27, 2026 9:33:09 AM
To: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com>; Brendon Condon <Brendon.Condon@rci.rogers.com>
Subject: RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Hi Dan,

Please let me know.

Brendon - thanks for the connection.

Regards,

Salvatore Costanzo

Bridge Designer

1 Adelaide Street East, Suite 2320, Toronto, ON M5C 2V9

E: scostanzo@gftinc.com

C: 519-546-9141

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Ingenuity That Shapes Canada

From: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com>
Sent: Friday, February 27, 2026 9:17 AM
To: Brendon Condon <Brendon.Condon@rci.rogers.com>; Salvatore Costanzo <scostanzo@gftinc.com>
Subject: Re: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

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Thanks Brendon.

Get Outlook for iOS

From: Brendon Condon <Brendon.Condon@rci.rogers.com>
Sent: Friday, February 27, 2026 8:04:09 AM
To: Salvatore Costanzo <scostanzo@gftinc.com>
Cc: Dan Mozzoni <Dan.Mozzoni@rci.rogers.com>
Subject: RE: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Hey Salvatore, Dan Mozzoni is the planner for the area. Hey Dan there is a Microduct fiber crossing this bridge

Thanks
BC

Brendon Condon
System Planner, SWO OPE
Rogers Communications
85 Grand Crest Place Kitchener, ON N2G 4A8
e brendon.condon@rci.rogers.ca
m 519.404.7608

From: Salvatore Costanzo <scostanzo@gftinc.com>
Sent: February 26, 2026 3:16 PM
To: Brendon Condon <Brendon.Condon@rci.rogers.com>
Subject: County of Wellington_Rehabilitations/Replacement_Existing Utility Request_Rogers

Hi Brenden,

We are currently working with the County of Wellington to prepare the rehabilitation/replacement design for the Blatchford Bridge Structure:

- * Blatchford Bridge (B032085), 600m South of Wellington Road 124. Location: 43°29'03.4 "N 80°16'55.9 "W - Google Maps

I believe I have previously reach out a few years ago but didn't get a response from another contact. I would appreciate your assistance in identifying any existing or planned utilities within 100 m of the structure so that we can evaluate any potential impacts.

Please let me know if you require any more information.

Thank you,

Salvatore Costanzo

Bridge Designer

1 Adelaide Street East, Suite 2320, Toronto, ON M5C 2V9

E: scostanzo@gftinc.com

C: 519-546-9141

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Grand River Conservation Authority

GFT

From: William Van Ruyven
Sent: Wednesday, February 25, 2026 7:04 AM
To: Brandon Henderson
Cc: Pasquale Costanzo; Joe de Koning; Shuyi Wang; David Jackson; Salvatore Costanzo; Evan May; Tony Zammit
Subject: RE: Wellington County_Blatchford Bridge over Speed River (B032085) - GRCA Meeting

Hi Brandon,

Thank you and your team for the input. We'll work to address these comments for the upcoming PIC and as the design is developed further.

Kind Regards,

William

William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead

GFT
c 647.280.5895
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From: Brandon Henderson <bhenderson@grandriver.ca>
Sent: Tuesday, February 24, 2026 4:16 PM
To: William Van Ruyven <wvanruyven@gftinc.com>
Cc: Pasquale Costanzo <pasqualec@wellington.ca>; Joe de Koning <joedk@wellington.ca>; Shuyi Wang <swang@gftinc.com>; David Jackson <dajackson@gftinc.com>; Salvatore Costanzo <scostanzo@gftinc.com>; Evan May <emay@gftinc.com>; Tony Zammit <tzammit@grandriver.ca>
Subject: RE: Wellington County_Blatchford Bridge over Speed River (B032085) - GRCA Meeting

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Hi William,

Thanks again for meeting with GRCA staff to discuss the application. Please see the below comments and answers to your questions:

1. GRCA staff have interest in the application and will looking forward to participating in the EA process. Further technical review will be undertaken once the appropriate studies have been completed and circulated to the GRCA for review. GRCA staff

will be reviewing the application to ensure that the applicable GRCA policies have been met (Link to the GRCA Policy Document).

2. A GRCA Permit will be required for the proposed bridge replacement. A copy of the GRCA fee schedule can be found on our website here.
3. GRCA staff understand that the current bridge design does not meet the GRCA's current safe access standards. Given that the bridge already exists, GRCA staff will be reviewing the application to ensure that the final design results in an overall improvement to the safe access standards. Additionally, we will be reviewing the submission to ensure that there are no negative hydraulic/hydrologic impacts as a result of the replacement.
4. We will need to understand if the gauge station will be removed or only temporarily disconnected. We will also want to discuss temporary monitoring during construction, as well as temporary access. Any information you have regarding the potential impact to the gauge station would be appreciated. You can contact our flood team (Elizabeth Fisher efisher@grandriver.ca)
5. We can also provide the following comments regarding the Draft Natural Environment Assessment Report:
    - Section 6.1 (Biological Constraints) includes a reference to the Saugeen River, which should be changed to the Speed River.
    - The 2020 Provincial Policy Statement has been replaced by the Provincial Planning Statement, which was published in 2024
    - A full understanding of the direct impacts on the wetlands will be required at the detailed design/permitting stage. Wetland avoidance is preferred but if this is not practicable, areas of temporary and permanent encroachment related mitigation measures should be identified/outlined noted on the plans. We also request that the amount of permanent wetland loss be quantified.

Please let me know if you have any additional questions.

Brandon

From: William Van Ruyven <wvanruyven@gftinc.com>
Sent: February 12, 2026 4:55 PM
To: Brandon Henderson <bhenderson@grandriver.ca>; Tony Zammit <tzammit@grandriver.ca>
Cc: Pasquale Costanzo <pasqualec@wellington.ca>; Joe de Koning <joedk@wellington.ca>; Shuyi Wang <swang@gftinc.com>; David Jackson <dajackson@gftinc.com>; Salvatore Costanzo <scostanzo@gftinc.com>; Evan May <emay@gftinc.com>
Subject: RE: Wellington County_Blatchford Bridge over Speed River (B032085) - GRCA Meeting

Hi Brandon & Tony,

Thank you for the discussion today. For your reference I've attached the slides. As noted:

- Project is currently in the EA phase, with an upcoming PIC and construction planned for 2028 / 2029
- We generally agree with the comments provided and will address them as part of the ultimate permit applications
- In addition to the comments, we understand that GRCA has safe access standards. While the proposed design (~0.44 m/s) does not meet the desired flow velocities (~0.4 m/s), it does provide an improvement on the existing conditions (~0.48 m/s) and therefore the GRCA is generally open to supporting. GRCA to provide confirmation of safe access standards.
- The design will look to minimize impacts on the existing gauge /pump house; however, to evaluate impacts, we would appreciate if you can connect us with correct contact (flood team?) to coordinate review of existing drawings (intake pipe etc) /information and any necessary requirements during construction.
- We understand there are some relatively minor comments on the draft NEA. Please share with us so we can update and incorporate any feedback into the PIC slides.
- As part of the ultimate permit we will confirm the wetland impacts, including loss of wetland if applicable.
- The trail located to the southwest of the bridge is no owned by GRCA. Any impacts should be coordinated with others.

Kind regards,

William

William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead

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c 647.280.5895
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-----Original Appointment-----
From: William Van Ruyven
Sent: Monday, February 9, 2026 4:10 PM
To: William Van Ruyven; Evan May; Brandon Henderson
Cc: Pasquale Costanzo; Joe de Koning; Tony Zammit; Shuyi Wang; David Jackson; Salvatore Costanzo
Subject: Wellington County_Blatchford Bridge over Speed River (B032085) - GRCA Meeting
When: Thursday, February 12, 2026 2:30 PM-3:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Microsoft Teams Meeting

Hello,

As part of the environmental assessment/ preliminary design / engineering review, this meeting is to discuss the proposed Blatchford Bridge replacement, located on Wellington Road 32 over the Speed River, south of Wellington Road 124:

https://www.google.com/maps/place/43%C2%B029'03.2%22N+80%C2%B016'55.6%22W/@43.4842295,-80.2923997,2507m/data=!3m2!1e3!4b1!4m4!3m3!8m2!3d43.48423!4d-80.2821?authuser=0&entry=ttu&g_ep=EgoyMDI2MDEyMS4wIKXMDSoKLDEwMDc5MjA3M0gBUAM%3D

We look forward to discussing any potential comments or concerns with you.

Kind regards,

William

Microsoft Teams meeting

Join:

https://teams.microsoft.com/meet/28501365819192?p=UlT5APrA82npPHvt43

Meeting ID: 285 013 658 191 92

Passcode: dR2Xv6BG

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Video ID: 117 047 739 5

More info

For organizers: Meeting options | Reset dial-in PIN

Indigenous Community Correspondence

GFT

Haudenosaunee Development Institute

GFT

Salvatore Costanzo

From: Salvatore Costanzo
Sent: Thursday, March 12, 2026 4:35 PM
To: info@hdi.land; suejacobs@hdi.land; lindafroman@hdi.land
Cc: William Van Ruyven; Joe de Koning; Pasquale Costanzo
Subject: Wellington Road 32 Blatchford Bridge EA - Public Information Centre (PIC) Online
Attachments: Blatchford Bridge HDI_Notice of PIC Letter.pdf

Hello,

Wellington County is carrying out a Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The County of Wellington has prepared an online Public Information Centre (PIC) package to allow those who are interested in the study an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, next steps in the study, and seek input on these topics. Please refer to the attached Notice for more information. Display slides will be made available to the public on the County website beginning March 12, 2026. They can be viewed any time after this date by visiting:

www.wellington.ca/BlatchfordEA

All relevant study information is posted on the County's website for your consideration and we invite you to provide any comments or concerns your organization may have at this time. A Stage 1 Archaeological Report is available upon request.

We hope this information will assist your organization in identifying any potential interests or concerns in the project. If you have any questions or would like to arrange a meeting with the project team, you can reach the County and GFT Project Managers listed in the notice attached.

Thank you,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager

GFT

January 2026

Haudenosaunee Confederacy Chiefs Council
16 Sunrise Court
P.O. Box 714
Ohsweken ON N0A 1M0

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Online Public Information Centre

Dear Chief:

Wellington County is carrying out an Online Public Information Centre (PIC) regarding the Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The study area extends approximately 0.5 km on either side of the bridge. As part of bridge inspections conducted in 2023 and 2025, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada was retained by the County of Wellington in 2024 to complete a Study to address these items and the results have been compiled. The online PIC will allow the opportunity for any interested stakeholders including the public, agencies and Indigenous communities to consult with the Project Team. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback on the results.

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment, the study has confirmed and documented the existing structural deficiencies, identified alternative solutions including rehabilitation or replacement of the bridge, and evaluated associated environmental impacts. A Stage 1 and 2 Archeological Assessment and Natural Heritage Assessment has also been completed and the results are attached in the PIC.

This notice is being provided to you so you are aware of the PIC and can provide input to the Project Team if interested. Your comments are welcome and we encourage you to provide us with your views.

The Project Team would be pleased to meet with you at any time. To request a meeting or to discuss the Study, please contact:

Joe de Koning, P.Eng.
Construction Manager
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
Phone: (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

Yours truly,



Joe de Koning, P.Eng.
Wellington County

encl. Notice of Online Public Information Centre

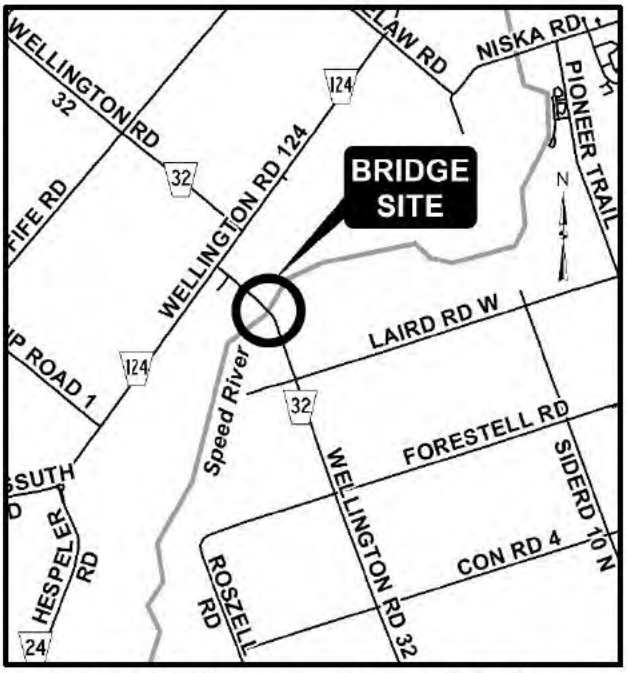
cc: info@hdi.land; suejacobs@hdi.land; lindafroman@hdi.land

NOTICE OF ONLINE PUBLIC INFORMATION CENTRE

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment

The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada has been retained by the County of Wellington to complete a Study to address these items.



The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Public Engagement and Consultation

An online Public Information Centre (PIC) has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, and the next steps in the study. Display boards will be made available to the public on the County website beginning **March 12, 2026**. They can be viewed any time after this date by visiting: https://www.wellington.ca/BlatchfordEA

Residents are encouraged to submit comments by **April 24, 2026**. Comment sheets are available on the County's website and can be submitted via an online form or by email.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

This notice first issued on **March 12, 2026.**

Van Ruyven, William

From: Rae Lumsdon <rae@lumsdon.ca>
Sent: Monday, July 15, 2024 10:26 AM
To: Joe de Koning
Cc: Aaron Detlor; Aaron Detlor; Emma Kameka; Rae Lumsdon; Brian Doolittle; Don Kudo; Van Ruyven, William
Subject: Re: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Follow Up Flag: Flag for follow up
Flag Status: Flagged

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good morning Mr. de Koning,

Thank you for the reply.

We are available **Tuesday, July 23rd** all day. We are happy to come to you in your office, or host in our office in downtown Toronto.

Please let me know what works best on your end and I will circulate an invite.

Rae Lumsdon
VP, Business Development and Client Relationships
416.839.5307
rae@hdito.com

Haudenosaunee Development Institute
Our Land, Our Law, Our People, Our Future

From: Joe de Koning <joedk@wellington.ca>
Sent: Thursday, July 11, 2024 2:40 PM
To: Rae Lumsdon <rae@lumsdon.ca>
Cc: Aaron Detlor <aarondetlor@gmail.com>; Aaron Detlor <aaron@detlorlaw.com>; Emma Kameka <emma@hdito.com>; Rae Lumsdon <rae@hdito.com>; Brian Doolittle <ganowa@me.com>; Don Kudo <donk@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Good afternoon Rae,

Let's set up a time and place for us to meet.

Could share some dates and times that your group can meet during the week of July 22nd ?

Kind regards,

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
Phone (519) 837-2601 X-2270

From: Rae Lumsdon <rae@lumsdon.ca>
Sent: Wednesday, July 3, 2024 1:30 PM
To: Joe de Koning <joedk@wellington.ca>
Cc: Aaron Detlor <aarondetlor@gmail.com>; Aaron Detlor <aaron@detlorlaw.com>; Emma Kameka <emma@hdito.com>; Rae Lumsdon <rae@hdito.com>; Brian Doolittle <ganowa@me.com>
Subject: Re: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Importance: High

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you know the contents to be safe.

Good afternoon Mr. de Koning,

We trust this email finds you well and in good spirits.

We are writing to confirm that we have received the Notice of Commencement regarding the Wellington Road 32, Blatchford Bridge - B032085(attached).

In our initial review of the linked webpage and supporting sources, it is clear that the Wellington Road 32, Blatchford Bridge project will impair, infringe and interfere with Haudenosaunee rights and interests.

We would like to know how and when engagement with respect to Haudenosaunee Treaty rights will occur. We require, at a minimum, engagement, consent and in upholding established Haudenosaunee treaty rights, which exist over the entirety of Wellington County.

We look forward to sitting down with you and discuss how and when the obligation to uphold the honor of the crown as well as the specific engagements required for a comprehensive process. This will obviously include our engagement in developing the terms of reference, with which we presently have significant concerns.

At the same time, we need to consider the following projects, where engagement has not occurred. We would also like to sit down and discuss the County of Wellington Roads Master Action Plan (link below) as the projects herein are all proceeding without engagement despite the fact that the Wellington County is aware of their obligations to engage.

https://www.wellington.ca/en/resident-services/resources/Roads/RMAP/RMAPFinal/Wellington-RMAP-Final-Report-2022-01-31-AODA.pdf

Rae Lumsdon
VP, Business Development and Client Relationships
416.839.5307

Haudenosaunee Development Institute
Our Land, Our Law, Our People, Our Future

From: Aaron Detlor <aarondetlor@gmail.com>
Sent: Saturday, June 1, 2024 2:16 AM
To: Rae Lumsdon <rae@lumsdon.ca>
Subject: Fwd: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

---------- Forwarded message ---------
From: **Tracey General** <traceyghdi@gmail.com>
Date: Fri, May 31, 2024, 12:26 p.m.
Subject: Fwd: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
To: Brian Doolittle <ganowa@me.com>, Aaron Detlor <aarondetlor@gmail.com>, Todd Williams <toddwilliams@hdi.land>, Raechelle Williams <raechellewilliams@hdi.land>, Sharann Martin <sharannmartin@hdi.land>

Begin forwarded message:

From: "Van Ruyven, William" <wvanruyven@GFNET.com>
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Date: May 31, 2024 at 6:58:11 AM EDT
To: "info@hdi.land" <info@hdi.land>, "toddwilliams@hdi.land" <toddwilliams@hdi.land>, "sharannmartin@hdi.land" <sharannmartin@hdi.land>, "owengreene@hdi.land" <owengreene@hdi.land>
Cc: Joe de Koning <joedk@wellington.ca>

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Kind regards,

William Van Ruyven, P.Eng., PMP

Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

“This e-mail message (including attachments, if any) is intended for the use of the individual to whom it is addressed and may contain information that is privileged and confidential. If you are not the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify the sender and erase this e-mail message immediately.”

Van Ruyven, William

From: Van Ruyven, William
Sent: Friday, May 31, 2024 6:58 AM
To: info@hdi.land; toddwilliams@hdi.land; sharannmartin@hdi.land; owengreene@hdi.land
Cc: Joe de Koning
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Attachments: Blatchford Bridge_HDI FN_Notice of Study Commencement Letter.pdf

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

May 31, 2024

Haudenosaunee Confederacy Chiefs Council
16 Sunrise Court
P.O. Box 714
Ohsweken ON N0A 1M0

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Study Commencement

Dear Madam/Sir:

Wellington County is carrying out a Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment, the study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

A Stage 1 and 2 Archeological Assessment and Natural Heritage Assessment will be undertaken as part of this study. Once complete, these reports will be provided to you for review and acceptance.

A key component of the study will be consultation with interested stakeholders including public, agencies and Indigenous communities. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback.

This notice is being provided to you in hope that you can assist the Project Team in determining if your community has an interest in this project. Your comments are welcome and we encourage you to provide us with your views.

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

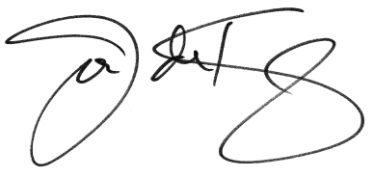
The Project Team would be pleased to meet with you at any time during the Study. To request a meeting or to discuss the Study, please contact:

Joe de Koning, P.Eng.
Construction Manager
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
Phone: (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

Yours truly,



Joe de Koning, P.Eng.
Wellington County

encl. Notice of Study Commencement

cc: toddwilliams@hdi.land; sharannmartin@hdi.land;
owengreene@hdi.land

NOTICE OF STUDY COMMENCEMENT

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment



The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Comment Invited

A key component of the study will be consultation with interested stakeholders including public, agencies and Indigenous communities. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback. Project updates will be posted on the Wellington County website www.wellington.ca/blatchfordEA and you are invited to provide input to the Project Team. Upon completion of the study, the planning process and recommendations will be documented in a Project File and made available for public review.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T 519.837.2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

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Alternate Formats Available Upon Request

This notice first issued on May 30, 2024.

Mississaugas of the Credit First Nation

GFT

Salvatore Costanzo

From: Salvatore Costanzo
Sent: Thursday, March 12, 2026 4:35 PM
To: 'MargaretS@mncfn.ca'; 'Communications@mncfn.ca'; 'LarryS@mncfn.ca'
Cc: William Van Ruyven; Joe de Koning; Pasquale Costanzo
Subject: Wellington Road 32 Blatchford Bridge EA - Public Information Centre (PIC) Online
Attachments: Blatchford Bridge MCFN_Notice of PIC Letter.pdf

Hello,

Wellington County is carrying out a Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The County of Wellington has prepared an online Public Information Centre (PIC) package to allow those who are interested in the study an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, next steps in the study, and seek input on these topics. Please refer to the attached Notice for more information. Display slides will be made available to the public on the County website beginning March 12, 2026. They can be viewed any time after this date by visiting:

www.wellington.ca/BlatchfordEA

All relevant study information is posted on the County's website for your consideration and we invite you to provide any comments or concerns your organization may have at this time. A Stage 1 Archaeological Report is available upon request.

We hope this information will assist your organization in identifying any potential interests or concerns in the project. If you have any questions or would like to arrange a meeting with the project team, you can reach the County and GFT Project Managers listed in the notice attached.

Thank you,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager

GFT

January 2026

Chief Margaret Sault
Mississaugas of the Credit First Nation
2789 Mississauga Road
R.R. #6
Hagersville ON N0A 1H0
MargaretS@mncfn.ca

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Online Public Information Centre

Dear Chief Sault:

Wellington County is carrying out an Online Public Information Centre (PIC) regarding the Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The study area extends approximately 0.5 km on either side of the bridge. As part of bridge inspections conducted in 2023 and 2025, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada was retained by the County of Wellington in 2024 to complete a Study to address these items and the results have been compiled. The online PIC will allow the opportunity for any interested stakeholders including the public, agencies and Indigenous communities to consult with the Project Team. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback on the results.

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment, the study has confirmed and documented the existing structural deficiencies, identified alternative solutions including rehabilitation or replacement of the bridge, and evaluated associated environmental impacts. A Stage 1 and 2 Archeological Assessment and Natural Heritage Assessment has also been completed and the results are attached in the PIC.

This notice is being provided to you so you are aware of the PIC and can provide input to the Project Team if interested. Your comments are welcome and we encourage you to provide us with your views.

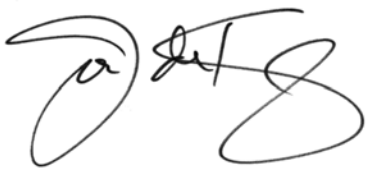
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Construction Manager
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
Phone: (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

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Yours truly,



Joe de Koning, P.Eng.
Wellington County

encl. Notice of Online Public Information Centre

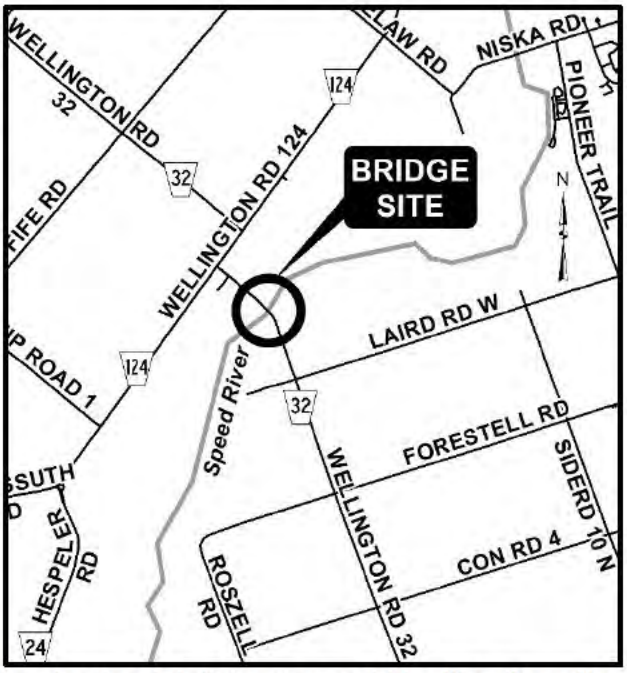
cc: Communications@mncfn.ca; LarryS@mncfn.ca

NOTICE OF ONLINE PUBLIC INFORMATION CENTRE

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment

The Study

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This notice first issued on **March 12, 2026.**

Van Ruyven, William

From: Van Ruyven, William
Sent: Friday, May 31, 2024 6:58 AM
To: Communications@mncfn.ca; Adam.laforme@mncfn.ca; Field.coordinator@mncfn.ca; Claire@mncfn.ca
Cc: Joe de Koning
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Attachments: Blatchford Bridge_MNCFN_Notice of Study Commencement Letter.pdf

Good Morning,

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Additional information can be found:
www.wellington.ca/blatchfordEA

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

May 31, 2024

Chief Claire Sault
Mississaugas of the Credit First Nation
2789 Mississauga Road (R.R. #6)
Hagersville ON N0A 1H0
Claire@mncfn.ca

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Study Commencement

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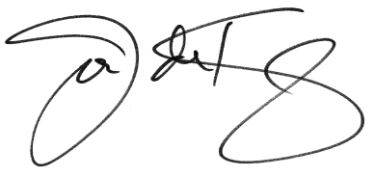
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Joe de Koning, P.Eng.
Construction Manager
County of Wellington
74 Woolwich Street
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Email: joedk@wellington.ca

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Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

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Yours truly,



Joe de Koning, P.Eng.
Wellington County

encl. Notice of Study Commencement

cc: Communications@mncfn.ca; Adam.laforme@mncfn.ca;
Field.coordinator@mncfn.ca

NOTICE OF STUDY COMMENCEMENT

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment



The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

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Comment Invited

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T (437) 253-9279
Email: wvanruyven@gfnet.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

This notice first issued on May 30, 2024.

Six Nations of the Grand River

GFT

Salvatore Costanzo

From: Salvatore Costanzo
Sent: Thursday, March 12, 2026 4:35 PM
To: 'sngr.chief@sixnations.ca'
Cc: William Van Ruyven; Joe de Koning; Pasquale Costanzo
Subject: Wellington Road 32 Blatchford Bridge EA - Public Information Centre (PIC) Online
Attachments: Blatchford Bridge SN_Notice of PIC Letter.pdf

Hello,

Wellington County is carrying out a Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The County of Wellington has prepared an online Public Information Centre (PIC) package to allow those who are interested in the study an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, next steps in the study, and seek input on these topics. Please refer to the attached Notice for more information. Display slides will be made available to the public on the County website beginning March 12, 2026. They can be viewed any time after this date by visiting:

www.wellington.ca/BlatchfordEA

All relevant study information is posted on the County's website for your consideration and we invite you to provide any comments or concerns your organization may have at this time. A Stage 1 Archaeological Report is available upon request.

We hope this information will assist your organization in identifying any potential interests or concerns in the project. If you have any questions or would like to arrange a meeting with the project team, you can reach the County and GFT Project Managers listed in the notice attached.

Thank you,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager

GFT

January 2026

Chief Sheri-Lyn Hill
Six Nations of the Grand River
1695 Chiefswood Rd
P.O. Box 5000
Ohsweken ON N0A 1M0
sngr.chief@sixnations.ca

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Online Public Information Centre

Dear Chief Hill:

Wellington County is carrying out an Online Public Information Centre (PIC) regarding the Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The study area extends approximately 0.5 km on either side of the bridge. As part of bridge inspections conducted in 2023 and 2025, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada was retained by the County of Wellington in 2024 to complete a Study to address these items and the results have been compiled. The online PIC will allow the opportunity for any interested stakeholders including the public, agencies and Indigenous communities to consult with the Project Team. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback on the results.

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment, the study has confirmed and documented the existing structural deficiencies, identified alternative solutions including rehabilitation or replacement of the bridge, and evaluated associated environmental impacts. A Stage 1 and 2 Archeological Assessment and Natural Heritage Assessment has also been completed and the results are attached in the PIC.

This notice is being provided to you so you are aware of the PIC and can provide input to the Project Team if interested. Your comments are welcome and we encourage you to provide us with your views.

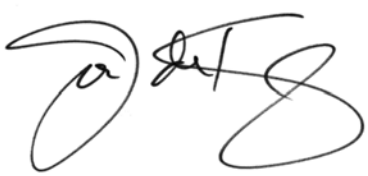
The Project Team would be pleased to meet with you at any time. To request a meeting or to discuss the Study, please contact:

Joe de Koning, P.Eng.
Construction Manager
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
Phone: (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

Yours truly,



Joe de Koning, P.Eng.
Wellington County

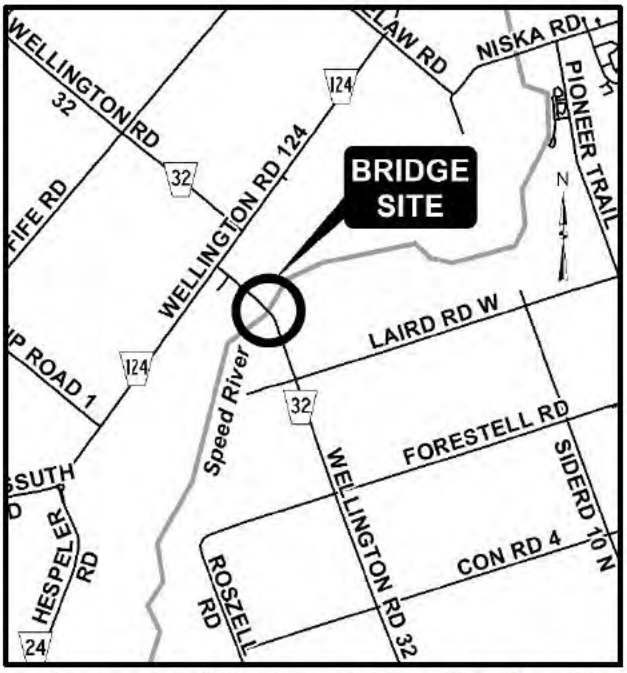
encl. Notice of Online Public Information Centre

NOTICE OF ONLINE PUBLIC INFORMATION CENTRE

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment

The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada has been retained by the County of Wellington to complete a Study to address these items.



The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Public Engagement and Consultation

An online Public Information Centre (PIC) has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, and the next steps in the study. Display boards will be made available to the public on the County website beginning **March 12, 2026**. They can be viewed any time after this date by visiting: https://www.wellington.ca/BlatchfordEA

Residents are encouraged to submit comments by **April 24, 2026**. Comment sheets are available on the County's website and can be submitted via an online form or by email.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

This notice first issued on **March 12, 2026.**

From: Van Ruyven, William
Sent: Monday, June 10, 2024 8:19 AM
To: Tanya Hill-Montour
Cc: Caitlin Lacy; Joe de Koning; specialassistant@sixnations.ca; Dlaforme@sixnations.ca; Lonnybomberry@sixnations.ca; sngr.chief@sixnations.ca
Subject: Re: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Good morning Tanya,

Thanks for the interest in the study. Yes, we're working with ASI on the archaeological work. I believe they are targeting the end of June for the stage 2 investigation.

Kind regards,

William

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Monday, June 10, 2024 6:30 AM
To: Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi William

Hope you had a good weekend. Certainly we have interest in the Blatchford Bridge Municipal Class Environmental / Archaeological Assessment. Has there a company been retained?

Nia':wen ko:wa (thankyou)
Tanya Hill-Montour
Six Nations of the Grand River Archaeological Supervisor
226.388.0665

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Monday, June 3, 2024 10:55 AM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Subject: [External] FW: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Hello Tanya,

Apologies on the delay for this notice, I see there was a typo on the initial email to you.

Kind regards,

William

From: Van Ruyven, William <wvanruyven@GFNET.com>
Sent: Friday, May 31, 2024 6:58 AM
To: specialassistant@sixnations.ca; Dlaforme@sixnations.ca; Tanyahill-montour@sixnation.ca; Lonnybomberry@sixnations.ca; sngr.chief@sixnations.ca
Cc: Joe de Koning <JoeDK@wellington.ca>
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

Van Ruyven, William

From: Van Ruyven, William
Sent: Friday, May 31, 2024 6:58 AM
To: specialassistant@sixnations.ca; Dlaforme@sixnations.ca; Tanyahill-montour@sixnation.ca; Lonnybomberry@sixnations.ca; sngr.chief@sixnations.ca
Cc: Joe de Koning
Subject: Blatchford Bridge Municipal Class Environmental Assessment - Notice of Commencement
Attachments: Blatchford Bridge_SixNation_Notice of Study Commencement Letter.pdf

Good Morning,

This email is to inform you of the Notice of Commencement for the Environmental Assessment Study for the Blatchford Bridge (No. B032085), per the attached notices, located on the boarder of Township of Guelph/Eramosa and Township of Puslinch, on Wellington Road 32.

Additional information can be found:
www.wellington.ca/blatchfordEA

Kind regards,

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279

May 31, 2024

Chief Sheri-Lyn Hill
Six Nations of the Grand River
2498 Chiefswood Road
P.O. Box 5000
Ohsweken ON N0A 1M0
sngr.chief@sixnations.ca

RE: County of Wellington
Blatchford Bridge, No. B032085, Wellington Road 32
Schedule B Municipal Class Environmental Assessment
Notice of Study Commencement

Dear Madam/Sir:

Wellington County is carrying out a Municipal Class Environmental Assessment (Class EA) Study for the Blatchford Bridge, No. B032085, located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch.

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment, the study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

A Stage 1 and 2 Archeological Assessment and Natural Heritage Assessment will be undertaken as part of this study. Once complete, these reports will be provided to you for review and acceptance.

A key component of the study will be consultation with interested stakeholders including public, agencies and Indigenous communities. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback.

This notice is being provided to you in hope that you can assist the Project Team in determining if your community has an interest in this project. Your comments are welcome and we encourage you to provide us with your views.

Unless you indicate otherwise, the Project Team will continue to provide you with updates throughout the Study including notification of online public engagement events and Study completion.

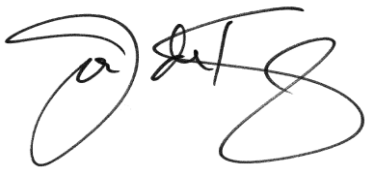
The Project Team would be pleased to meet with you at any time during the Study. To request a meeting or to discuss the Study, please contact:

Joe de Koning, P.Eng.
Construction Manager
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
Phone: (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act and will become part of the public record.

Yours truly,



Joe de Koning, P.Eng.
Wellington County

encl. Notice of Study Commencement

cc: specialassistant@sixnations.ca; Dlaforme@sixnations.ca;
Tanyahill-montour@sixnation.ca; Lonnybomberry@sixnations.ca

NOTICE OF STUDY COMMENCEMENT

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment



The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Comment Invited

A key component of the study will be consultation with interested stakeholders including public, agencies and Indigenous communities. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback. Project updates will be posted on the Wellington County website www.wellington.ca/blatchfordEA and you are invited to provide input to the Project Team. Upon completion of the study, the planning process and recommendations will be documented in a Project File and made available for public review.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T 519.837.2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

This notice first issued on May 30, 2024.

Public Correspondence

GFT

From: Van Ruyven, William
Sent: Tuesday, July 9, 2024 3:37 PM
To: [redacted]
Cc: Joe de Koning
Subject: RE: Wellington road 32 bridge No. B032085_Blatchford Bridge

Hi [redacted]
Thank you for your input and interest in this project. We will take your comment into consideration in the evaluation of the study alternatives.
Kind regards,
William

From: [redacted]
Sent: Tuesday, July 9, 2024 2:31 PM
To: Joe de Koning <joedk@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: Wellington road 32 bridge No. B032085.

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello,

I just like to share that bridge No.B032085 needs to be expanded in order to accommodate current and future growth. In its current state i find it unsafe due to its narrow condition. Pedestrians walk back and forth over the bridge regularly to access the river and trail and in its current condition it's unsafe and dangerous for them to walk on.

Thank you,

[redacted]

William Van Ruyven

From: Wellington County <no-reply@countyofwellington.ca>
Sent: Friday, March 13, 2026 3:13 PM
To: Joe de Koning; William Van Ruyven
Subject: Webform submission from: Blatchford Bridge EA – Online Public Information Centre - Comment Sheet

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Submitted on Fri, 03/13/2026 - 3:12pm

Submitted values are:

Comments
The replacement option makes the most sense based on the options presented.

Name
[redacted]

Email
[redacted]

Address
[redacted]

From: Van Ruyven, William
Sent: Wednesday, June 12, 2024 4:44 PM
To: [redacted] Joe de Koning
Subject: Re: Blanchford Bridge (No. B032085)

Hi [redacted]
Thank you for your input and interest in this project. We will take your comment into consideration in the evaluation of the study alternatives.
Kind regards,
William

From: [redacted]
Sent: Wednesday, June 12, 2024 11:10:09 AM
To: Joe de Koning <joedk@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: Blanchford Bridge (No. B032085)

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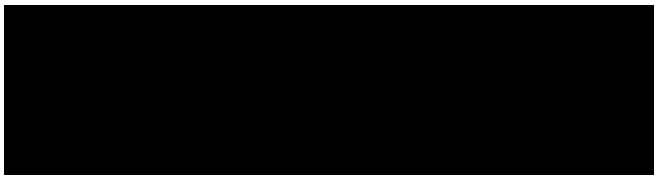
Hi Joe and William,

I would like to request that a safe pedestrian sidewalk be added to the bridge if possible. As of right now, there is no safe way to pass over the bridge and walkers, and bikers are taking a big risk to get from one side to the other. There are many cyclists and walkers from spring to fall. Some walkers belong to the Guelph Hiking Club and they are older in age. The way cars whip around that corner makes it very dangerous if you are not a fast walker.

Thank you for taking my input.

Kind regards,
[redacted]

[redacted]



William Van Ruyven

From: William Van Ruyven
Sent: Wednesday, February 25, 2026 7:04 AM
To: [redacted]
Cc: [redacted] Joe de Koning; Salvatore Costanzo
Subject: RE: Hiking Trail at WR 32 and Speed River - Blatchford Bridge Replacement

Follow Up Flag: Follow up
Flag Status: Flagged

Hi [redacted]

Thank you for your call yesterday. As promised, here is a quick summary of some of the key points, please feel free to reply all back to supplement anything I may have missed:

- The Speed River Trail is 91 km long, with 48 landowners currently permitting access on private land, extending from Grand River to Guelph.
- Near the Blatchford Bridge, the network exits a private property on the west side of WR 32, south of the Speed River and continues on the west side of WR 32 northbound to WR 124. Therefore, the trail crosses the Blatchford bridge and this location has been identified as a potential safety concern given the existing narrow shoulders and obstructed sight lines.
- There is typically an annual/biennial hike organized with 15-20 participants, scheduled around early May.
- This stretch of trail doesn't generally cater to cyclists due to the high truck traffic/unsafe conditions.
- There is an existing flight of stairs in the embankment just past the limit of the southwest guide rail.
- The primary request to the County is to consider the inclusion of a sidewalk on the west side of the bridge to provide safe passage for the trail users. We understand this is considered "utterly vital".
- In addition, the Speed River and trail at this site are accessed by hunters/canoers/kayakers/fishing as well as trail users. As a result, there can be up to 5 or 6 vehicles parked on the shoulder at one time, often at the southwest quadrant of the bridge. It has been observed that cars travelling southbound often drive over the solid white line painting – using the shoulder. This presents another potential safety concern with cars parking in this area.
    - Further, a couple years ago, a hiker accidentally fell while getting out of her car and broke her arm at this site. There could be some consideration to reducing the steepness of the slope on the southwest embankment.
    - Therefore, the second request is to consider providing accommodation for parking at this site, possibly on the east side of the road where the shoulder appears to be wider.
- [redacted]
- [redacted]
- [redacted]
- [redacted]

Kind regards,

William

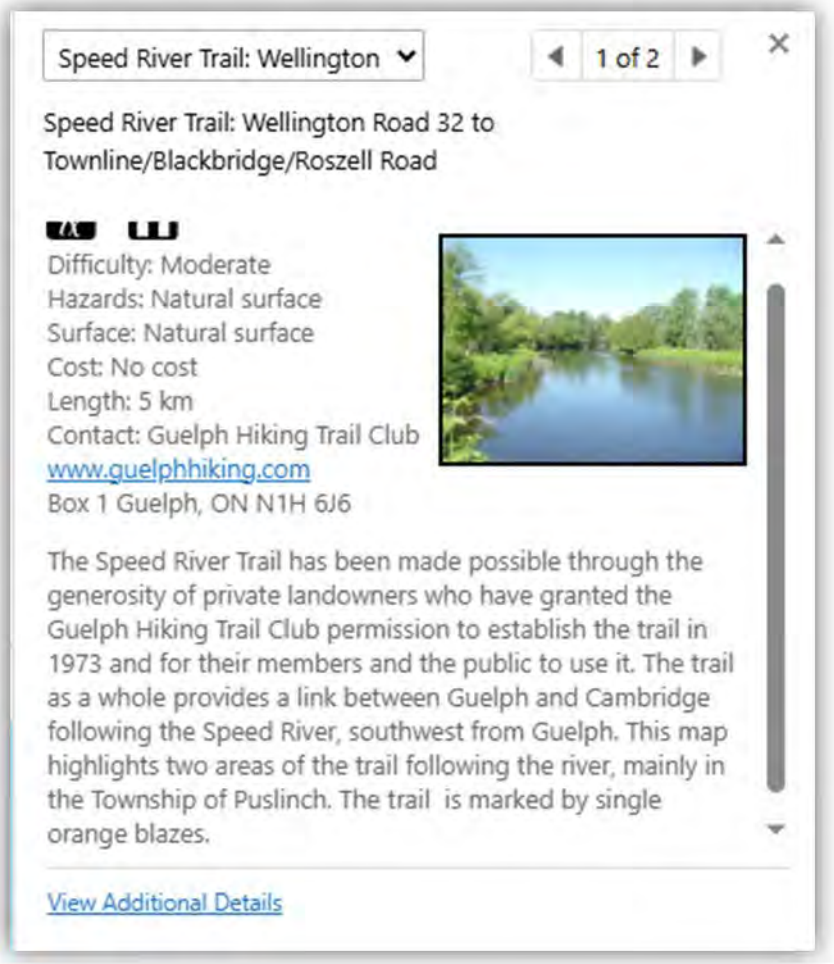
William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead

GFT
c 647.280.5895
CONFIDENTIALITY NOTICE: This email and any attachments may contain confidential information for the use of the named addressee. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution, or copying of it or its contents is prohibited.

From: William Van Ruyven
Sent: Tuesday, February 24, 2026 1:58 PM
To: [redacted]
Cc: Pasquale Costanzo <pasqualec@wellington.ca>; Joe de Koning <joedk@wellington.ca>; Salvatore Costanzo <scostanzo@gftinc.com>
Subject: Hiking Trail at WR 32 and Speed River - Blatchford Bridge Replacement

Hi [redacted] &[redacted]

I'm reaching out to enquire about the Speed River Trail (Guelph to Cambridge), located southwest of the Wellington County Blatchford Bridge (on Wellington Road 32 over the Speed River):
https://www.google.com/maps/@43.4844185,-80.2819612,18.48z?authuser=0&entry=ttu&g_ep=EgoyMDI2MDIyMi4wIKXMDSoASAFQAw%3D%3D



We're working on the design for the replacement of the Blatchford Bridge and would like to understand current access and use patterns for this trail. I'd appreciate any information you're able to share and welcome a call to discuss if you have any questions.

Kind regards,
William

William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead
GFT Infrastructure
c 647.280.5895
CONFIDENTIALITY NOTICE: This email and any attachments may contain confidential information for the use of the named addressee. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution, or copying of it or its contents is prohibited.

From: William Van Ruyven
Sent: Thursday, February 26, 2026 1:06 PM
To: [redacted]
Subject: RE: Hiking Trail at WR 32 and Speed River - Blatchford Bridge Replacement

Thanks [redacted] – will do.

William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead

GFT
c 647.280.5895
CONFIDENTIALITY NOTICE: This email and any attachments may contain confidential information for the use of the named addressee. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution, or copying of it or its contents is prohibited.

From: [redacted]
Sent: Thursday, February 26, 2026 12:50 PM
To: William Van Ruyven <wvanruyven@gftinc.com>; [redacted]
Cc: Pasquale Costanzo <pasqualec@wellington.ca>; Joe de Koning <joedk@wellington.ca>; Salvatore Costanzo <scostanzo@gftinc.com>
Subject: Re: Hiking Trail at WR 32 and Speed River - Blatchford Bridge Replacement

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi William,

Please remove me from correspondents as I'm no longer President. I'm sure [redacted] would be happy to assist here.

Thank you,

[redacted]

[redacted]

From: William Van Ruyven <wvanruyven@gftinc.com>
Sent: Tuesday, February 24, 2026 1:57:34 PM
To: [redacted]
Cc: Pasquale Costanzo <pasqualec@wellington.ca>; Joe de Koning <joedk@wellington.ca>; Salvatore Costanzo <scostanzo@gftinc.com>
Subject: Hiking Trail at WR 32 and Speed River - Blatchford Bridge Replacement

Hi [redacted]

From: William Van Ruyven
Sent: Friday, March 27, 2026 3:24 PM
To: '[redacted]'
Cc: Joe de Koning; [redacted]
Subject: RE: EA Process: Blatchford Bridge Comments

Good afternoon [redacted]

Thank you very much for the interest in this project and clear feedback, which will be included in the consultation records for the bridge study.

Kind regards,

William

William Van Ruyven, P.Eng., PMP
VP, Bridges & Structures Lead

GFT
c 647.280.5895
CONFIDENTIALITY NOTICE: This email and any attachments may contain confidential information for the use of the named addressee. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution, or copying of it or its contents is prohibited.

From: [redacted]
Sent: Friday, March 27, 2026 1:48 PM
To: William Van Ruyven <wvanruyven@gftinc.com>
Cc: Joe de Koning <joedk@wellington.ca>; [redacted]
Subject: EA Process: Blatchford Bridge Comments

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi William, thanks for recently taking the time to talk with me at length over our interests in this project. The following are our comments on behalf of [redacted]

We opened the Speed River Trail in 1973. It is a 16 km footpath that connects Guelph to the edge of Cambridge. It is open to all members of the public and we publicize it and insure it as such. It crosses the lands of 22 landowners, mainly private, but including Wellington County. For the latter, we rely on the bridge, and the shoulders of both Roads 32 and 124 to link two off-road sections of the trail. Specifically, the relevant section of the trail runs from the SW side of the bridge north along 32 to its intersection of 124 and then along the south side of 124 to the Enbridge gas compressor station at the foot of the northerly extension of 32.

The most dangerous part of our 92 km trail system *is* the Blatchford bridge, as it lacks any provision for pedestrians. The heavy, high speed traffic on that bridge endangers anyone who walks across it, and especially since sight lines to the south are poor. That being the case, we caution trail users to that effect in our guidebook to the trail.

It is absolutely essential that some form of basic, but protected walkway be provided on the *west* side of any replacement bridge for pedestrians.

It is not only hikers from the [redacted] who are at risk. Many hikers from other hiking clubs ([redacted] and the general public make it a goal to hike all of the other trails in their region, without any knowledge of [redacted] As do any other members of the general public who take on the challenge of hiking the length of our several trails. We also note that fishermen frequently walk over and back on the bridge to access the other side of the river adjacent to the bridge.

Secondly, we wish to make the County aware of the popularity of the access to the Speed River Trail at the point where it reaches the SW side of the bridge. ([redacted] has a small staircase and set of 3 signs at this trailhead, which we would ask be either preserved or restored after construction.) A semi-wilderness trail then runs nearly 5 km over 6 private properties toward Cambridge. The trail is not only used by hikers. It is also used by fishermen, deer, waterfowl and upland game bird hunters, geocachers, runners, a few cyclists and canoeists. All manner of these trail and trailhead users park at the roadside, where the paved shoulder allows for perhaps 5-6 vehicles at most.

The canoeists and kayakers make frequent use of the road allowance on the SW side of the bridge to put in and take out as it offers less steep and difficult access to the river than the other three sides of the bridge. Also, the river itself is attractive and reasonably navigable for considerable distances in all 4 seasons both upstream and down from this point. The navigable river is therefore a public recreational resource and as such is unrelated to the hiking trail, but all the same relying on the County's access on the Road 32 road allowance, and its related parking.

That parking, while both most useful and appreciated as such, is insufficient on two levels. First, ever since the County paved the shoulder perhaps 8 years ago, we, and yourself, have noticed that the southbound vehicles taking the curve to the right tend to cut the curve, infringing on the parking spots, and this is particularly so by 18 wheelers. This is dangerous for the parked vehicles and those getting in and out of them. A widening of the shoulder appears to be desireable. And the capacity of a half dozen vehicles is occasionally insufficient.

Secondly, we suggest that an off road parking option be examined on the opposite side of the road, i.e the SE side of the bridge, within the ROW, but atop the approaches to the old abutments (we note that there is also a public but unopened Puslinch/Guelph-Eramosa

townline road allowance extending to the NE that may be marginally useful) is a level area that could be created as *an alternative, or a supplemental,* albeit small, off road parking area for the many kinds of users of the trailhead.

We would ask that we be informed hereonin as far as construction, demolition and site preparation timing is concerned. Our 550 members and our even more widely accessed website can be kept up to date on the periods when either the trailhead parking and the bridge itself may be closed. A bit of lead time might allow us to arrange for an alternative trailhead away from the area of the bridge, so as to divert users and so that we do not have to close the whole trail. For this however, we would need cooperation of one or more private landowners who may not have any awareness of or association with the trail to date.

In any event, we welcome the opportunity to help with solutions to the issues at hand with regard to trail access.

We look forward to collaborating further with you, William, or Joe, as design solutions progress.

Feel free to contact me further should you wish to engage in informal discussions or as a sounding board for constructive ideas, or other informal feedback that you or Joe may have.

[redacted]

From: William Van Ruyven
Sent: Wednesday, April 8, 2026 9:06 AM
To: [redacted]
Cc: Joe de Koning
Subject: RE: Webform submission from: Blatchford Bridge EA – Online Public Information Centre - Comment Sheet

Great question. The timing of these projects is typically subject to external factors such as funding, coordinating with adjacent projects (like the work on WR 124) as well as design and permitting. The tentatively anticipated schedule would have the study completed this year (2026), detailed design should be completed in 2027 and then construction could be scheduled for 2028 / 2029 depending on approvals.

Kind Regards,

William

William Van Ruyven, P.Eng., PMP
Consulting Project Manager

GFT

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From: [redacted]
Sent: Tuesday, April 7, 2026 9:30 PM
To: William Van Ruyven <wvanruyven@gftinc.com>
Cc: Joe de Koning <joedk@wellington.ca>
Subject: Re: Webform submission from: Blatchford Bridge EA – Online Public Information Centre - Comment Sheet

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thanks very much - this will be a great improvement and safer for all.
Do you have any idea of timing?
[redacted]

> On Apr 7, 2026, at 4:37 PM, William Van Ruyven <wvanruyven@gftinc.com> wrote:
>
> Hello [redacted]

Thank you for your interest in this study and feedback. I can confirm that your understanding of the proposed design appears correct. The width of deck between the barriers will be increased from less than 8 m (~25.3 ft) to 12 m (~39.4 ft).

We've added you to the mailing list for future notices.

Kind regards,

William

William Van Ruyven, P.Eng., PMP
Consulting Project Manager

<image001.png>

CONFIDENTIALITY NOTICE: This email and any attachments may contain confidential information for the use of the named addressee. If you are not the intended recipient, you are hereby notified that you have received this communication in error and that any review, disclosure, dissemination, distribution, or copying of it or its contents is prohibited.

From: Wellington County <no-reply@countyofwellington.ca>
Sent: Monday, April 6, 2026 10:16 PM
To: Joe de Koning <joedk@wellington.ca>; William Van Ruyven <wvanruyven@gftinc.com>
Subject: Webform submission from: Blatchford Bridge EA – Online Public Information Centre - Comment Sheet

[EXTERNAL EMAIL]: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Submitted on Mon, 04/06/2026 - 10:16pm

Submitted values are:

Comments
Please add us to your mailing list:
[redacted]

We farm on either side of this bridge and it is challenging and can be dangerous to move farm equipment across the current bridge.
From the slides, it looks like the inside railing width is 40' - are our calculations and interpretation correct?
If yes, this would be a great improvement and much appreciated

Name
[redacted]

Email
[redacted]

Address
[redacted]
[redacted]

Appendix H

Project Notifications and Public Information Centre

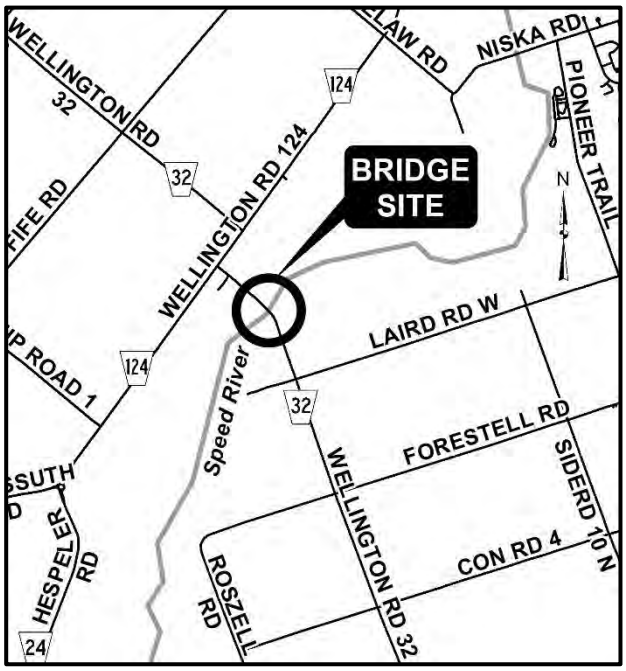
GFT

Notice of Study Commencement

GFT

NOTICE OF STUDY COMMENCEMENT

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment



The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. Gannett Fleming has been retained by the County of Wellington to complete a Study to address these items.

The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Comment Invited

A key component of the study will be consultation with interested stakeholders including public, agencies and Indigenous communities. We want to ensure that anyone with an interest in this study has the opportunity to provide input and feedback. Project updates will be posted on the Wellington County website www.wellington.ca/blatchfordEA and you are invited to provide input to the Project Team. Upon completion of the study, the planning process and recommendations will be documented in a Project File and made available for public review.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T 519.837.2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
Gannett Fleming Canada ULC
Royal Bank Plaza, Suite 1600, South Tower,
200 Bay Street, Toronto, ON M5J 2J3
T (437) 253-9279
Email: wvanruyven@gfnet.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

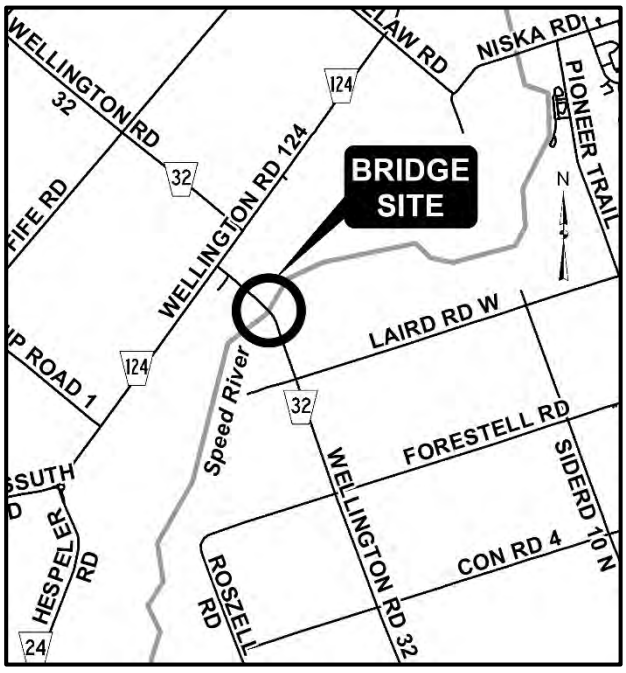
This notice first issued on May 30, 2024.

Notice of Public Online Information Centre

GFT

NOTICE OF ONLINE PUBLIC INFORMATION CENTRE

County of Wellington
Wellington Road 32, Blatchford Bridge No. B032085
Township of Guelph/Eramosa and Township of Puslinch, Ontario
Schedule B Municipal Class Environmental Assessment



The Study

The Blatchford Bridge (No. B032085) consists of a single span steel through truss structure with a concrete deck over the Speed River. The bridge has a span and deck width of 31.7 m and 8.4 m respectively and was constructed circa 1949. The bridge is located on Wellington Road 32, approximately 600 m south of Wellington Road 124, bordering the Township of Guelph/Eramosa and Township of Puslinch. The study area extends approximately 0.5 km on either side of the bridge. As part of a bridge inspection conducted in 2023, the Blatchford Bridge, No. B032085 was found to be in poor condition with major elements showing signs of significant deterioration. GFT Canada has been retained by the County of Wellington to complete a Study to address these items.

The Process

In accordance with the requirements for Schedule B projects of the Municipal Class Environmental Assessment (as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.

Public Engagement and Consultation

An online Public Information Centre (PIC) has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternative planning solutions under consideration, the evaluation process, and the next steps in the study. Display boards will be made available to the public on the County website beginning **March 12, 2026**. They can be viewed any time after this date by visiting: https://www.wellington.ca/BlatchfordEA

Residents are encouraged to submit comments by **April 24, 2026**. Comment sheets are available on the County's website and can be submitted via an online form or by email.

If you have any questions or concerns at any time during the study, or wish to be placed on the study mailing list to receive study notices directly, please contact either of the project team members below:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
74 Woolwich Street
Guelph ON N1H 3T9
T (519) 837-2601 x 2270
Email: joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Manager
GFT Canada
1 Adelaide Street East, Suite 2320,
Toronto, ON M5C 2V9
T (437) 253-9279
Email: wvanruyven@gftinc.com

Information will be collected in accordance with the Freedom of Inform and Protection of Privacy Act and will become part of the public record.

Alternate Formats Available Upon Request

This notice first issued on **March 12, 2026.**

Online Public Information Centre

GFT

County of Wellington

Blatchford Bridge No. B032085

Municipal Class Environmental (EA) Study

Wellington Road 32
Township of Guelph/Eramosa and Township of Puslinch



PUBLIC INFORMATION CENTRE - Online Package

GFT

Welcome

Welcome to the **online Public Information Centre (PIC)** for the Blatchford Bridge No. B032085 Class EA Study. This is the **only Public Information Centre** planned for this study. We invite you to securely sign-in online by visiting: www.wellington.ca/BlatchfordEA

We encourage your input and feedback on the materials presented through this online PIC. Questions or comments can be submitted online via the URL listed above, or email to:

Joe de Koning, P.Eng.
Manager of Roads
County of Wellington
519.837.2601 x 2270
joedk@wellington.ca

William Van Ruyven, P.Eng., PMP
Consultant Project Engineer
GFT Canada
437.253.9279
wvanruyven@gftinc.com

There is an opportunity at any time during the EA process for interested persons to provide written input. We ask that comments on the PIC materials be provided by **April 24, 2026** so that the Project Team can consider feedback in the next phase of the study.

Any comments received will be collected under the **Municipal Freedom of Information and Protection of Privacy Act** and, with the exception of personal information, will become part of the public record.

About This PIC

Purpose of This Package

- Introduce the Study and Municipal Class EA Process
- Review Existing Conditions, Problems and Opportunities
- Evaluate Alternative Planning Solutions
- Review Design Considerations
- Obtain Community Feedback and Identify Next Steps

How You Can Participate



Review this information package



Complete the **Online Comment Form**



Contact us directly

What is This Study About?

- Environmental Assessment (Class EA) to consider potential solutions to address the bridge condition.
- The study is being conducted in accordance with Schedule B of the Municipal Class EA process (2000, as amended in 2015 & 2023). The study will confirm and document the existing structural deficiencies and identify alternative solutions, including rehabilitation or replacement of the bridge, and evaluate associated environmental impacts.
- The Blatchford Bridge (No. B032085) is located on Wellington Road 32, bordering the Township of Guelph/Eramosa and Township of Puslinch, 0.8 km South of Wellington Road 124. It consists of a single span half-through (pony) steel truss structure with an exposed concrete deck, over the Speed River.
- The Bridge Study area extends approximately 1 km on either side of the bridge.





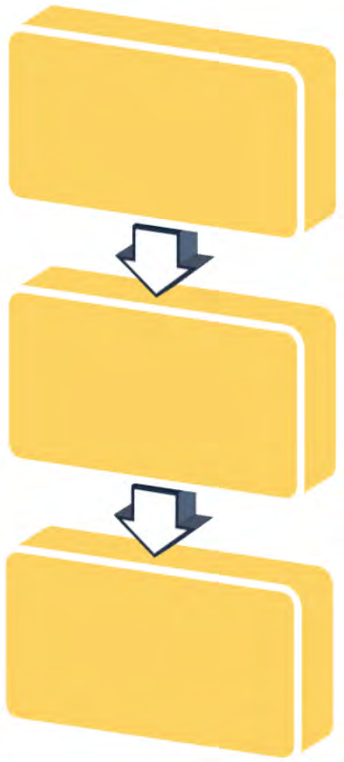
What is This Study About?

- In accordance with the requirements of the Schedule B Municipal Class EA process, the Study will identify the problem and opportunity, inventory natural, social, economic and cultural environments, identify and evaluate the planning alternatives and identify a recommended planning solution.
- The study considers numerous aspects including but not limited to: construction staging and traffic delays during construction, existing condition, serviceability limitations, local residences, business activity, general community access, cultural heritage and Indigenous values, as well as protection of the natural environment.
- Supporting technical components will inform the decision-making process and final Study recommendations, including:
    - Cultural Heritage
    - Archaeology
    - Drainage and Hydrology
    - Road Safety & Geometry
    - Natural Environment
    - Hydrogeology
    - Structural Design



Municipal Class EA Process

- This study is being conducted in accordance with the Ontario Environmental Assessment Act through the application of the **Municipal Class Environmental Assessment (MCEA).**
- The Class EA process enables the **planning and implementation of municipal infrastructure projects** taking into account the natural, cultural and socio-economic environmental setting, agency and public interests and unique project requirements.
- This study is following the MCEA **Schedule B process**, which involves two phases and one formal public engagement milestone. This process is depicted on the next slide.
- Public feedback is not limited to formal engagement milestones and is welcome at any time throughout the study process.



Municipal Class EA Schedule B Process

Phase 1: Problem and Opportunity
- Identify problems and opportunities

Notice of Study Commencement
May 2024

Phase 2: Alternative Planning Solutions
- Inventory natural, social, economic and cultural environments
- Identify and evaluate the planning alternatives
- Identify a Recommended Planning Solution
- Consult agencies and the public and select Preferred Planning Solution

Public Information Package
March 2026
- Existing conditions
- Problems and Opportunities
- Alternative Planning Solutions
- Design Considerations

We Are Here

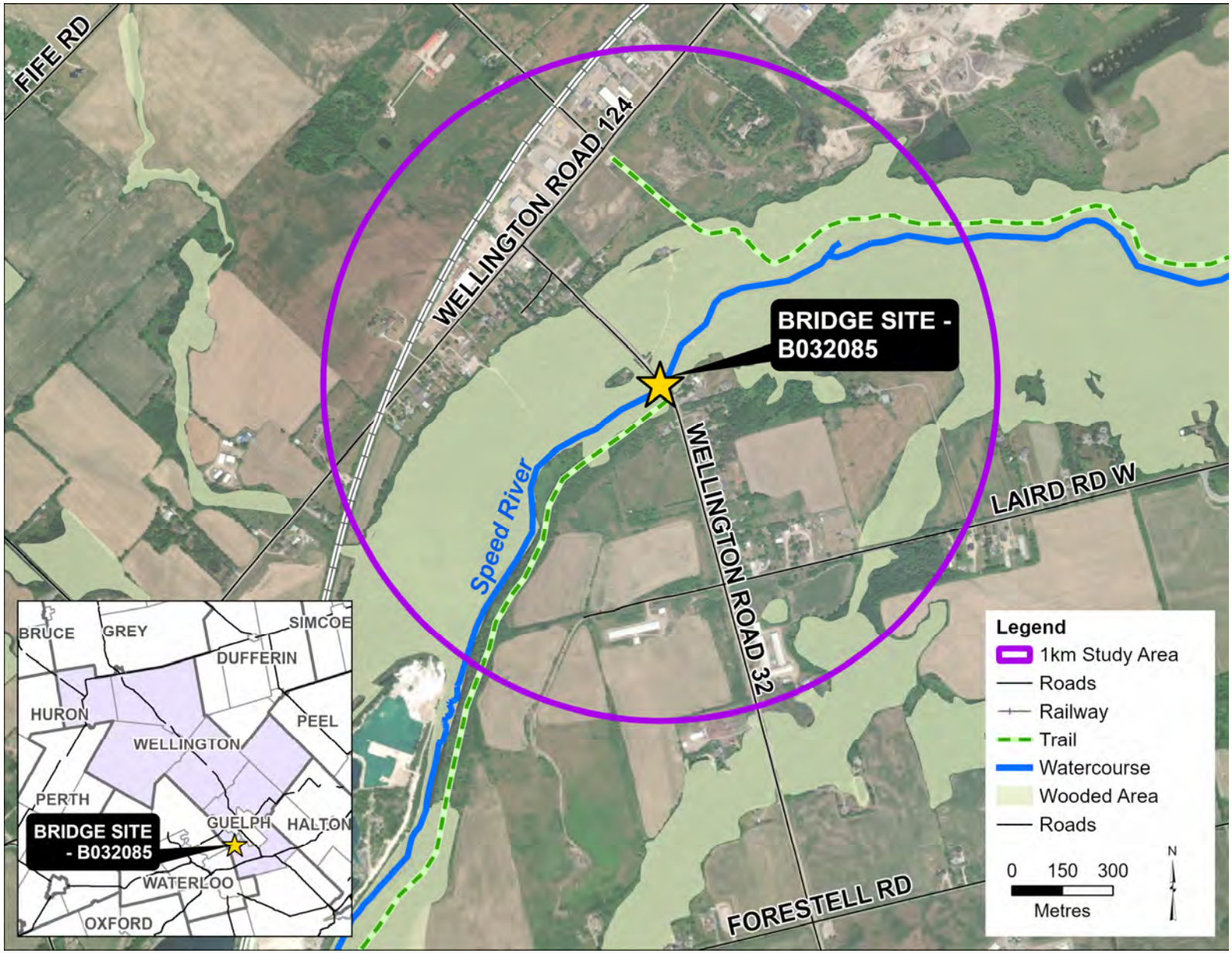
Project Documentation:
- Project File: Document decision making process of the EA Study

Notice of Study Completion
Tentatively Fall 2026

EA Approval

Design, Permits/Approvals and Construction
- Detailed Design

Study Area and Existing Conditions Overview



Existing Conditions

Summary of Key Considerations

- The bridge is generally in poor condition with severe deterioration. The load posting and narrow shoulders with a substandard roadway width present serviceability limitations.
- GRCA water level gauge station located on the northeast embankment of the bridge. Recommended to be impacted and relocated. This will be confirmed in the detailed design stage of the project.
- Hydraulic analysis of the Speed River at the structure indicates that the existing structure does not meet requirements (using the existing approved models). It may not be feasible to meet the requirements with road profile/span adjustments.
- Stage 1-2 archaeological assessment concluded that archaeological resources were not identified within the study area and no further archeological assessments are required.
- Bridge is considered to have cultural value or interest at a local level. Specifically, the subject bridge is a good representative of a half-through truss bridge in the local context and is historically linked to an engineer of local importance.

Existing Conditions

Transportation

- The Blatchford Bridge (B032085) carries two lanes of traffic on Wellington Road 32 over the Speed River, and is considered to be in a North-South direction.
- Wellington Road 32 is classified as an arterial road, with a posted speed limit of 60 km/h.
- The 2022 annual average daily traffic (AADT) in the vicinity of the Blatchford Bridge was approximately 7200.
- There are no active transportation facilities within the Study Area.



Existing Conditions

Community and Land Use

- Existing land use along Wellington Road 32 is prime agricultural with a mix of rural residences and commercial operations at its intersection with Wellington Road 124.
- The lands buffering the Speed River are classified as Core Greenlands and Greenlands per Schedule B3 and B7 of the Wellington County Official Plan.
- In 2021, a Road Master Action Plan for the County of Wellington was completed. This study contained no recommendations for Wellington Road 32 within the limits of Blatchford Bridge. Strategic plans were only recommended for Wellington Road 32 between Wellington Road 124 and Highway 7, therefore, the proposed alternatives in this study have not considered additional widening for future passing lanes.

Road Master Action Plan

Official Plan

Existing Conditions

Structure B032085

- The Blatchford Bridge was constructed circa 1949. The first known rehabilitation took place in 1992, when Blatchford Bridge was 43 years old. This rehabilitation involved replacement of the deck, cleaning and coating of the structural steel, installation of new expansion joints, and rock protection.
- The second known rehabilitation took place in 2010. This repair included the partial replacement of NW and SE bottom chord ends, the partial replacement of diagonal members at four locations, and the partial replacement of the lattice railing.
- The Bridge is currently posted with a load limit of 37 t – 47 t.





Existing Conditions

Structure B032085

- In general, severe corrosion and flaking of structural steel coating is present throughout bottom and top chord members and connection plates. Full depth perforations on bottom chords were identified around all quadrants. Abutment walls exhibited signs of deterioration with delamination, spalls, scaling, and cracks present. The traffic barriers and railing are in poor condition with missing panels and impact damage.
- Several components are in need of maintenance, rehabilitation and/or replacement and the bridge is approaching the end of its useful service life.
- Functional/operational deficiencies including sub-standard barrier protection are noted on this site.
- Main load bearing components (steel trusses) are exposed to potential traffic impact damage that could impact the capacity.



Existing Conditions

Abutment & Wingwall

North Abutment



South Abutment



Spalling, Delamination, Cracking, Efflorescence

Southwest Wingwall





Cracks, Spall and Scaling

South Ballast Wall



Existing Conditions

Deck Soffit

Deck Soffit





Cracking with Efflorescence

General View



Existing Conditions

Truss

Bottom Chords





Corrosion and Perforations



Deteriorated Coating



Vertical & Diagonal Members



Impact Damage

Corroded and Flaked Vertical Lattice Bars



Existing Conditions

Bearings

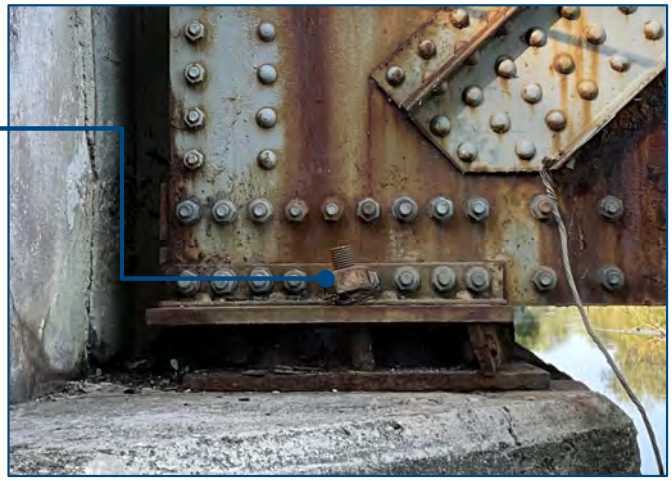
Southwest Bearing



Corrosion on Bolts

Severe Bearing Deterioration

Southeast Bearing



Northwest Bearing



Medium Plate Corrosion

Reduction of Bearing Seat

Northeast Bearing



Existing Conditions

Barrier System

West Traffic



Medium Corrosion

East Traffic Barrier





West Guiderail



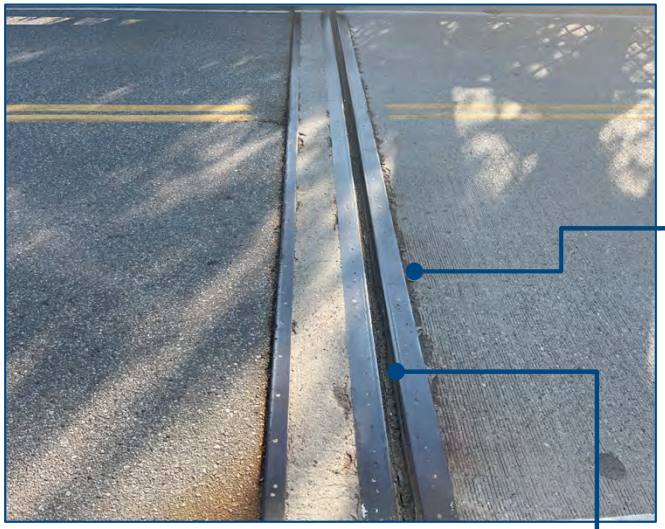
Impact Damage



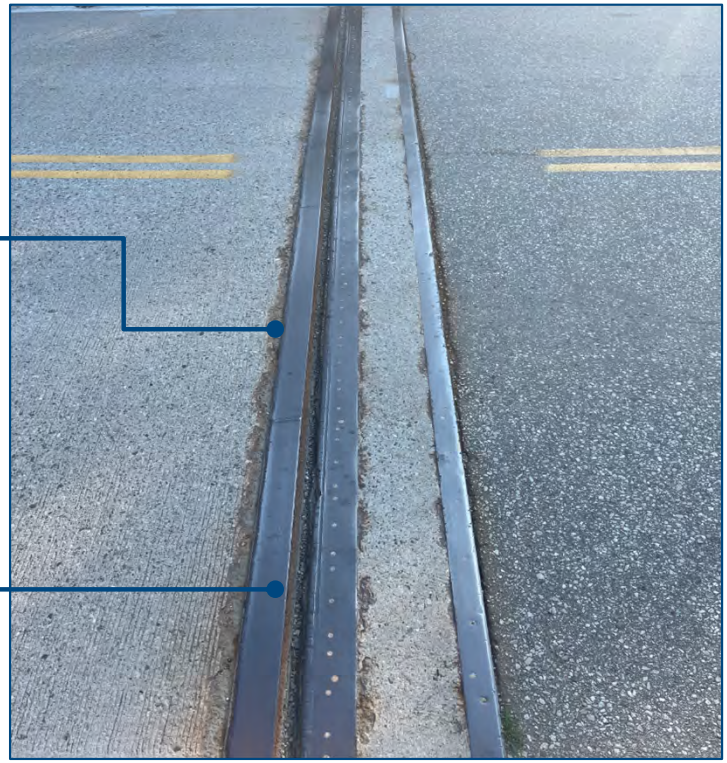
Existing Conditions

Wearing Surface & Expansion Joint

North Expansion Joint



South Expansion Joint



Gouges/Impact Damage on Steel, Cracking and Spalls on Concrete End Dams

Failure of Strip Seal Joint

Wearing Surface



Light Surface Scaling

Existing Conditions

Heritage

- A Cultural Heritage Evaluation Report (CHER) and Heritage Impact Assessment (HIA) were completed to summarize the historical and cultural background of the subject bridge, assess the impacts of the proposed work on the bridge's cultural and heritage values, and develop mitigation strategies to preserve these values.
- Designed by the Wellington County Engineer, W.H. Keith, who led the repair and replacement of numerous notable bridges in the Wellington County.
- Only remaining half-through truss structure in the Townships of Guelph/ Eramosa and Puslinch.
- The abutments of the previous bridge are still present on the East sides of the bridge.





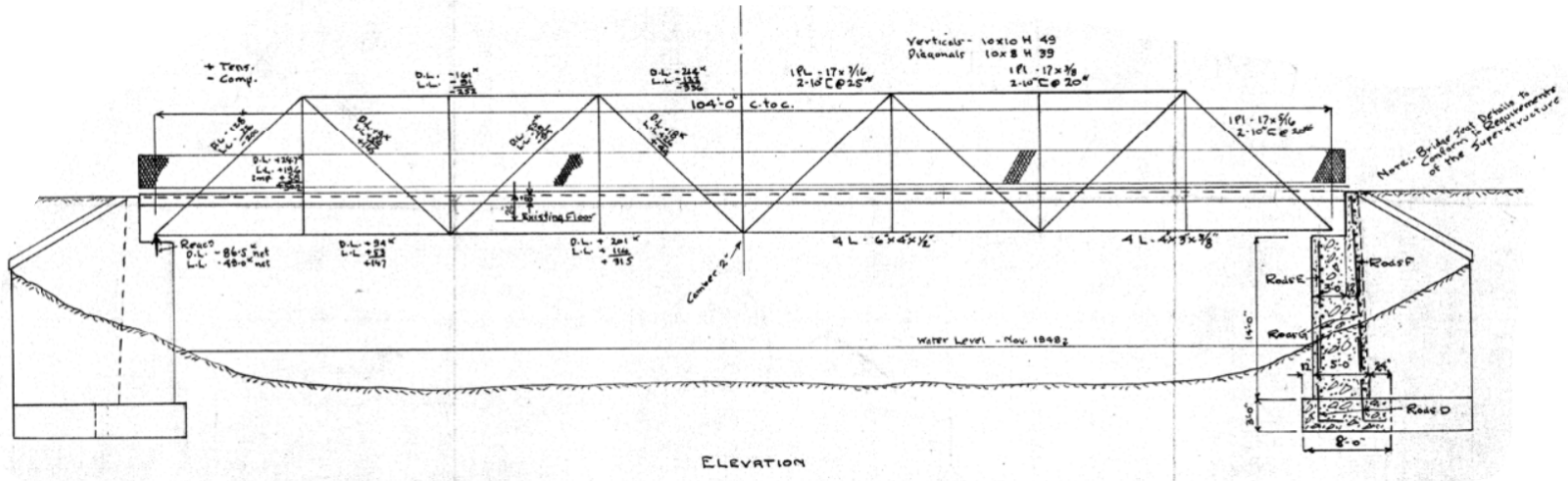
- The bridge is a good representative of a half-through truss bridge in the local context and is historically linked to an engineer of local importance.
- The bridge is considered to have cultural value or interest at a local level through design/ physical and historical/ associative values.

Existing Conditions

Heritage

Should replacement be preferred, cultural heritage value may be mitigated by:

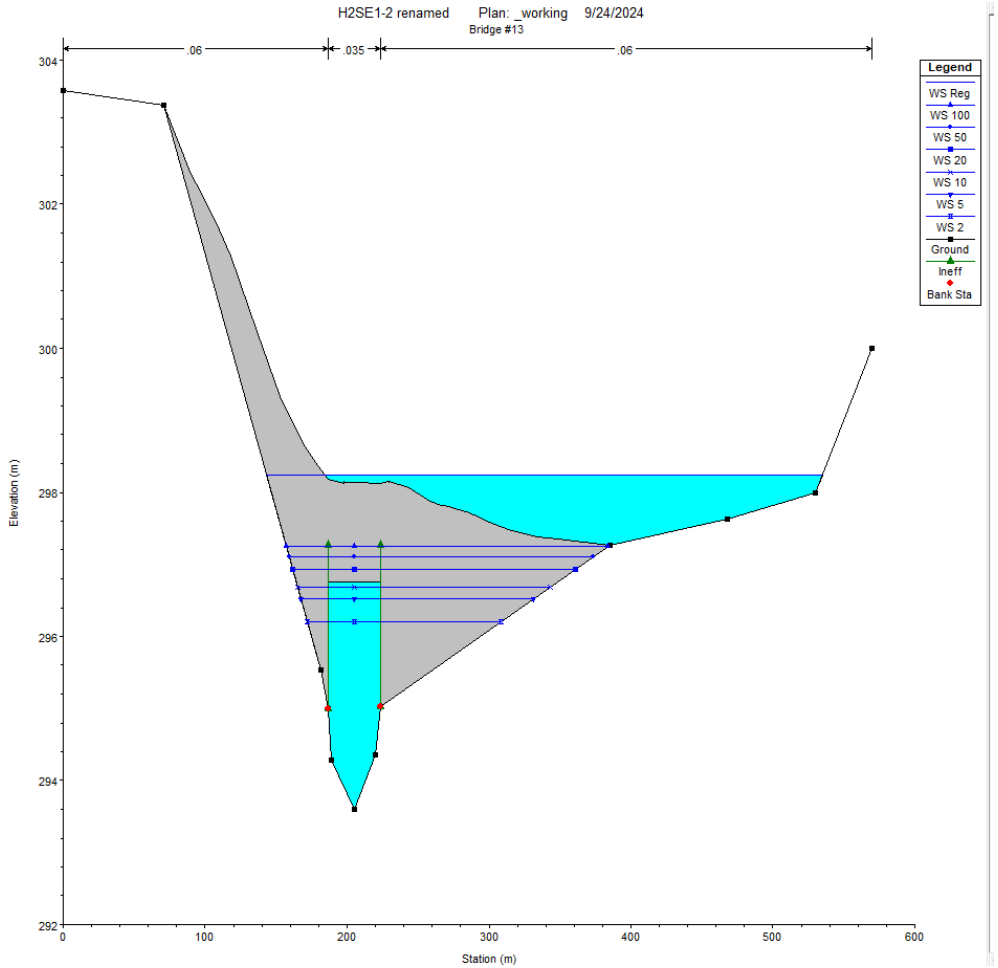
- Incorporating visual elements reminiscent of the existing half-through truss design, such as geometric patterns into concrete barriers or lattice-like railings.
- Prior to removal, investigate the feasibility of relocating or salvaging structural elements of the existing bridge for adaptive re-use or commemorative purposes to reduce the negative cultural heritage impacts.
- Consider salvaging select structural elements like truss panels or sections with riveted connections for incorporation into a commemorative interpretation.
- Develop a commemorative installation featuring information panels and photographs of the 1949 bridge.



Existing Conditions

Drainage & Hydraulics

- A hydraulic analysis was completed using the existing approved GRCA model to confirm the performance of the existing structure and multiple alternative scenarios were reviewed to inform the span length and profile of the new preliminary bridge design.
- The analysis confirmed that the existing structure does not meet Highway Drainage Design Standards hydraulic requirements or MNRF flood hazard requirements for Regional events with the GRCA hydraulic model flows.
- The new structure provides minor improvements but does not achieve performance criteria stated above



Existing Bridge Hydrologic Model Results for Various Flow Scenarios

Existing Conditions
Drainage & Hydraulics

To meet the design standards:

- Significant profile adjustments would be required (far beyond the limits of the bridge replacement).
- Profile adjustments would necessitate adjacent driveway access challenges, significant property impacts and/or additional retaining walls along the road.
- The new span would need to be multiple times longer than the existing bridge and would be inconsistent with typical crossing along the Speed River.

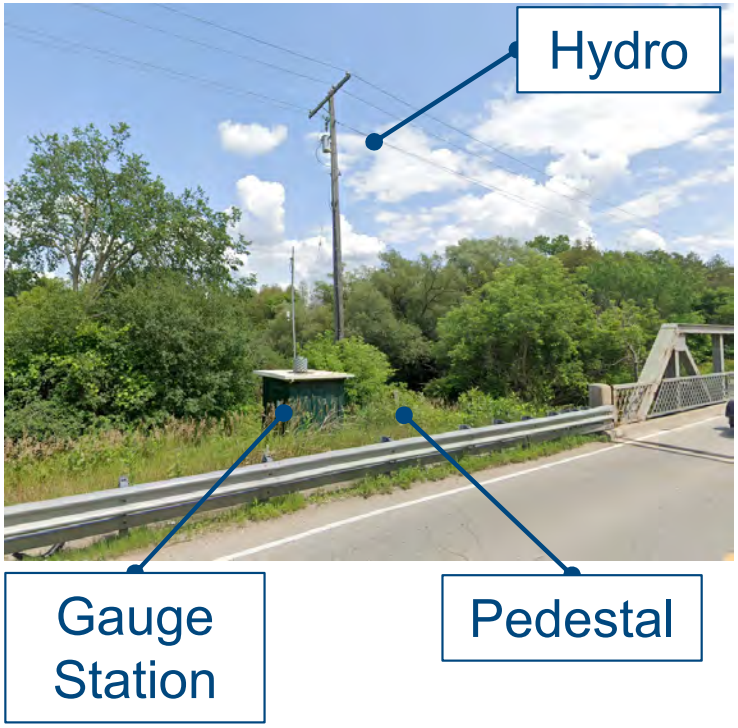
Considering the site constraints and practical replacement alternatives, it is anticipated that it may not be feasible to meet the design standards using the hydrologic information in the existing GRCA approved model. Further verification of hydrologic flows in the model will be required during detailed design.

There may be an opportunity to refine design flows during detailed design given that flow monitoring records are available for the past 18 years, and generally present significant flow reduction when considering a flood frequency analysis.

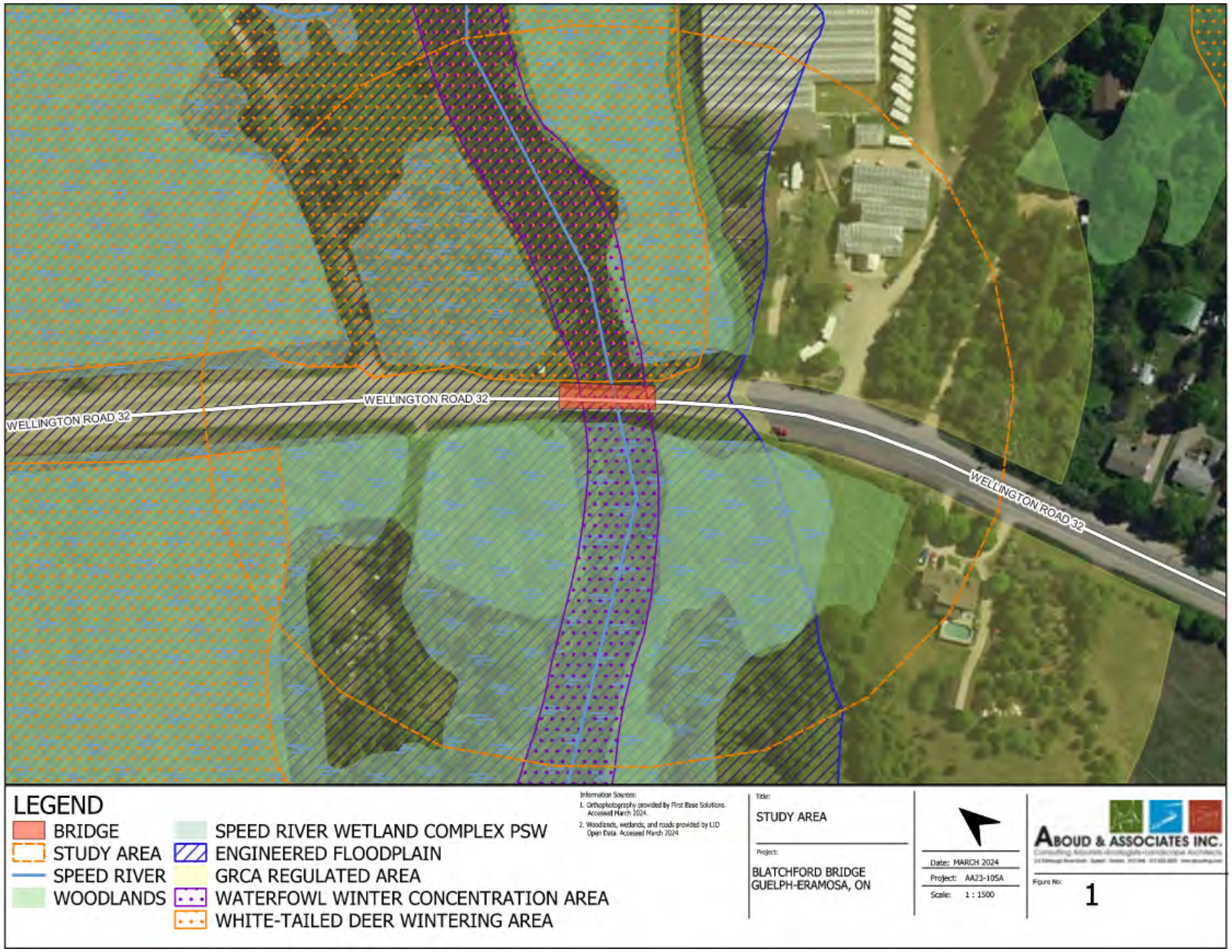
Existing Conditions

Utilities

- There are overhead hydro wires located approximately 6.5 m East of the existing bridge. These are not anticipated to be in conflict for a potential bridge rehabilitation or replacement; however, clearance requirements must be provided.
- The GRCA gauge station may require relocation for the replacement alternative. This will be confirmed in the detailed design stage of the project.
- Communication cables are attached to the East abutments and truss. It is anticipated that these will be impacted and temporarily supported during construction.
- A communication pedestal is located beside the GRCA gauge station which is anticipated to be impacted. This will be confirmed in the detailed design stage of the project.
- An Enbridge gas main is located Southeast of the bridge and is not anticipated to be in conflict for a potential bridge rehabilitation or replacement.



Natural Environment – Map



Natural Environment – Overview

- The Speed River floodplain is regulated by the Grand River Conservation Authority (GRCA) under O.Reg. 150/06.
- Blatchford Bridge is located within the Speed River Provincially Significant Wetland (PSW) complex, Waterfowl Winter Concentration Area, and White-tailed Deer Wintering Area.
- The Speed River and its surrounding vegetation and wildlife is the most prominent natural feature in the study area.
- Vegetation in study area consists of: White Cedar Mineral Coniferous Swamp, Willow Mineral Deciduous Swamp, White Cedar-Hardwood Mineral Mixed Swamp, and Tamarak-Hardwood Mineral Mixed Swamp.



- No SAR presence or potential presence, and no critical habitat for any SAR was identified on the online Fisheries and Oceans Canada (DFO) mapping system in a 1 km radius around the subject lands.

Natural Environment – Field Surveys

- Eight (8) species of birds were detected during a Breeding Bird Survey and six (6) species were presumed to be breeding. The Eastern Kingbird was identified which is a GRCA Conservation Priority species.
- The study area provides potential habitat for the Blanding's Turtle. This species is identified as occurring within the County per the MNRF species occurrence mapping.
- No nesting cavities for Woodpecker species were identified.
- Fish and crayfish were observed during an aquatic habitat assessment.
- No Species At Risk (SAR) or associated nesting sites were identified within the study area during field surveys.
- No aquatic SAR (e.g., fish or mussels) were found in the vicinity of the bridge.
- No trees that demonstrate the characteristics of candidate bat maternity were identified near the bridge.



Blanding's Turtle

Natural Environment – Timing Windows

- In-water activity is restricted between **March 15** and **June 30** of any year to avoid impacts to the watercourse during the sensitive life stages of the fishery in the Speed River.
- To protect overwintering turtles, no in-water works shall be permitted between **September 30** and **April 1** unless the aquatic construction zone is isolated prior to September 1 (of any year).
- To protect migratory birds, vegetation clearing shall be avoided during the identified “Regional Nesting Period” from **April 1** to **August 31**.
- To protect migratory birds, tree clearing shall be avoided during the identified “Bat Maternity Timing Window” from **April 1** to **September 30**.



Problem & Opportunities

Based on the assessment of the existing Blatchford Bridge and an overview of the area features, the problem being addressed is described as follows:

- Main load carrying truss members (designed without redundancy) are exposed to traffic impacts.
- The bridge is in an advanced state of deterioration.
- The bridge is load posted and has narrow shoulders.
- The bridge has deficient barrier protection.



The cost of maintaining the current bridge under a rehabilitation approach is expected to meet or exceed the cost of replacement options and therefore the EA Study has been initiated to define the most appropriate bridge management strategy to carry forward.

Alternative Planning Solutions

To address the poor conditions of the Blatchford Bridge, the following planning solutions are being considered:

Alternative Planning Solution	Description
Do Nothing	No improvements would be made to the structure. The structure would continue to be monitored / inspected. Through time, it is expected that bridge closures would occur as conditions worsen.
Rehabilitation	Rehabilitation includes repairs to bearings, railings, truss, curbs, sidewalks, soffit and substructure repairs, deck and substructure repairs.
Replacement	Replacement involves removal of the existing structure and construction of a new structure at or close to the existing location. The proposed structure replacement type and construction / traffic staging methods would be verified upon completion of the study during the detailed design.

Factors Considered in Evaluating Alternative Solutions

Socio-Economic Environment

- Consistency with Official Plans and policies
- Potential property requirements
- Impacts to residents and business (operations and access)
- Impacts to agricultural lands and operations

Transportation

- Consistency with transportation planning and policy documents
- Traffic operations and efficiency

Natural Environment

- Potential indirect and direct impacts to terrestrial and aquatic species and habitats
- Potential impacts to Species at Risk and their habitat

Surface Water and Groundwater

- Management of road runoff
- Protection of surface water features and watercourse crossings
- Flood conveyance
- Protection of groundwater resources

Technical

- Structural condition and deficiencies
- Hydraulic capacity of channel
- Design requirements and construction constraints / complexity

Cultural Environment

- Archeological Resources
- Cultural Heritage Resources

Preliminary Cost Estimate

- Capital costs estimate for high-level comparison purposes

Evaluation Criteria

- **Transportation / Traffic Maintenance:** including existing and future traffic operations, emergency vehicle access, flexibility for staged construction.
- **Socio-Economic Environment:** including direct and/or indirect impacts related to property, utility facilities, site contamination and noise.
- **Structure:** including advanced state of deterioration, structural deficiencies, functional deficiencies, operational deficiencies, barrier deficiencies, guide rail deficiencies, number of spans/piers, span length(s), depth and width of fill at roadway approaches, embankment widening, the need for retaining walls and general safety concerns.
- **Cultural Environment:** including impact on archaeology, built heritage and cultural landscape resources.
- **Natural Environment:** including direct and/or indirect impacts on watercourses, fisheries, aquatic habitat, terrestrial ecosystems, and shoreline habitat.
- **Hydraulics:** including hydraulic capacity and performance related to future design storms.
- **Roadway Geometry:** including drainage, grades, horizontal curves.
- **Cost Estimate:** including property and construction costs.

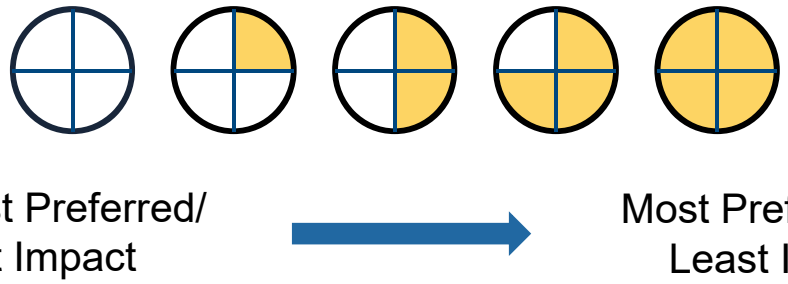
Assessment & Evaluation Process

The multi-factor analysis has two basic steps:

- **Assessment of Impacts:** The potential benefits and impacts of each alternative were assessed against comprehensive set of factors / criteria.
- **Evaluation of Alternatives:** A comparative examination of the relative advantages and disadvantages of the alternatives and a ranking of most preferred to least preferred is developed. Ultimately each factor is reviewed in the context of the overall project objectives and needs.

The assessment and evaluation is presented in detail over the next few slides and followed by a summary of the key considerations.

The evaluation utilizes the following system to indicate relative ranking or preference:



Evaluation of Alternative Planning Solutions

Category	Do Nothing	Rehabilitation	Replacement
Transportation / Traffic Maintenance	- No immediate changes - Long term impacts would arise as travel would become limited or close, in the long-term due to deteriorating conditions of the bridge and likely eventual closure - Does not address load posting or narrow width	- Some short-term traffic impacts during rehabilitation works (e.g. lane closures or temporary detours) - Local and regional traffic may experience delays during rehabilitation works - Does not address load posting or narrow width	- Maintains Bridge in its current location in the long-term - Construction for bridge replacement would involve traffic management such as possible lane restrictions, road closures and temporary detours - Local and regional traffic may experience delays during construction - Long term improved safety and operation - New bridge will be more durable and low maintenance design (no steel coating or main load carrying members exposed to traffic impacts)
			

Evaluation Continued…

Category	Do Nothing	Rehabilitation	Replacement
Socio-Economic	- No immediate changes to existing conditions; however, as structural conditions decline, significant socio-economic impacts would arise. There is potential for further load restrictions and the eventual closure of the bridge due to deteriorating conditions - No impacts to utilities are anticipated - No property impacts - No impacts to accessing the Guelph to Cambridge hiking trail on the southwest embankment	- No impacts outside of existing right-of-way - Temporary alteration of travel/ commuter routes and impact to adjacent/alternative route(s) during construction - Temporary impact to local residents, commercial, industrial and agricultural businesses during rehabilitation construction - No impacts to utilities are anticipated - No property impacts - Potential impacts to accessing the Guelph to Cambridge hiking trail	- Temporary alteration of travel / commuter routes and impact to adjacent / alternative route(s) during construction - Temporary impact to nearby gravel pits and other local commercial, industrial and agricultural businesses during construction - Noise and dust and other associated inconveniencies during construction - Disruption to local businesses, farm operations and residences during construction - Minor impacts to utilities are anticipated - Potential property impacts - Potential impacts to accessing the Guelph to Cambridge hiking trail
			

Evaluation Continued…

Category	Do Nothing	Rehabilitation	Replacement
Structural	- Structural conditions would worsen until more drastic measures would have to be taken such as additional bridge load reduction or closure in order to manage risk to the public - Sub-standard barrier protection and guide rail protection not addressed - Main load bearing components (steel trusses) are exposed to potential traffic impact damage - Could eventually result in severe structural damage or even collapse	- Provides short term solution to structural deficiencies; however, does not ultimately address the limited design life and does not address design deficiencies - Only defers but does not avoid eventual structure replacement - Addresses failure of coating system - Addresses failure of traffic barrier - Main load bearing components (steel trusses) are exposed to potential traffic impact damage - Could eventually result in severe structural damage or even collapse	- Provides a long-term solution to addresses all structural and design deficiencies of Blatchford Bridge - Opportunity to consider rapid replacement techniques and other means of optimizing construction to manage impacts - New bridge will be more durable and low maintenance design (no steel coating or main load carrying members exposed to traffic impacts) - Provides traffic barriers that comply with current standards - Addresses failure of traffic barrier - Lifespan of new structure is 75 years
			

Evaluation Continued…

Category	Do Nothing	Rehabilitation	Replacement
Cultural Environment	- No archaeological impacts - No impacts to built heritage resources - No impacts to cultural heritage resources	- Limited potential archaeological impacts - Consistent with the principle of preservation of material to its highest integrity and would maintain some heritage attributes of the bridge.	- Limited potential archaeological impacts - Demolition would result in the loss of bridge heritage attributes - Impacts could be minimized if the new bridge retained its original location and adopted a design that draws from the materials and design inspiration of the current bridge while maintaining legibility (new work that is distinguishable from the old) - Mitigation includes documentation and photographic recording prior to removal
			

Evaluation Continued…

Category	Do Nothing	Rehabilitation	Replacement
Natural Environment	- No immediate changes to existing conditions	- Potential for indirect impacts (e.g., debris and sediment release with rehabilitation works) can be managed using appropriate mitigation measures (e.g., proper erosion and sediment controls, use of in-water work and animal nesting timing windows). - No permanent impacts on the aquatic habitat of the Speed River	- Temporary in-stream works and direct impacts associated with partial removal of existing abutments. Work zone can be isolated from river and the areas will be restored following construction with rock protection. - Minor direct impacts to common roadside and riparian vegetation Areas to be restored following construction with ESC blankets. - Minor direct impacts and potential indirect impacts can be managed using appropriate mitigation and restoration measures (e.g., proper ESC, use of timing windows for works). - Eliminates of deck drains
			

Evaluation Continued…

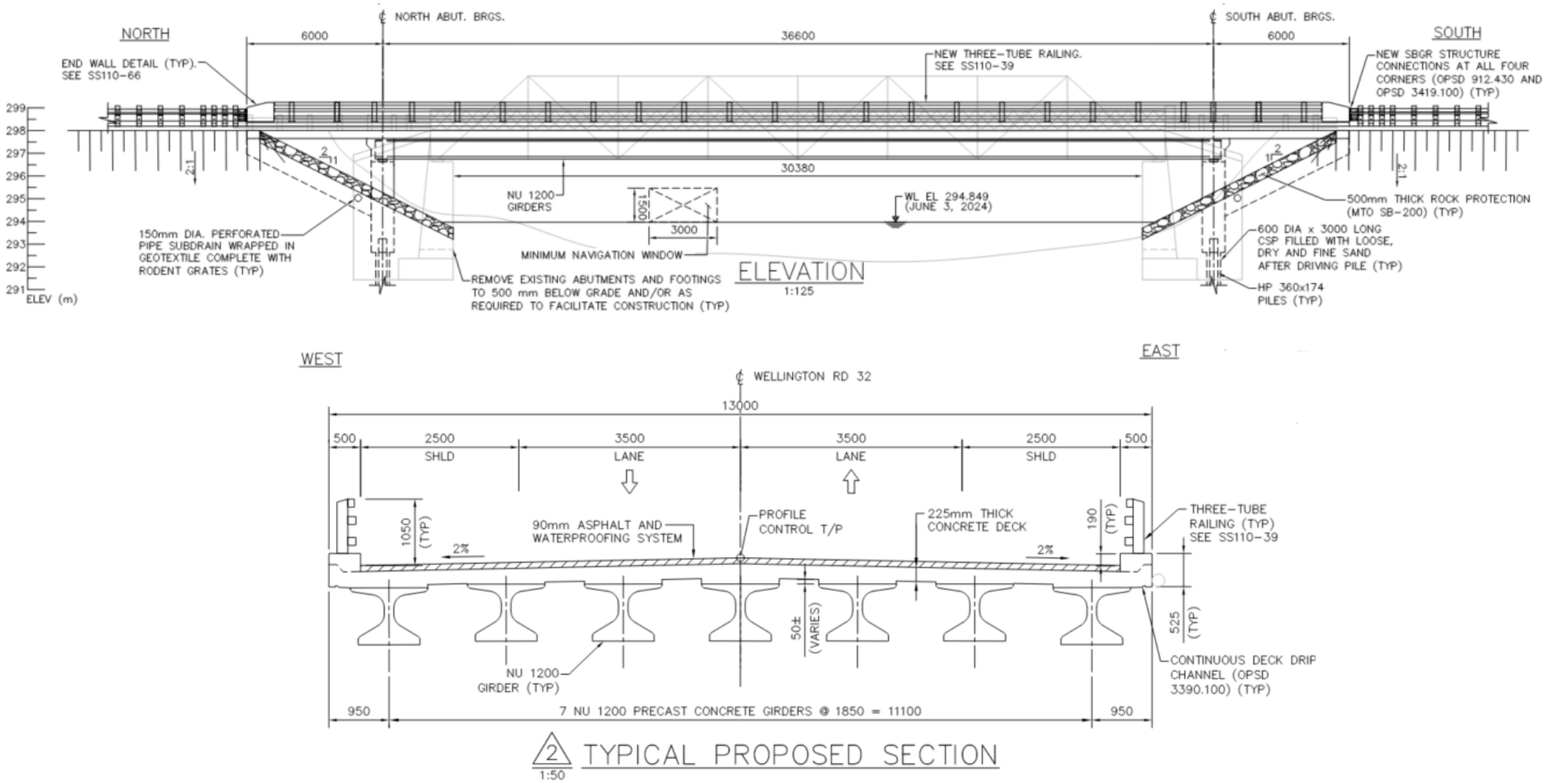
Category	Do Nothing	Rehabilitation	Replacement
Hydraulics	- Does not meet standards - No changes to existing conditions	- Does not meet standards - No changes to existing conditions	- Improves capacity, but may not be feasible to meet all standards.
			
Roadway Geometrics	- Substandard width not addressed	- Substandard width not addressed	- Improves sight distance - Improves cross section to meet standard requirements
			
Cost Estimate	- No initial capital costs - Ongoing costs for monitoring and inspections (these have potential to increase due to more frequent inspections required)	- Initial capital cost of 2.0 million - Net present value of 3.6 million*	- Initial capital cost of 3.8 million - Net present value of 3.7 million*
			

**Net present value of 50 year life cycle cost*

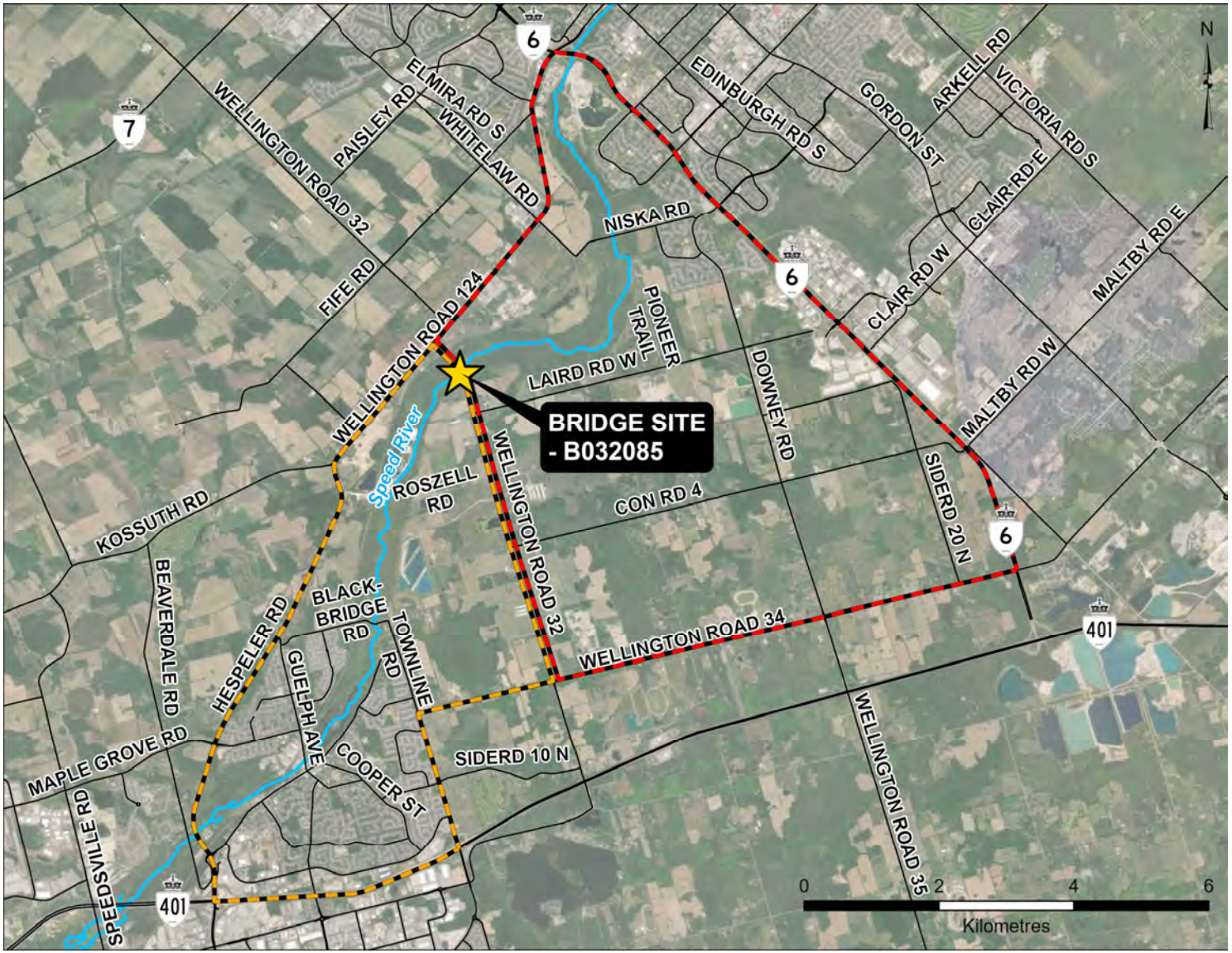
Alternative Planning Solution Summary

Alternative Planning Solution	Assessment Summary	Conclusion
Do Nothing	• Not a reasonable alternative because significant structural deficiencies would not be addressed. • Would lead to increased load restrictions and eventually, road closure.	Does not address the problem and is not considered an acceptable alternative. Therefore, this alternative is not recommended.
Rehabilitation	• Extensive and ongoing rehabilitation would be required. • Rehabilitation would add limited additional service life to the bridge. • Only defers/delays a longer-term solution (i.e. eventual bridge replacement)	Addresses some of the structural deficiencies but would not address operational deficiencies. Therefore, this alternative is not recommended.
Replacement	• Existing bridge would be removed and new foundation / abutments would be installed. • All design criteria would be met. • Long term improved safety and operation. • New bridge will be more durable with lower maintenance design. • Traffic delays will occur over multiple construction seasons. Construction staging and traffic management can ease disruption. • Rapid replacement to be considered in next study phase.	Addresses the structural and functional deficiencies; a longer-term solution. This alternative is selected as the preliminary preferred alternative solution. **Recommended**

Recommended Bridge Replacement Concept



Detour Route for Blatchford Bridge Closure During Construction



Bridge Replacement Design Considerations

Many considerations will go into the detailed design phase following completion of the Class EA study for the proposed bridge replacement:

- Traffic safety standards
- Soil conditions and bridge foundation needs
- Bridge size requirements, materials, construction methods
- Accelerated construction techniques
- Construction staging and traffic management
- Construction scheduling and duration
- Utilities impacts, protection and/or relocations
- Groundwater conditions, groundwater pumping
- Environmental mitigation
- Permits/approvals



Next Steps

Following this Public Information Center (PIC), we will:

- Collect all public comments and respond to questions, as appropriate
- Confirm the Preferred Planning Solution
- Prepare the Project File
- Publish a Notice of Study Completion
- Allow for a minimum 30-day review period of the Project File
- Proceed with detailed design and the implementation for the bridge replacement



Public consultation and feedback is one of the main objectives of the Municipal Class Environmental Assessment process. We encourage all questions or comments regarding the study or the contents of the presentation material to be submitted to the Project Team by **April 24, 2026**. Please refer to the County's website or the "Welcome" slide of these displays for contact information. All information is collected in accordance with the Freedom of Information and Privacy Act.

Thank you for Participating!

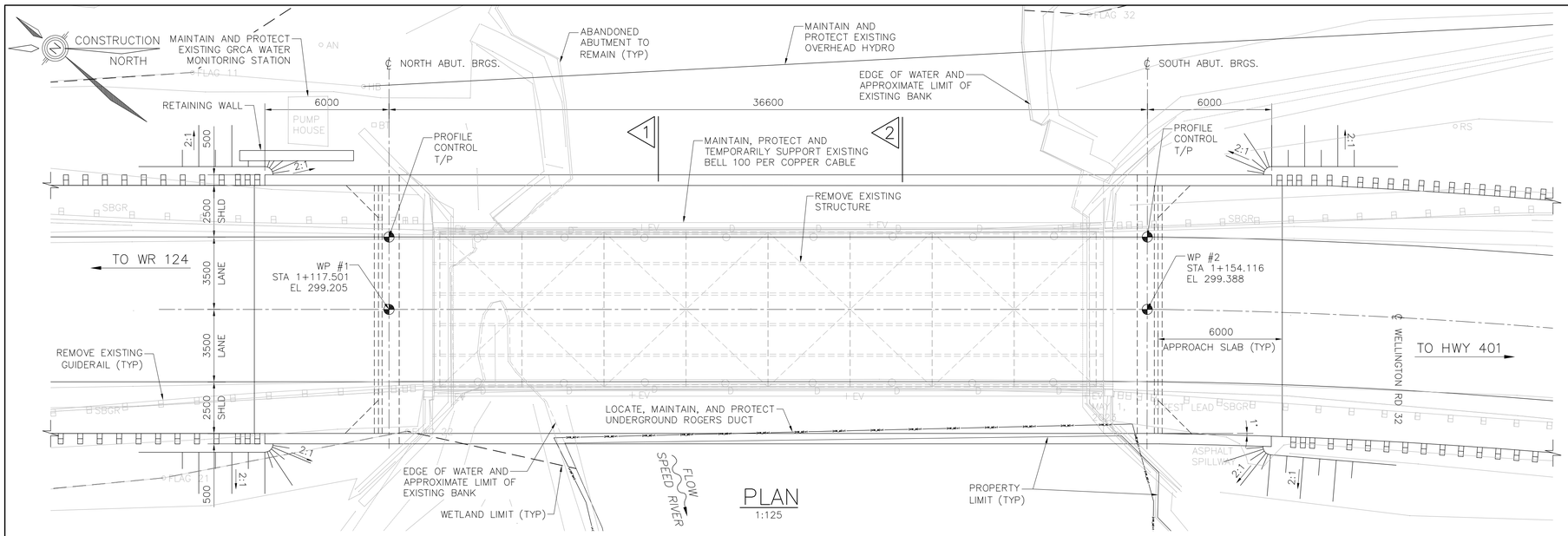


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Appendix I

Preliminary General Arrangement

GFT



GENERAL NOTES:

DESIGN CODE:

CHBDC 2025 CAN/CSA S6-25 LIVE LOAD: CL-625-ONT

CLASS OF CONCRETE:

ALL CONCRETE UNLESS OTHERWISE NOTED 35 MPa AT 28 DAYS.
CLASS C-1 PER CSA 23.1

CLEAR COVER TO REINFORCING STEEL:

DECK:

TOP	70	±	20
BOTTOM	40	±	10
REMAINDER, UNLESS OTHERWISE NOTED:	70	±	20

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE WELDABLE GRADE 500W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS B.
3. STAINLESS REINFORCING STEEL SHALL BE TYPE 316LN OR DUPLEX 2205 AND HAVE A MINIMUM YIELD STRENGTH OF 500MPa, UNLESS OTHERWISE SPECIFIED.
4. BAR MARKS WITH PREFIX 'S' DENOTE STAINLESS STEEL BARS.
5. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND DIAMETERS, WHILE STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWINGS SS12-1 AND SS12-2, UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL ESTABLISH THE BEARING SEAT ELEVATIONS BY DEDUCTING THE ACTUAL BEARING THICKNESSES FROM THE TOP OF BEARING ELEVATIONS. IF THE ACTUAL BEARING THICKNESSES ARE DIFFERENT FROM THOSE GIVEN WITH DRAWINGS, THE CONTRACTOR SHALL ADJUST THE REINFORCING STEEL TO SUIT.
2. NO BACKFILL SHALL BE PLACED BEHIND END OF DECK UNTIL DECK SLAB IS IN PLACE AND HAS REACHED 70% OF ITS DESIGN STRENGTH
3. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN ELEVATION BE GREATER THAN 500mm.
4. CONSTRUCT ABUTMENTS AND WINGWALLS TO THE BEARING SEAT ELEVATIONS. THE CONTRACTOR SHALL SUPPLY TEMPORARY LATERAL BRACING FOR THE ABUTMENTS. FORMWORK AND LATERAL BRACING SHALL NOT BE REMOVED UNTIL CONCRETE HAS REACHED 70% OF ITS SPECIFIED STRENGTH.
5. SUBDRAINS SHALL BE EXTENDED TO THE LIMIT OF GRADING FROM SLOPE TO SLOPE AND INSTALLED COMPLETE WITH RODENT GRATING (TYPICAL).
6. ROCK PROTECTION (MTO WB-200) TO BE PLACED TO A MINIMUM DEPTH OF 500mm AS SHOWN. WB-200 LAYER TO BE TOP DRESSED WITH A 100mm THICK LAYER OF TABLE A SUBSTRATE.
7. ACCESS TO PRIVATE ENTRANCES WITHIN LIMITS OF CONSTRUCTIONS ZONE TO BE MAINTAINED AT ALL TIMES.
8. WELLINGTON ROAD 32 TO BE CLOSED AT THE BRIDGE FOR THE DURATION OF THE WORK.
9. LOCATIONS OF EXISTING UTILITIES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. PROTECT EXISTING FACILITIES, STRUCTURES AND THE PUBLIC DURING DEMOLITION AND ERECTION OF THE NEW CONSTRUCTION, AS WELL AS FOR JOB SAFETY. JOB SAFETY, CONSTRUCTION AND DEMOLITION PROCEDURES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONS TO MINIMIZE VIBRATION, NOISE, DUST AND DEBRIS IN ALL AREAS ADJACENT TO AREA OF DEMOLITION.
10. A COFFERDAM IS ANTICIPATED TO BE REQUIRED TO REMOVE THE EXISTING ABUTMENTS AND INSTALL ROCK PROTECTION. THE COFFERDAM SHALL BE DESIGNED BY THE CONTRACTOR (TO BE APPROVED BY GRCA) FOR AN ELEVATION 0.3 m ABOVE THE 2 YEAR FLOW WATER LEVEL.

LIST OF DRAWINGS:

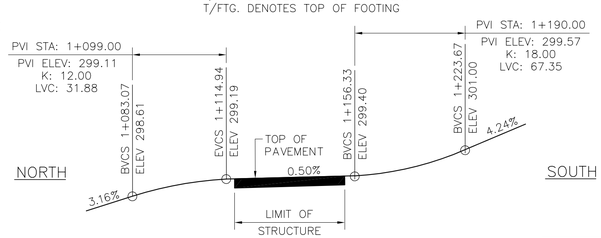
1. GENERAL ARRANGEMENT
2. FOUNDATIONS
3. ABUTMENTS
4. WINGWALLS
5. PRESTRESSED NU GIRDERS AND BEARINGS (NU 1200)
6. PRESTRESSED NU GIRDERS DETAILS
7. DECK DETAILS
8. DECK REINFORCEMENT I
9. DECK REINFORCEMENT II
10. BARRIER DETAILS
11. RAILING DETAILS
12. APPROACH SLABS
13. MISCELLANEOUS
14. PILE DRIVING CONTROL
15. EROSION AND SEDIMENT CONTROL

APPLICABLE STANDARD DRAWINGS:

OPSD – 0219.130 HEAVY DUTY SILT FENCE BARRIER
OPSD – 0219.240 DEWATERING TRAP
OPSD – 0219.260 TURBIDITY CURTAIN
OPSD – 0219.261 TURBIDITY CURTAIN, SEAM DETAIL
OPSD – 0912.430 GUIDE RAIL SYSTEM, STEEL BEAM STRUCTURE CONNECTION
OPSD – 3101.150 WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT
OPSD – 3102.100 WALLS, ABUTMENT, BACKFILL DRAIN
OPSD – 3190.100 WALLS, RETAINING AND ABUTMENT WALL DRAIN
OPSD – 3370.100 DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD – 3390.100 DECK DRIP CHANNEL
OPSD – 3419.100 BARRIERS AND RAILINGS STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
OPSD – 3950.100 CONCRETE EXPANSION AND CONSTRUCTION JOINT ON STRUCTURE.

LIST OF ABBREVIATIONS:

WP DENOTES WORKING POINT
T/P DENOTES TOP OF PAVEMENT
T/FTG. DENOTES TOP OF FOOTING



PROFILE OF WELLINGTON RD 32
N.T.S.

METRIC
ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

THESE DESIGN DOCUMENTS ARE PREPARED SOLELY FOR THE USE BY THE PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS ENTERED INTO A CONTRACT AND THERE ARE NO REPRESENTATIONS OF ANY KIND MADE BY THE DESIGN PROFESSIONAL TO ANY PARTY WITH WHOM THE DESIGN PROFESSIONAL HAS NOT ENTERED INTO A CONTRACT.

NO.	DESCRIPTION	DATE	INITIAL
	REVISIONS		

GFT

SCALE	AS SHOWN	DESIGNED	AW
DATE	JANUARY 2026	CHECKED	WVR
DRAFTING	SC	DESIGN CODE	CAN/CSA S6-25
CHECKED	WVR	PROJECT	078320
FIELD BK.	PAGE		
BENCH M	297.058, 301.051		

COUNTY OF WELLINGTON

REPLACEMENT OF BLATCHFORD BRIDGE STRUCTURE NO. B032085

GENERAL ARRANGEMENT

CW2026-0XX
PROJECT NO.

DRAWING NO.
S1

Appendix J

Archeological Assessment

Stage 1-2 Archaeological Assessment for Blatchford Bridge (B032085) Rehabilitation or Replacement on Wellington Road 32 (Parts of Lots 5&6, Concession 5, and Lot 10, Division B South of Waterloo Road, Geographical Townships of Guelph/Eramosa and Puslinch) County of Wellington

Original Report

Prepared for:

Gannett Fleming Canada ULC
200 Bay Street, Suite 1600, South Tower, Royal Bank Plaza
Toronto ON, M5J 2J3

Archaeological Licence: P383 (Williams)

PIF# P383-0444-2024

Archaeological Services Inc. File: 23EA-119

28 August 2024



Executive Summary

Archaeological Services Inc. was contracted by Gannett Fleming Canada ULC, on behalf of the County of Wellington, to conduct a combined Stage 1 and 2 Archaeological Assessment as part of the Blatchford Bridge (B032085) Rehabilitation or Replacement on Wellington Road 32. This project involves the rehabilitation or replacement of the Blatchford Bridge. The Study Area covers approximately 0.9 hectares, including the bridge itself along Wellington Road 32 and variable widths on either side of the bridge within the existing right-of-way.

The Stage 2 property survey was conducted on June 26, 2024, in accordance with the *Ontario Heritage Act* and the S & G by judgemental test pit survey. Approximately 57.3 percent (0.51 hectares) of the Study Area was determined to have been previously disturbed, as demonstrated by aerial photography, satellite imagery, and field observations. An additional 10.7 percent (0.1 hectares) of the Study Area was acknowledged as permanently low and wet conditions, with low archaeological potential.

Approximately 10.8 percent of the Study Area (0.1 hectares) is represented by the Speed River. If impacted, its marine archaeological potential will be evaluated through a separate process following the *Criteria For Evaluating Marine Archaeological Potential* (MTCS 2016) checklist.

The remaining 21.1 percent of the Study Area (0.19 hectares), comprising grassed areas, was subject to judgmental test pit survey at 10 metre intervals to confirm previous disturbance. No archaeological resources or intact A-horizon (natural topsoil) were encountered during the Stage 2 survey.

Considering these results, the following recommendations are made:

1. The Study Area does not require further archaeological assessment; and

2. Should the proposed work extend beyond the current Study Area or should changes to the project design or temporary workspace requirements result in the inclusion of previously un-surveyed lands, these lands should be subject to a Stage 2 archaeological assessment.

Project Personnel

- **Senior Project Manager**: Lisa Merritt, MSc (P094) Partner, Director, Environmental Assessment Division
- **Project Manager**: Caitlin Lacy, BA (R303), Lead Archaeologist, Project Manager, Environmental Assessment Division
- **Project Director**: Blake Williams, MLitt (P383), Lead Archaeologist, Project Manager, Environmental Assessment Division
- **Division Coordinator**: Katrina Thach, BA Hons (R1225), Associate Archaeologist, Assistant Manager, Environmental Assessment Division
- **Project Administrator**: Justine Tenzer, BA, Project Administrator, Environmental Assessment Division
- **Field Director**: Megan Edwards, BA Hons (R1343), Archaeologist, Field Director, Environmental Assessment Division
- **Field Archaeologists**: Zach Boswell, Skyler Dawson
- **Report Preparation**: Ciprian Ardelean, PhD, Senior Associate, Technical Writer and Researcher, Environmental Assessment Division
- **Graphics**: Peter Bikoulis, PhD, Archaeologist, GIS Technician, Operation Division; Robin Latour, MPhil, PDip, Associate Archaeologist, Geomatics Specialist, Operations Division
- **Report Review**: Caitlin Lacy; Lisa Merritt

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1.0 Project Context

Archaeological Services Inc. (ASI) was contracted by Gannett Fleming Canada ULC on behalf of the County of Wellington, to conduct a combined Stage 1 and 2 Archaeological Assessment as part of the Blatchford Bridge (B032085) Rehabilitation or Replacement on Wellington Road 32. This project involves the rehabilitation or replacement of the Blatchford Bridge.

The Study Area includes the bridge itself for approximately 250 metres along Wellington Road 32 and variable widths on either side of the bridge within the existing right-of-way. The structure was built circa 1949 and consists of a single 31.7-metre span of half-through (pony) truss bridge with exposed concrete deck and carries one traffic lane per direction of Wellington Road 32 over the Speed River. The Study Area covers approximately 0.9 hectares (Figure 1).

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (1990, as amended in 2023) and the 2011 *Standards and Guidelines for Consultant Archaeologists* (S & G), currently administered by the Ministry of Citizenship and Multiculturalism (MCM), formerly the Ministry of Tourism and Culture (MTC 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act, RSO* (Environmental Assessment Act, R.S.O. c. E.18, 1990 as amended 2022) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Schedule B of the *Municipal Class Environmental Assessment* process (Municipal Engineers Association, 2023).

ASI has been actively engaging with Indigenous communities who have expressed an interest in the archaeological work within the Study Area for this project on behalf of the County of Wellington. A detailed account of all First Nations engagement can be found in the *Supplementary Documentation: Indigenous Engagement* document associated with this report.

Authorization to access and carry out the activities necessary for the completion of the Stage 1-2 archaeological assessment was granted by Gannett Flemming on May 3, 2024.

1.1.1 Treaties and Traditional Territories

The Study Area is within Treaty #3 or The Between the Lakes Purchase, of 1792.

Following the American Revolutionary War, the British Crown needed to find lands on which to settle United Empire Loyalists, including approximately 2,000 members of the Six Nations confederacy who had fought alongside British troops. Led by Sir Frederick Haldimand who was the governor of Quebec at that time, the Crown was initially planning on providing lands for Loyalist settlers in Quebec and Southeastern Ontario, including providing land in the Bay of Quinte for Six Nations refugees. This was not suitable for many of the members of Six Nations and a contingent of approximately 1,800 community members, led by Chief Joseph Brant, requested land north of Lake Erie along the Grand River. Brant felt that the location in the Bay of Quinte was too isolated and that his followers could be better served by being closer to the Six Nations communities that chose to remain in the United States in western New York (Surtees, 1984, p. 21).

Recognizing that under the terms of the Royal Proclamation the land needed to be purchased prior to settlement, Colonel John Butler was sent to negotiate with the Mississaugas of the Credit for lands east of Lake Ontario and north of Lake Erie. On May 22, 1784, the Mississaugas of the Credit agreed to cede approximately 3,000,000 acres (1,214,057 hectares) of land containing all or part of Brant, Elgin, Middlesex, Oxford, and Wellington Counties as well as the Regions of Haldimand-Norfolk, Halton, Hamilton-Wentworth, Niagara, and Waterloo. In exchange for these lands, the Mississaugas received £1180.74 worth of trade goods (Crown-Indigenous Relations and Northern Affairs 2016; Surtees 1984). Of the 3,000,000 acres (1,214,057 hectares), approximately 550,000 acres (222,577 hectares) was set aside for the settlement of Six Nations people.

However, due to uncertainties with the description of the lands in the original surrender, Treaty #3 was renegotiated on December 7, 1792, to clarify what was ceded. This largely revolved around the northern boundary of the Treaty area and

in particular the area set aside for Six Nations settlement along the Grand River (see Haldimand Tract and Treaty #4). The signees on the side of the British included Lieutenant Governor John Graves Simcoe, John Butler, Robert Kerr, Peter Russell, John McGill, and Davie William Smith. The signees on the side of the Mississauga included Chiefs Wabakayne, Wabanip, Kautabus, Wabaniship and Mottotow (Crown-Indigenous Relations and Northern Affairs, 2016; Mississaugas of the Credit First Nation, 2017; Surtees, 1984).

The original text stipulated that the north-west boundary of the parcel was an imaginary line between Burlington Bay and the Thames River, which is inconsistent with the geography of the area. The boundaries of the parcel were corrected to create a polygon encompassing the Niagara peninsula up to Burlington Bay and then up north to the present-day town of Arthur then south to the present-day town of Woodstock to finally meet Lake Erie at Port Bruce. Treaty #3 lands exclude a corridor along the Grand River set aside for Six Nations (Crown-Indigenous Relations and Northern Affairs, 2016; Native Land Digital, 2018).

1.2 Historical Context

1.2.1 Indigenous Land Use and Settlement

Current archaeological evidence indicates humans were present in southern Ontario approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy woodworking tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive

exchange networks throughout the Great Lakes region. The earliest archaeological evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is interpreted by archaeologists to be indicative of increased social organization and the investment of labour into social infrastructure (Brown, 1995, p. 13; Ellis et al., 1990, 2009).

Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolith evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), larger settlement sites focused on horticulture begin to dominate the archaeological record. Seasonal dispersal of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., archaeological research focusing on these horticultural societies note that this episodic community dispersal was no longer practised and these populations now occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of these First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed. Other First Nation communities

continued to practice residential mobility and to harvest available resources across landscapes they returned to seasonally/annually.

By 1600 C.E., the Confederation of Nations were encountered by the first European explorers and missionaries in Simcoe County. Samuel de Champlain in 1615 reported that a group of Iroquoian-speaking people situated between the Haudenosaunee and the Huron-Wendat were at peace and remained "la nation neutre". Like the Huron-Wendat, Petun, and Haudenosaunee, the Neutral or Attawandaron people were settled village agriculturalists. By the 1640s, devastating epidemics and the traditional enmity between the Haudenosaunee and the Attawandaron and the Huron-Wendat (and their Algonquian allies such as the Nippissing and Odawa) led to their dispersal from southern Ontario. Shortly afterwards, the Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

1.2.2 Post-Contact Settlement

Historically, the Study Area is located in the Geographical Townships of Guelph/Eramosa and Puslinch, County of Wellington, in part of Lots 5&6, Concession 5, and Lot 10, Division B South of Waterloo Road.

The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the *Ontario Heritage Act* or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to

be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

Township of Guelph

Guelph Township is named after the Royal House of Brunswick, family of the English monarch, George IV. Guelph Township was surveyed by John MacDonald in 1830. The land in the township was purchased by the Canada Company, which consisted of a group of British speculators who acquired more than two million acres of land in Upper Canada for colonization purposes (Mika & Mika, 1981). Many settlers arrived in the township before it was surveyed. The first settler in the township was Samuel Rife, who squatted near the western limits of the township around the year 1825. Waterloo Road, formerly Broad Road, was built by Absalom Shade and was finished around 1827, the year the Town of Guelph was founded (Mika & Mika, 1981). Many settlers arrived in the township between the years 1827 and 1830.

Township of Puslinch

The Township of Puslinch was surveyed between 1828 and 1831 and was named for Puslinch in Devonshire, England. The township is reported to have once been mostly a Clergy Reserve. Settlement begun in or around 1828, and the first clergy reserve lot was sold in 1829. Township lands were not offered for sale until the survey was completed, two years later. Rowland Wingfield was the first to receive a patent in the township in 1832 for Lot 8, Concession 5. He was the first importer

of thoroughbred cattle into Canada. Other early settlers included John MacFarlane, John and William Gordon, Peter Byrn, John Arkell, Thomas Arkell, and F. W. Stone. The townships first school was held in the early 1830's on Lot 18, Concession 8. It was later moved to a log building which also served as a church on Lot 17, Concession 7. From 1840 to 1849 Puslinch was represented on the Wellington District Council. After which its representatives sat on the Waterloo County Council until 1852 when the township was included in the United Counties of Wellington, Waterloo and Grey. In 1853 Puslinch officially became a part of the United Counties of Wellington and Grey. Finally, in 1854, Puslinch became one of the townships that formed the newly independent County of Wellington. During these changes Puslinch elected their first township council in 1849. Until a township hall was built in 1867 the council met at McMeekin's tavern, occasionally meeting at one of the other fifteen or so taverns operating in the township at that time (Mika & Mika, 1983).

1.2.3 Map Review

The 1861 *Historical Map of Wellington County* (Leslie et al., 1861), 1877 *Illustrated Historical Atlas of the County of Wellington* (Walker and Miles, 1877), 1916 topographic map *Galt Sheet* (Department of Militia and Defence, 1916), 1936 topographic map *Galt Sheet* (Department of National Defence, 1936), 1975 topographic Map *Cambridge-Preston Sheet* (Department of Energy, Mines and Resources, 1975), and the 1998 NTS map *Cambridge Sheet* (Natural Resources Canada, 1998) were examined to determine the presence of historic features within the Study Area during the nineteenth and twentieth centuries (Figure 2 - Figure 7).

The 1861 map (Figure 2) shows the Study Area stretching along the limit between the properties of Mrs. Flynn (Lot 5) and W. May (Lot 6), and across the Speed River into Lot 10 marked as Green. No historical structures are shown in relation to the Study Area. No bridge was built at the time, and it is unclear whether the road allowance was open for transit. An unnamed railroad passes approximately 600 metres west of the Study Area.

On the 1877 map (Figure 3), the name Blatchford appears mentioned for the first time, as the owner of Lot 10. A historical house is situated to the northeast and outside the Study Area.

The 1916 topographic map (Figure 4) shows that a road and bridge were already built within the Study Area, but no building appears in immediate vicinity. The same information is repeated on the 1936 topographic map (Figure 5). The nearby railway is still in place on both maps, more than half a kilometre west.

The 1975 topographic map (Figure 6) places most of the Blatchford Bridge within Guelph Township. The Study Area appears undeveloped, with no buildings inside or adjacent to it. The 1998 NTS map (Figure 7) shows the Study Area containing the present road and bridge, with a few small buildings in its proximity.

1.2.4 Aerial and Orthoimagery Review

Aerial photography of the Guelph area from 1954 (City of Toronto Archives, 1954) and available Google satellite imagery were examined to determine the extent and nature of development and land uses within the Study Area.

The 1954 aerial imagery (Figure 8) does not allow for the appreciation of much detail but confirms the presence of a road and a bridge crossing the Speed River within the Study Area that looks undeveloped and without constructions nearby. The southern segment of the Study Area shows open landscape, probably mostly farmland, while the section northwest of the river appears wooded.

A review of available Google satellite imagery between 2012 and 2024 shows no changes in the Study Area over the past twelve years.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MCM

through *Ontario's Past Portal*; published and unpublished documentary sources; and the files of ASI.

1.3.1 Current Land Use and Field Conditions

The Study Area is mostly defined by the pavement of Wellington Road 32 and its ROW, the built infrastructure of Blatchford Bridge, and several driveway entrances connecting to the mentioned road. There are strips of densely wooded land alongside the road, as well as the riverbed and sloped terrain descending into the river. The Wellington Road 32 is significantly more elevated than the lands in the west-southwest of the Study Area. A hydroelectric power line on concrete poles runs along the eastern ROW. Low metal barriers extend for 27-to-40 metres south and north of the bridge and on both sides of the road.

The Stage 1-2 survey for the Blatchford Bridge Replacement project was conducted on June 26, 2024, under the field direction of Megan Edwards (R1343).

1.3.2 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 BP (Karrow & Warner, 1990, p. Figure

2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include elevated topography (eskers, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The study area is situated within the Guelph Drumlin Field physiographic region of southern Ontario in a former spillway (Chapman & Putnam, 1984) (Figure 9).

The Guelph Drumlin Field physiographic region (Chapman & Putnam, 1984) centres upon the City of Guelph and Guelph Township and occupies roughly 830 km^2. Within the Guelph Drumlin Field, there are approximately 300 drumlins of varying sizes. For the most part these hills are of the broad oval type with slopes less steep than those of the Peterborough drumlins and are not as closely grouped as those in some other areas. The till in these drumlins is loamy and calcareous and was derived mostly from dolostone of the Amabel Formation that can be found exposed below the Niagara Escarpment. Spillways are the former glacial meltwater channels. They are often found in association with moraines but in opposition are entrenched rather than elevated landforms. They are often, though not always, occupied by stream courses, the fact of which raises the debate of their glacial origin. Spillways are typically broad troughs floored wholly or in part by gravel beds and are typically vegetated by cedar swamps in the lowest beds (Chapman & Putnam, 1984).

Figure 10 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain mostly by modern alluvial deposits as part of the Speed River bed, and secondarily by gravelly glaciofluvial deposits (Ontario Geological Survey, 2010).

Soils within the Study Area include Burford loam, a grey-brown podzolic with good drainage (Ontario Agricultural College, 1962) (Figure 11).

The Study Area is located within the Ellis Creek – Speed River watershed and is crossed by the Speed River in a northeast–southwest direction, with a heavily wooded, unmodified riverbed.

1.3.3 Previously Registered Archaeological Sites

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MCM. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometres east to west, and approximately 18.5 kilometres north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *AiHb.*

According to the Ontario Archaeological Sites Database, two previously registered archaeological sites are located within one kilometre of the Study Area, none of which are located within 50 metres (MCM, 2024). A summary of the sites is provided below.

Table 1: Registered Sites within One Kilometre of the Study Area

Borden Number	Site Name	Temporal/ Cultural Affiliation	Site Type	Researcher	CHVI
AiHb-111	Cowbrough 1	Pre-Contact	Artifact scatter	MTO, 1993	N/A
AiHb-113	Van Soelen	Pre-Contact	Artifact scatter	MTO, 1994	N/A

1.3.4 Previous Archaeological Assessments

ASI's review found no previous archaeological assessments detailing fieldwork within 50 metres of the Study Area.

1.3.5 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:

- Previously identified archaeological sites (see Table 1);
- Water sources: primary, secondary, or past water source (Speed River);
- Well-drained soils (Burford loam);
- Proximity to early settlements (homesteads); and
- Early historic transportation routes (historically surveyed roads, bridge).

According to the S & G, Section 1.4 Standard 1.e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Heritage Registers of the Townships of Puslinch and Guelph Eramosa were consulted and no properties within the Study Area are Listed or Designated under the *Ontario Heritage Act*.

These criteria are indicative of potential for the identification of archaeological resources, depending on soil conditions and the degree to which soils have been subject to deep disturbance.

2.0 Field Methods

The Stage 1-2 Study Area comprises the Blatchford Bridge itself for approximately 250 metres along Wellington Road 32 and variable widths on either side of the bridge within the existing right-of-way. The bridge structure was built circa 1949 and consists of a single 31.7-metre span of half-through (pony) truss bridge with

exposed concrete deck and carries one traffic lane per direction of Wellington Road 32 over the Speed River. The Study Area covers approximately 0.91 hectares (Figure 1).

The Stage 2 property survey was conducted under the field direction of Megan Edwards (R1343) on June 26, 2024, in accordance with the *Ontario Heritage Act* and the S & G, Section 2. During the field assessments, weather and lighting conditions permitted good visibility and were in accordance with the S & G, Section 2.1, Standard 3. During the time of survey, conditions were seasonal with partly sunny skies and temperatures reaching a high of 27 degrees Celsius. Photographs of all field conditions were taken (Image 1-Image 14), and the location and direction of each photograph is mapped in Figure 12.

As per Section 2.1 of the S & G, all lands were within areas where ploughing was not possible or viable and therefore subject to test pit survey. According to Section 2.1.2, Standard 2 of the S & G, any undisturbed areas requiring test pit survey within 300 metres of any feature of archaeological potential must be subject to systematic assessment at five metre intervals. No intact soil profiles were encountered during the test pit survey, therefore judgmental ten- and twenty-metre intervals were employed to confirm previous disturbance as per S & G Section 2.1.8b. All test pits were excavated following the S & G Section 2.1.2 Standards 5-9. All test pits were excavated by hand to a minimum of 30 centimetres in diameter and into the first five centimetres of subsoil. Each test pit was examined for stratigraphy, cultural features, and evidence of fill. Test pit fill was screened through six-millimetre mesh to facilitate artifact recovery. Afterwards, all test pits were backfilled, and their locations were recorded on field maps. Any factors that precluded the excavation of test pits (e.g., excessive slope, drainage, exposed bedrock, previous disturbance) were noted, and the areas were mapped and photographed.

Fieldwork was conducted using a Samsung Galaxy S4 tablet running Esri Collector software equipped with a sub-metre Trimble Catalyst Global Navigation Satellite System in conjunction with project mapping provided by the County of Wellington to ensure the assessment remained within the Study Area limits.

2.1 Areas of No Archaeological Potential

Visual assessment determined that a significant portion of the Study Area did not retain archaeological potential. Approximately 57.3 percent of the Study Area (0.51 hectares) had been previously subject to deep and extensive ground disturbance and was not subject to Stage 2 survey, as per S & G Section 2.1, Standard 2.b. The lands documented as being previously disturbed have no archaeological potential and include Wellington Road 32 and right-of-way (ROW), driveways, dug out ditches, built-up slopes, berms, culverts, and buried utilities (Figure 12: areas highlighted in yellow; Image 1, Image 2, Image 4, Image 8, Image 9, Image 14).

Approximately 10.7 percent of the Study Area (0.1 hectares) was documented as being permanently low and wet and was not subject to Stage 2 survey, as per S & G Section 2.1, Standard 2.a.i. The areas documented as being permanently low and wet have low archaeological potential and include swampy areas on the northwest bank of Speed River (Figure 12: areas highlighted in light blue; Image 12, Image 13).

2.2 Test Pit Survey

Approximately 21.1 percent of the Study Area (0.19 hectares) did not contain natural topsoil (A-horizon) and was subject to judgmental test pit survey at ten- and twenty-metre intervals to confirm previous disturbance following S & G Section 2.1.8, Standards 1-2. The areas subject to judgmental test pit survey include manicured lawned areas alongside the road (Figure 12: areas highlighted in light green; Image 3, Image 5, Image 6, Image 7, Image 11).

Disturbed stratigraphy in the Study Area is characterized by 20 centimetres of dark yellowish brown (10YR 3/4) sandy loam on top of disturbed layers with pebble and cobble intrusions (Image 3, Image 5, Image 7).

2.3 Watercourse

Approximately 10.8 percent of the Study Area (0.1 hectares) is represented by the course of Speed River (Figure 12: areas highlighted in dark blue; Image 10). The

potential for marine archaeological resources has not been evaluated through this land-based archaeological assessment.

2.4 Stage 1-2 Assessment Results Summary

A summary of the Stage 1-2 assessment results for the Blatchford Bridge Replacement Project can be found in Table 2 below.

Table 2: Stage 1-2 Survey Results Summary

Survey Method	Area	Description	Images
Visually assessed as being previously disturbed; no archaeological potential	0.51 hectares (57.3 percent)	Wellington Road 32 and ROW, engineered slopes, berm, driveways, culverts, buried utilities	1, 2, 4, 8, 9, 14
Visually assessed as having permanently low and wet conditions; low archaeological potential	0.1 hectares (10.7 percent)	Swampy areas near Speed River	12, 13
Judgmental test pit survey; 10 metre intervals	0.19 hectares (21.1 percent)	Wellington Rd. ROW, lawned areas	3, 5, 6, 7, 11
Marine archaeological potential will be evaluated through *Criteria for Evaluating Marine Archaeological Potential* (MTCS 2016).	0.1 hectares (10.8 percent)	Speed River	10

3.0 Record of Finds

No archaeological resources were encountered during the Stage 1-2 Archaeological Assessment for the Blatchford Bridge Replacement Project.

3.1 Inventory of Documentary and Material Record

The documentation related to this archaeological assessment will be curated by ASI until such a time that arrangements for their ultimate transfer to His Majesty the King in right of Ontario, or other public institution, can be made to the satisfaction of the project owner(s), the MCM, and any other legitimate interest groups.

Table 3 provides an inventory and location of the documentary and material record for the project in accordance with the S & G, Sections 6.7 and 7.8.2.3.

Table 3: Inventory of Documentary and Material Record

Material	Location	Comments
Digital field notes, field maps, GPS logs, etc.	Archaeological Services Inc., 528 Bathurst Street, Toronto, Ontario, M5S 2P9	Stored in ASI project folder 23EA-119; GPS and digital information stored on ASI network servers
Digital field photography	Same as above	Files stored on ASI network servers
Digital research, analysis, and reporting materials	Same as above	Files stored on ASI network servers

4.0 Analysis and Conclusions

ASI was contracted by Gannett Fleming Canada ULC, on behalf of the County of Wellington, to conduct a combined Stage 1-2 Archaeological Assessment as part of the Blatchford Bridge (B032085) Rehabilitation or Replacement on Wellington Road 32. This project involves the rehabilitation or replacement of the Blatchford Bridge. The Study Area includes the bridge itself for approximately 250 metres along Wellington Road 32 and variable widths on either side of the bridge within the existing right-of-way. The structure was built circa 1949 and consists of a single 31.7-metre span of half-through (pony) truss bridge with exposed concrete deck and carries one traffic lane per direction of Wellington Road 32 over the Speed River. The Study Area covers approximately 0.91 hectares (Figure 1).

The Stage 2 property survey was conducted on June 26, 2024, in accordance with the *Ontario Heritage Act* and the S & G by judgemental test pit survey. Approximately 57.3 percent (0.51 hectares) of the Study Area was determined to have been previously disturbed by constructions, as demonstrated by aerial photography, satellite imagery, and field observations (Figure 12: areas highlighted in yellow; Image 1, Image 2, Image 4, Image 8, Image 9, Image 14). These areas were not subject to Stage 2 property survey. An additional 10.7 percent (0.1 hectares) of the Study Area was acknowledged to present permanently low and wet conditions, hence with low archaeological potential, and was not subject to Stage 2 test pit survey (Figure 12: areas highlighted in light blue; Image 12, Image 13).

Approximately 10.8 percent of the Study Area (0.1 hectares) is represented by the course of the Speed River (Figure 12: areas highlighted in dark blue; Image 10). If impacted, its marine archaeological potential will be evaluated through a separate process following the *Criteria For Evaluating Marine Archaeological Potential* (MTCS 2016) checklist.

The remaining 21.1 percent of the Study Area (0.19 hectares), comprising grassed areas, was subject to judgmental test pit survey at 10 metre intervals to confirm previous disturbance (Figure 12: areas highlighted in light green; Image 3, Image 5, Image 6, Image 7, Image 11). No archaeological resources or intact A-horizon

(natural topsoil) were encountered during the Stage 2 survey, and no further archaeological assessment is recommended.

5.0 Recommendations

Considering these results, the following recommendations are made:

1. The Study Area does not require further archaeological assessment; and

2. Should the proposed work extend beyond the current Study Area or should changes to the project design or temporary workspace requirements result in the inclusion of previously un-surveyed lands, these lands should be subject to a Stage 2 archaeological assessment.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. If archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the MCM should be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without MCM concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MCM approval has been received.

6.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Citizenship and Multiculturalism as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 2005, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister,

and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Citizenship and Multiculturalism, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) *of the Ontario Heritage Act*.

- The *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

7.0 Bibliography and Sources

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8.0 Images

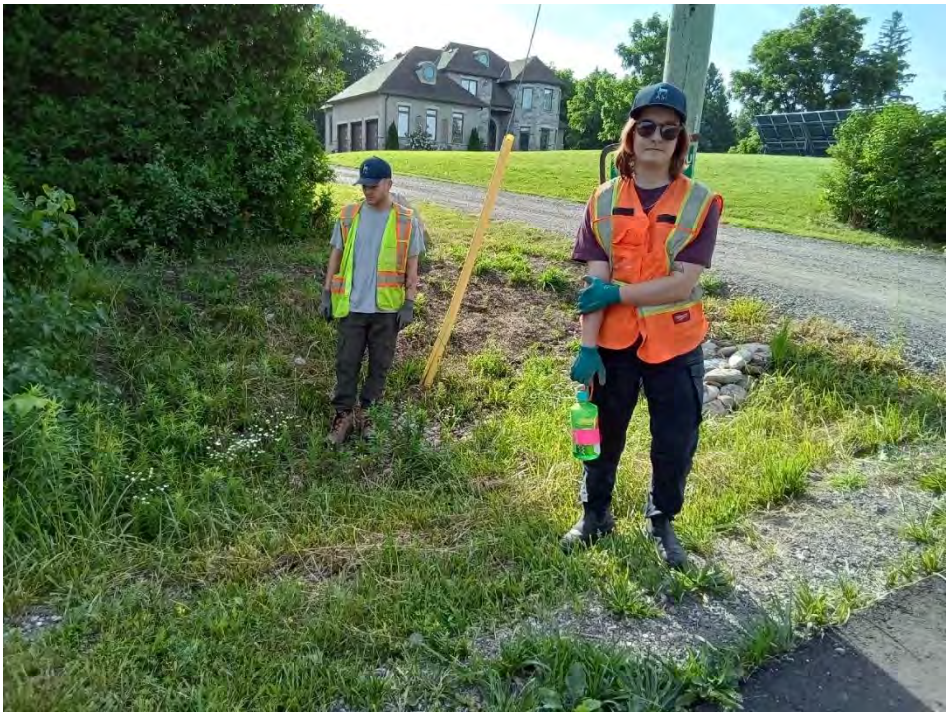


Image 1: Study Area – disturbed: road, driveway, dug out ditch.



Image 2: Study Area – disturbed: right-of-way, buried fiber optics.



Image 3: Study Area – test pit demonstrating disturbed stratigraphy.



Image 4: Study Area – disturbed: culvert.



Image 5: Study Area – test pit demonstrating disturbed stratigraphy.



Image 6: Study Area – test pit survey at 10 metre intervals.



Image 7: Study Area – test pit demonstrating disturbed stratigraphy.



Image 8: Study Area – disturbed: built-up slope.



Image 9: Study Area – disturbed: engineered slope.



Image 10: Study Area – watercourse: Speed River.



Image 11: Study Area - test pit demonstrating disturbed stratigraphy.



Image 12: Study Area – permanently low and wet conditions.



Image 13: Study Area – permanently low and wet conditions.



Image 14: Study Area – disturbed: driveway.

9.0 Maps

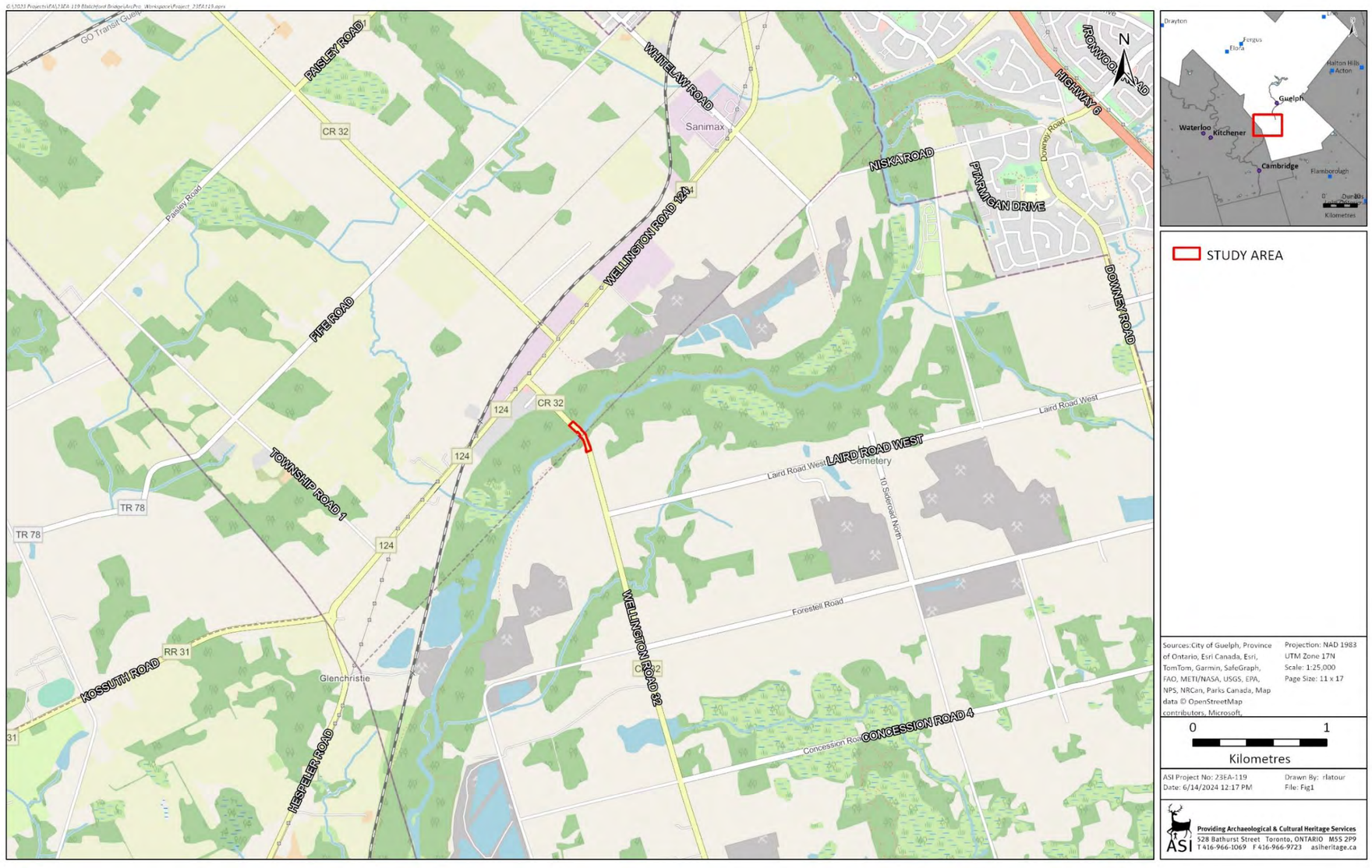


Figure 1: Location of the Study Area.



Figure 2: Study Area (Approximate Location) Overlaid on the 1861 Map of Wellington County.



Figure 3: Study Area (Approximate Location) Overlaid on the 1877 Illustrated Atlas of the County of Wellington.



Figure 4: Study Area (Approximate Location) Overlaid on the 1916 Topographic Galt Sheet.



Figure 5: Study Area (Approximate Location) Overlaid on the 1936 Topographic Galt Sheet.

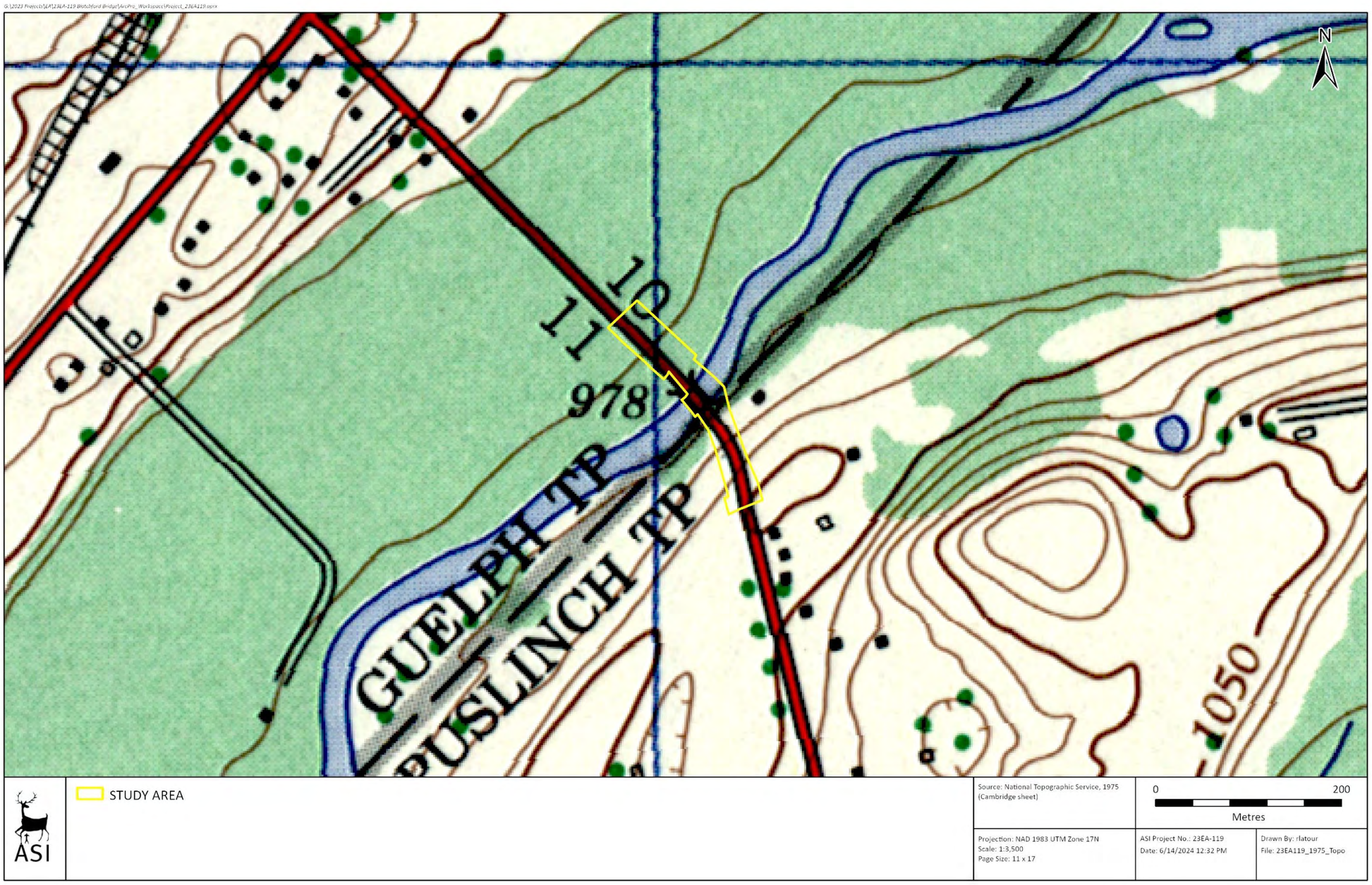


Figure 6: Study Area (Approximate Location) Overlaid on the 1975 Topographic Cambridge-Preston Sheet.

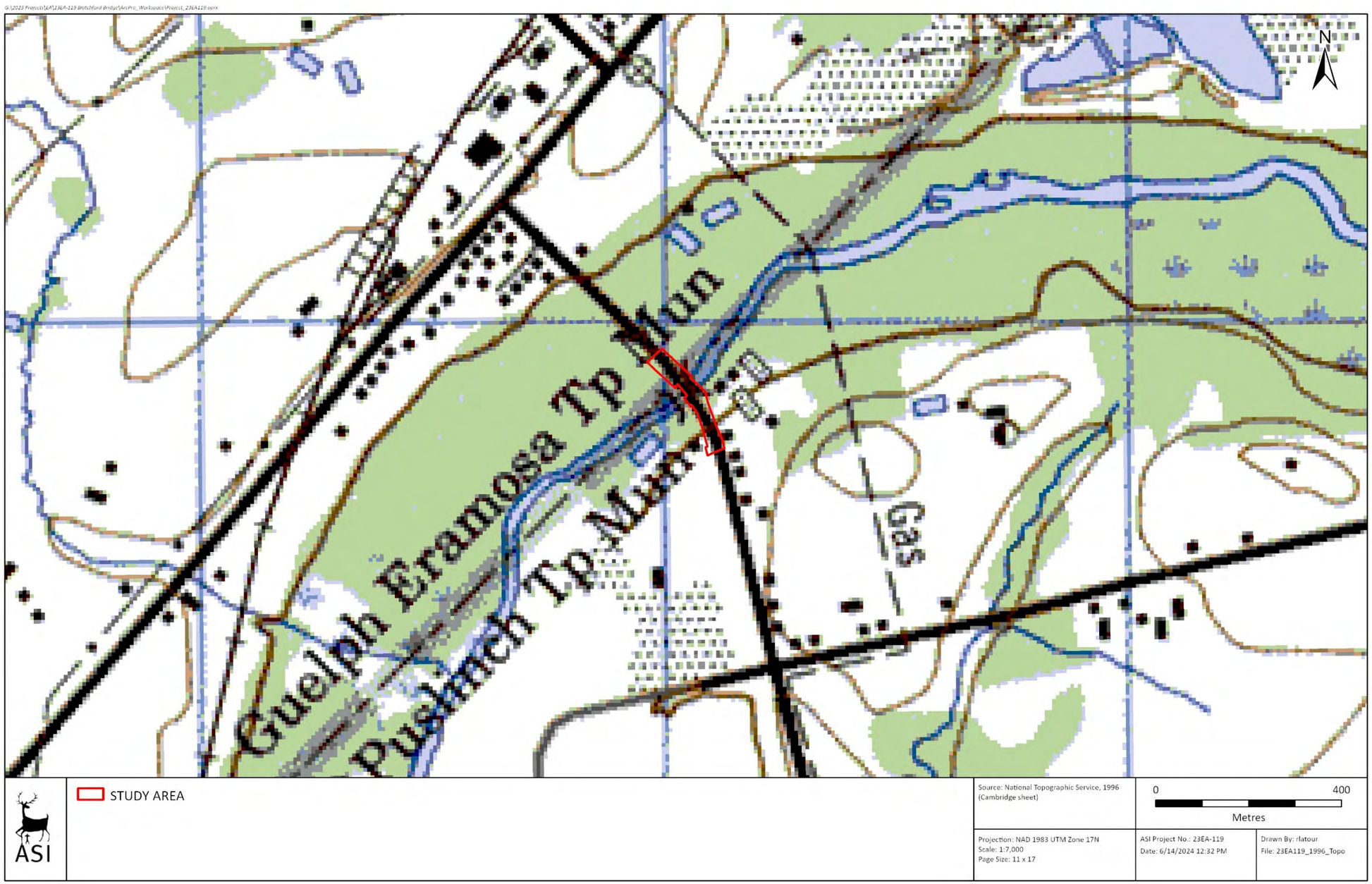


Figure 7: Study Area (Approximate Location) Overlaid on the 1998 NTS Cambridge Sheet.



Figure 8: Study Area (Approximate Location) Overlaid on the 1954 Aerial Photograph of the Guelph-Cambridge Area.



Figure 9: Study Area – Physiographic Landforms.



Figure 10: Study Area – Surficial Geology.



Figure 11: Study Area – Soil Drainage.



Figure 12: Results of the Stage 1-2 Archaeological Assessment.

Appendix K

Natural Environmental Assessment Report

GFT

Blatchford Bridge, Wellington Road 32

Township of Guelph-Eramosa, Wellington County

Natural Environment Assessment Report

Prepared for:

GFT Inc.

Prepared by:

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Project Number:

AA23-105A

Date:

April 24, 2026

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Any conclusions or recommendations made in this report reflect Aboud & Associates Inc. judgment based on conditions observed at the time of the site visit on the date(s) set out in this report and on the interpretation of data made in the reports, based on the studies specifically identified in the report.

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1.0 Introduction

The County of Wellington is proposing the replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment, identify impacts to the natural environment for each proposed option, and propose reasonable measures to mitigate any potential impacts that may arise through the EA process. The NEA will also summarize mitigation and potential permitting requirements based on the options and outcome of the EA.

1.1 Proposed Development

The current structure is a 31.7 m span truss bridge. The structure is in need of replacement, with four options being considered: do nothing, new single 38 m span girder bridge, new single 38 m span girder bridge with raised profile, and new 2 x 19 m span girder bridge, with a pier in the water. A municipal class EA is required to determine the best option for the structure. This study will investigate the short- and long-term plan for the crossing.

1.2 Existing Land Use and Study Area

The study area includes the subject structure and staging areas outlined in *Figure 1*, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

The structure is within the Township of Guelph-Eramosa, while the study area also extends within the Township of Puslinch.

The structure is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 41/24, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

1.3 Existing Regulations

The Provincial Policy Statement (PPS 2024), Species Conservation Act (SCA 2025), Fisheries Act (FA 1985), Species at Risk Act (SARA, 2002), , GRCA Policies for the Administration of the Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24, Wellington County Official Plan, Township of Guelph/Eramosa Zoning By-law 40/2016, and Township of Puslinch Zoning By-law 023-18 are relevant to the replacement of Blatchford Bridge, and are outlined in detail in *Appendix 1*, including the policy, sections, applicable details, conformity and any proposed mitigation or permitting requirements as it relates to these policies.

1.4 Terms of Reference

Based upon the above Acts, Policies and Regulations, proposed Terms of Reference (ToR) for the NEA were developed and submitted to the GRCA, Township of Puslinch, and Township of Guelph-Eramosa on March 15, 2024. GRCA provided comments on the ToR on March 28, 2024, providing comments to be incorporated in the ToR relating to impact assessment, and hydraulic and fluvial impacts, as well as requesting a revised ToR with these comments incorporated. No comments were received from the Townships on the proposed ToR. A revised ToR was submitted on May 13, 2024, to all parties, and was accepted by the GRCA on March 28, 2024. The Townships declined to comment on the revised ToR. The ToR and associated correspondence are provided in *Appendix 2.*

2.0 Methods

2.1 Background Review

A background information review was conducted, of both biological and physical features within the vicinity of the study area. The following resources were consulted during this review:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- Grand River Conservation Authority Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation, O. Reg. 41/24
- Wellington County Official Plan, 2025 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed March 1, 2024.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. 2019
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2007.
- Atlas of the Mammals of Ontario. Dobbyn, 1994.
- iNaturalist. Accessed March 1, 2024.
- eBird. Cornell Lab of Ornithology. Accessed March 1, 2024.
- Ontario Butterfly Atlas. Toronto Entomologists' Association. Accessed March 1, 2024.
- Aquatic Species at Risk Map. Department of Fisheries and Oceans. Accessed April March 1, 2024.
- Aquatic Resource Area Survey Points and Line Segments, Land Information Ontario, accessed March 1, 2024.

2.2 Wetland Boundary Delineation

A portion of the Speed River Wetland Complex is adjacent to the structure. Shannon Davison, Certified Ontario Wetland Evaluator, performed an initial staking of the boundary of the wetland immediately adjacent the structure on May 30, 2024, and the boundary was verified with the GRCA on the same day. Boundaries were determined

using vegetation community borders and soil probes to depths of up to 60cm for water and hydric soil detection, as per the Ontario Wetland Evaluation System (OWES 2013) criteria. The wetland boundary was established where vegetation was comprised of 50% wetland and 50% upland species, and where soils displayed hydric conditions (e.g., presence of mottles and/or gleys), per the Ontario Wetland Evaluation System (OWES 2013). Site investigation details are provided in *Appendix 3*.

2.3 Vegetation

2.3.1 Ecological Land Classification

Ecological Land Classification (ELC) surveys were completed on May 30, 2024. Site investigation details are provided in *Appendix 3*. Due to restricted access the private properties within the study area, the ELC survey was conducted from the roadside, within the Right of Way. Surveys were completed by qualified Ecologist, Shannon Davison, OMNRF Certified in Ecological Land Classification. Vegetation communities within the study area were characterized and delineated following the Ecological Land Classification (ELC) system for Southern Ontario 1st approximation; community codes used generally follow the 2nd approximation (Lee, et al., 1998, 2008). Boundaries of ELC communities were mapped using aerial images and field observations (*Figure 1*). Digitized ELC data sheets are provided in *Appendix 4*.

Identified ELC communities were cross referenced with the NHIC Ontario Plant Community List (NHIC 2015) to determine the presence of rare plant communities (S3-S1). The Subnational, or Provincial Ranks (S Rank) are assigned by the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) to help assign protection priorities.

2.3.2 Botanical Inventory

Concurrent with ELC evaluations, the subject lands were inventoried as best as possible from the right of way to provide a comprehensive spring botanical inventory. A summer botanical was conducted on July 23, 2024. Site investigation details are provided in *Appendix 3*.

Identified vascular plant species were compared to provincial and federal SAR lists (COSARO, SARA), provincial ranks (NHIC 2015), global ranks, and Waterloo Region Significant Species List (Region of Waterloo, 1999) to assess federal, provincial, regional, and local conservation status of each species. English colloquial names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN 2016).

Identification of environmentally sensitive plant species was completed based on assignment of a coefficient of conservatism value (CC) for each native species (Oldham, et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et. al., 2010).

A list of all identified plant species is provided in *Appendix 5*. The list provides botanical names, common names, provincial rarity rank (S-rank), global rarity rank (G-rank), provincial Species at Risk status (PSO), federal Species at Risk status (SARA), local rarity/significance within Grey County (Oldham 1993), CC and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information.

2.4 Wildlife

2.4.1 Incidental Wildlife Observations

Incidental observations of wildlife were recorded during all field visits. Site investigation details are provided in *Appendix 3*.

2.4.2 Breeding Bird Surveys

Breeding bird surveys were conducted by Brynn Varcoe, Terrestrial Ecologist, to determine if significant breeding bird habitat occurs within, or adjacent to, the study area. Two point count surveys were conducted, comprised of 10-minute point counts positioned at a pre-determined location. Surveys followed the Ontario Breeding Bird Atlas: Guide for Participants (Bird Studies Canada, 2001). The highest observed level of breeding evidence was used to assign breeding status (i.e., confirmed, possible, probable or observed) to each species.

Surveys were performed during the peak breeding season for the bulk of species in southern Ontario (last week of May through early July) and were spaced at least 10 days apart in order to determine presumed permanent territories through territorial singing males. The two surveys took place on the morning of June 4 and June 18, 2024, between 30 minutes before dawn and 5 hours after dawn. The point count locations are illustrated on *Figure 1*, full survey results are provided in *Appendix 6*, and detailed survey dates and weather information are provided in *Appendix 3*.

2.4.3 Bat Maternity Habitat Surveys

Bat maternity habitat surveys occurred during leaf off, and were conducted by Heather Dixon, Aquatic Ecologist, and Brynn Varcoe, Terrestrial Ecologist. All ELC communities

identified as FOD, FOC, FOM, SWD, SWC, and SWM are considered Candidate Bat Maternity Habitat. As tree removal will be necessary for the bridge replacement, a survey for candidate bat maternity trees took place. All trees with a diameter at breast height (DBH) greater than 10 cm, and meeting any of the criteria for candidate bat habitat as outlined in the "Treed Habitats – Maternity Roost Survey" protocol(MECP, 2022), were recorded.

Candidate trees are those with some or all of the following characteristics:

- Tallest snag/cavity tree
- Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities
- Has leaf clusters, particularly relevant for Tri-colored Bats
- Has the largest diameter breast height (>25cm diameter at breast height, minimum >10cm diameter), however trees <25cm diameter at breast height are well documented as supporting day roosts of little brown myotis, northern myotis and tri-colored bat
- Is within the highest density of snags/cavity trees (e.g., cluster of snags)
- Has a large amount of loose, peeling bark
- Cavity or crevice is high in snag/cavity tree (>10m)
- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Canopy is more open (to determine canopy cover, determine the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees); and
- Exhibits early stages of decay (decay Class 1-3; refer to Watt and Caceres 1999).

The survey occurred on March 14, 2024. A thorough walk-through of each suitable vegetation community identified above, where access was provided, was performed. During the walk-through, trees exhibiting one or more of the above characteristics were recorded. The tree locations are illustrated on *Figure 2*. Detailed survey dates and weather information are provided in *Appendix 3*.

2.4.4 Pileated Woodpecker and Red-headed Woodpecker Cavity Identification Surveys

With guidance from the Pileated Woodpecker Cavity Identification Guide (Environment and Climate Change Canada, 2023) and A Comparison of Some Aspects of the Breeding Ecology of Red-Headed and Red-Bellied Woodpeckers in Kansas (Jackson, 1976), all trees within the right-of-way in the study area were examined for Pileated Woodpecker and Red-headed Woodpecker cavities including those for nesting, roosting

and feeding. The survey occurred on March 14, 2024, and was conducted by Heather Dixon and Brynn Varcoe. Detailed survey and weather information are provided in *Appendix 3*.

Pileated Woodpeckers and Red-headed Woodpeckers create cavities for different stages of their life cycle including nesting, roosting and feeding. The following characteristics were examined during surveys to determine the type of cavity observed.

- Number of holes
- Cavity edge texture
- Hole shape
- Hole size
- Hole depth
- Hole appearance
- Suspected woodpecker species
- Tree type

While all cavities are recorded, only nesting cavities of Pileated Woodpecker are protected under the MBCA outside the nesting season, while active nesting cavities of Red-headed Woodpecker are protected under SARA, with the suggested regulated habitat under the Red-headed Woodpecker Recovery Strategy to be 200 m around the nest cavity (ECCC, 2021; MECP, 2022).

2.4.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the study area was considered for the presence of Significant Wildlife Habitat (e.g., specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 7.*

2.4.6 Species at Risk Habitat

A thorough review of background documents was conducted to compile a master list of all Species at Risk, and species with conservation designation that may occur in the study area. A review of the site, along with habitat requirements for each species was conducted; the site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNRF documents, and on-site knowledge acquired through field surveys. An assessment of the study area for candidate habitat for SAR is provided in *Appendix* 8.

2.5 Aquatic Habitat Assessment

Aquatic habitat assessments (AHA) were completed by Heather Dixon, Aquatic Ecologist, on July 23, 2024. The assessment was completed in an effort to classify stream features present to help inform decisions and mitigate any potential risks to fish and fish habitat as a result of the potential work. Data were collected upstream and downstream of the bridge, where access was allowed and where the river maintained a safe wading depth. The following criteria were used to characterize features present at each station:

- mean channel width;
- mean wetted width;
- max water depth;
- percent stream shading;
- buffer width;
- substrate;
- flow pattern;
- channel morphology;
- instream cover;
- bank characteristics; and
- presence of specific site features.

Detailed survey and weather information are provided in *Appendix 3*.

3.0 Existing Conditions

3.1 Background Review

3.1.1 Wildlife Atlases-Species of Conservation Concern

A thorough background search of the study area and adjacent lands has been completed using the resources noted in Section 2.1. The species of conservation concern, including those listed under the SCA and/or SARA as well as those with S-ranks of S1-S3, identified in the background search are identified in *Table 1*. *Table 1* includes the identified species, the sources where they were identified, their currents statuses under COSSARO, the SCA, COSEWIC, and SARA, as well as their provincial, national, and global ranks.

The findings of this review are presented in *Table 1* and *Appendix 9*. An assessment of the study area for candidate habitat for these SAR is included in *Appendix 8*.

3.1.2 Ministry of Northern Development, Mines, Natural Resources and Forestry

A request for information was sent to the Ministry of Northern Development, Mines, Natural Resources and Forestry, Guelph District, on March 8, 2024. A response was provided on March 11, 2024 with additional information for the study area. The response confirmed the presence of the Speed River PSW wetland complex, Waterfowl Winter Concentration Area, and White-tailed Deer Wintering Area (Stratum II) in the study area, that the Speed River is classified as a warm water watercourse, and that nine fish species are listed in the watercourse. The request for information and response are included in *Appendix 10*.

3.1.3 Ministry of Environment, Conservation and Parks

A request for information was sent to the Ministry of Environment, Conservation and Parks (MECP) on March 8, 2024 to inquire whether any further Species at Risk may occur in the study area. A follow-up email was sent to the MECP on May 8, 2024. No response was received from the MECP and the request was forwarded by them to the NHIC. The NHIC reached out on May 9, 2024 requesting a shapefile for access to medium sensitive data. AA responded on the same day clarifying that the request was for unpublished species at risk observations, not a sensitive data request. No further response was received from NHIC. The request for information and response is included in *Appendix 10*.

Table 1. Species at Risk Identified in Background Review

Source	Common Name	Scientific Name	COSSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	N-RANK	Area sensitive	Area required (ha)	PIF Species (BCR 13)
ORAA (2010)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	NL	THR	THR	S4	G5TNR	N4			
OBBA, eBird (2022)	Bank Swallow	*Riparia riparia*	THR	NL	THR	THR	S4B	G5	N5B,N5M			✓
OBBA, NHIC, eBird (2023)	Barn Swallow	*Hirundo rustica*	SC	NL	THR	THR	S4B	G5	N3N4B,N3N4M			
OBBA, NHIC, eBird (2021)	Bobolink	*Dolichonyx oryzivorus*	THR	NL	THR	THR	S4B	G5	N5B,N4N5M	✓	>10ha	✓
OBBA, eBird (2021)	Chimney Swift	*Chaetura pelagica*	THR	NL	THR	THR	S3B	G4G5	N4BN3M			✓
OBBA, NHIC, eBird (2023)	Eastern Meadowlark	*Sturnella magna*	THR	NL	THR	THR	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓
OBBA, NHIC, eBird (2023)	Eastern Wood-Pewee	*Contopus virens*	SC	NL	SC	SC	S4B	G5	N5B,N5M			✓
eBird (2022)	Evening Grosbeak	*Coccothraustes vespertinus*	SC	NL	SC	SC	S4	G5	N4B,N4N,NUM			
NHIC	Golden-winged Warbler	*Vermivora chrysoptera*	NL	NL	THR	THR	S3B	G4	N4B,NUM			✓
OBBA, NHIC	Grasshopper Sparrow	*Ammodramus savannarum*	SC	NL	SC	SC	S4B	G5	N4N5B,N4N5M	✓	>10ha	✓
eBird (2020)	Lesser Yellowlegs	*Tringa flavipes*	THR	THR	THR	NL	S3S4B,S5M	G5	N4N5B,N5M			
NHIC	Peregrine Falcon	*Falco peregrinus*	SC	NL	SC	SC	S4	G4	N3N4B,N2N,N3N4M			✓
NHIC	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	NL	END	END	S3	G5	N4B,N3M			✓
eBird (2022)	Rusty Blackbird	*Euphagus carolinus*	SC	NL	SC	SC	S4B,S3N	G4	N4B,NUN,N4M			
OBBA, NHIC, eBird (2020)	Wood Thrush	*Hylocichla mustelina*	SC	NL	THR	THR	S4B	G4	N4B,NUM			✓
OBA (2022)	Monarch	*Danaus plexippus*	SC	NL	END	SC	S2N,S4B	G5	N3B,NNRM			
NHIC	American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	EXP	EXP	SH	G2G3	NH			
OMA	Little Brown Myotis	*Myotis lucifugus*	END	END	END	END	S3	G3G4	N2N4B,NNRN, NNRM			
ORAA (2019), NHIC	Midland Painted Turtle	*Chrysemys picta marginata*	NAR	NAR	SC	SC	S4	G5T5	N4			
ORAA (2019), NHIC	Snapping Turtle	*Chelydra serpentina*	NL	SC	SC	SC	S4	G5T5	N4			

G-Rank:

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act

END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not at Risk
NL: Not Listed

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species

S#B- Breeding Status Rank
S#N- Non Breeding Status Rank

G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
iNat: iNaturalist
ARA: Aquatic Resource Area Survey Points and Line Segments
NHIC: Natural Heritage Information Centre
DFO: Department of Fisheries and Oceans Species at Risk Mapping

3.2 Wetland Boundary Delineation

3.2.1 Boundary Survey

Following confirmation by the GRCA of the evaluated wetland boundary on May 30, 2024, the wetland limit was surveyed (*Figure 1*).

3.2.2 Wetland Characteristics

The GRCA's online mapping (Grand River Information Network, 2020) shows part of the Speed River Provincially Significant Wetland Complex within the study area, adjacent to the structure. The portion of the PSW within the study area consists of White Cedar Mineral Coniferous Swamp, Willow Mineral Deciduous Swamp, White Cedar-Hardwood Mineral Mixed Swamp, and Tamarak-Hardwood Mineral Mixed Swamp.

3.3 Vegetation

3.3.1 Ecological Land Classification and Botanical Inventory

The community polygons identified during the ELC survey are summarized in *Table 2* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 4 and 5*, respectively.

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
Coniferous Swamp (SWC)		
SWCM1-1	White Cedar Mineral Coniferous Swamp	This community is north of Wellington Road 32, east of the Speed River. The canopy and sub-canopy are dominated by Eastern White Cedar (*Thuja occidentalis*) with secondary species including Black Walnut (*Juglans nigra*), American Elm (*Ulmus americana*), and Manitoba Maple (*Acer negundo*). The understorey consists of Black Walnut, Riverbank Grape (*Vitis riparia*), and Choke Cherry (*Prunus virginiana*). The ground layer consists of Riverbank Grape, Common Buckthorn, Prickly Gooseberry (*Ribes cynobasti*), Ostrich Fern (*Matteuccia struthiopteris*), and Dame's Rocket (*Hesperis matronalis*).
Mixed Swamp (SWM)		

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
SWMM1-1	White Cedar-Hardwood Mixed Swamp	This community is west of Wellington Road 32, and south of the Speed River. The canopy is dominated by Eastern White Cedar and Crack Willow (*Salix euxina*). The subcanopy includes Eastern White Cedar, Manitoba Maple, and Black Walnut. The understorey includes Manitoba Maple, Common Buckthorn, Riverbank Grape, and Black Raspberry (*Rubus occidentalis*) .The ground layer includes Manitoba Maple, Virginia Creeper, Garlic Mustard, and Dame's Rocket,.
SWMM5-2	Tamarack-Hardwood Mineral Mixed Swamp	This community occurs on the northern edge of the study area. The canopy includes Tamarack (*Larix laricina*), Trembling Aspen (*Populus tremuloides*), Silver Maple (*Acer saccharinum*), and Black Spruce (*Picea mariana*). The subcanopy included Trembling Aspen, Black Walnut, Tamarack, and Black Spruce. The understorey included Riverbank Grape, Manitoba Maple, Common Buckthorn, and Glossy Buckthorn (*Frangula alnus*). The ground layer consists of Spotted Jewelweed, Broad-leaved Enchanter's Nightshade, Ostrich Fern and Colt's-foot (*Tussilago farfara*).
Deciduous Swamp (SWD)		
SWDM4-1	Willow Mineral Deciduous Swamp	These communities occur on the northwestern side of the Speed River on either side of Wellington Road 32. The canopy consists of Crack Willow and Trembling Aspen. The subcanopy includes Trembling Aspen, Eastern White Cedar, American Elm, and Manitoba Maple.. The understorey includes American Elm, Manitoba Maple, Common Buckthorn and Riverbank Grape. The ground layer includes Common Buckthorn, Poison Ivy, Goldenrod species and Dame's Rocket.
Coniferous Forest (FOC)		
FOCM2-2	Dry- Fresh White Cedar Coniferous Forest	These communities occur on the southern side of the Speed River on either side of Wellington Road 32. The canopy is dominated by Eastern White Cedar, with occasional Black Cherry (*Prunus serotina*). The subcanopy includes Eastern White Cedar, Manitoba Maple, Eastern White Pine (*Pinus strobus*), and Red Pine (*Pinus resinosa*). The understorey includes Norway Maple, Common Buckthorn, Riverbank Grape and Virginia Creeper. The ground layer includes Riverbank Grape, Common Buckthorn, Virginia Creeper, and Common Dandelion.
Open Aquatic (OA)		

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
OAO	Open Aquatic	The Speed River runs through the centre of the study area, passing under Blatchford Bridge.
Constructed (CV)		
CVR	Constructed	This community occurs on the north side of the Speed River to the west of Wellington Road 32.
Residential (CVR)		
CVR_3	Single Family Residential	These communities occur on the south side of the Speed River on either side of Wellington Road 32.
CVR_4	Rural Property	This community occurs on the north side of the Speed River to the east of Wellington Road 32 on the edge of the study area.

3.3.2 Botanical Inventory

A detailed botanical field inventory of the study area completed from the roadside identified 87 species of vascular plants. All identified plant species are listed in *Appendix 5*. Three additional species were identified only to the level of genus and have not been designated as native or non-native or included in the overall species count.

Of the 86 species identified, 57 species (66%) are native, and 30 species (34%) are exotic or cultivars.

3.3.2.1 Species at Risk, Regional and Local Significance

No vegetation communities listed in *Table 2* are considered rare in the province.

Most of the native species are ranked S5 (secure in Ontario) or SNA (S-Rank not applicable) with two species, White Ash and Green Ash, ranked S4 (apparently secure in Ontario), and two additional species, Virginia Creeper and Black Walnut, ranked S4?, indicating uncertainty in its ranking. No S1-S3 species were observed in the study area. None of the species observed in the study area had a coefficient of conservatism of 9 or 10. This indicates the presence of species with moderate to high tolerance for environmental ranges, which may be less impacted by minor site alteration or environmental disturbance.

No nationally or provincially rare, threatened, or endangered species were found.

3.4 Wildlife

3.4.1 Incidental Wildlife Observations

All incidental wildlife observations made outside formal field surveys are presented in *Table 3*. All observations were of single individuals unless otherwise stated.

Table 3. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Notes
Green Frog	*Lithobates clamitans*	Amphibian	July 23, 2024	Observed.
American Crow	*Corvus brachyrhynchos*	Bird	March 14 and June 18, 2024	Observed outside the point count radius during the second breeding bird survey.
American Goldfinch	*Carduelis tristis*	Bird	July 23, 2024	Observed.
American Robin	*Turdus migratorius*	Bird	March 14, 2024	Observed.
Black-capped Chickadee	*Poecile atricapillus*	Bird	March 14, 2024	Observed.
Blue Jay	*Cyanocitta cristata*	Bird	July 23, 2024	Observed.
Canada Goose	*Branta canadensis*	Bird	March 14 and May 30, 2024	Observed.
Common Yellowthroat	*Geothlypis trichas*	Bird	June 18, 2024	Observed outside the point count radius.
Killdeer	*Charadrius vociferus*	Bird	March 14, 2024	Observed.
Northern Cardinal	*Cardinalis cardinalis*	Bird	March 14, 2024	Observed.

Table 3. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Notes
Northern Flicker	*Colaptes auratus*	Bird	March 14, 2024	Observed.
Red-winged Blackbird	*Agelaius phoeniceus*	Bird	March 14, May 30, and July 23, 2024	Observed.
Song Sparrow	*Melospiza melodia*	Bird	March 14 and July 23, 2024	Observed.
White-crowned Sparrow	*Zonotrichia leucophrys*	Bird	March 14, 2024	Observed.
Crayfish sp.	Astacidea	Crayfish	July 23, 2024	Observed.
Ebony Jewelwing	*Calopteryx maculata*	Damselfly	May 30 and July 23, 2024	Observed.
Minnow sp.	Leuciscidae	Fish	July 23, 2024	Observed.
Eastern Cottontail	*Sylvilagus floridanus*	Mammal	March 14, 2024	Observed.
Raccoon	*Procyon lotor*	Mammal	March 14 and July 23, 2024	Tracks observed.
Red Squirrel	*Tamiasciurus hudsonicus*	Mammal	March 13, May 30, and July 23, 2024	Observed.

3.4.2 Breeding Bird Surveys

The results of the Breeding Bird Survey (BBS) are presented in *Table 4.* During BBS visits, a total of eight species were detected during point counts.

It is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas or may have been wandering during post-breeding dispersal. However, in order to ensure that all potential breeding bird species have been captured by this survey, any species exhibiting possible, probable, or confirmed breeding behaviour was considered to be breeding in the study area. Therefore, six species were presumed to be breeding within the study area: Eastern Kingbird, Chipping Sparrow, Song Sparrow, Red-winged Blackbird, Common Grackle, and Common Yellowthroat. The Breeding Bird Survey results in their entirety can be found in *Appendix 6.*

Table 4. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSSARO	COSEWIC	SARA	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	June 4		June 18		FINAL HBE
												TOTAL	HBE	TOTAL	HBE	
Ring-billed Gull	*Larus delawarensis*				S5	G5					x	1	FO	0	NA	FO
Eastern Kingbird	*Tyrannus tyrannus*				S4B	G5			✓	CP	x	2	P	0	NA	P
American Robin	*Turdus migratorius*				S5	G5						1	FO	0	NA	FO
Chipping Sparrow	*Spizella passerina*				S5B, S3N	G5						1	S	0	NA	S
Song Sparrow	*Melospiza melodia*				S5	G5						3	S	2	T	T
Red-winged Blackbird	*Agelaius phoeniceus*				S5	G5						5	S	3	T	T
Common Grackle	*Quiscalus quiscula*				S5	G5						2	S	0	S	S
Common Yellowthroat	*Geothlypis trichas*				S5B, S3N	G5						1	S	2	T	T

Legend:
COSSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act

S-Rank:
S5: Secure—Common, widespread, and abundant in the province
S4: Apparently Secure—Uncommon but not rare
S3: Vulnerable—Vulnerable, relatively few populations
G-Rank:
G5: Very common globally; demonstrably secure
B: Breeding.
N: Non-breeding.
M: Migrant.

Breeding Evidence:
Observed
FO- Flyover
Possible
S-singing male
Probable
P- Pair observed in suitable nesting habitat
T-Presumed territory

3.4.2.1 SAR, Regional, and Local Significance

No SAR were identified in the study area. Most species detected in the study area are ranked as S5 (very common) in Ontario. The rank qualifier ‘B’ denotes the status of a migratory species during the breeding season, while the rank qualifier ‘N’ denotes a

non-migratory population. One species (Eastern Kingbird) is considered a GRCA Conservation Priority and two species (Eastern Kingbird and Ring-billed Gull) are considered Significant in Wellington County.

3.4.2.2 Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 has identified a number of species that are considered conservation priorities for the region (Ontario Partners in Flight, 2008). One priority species (Eastern Kingbird) was identified during the breeding bird surveys.

3.4.3 Bat Maternity Habitat Surveys

No trees demonstrating the characteristics of candidate bat maternity trees were identified near the bridge. Therefore, no additional studies or habitat compensation are recommended.

3.4.4 Pileated and Red-headed Woodpecker Cavity Identification Surveys

Investigations were completed to identify Pileated and Red-headed Woodpecker nesting cavities near the bridge. No nesting cavities for either species were identified, and therefore no compensation or monitoring is recommended.

3.4.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), we have determined that confirmed Significant Wildlife Habitat (SWH) is present in the form of Deer Winter Congregation Areas and Waterfowl Winter Concentration Areas. Candidate SWH is present in the form of Habitat for Special Concern and Rare Wildlife Species and Turtle Wintering Area, as habitat for Midland Painted Turtle and Snapping Turtle is present in the study area. See *Appendix 7* for a detailed assessment of SWH.

Candidate habitat for Snapping Turtle and Midland Painted was identified in the watercourse, particularly in the areas with sand and silt dominated substrates downstream of the bridge. No individuals were observed during the field investigations, however, since surveys were not conducted for turtles, this SWH is assumed present within the study area. Performing the work outside of the overwintering turtle window and minimising disturbance to the watercourse will help to mitigate for effects to these species.

3.4.6 Species at Risk Habitat

A thorough review of background documents was conducted to compile a master list of all Species at Risk, and species with conservation designations that may occur in the study area. Species listed as Rare or Special Concern are discussed in detail in section

3.3.5. Based on the background review and site assessment, candidate habitat for SAR listed as threatened or endangered is not known to occur within the study area.

See *Appendix 8* for a detailed assessment of Species at Risk Habitat.

3.5 Aquatic Habitat Assessment

An extended aquatic habitat assessment to map habitat features present along the watercourse up to 120 m upstream and downstream of the bridge took place on May 30, 2024. However, the river was deep (>1 m depth) in many places downstream, and almost immediately upstream of the bridge, limiting the detail collected during the assessment. In addition to deep water the current was strong, although flow was almost universally flat. Only the area immediately upstream of the bridge was accessible for in-stream assessment, while assessment of the downstream stretch was patchy. The deep water, strong current, and wide river did not allow for measurements of river width, although analysis of aerial photos indicate that in the vicinity of the bridge, river width averages around 30 m. Air temperature was 20°C and water temperature was 22°C at the time of the assessment.

The stream featured a low percentage of stream shading at 15%, with variable buffers of between 30 m and 70 m on both banks. There was evidence of erosion on the southern bank of the river downstream of the bridge. The substrates were variable, with cobble and boulder more prevalent on the southern side of the river downstream of the bridge, and sand and bedrock being more prevalent along the northern bank. Soft sediments like silt and sand were prevalent around the bridge and immediately downstream of it. Submerged vegetation was present within sandy areas at the edge of the study area. Boulders were present on the southern bank of the river downstream of the bridge, and a small bar made up of cobbles and boulders was present in the centre of the river immediately upstream of the bridge. Vascular plants within the riparian area included Eastern White Cedar, Crack Willow, Riverbank Grape, Crack Willow, Goldenrod species, and Spotted Joe Pye Weed, and the banks were well vegetated. In-stream fallen tree trunks were present throughout the study area.

The substrates, vegetation, and natural debris present in the creek provide moderate habitat for fish species, as the site has highly heterogenous substrates and variable water depths, although in-stream cover and stream shading was low. Fish and crayfish were observed during the site visit. Habitat mapping is provided for the assessed section of the watercourse in *Figure 3*, and site photos showing the river are provided in *Appendix 11*.

3.6 Geology and Soils

The study area contains Bottomland, Burford, and Granby soils (Hoffman et al., 1963). The Burford soils in the study area are loams which are part of the Grey Brown Podzolic Great Group, are gravelly, very gently to gently sloping, and slightly to moderately stony (Hoffman et al., 1963). They have good drainage, and consist of loam surface horizons on gravel deposits from glacial meltwaters (Hoffman et al., 1963). The materials vary in size from fine sand to cobbles. (Hoffman et al., 1963). The Granby soils in the study area are sandy loams which are part of the Dark Grey Gleysolic Great Group, consist of medium sand, and are smooth and stonefree (Hoffman et al., 1963). They have poor drainage, have developed from calcareous outwash, and are saturated with water for most of the year as they occur in depressions (Hoffman et al., 1963). The Bottomland soils are variable in texture, soil materials, topography, and stoniness (Hoffman et al., 1963). They are soils that occur on variable textured alluvial deposits in river and creek beds that are subject to periodic flooding (Hoffman et al., 1963).

4.0 Impact Analysis

Any proposed Infrastructure replacement will result in impacts to the existing natural features. The structure is proposed to be replaced in the same location as the existing structure. Subject to future detailed design, through the implementation of proposed mitigation the impact is expected to be minor to none.

4.1 Generalized Impacts and Mitigation Recommendations

An assessment of the impacts (potential and actual) and mitigation measures are provided in *Appendix 12*. The expected impacts include loss of vegetation and wildlife habitat, disturbance of wildlife species, impacts to nesting birds and bat maternity habitat, increased erosion, sedimentation, nutrient inputs, and contaminants into the wetland, decreased shade and cover, changes to drainage and surface runoff, increased soil compaction, and wildlife entering the construction areas.

Mitigation methods include:

- the development and implementation of an Erosion and Sediment Control (ESC) plan, including ESC fencing to isolate the work area and prevent the entrance of wildlife,
- removal of vegetation outside of sensitive timing windows (April 1-August 31 for breeding birds),
- Removal of trees outside the bat maternity timing window (March 15 – November 30),

- where avoidance is not possible, nest searches prior to vegetation removal in the breeding bird nesting window,
- maintaining site vegetation or restoring with native species as soon as possible, including the use of compensation planting,
- controlling access and movement of equipment and people,
- scheduling grading to avoid high run-off events,
- minimizing changes to land contours and natural drainage,
- controlling water contamination through good housekeeping practices such as designated areas for parking and refuelling vehicles,
- maintaining fish passage through the watercourse, and
- implementing a wetland restoration and planting plan.

4.2 Hydrological Function of the Wetland and Watercourse

A detailed hydrological study and analysis of the functions and anticipated changes to the watercourse have not been completed, so an evaluation of stormwater management alternatives is not available at this time. Preliminary hydraulic assessments indicate that it is expected that the replacement of Blatchford Bridge would have little to no impact on the hydrology of the watercourse, wetland, or flood risk, provided the bridge continues to span outside of the watercourse limits.

4.3 Analysis and Comparison of Bridge Replacement Alternatives

The proposed alternatives for the replacement of Blatchford Bridge have been assessed for impacts to the surrounding Natural Heritage System. The assessment of alternatives was completed by evaluating the potential and actual impacts of each proposed alternative on the identified Natural Heritage Features in the study area and surrounding landscape. The current state of the bridge was considered to be neutral, and positive or negative impacts were assessed relative to this condition. The current bridge is a 31.7 m span truss bridge.

Four alternatives (A, B, C and D) were considered in the evaluation of impacts to the Natural Environment. The following alternatives were provided by GFT Inc.

Alternative A - Do nothing
This is the neutral “null” alternative, against which all other alternatives will be measured. If nothing is done to replace the bridge, the bridge will continue to deteriorate and eventually fail.

Alternative B – Replace the current bridge with a new single 38 m span girder bridge (with new abutments offset behind the existing)

Construct a new larger bridge at the same location. New abutments will be offset behind the existing. This alternative may provide insufficient capacity below the bridge due to conversion from truss bridge to a girder bridge.

Alternative C – Replace the current bridge with a new single 38 m span girder bridge with a raised profile

Construct a new larger bridge at the same location. New abutments will be offset behind the existing. This alternative could be restricted by the adjacent driveway access but may be required to mitigate capacity below the bridge while converting to a girder type bridge.

Alternative D – Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water

Construct a new larger bridge at the same location which is supported in the middle with a pier in the water.

In order to evaluate the alternatives provided, each alternative was assessed with respect to potential impacts to the significant features of the natural environment identified in the study area (*Table 5*). These are:

- Impacts to Habitat of Species at Risk;
- Impacts to Fish Habitat, (including thermal regime and fish passage);
- Impacts to Significant Wildlife Habitat;
- Impacts to Provincially Significant Wetlands.

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
Species at Risk (SAR)	The effects each alternative has on native SAR within the project study area. Changes or alterations due to the bridge replacement can have negative impacts on the natural habitat features and ecological functions of the identified species. This is measured through the desktop and field investigations which assess the types of species present.	MED	No impacts are anticipated under current state.	No long-term impacts are anticipated following reconstruction of the bridge.	No long-term impacts are anticipated following reconstruction of the bridge.	No long-term impacts are anticipated following reconstruction of the bridge.
Ranking			**-4**	**0**	**0**	**0**
Aquatic/Fish Habitat	The effects each alternative has on the native fish species and their habitat. Changes to the habitat present in the river and impacts of the work may affect fish habitat. This is measured through the desktop and field investigations which assess the types of fish species present and other aquatic habitat features.	HIGH	No impacts are anticipated under current state. Bridge failure has the potential to cause negative impacts to fish and fish habitat	No long-effects expected following this method of bridge replacement. Present habitat will be preserved.	No long-effects expected following this method of bridge replacement. Present habitat will be preserved.	Construction of the pier will result in the long-term removal of a small area of fish habitat, will result in changes to the hydrology of the river at the new pier location, and will impact the hydrology and fish habitat in the area during construction.

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
						Most habitat within the study area will be unaffected.
Ranking			**-6**	**0**	**0**	**-3**
Significant Wildlife Habitat (SWH)	The effects each alternative has on SWH within the project study area. The destruction of SWH due to changes or alterations can have negative impacts on the natural habitat features and ecological functions. Measured through desktop and field investigations.	HIGH	No impacts are anticipated under current state. Bridge failure has the potential to cause negative impacts to SWH.	If appropriate mitigation measures are put in place, no long term impacts are anticipated following construction and restoration.	If appropriate mitigation measures are put in place, no long term impacts are anticipated following construction and restoration.	Long term negative-neutral impacts on the features and functions of the following assumed SWH: Turtle overwintering and Habitat for Special Concern Species and Rare Wildlife Species, due to the construction of the pier.
Ranking			**-6**	**0**	**0**	**-3**

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
Provincially Significant Wetlands (PSW) /Landscape Features	The effects each alternative has on the Speed River Wetland complex present within the project study area. Changes to the limit and extent of the PSW can cause negative impacts to the local ecological interdependencies. This is measured through desktop and field investigations which quantify and assess the current limit and extent of PSW.	MED	No impacts are anticipated under current state however, bridge failure has the potential to cause negative impacts to the PSW.	Impacts to upstream and downstream hydrology is negligible. No impacts are anticipated.	Potential encroachment into the PSW by the road due to the construction of the raised profile. Encroachment will be minor relative to the size of the PSW.	Impacts to upstream and downstream hydrology is negligible. No impacts are anticipated.
Ranking			**-4**	**0**	**-2**	**0**
Total Ranking		**20**	**-20**	**0**	**-2**	**-6**

4.4 Impacts to the Natural Environment

Alternative A - Do nothing
The Do Nothing Alternative will result in no immediate additional negative impacts to the existing natural features under the existing structure. This alternative will likely cause significant and unknown impacts to the natural environment in the case of an uncontrolled structure failure.

Alternative B – Replace the current bridge with a new single 38 m span girder bridge (with new abutments offset behind the existing)
Alternative B for structure replacement is not anticipated to result in new long-term negative impacts to the natural environment, relative to the current state. In general, the anticipated impacts associated with Alternative B are short term, while construction is ongoing. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be remain the same.

Alternative C – Replace the current bridge with a new single 38 m span girder bridge with a raised profile
Alternative C for structure replacement has the potential for long-term neutral to negative impacts on the PSW adjacent to the bridge on all sides, as this alternative will require the raising on the road on each side of the bridge. This may lead to encroachment into the wetland, although this will be relatively minor given the size of the wetlands.

Aside from the potential impacts to the PSW, the anticipated impacts associated with Alternative C are short term, while construction is ongoing. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be maintained.

Alternative D – Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
Alternative D for structure replacement has the potential for long-term neutral to negative impacts on the both SWH and aquatic habitat. The construction of the pier has the potential to impact Turtle Overwintering Habitat and Habitat for Special Concern and Rare Wildlife found underneath the bridge, as well as impact fish habitat and alter the hydrology of the river around the pier.

Aside from the potential impacts from the pier, the anticipated impacts associated with Alternative D are short term, while construction is ongoing, although these impacts will be greater for this alternative compared to Alternatives B and C due to the construction of the pier. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be maintained.

5.0 Legislation and Policy Compliance

5.1 Provincial Policy Statement

Blatchford Bridge is considered essential transportation infrastructure and is therefore exempt from the constraints applied to development. The natural resources adjacent to the existing structure must still be given consideration, and impacts must be minimized where possible.

To fulfill the requirement under the PPS, natural features were inventoried and assessed for potential and actual impacts based on the proposed replacement of the structure. Confirmed SWH and candidate habitat for SAR can be found around the bridge, and the portion of these habitats adjacent to the bridge will be disturbed by the removal of vegetation and in-water work during the bridge replacement. Revegetation of the site following construction with native plants, adhering to timing windows, and the use of ESC fencing and cofferdams to prevent wildlife access to the site will help to mitigate these effects.

5.2 Species Conservation Act

The Species Conservation Act (2025) provides protection to species designated as Threatened or Endangered on the Protected Species in Ontario List (O. Reg. 60/26) and their habitat. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation, and migration.

No SAR were identified during site investigations, impacts to SAR are not anticipated, as a result the structure replacement options are expected to comply with the SCA.

5.3 Fisheries Act, 1985

To ensure compliance with the *Fisheries Act (1985)*, a DFO Self-Assessment should be completed at detailed design to determine if the works can be completed under the appropriate codes of practice. Based on this review a DFO Request for Review of the

detailed design may be required where works cannot comply or fall outside of the purview of the codes of practice, and should be completed by a qualified biologist/ecologist. If it is determined that proposed actions may cause the death of fish or the harmful alteration, disruption or destruction (HADD) of fish habitat that cannot be mitigated for, then a Fisheries Act Authorization would be required.

5.4 Species at Risk Act

No Federal lands are present in the study area, and no migratory bird SAR or aquatic SAR have been identified within the study area. Therefore, this project is expected to be in compliance with the Species at Risk Act.

5.5 Grand River Conservation Authority

The study area is entirely within the GRCA regulated area and contains the Speed River Provincially Significant Wetland Complex, the Speed River, floodplain, and a watercourse crossing.

The replacement of the Blatchford Bridge is considered to be public infrastructure which is permitted within the area of interference of a wetland, interfering with a watercourse via a watercourse crossing, and within the regulated area subject to the activity being approved through a satisfactory EA process and/or if it has been demonstrated to the satisfaction of GRCA that the development is acceptable on the natural features and hydrologic and ecological functions of the area.

This area is already impacted by the existing structure, and it is expected that any new impacts to the natural heritage features will be minor to none. Alternative C with the raised profile has the greatest likelihood of impact to the PSW through direct encroachment, although that impact is likely to be minor. The total area (m^2) of any proposed direct impacts to the PSW will be quantified at the detailed design and permitting stage. Hydrological impacts to the watercourse and changes to flood capacity should be minimized through detailed design. Any encroachment into the adjacent wetland should be avoided and the designated location for the storage of equipment and materials should be as far from the wetland as possible. Appropriate mitigation measures should be applied through design and construction planning and disturbed areas restored or enhanced where appropriate. See Section 7.0 for recommendations.

5.6 Wellington County Official Plan (2025)

The Wellington County Official Plan (2025 consolidation) indicates the presence of Core Greenlands including PSW, hazardous lands (floodplain), fish habitat, and candidate SAR habitat in the Study Area. Greenlands is also present due to Significant Woodland and SWH being present in the study area. Based on the findings of the NEA, the choice of either Alternative B or C, and the recommended mitigation outlined in *Appendix 12* and Section 7.0, prior, during, and post-construction, ensures that the replacement of Blatchford Bridge will not negatively impact the ecological functions or environmental features present, and is not expected to contravene the Wellington County Official Plan.

5.7 Township of Guelph/Eramosa Zoning By-law (40/2016)

The study area is within lands designated as Environmental Protection. Completing the NEA to the satisfaction of the Township will result in this project conforming to the by-law.

5.8 Township of Puslinch Zoning By-law (023-18)

The study area is within lands designated as Natural Environment and Agriculture. Completing the NEA to the satisfaction of the Township will result in this project conforming to the by-law.

6.0 Summary and Conclusions

It is the opinion of AA that by implementing the mitigation measures identified in *Section 4*, that the options for replacement of the Blatchford Bridge will result in no significant long-term negative impacts to natural heritage features identified in the study area. The natural features within the study area will be protected and enhanced through mitigation and restoration recommendations. This will result in long-term positive effects on the natural heritage features within the study area. Below is a summary of the affected natural heritage features, constraints, and impacts. Recommendations for associated mitigation and/or protection measures are identified in *Section 4.*

6.1 Biological Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), Breeding Birds, Candidate Bat Maternity Habitat, Woodpecker Cavity Surveys, Significant Wildlife Habitat, Species at Risk Habitat and Aquatic Habitat.

2. No SAR or their habitat were detected within the study area.

3. Confirmed SWH is present in the form of Deer Winter Congregation Areas and Waterfowl Winter Concentration Areas.

4. Assumed SWH is present in the form of Habitat for Special Concern and Rare Wildlife Species and Turtle Overwintering Habitat.

5. The study area includes a reach of the Speed River, which is classified as a cold-water watercourse, and which provides fish habitat.

6. Significant Woodland as defined by Wellington County is also present in the study area.

6.2 Impact Assessment

1. Impacts to the assumed SWH can be mitigated through site exclusion measures, undertaking work outside the turtle overwintering window, and revegetating disturbed areas.
2. Impacts to confirmed SWH can be mitigated by performing work outside of the winter, to avoid disturbing wintering deer and waterfowl.
3. Generalized impacts due to the replacement of the structure were assessed to determine their extent and mitigation guidelines have been provided.

4. Potential impacts primarily involve the removal of herbaceous vegetation communities, site grading, impact to aquatic habitat, wildlife disturbance, and sediment run-off.

5. From a Natural Environment perspective, Alternative B is the preferred alternative. Alternative D is the least preferred alternative due to the construction of the pier having greater potential for long-term impacts to fish habitat and SWH.

6. There are opportunities in the study area for edge enhancement, restoration, invasive species management, and compensation planting to mitigate and offset potential impacts.

6.3 Legislation and Policy Compliance

1. SWH and habitat near the structure has the potential to be disturbed during construction. However, negative impacts to these natural features or their ecological functions will ne mitigated through implementation of ESC, wildlife

exclusion, and revegetation of the disturbed areas with native plants and compensation planting.

2. The proposed replacement of Blatchford Bridge can occur in accordance with the provincial, federal, and municipal policies because it has been demonstrated that any impact to the hydrologic or ecological functions will be minimized through the recommended mitigation measures. The implementation of appropriate mitigation measures and restoration of disturbed areas will be considered through design and construction planning.

7.0 Recommendations

The following recommendations are provided to ensure protection of natural heritage features and function within and adjacent the proposed structure replacement.

1. Implement Erosion and Sediment Control Plan (ESC) following guidelines provided in the “Greater Golden Horseshoe Area Conservation Authorities’ Erosion and Sediment Control Guideline for Urban Construction”.

2. ESC measures should be implemented such that they isolate the work area, to reduce the potential for wandering wildlife inside the work area.

3. The area of construction disturbance shall be kept to a minimum.

4. Control access and movement of equipment and people.

5. Minimize the use of heavy equipment in sensitive areas. Equipment is to be limited to the construction allowance area and is not to encroach within the adjacent natural communities.

6. No equipment storage within 30 m of wetland limits.

7. Works are to be located as far away from the wetland feature boundary as possible.

8. Accumulated sediment and debris to be removed before silt fence is removed.

9. All disturbed areas will be re-vegetated or restored with site appropriate indigenous plants wherever opportunities exist.

10. Time activities to avoid wildlife disturbance during critical life stages:

a) No in-water works are permitted from March 15-June 30, as per MNDMNRF timing windows for the protection of fish and fish habitat, and during the timing window for overwintering turtles (September 30-April 1).
b) Avoid removal of trees and vegetation during the generalized breeding bird nesting period from April 1 to August 31 and the bat maternity period from March 15 to November 30. If limited removal of herbaceous vegetation and shrubs is to occur during the general nesting period, a nest search is to be completed by a skilled and experienced biologist/ecologist.
c) Net off the structure by April 1 to prevent any bird nesting.

11. Where in water works cannot be conducted per the applicable codes of practice, submit a DFO Request for Review to identify any potential risks to fish and fish habitat.

12. If dewatering within the study area is deemed necessary, ensure a fish rescue is completed by a qualified biologist/ecologist prior to dewatering being completed.

13. Choose designs and materials that will minimize impacts.

14. Limit any cleaning solutions or paint used on the structure and take appropriate precautions to avoid products entering the watercourse.

Prepared By:

ABOUD & ASSOCIATES INC.



Jordan Widmaier, B. Sc.,
Aquatic Ecologist

Reviewed By:



Cheryl-Anne Ross, B. Sc.,
Ecology Lead & Wildlife Ecologist
OMNR Certified Ecological Land Classification
OMNR Certified Wetland Evaluation

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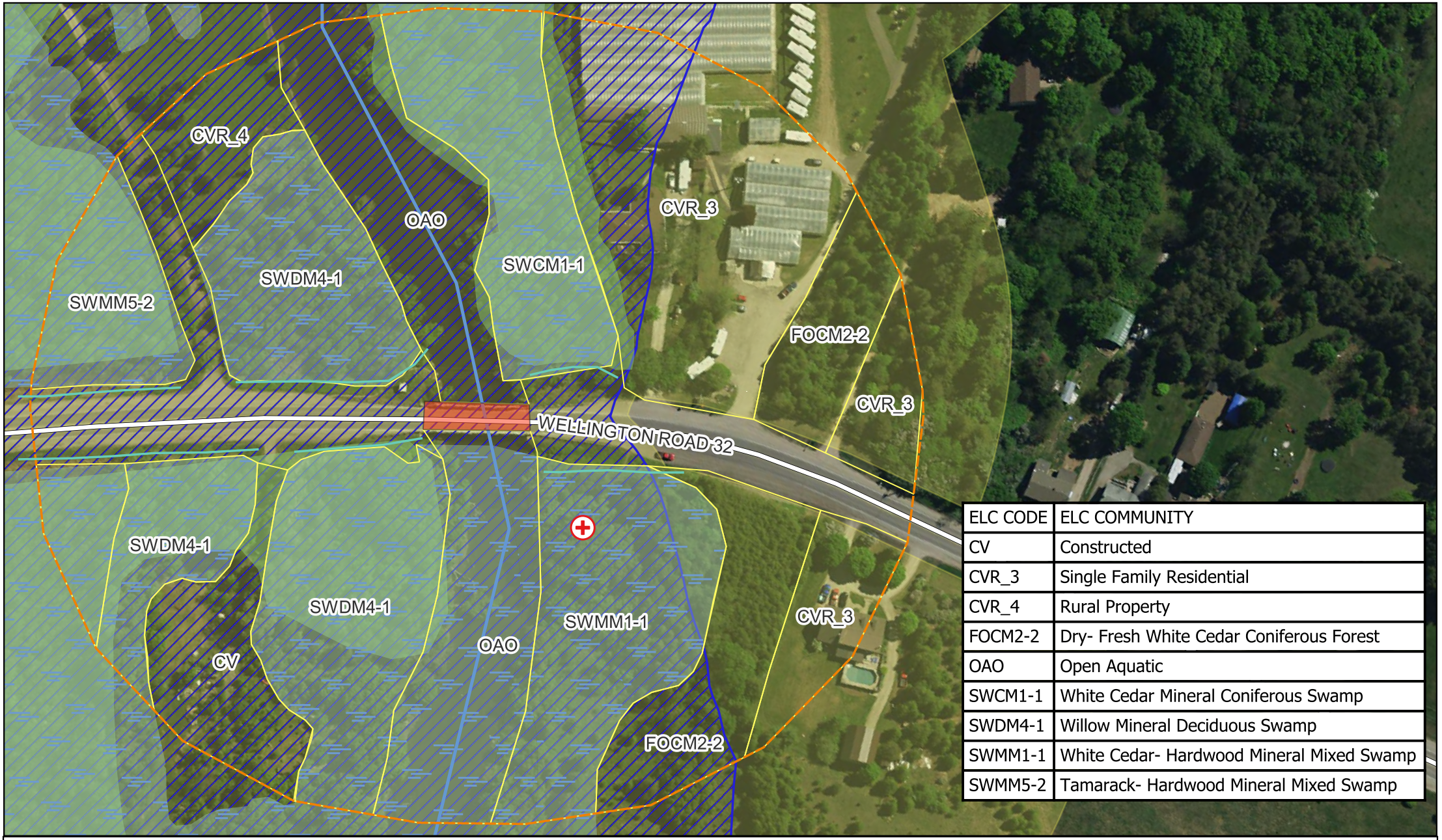
Township of Puslinch. 2021. Puslinch Zoning By-law, Comprehensive Zoning By-Law No. 023-18. Consolidated May 2021.

Authorities Consulted

Species at Risk Branch, MECP. Email Correspondence.

Denyes, David. Management Biologist. MNRF. Email Correspondence.

FIGURES



ELC CODE	ELC COMMUNITY
CV	Constructed
CVR_3	Single Family Residential
CVR_4	Rural Property
FOCM2-2	Dry- Fresh White Cedar Coniferous Forest
OAO	Open Aquatic
SWCM1-1	White Cedar Mineral Coniferous Swamp
SWDM4-1	Willow Mineral Deciduous Swamp
SWMM1-1	White Cedar- Hardwood Mineral Mixed Swamp
SWMM5-2	Tamarack- Hardwood Mineral Mixed Swamp

LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- SPEED RIVER
- SIGNIFICANT WOODLANDS
- GRCA FLOODPLAIN
- GRCA REGULATED AREA
- VERIFIED WETLAND LIMIT
- SPEED RIVER WETLAND COMPLEX
- BREEDING BIRD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

EXISTING CONDITIONS & SURVEY LOCATIONS

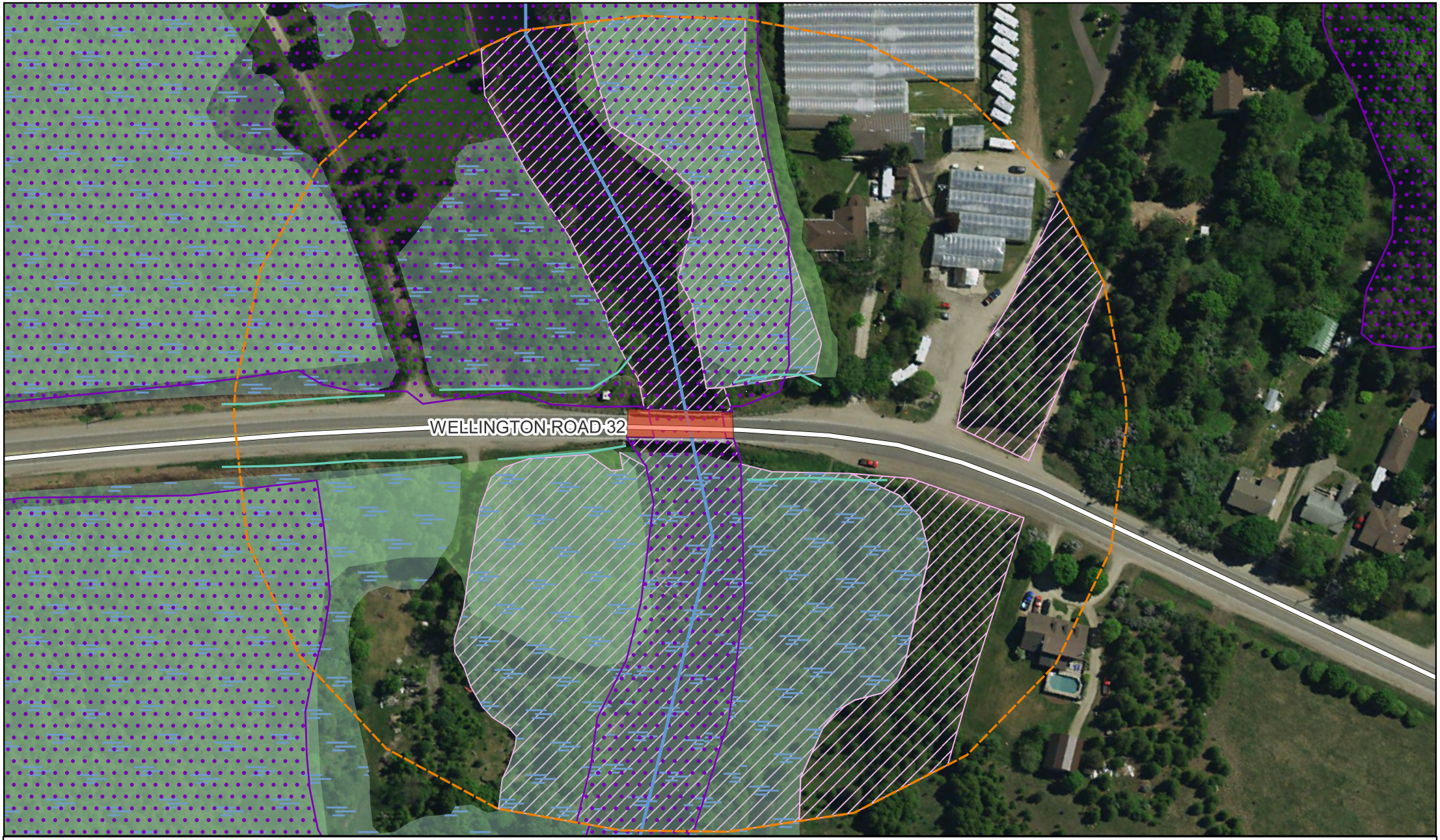
Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1



LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- SPEED RIVER
- VERIFIED WETLAND LIMIT
- CANDIDATE SAR HABITAT
- SPEED RIVER WETLANDS COMPLEX
- SIGNIFICANT WOODLANDS
- CONFIRMED AND ASSUMED SIGNIFICANT WILDLIFE HABITAT

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

NATURAL HERITAGE FEATURES & CONSTRAINTS

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 2



LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- TREE
- BOULDER
- SUBMERGED VEGETATION
- EROSION
- 100 BEDROCK
- 100 COBBLE
- 100 SAND
- 100 SILT
- 50 SAND, 25 GRAVEL, 25 COBBLE
- 50 SAND, 50 COBBLE
- 60 COBBLE, 35 BOULDER, 5 SAND
- 60 COBBLE, 40 SAND
- 80 SAND, 20 BEDROCK
- 90 BEDROCK, 10 COBBLE
- 90 BOULDER, 10 COBBLE
- 90 COBBLE, 10 BOULDER
- COBBLE BAR

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

AQUATIC HABITAT MAPPING

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024

Project: AA23-105A

Scale: 1 : 400

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Figure No: 3

APPENDIX 1
Applicable Policies and Conformity

Policy	Relevant Sections of the Policy	Policy Constraints Within the Study Area	Project Policy Conformity	Proposed Mitigation
Provincial Policy Statement (2024)	Chapter 3: Infrastructure and Facilities - Section 3.2 Transportation Systems - Section 3.3 Transportation and Infrastructure Corridors Chapter 4: Wise Use and Management of Resources - Section 4.1 Natural Heritage	Habitat of endangered species potentially present in Study Area. Significant Wildlife Habitat (SWH), Provincially Significant Wetlands and fish habitat present in the study area.	Confirmed and candidate SWH will be disturbed near the bridge, with the removal of vegetation.	Vegetation to be replanted with native species.
Species Conservation Act (2025)	Subsection 2(1) Section 16 O. Reg. 74/26 O. Reg. 75/26 O. Reg. 61/26	Species at Risk and their habitat are potentially present in the Study Area.	Following surveys and site-specific background review, No Candidate SAR habitat was identified in the study area.	No specific mitigation needed.
Fisheries Act (1985)	Section 34.4 (1) Section 35 (1)	Fish and fish bearing waters are present in the Study Area.	Fish habitat is confirmed as present in the study area.	The project will need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause death of fish or the harmful alteration, disruption or destruction of fish habitat that cannot be mitigated, then a Fisheries Act Authorization will be required.
Species at Risk Act (2002)	Subsection 32 (1) and (2) Subsection 33 Subsection 34(1) Subsection 58 (1)	Migratory bird SAR and aquatic Species at Risk and their habitat are potentially present in the Study Area.	Following surveys and background review, no aquatic SAR or their habitat have been identified in the study area. No migratory bird SAR were identified in the study area. No federal land present in the study area.	No specific mitigation needed.

Policy	Relevant Sections of the Policy	Policy Constraints Within the Study Area	Project Policy Conformity	Proposed Mitigation
Wellington County Official Plan (2025)	Section 5.4.1 Section 5.4.2 Section 5.4.3 Section 5.6.1	The majority of the study area is identified as Core Greenlands due to the presence of the PSW, hazardous lands (floodplain), fish habitat, and candidate SAR habitat. Greenlands is also present due to the presences of significant woodland and SWH.	Existing uses are permitted within Core Greenland and Greenland areas.	This EIS is part of an EA process and has demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions, provided mitigation described in *Appendix 12* are utilized.
GRCA Policies for the Administration of Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24	Section 7.1.2 Section 7.1.3 Section 8.1.15 Section 8.1.16 Section 8.1.17 Section 8.4.6 Section 8.4.7	PSW, regulated area, floodplain, and a watercourse present in the study area. The project is a public infrastructure project.	Infrastructure maintenance is permitted within the regulated area if authorized under an environmental assessment process.	This EIS is part of an EA process, and has demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions, provided mitigation described in *Appendix 12* are utilized.
Township of Guelph/Eramosa Zoning By-law (40/2016)	Section 20	The study area is within lands designated as Environmental Protection.	Completing the EIS to the satisfaction of the Township will result in this project conforming to the by-law.	No specific mitigation needed.
Township of Puslinch Zoning By-law (023-18)	Section 11 Section 12	The study area is within lands designated as Natural Environment and Agriculture.	Completing the EIS to the satisfaction of the Township will result in this project conforming to the by-law.	No specific mitigation needed.

APPENDIX 2
Terms of Reference and Approval

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HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 13, 2024

Our Project No.: AA23-105A
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Re: Blatchford Bridge (B032085) Rehabilitation or Replacement
Terms of Reference R1 - Natural Environment Assessment Report

Dear Ms. Wismer, Ms. Roger, and Ms. Brotherstone:

This document outlines the revised Terms of Reference (ToR) of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation or replacement of Blatchford Bridge on Wellington County Road 32, in the Township of Guelph-Eramosa, Ontario. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA. The bridge is within the Township of Guelph-Eramosa, but some of the study area is within the Township of Puslinch.

The bridge is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 150/06, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- GRCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation, Ontario Regulation 150/06
- Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24
- Wellington County Official Plan, 2022 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed November 2022.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibian, accessed November 2022.
- Bird Studies Canada. Atlas of the Breeding Birds of Ontario 2008.

- Federation of Ontario Naturalists, Atlas of the Mammals of Ontario.
- DFO Aquatic Species at Risk Map. Accessed November 2022.
- iNaturalist. Accessed November 2022,
- eBird. Cornell Lab of Ornithology. Accessed November 2022.
- Aquatic Resource Area Survey Points online mapping. Accessed November 2022.
- Ontario Nature. Ontario Butterfly Atlas.

STUDY AREA

The study area includes the subject structure and staging areas outlined in Figure 1, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features. Lands outside of the field study area will be reviewed from existing background information e.g., Waterloo Regional Official Plan.

PLANNING CONTEXT

Provincial Policy Statement (2020)

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

In regards to **Natural Heritage Protection** the PPS states that:

"*Natural features and areas shall be protected for the long term.*"

And that:

"*The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*"

"Development and site alteration shall not be permitted in:

a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
b) Significant coastal wetlands.

Development and site alteration shall not be permitted in:

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6Eand 7E;

b) *Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
c) *Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
d) *Significant wildlife habitat;*
e) *Significant areas of natural and scientific interest; and*
f) *Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)"*

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under *Section 1.6.8.6*, these significant resources shall be given consideration in the planning of significant transportation *infrastructure*.

The subject structure is considered infrastructure and therefore is not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

Endangered Species Act, 2007

The *Endangered Species Act* (ESA) (Subsection 9(1)) states that:
"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA also states that:
"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

Clause 16(5) of the ESA states that:
"An agreement entered into under this section may require the authorized party under the agreement to pay a species conservation charge to the Agency in accordance with Section 20.3 if an impacted species under the agreement is also a conservation fund species."

Clause 17(1) of the ESA states:
"The Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by Section 9 or 10. 2007, c. 6, s. 17(1)."

An authorization or permit between the proponent and the Minister of Environment Conservation and Parks is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

Fisheries Act, 1985

The study area contains fish-bearing waters in the form of the Speed River. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

Section 35 (1) of the Fisheries Act states that:
"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat."

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support direct or indirect fish habitat. Within the context of the replacement or rehabilitation of the bridge, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish, which cannot be mitigated for, then a Fisheries Act Authorization would be required.

Species at Risk Act (S.C. 2002, c. 29)
The Species at Risk Act (SARA) includes prohibitions to protect listed wildlife species. Prohibitions of SARA within the Province of Ontario generally apply to species present on federal lands and all aquatic Species at Risk (SAR).

SARA subsection 32 (1) and (2) states that:

No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.
And,
No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual.

SARA subsection 33 also states that:

No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

SARA subsection 34(1), identifies where SARA does not apply in the Province:

With respect to individuals of a listed wildlife species that is not an aquatic species or a species of birds that are migratory birds protected by the Migratory Birds Convention

Act, 1994, sections 32 and 33 do not apply in lands in a province that are not federal lands unless an order is made under subsection (2) to provide that they apply.

SARA subsection 58 (1) identified the restrictions to the destruction of critical Habitat, and states that:

Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species — or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada — if…b) the listed species is an aquatic species; or….

Where impacts may occur or are expected, agreements or permits may be entered into with the appropriate ministry, as outlined in section 73, which states:

(1) The competent minister may enter into an agreement with a person, or issue a permit to a person, authorizing the person to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.

(2) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons;
(b) the activity benefits the species or is required to enhance its chance of survival in the wild; or
(c) affecting the species is incidental to the carrying out of the activity.

3) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that

> *(a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;*
> *(b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and*
> *(c) the activity will not jeopardize the survival or recovery of the species.*

The Species at Risk Act requires that projects and activities avoid causing serious harm to Species at Risk or their habitat unless authorized to do so. This applies to work conducted in or near waterbodies that support species at risk fish, or their critical habitat. Any proposed actions that could impact species at risk or their habitat would need to be assessed for compliance. If it is determined that proposed actions will cause

serious harm to species at risk that cannot be mitigated, then a Species at Risk Act Authorization would be required.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020 Consolidation)
Section 4.2.2.1 states:
A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.

The bridge and surrounding area are part of the Growth Plan's Natural Heritage System, as there are key hydrologic and key natural heritage features present.

Section 4.2.3 states that:
"Outside of settlement areas, development or site alteration is not permitted in key natural heritage features that are part of the Natural Heritage System for the Growth Plan or in key hydrologic features, except for:

c) activities that create or maintain infrastructure authorized under an environmental assessment process"

Wellington County Official Plan (2022 consolidation)
Schedule B3 of the Wellington County Official Plan indicates that the majority of the study area is identified as Core Greenlands due to the presence of the PSW and hazardous lands (floodplain).

Section 5.4.1 states that:
"All wetlands in the County of Wellington are included in the Core Greenlands. Development and site alteration will not be permitted in wetlands which are considered provincially significant. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland."

Township of Guelph/Eramosa Zoning By-law (40/2016)
The study area is within lands designated as Environmental Protection.

Township of Puslinch Zoning By-law (023-18)
The study area is within lands designated as Natural Environment and Agriculture.

Grand River Conservation Authority

Blatchford Bridge is within the GRCA Regulation limit. The study area contains the Speed River Provincially Significant Wetland (PSW), One Zone Floodplain, and watercourse.

Section 8.1.16 states that:

"Public infrastructure including but not limited to roads, sanitary sewers, utilities, water and sewage treatment plants, water supply wells, well houses, and pipelines may be permitted in accordance with the policies in Sections 7.1.2 – 7.1.3- General Policies, provided that there is no feasible alternative site outside the Riverine Flooding Hazard as determined through an Environmental Assessment or other comprehensive plan supported by the GRCA, and where it can be demonstrated that:

a) Adverse hydraulic or fluvial impacts are limited and any risk of flood damage to upstream or downstream properties is not increased or is minimized through site design and the affected landowner(s) is informed of the increased risk,
b) There is no loss of flood storage wherever possible, and
c) Where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Section 8.1.17 states that:

"The maintenance and repair of public infrastructure may be permitted in accordance with the policies in Sections 7.1.2-7.1.3- General Policies, and where it can be demonstrated that where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."

Development/interference within a wetland or development within an area of interference is not permitted except under certain circumstances.

Section 8.4.6 states:

"Public Infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, within a wetland larger than specified in Sections 8.4.4-8.4.5 may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, provided that it can be demonstrated that:

a) an Environmental Assessment or other comprehensive plan supported by the GRCA, demonstrates that all alternatives to avoid wetland loss or interference

have been considered and that the proposed alignment minimizes wetland loss or interference to the greatest extent possible, and

b) *where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."*

Additionally, section 8.4.7 states that:
"Where an Environmental Assessment or other comprehensive plan is available and supported by the GRCA as specified in Section 8.4.6, the GRCA will request a more detailed site-specific study (i.e., a Scoped Environmental Impact Study) consistent with the comprehensive plan."

Section 9.1.2 states that:
"Crossings including but not limited to bridges, culverts, pipelines, channel enclosures of less than 20 metres (66 feet) and causeways may be permitted to be constructed, replaced or upgraded in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.16-8.1.17 and/or Section 8.2.21 where appropriate, and provided that all feasible alternative sites and alignments have been considered through an Environmental Assessment supported by the GRCA"

In addition, GRCA is authorized under Section 28 of the Conservation Authorities Act to implement and enforce the Prohibited Activities, Exemptions and Permits Regulation (Ontario Regulation 41/24). Where discrepancies exist between the text of the legislation or regulation and the information provided within GRCA's existing Policy Document, the text of the legislation and regulation will prevail.

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. Preliminary investigation through the Natural Heritage Information Centre identified SAR records in the 1 km x 1 km squares containing the study area, and adjacent squares. Thirteen SAR were identified: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Golden-winged Warbler, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, American Burying Beetle, Midland Painted Turtle, Snapping Turtle, and Butternut. It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 103 species; 8 of which are considered SAR: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow, and Chimney Swift.

3. Review of the Ontario Reptile and Amphibian Atlas identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area. This list includes three species which are considered SAR: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog.

4. Review of the Atlas of the Mammals of Ontario identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis. It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area, including one SAR: Monarch.

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak, Lesser Yellowlegs and Rusty Blackbird.

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will complete the following:

Part 1. Schedule B Environmental Assessment

A. Confirm Terms of Reference

1. Review background information, (e.g., proposed development, relevant sections of Natural Heritage System components of the County, Township, Investigation of Wildlife Atlases and NHIC).
2. Prepare a Draft Terms of Reference and provide to Wellington County, Township of Guelph-Eramosa and the GRCA for Approval.

B. Field Assessment

3. Complete an MECP Request for Information and determine if any additional Species at Risk have been identified in the study area. COMPLETE
4. Complete an MNRF Request for Information to acquire fish timing windows and wetland information. COMPLETE
5. Conduct a screening of all background information and the site to determine the potential for the presence of Species at Risk (SAR).
6. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and summer) botanical inventory of the Study Area during the growing season.
7. Complete a wetland delineation, per the OWES protocol, for wetland limits within proximity of the proposed work and field verify the limits with the GRCA. This work will be undertaken by an OWES certified ecologist, who will flag wetland boundaries within 30 meters of the existing bridge structure or road right-of-way (where access is permitted) with wire flags in advance of verification with the GRCA. Verified wetland boundaries will be surveyed as soon as possible by an Ontario Land Surveyor retained by the client, and a digital shape file will be submitted to the GRCA for information.
8. Conduct a breeding bird survey of the study area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both point counts and area searches. The breeding bird survey requires two, focused, early morning site visits during the period between late May and early July.
9. Complete a Bat Habitat Assessment, review trees meeting the MNDNRF criteria (>10cm DBH) within the proposed development and immediately adjacent area (5M) and identify trees that meet the criteria for bat maternity habitat and require consideration under the ESA.
10. Investigate the study area for evidence of Pileated and Red-headed Woodpecker nest cavities and use a pole mirror to determine if the cavity is likely nesting,

roosting, or feeding, per the Environment Canada Pileated Woodpecker Cavity Identification Guide (Environment Canada, 2023).

11. Complete a characterization of the study area for any additional significant natural heritage features, per the PPS by applying provincial protocols and criteria to site features.
12. Conduct an aquatic assessment and aquatic habitat investigation to characterize the present watercourse and identify any fisheries constraints including a review of substrates and suitability for species at risk.
13. Investigate the study area for the presence of significant wildlife habitat during all surveys.
14. Investigate the study area for presence of species at risk and species at risk habitat during all surveys.
15. Record observations of incidental wildlife during all site visits.

C. Draft Natural Environment Assessment (NEA)

16. Analyze findings and prepare a map that shows: identified natural heritage features, and functions and landscape level features (e.g., linkages, wetland limits, forest interior habitat), the proposed area of work, ELC vegetation communities and, other noteworthy features as needed.
17. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofauna atlas, County's OP.
18. Consider and evaluate stormwater management alternatives to help inform the bridge design and demonstrate compliance with GRCA policies.
19. Conduct a preliminary impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features by the various design concepts under consideration. This includes the potential for hydraulic or fluvial impacts, such as increased flooding and erosion, and recommend measures to avoid or mitigate such impacts.
20. Prepare a report of the NEA that includes background information, methods, existing conditions, proposed options, recommended buffers, and appendices of field studies (e.g., ELC, aquatic assessment).
21. Submit draft NEA to client for review followed by distribution to County, municipality and GRCA.

Part 2. Preliminary Design

D. Impact Assessment Report

22. At approximately 50% design of the approved option, summarize the development proposal and provide associated metrics, including visual representations of the structure's footprint and proposed setbacks from confirmed limits of natural features.

23. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location of the components of the plan to reduce/avoid impacts to natural heritage features. Show the limits of expected impact and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent and AA.
24. Provide policy rationale for expected impacts to natural heritage features.
25. Identify options for mitigation or rehabilitation of the site, during and post construction.
26. Demonstrate that there will be no negative or adverse hydrologic impacts on adjacent wetlands.
27. Integrate the key findings and recommendations from concurrent assessments (e.g. fluvial or hydraulic assessment, geotechnical) that may be required.
28. Review the DFO requirements for projects near water and standards to determine if a request for review is required.
29. Update the NEA report to include the completed impact assessment of the detailed design of the project including mitigation measures, and identifies additional requirements, such as permits or registration under the ESA or DFO.
30. Submit finalized NEA to client for review followed by distribution to County, Township and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.781.1581.

Yours truly,

ABOUD & ASSOCIATES INC.



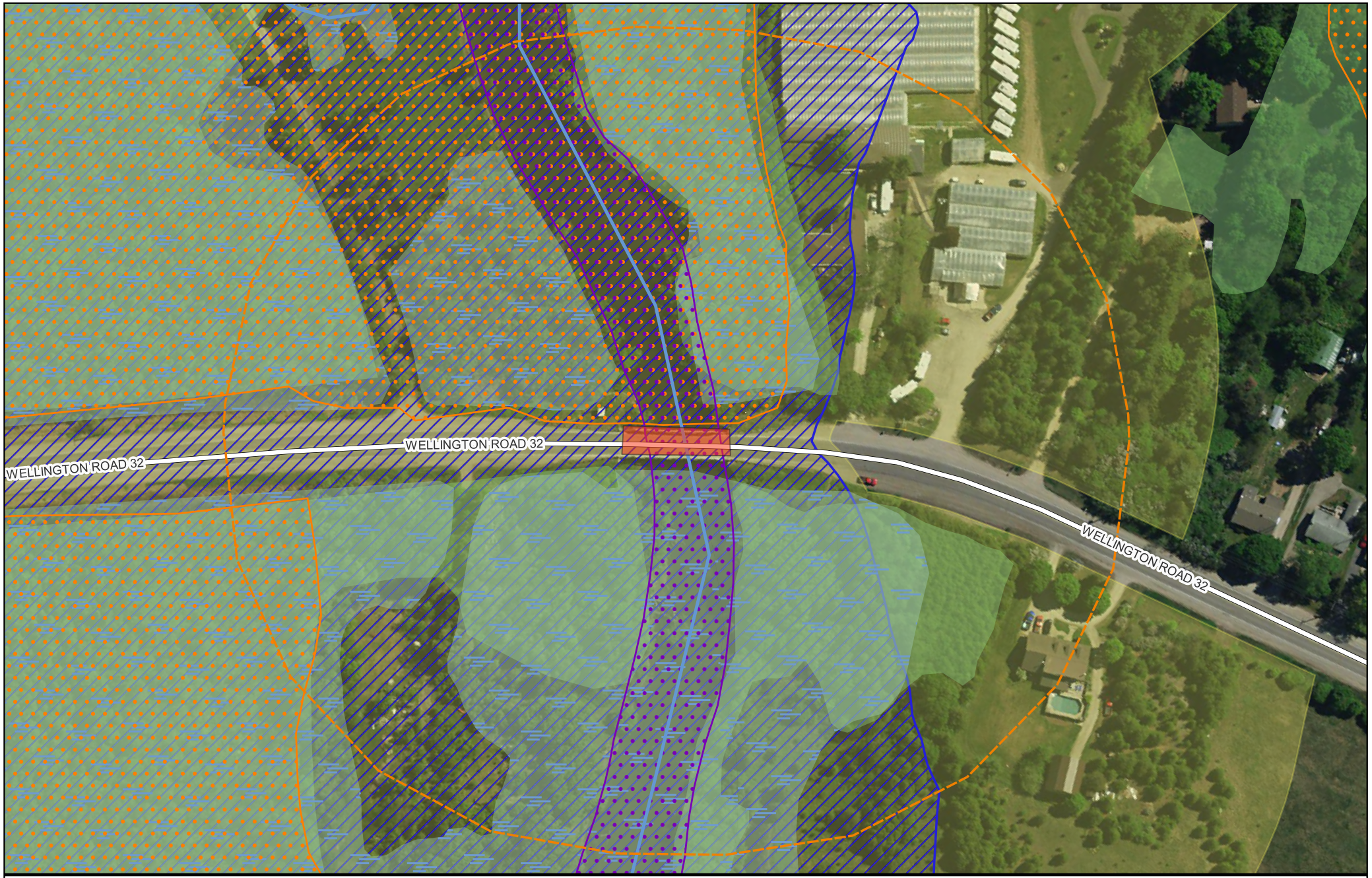
Heather Dixon, PhD
Aquatic Ecologist

Figure 1. Study Area

Appendix A. Candidate Significant Wildlife Habitat
Appendix B. Candidate Species at Risk Habitat

Cc: Cheryl-Anne Ross, Aboud & Associates Inc. (email)

Zach Prince, County of Wellington (email)
William Van Ruyven, Gannett Fleming (email)



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
1	Waterfowl stopover and Staging Areas (terrestrial)	Seasonal Concentration Areas	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	None, no habitat present.
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal Concentration Areas	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e. >700 waterfowl use days) confirms SWH	Habitat confirmed as present by LIO.
3	Shorebird Migratory stopover	Seasonal Concentration Areas	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	None, no habitat present.
4	Raptor Wintering Area	Seasonal Concentration Areas	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	None, no habitat present.
5	Bat Hibernacula	Seasonal Concentration Areas	- Caves, mine shafts, underground foundations, karsts. - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	None, no habitat present.
6	Bat Maternity Colony	Seasonal Concentration Areas	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Bat habitat assessment; candidate trees present.
7	Turtle Wintering Area	Seasonal Concentration Areas	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Speed River present, aquatic habitat assessment required.
8	Reptile Hibernaculum	Seasonal Concentration Areas	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Candidate habitat may be present, site will be assessed during ELC.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
9	Colonially-nesting Bird Habitat (cliff/bank)	Seasonal Concentration Areas	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	None, no habitat present.
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal Concentration Areas	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	None, no habitat present.
11	Colonially-nesting Bird Habitat (Ground)	Seasonal Concentration Areas	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	None, no habitat present.
12	Migratory Butterfly Stopover Area	Seasonal Concentration Areas	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	None, no habitat present.
13	Land bird Migratory Stopover Area	Seasonal Concentration Areas	- Woodlots >5ha in size - within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	None, no habitat present.
14	Deer Yarding Areas	Seasonal Concentration Areas	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	None, no habitat present.
15	Deer Winter Congregation Areas	Seasonal Concentration Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	Habitat confirmed as present by LIO.
16	Cliffs & Talus Slopes	Rare Vegetation Communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None, no habitat present.
17	Sand Barren	Rare Vegetation Communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	None, no habitat present.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
18	Alvar	Rare Vegetation Communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	None, no habitat present
19	Old Growth Forest	Rare Vegetation Communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	None, no habitat present
20	Savannah	Rare Vegetation Communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	None, no habitat present
21	Tallgrass Prairie	Rare Vegetation Communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	None, no habitat present
22	Other Rare Vegetation Communities	Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	None, no habitat present
23	Waterfowl Nesting Areas	Specialized Habitats for Wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	None, no habitat present
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized Habitats for Wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
25	Woodland Raptor Nesting Habitat	Specialized Habitats for Wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	None, no habitat present
26	Turtle Nesting Areas	Specialized Habitats for Wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	None, no habitat present
27	Seeps and Springs	Specialized Habitats for Wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	None, no habitat present
28	Amphibian Breeding Habitat (woodland)	Specialized Habitats for Wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	None, no habitat present
29	Amphibian Breeding Habitat (Wetland)	Specialized Habitats for Wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
30	Area-sensitive Breeding Bird Habitat	Specialized Habitats for Wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	None, no habitat present
31	Marsh Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands; all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	None, no habitat present
32	Open Country Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species. - Field with 1 or more Short-eared Owls	None, no habitat present
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
34	Terrestrial Crayfish	Habitats of Species of Conservation Concern	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	None, no habitat present
35	Special Concern & Rare Wildlife Species	Habitats of Species of Conservation Concern	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable. - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	Suitable habitat for special concern and provincially rare plant and bird species present. ELC, botanical inventory, and breeding bird surveys required.
36	Amphibian Movement Corridor	Wildlife Movement Corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors. - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	None, no habitat present.
37	Deer Movement Corridor	Wildlife Movement Corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat. - Unbroken by roads and residential areas - Shorter corridors are more significant	ELC, spring botanical, SAR and SWH assessment, and investigation of aerial photos.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Jefferson Salamander	*Ambystoma jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat present in study area.	None needed.
Unisexual Ambystoma, Jefferson dependent population	*Ambystoma laterale - (2) jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation to breed (COSEWIC 2016).	No habitat present in study area.	None needed.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	Amphibians	NAR	THR	S4	MNRF species occurrence mapping, ORAA (2010)	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	Habitat potentially present in study area.	ELC and botanical inventory.
American Burying Beetle	*Nicrophorus americanus*	Butterflies, bees, damselflies, dragonflies & insects	EXP	EXP	SH	NHIC	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat present in study area.	None needed.
Monarch	*Danaus plexippus*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S2N, S4B	MNRF species occurrence mapping, OBA (2022)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Habitat potentially present in study area.	ELC and botanical inventory.
Rusty-patched Bumble Bee	*Bombus affinis*	Butterflies, bees, damselflies, dragonflies & insects	END	END	S1	MNRF species occurrence mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land, and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	No habitat present in study area.	None needed.
West Virginia White	*Pieris virginenisis*	Butterflies, bees, damselflies, dragonflies & insects	SC	NAR	S3	MNRF species occurrence mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	No habitat present in study area.	None needed.
Yellow-banded Bumble Bee	*Bombus terricola*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S3S5	MNRF species occurrence mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	No habitat present in study area.	None needed.
Bank Swallow	*Riparia riparia*	Birds	THR	THR	S4B	MNRF species occurrence mapping, OBBA, eBird (2022)	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Barn Swallow	*Hirundo rustica*	Birds	SC	THR	S5B	MNRF species occurrence mapping, OBBA, NHIC, eBird (2023)	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Habitat potentially present in study area.	Breeding bird survey.
Barn Owl	*Tyto alba*	Birds	END	END	S1	MNRF species occurrence mapping	Requires open habitat for foraging, such as old fields and pastures, that provide habitat for rodents, and uses a variety of natural and man-made structures for nesting (COSEWIC 2010e)	No habitat present in study area.	None needed.
Bobolink	*Dolichonyx oryzivorus*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2021)	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat present in study area.	None needed.
Canada Warbler	*Wilsonia canadensis*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	No habitat present in study area.	None needed.
Cerulean Warbler	*Setophaga cerulea*	Birds	THR	END	S3B	MNRF species occurrence mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat present in study area.	None needed.
Chimney Swift	*Chaetura pelagica*	Birds	THR	THR	S4B, S4N	MNRF species occurrence mapping OBBA, eBird (2021)	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat present in study area.	None needed.
Common Nighthawk	*Chordeiles minor*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat present in study area.	None needed.
Eastern Meadowlark	*Sturnella magna*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat present in study area.	None needed.
Eastern Whip-poor-will	*Caprimulgus vociferus*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat present in study area.	None needed.
Eastern Wood-Pewee	*Contopus virens*	Birds	SC	SC	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Habitat potentially present in study area.	Breeding bird survey.
Evening Grosbeak	*Coccothraustes vespertinus*	Birds	SC	SC	S4B	MNRF species occurrence mapping, eBird (2022)	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat present in study area.	None needed.
Golden-winged Warbler	*Vermivora chrysoptera*	Birds	SC	THR	S4B	MNRF species occurrence mapping, NHIC	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Grasshopper Sparrow	*Ammodramus savannarum*	Birds	SC	SC	S4B	MNRF species occurrence mapping, OBBA, NHIC	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat present in study area.	None needed.
Henslow's Sparrow	*Ammodramus henslowii*	Birds	END	END	SHB	MNRF species occurrence mapping	Breeds in grassland habitat and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat present in study area.	None needed.
Least Bittern	*Ixobrychus exilis*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat present in study area.	None needed.
Lesser Yellowlegs	*Tringa flavipes*	Birds	THR	THR	S3S4B, S5M	eBird (2020)	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat present in study area.	None needed.
Loggerhead Shrike	*Lanius ludovicianus*	Birds	END	END	S2B	MNRF species occurrence mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat present in study area.	None needed.
Louisiana Waterthrush	*Seirus motacilla*	Birds	SC	THR	S3B	MNRF species occurrence mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat present in study area.	None needed.
Olive-sided Flycatcher	*Contupus cooperi*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat present in study area.	None needed.
Peregrine Falcon	*Falco peregrinus*	Birds	SC	SC	S3B	NHIC	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat present in study area.	None needed.
Prothonotary Warbler	*Protonotaria citrea*	Birds	END	END	S1B	MNRF species occurrence mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat present in study area.	None needed.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Birds	END	THR	S4B	MNRF species occurrence mapping, NHIC	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	Habitat potentially present in study area.	Breeding bird survey.
Rusty Blackbird	*Euphagus carolinus*	Birds	SC	SC	S4B	eBird (2022)	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat present in study area.	None needed.
Short-eared Owl	*Asio flammeus*	Birds	THR	SC	S2N, S4B	MNRF species occurrence mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat present in study area.	None needed.
Wood Thrush	*Hylocichla mustelina*	Birds	SC	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2020)	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Habitat potentially present in study area.	Breeding bird survey.
Yellow-breasted Chat	*Icteria virens*	Birds	END	END	S1B	MNRF species occurrence mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Black Redhorse	*Moxostoma duquesnei*	Fish	THR	THR	S2	MNRF species occurrence mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand, or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Sunfish (Great Lakes-Upper St. Lawrence Population)	*Lepomis peltastes*	Fish	SC	SC	S3	MNRF species occurrence mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	Habitat potentially present in study area.	Aquatic habitat assessment.
Redside Dace	*Clinostomus elongatus*	Fish	END	END	S1	MNRF species occurrence mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	Habitat potentially present in study area.	Aquatic habitat assessment.
Rainbow	*Villosa iris*	Molluscs	SC	SC	S2S3	MNRF species occurrence mapping	Most abundant in small to medium-sized rivers but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	Habitat potentially present in study area.	Aquatic habitat assessment.
Eastern Red Bat	*Lasiurus borealis*	Mammals	NL	END	S4	MNRF species occurrence mapping	Typically roosts among the foliage of trees and occasionally shrubs. They use both deciduous and coniferous forests of any age class, but in some parts of their range will avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Eastern Small-footed Myotis	*Myotis leibii*	Mammals	END	NA	S2S3	MNRF species occurrence mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Habitat potentially present in study area.	Bat habitat assessment
Hoary Bat	*Lasiurus cinereus*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosts solitarily in trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees. Typically roosts among the foliage of trees and occasionally shrubs, and use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Forages in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Little Brown Myotis	*Myotis lucifugus*	Mammals	END	END	S3	MNRF species occurrence mapping, OMA	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment
Northern Myotis	*Myotis septentrionalis*	Mammals	END	END	S3	MNRF species occurrence mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Silver-haired Bat	*Lasionycteris noctivagans*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosting occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Roosts in a variety of large diameter coniferous and deciduous trees. When taken as a whole, the data indicate that the species does select specific attributes of trees to roost in. However, these attributes are not specific to particular tree species or type (deciduous or coniferous specifically) across the species range. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics. Deciduous species (especially *Populus* spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur. Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used. Several studies report the frequent use of old woodpecker cavities (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Tri-colored Bat	*Perimyotis subflavus*	Mammals	END	END	S3?	MNRF species occurrence mapping	Hibernate in caves, abandoned mines, wells, and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Habitat potentially present in study area.	Bat habitat assessment
Blanding's Turtle	*Emydoidea blandingii*	Reptiles	THR	THR	S3	MNRF species occurrence mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Habitat potentially present in study area.	Aquatic habitat assessment.
Midland Painted Turtle	*Chrysemys picta marginata*	Reptiles	NL	SC	S4	ORAA (2019), NHIC	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Map Turtle	*Graptemys geographica*	Reptiles	SC	SC	S3	MNRF species occurrence mapping	Highly aquatic species, found in deep, large waterbodies, including lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Snapping Turtle	*Chelydra serpentina*	Reptiles	SC	SC	S4	MNRF species occurrence mapping, ORAA (2019), NHIC	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Habitat potentially present in study area.	Aquatic habitat assessment.
Spotted Turtle	*Clemmys guttata*	Reptiles	END	END	S2	MNRF species occurrence mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Wood Turtle	*Glyptemys insculpta*	Reptiles	END	THR	S2	MNRF species occurrence mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Butler's Gartersnake	*Thamnophis butleri*	Reptiles	END	END	S2	MNRF species occurrence mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat present in study area.	None needed.
Eastern Ribbonsnake	*Thamnophis sauritus*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat present in study area.	None needed.
Milksnake	*Lampropeltis triangulum*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	No habitat present in study area.	None needed.
Massassauga Rattlesnake	*Sistrurus catenatus*	Reptiles	SC	THR	S3	MNRF species occurrence mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat present in study area.	None needed.
American Ginseng	*Panax quinquefolius*	Vascular plants	END	END	S2	MNRF species occurrence mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat present in study area.	None needed.
Black Ash	*Fraxinus nigra*	Vascular plants	END	THR	S4	MNRF species occurrence mapping	Predominantly a wetland species of swamps, floodplains and fens. Has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Also occurs widely in moist upland forests, but generally at lower densities than in wet areas (COSEWIC, 2018).	Habitat potentially present in study area.	ELC and botanical inventory.
Blue Ash	*Fraxinus quadrangulata*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Found in 3 habitat types; floodplains and river valleys where Blue Ash grows in rich soils in association with other tree species; shallow soils on alvar and limestone on the Lake Erie islands; and stabilized beaches at Point Pelee National Park, and Fish Point on Pelee Island (COSEWIC 2014)	No habitat present in study area.	None needed.
Butternut	*Juglans cinerea*	Vascular plants	END	END	S2?	MNRF species occurrence mapping, NHIC	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	Habitat potentially present in study area.	ELC and botanical inventory.
Common Hoptree	*Ptelea trifoliata*	Vascular plants	THR	SC	S3	MNRF species occurrence mapping	Occurs nearly entirely along or near the Lake Erie shoreline. Often found in areas of natural disturbance where it forms part of the outer edge of shoreline woody vegetation (COSEWIC 2015)	No habitat present in study area.	None needed.
Dense Blazing Star	*Liatris spicata*	Vascular plants	THR	THR	S2	MNRF species occurrence mapping	Occurs in open tallgrass prairies. It can grow in a range of moisture regimes from dry to very moist (COSEWIC 2010)	No habitat present in study area.	None needed.
Hill's Pondweed	*Potamogeton hillii*	Vascular plants	SC	SC	S2S3	MNRF species occurrence mapping	Occur in cold clear calcareous streams, ponds, and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat present in study area.	None needed.
Lakeside Daisy	*Tetraneuris herbacea*	Vascular plants	SC	THR	S3	MNRF species occurrence mapping	Commonly found in alvar habitats, but occasionally occurs in prairies and cliffs. Habitat is seasonally wet in spring and fall and moderately drought-like in the summer (COSEWIC 2002)	No habitat present in study area.	None needed.
Smooth Yellow False Foxglove	*Aureolaria flava*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Inhabits a variety of dry upland woods including escarpment slopes, oak hummocks, oak woodlands, and oak savannas. Primarily associated with Oak species. (COSEWIC 2018)	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Tuberous Indian Plantain	*Arnoglossum plantagineum*	Vascular plants	SC	SC	S2	MNRF species occurrence mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat present in study area.	None needed.

References:

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Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (Available online here: http://www.ontarionature.org/discover/resources/publications.php)

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Ontario Nature. 2015. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. (Available online here: http://www.ontarionature.org/atlas)

Heather Dixon

From: Vanessa Wismer <vwismer@grandriver.ca>
Sent: Wednesday, May 29, 2024 2:00 PM
To: Heather Dixon
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)
Attachments: 2024-05-28 - Draft Terms of Reference - GRCA Comments.pdf

Caution. Outside Sender

Hello Heather,

Many thanks for providing GRCA staff with the revised Terms of Reference for the Blatchford Bridge. Please see the attached. Should you have any questions or comments, please do not hesitate to contact me.

Cheers,

Vanessa Wismer, MSc
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
Cambridge, ON N1R 5W6
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Toll-free: 1-866-900-4722
www.grandriver.ca | Connect with us on social

From: Heather Dixon <Heather@aboudtng.com>
Sent: Monday, May 13, 2024 11:14 AM
To: Vanessa Wismer <vwismer@grandriver.ca>; planning@get.on.ca; jbrotherston@puslinch.ca
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Good morning,

Please see attached for the revised Terms of Reference for Blatchford Bridge, with the comments provided by the GRCA incorporated. We would appreciate your review and comments on this document. We have not heard back from either of the Townships, so please provide comments on this ToR as appropriate.

The wetland delineation for this project has been booked with the GRCA for this Wednesday, and will be surveyed the next day.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

From: Vanessa Wismer <vwismer@grandriver.ca>
Sent: Thursday, March 28, 2024 9:39 AM
To: Heather Dixon <Heather@aboudtng.com>; planning@get.on.ca; jbrotherston@puslinch.ca
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

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Many thanks for providing the Terms of Reference of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation/replacement of the Blatchford Bridge on Wellington County Road 32 in the Township of Guelph Eramosa to GRCA staff for review.

The information currently available in our office indicates that the following regulated features are in the project area: engineered/one-zone floodplain (blue cross hatching) and wetland (purple), in addition to the regulated allowance (yellow) to those features. Please refer to the enclosed map.

Staff have reviewed the NEA provided and offer the following comments for your consideration:

1. The wetlands are part of the Speed River PSW Complex. One of the evaluated wetland units (north side of the river and east of the road) is not currently mapped by the GRCA. The GRCA's wetland layer will be reconciled with the MNRF layer as soon as possible.

2. We ask that wetland boundaries within 30 meters of the existing bridge structure or road right-of-way be delineated with ribbons, wire flags, and/or wood stakes in advance by the consultant and subsequently verified by GRCA staff. Verified wetland boundaries must be surveyed as soon as possible and a digital file (shape files or CAD) submitted to the GRCA for information. We ask that a site visit be scheduled with the GRCA when site conditions are appropriate (generally between May 1 and October 15).

3. Section 9.1.2 of the GRCA's consolidated policies is also applicable. Crossings including but not limited to bridges may be permitted to be replaced or upgraded in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.16, and provided that all feasible alternative sites and alignments have been considered through an Environmental Assessment supported by the GRCA.

4. The terms of reference indicate that the impact assessment will be done for the 50% design option. Potential impacts associated with the various design concepts under consideration should also be reviewed and documented as part of the Natural Environment Assessment. A more detailed assessment of impacts shall accompany the 50% design drawings.

5. Stormwater management alternatives should be given due consideration and evaluated on an individual basis to help inform the bridge design and to demonstrate compliance with GRCA policies.

6. The Natural Environment Assessment should evaluate the potential for hydraulic or fluvial impacts, including increased flooding and erosion, and recommend measures to avoid or mitigate such impacts.

7. The Natural Environment Assessment should demonstrate there will be no negative or adverse hydrologic impacts on adjacent wetlands.

8. The Natural Environment Assessment should integrate the key findings and recommendations from concurrent assessments (e.g. fluvial or hydraulic assessment, geotechnical) that may be required.

Advisory Comments:

- The Speed River is currently classified as warm water fish habitat by the Ontario Ministry of Natural Resources and Forestry. The following fish species have been documented in this section of river:
    - Blackside Darter, Bluntnose Minnow, Brook Stickleback, Brown Bullhead, Common Shiner, Greenside Darter, Smallmouth Bass, White Sucker
- We request that the terms of reference be revised accordingly.

Please be advised that on February 16, 2024, the Prohibited Activities, Exemptions and Permits under Conservation Authorities Act Regulation (Ontario Regulation 41/24) was approved. This regulation replaces the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 150/06) on April 1, 2024. We are revising our policies accordingly to align with these changes.

If you wish to discuss this further or have any questions, please do not hesitate to contact me.

Many thanks,

Vanessa Wismer, MSc
Temporary Resource Planner
Grand River Conservation Authority

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Toll-free: 1-866-900-4722
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From: Heather Dixon <Heather@aboudtng.com>
Sent: Friday, March 15, 2024 10:32 AM
To: Vanessa Wismer <vwismer@grandriver.ca>; planning@get.on.ca; jbrotherston@puslinch.ca
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Dear Ms. Wismer, Ms. Rogers, and Ms. Brotherstone,

Please see the attached draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON. The draft Terms of Reference have been developed based on information received from the proponent, and a review of the applicable municipal, provincial, and federal guidelines that apply to this project. The bridge is in the Township of Guelph-Eramosa, but some of the study area is in the Township of Puslinch. We would appreciate your review and comments on the Terms of Reference in order to finalize the proposed scope of work required for the Natural Environment Assessment Report.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist

ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

Grand River Conservation Authority

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Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

May 28, 2023 **VIA EMAIL**

Heather Dixon
Aboud and Associates Inc.
3-5 Edinburgh Road South
Guelph, ON, N1H 5N8

Dear Ms. Dixon,

Re: Terms of Reference for a Natural Environment Assessment Report - Revised
Blatchford Bridge, County of Wellington

Grand River Conservation Authority (GRCA) staff have reviewed the above-noted Terms of Reference for a Natural Environment Assessment Report, proposed to be completed as part of a Schedule B Environmental Assessment for the rehabilitation or replacement of the Blatchford Bridge in the Township of Guelph Eramosa.

GRCA Comments

Staff have reviewed the following report, received May 13th, 2024:

- Blatchford Bridge (b032085) Rehabilitation or Replacement Terms of Reference (Revised) – Natural Environment Assessment Report, prepared by Aboud and Associates Inc., May 13th 2024.

GRCAs previous comments, provided on March 28th, 2024, have been sufficiently addressed in the revised submission. GRCA staff are satisfied with the revised Terms of Reference for the above-mentioned works.

Should you have any questions, please contact Vanessa Wismer at 519-621-2761 ext. 2327 or vwismer@grandriver.ca.

Sincerely,

Chris Foster-Pengelly, M.Sc.
Supervisor of Planning and Regulation Services
Grand River Conservation Authority

Heather Dixon

From: Justine Brotherston <jbrotherston@puslinch.ca>
Sent: Wednesday, May 15, 2024 9:14 PM
To: Planning; Heather Dixon; Vanessa Wismer
Cc: Cheryl-Anne Ross; Zachary Prince; Van Ruyven, William; Amanda Knight; Harry Niemi
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Caution. Outside Sender

Hi Heather,

Similarly, the Township of Puslinch will not be providing comments at this time as the proposal will be reviewed at the County level.

Kind regards,

Justine Brotherston
Interim Municipal Clerk
Deputy Clerk
Township of Puslinch
7404 Wellington Rd 34, Puslinch ON N0B 2J0
519-763-1226 ext. 208 Fax 519-736-5846 www.puslinch.ca

My hours may not match your working hours. If you received this email outside of regular business hours, I do not expect an immediate response.

From: Planning <planning@get.on.ca>
Sent: Wednesday, May 15, 2024 10:32 AM
To: Heather Dixon <Heather@aboudtng.com>; Vanessa Wismer <vwismer@grandriver.ca>; Planning <planning@get.on.ca>; Justine Brotherston <jbrotherston@puslinch.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>; Amanda Knight <aknight@get.on.ca>; Harry Niemi <hniemi@get.on.ca>
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Regards,

Amanda Roger
Planning Technician/ Secretary Treasurer, Committee of Adjustment

Township of Guelph/Eramosa
8348 Wellington Road 124, PO Box 700
Rockwood, ON N0B 2K0

aroger@get.on.ca
Ph: 519-856-9596 ext 112
Toll Free: 1-800-267-1465
Fx: 519-856-2240



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> You don't often get email from heather@aboudtng.com. Learn why this is important

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Subject: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Dear Ms. Wismer, Ms. Rogers, and Ms. Brotherstone,

Please see the attached draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON. The draft Terms of Reference have been developed based on information received from the proponent, and a review of the applicable municipal, provincial, and federal guidelines that apply to this project. The bridge is in the Township of Guelph-Eramosa, but some of the study area is in the Township of Puslinch. We would appreciate your review and comments on the Terms of Reference in order to finalize the proposed scope of work required for the Natural Environment Assessment Report.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
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Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

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GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 15, 2024

Our Project No.: AA23-105A
Sent by Email: vwismer@grandriver.ca
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&

Amanda Roger
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7404 Wellington Rd 34, Puslinch ON N0B 2J0

Re: Blatchford Bridge (B032085) Rehabilitation or Replacement
Terms of Reference - Natural Environment Assessment Report

Dear Ms. Wismer, Ms. Roger, and Ms. Brotherstone:

This document outlines the Terms of Reference (ToR) of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation or replacement of Blatchford Bridge on Wellington County Road 32, in the Township of Guelph-Eramosa, Ontario. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA. The bridge is within the Township of Guelph-Eramosa, but some of the study area is within the Township of Puslinch.

The bridge is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 150/06, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- Wellington County Official Plan, 2022 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed November 2022.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibian, accessed November 2022.
- Bird Studies Canada. Atlas of the Breeding Birds of Ontario 2008.
- Federation of Ontario Naturalists, Atlas of the Mammals of Ontario.
- DFO Aquatic Species at Risk Map. Accessed November 2022.
- iNaturalist. Accessed November 2022,
- eBird. Cornell Lab of Ornithology. Accessed November 2022.

- Aquatic Resource Area Survey Points online mapping. Accessed November 2022.
- Ontario Nature. Ontario Butterfly Atlas.

STUDY AREA

The study area includes the subject structure and staging areas outlined in Figure 1, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features. Lands outside of the field study area will be reviewed from existing background information e.g., Waterloo Regional Official Plan.

PLANNING CONTEXT

Provincial Policy Statement (2020)

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

In regards to **Natural Heritage Protection** the PPS states that:

"*Natural features and areas shall be protected for the long term.*"

And that:

"*The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features."*

"Development and site alteration shall not be permitted in:

a) *Significant wetlands in Ecoregions 5E, 6E and 7E; and*
b) *Significant coastal wetlands.*

Development and site alteration shall not be permitted in:

a) *Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6Eand 7E;*
b) *Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
c) *Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
d) *Significant wildlife habitat;*

e) Significant areas of natural and scientific interest; and
f) Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)"

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under *Section 1.6.8.6*, these significant resources shall be given consideration in the planning of significant transportation *infrastructure*.

The subject structure is considered infrastructure and therefore is not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

Endangered Species Act, 2007

The *Endangered Species Act* (ESA) (Subsection 9(1)) states that:
"No person shall,
(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;
(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,
(ii) any part of a living or dead member of a species referred to in subclause (i),
(iii) anything derived from a living or dead member of a species referred to in subclause (i); or
(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA also states that:
"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

Clause 16(5) of the ESA states that:
"An agreement entered into under this section may require the authorized party under the agreement to pay a species conservation charge to the Agency in accordance with Section 20.3 if an impacted species under the agreement is also a conservation fund species."

Clause 17(1) of the ESA states:
"The Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by Section 9 or 10. 2007, c. 6, s. 17(1)."

An authorization or permit between the proponent and the Minister of Environment Conservation and Parks is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

Fisheries Act, 1985
The study area contains fish-bearing waters in the form of the Speed River. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

Section 35 (1) of the Fisheries Act states that:
"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat."

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support direct or indirect fish habitat. Within the context of the replacement or rehabilitation of the bridge, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish, which cannot be mitigated for, then a Fisheries Act Authorization would be required.

Species at Risk Act (S.C. 2002, c. 29)

The Species at Risk Act (SARA) includes prohibitions to protect listed wildlife species. Prohibitions of SARA within the Province of Ontario generally apply to species present on federal lands and all aquatic Species at Risk (SAR).

SARA subsection 32 (1) and (2) states that:

No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.
And,
No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual.

SARA subsection 33 also states that:

No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

SARA subsection 34(1), identifies where SARA does not apply in the Province:

With respect to individuals of a listed wildlife species that is not an aquatic species or a species of birds that are migratory birds protected by the Migratory Birds Convention Act, 1994, sections 32 and 33 do not apply in lands in a province that are not federal lands unless an order is made under subsection (2) to provide that they apply.

SARA subsection 58 (1) identified the restrictions to the destruction of critical Habitat, and states that:

Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species — or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada — if…b) the listed species is an aquatic species; or….

Where impacts may occur or are expected, agreements or permits may be entered into with the appropriate ministry, as outlined in section 73, which states:

(1) The competent minister may enter into an agreement with a person, or issue a permit to a person, authorizing the person to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.

(2) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons;
(b) the activity benefits the species or is required to enhance its chance of survival in the wild; or
(c) affecting the species is incidental to the carrying out of the activity.

3) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;
(b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and
(c) the activity will not jeopardize the survival or recovery of the species.

The Species at Risk Act requires that projects and activities avoid causing serious harm to Species at Risk or their habitat unless authorized to do so. This applies to work conducted in or near waterbodies that support species at risk fish, or their critical habitat. Any proposed actions that could impact species at risk or their habitat would need to be assessed for compliance. If it is determined that proposed actions will cause serious harm to species at risk that cannot be mitigated, then a Species at Risk Act Authorization would be required.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020 Consolidation)
Section 4.2.2.1 states:

A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.

The bridge and surrounding area are part of the Growth Plan's Natural Heritage System, as there are key hydrologic and key natural heritage features present.

Section 4.2.3 states that:
"Outside of settlement areas, development or site alteration is not permitted in key natural heritage features that are part of the Natural Heritage System for the Growth Plan or in key hydrologic features, except for:

c) activities that create or maintain infrastructure authorized under an environmental assessment process"

Wellington County Official Plan (2022 consolidation)
Schedule B3 of the Wellington County Official Plan indicates that the majority of the study area is identified as Core Greenlands due to the presence of the PSW and hazardous lands (floodplain).

Section 5.4.1 states that:
"All wetlands in the County of Wellington are included in the Core Greenlands. Development and site alteration will not be permitted in wetlands which are considered provincially significant. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland."

Township of Guelph/Eramosa Zoning By-law (40/2016)
The study area is within lands designated as Environmental Protection.

Township of Puslinch Zoning By-law (023-18)
The study area is within lands designated as Natural Environment and Agriculture.

Grand River Conservation Authority
Blatchford Bridge is within the GRCA Regulation limit. The study area contains the Speed River Provincially Significant Wetland (PSW), One Zone Floodplain, and watercourse.

Section 8.1.16 states that:

"Public infrastructure including but not limited to roads, sanitary sewers, utilities, water and sewage treatment plants, water supply wells, well houses, and pipelines may be permitted in accordance with the policies in Sections 7.1.2 – 7.1.3- General Policies, provided that there is no feasible alternative site outside the Riverine Flooding Hazard as determined through an Environmental Assessment or other comprehensive plan supported by the GRCA, and where it can be demonstrated that:

a) *Adverse hydraulic or fluvial impacts are limited and any risk of flood damage to upstream or downstream properties is not increased or is minimized through site design and the affected landowner(s) is informed of the increased risk,*
b) *There is no loss of flood storage wherever possible, and*
c) *Where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.*

Section 8.1.17 states that:
"The maintenance and repair of public infrastructure may be permitted in accordance with the policies in Sections 7.1.2-7.1.3- General Policies, and where it can be demonstrated that where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."

Development/interference within a wetland or development within an area of interference is not permitted except under certain circumstances.

Section 8.4.6 states:
"Public Infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, within a wetland larger than specified in Sections 8.4.4-8.4.5 may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, provided that it can be demonstrated that:

a) *an Environmental Assessment or other comprehensive plan supported by the GRCA, demonstrates that all alternatives to avoid wetland loss or interference have been considered and that the proposed alignment minimizes wetland loss or interference to the greatest extent possible, and*
b) *where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."*

Additionally, section 8.4.7 states that:
"Where an Environmental Assessment or other comprehensive plan is available and supported by the GRCA as specified in Section 8.4.6, the GRCA will request a more detailed site-specific study (i.e., a Scoped Environmental Impact Study) consistent with the comprehensive plan."

BACKGROUND REVIEW
Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. Preliminary investigation through the Natural Heritage Information Centre identified SAR records in the 1 km x 1 km squares containing the study area, and adjacent squares. Thirteen SAR were identified: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Golden-winged Warbler, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, American Burying Beetle, Midland Painted Turtle, Snapping Turtle, and Butternut. It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 103 species; 8 of which are considered SAR: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow, and Chimney Swift.

3. Review of the Ontario Reptile and Amphibian Atlas identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area. This list includes three species which are considered SAR: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog.

4. Review of the Atlas of the Mammals of Ontario identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis. It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area, including one SAR: Monarch.

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird

observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak, Lesser Yellowlegs and Rusty Blackbird.

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will complete the following:

Part 1. Schedule B Environmental Assessment

A. Confirm Terms of Reference

1. Review background information, (e.g., proposed development, relevant sections of Natural Heritage System components of the County, Township, Investigation of Wildlife Atlases and NHIC).
2. Prepare a Draft Terms of Reference and provide to Wellington County, Township of Guelph-Eramosa and the GRCA for Approval.

B. Field Assessment

3. Complete an MECP Request for Information and determine if any additional Species at Risk have been identified in the study area. COMPLETE
4. Complete an MNRF Request for Information to acquire fish timing windows and wetland information. COMPLETE
5. Conduct a screening of all background information and the site to determine the potential for the presence of Species at Risk (SAR).
6. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and summer) botanical inventory of the Study Area during the growing season.
7. Complete a wetland delineation, per the OWES protocol, for wetland limits within proximity of the proposed work and field verify the limits with the GRCA.
8. Conduct a breeding bird survey of the study area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both point counts and area searches. The breeding bird survey requires two, focused, early morning site visits during the period between late May and early July.
9. Complete a Bat Habitat Assessment, review trees meeting the MNDNRF criteria (>10cm DBH) within the proposed development and immediately adjacent area (5M) and identify trees that meet the criteria for bat maternity habitat and require consideration under the ESA.
10. Investigate the study area for evidence of Pileated and Red-headed Woodpecker nest cavities and use a pole mirror to determine if the cavity is likely nesting, roosting, or feeding, per the Environment Canada Pileated Woodpecker Cavity Identification Guide (Environment Canada, 2023).
11. Complete a characterization of the study area for any additional significant natural heritage features, per the PPS by applying provincial protocols and criteria to site features.

12. Conduct an aquatic assessment and aquatic habitat investigation to characterize the present watercourse and identify any fisheries constraints including a review of substrates and suitability for species at risk.
13. Investigate the study area for the presence of significant wildlife habitat during all surveys.
14. Investigate the study area for presence of species at risk and species at risk habitat during all surveys.
15. Record observations of incidental wildlife during all site visits.

C. Draft Natural Environment Assessment (NEA)

16. Analyze findings and prepare a map that shows: identified natural heritage features, and functions and landscape level features (e.g., linkages, wetland limits, forest interior habitat), the proposed area of work, ELC vegetation communities and, other noteworthy features as needed.
17. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofauna atlas, County's OP.
18. Prepare a report of the NEA that includes background information, methods, existing conditions, proposed options, recommended buffers, and appendices of field studies (e.g., ELC, aquatic assessment).
19. Submit draft NEA to client for review followed by distribution to County, municipality and GRCA.

Part 2. Preliminary Design

D. Impact Assessment Report

20. At approximately 50% design of the approved option, summarize the development proposal and provide associated metrics, including visual representations of the structure's footprint and proposed setbacks from confirmed limits of natural features.
21. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location of the components of the plan to reduce/avoid impacts to natural heritage features. Show the limits of expected impact and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent and AA.
22. Provide policy rationale for expected impacts to natural heritage features.
23. Identify options for mitigation or rehabilitation of the site, during and post construction.
24. Review the DFO requirements for projects near water and standards to determine if a request for review is required.

25. Update the NEA report to include the completed impact assessment of the detailed design of the project including mitigation measures, and identifies additional requirements, such as permits or registration under the ESA or DFO.
26. Submit finalized NEA to client for review followed by distribution to County, Township and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.781.1581.

Yours truly,

ABOUD & ASSOCIATES INC.

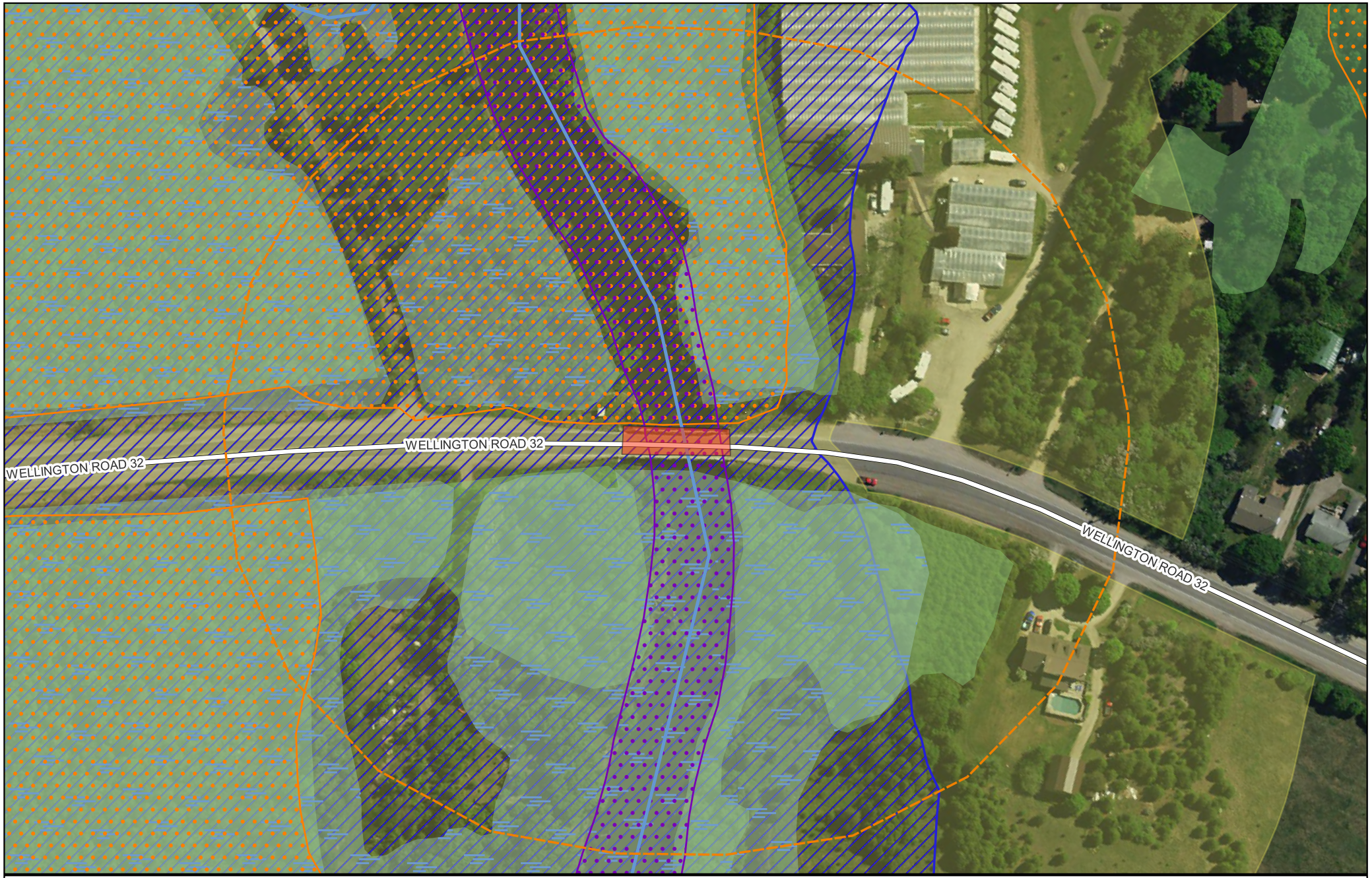


Heather Dixon, PhD
Aquatic Ecologist

Figure 1. Study Area

Appendix 1. Candidate Significant Wildlife Habitat
Appendix 2. Candidate Species at Risk Habitat

Cc: Cheryl-Anne Ross, Aboud & Associates Inc. (email)
Zach Prince, County of Wellington (email)
William Van Ruyven, Gannett Fleming (email)



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
1	Waterfowl stopover and Staging Areas (terrestrial)	Seasonal Concentration Areas	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	None, no habitat present.
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal Concentration Areas	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e. >700 waterfowl use days) confirms SWH	Habitat confirmed as present by LIO.
3	Shorebird Migratory stopover	Seasonal Concentration Areas	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	None, no habitat present.
4	Raptor Wintering Area	Seasonal Concentration Areas	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	None, no habitat present.
5	Bat Hibernacula	Seasonal Concentration Areas	- Caves, mine shafts, underground foundations, karsts. - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	None, no habitat present.
6	Bat Maternity Colony	Seasonal Concentration Areas	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Bat habitat assessment; candidate trees present.
7	Turtle Wintering Area	Seasonal Concentration Areas	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Speed River present, aquatic habitat assessment required.
8	Reptile Hibernaculum	Seasonal Concentration Areas	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Candidate habitat may be present, site will be assessed during ELC.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
9	Colonially-nesting Bird Habitat (cliff/bank)	Seasonal Concentration Areas	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	None, no habitat present.
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal Concentration Areas	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	None, no habitat present.
11	Colonially-nesting Bird Habitat (Ground)	Seasonal Concentration Areas	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	None, no habitat present.
12	Migratory Butterfly Stopover Area	Seasonal Concentration Areas	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	None, no habitat present.
13	Land bird Migratory Stopover Area	Seasonal Concentration Areas	- Woodlots >5ha in size - within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	None, no habitat present.
14	Deer Yarding Areas	Seasonal Concentration Areas	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	None, no habitat present.
15	Deer Winter Congregation Areas	Seasonal Concentration Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	Habitat confirmed as present by LIO.
16	Cliffs & Talus Slopes	Rare Vegetation Communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None, no habitat present.
17	Sand Barren	Rare Vegetation Communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	None, no habitat present.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
18	Alvar	Rare Vegetation Communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	None, no habitat present
19	Old Growth Forest	Rare Vegetation Communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	None, no habitat present
20	Savannah	Rare Vegetation Communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	None, no habitat present
21	Tallgrass Prairie	Rare Vegetation Communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	None, no habitat present
22	Other Rare Vegetation Communities	Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	None, no habitat present
23	Waterfowl Nesting Areas	Specialized Habitats for Wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	None, no habitat present
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized Habitats for Wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
25	Woodland Raptor Nesting Habitat	Specialized Habitats for Wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	None, no habitat present
26	Turtle Nesting Areas	Specialized Habitats for Wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	None, no habitat present
27	Seeps and Springs	Specialized Habitats for Wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	None, no habitat present
28	Amphibian Breeding Habitat (woodland)	Specialized Habitats for Wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	None, no habitat present
29	Amphibian Breeding Habitat (Wetland)	Specialized Habitats for Wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
30	Area-sensitive Breeding Bird Habitat	Specialized Habitats for Wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	None, no habitat present
31	Marsh Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands; all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	None, no habitat present
32	Open Country Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species. - Field with 1 or more Short-eared Owls	None, no habitat present
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
34	Terrestrial Crayfish	Habitats of Species of Conservation Concern	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	None, no habitat present
35	Special Concern & Rare Wildlife Species	Habitats of Species of Conservation Concern	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable. - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	Suitable habitat for special concern and provincially rare plant and bird species present. ELC, botanical inventory, and breeding bird surveys required.
36	Amphibian Movement Corridor	Wildlife Movement Corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors. - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	None, no habitat present.
37	Deer Movement Corridor	Wildlife Movement Corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat. - Unbroken by roads and residential areas - Shorter corridors are more significant	ELC, spring botanical, SAR and SWH assessment, and investigation of aerial photos.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Jefferson Salamander	*Ambystoma jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat present in study area.	None needed.
Unisexual Ambystoma, Jefferson dependent population	*Ambystoma laterale - (2) jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation to breed (COSEWIC 2016).	No habitat present in study area.	None needed.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	Amphibians	NAR	THR	S4	MNRF species occurrence mapping, ORAA (2010)	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	Habitat potentially present in study area.	ELC and botanical inventory.
American Burying Beetle	*Nicrophorus americanus*	Butterflies, bees, damselflies, dragonflies & insects	EXP	EXP	SH	NHIC	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat present in study area.	None needed.
Monarch	*Danaus plexippus*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S2N, S4B	MNRF species occurrence mapping, OBA (2022)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Habitat potentially present in study area.	ELC and botanical inventory.
Rusty-patched Bumble Bee	*Bombus affinis*	Butterflies, bees, damselflies, dragonflies & insects	END	END	S1	MNRF species occurrence mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land, and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	No habitat present in study area.	None needed.
West Virginia White	*Pieris virginenisis*	Butterflies, bees, damselflies, dragonflies & insects	SC	NAR	S3	MNRF species occurrence mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	No habitat present in study area.	None needed.
Yellow-banded Bumble Bee	*Bombus terricola*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S3S5	MNRF species occurrence mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	No habitat present in study area.	None needed.
Bank Swallow	*Riparia riparia*	Birds	THR	THR	S4B	MNRF species occurrence mapping, OBBA, eBird (2022)	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Barn Swallow	*Hirundo rustica*	Birds	SC	THR	S5B	MNRF species occurrence mapping, OBBA, NHIC, eBird (2023)	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Habitat potentially present in study area.	Breeding bird survey.
Barn Owl	*Tyto alba*	Birds	END	END	S1	MNRF species occurrence mapping	Requires open habitat for foraging, such as old fields and pastures, that provide habitat for rodents, and uses a variety of natural and man-made structures for nesting (COSEWIC 2010e)	No habitat present in study area.	None needed.
Bobolink	*Dolichonyx oryzivorus*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2021)	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat present in study area.	None needed.
Canada Warbler	*Wilsonia canadensis*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	No habitat present in study area.	None needed.
Cerulean Warbler	*Setophaga cerulea*	Birds	THR	END	S3B	MNRF species occurrence mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat present in study area.	None needed.
Chimney Swift	*Chaetura pelagica*	Birds	THR	THR	S4B, S4N	MNRF species occurrence mapping OBBA, eBird (2021)	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat present in study area.	None needed.
Common Nighthawk	*Chordeiles minor*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat present in study area.	None needed.
Eastern Meadowlark	*Sturnella magna*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat present in study area.	None needed.
Eastern Whip-poor-will	*Caprimulgus vociferus*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat present in study area.	None needed.
Eastern Wood-Pewee	*Contopus virens*	Birds	SC	SC	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Habitat potentially present in study area.	Breeding bird survey.
Evening Grosbeak	*Coccothraustes vespertinus*	Birds	SC	SC	S4B	MNRF species occurrence mapping, eBird (2022)	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat present in study area.	None needed.
Golden-winged Warbler	*Vermivora chrysoptera*	Birds	SC	THR	S4B	MNRF species occurrence mapping, NHIC	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Grasshopper Sparrow	*Ammodramus savannarum*	Birds	SC	SC	S4B	MNRF species occurrence mapping, OBBA, NHIC	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat present in study area.	None needed.
Henslow's Sparrow	*Ammodramus henslowii*	Birds	END	END	SHB	MNRF species occurrence mapping	Breeds in grassland habitat and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat present in study area.	None needed.
Least Bittern	*Ixobrychus exilis*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat present in study area.	None needed.
Lesser Yellowlegs	*Tringa flavipes*	Birds	THR	THR	S3S4B, S5M	eBird (2020)	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat present in study area.	None needed.
Loggerhead Shrike	*Lanius ludovicianus*	Birds	END	END	S2B	MNRF species occurrence mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat present in study area.	None needed.
Louisiana Waterthrush	*Seirus motacilla*	Birds	SC	THR	S3B	MNRF species occurrence mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat present in study area.	None needed.
Olive-sided Flycatcher	*Contupus cooperi*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat present in study area.	None needed.
Peregrine Falcon	*Falco peregrinus*	Birds	SC	SC	S3B	NHIC	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat present in study area.	None needed.
Prothonotary Warbler	*Protonotaria citrea*	Birds	END	END	S1B	MNRF species occurrence mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat present in study area.	None needed.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Birds	END	THR	S4B	MNRF species occurrence mapping, NHIC	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	Habitat potentially present in study area.	Breeding bird survey.
Rusty Blackbird	*Euphagus carolinus*	Birds	SC	SC	S4B	eBird (2022)	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat present in study area.	None needed.
Short-eared Owl	*Asio flammeus*	Birds	THR	SC	S2N, S4B	MNRF species occurrence mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat present in study area.	None needed.
Wood Thrush	*Hylocichla mustelina*	Birds	SC	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2020)	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Habitat potentially present in study area.	Breeding bird survey.
Yellow-breasted Chat	*Icteria virens*	Birds	END	END	S1B	MNRF species occurrence mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Black Redhorse	*Moxostoma duquesnei*	Fish	THR	THR	S2	MNRF species occurrence mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand, or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Sunfish (Great Lakes-Upper St. Lawrence Population)	*Lepomis peltastes*	Fish	SC	SC	S3	MNRF species occurrence mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	Habitat potentially present in study area.	Aquatic habitat assessment.
Redside Dace	*Clinostomus elongatus*	Fish	END	END	S1	MNRF species occurrence mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	Habitat potentially present in study area.	Aquatic habitat assessment.
Rainbow	*Villosa iris*	Molluscs	SC	SC	S2S3	MNRF species occurrence mapping	Most abundant in small to medium-sized rivers but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	Habitat potentially present in study area.	Aquatic habitat assessment.
Eastern Red Bat	*Lasiurus borealis*	Mammals	NL	END	S4	MNRF species occurrence mapping	Typically roosts among the foliage of trees and occasionally shrubs. They use both deciduous and coniferous forests of any age class, but in some parts of their range will avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Eastern Small-footed Myotis	*Myotis leibii*	Mammals	END	NA	S2S3	MNRF species occurrence mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Habitat potentially present in study area.	Bat habitat assessment
Hoary Bat	*Lasiurus cinereus*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosts solitarily in trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees. Typically roosts among the foliage of trees and occasionally shrubs, and use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Forages in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Little Brown Myotis	*Myotis lucifugus*	Mammals	END	END	S3	MNRF species occurrence mapping, OMA	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment
Northern Myotis	*Myotis septentrionalis*	Mammals	END	END	S3	MNRF species occurrence mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Silver-haired Bat	*Lasionycteris noctivagans*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosting occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Roosts in a variety of large diameter coniferous and deciduous trees. When taken as a whole, the data indicate that the species does select specific attributes of trees to roost in. However, these attributes are not specific to particular tree species or type (deciduous or coniferous specifically) across the species range. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics. Deciduous species (especially *Populus* spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur. Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used. Several studies report the frequent use of old woodpecker cavities (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Tri-colored Bat	*Perimyotis subflavus*	Mammals	END	END	S3?	MNRF species occurrence mapping	Hibernate in caves, abandoned mines, wells, and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Habitat potentially present in study area.	Bat habitat assessment
Blanding's Turtle	*Emydoidea blandingii*	Reptiles	THR	THR	S3	MNRF species occurrence mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Habitat potentially present in study area.	Aquatic habitat assessment.
Midland Painted Turtle	*Chrysemys picta marginata*	Reptiles	NL	SC	S4	ORAA (2019), NHIC	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Map Turtle	*Graptemys geographica*	Reptiles	SC	SC	S3	MNRF species occurrence mapping	Highly aquatic species, found in deep, large waterbodies, including lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Snapping Turtle	*Chelydra serpentina*	Reptiles	SC	SC	S4	MNRF species occurrence mapping, ORAA (2019), NHIC	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Habitat potentially present in study area.	Aquatic habitat assessment.
Spotted Turtle	*Clemmys guttata*	Reptiles	END	END	S2	MNRF species occurrence mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Wood Turtle	*Glyptemys insculpta*	Reptiles	END	THR	S2	MNRF species occurrence mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Butler's Gartersnake	*Thamnophis butleri*	Reptiles	END	END	S2	MNRF species occurrence mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat present in study area.	None needed.
Eastern Ribbonsnake	*Thamnophis sauritus*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat present in study area.	None needed.
Milksnake	*Lampropeltis triangulum*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	No habitat present in study area.	None needed.
Massassauga Rattlesnake	*Sistrurus catenatus*	Reptiles	SC	THR	S3	MNRF species occurrence mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat present in study area.	None needed.
American Ginseng	*Panax quinquefolius*	Vascular plants	END	END	S2	MNRF species occurrence mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat present in study area.	None needed.
Black Ash	*Fraxinus nigra*	Vascular plants	END	THR	S4	MNRF species occurrence mapping	Predominantly a wetland species of swamps, floodplains and fens. Has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Also occurs widely in moist upland forests, but generally at lower densities than in wet areas (COSEWIC, 2018).	Habitat potentially present in study area.	ELC and botanical inventory.
Blue Ash	*Fraxinus quadrangulata*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Found in 3 habitat types; floodplains and river valleys where Blue Ash grows in rich soils in association with other tree species; shallow soils on alvar and limestone on the Lake Erie islands; and stabilized beaches at Point Pelee National Park, and Fish Point on Pelee Island (COSEWIC 2014)	No habitat present in study area.	None needed.
Butternut	*Juglans cinerea*	Vascular plants	END	END	S2?	MNRF species occurrence mapping, NHIC	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	Habitat potentially present in study area.	ELC and botanical inventory.
Common Hoptree	*Ptelea trifoliata*	Vascular plants	THR	SC	S3	MNRF species occurrence mapping	Occurs nearly entirely along or near the Lake Erie shoreline. Often found in areas of natural disturbance where it forms part of the outer edge of shoreline woody vegetation (COSEWIC 2015)	No habitat present in study area.	None needed.
Dense Blazing Star	*Liatris spicata*	Vascular plants	THR	THR	S2	MNRF species occurrence mapping	Occurs in open tallgrass prairies. It can grow in a range of moisture regimes from dry to very moist (COSEWIC 2010)	No habitat present in study area.	None needed.
Hill's Pondweed	*Potamogeton hillii*	Vascular plants	SC	SC	S2S3	MNRF species occurrence mapping	Occur in cold clear calcareous streams, ponds, and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat present in study area.	None needed.
Lakeside Daisy	*Tetraneuris herbacea*	Vascular plants	SC	THR	S3	MNRF species occurrence mapping	Commonly found in alvar habitats, but occasionally occurs in prairies and cliffs. Habitat is seasonally wet in spring and fall and moderately drought-like in the summer (COSEWIC 2002)	No habitat present in study area.	None needed.
Smooth Yellow False Foxglove	*Aureolaria flava*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Inhabits a variety of dry upland woods including escarpment slopes, oak hummocks, oak woodlands, and oak savannas. Primarily associated with Oak species. (COSEWIC 2018)	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Tuberous Indian Plantain	*Arnoglossum plantagineum*	Vascular plants	SC	SC	S2	MNRF species occurrence mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat present in study area.	None needed.

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APPENDIX 3
Site Investigation Details

SURVEY	TIME	DATE	STAFF	TEMP.	WIND (beaufort)	CLOUD COVER (%)	PRECIP.	PAST PRECIP.
Bat Maternity Habitat Survey, Woodpecker Nesting Cavity Survey, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	10:10-11:00	14-Mar-24	H. Dixon, B. Varcoe	7	2	100	No	No
Spring Botanical Inventory, Ecological land Classification, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	09:03-11:00	30-May-24	S. Davison	15	1	0	No	No
Breeding Bird Survey 1	06:30-06:40	04-Jun-24	B. Varcoe	13	1	95	No	No
Breeding Bird Survey 2	06:48-06:58	18-Jun-24	B. Varcoe	21	0	100	No	No
Summer Botanical Inventory, Aquatic Habitat Assessment, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	08:52-10:45	23-Jul-24	H. Dixon, S. Davison	20	1	10	No	No

APPENDIX 4
Ecological Land Classification Forms

Roadside ELC

CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)			**POLYGON:** A
SURVEYOR(S): SD		**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**	

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE	☐ OPEN	☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ SHRUB	☑ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☑ TREED		☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Mixed Swamp	**CODE:** SWM
ECOSITE:	White Cedar Mineral Mixed Swamp	**CODE:** SWMM1
VEGETATION TYPE:	White Cedar- Hardwood Mixed Swamp	**CODE:** SWMM1-1
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Acer negundo		A-O	O	R
Juglans nigra		O		
Salix euxina	O			
Thuja occidentalis	O	O		
Rhamnus cathartica			O	
Sambucus canadensis			O-R	
Vitis riparia			A-O	
Rubus occidentalis			O-R	
Parthenocissus quinquefolia			O	O
Cornus alternifolia			R	

SPECIES	LAYER			
	C	SC	U	GL
Alliaria petiolata				O
Hesperis matronalis				R
Galium aparine				O
Urtica dioica				O
Solidago sp.				O
Ranunculus repens				A-O
Carex lacustris				O-R
Glechoma hederacea				O-R
Matteuccia struthiopteris				A-O
Chelidonium majus				O-R
Aegopodium podagraria				A
Thalictrum dioicum				O-R
Echinocystis lobata				R
Solidago canadensis				O-R
Impatiens capensis				O-R
Plantago major				R
Campanula rapunculoides				R
Verbena urticifolia				R
Leonurus cardiaca				R
Galeopsis tetrahit				R
Geum canadense				R
Prunella vulgaris				R
Toxicodendron radicans				R
Eutrochium maculatum				R
Solanum dulcamara				R
Rubus idaeus ssp. strigosus				R
Lysimachia ciliata				R
Symphyotrichum sp.				O
Sonchus arvensis				R

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Roadside ELC

CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** D
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 09:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE	☐ OPEN	☑ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ SHRUB	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☑ TREED		☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Coniferous Swamp	**CODE:** SWC
ECOSITE:	White Cedar Mineral Coniferous Swamp	**CODE:** SWCM1
VEGETATION TYPE:	White Cedar Mineral Coniferous Swamp	**CODE:** SWCM1-1
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Thuja occidentalis	D	A		
Acer negundo		O-R		
Juglans nigra		O-R	O-R	
Ulmus americana		O-R		
Vitis riparia			O	O
Prunus virginiana			O	
Syringa vulgaris			R	
Morus alba			R	
Rhamnus cathartica			O-R	O-R
Ribes cynosbati				O-R
Lonicera tatarica			R	
Echinocystis lobata			R	

SPECIES	LAYER			
	C	SC	U	GL
Matteuccia struthiopteris				A-O
Hesperis matronalis				R
Solidago sp.				O
Alliaria petiolata				R
Toxicodendron radicans				A-O
Geranium robertianum				R
Taraxacum officinale				R
Verbena urticifolia				R
Ageratina altissima				R
Vinca minor				O-R
Solanum dulcamara				R

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Roadside ELC

CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** G
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☑ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Mixed Swamp	**CODE:** SWM
ECOSITE:	Conifer- Hardwood Mineral Mixed Swamp	**CODE:** SWMM5
VEGETATION TYPE:	Tamarack- Hardwood Mineral Mixed Swamp	**CODE:** SWMM5-2
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	O	<10	A	10-24	R	25-50	R	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Populus tremuloides	O	O		
Juglans nigra		R		
Ulmus americana		O		
Acer saccharinum	R			
Larix laricina	A-O	O		
Acer negundo			R	
Picea glauca		R		
Picea mariana	O	O		
Pinus strobus		R		
Acer saccharum		R		
Rhamnus cathartica			A-O	
Lonicera tatarica			O	
Vitis riparia			R	
Frangula alnus			O	

SPECIES	LAYER			
	C	SC	U	GL
Typha angustifolia			O-R	
Impatiens capensis				O
Tussilago farfara				O
Caltha palustris				A-O
Phalaris arundinacea				O-R
Phragmites australis			R	
Eleocharis obtusa				O-R
Sium suave				R
Verbena hastata				R
Epilobium hirsutum				O
Leersia oryzoides				O
Matteuccia struthiopteris				O-R

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Roadside ELC

CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** J
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☐ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☐ SWAMP
		☑ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☑ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☑ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Forest	**CODE:** FO
COMMUNITY SERIES:	Coniferous Forest	**CODE:** FOC
ECOSITE:	Dry- Fresh Cedar Coniferous Forest	**CODE:** FOCM2
VEGETATION TYPE:	Dry- Fresh White Cedar Coniferous Forest	**CODE:** FOCM2-2
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Thuja occidentalis	D	A		
Pinus strobus		R		
Prunus serotina	O-R			
Acer platanoides			R	
Fraxinus americana			R	
Pinus resinosa		R		
Acer negundo		R		
Rhamnus cathartica			O	O
Vitis riparia			R	R
Parthenocissus quinquefolia			O-R	O-R
Cornus alternifolia			R	

SPECIES	LAYER			
	C	SC	U	GL
Fragaria virginiana				O
Circaea canadensis				O-R
Taraxacum officinale				R
Asarum canadense				O-R
Lotus corniculatus				R
Erigeron annuus				O-R

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Representative Photographs of Vegetation Community:



Roadside ELC CLASSIFICATION	PROJ. NO./NAME: Blatchford Bridge (B032085)		POLYGON: K
	SURVEYOR(S): SD	DATES: May 30, 2024	
	START: 9:04	END: 10:46	COORDINATES:

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☑ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	CODE: SW
COMMUNITY SERIES:	Deciduous Swamp	CODE: SWD
ECOSITE:	Mineral Deciduous Swamp	CODE: SWDM4
VEGETATION TYPE:	Willow Mineral Deciduous Swamp	CODE: SWDM4-1
INCLUSION:		CODE:
COMPLEX:		CODE:

STAND COMPOSITION								
STANDING SNAGS:	N	<10	O	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

Asclepias syriaca only observed immediately adjacent road.

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Salix euxina	A-O			
Populus tremuloides	O	O		
Thuja occidentalis		O-R		
Acer platanoides		R		
Populus alba			R	
Ulmus americana		O-R	O-R	
Acer negundo		O-R	R	
Quercus sp.			R	
Fraxinus pennsylvanica		O		
Tilia americana		R		
Rhamnus cathartica			O	A-O
Vitis riparia			O	
Parthenocissus quinquefolia			O-R	R
Rosa multiflora				R
Frangula alnus			O	

SPECIES	LAYER			
	C	SC	U	GL
Typha angustifolia			A-O	
Equisetum arvense				O-R
Toxicodendron radicans				O-R
Solidago sp.				A-O
Hesperis matronalis				R
Anemonastrum canadense				R
Matteuccia struthiopteris				O
Solanum dulcamara				R
Impatiens capensis				O
Onoclea sensibilis				O
Thalictrum pubescens				O-R
Alliaria petiolata				O-R
Phragmites australis			O-R	
Asclepias syriaca				R
Verbena hastata				R
Sium suave				O-R
Solidago canadensis				R
Rubus pubescens				R
Lythrum salicaria				R
Ageratina altissima				R

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APPENDIX 5
Vascular Plant List

Season		Plant [1]					SARO [4]	SARA [5]	Global [6]	Prov. [7]
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	Status	Status	Rank	Rank
✓	✓	TR	*Acer negundo*	Manitoba Maple	0	0			G5	SU
✓	✓	TR	*Acer platanoides*	Norway Maple	*	5			GNR	SNA
✓		TR	*Acer saccharinum*	Silver Maple	5	-3			G5	S5
✓	✓	TR	*Acer saccharum*	Sugar Maple	4	3			G5	S5
✓	✓	FO	*Aegopodium podagraria*	Goutweed	*	0			GNR	SNA
	✓	FO	*Ageratina altissima*	Common White Snakeroot	5	3			G5	S5
✓	✓	FO	*Alliaria petiolata*	Garlic Mustard	*	0			GNR	SNA
✓		SH	*Alnus incana*	Grey Alder	6	-3			G5	S5
✓		FO	*Anemonastrum canadense*	Canada Anemone	3	-3			G5	S5
✓		FO	*Asarum canadense*	Canada Wild-ginger	6	5			G5	S5
✓		FO	*Asclepias syriaca*	Common Milkweed	0	5			G5	S5
✓	✓	FO	*Caltha palustris*	Yellow Marsh Marigold	5	-5			G5	S5
	✓	FO	*Campanula rapunculoides*	Creeping Bellflower	*	5			GNR	SNA
✓	✓	SE	*Carex lacustris*	Lake Sedge	5	-5			G5	S5
✓		FO	*Chelidonium majus*	Greater Celadine		5			GNR	SNA
✓	✓	FO	*Circaea canadensis ssp. canadensis*	Broad-leaved Enchanter's Nightshade	2	3			GNR	S5
✓	✓	SH	*Cornus alternifolia*	Alternate-leaved Dogwood	6	3			G5	S5
	✓	VW	*Echinocystis lobata*	Wild Mock-cucumber	3	-3			G5	S5
	✓	FO	*Echium vulgare*	Common Viper's Bugloss	*	5			GNR	SNA
✓		SE	*Eleocharis obtusa*	Blunt Spike-rush	5	-5			G5	S5
	✓	FO	*Epilobium hirsutum*	Hairy Willowherb	*	-3			GNR	SNA
✓		FE	*Equisetum arvense*	Field Horsetail	0	0			G5	S5
	✓	FO	*Erigeron annuus*	Annual Fleabane	0	3			G5	S5
	✓	FO	*Eutrochium maculatum var. maculatum*	Spotted Joe Pye Weed	3	-5			G5T5	S5
✓		FO	*Fragaria virginiana*	Wild Strawberry	2	3			G5	S5
	✓	SH	*Frangula alnus*	Glossy Buckthorn	*	0			GNR	SNA
✓	✓	TR	*Fraxinus americana*	White Ash	4	3			G5	S4
	✓	TR	*Fraxinus pennsylvanica*	Green Ash	3	-3			G5	S4
	✓	FO	*Galeopsis tetrahit*	Common Hemp-nettle	*	3			GNR	SNA
✓	✓	FO	*Galium aparine*	Cleavers	4	3			G5	S5
✓		FO	*Geranium robertianum*	Herb-Robert	2	3			G5	S5
	✓	FO	*Geum canadense*	White Avens	3	0			G5	S5
✓	✓	FO	*Glechoma hederacea*	Ground Ivy	*	3			GNR	SNA
✓		FO	*Hesperis matronalis*	Dame's Rocket	*	3			G4G5	SNA
✓	✓	FO	*Impatiens capensis*	Spotted Jewelweed	4	-3			G5	S5

Season		Plant [1]					SARO [4]	SARA [5]	Global [6]	Prov. [7]
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	Status	Status	Rank	Rank
✓	✓	TR	*Juglans nigra*	Black Walnut	5	3			G5	S4?
✓		TR	*Larix laricina*	Tamarack	7	-3			G5	S5
	✓	FO	*Leonurus cardiaca*	Common Motherwort	*	5			GNR	SNA
	✓	SH	*Lonicera tatarica*	Tartarian Honeysuckle	*	3			GNR	SNA
	✓	FO	*Lotus corniculatus*	Garden Bird's-foot Trefoil	*	3			GNR	SNA
	✓	FO	*Lysimachia ciliata*	Fringed Loosestrife	4	-3			G5	S5
	✓	FO	*Lythrum salicaria*	Purple Loosestrife	*	-5			G5	SNA
✓	✓	FE	*Matteuccia struthiopteris*	Ostrich Fern	5	0			G5T5	S5
✓		TR	*Morus alba*	White Mulberry	*	0			GNR	SNA
	✓	FO	*Oenothera biennis*	Common Evening Primrose	0	3			G5	S5
✓	✓	FE	*Onoclea sensibilis*	Sensitive Fern	4	-3			G5	S5
✓	✓	VW	*Parthenocissus quinquefolia*	Virginia Creeper	6	3			G5	S4?
✓		GR	*Phalaris arundinacea*	Reed Canary Grass	0	-3			G5	S5
✓	✓	GR	*Phragmites australis ssp. australis*	European Reed		-3			G5T5	SNA
✓		TR	*Picea glauca*	White Spruce	6	3			G5	S5
✓	✓	TR	*Picea mariana*	Black Spruce	8	-3			G5	S5
	✓	TR	*Pinus resinosa*	Red Pine	8	3			G5	S5
✓	✓	TR	*Pinus strobus*	Eastern White Pine	4	3			G5	S5
	✓	FO	*Plantago major*	Common Plantain	*	3			G5	S5
✓	✓	TR	*Populus alba*	White Poplar	*	5			G5	SNA
✓	✓	TR	*Populus tremuloides*	Trembling Aspen	2	0			G5	S5
	✓	FO	*Prunella vulgaris ssp. Lanceolata*	Self-heal	0	0			G5T5	S5
✓	✓	TR	*Prunus serotina*	Black Cherry	3	3			G5	S5
✓		SH	*Prunus virginiana*	Choke Cherry	2	3			G5	S5
✓		TR	*Quercus sp.*	Oak species						
✓	✓	FO	*Ranunculus repens*	Creeping Buttercup	*	0			GNR	SNA
✓	✓	SH	*Rhamnus cathartica*	Common Buckthorn	*	0			GNR	SNA
✓		SH	*Ribes cynosbati*	Prickly Gooseberry	4	3			G5	S5
✓		SH	*Rosa multiflora*	Multiflora Rose	*	3			GNR	SNA
	✓	SH	*Rubus idaeus ssp. strigosus*	Wild Red Raspberry	2	3			G5T5	S5
	✓	SH	*Rubus occidentalis*	Black Raspberry	2	5			G5	S5
	✓	FO	*Rubus pubescens*	Dewberry	4	-3			G5	S5
✓	✓	TR	*Salix euxina*	Crack Willow		0			GNR	SNA
✓		SH	*Sambucus canadensis*	Common Elderberry	5	-3			G5	S5
	✓	FO	*Sium suave*	Hemlock Water-parsnip	4	-5			G5	S5

Season		Plant [1]								
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	SARO [4] Status	SARA [5] Status	Global [6] Rank	Prov. [7] Rank
✓	✓	VW	*Solanum dulcamara*	Bittersweet Nightshade	*	0			GNR	SNA
	✓	FO	*Solidago canadensis*	Canada Goldenrod	1	3			G5T5	S5
✓		FO	*Solidago sp.*	Goldenrod species						
	✓	FO	*Sonchus arvensis ssp. arvensis*	Glandular Field Sow-thistle		3			GNRTNR	SNA
	✓	FO	*Symphyotrichum sp.*	Aster sp.						
✓	✓	SH	*Syringa vulgaris*	Common Lilac	*	5			GNR	SNA
✓	✓	FO	*Taraxacum officinale*	Common Dandelion	*	3			G5	SNA
	✓	FO	*Thalictrum dioicum*	Early Meadow-rue	6	3			G5	S5
✓		FO	*Thalictrum pubescens*	Tall Meadow-rue	5	-3			G5	S5
✓	✓	TR	*Thuja occidentalis*	Eastern White Cedar	4	-3			G5	S5
	✓	TR	*Tilia americana*	American Basswood	4	3			G5	S5
✓	✓	WV	*Toxicodendron radicans ssp. Negundo*	Eastern Poison Ivy	5	-1			G5	S5
✓		FO	*Tussilago farfara*	Colt's-foot	*	3			GNR	SNA
✓	✓	FO	*Typha angustifolia*	Narrow-leaved Cattail		-5			G5	SNA
✓	✓	TR	*Ulmus americana*	American Elm	3	-3			G5	S5
✓	✓	FO	*Urtica dioica ssp. dioica*	European Stinging Nettle	*	0			G5T5?	SNA
	✓	FO	*Verbena hastata*	Blue Vervain	4	-3			G5	S5
	✓	FO	*Verbena urticifolia*	White Vervain	4	0			G5	S5
	✓	FO	*Vinca minor*	Periwinkle	*	5			GNR	SNA
✓	✓	VW	*Vitis riparia*	Riverbank Grape	0	0			G5	S5

1. Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody
2. CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat. * = value not assigned because they are non-native
3. CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species
4. SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
5. SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
6. Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable
7. Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable

APPENDIX 6
Breeding Bird Survey

															PC 1	Habitat: Watercourse and riverbank														
															round1	date: June 4, 2024						round2	date: June 18, 2024						Max Summaries		SITE SUMMARY	
LIST	COMMON NAME	SCIENTIFIC NAME	COSSARO	SARO	COSEWIC	SARA	S-RANK	G-RANK	N-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	TOTAL	HBE
1109	Ring-billed Gull	*Larus delawarensis*					S5	G5	N5B,N5N,N5M					x				1	0	NA					0	NA	0	NA	0	NA
1168	Eastern Kingbird	*Tyrannus tyrannus*					S4B	G5	N5B,N5M			✓	CP	x		2			2	P					0	NA	2	P	2	P
1187	American Crow	*Corvus brachyrhynchos*					S5	G5	N5B,N5N,N5M										0	NA			1		0	NA	0	NA	0	NA
1223	American Robin	*Turdus migratorius*					S5	G5	N5B,N4N5N,N5M									1	0	NA					0	NA	0	NA	0	NA
1241	Chipping Sparrow	*Spizella passerina*					S5B,S3N	G5	N5B,N5M							1			1	S					0	NA	1	S	1	S
1254	Song Sparrow	*Melospiza melodia*					S5	G5	N5B,N5N,N5M						1	2			3	S	1	1			2	T	3	T	3	T
1265	Red-winged Blackbird	*Agelaius phoeniceus*					S5	G5	N5B,N5N,N5M						1	4			5	S		3			3	T	5	T	5	T
1269	Common Grackle	*Quiscalus quiscula*					S5	G5	N5B,NUN,N5M						2				2	S					0	S	2	S	2	S
1284	Common Yellowthroat	*Geothlypis trichas*					S5B,S3N	G5	N5B,N5M							1			1	S		2	1		2	T	2	T	2	T

Breeding Evidence:

Observed
FO-flyover
X- species observed in breeding season

Possible
H-suitable habitat
S-singing male

Probable
M-multiple singing individuals
P-pair observed in suitable habitat
T-presumed territory based on presence of singing bird at least one week apart
D-courtship or display
V-visiting probabale nest site
A-agitated behaviour
B-brood patch or cloacal protuberance
N-nest building by wrens or woodpeckers

Confirmed
NB-nest building
AE-adult entering, occupying or leaving nest site
NU-empty nest used in the same season
FY-recently fledged young
DD-distraction display
FS-adult carrying fecal sac
CF-adult carrying food
NE-nest with eggs
NY-nest with young

APPENDIX 7
Significant Wildlife Habitat Assessment

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
1	Waterfowl Stopover and Staging Areas (Terrestrial)	Seasonal concentration areas of animals	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	Flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal concentration areas of animals	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e., >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	Waterfowl Winter Concentration Area identified as present by the MNRF.	Yes	None required, habitat already confirmed.	Yes
3	Shorebird Migratory Stopover	Seasonal concentration areas of animals	- Shorelines of lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
4	Raptor Wintering Area	Seasonal concentration areas of animals	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - Least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in study area.	No	None required	No
5	Bat Hibernacula	Seasonal concentration areas of animals	- Caves, mine shafts, underground foundations, karsts. - Buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
6	Bat Maternity Colony	Seasonal concentration areas of animals	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - Buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Wooded areas present in the study area.	Yes	Bat habitat assessment completed. No suitable trees identified near bridge.	No
7	Turtle Wintering Area	Seasonal concentration areas of animals	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	Soft substrates and deep water present in Speed River,	Yes.	Aquatic habitat assessment, and incidental observations during other studies.	Unknown-assumed present.
8	Reptile Hibernaculum	Seasonal concentration areas of animals	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is in, and 30m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
9	Colonially-nesting Bird Habitat (Cliff/bank)	Seasonal concentration areas of animals	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest are the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal concentration areas of animals	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	No habitat matching criteria identified in study area.	No	None required	No
11	Colonially-nesting Bird Habitat (Ground)	Seasonal concentration areas of animals	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in study area.	No	None required	No
12	Migratory Butterfly Stopover Area	Seasonal concentration areas of animals	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in study area.	No	None required	No
13	Land bird Migratory Stopover Area	Seasonal concentration areas of animals	- Woodlots >5ha in size - Within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in study area.	No	None required	No
14	Deer Yarding Areas	Seasonal concentration areas of animals	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No habitat matching criteria identified in study area.	No	None required	No
15	Deer Winter Congregation Areas	Seasonal concentration areas of animals	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	LIO mapping	White-tailed Deer Wintering Area (Stratum II) identified as present by the MNRF.	Yes	None required, habitat already confirmed.	Yes
16	Cliffs & Talus Slopes	Rare vegetation communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in study area.	No	None required	No
17	Sand Barren	Rare vegetation communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- Area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
18	Alvar	Rare vegetation communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- Area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
19	Old Growth Forest	Rare vegetation communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
20	Savannah	Rare vegetation communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
21	Tallgrass Prairie	Rare vegetation communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
22	Other Rare Vegetation Communities	Rare vegetation communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
23	Waterfowl Nesting Areas	Specialized habitat for wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No habitat matching criteria identified in study area.	No	None required	No
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized habitat for wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	- Active nest plus 300m for OSPR - Active nest plus 400-800m for BAEA	Riparian habitat with forests present.	Yes.	Breeding bird survey and incidental observations.	No
25	Woodland Raptor Nesting Habitat	Specialized habitat for wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - RSHA, NOGA 400m - BAOW 200m. - Broad-winged Hawk, COHA 100m - SSHA 50	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
26	Turtle Nesting Areas	Specialized habitat for wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation. - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in study area.	No	None required	No
27	Seeps and Springs	Specialized habitat for wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs.	Area of ELC forest ecosite containing seep/spring is the SWH	No habitat matching criteria identified in study area.	No	None required	No
28	Amphibian Breeding Habitat (Woodland)	Specialized habitat for wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	No habitat matching criteria identified in study area.	No	None required	No
29	Amphibian Breeding Habitat (Wetland)	Specialized habitat for wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	- ELC ecosite and shoreline is the SWH. - Movement corridors (SWH) must be considered if this habitat is significant	No habitat matching criteria identified in study area.	No	None required	No
30	Area-sensitive Breeding Bird Habitat	Specialized habitat for wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH	ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
31	Marsh Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
32	Open Country Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in study area.	No	None required	No
34	Terrestrial Crayfish	Habitats of species of conservation concern considered SWH	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
35	Special Concern & Rare Wildlife Species	Habitats of species of conservation concern considered SWH	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	Background Atlas review identified 10 Special concern species within 10km of the Study Area - Snapping Turtle (ORAA, NHIC) - Midland Painted Turtle (ORAA, NHIC) - Barn Swallow (OBBA, NHIC, eBird) - Eastern Wood-pewee (OBBA, NHIC, eBird) - Evening Grosbeak (eBird) - Grasshopper Sparrow (OBBA, NHIC) - Peregrine Falcon (NHIC) - Rusty Blackbird (eBird) - Wood Thrush (OBBA, NHIC, eBird) - Monarch (OBA)	Yes-Woodlands on site and within 120m may provide habitat for Eastern-Wood-pewee, Wood Thrush. Roadsides may provide habitat for Monarch. Marsh and shallow aquatic habitat on site, and within 120 m may provide habitat for Snapping Turtle and Midland Painted Turtle.	ecological land classification, breeding bird survey, incidental wildlife.	None, assumed overwintering habitat for Midland Painted Turtle and Snapping Turtle.
36	Amphibian Movement Corridor	Animal movement corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	No habitat matching criteria identified in study area.	No	None required	No
37	Deer Movement Corridor	Animal movement corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	No corridors identified by aerial images.	No	None required	No

APPENDIX 8
Species at Risk Habitat Assessment

Common name	Scientific name	SCA	SARA	S-rank	Habitat requirements	Suitable habitat in study area	Field studies completed	Observed by AA
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	THR	S4	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	No habitat matching criteria identified in study area.	Ecological land classification, and incidental observations.	None observed.
American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	SH	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat matching criteria identified in study area.	Ecological land classification, and incidental observations.	None observed.
Monarch	*Danaus plexippus*	NL	SC	S2N, S4B	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Milkweed present in study area, but no individuals observed.	Ecological land classification, and incidental observations.	None observed.
Bank Swallow	*Riparia riparia*	NL	THR	S4B	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and riverbanks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Barn Swallow	*Hirundo rustica*	NL	THR	S5B	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Bridge present in study area, but no individuals observed during breeding bird surveys or incidentally, and no nests identified under the bridge.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Bobolink	*Dolichonyx oryzivorus*	NL	THR	S4B	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Chimney Swift	*Chaetura pelagica*	NL	THR	S4B, S4N	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Eastern Meadowlark	*Sturnella magna*	NL	THR	S4B	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Eastern Wood-Pewee	*Contopus virens*	NL	SC	S4B	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Deciduous swamps present containing Maple, Elm, and Oak, but no individuals observed during breeding bird surveys or incidentally.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Evening Grosbeak	*Coccothraustes vespertinus*	NL	SC	S4B	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Golden-winged Warbler	*Vermivora chrysoptera*	NL	THR	S4B	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Grasshopper Sparrow	*Ammodramus savannarum*	NL	SC	S4B	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Lesser Yellowlegs	*Tringa flavipes*	THR	THR	S3S4B, S5M	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Peregrine Falcon	*Falco peregrinus*	NL	NAR	S3B	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.

Common name	Scientific name	SCA	SARA	S-rank	Habitat requirements	Suitable habitat in study area	Field studies completed	Observed by AA
Red-headed Woodpecker	*Melanerpes erythrocephalus*	NL	THR	S4B	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	No habitat matching criteria identified in study area.	Breeding bird surveys, Woodpecker cavity assessment, Ecological land classification, and incidental observations.	None observed.
Rusty Blackbird	*Euphagus carolinus*	NL	SC	S4B	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Wood Thrush	*Hylocichla mustelina*	NL	THR	S4B	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Little Brown Myotis	*Myotis lucifugus*	END	END	S3	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	No habitat matching criteria identified in study area.	Bat habitat assessment, Ecological land classification, and incidental observations.	None observed.
Midland Painted Turtle	*Chrysemys picta marginata*	NL	SC	S4	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Potential overwintering habitat present near the bridge.	Ecological land classification, and incidental observations.	None observed.
Snapping Turtle	*Chelydra serpentina*	NL	SC	S4	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Potential overwintering habitat present near the bridge.	Ecological land classification, and incidental observations.	None observed.

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APPENDIX 9
Background Wildlife List

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
	INSECTS														
NHIC	American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	EXP	EXP	Schedule 1	SH	G2G3	NH					
iNat (2021)	Seven-spotted Lady Beetle	*Coccinella septempunctata*						SNA	GNR	NNA					
	BUTTERFLIES & MOTHS														
OBA (2012)	Least Skipper	*Ancyloxypha numitor*						S5	G5	N5					
OBA (2012)	Arctic Skipper	*Carterocephalus palaemon*						S5	G5	N5					
OBA (2022)	Silver-spotted Skipper	*Epargyreus clarus*						S4	G5	N5					
OBA (2021)	Wild Indigo Duskywing	*Erynnis baptisiae*						S4	G5	N4					x
OBA (2021)	Common Sootywing	*Pholisora catullus*						S4	G5	N4					x
OBA (2018)	Peck's Skipper	*Polites peckius*						S5	G5	N5					
OBA (2020)	European Skipper	*Thymelicus lineola*						SNA	G5	NNA					
OBA (2021)	Northern Azure	*Celastrina lucia*						S5	G5	N5					
OBA (2021)	Eastern Tailed Blue	*Cupido (Everes) comyntas*						S5	G5	N5					
OBA (2020)	Silvery Blue	*Glaucopsyche lygdamus*						S5	G5	N5					
OBA (2020)	Bronze Copper	*Lycaena hyllus*						S5	G4G5	N5					
OBA (2022)	Acadian Hairstreak	*Satyrium acadica*						S4	G5	N5					
OBA (2020)	Milbert's Tortoiseshell	*Aglais milberti*						S5	G5	N5					
OBA (2022)	Common Wood-Nymph	*Cercyonis pegala*						S5	G5	N5					
OBA (2022)	Common Ringlet	*Coenonympha tullia*						S5	G5	N5					
OBA (2022)	Monarch	*Danaus plexippus*	SC		END	SC	Schedule 1	S2N,S4B	G5	N3B,NNRM					
OBA (2021)	Baltimore Checkerspot	*Euphydryas phaeton*						S4	G4	N5					
OBA (2012)	Variegated Fritillary	*Euptoieta claudia*						SNA	G5	N5B.N3N,NNRM					
OBA (2008)	Common Buckeye	*Junonia coenia*						SNA	G5	NNA					
OBA (2022)	Viceroy	*Limenitis archippus*						S5	G5	N5					
OBA (2022)	Red-spotted Purple	*Limenitis arthemis astyanax*						S5	G5T5	N5					
OBA (2020)	Little Wood-Satyr	*Megisto cymela*						S5	G5	N5					
OBA (2021)	Mourning Cloak	*Nymphalis antiopa*						S5	G5	N5					
OBA (2022)	Compton Tortoiseshell	*Nymphalis l-album*						S5	G5	N5					
OBA (2022)	Northern Crescent	*Phyciodes cocyta*						S5	G5	N5					
OBA (2021)	Pearl Crescent	*Phyciodes tharos*						S4	G5	N5					

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OBA (2021)	Eastern Comma	*Polygonia comma*						S5	G5	N5					
OBA (2020)	Question Mark	*Polygonia interrogationis*						S5	G5	N5B,N4N5M					
OBA (2020)	Gray Comma	*Polygonia progne*						S5	G4G5	N5					
OBA (2020)	Great Spangled Fritillary	*Speyeria cybele*						S5	G5	N5					
OBA (2021)	Red Admiral	*Vanessa atalanta*						S5B	G5	N5B,N5M					
OBA (2014)	Painted Lady	*Vanessa cardui*						S5B	G5	N5B,N5M					
OBA (2014)	Pipevine Swallowtail	*Battus philenor*						SNA	G5	NNA					
OBA (2021)	Giant Swallowtail	*Papilio cresphontes*						S4	G5	N4					x
OBA (2022)	Eastern Tiger Swallowtail	*Papilio glaucus*						S5	G5	N4					
OBA (2022)	Black Swallowtail	*Papilio polyxenes*						S5	G5	N5					
OBA (2021)	Orange Sulphur	*Colias eurytheme*						S5	G5	N5B,N5M					
OBA (2022)	Clouded Sulphur	*Colias philodice*						S5	G5	N5					
OBA (2022)	Cabbage White	*Pieris rapae*						SNA	G5	NNA					
iNat (2018)	Banded Tussock Moth	*Halysidota tessellaris*						S5	G5	N5					
	AMPHIBANS														
iNat (2023), ORAA (2019)	American Toad	*Anaxyrus americanus*						S5	G5	N5					
ORAA (2019)	Gray Treefrog	*Hyla versicolor*						S5	G5	N5					
ORAA (2019)	Spring Peeper	*Pseudacris crucifer*						S5	G5	N5					
ORAA (2010)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	NAR	THR	THR	Schedule 1	S4	G5TNR	N4					
ORAA (2017)	American Bullfrog	*Lithobates catesbeianus*						S4	G5	N5	✓				x
iNat (2023), ORAA (2017)	Green Frog	*Lithobates clamitans*						S5	G5	N5					
ORAA (1990)	Pickerel Frog	*Lithobates palustris*		NAR	NAR			S4	G5	N5					x
ORAA (2018)	Northern Leopard Frog	*Lithobates pipiens*		NAR	NAR			S5	G5	N5					
ORAA (2016)	Wood Frog	*Lithobates sylvaticus*						S5	G5	N5					
ORAA (2014)	Unisexual Ambystoma, Blue-spotted Salamander-dependent population	*Ambystoma (2) laterale - jeffersonianum*		NAR	NAR			S4		N4					x
ORAA (2014)	Blue-spotted Salamander	*Ambystoma laterale*						S4	G5	N5					x

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ORAA (1988)	Eastern Red-backed Salamander	*Plethodon cinereus*						S5	G5	N5					
ORAA (1988)	Red-spotted Newt	*Notophthalmus viridescens viridescens*						S5	G5	N5					x
	SNAKES AND LIZARDS														
ORAA (2017)	DeKay's Brownsnake	*Storeria dekayi*		NAR	NAR			S5	G5T5	N5					x
ORAA (2011)	Red-bellied Snake	*Storeria occipitomaculata occipitomaculata*						S5	G5	N5					x
ORAA (2017)	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*						S5	G5T5	N5					
	TURTLES														
ORAA (2019), NHIC	Snapping Turtle	*Chelydra serpentina*	NL		SC	SC	Schedule 1	S4	G5T5	N4					
ORAA (2019), NHIC	Midland Painted Turtle	*Chrysemys picta marginata*	NAR	NAR	SC	SC	Schedule 1	S4	G5T5	N4					
	BIRDS														
eBird (2019)	Cackling Goose	*Branta hutchinsii*						SUB,S4M	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	Canada Goose	*Branta canadensis*						S5	G5	N5B,N5N,N5M				CP	
eBird (2024)	Trumpeter Swan	*Cygnus buccinator*		NAR	NAR			S4	G4	N5B,N3N,N5M					x
eBird (2020)	Tundra Swan	*Cygnus columbianus*						S2B,S4N,S3M	G5	N5B,N3N,N5M					
OBBA, eBird (2024)	Wood Duck	*Aix sponsa*						S5B, S3N	G5	N5B,N4N5N,N5M					
eBird (2023)	American Wigeon	*Anas americana*						S4B,S4N,S5M	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Mallard	*Anas platyrhynchos*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	American Black Duck	*Anas rubripes*						S4	G5	N5B,N5N,N5M				CP	x
eBird (2024)	Northern Pintail	*Anas acuta*						S5B,S4N	G5	N5B,N5N,N5M	✓			CP	x
eBird (2023)	Ring-necked Duck	*Aythya collaris*						S5B,S4N	G5	N5B,N5N,N5M				CP	x
eBird (2014)	Greater Scaup	*Aythya marila*						S4B,S4N,S5M	G5	N5B,N5N,N5M					
eBird (2023)	Lesser Scaup	*Aythya affinis*						S4B,S4N,S5M	G5	N5B,N5N,N5M				CP	x
eBird (2014)	Long-tailed Duck	*Clangula hyemalis*						S3B,S5N	G5	N5B,N5N,N5M					
eBird (2023)	Bufflehead	*Bucephala albeola*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Common Goldeneye	*Bucephala clangula*						S5	G5	N5B,N5N,N5M	✓				
OBBA, eBird (2023)	Hooded Merganser	*Lophodytes cucullatus*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2024)	Common Merganser	*Mergus merganser*						S5	G5	N5B,N5N,N5M	✓				x
eBird (2015)	Red-breasted Merganser	*Mergus serrator*						S5	G5	N5B,N5N,N5M	✓			CP	x
OBBA	Ruddy Duck	*Oxyura jamaicensis*						S3B,S4N,S5M	G5	N5B,N5N,N5M					x
eBird (2020)	Wild Turkey	*Meleagris gallopavo*						S5	G5	N5					

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OBBA, eBird (2022)	Ruffed Grouse	*Bonasa umbellus*						S5	G5	N5				CP	
OBBA	Ring-necked Pheasant	*Phasianus colchicus*						SNA	G5	NNA					
OBBA	Pied-billed Grebe	*Podilymbus podiceps*						S4B,S2N	G5	N5B,N4N5N,N5M				CP	x
OBBA, eBird (2024)	Rock Pigeon	*Columba livia*						SNA	G5	NNA					
OBBA, eBird (2024)	Mourning Dove	*Zenaida macroura*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2021)	Black-billed Cuckoo	*Coccyzus erythropthalmus*						S4S5B	G5	N5B,N5M			✓	CP	x
eBird (2020)	Yellow-billed Cuckoo	*Coccyzus americanus*						S4B	G5	N4B,NUM					x
OBBA, eBird (2021)	Chimney Swift	*Chaetura pelagica*	THR		THR	THR	Schedule1	S3B	G4G5	N4BN3M			✓		x
OBBA, eBird (2020)	Ruby-throated Hummingbird	*Archilochus colubris*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Virginia Rail	*Rallus limicola*						S4S5B	G5	N5B,NUM,N5M				CP	
OBBA	Sora	*Porzana carolina*						S5B	G5	N5B,N5M				CP	x
OBBA	Common Gallinule	*Gallinula chloropus*						S3B	G5	N4N5B,N4N5M				CP	x
eBird (2023)	Sandhill Crane	*Grus canadensis*						S5B,S3N	G5	N5B,N1N,N5M	✓	>40ha			x
OBBA, eBird (2023)	Killdeer	*Charadrius vociferus*						S4B	G5	N5B,N4N5N,N5M					
OBBA, eBird (2018)	American Woodcock	*Scolopax minor*						S4B	G5	N5B,N5M				CP	
OBBA, eBird (2023)	Spotted Sandpiper	*Actitis macularius*						S5B	G5	N5B,N3N,N5M				CP	
eBird (2024)	Solitary Sandpiper	*Tringa solitaria*						S4B,S5M	G5	N5B,N5M					
eBird (2020)	Lesser Yellowlegs	*Tringa flavipes*	THR	THR	THR	NL		S3S4B,S5M	G5	N4N5B,N5M					
eBird (2021)	Greater Yellowlegs	*Tringa melanoleuca*						S4B,S5M	G5	N5B,N4N,N5M					
eBird (2023)	Ring-billed Gull	*Larus delawarensis*						S5	G5	N5B,N5N,N5M					x
eBird (2023)	Herring Gull	*Larus argentatus*						S4B,S5N	G5	N5B,N5N,N5M					x
eBird (2023)	Caspian Tern	*Hydroprogne caspia*		NAR	NAR			S3B,S5M	G5	N4B,N4M					x
eBird (2022)	Double-crested Cormorant	*Phalacrocorax auritus*		NAR	NAR			S5B,S4N	G5	N5M,N3N4N,N5M					x
OBBA	American Bittern	*Botaurus lentiginosus*						S5B	G5	N5B,N3N,N5M	✓			CP	x
OBBA, eBird (2023)	Great Blue Heron	*Ardea herodias*						S4	G5	N5B,N3N,N5M					x
eBird (2024)	Great Egret	*Ardea alba*						S2B,S3M	G5	N3B,N3M					x
OBBA, eBird (2021)	Green Heron	*Butorides virescens*						S4B	G5	N4N5B,N3N4N,N4N5M				CP	x
OBBA, eBird (2023)	Turkey Vulture	*Cathartes aura*						S5B, S3N	G5	N5B,N5M				CP	x
eBird (2023)	Osprey	*Pandion haliaetus*						S5B	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Northern Harrier	*Circus cyaneus*		NAR	NAR			S5B,S4N	G5	N5B,N4N	✓	>30ha	✓	CP	x

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OBBA, eBird (2024)	Sharp-shinned Hawk	*Accipiter striatus*		NAR				S5	G5	N5B,N5N,N5M	✓	>30ha		CP	x
eBird (2024)	Cooper's Hawk	*Accipiter cooperii*		NAR	NAR			S4	G5	N5B,N5N,N4N5M	✓	>10ha		CP	x
eBird (2024)	Bald Eagle	*Haliaeetus leucocephalus*	NAR	NAR	NAR			S4	G5	N5B,N5N,N5M	✓		✓		x
eBird (2023)	Red-shouldered Hawk	*Buteo lineatus*		NAR	NAR			S4B,S2N	G5	N4N5B,N4N5M	✓	>100ha	✓	CP	x
eBird (2021)	Broad-winged Hawk	*Buteo platypterus*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2024)	Red-tailed Hawk	*Buteo jamaicensis*		NAR	NAR			S5	G5	N5B,N5N,N5M					
eBird (2021)	Rough-legged Hawk	*Buteo lagopus*		NAR	NAR			S1B,S4N	G5	N5B,N5N,N5M					
OBBA	Eastern Screech-Owl	*Megascops asio*		NAR	NAR			S4	G5	N4N5					
OBBA, eBird (2022)	Great Horned Owl	*Bubo virginianus*						S4	G5	N5					
OBBA	Long-eared Owl	*Asio otus*						S4	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Belted Kingfisher	*Megaceryle alcyon*						S5B,S4N	G5	N5B,N4N5N,N5M			✓		x
NHIC	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END		END	END	Schedule1	S3	G5	N4B,N3M			✓		x
OBBA, eBird (2023)	Red-bellied Woodpecker	*Melanerpes carolinus*						S5	G5	N4B,N4N,N3M				CP	x
OBBA, eBird (2024)	Downy Woodpecker	*Picoides pubescens*						S5	G5	N5					
OBBA, eBird (2023)	Hairy Woodpecker	*Picoides villosus*						S5	G5	N5B,N5N,NUM	✓	4-8ha			x
OBBA, eBird (2024)	Northern Flicker	*Colaptes auratus*						S5	G5	N5B,N5N,N5M			✓		x
OBBA	Pileated Woodpecker	*Dryocopus pileatus*						S5	G5	N5	✓	>40ha		CP	x
eBird (2024)	Merlin	*Falco columbarius*		NAR	NAR			S5	G5	N5B,N5N,N5M					x
NHIC	Peregrine Falcon	*Falco peregrinus*						S4	G4	N3N4B,N2N,N3N4M			✓		
OBBA, eBird (2023)	Great Crested Flycatcher	*Myiarchus crinitus*						S5B	G5	N5B,N5M					
OBBA, eBird (2023)	Eastern Kingbird	*Tyrannus tyrannus*						S4B	G5	N5B,N5M			✓	CP	x
OBBA, NHIC, eBird (2023)	Eastern Wood-Pewee	*Contopus virens*	SC		SC	SC	No Schedule	S4B	G5	N5B,N5M			✓		x
OBBA	Alder Flycatcher	*Empidonax alnorum*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2022)	Willow Flycatcher	*Empidonax traillii*						S4B	G5	N5B,N5M			✓		x
OBBA, eBird (2023)	Least Flycatcher	*Empidonax minimus*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2023)	Eastern Phoebe	*Sayornis phoebe*						S5B	G5	N5B,N5M				CP	
eBird (2020)	Blue-headed Vireo	*Vireo solitarius*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2022)	Warbling Vireo	*Vireo gilvus*						S5B	G5	N5B,N5M					
OBBA, eBird (2023)	Red-eyed Vireo	*Vireo olivaceus*						S5B	G5	N5B,N5N,N5M					

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OBBA, eBird (2024)	Blue Jay	*Cyanocitta cristata*						S5	G5	N5B,N5N,NNRM					
OBBA, eBird (2024)	American Crow	*Corvus brachyrhynchos*						S5	G5	N5B,N5N,N5M					
eBird (2023)	Common Raven	*Corvus corax*						S5	G5	N5					x
OBBA, eBird (2024)	Black-capped Chickadee	*Poecile atricapillus*						S5	G5	N5				CP	
OBBA, iNat (2021), eBird (2024)	Horned Lark	*Eremophila alpestris*						S4	G5	N5B,N5N,N5M				CP	
OBBA, eBird (2022)	Bank Swallow	*Riparia riparia*	THR		THR	THR	No Schedule	S4B	G5	N5B,N5M			✓	CP	x
OBBA, eBird (2023)	Tree Swallow	*Tachycineta bicolor*						S4S5B	G5	N5B,N5M					
OBBA, eBird (2022)	Northern Rough-winged Swallow	*Stelgidopteryx serripennis*						S4B	G5	N5B,N5M				CP	
OBBA, NHIC, eBird (2023)	Barn Swallow	*Hirundo rustica*	SC		THR	THR	No Schedule	S4B	G5	N3N4B,N3N4M				CP	
OBBA, eBird (2021)	Cliff Swallow	*Petrochelidon pyrrhonota*						S4S5B	G5	N5B,N5M				CP	x
eBird (2024)	Golden-crowned Kinglet	*Regulus satrapa*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2023)	Ruby-crowned Kinglet	*Corthylio calendula*						S5B,S3N	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Cedar Waxwing	*Bombycilla cedrorum*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	Red-breasted Nuthatch	*Sitta canadensis*						S5	G5	N5B,N5N,N5M	✓	>10ha		CP	x
OBBA, eBird (2024)	White-breasted Nuthatch	*Sitta carolinensis*						S5	G5	N5	✓	>10ha			
OBBA, eBird (2024)	Brown Creeper	*Certhia americana*						S5	G5	N5B,N5N,N5M	✓	>30ha		CP	x
OBBA	Blue-gray Gnatcatcher	*Polioptila caerulea*						S4B	G5	N4B,N4M	✓	>30ha		CP	x
OBBA, eBird (2023)	House Wren	*Troglodytes aedon*						S5B	G5	N5B,N5M					
OBBA, eBird (2024)	Winter Wren	*Troglodytes troglodytes*						S5B,S4N	G5	N5B,N5M	✓	>30ha			x
OBBA	Marsh Wren	*Cistothorus palustris*						S4B,S3N	G5	N5BN5N,N5M				CP	x
OBBA, eBird (2023)	Carolina Wren	*Thryothorus ludovicianus*						S4	G5	N4				CP	x
OBBA, eBird (2023)	Gray Catbird	*Dumetella carolinensis*						S5B,S3N	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Brown Thrasher	*Toxostoma rufum*						S4B	G5	N5B,NUN,N5M			✓	CP	x
OBBA, eBird (2024)	European Starling	*Sturnus vulgaris*						SNA	G5	NNA					
OBBA, eBird (2023)	Eastern Bluebird	*Sialia sialis*		NAR	NAR			S5B,S4N	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Veery	*Catharus fuscescens*						S5B	G5	N5B,N5M	✓	>10ha		CP	x
eBird (2020)	Swainson's Thrush	*Catharus ustulatus*						S5B	G5	N5B,N5M					x

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
OBBA, NHIC, eBird (2020)	Wood Thrush	*Hylocichla mustelina*	SC		THR	THR	No Schedule	S4B	G4	N4B,NUM			✓		x
OBBA, eBird (2024)	American Robin	*Turdus migratorius*						S5	G5	N5B,N4N5N,N5M					
OBBA, eBird (2023)	House Sparrow	*Passer domesticus*						SNA	G5	NNA					
eBird (2022)	Evening Grosbeak	*Coccothraustes vespertinus*	SC		SC	SC	No schedule	S4	G5	N4B,N4N,NUM					
OBBA, eBird (2023)	House Finch	*Carpodacus mexicanus*						SNA	G5	N5					
eBird (2023)	Purple Finch	*Carpodacus purpureus*						S5	G5	N5B,N5N,N5M				CP	
eBird (2021)	Common Redpoll	*Carduelis flammea*						S5	G5	N5B,N5N,N5M					
eBird (2021)	White-winged Crossbill	*Loxia leucoptera*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Pine Siskin	*Carduelis pinus*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	American Goldfinch	*Carduelis tristis*						S5	G5	N5B,N5N,N5M				CP	
iNat (2021), eBird (2023)	Snow Bunting	*Plectrophenax nivalis*						S4N	G5	N5B,N5N,N5M					
OBBA, NHIC	Grasshopper Sparrow	*Ammodramus savannarum*	SC		SC	SC	No Schedule	S4B	G5	N4N5B,N4N5M	✓	>10ha	✓	CP	x
OBBA, eBird (2023)	Chipping Sparrow	*Spizella passerina*						S5B,S3N	G5	N5B,N5M					
OBBA, eBird (2023)	Field Sparrow	*Spizella pusilla*						S4B,S3N	G5	N4B,NUM			✓	CP	x
eBird (2022)	Fox Sparrow	*Passerella iliaca*						S5B,S3N	G5	N5B,N4N5N,N5M					
eBird (2024)	American Tree Sparrow	*Spizella arborea*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Dark-eyed Junco	*Junco hyemalis*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2020)	White-crowned Sparrow	*Zonotrichia leucophrys*						S5B,S3N	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	White-throated Sparrow	*Zonotrichia albicollis*						S5	G5	N5B,N5N,N5M				CP	
OBBA	Vesper Sparrow	*Pooecetes gramineus*						S4B	G5	N5B,N5M			✓	CP	x
OBBA, eBird (2023)	Savannah Sparrow	*Passerculus sandwichensis*						S5B,S3N	G5	N5B,N4N,N5M	✓	>50ha	✓	CP	x
OBBA, eBird (2024)	Song Sparrow	*Melospiza melodia*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2023)	Swamp Sparrow	*Melospiza georgiana*						S5B,S4N	G5	N5B,NUN,N5M				CP	
OBBA, eBird (2020)	Eastern Towhee	*Pipilo erythrophthalmus*						S4B,S3N	G5	N4N5B,N4M			✓	CP	x
OBBA, NHIC, eBird (2021)	Bobolink	*Dolichonyx oryzivorus*	THR		THR	THR	No Schedule	S4B	G5	N5B,N4N5M	✓	>10ha	✓	CP	x
OBBA, NHIC, eBird (2023)	Eastern Meadowlark	*Sturnella magna*	THR		THR	THR	No Schedule	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓	CP	x
OBBA, eBird (2024)	Baltimore Oriole	*Icterus galbula*						S4B	G5	N5B,N5M			✓		x

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
OBBA, eBird (2023)	Red-winged Blackbird	*Agelaius phoeniceus*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2023)	Brown-headed Cowbird	*Molothrus ater*						S5	G5	N5B,NUN,N5M					
eBird (2022)	Rusty Blackbird	*Euphagus carolinus*	SC		SC	SC	Schedule1	S4B,S3N	G4	N4B,NUN,N4M					
OBBA, eBird (2024)	Common Grackle	*Quiscalus quiscula*						S5	G5	N5B,NUN,N5M					
OBBA	Ovenbird	*Seiurus aurocapilla*						S5B	G5	N5B,N5M	✓	>70ha		CP	x
OBBA, eBird (2020)	Northern Waterthrush	*Seiurus noveboracensis*						S5B	G5	N5B,N5M					
NHIC	Golden-winged Warbler	*Vermivora chrysoptera*	NL		THR	THR	Schedule1	S3B	G4	N4B,NUM			✓	CP	x
eBird (2021)	Black-and-white Warbler	*Mniotilta varia*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2022)	Nashville Warbler	*Vermivora ruficapilla*						S5B	G5	N5B.N5M				CP	
OBBA	Mourning Warbler	*Oporornis philadelphia*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2023)	Common Yellowthroat	*Geothlypis trichas*						S5B,S3N	G5	N5B,N5M					
OBBA	American Redstart	*Setophaga ruticilla*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
eBird (2022)	Cape May Warbler	*Dendroica tigrina*						S5B	G5	N5B,N5M					
eBird (2023)	Magnolia Warbler	*Dendroica magnolia*						S5B	G5	N5B,N5M	✓	>30ha		CP	x
eBird (2020)	Bay-breasted Warbler	*Dendroica castanea*						S5B	G5	N5B,N5M					x
eBird (2020)	Blackburnian Warbler	*Dendroica fusca*						S5B	G5	N5B,N5M	✓	>50ha		CP	x
OBBA, eBird (2023)	Yellow Warbler	*Dendroica petechia*						S5B	G5	N5B,N5M					
OBBA, eBird (2020)	Chestnut-sided Warbler	*Dendroica pensylvanica*						S5B	G5	N5B,N5M				CP	
eBird (2020)	Black-throated Blue Warbler	*Dendroica caerulescens*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
eBird (2021)	Western Palm Warbler	*Dendroica palmarum palmarum*						S5B	G5T5	N5B					
OBBA, eBird (2021)	Pine Warbler	*Dendroica pinus*						S5B,S3N	G5	N5B,N5M	✓	15-30ha		CP	x
OBBA,eBird (2023)	Yellow-rumped Warbler	*Dendroica coronata*						S5B,S4N	G5	N5B,N4N,N5M				CP	
eBird (2021)	Black-throated Green Warbler	*Dendroica virens*						S5B	G5	N5B,N5M	✓	>30ha			x
eBird (2024)	Wilson's Warbler	*Wilsonia pusilla*						S5B	G5	N5B,N5M					
OBBA, eBird (2020)	Scarlet Tanager	*Piranga olivacea*						S5B	G5	N5B,N4N5M	✓	>20ha		CP	x
OBBA, eBird (2024)	Northern Cardinal	*Cardinalis cardinalis*						S5	G5	N5					
OBBA, eBird (2023)	Rose-breasted Grosbeak	*Pheucticus ludovicianus*						S5B	G5	N5B,N5M			✓		x
OBBA, eBird (2023)	Indigo Bunting	*Passerina cyanea*						S5B	G5	N5B,N5M					
eBird (2021)	Northern Shrike	*Lanius borealis*						S4B,S5N	G5	N5B,N5N					
eBird (2014)	White-winged Scoter	*Melanitta deglandi*						S4B,S5N	G5	N5B,N5N					

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
	MAMMALS														
OMA	White-tailed Deer	*Odocoileus virginianus*						S5	G5	N5					
OMA	Coyote	*Canis latrans*						S5	G5	N5					
OMA	Red Fox	*Vulpes vulpes*						S5	G5	N5					
OMA	Striped Skunk	*Mephitis mephitis*						S5	G5	N5					
OMA	American Mink	*Neovison vison*						S4	G5	N5					
OMA	Northern Raccoon	*Procyon lotor*						S5	G5	N5					
OMA	Big Brown Bat	*Eptesicus fuscus*						S4	G5	N5					
OMA	Little Brown Myotis	*Myotis lucifugus*		END	END	END	Schedule 1	S3	G3G4	N2N4B,NNRN,NNRM					x
OMA	Virginia Opossum	*Didelphis virginiana*						S4	G5	N4N5					
OMA	Eastern Cottontail	*Sylvilagus floridanus*						S5	G5	N5					
OMA	Beaver	*Castor canadensis*						S5	G5	N5					
OMA	Muskrat	*Ondatra zibethicus*						S5	G5	N5					
OMA	Norway Rat	*Rattus norvegicus*						SNA	G5	NNA					
OMA	Woodchuck	*Marmota monax*						S5	G5	N5					
OMA	Eastern Gray Squirrel	*Sciurus carolinensis*						S5	G5	N5					
OMA	Eastern Chipmunk	*Tamias striatus*						S5	G5	N5					
OMA	Red Squirrel	*Tamiasciurus hudsonicus*						S5	G5	N5					
	FISH														
ARA (2018)	Western Blacknose Dace	*Rhinichthys obtusus*						S5	G5	N5					
ARA (2018)	Creek Chub	*Semotilus atromaculatus*						S5	G5	N5					
ARA (unk.)	Brook Stickleback	*Culaea inconstans*						S5	G5	N5					
ARA (2018)	Brook Trout	*Salvelinus fontinalis fontinalis*						S5	G5T5	N5					
	ARACHNIDS														
iNat (2022)	Yellow Garden Spider	*Argiope aurantia*						S5	G5	N5					

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act
END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the jurisdiction
SX: Presumed Extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not Applicable—The species is not a suitable target for conservation activities
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species
S#B- Breeding Status Rank
S#N- Non Breeding Status Rank
?: Indicates uncertainty in the assigned rank

G-Rank:

G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
ARA: Aquatic Resource Area Survey Points
DFO: Department of Fisheries and Oceans Species at Risk Mapping
iNat: iNaturalist
NHIC: Natural Heritage Information Centre

References:

1. COSSARO Status Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. January 25, 2023.
2. Protected Species in Ontario List. Species Conservation Act, 2025 (Ontario Regulation 60/26). March 30, 2026.
3. COSEWIC Status COSEWIC. 2014. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. January 25, 2023.
4. Species Conservation Act, 2025. March 30, 2026.
5. Provincial Rarity Rank. NatureServe. 2023.
6. Global Rarity Rank. NatureServe. 2023.
7. National Rank. NatureServe. 2023.
8. Significant Wildlife Habitat Technical Guide. Ontario Ministry of Natural Resources. 2000. Appendix C: A list of area sensitive species and key references.
9. Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Final Draft, November, 2008.
10. GRCA. date unk. A Checklist of Birds in the Grand River Watershed.

11.Dougan & Associates, with Sneil & Cecile Environmental Research. 2009. List of Significant Wildlife in Wellington County; In City of Guelph Natural Heritage Strategy - Phase 2: Terrestrial Inventory & Natural Heritage System (VOL. 2 – APPENDICES). Final Report March 2009.

APPENDIX 10
Agency Communication

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

3-5 Edinburgh Road South
Guelph . Ontario
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URBAN FORESTRY
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INTERPRETIVE DESIGN
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CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
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COMMERCIAL/INDUSTRIAL
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PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 8, 2024

Our Project #: AA23-105A
Sent by email: SAROntario@ontario.ca

Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section, Species at Risk Branch

Re: Blatchford Bridge, Wellington County, ON
Request for Species at Risk and Local Site Information

To whom it may concern:

Please accept this request for Information regarding Species at Risk.

Any other possible site constraints or information would also be greatly appreciated, as it applies to the rehabilitation or replacement of Blatchford Bridge in the County of Wellington (*Figure 1*). The information provided will be used to inform the field work and the Natural Environment Assessment report.

Project Location

Town/City: Township of Guelph-Eramosa

County/Region: Wellington County

UTM Coordinates: 558057.77 E 4814841.53 N

Proposed Activity

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA.

Existing Site Conditions

The subject lands and study area contains woodlands, wetlands, residential properties, and industrial properties (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. Preliminary investigation through the Natural Heritage Information Centre (NHIC 2021) identified SAR records in the 1 km x 1 km square containing the study area (17NJ5814), and the squares surrounding the study area (17NJ5713, 17NJ5714, 17NJ5715, 17NJ5914, 17NJ5915, 17NJ5815, 17NJ5813, and 17NJ5913). Thirteen SAR listed under the ESA and/or SARA, respectively, were identified: Barn Swallow (*Hirundo rustica*; SC, THR), Bobolink (*Dolichonyx oryzivorus*; THR, THR), Eastern Meadowlark (*Sturnella magna*; THR, THR), Eastern Wood-pewee (*Contopus virens*; SC, SC), Grasshopper Sparrow (*Ammodramus savannarum*; SC, SC), Golden-winged Warbler (*Vermivora chrysoptera*; SC, THR), Peregrine Falcon (*Falco peregrinus*; SC, SC), Red-headed Woodpecker (*Melanerpes erythrocephalus*; END, END), Wood Thrush (*Hylocichla mustelina*; SC, THR), American Burying Beetle (*Nicrophorus americanus*; EXP, EXP), Midland Painted Turtle (*Chrysemys picta marginata*; NL, SC), Snapping Turtle (*Chelydra serpentina*; SC, SC), and Butternut (*Juglans cineara*; END, END). It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area (17NJ51) during the 2001-2005 Ontario Breeding Bird Atlas (Cadman et. al. 2007) was compiled. This list includes 103 species; 8 of which are considered SAR under the ESA and/or SARA, respectively: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow (*Riparia riparia*; THR, THR), and Chimney Swift (*Chaetura pleagica*; THR, THR).

3. Review of the Ontario Reptile and Amphibian Atlas (Ontario Nature 2019) identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51). This list includes three species which are considered SAR under the ESA and/or SARA respectively: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog (Great Lakes / St. Lawrence-Canadian Shield Population; *Pseudacris triseriata* pop. 2; NAR, THR).

4. Review of the Atlas of the Mammals of Ontario (Dobbyn 1994) identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis (*Myotis lucifugus*; END, END). It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database (Toronto Entomologists' Association, 2019) identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Monarch (*Danaus plexippus*; SC, SC).

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR listed under the ESA and/or SARA: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak (*Coccothraustes vespertinus*; SC, SC), Lesser Yellowlegs (*Tringa flavipes*; THR, NL) and Rusty Blackbird (*Euphagus carolinus*, SC, SC).

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada (DFO) mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

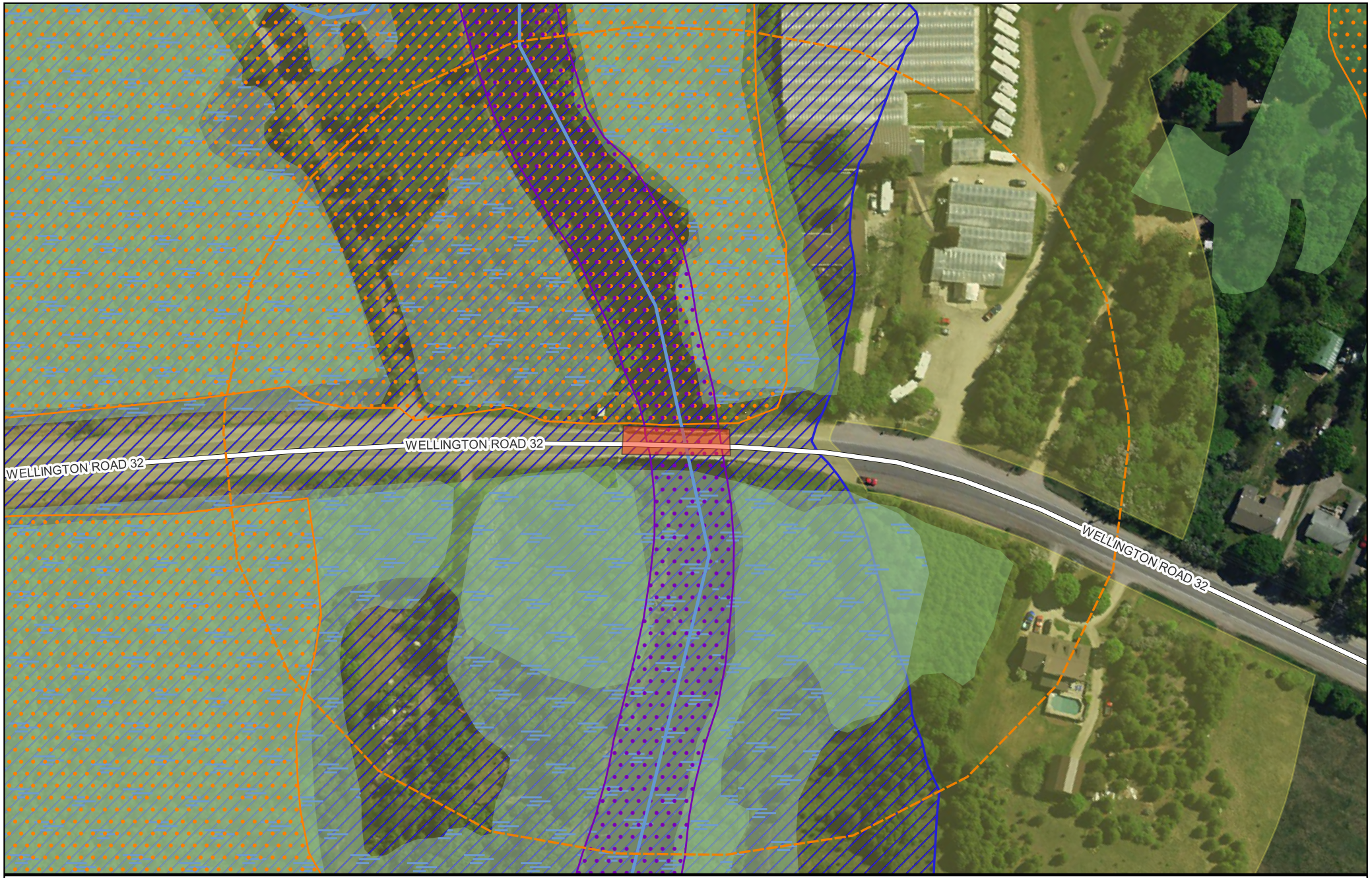
Please contact the undersigned should you require additional information of the above.
Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
3-6 Edinburgh Road South . Guelph . Ontario . N1H 5N8 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Heather Dixon

From: Heather Dixon
Sent: Thursday, May 9, 2024 3:07 PM
To: NHIC-Requests (MNRF)
Cc: Cheryl-Anne Ross
Subject: RE: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Good afternoon,

We are not looking for sensitive data, but for records of any SAR that have not been added to the NHIC Make-A-Map for these squares yet. We do not need exact locations or anything beyond what would be published on the Make-a-Map. MECP used to provide this service, but does not seem to any more.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

From: NHIC-Requests (MNRF) <nhicrequests@ontario.ca>
Sent: Thursday, May 9, 2024 8:00 AM
To: Heather Dixon <Heather@aboudtng.com>
Subject: Re: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Caution. Outside Sender

Good morning Heather,

We were forwarded this message for a request for SAR data - if you are interested in getting medium sensitive NHIC data, please fill out the NHIC's data access request form.

Kind regards,

Matthew, NHIC Information Officer

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Wednesday, May 8, 2024 7:23 PM
To: NHIC-Requests (MNRF) <nhicrequests@ontario.ca>
Subject: FW: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Hello,

Please find the following request for SAR information sent to the SAR inbox.

SAR Ontario

From: Heather Dixon <Heather@aboudtng.com>
Sent: May 8, 2024 3:01 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: FW: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

I am following up on the attached request for SAR information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Please contact me if you have any questions. We appreciate your prompt response to our request.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

From: Heather Dixon
Sent: Friday, March 8, 2024 4:19 PM
To: 'Species at Risk (MECP)' <SAROntario@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Good afternoon,

Please accept the attached request for SAR information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Please contact me if you have any questions. We appreciate your prompt response to our request.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

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TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 8, 2024

Our Project #: AA23-105A
Sent by email: scp.guelph@ontario.ca

Ministry of Natural Resources and Forestry
Aylmer Guelph District
1 Stone Road West,
Guelph, ON N1G 4Y2

Re: Blatchford Bridge, Township of Guelph-Eramosa, ON
Request for Local Site Information

Dear MNRF Staff,

Please accept this request for Information regarding:
☒ Wetland Mapping and/or Evaluation and Data Records
☒ Fish Dot Information
☐ ANSI Mapping and/or check-sheet

Any other possible site constraints or information would also be greatly appreciated, as it applies to a bridge rehabilitation in the Township of Guelph-Eramosa, ON (*Figure 1*), including timing windows and thermal regime. The information provided will be used to inform the field program.

Project Location

Town/City: Township of Guelph-Eramosa

County/Region: Wellington County

UTM Coordinates: 558057.77 E 4814841.53 N

Proposed Proposed Activity

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA.

Existing Site Conditions

The subject lands and study area contains woodlands, wetlands, residential properties, and industrial properties (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. A review of the Land Information Ontario mapping (2007) indicates that the Provincially Significant Speed River Wetland Complex, a White-tailed Deer Wintering Area (Stratum 2), and a Waterfowl Winter Concentration Area are present in the study area.

2. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping indicated the presence of four species of fish within 1 km of the study area.

3. A review of the Grand River Conservation Authority mapping indicates the presence of engineered floodplain and regulated area.

Please contact the undersigned should you require additional information of the above.

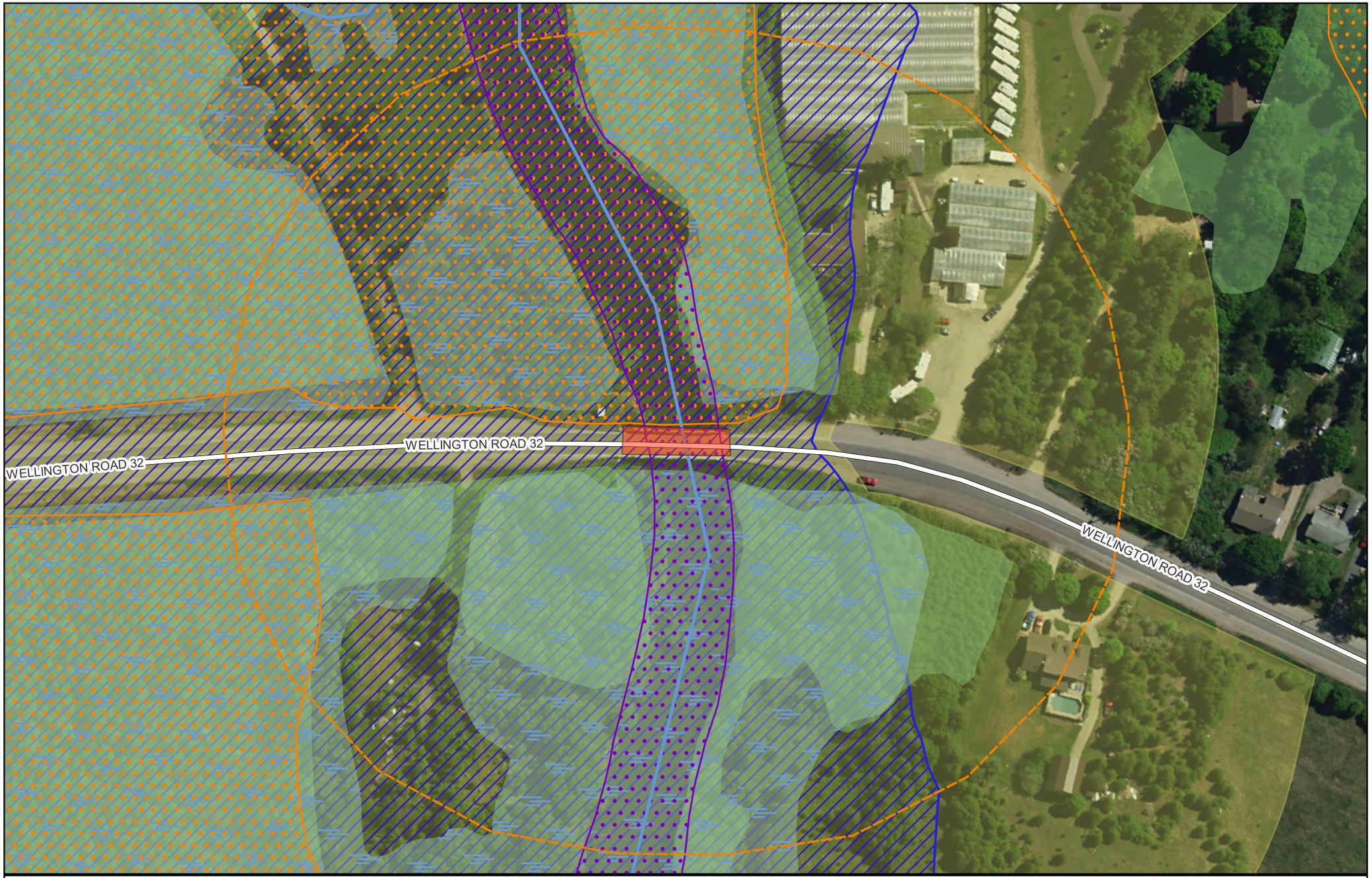
Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

Heather Dixon

From: Denyes, David (MNRF) <David.Denyes@ontario.ca>
Sent: Monday, March 11, 2024 11:45 AM
To: Heather Dixon
Cc: Cheryl-Anne Ross; Scientific Collection Permits Guelph (MNRF)
Subject: RE: Request for Information-Proposed Bridge Rehabilitation, Blatchford Bridge, Township of Guelph-Eramosa ON (AA23-105A)
Attachments: Speed River Wetland.pdf

Caution. Outside Sender

Hello Heather,

Thank you for your request for information on natural heritage features.

Absence or lack of information for a given geographic area does not necessarily mean the absence of natural heritage features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. In addition, new species may be listed and new natural heritage features may be defined over time. For these reasons, the Ministry cannot provide a definitive statement on the presence, absence or condition of natural heritage features in all parts of Ontario.

At this time, the Ministry has the following information for your project location.

1. Speed River
    a. Warm water thermal regime in this reach
    b. Restricted in-water work timing window: March 15th to June 30th (Note: Dates represent when in-water work should be avoided)
    c. Species (from ARA layer): Blackside Darter, Bluntnose Minnow, Brook Stickleback, Brown Bullhead, Common Shiner, Greenside Darter, Johnny Darter x Tesselated Darter, Smallmouth Bass and White Sucker
    d. Comments- confirmed or probable seasonal or permanent use by Northern Pike
2. Waterfowl Winter Concentration Area in this section of the Speed River
3. White-tailed Deer Wintering Area (Stratum II)
4. Speed River Provincially Significant Wetland Complex (evaluation attached)

The Ministry of Environment, Conservation & Parks (MECP) is responsible for Species at Risk in Ontario. Any questions about Species at Risk or the Endangered Species Act can be directed to MECP staff at SAROntario@ontario.ca.

Regards,

David

David Denyes
Management Biologist | Aylmer, Guelph District
Ministry of Natural Resources and Forestry | Ontario Public Service
289-241-6872 | david.denyes@ontario.ca

4890 Victoria Ave North
Vineland ON L0R 2E0

Ontario

Taking pride in strengthening Ontario, its places and its people

---

From: Heather Dixon <Heather@aboudtng.com>
Sent: Friday, March 8, 2024 4:22 PM
To: Scientific Collection Permits Guelph (MNRF) <scp.guelph@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: Request for Information-Proposed Bridge Rehabilitation, Blatchford Bridge, Township of Guelph-Eramosa ON (AA23-105A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please see the attached request for information in regards to wetland, fish dot, and restricted in-water timing window information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Thank you for any additional information you can provide.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

APPENDIX 11
Site Photos





Photos showing rock protection under the bridge, and erosion on the downstream south bank by the bridge



Photo showing cobble/boulder bar just upstream of the bridge





Photos showing representative habitat downstream (left) and upstream (right) of the bridge

APPENDIX 12
Mitigation

ACTIVITY	PROJECT PHASE	POTENTIAL IMPACTS	INITIAL IMPACT RATING[1,3]	MITIGATION RECOMMENDATIONS/COMMENTS	FINAL IMPACT RATING[2,3]	PROPOSED IMPLEMENTATION PHASE	MONITORING/ FOLLOW-UP RECOMENDATIONS
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Loss of vegetation and wildlife habitat	Minor	▪ Avoidance of significant wildlife habitat ▪ Implicate design to avoid or minimize loss of vegetation and edge habitat. ▪ Implement compensation plan where possible, using native tree, shrub, and vegetative species.	Minor-None	Site Preparation and Servicing, Construction,	
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Disturbance of wildlife species	Minor-None	▪ Avoid removal or destruction of animal movement corridors. ▪ Time activities to avoid wildlife disturbance during important life stages. ▪ Implement ESC plan such that it excludes wildlife from within the work site.	None	Site Preparation and Servicing, Construction	
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Impacts to nesting birds protected under the Migratory Bird Convention Act	Moderate	▪ Net off the structure prior to April 1 to prevent Barn Swallow nesting. ▪ Complete all vegetation removal outside the Environment Canada breeding bird nesting window (April 1- August 31) ▪ Where vegetation removal must occur during the nesting window, conduct a bird nest survey to determine locations of active nests prior to construction works including installation of Erosion Sediment Control (ESC) fence and any site clearing. ▪ Create nest protection zones where active bird nests are found.	None	Site Preparation and Servicing, Construction, Post Construction	Monitor active nests (as needed, e.g., weekly) until inactive.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Loss of shade, resulting in increased water temperatures	Moderate-Minor	▪ Maintain or restore riparian vegetation where possible	Minor	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.

ACTIVITY	PROJECT PHASE	POTENTIAL IMPACTS	INITIAL IMPACT RATING[1,3]	MITIGATION RECOMMENDATIONS/COMMENTS	FINAL IMPACT RATING[2,3]	PROPOSED IMPLEMENTATION PHASE	MONITORING/ FOLLOW-UP RECOMENDATIONS
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Bank erosion and sedimentation during rainfall events	Minor	• Implement ESC plan as per GGH erosion and sediment guidelines • Stabilize banks where necessary, prior to construction	None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Reduced vegetation and insect inputs to waterbody	Minor	• Plant appropriate native species, using local stock	Minor-None	Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Disturbance to riparian species	Moderate-Minor	• Maintain or restore riparian vegetation where possible	Minor	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Loss of fish spawning habitat	Moderate-Minor	• Maintain important wildlife areas • Maintain fish passage through creek • Performing work outside of the restricted in-water timing windows.	None	Construction	
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Changes in temperature regime for fish species	Moderate-Minor	• Maintain or restore riparian vegetation and buffers where possible	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Wetland Areas*	Site Preparation and Servicing	Increased erosion, sedimentation into wetland	Moderate	• Develop & implement ESC plan	None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.

ACTIVITY	PROJECT PHASE	POTENTIAL IMPACTS	INITIAL IMPACT RATING[1,3]	MITIGATION RECOMMENDATIONS/COMMENTS	FINAL IMPACT RATING[2,3]	PROPOSED IMPLEMENTATION PHASE	MONITORING/ FOLLOW-UP RECOMENDATIONS
Grading	Site Preparation and Servicing	Increased erosion, sedimentation, and turbidity	Moderate	▪ Maintain or restore vegetative buffers ▪ Develop & implement an ESC Plan as per GGH erosion and sediment guidelines	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Grading	Site Preparation and Servicing	Increase nutrient inputs and contaminants to waterbodies and wetlands	Moderate	▪ Develop & implement ESC Plan per GGH Erosion and Sediment guidelines (TRCA, 2019) ▪ Designate areas for equipment storage.	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Grading	Site Preparation and Servicing	Increased soil compaction	Moderate	▪ Control access and movement of equipment and people	Minor	Site Preparation and Servicing, Construction, Post Construction	
Grading	Site Preparation and Servicing	Changes to drainage	Minor	▪ Schedule grading to avoid high runoff volumes. ▪ Minimize changes to land contours and natural drainage	None	Construction	
Grading	Site Preparation and Servicing	Changes to surface runoff	Minor	▪ Maintain streams and timing, quantity of flows.	None	Construction	
Grading	Site Preparation and Servicing	Changes in soil moisture, tree cover and vegetation	Moderate	▪ Minimize the area and duration of soil exposure	Minor	Construction	
Grading	Site Preparation and Servicing	Disturbance to wildlife	Minor	▪ Time activities and conduct work outside timing windows of sensitive species and avoid sensitive periods (breeding birds, fish spawning)	Minor-None	Site Preparation and Servicing, Construction	
Grading	Site Preparation and Servicing	Alteration or destruction of wildlife habitat	Minor	▪ Identify sensitive species prior to work and design grading to avoid disturbing sensitive species.	Minor-None	Site Preparation and Servicing, Construction	

ACTIVITY	PROJECT PHASE	POTENTIAL IMPACTS	INITIAL IMPACT RATING[1,3]	MITIGATION RECOMMENDATIONS/COMMENTS	FINAL IMPACT RATING[2,3]	PROPOSED IMPLEMENTATION PHASE	MONITORING/ FOLLOW-UP RECOMENDATIONS
Grading	Site Preparation and Servicing	Wildlife entering construction areas	Minor	▪ Develop & implement ESC plan to exclude wildlife	Minor-None	Site Preparation and Servicing, Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Roads – Water Crossings	Construction	Increased erosion, sedimentation, and turbidity	Moderate-Minor	▪ Develop and implement sediment and erosion control plan	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Roads – Water Crossings	Construction	Loss of riparian vegetation	Moderate	▪ Re-vegetate as soon as possible	Minor	Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Roads – Water Crossings	Construction	Linkage interruption along watercourse	Minor	▪ Extend bridges beyond shoreline to allow land-based wildlife passage	None	Construction	

LEGEND:

[1] *Initial Impact* is a relative rating of the expected impact to occur in the absence of any mitigation measures. It evaluates the impact based on the duration, reversibility, extend of influence, frequency, existing ecological site context, likelihood of occurring and cumulative effects.

[2] *Actual Impact* is the expected impact in consideration of implementation of mitigation measures or where potential impact may cause little to no actual impact.

[3] *Impact Rating*

None: An event that, if it occurs, will cause no foreseeable impact.
Minor: An event that, if it occurs, will cause small, reversible, and geographically localized impact that can be easily mitigated.
Moderate: Significant but reversible, OR irreversible and geographically localized, impact that requires significant mitigation.
Severe: Significant AND irreversible impact on the environment, impacts cannot be fully mitigated.

- Urban Forestry
- Ecological Restoration
- Landscape Architecture
- Environmental Studies
- Expert Opinion

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Appendix L

Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

PROPOSED BLATCHFORD BRIDGE REPLACEMENT
WELLINGTON ROAD 32
COUNTY OF WELLINGTON, ONTARIO

CMT Project 25-888.R01 REVISED

PREPARED FOR:

County of Wellington
c/o Gannett Flemming Canada ULC

Revision Date: March 31, 2026
Original Date of Issue: February 19, 2026

CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

March 31, 2026 25-888.R01 REVISED

County of Wellington
c/o Gannett Flemming Canada ULC
Royal Bank Plaza, Suite 1600
South Tower, 200 Bay Street
Toronto, Ontario
M5J 2J3

Attention: William Van Ruyven, P.Eng, PMP, *Vice President/Bridges & Structures Lead*

Re: Geotechnical Investigation
Proposed Blatchford Bridge Replacement (B032085)
Wellington Road 32 (between Wellington Road 124 and Laird Road West)
County of Wellington, Ontario

As requested, CMT Engineering Inc. conducted a geotechnical investigation at the above-referenced site, and we are pleased to present the enclosed report.

This report has been revised from the original to include recommendations for deep foundations and updated location plan. The information and recommendations provided in this report supersedes that provided in the previous report dated February 19, 2026.

We trust that this information meets your present requirements, and we thank you for this opportunity to have been of service. Should you have any questions, please do not hesitate to contact our office.

Yours truly,

Brandon R Figg, C. Tech.

hz

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1.0 INTRODUCTION

The services of CMT Engineering Inc. (CMT Inc.) were retained by William Van Ruyven, of Gannett Flemming Canada ULC, on behalf of the County of Wellington to carry out a geotechnical investigation for the proposed Blatchford Bridge replacement to be undertaken on Wellington Road 32 in the County of Welington, Ontario.

It is understood that the existing bridge is located on Wellington Road 32, approximately 560 m south of Wellington Road 124 within the County of Wellington. The existing bridge has an approximate width of 7.0 m (23.0 ft) and a length of approximately 33.0 m (108.3 ft) as noted during the field investigation. The anticipated proposed works include the removal and replacement of the existing bridge, as well as the general restoration of the roadway and watercourse in the surrounding areas. The location of the structure is shown on Drawing 1.

The purpose of the geotechnical investigation was to assess the existing soil and groundwater conditions encountered in the boreholes. Included in the assessment are the soil classification and groundwater observations, as well as comments and recommendations regarding geotechnical resistance (bearing capacity); serviceability limit states (anticipated settlement); dewatering considerations; site classification for seismic site response; soil properties; recommendations for site grading, excavations, and backfilling; pavement design; chemical analyses; and a summary of the laboratory results.

The recommendations in this report are solely based on the soil conditions encountered in the boreholes advanced during this investigation.

2.0 EXISTING SITE CONDITIONS

Wellington Road 32 is a two-lane paved road with an approximate width of approximately 7.0 m, with gravel shoulders and roadside ditches. The location of the site is provided on Drawing 1. The river level at the existing structure at the time of the investigation was measured to be at an elevation of approximately 294.41 m.

3.0 FIELD AND LABORATORY PROCEDURES

Prior to the commencement of the field drilling program, public underground service locates (Ontario One Call) were undertaken to ensure that underground utilities would not be damaged, or personnel injured.

The field investigation was conducted on January 8, 2026, and comprised the advancement of two (2) boreholes (referenced as Boreholes 1 and 2) utilizing a CME 75 drillrig operated by Aardvark Drilling Inc. Boreholes 1 and 2 were advanced adjacent to the existing structure on the paved roadway. Borehole 1 was advanced refusal on probable bedrock, to an approximate depth of 7.32 m (24.0 ft) below the ground surface elevation, while Borehole 2 was advanced to an approximate depth of 14.33 m (47.0 ft) below the ground surface elevation.

Standard penetration testing and sampling was carried out in the boreholes using 38 mm inside diameter split spoon sampling equipment and an automatic hammer, in accordance with ASTM D 1586 "*Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils*". At Boreholes 1 and 2, SPT soil sampling were generally conducted at 0.76 m (2.50 ft) intervals to 4.57 m (15.0 ft) and at 1.52 m (5.0 ft) intervals to borehole termination. Technical staff from CMT Inc. observed the drilling operation and collected and logged the recovered soil samples. A small portion of each sample was placed in a sealed, marked jar for moisture content determinations.

Representative soil samples from the following boreholes and depths were submitted to the CMT Inc. laboratory in St. Clements, Ontario for grain size analyses:

- Borehole 2: depth – 6.10 m to 6.71 m (20.0 ft to 22.0 ft), and
- Borehole 2: depth – 13.72 m to 14.33 m (45.0 ft to 47.0 ft).

The borehole logs are provided in Appendix A. The resulting grain size analyses are presented in Appendix B.

The location and ground surface elevation of the boreholes were surveyed by CMT Inc. on January 14, 2026 utilizing GNSS surveying equipment. Coordinates noted in this report are referred to the UTM projection, Zone 17, NAD 83-CSRS (2010) coordinate system, with elevations converted to CGVD28 datum using geoid model HTv2.0. The top of the vertical culvert lid adjacent to the pump house was utilized as a temporary benchmark with a geodetic elevation of 297.73 m. As such, the ground surface elevations at the borehole locations ranged from approximately 298.14 m to 298.21 m. The locations of the boreholes and temporary benchmark are shown on Drawing 2.

4.0 SUBSOIL CONDITIONS

The soils encountered in the boreholes are described briefly below with a more detailed stratigraphic description is provided on the borehole logs in Appendix A. The following paragraphs have been simplified into terms of major soil strata. The soil boundaries indicated have been inferred from non-continuous samples and observations of sampling and drilling resistance and typically represent transitions from one soil type to another rather than exact planes of geological change. Further, the subsurface conditions are anticipated to vary beyond the borehole locations.

4.1 Asphaltic Concrete

Weathered, asphaltic concrete (asphalt) was encountered at the surface of both boreholes. The thickness of the asphalt at the borehole locations was approximately 120 mm. The asphalt thickness is anticipated to vary throughout the project area. It should be noted that the ground was frozen at the time of the investigation and may have caused difficulty in determining the actual transition between the asphalt and granular fill.

4.2 Granular Fill

Very dense, brown granular fill was encountered underlying the asphalt in Boreholes 1 and 2. The thickness of the granular fill at the borehole locations was approximately 300 mm, however the thickness of the granular fill is anticipated to vary throughout the project area.

4.3 Silty Sand Fill/Sand and Gravel Fill/Silty Sand and Gravel Fill/Sand Fill

Black, brown and/or dark brown fill material was encountered underlying the granular fill at Boreholes 1 and 2. The fill material was considered to be loose to compact, with SPT N-values ranging from 4 to 26 blows per 0.30 m (average 15 blows per 0.30 m). The fill material was considered to be moist to wet, with moisture contents ranging from about 2.7% to 12.9% (average 7.8%).

4.4 Buried Topsoil

Black, silty organic topsoil was encountered underlying the fill material in Boreholes 1 and 2. The thickness of the buried topsoil ranged from approximately 1,240 mm to 2,260 mm. It should be expected that the buried topsoil thickness will likely vary outside of the location of the boreholes. Materials noted as topsoil in this report were classified based on visual and textural evidence. Testing of organic content or for other nutrients was not carried out.

4.5 Gravel and Sand

Brown gravel and sand with trace silt and clay was encountered underlying the buried topsoil in Borehole 1 and underlying the sand in Borehole 2. The gravel and sand was considered to be dense to very dense, with SPT N-values ranging from 38 to greater than 100 blows per 0.30 m (average 69 blows per 0.30 m). The gravel and sand was considered to be saturated, with moisture contents ranging from about 9.2% to 9.6% (average 9.4%).

4.6 Sand

Grey sand was encountered underlying the buried topsoil in Borehole 2. The sand was considered to be loose, with a SPT N-value of approximately 4 blows per 0.30 m. The sand was considered to be wet at the time of the investigation.

4.7 Sandy Clayey Silt

Grey to dark grey sandy clayey silt, with trace gravel was encountered underlying the gravel and sand in Borehole 2. The sandy clayey silt was considered to be compact to dense, with SPT N-values ranging from 19 to 32 blows per 0.30 m (average 26 blows per 0.30 m). The sandy clayey silt was considered to be moist, with moisture contents ranging from about 8.4% to 18.7% (average 13.6%).

4.8 Sandy Clayey Silt Till

Grey sandy clayey silt till, with trace gravel was encountered underlying the sandy clayey silt at Borehole 2. The till was considered to be very dense, with SPT N-values ranging from 52 to greater than 100 blows per 0.30 m (average 76 blows per 0.30 m). The till was considered to be moist, with moisture contents ranging from about 10.3% to 14.5% (average 12.4%).

4.9 Limestone Bedrock

Presumed limestone bedrock was encountered at the termination of Borehole 1. The bedrock appeared to be severely weathered/fractured in the upper zone making it very difficult to discern the soil/bedrock interface. Bedrock was not proven by coring as part of the geotechnical investigation.

The approximate elevations that limestone was encountered (refusal of SPT and/or Augers) are summarized in the following table:

Borehole No.	Approximate Elevation Presumed Bedrock Was Encountered (m)	Quality
1	290.82	Weathered

Note: The approximate elevation that limestone was encountered, as noted above, reflect the presumed limestone surface. The presumed bedrock was not proven by coring.

The limestone bedrock surface is typically undulating in nature, and therefore, the elevation can vary significantly throughout the region. The degree of weathering and/or fracturing of the bedrock should also be expected to vary across the site. The bedrock elevation throughout the proposed construction zone should be expected to be influenced by previous excavations for existing services and/or structures.

4.10 Groundwater

Moist to saturated soils were encountered in the boreholes. The approximate zone of wet to saturated soils observed in boreholes, as well as the ground surface and bottom of borehole elevations, are provided in the following table:

Borehole No.	Ground Surface Elevation (m)	Estimated Zone of Wet to Saturated Soil at the Time of Investigation Elevation (m)	Approximate Depth Below Ground Surface of Estimated Zone of Wet to Saturated Soil at the Time of Investigation (m)	Bottom of Borehole Elevation (m)
BH 1	298.14	293.49 to 290.82 (termination)	4.65 to 7.32 (termination)	290.82
BH 2	298.21	295.16 to 294.40 293.16 to 290.59	3.05 to 3.81 5.05 to 7.62	283.88

It should be noted that groundwater levels (particularly perched water) are generally dependent on the amount of precipitation, control of surface water, as well as the time of year, and can fluctuate significantly in elevation and volume. The groundwater level and wet to saturated soil conditions encountered in the boreholes could make some excavations difficult. It should be expected that caving or sloughing of any excavation wall will occur. Dewatering considerations are discussed in Section 5.8 of this report.

5.0 DISCUSSION AND RECOMMENDATIONS

This section of the report provides an interpretation of the factual geotechnical data obtained during the investigation and is intended for the guidance of the owner and design engineer. Where comments are made on construction, they are provided only to highlight those aspects which could affect the design of the project. Contractors bidding on or undertaking the work should make their own independent interpretation of the factual subsurface information provided as it affects their proposed construction means and methods, equipment selection, scheduling, pricing, and the like.

Utilizing the information gathered during the geotechnical investigation and assuming that the borehole information is representative of the subsoil conditions throughout the site, the following comments and recommendations are provided.

5.1 Serviceability and Ultimate Limit Pressure

Based on the information obtained from the boreholes, the following table provides a summary of the estimated geotechnical reaction at the Serviceability Limit State (SLS) and the factored geotechnical resistance at the Ultimate Limit State (ULS) at the various elevations, including soil type:

BH No.	Ground Surface Elevation (m)	SLS kPa (psf)	ULS kPa (psf)	Estimated Highest Founding Elevations (m)	Depth Below Existing Grade to Founding Elevation (m)	Soil Type
1	298.14	250 (5,000)	325 (6,500)	293.49 to 290.82 (termination)	4.65	Gravel and Sand
2	298.21	200 (4,000)	300 (6,000)	291.99 to 287.54	6.22	Gravel and Sand/Sandy Clayey Silt
		250 (5,000)	325 (6,500)	287.54 to 283.88 (termination)	10.67	Sandy Clayey Silt Till

Note: The founding soils are recommended to be in a drained state at the time of construction.

Based on the information obtained from the investigation and summarized in the table above, suitable founding elevations for conventional foundations and/or structures designed with a minimum bearing capacity of 200 kPa (4,000 psf) at SLS and 300 kPa (6,000 psf) at ULS were encountered below the existing buried topsoil at depths ranging between approximately 4.65 m and 6.22 m, and approximate elevations ranging between 291.99 m and 293.49.

All existing relatively loose fill, buried topsoil, organic materials (if encountered during construction), and any native soils that are not considered capable of supporting the new structure, must be removed prior to the placement of the foundation or structure for the proposed bridge replacement.

Provisions for site dewatering and soil stabilization through the placement of a crushed clear stone base or concrete mud mat (as required) should be included in the tender documents.

It is recommended that the founding soils be assessed at the time of construction by qualified geotechnical personnel in order to confirm their founding suitability. Should the soils be unsuitable to support the footings at the proposed founding elevations, the unsuitable soils must be further subexcavated and either the footings be lowered to found on approved soils or the low bearing soil may be replaced with imported granular structural fill. Should footings be designed to be constructed at elevations higher than the elevations indicated in the table above, then structural fill will be required in order to achieve the design grades for the proposed foundations. The serviceability limit pressure for good quality structural fill (OPSS 1010 Granular 'A', OPSS 1010 Type II or Type III Granular 'B') placed on suitable subgrade soils and compacted in accordance with Section 5.6 of this report is estimated to be 150 kPa (3,000 psf) at SLS and 225 kPa (4,500 psf). Alternatively, given the depth to founding soils lean concrete fill could be used to achieve the design grades for the proposed foundations.

It should be noted that the footings require a minimum of 1.2 m (4.0 ft) of soil cover to protect against frost action. Additionally, the footings are recommended to be constructed at least 1.2 m below the maximum scour depth.

With respect to the Serviceability Limit State (SLS), the total differential footing settlements are not expected to exceed the generally acceptable limits of 25 mm (1") and 19 mm (3/4") respectively, assuming a minimum footing width of 0.6 m.

Alternatively, if shallow foundations are considered to be less feasible on the subject site, it would be recommended that deep foundations such as helical piles, driven piles, concrete caissons, or another deep structural method be utilized for the founding of the proposed structures. No large cobbles or boulders, which may hamper the advancement of piles, were encountered during the investigation. It should be noted that deep foundations can be installed with many different configurations based on the intended application. It would be prudent to contact a specialized deep foundation designer/installer for project-specific designs, if required for this project. A structural engineer should determine the size, depth and number of piles/caissons that are required, as well as any pile caps or grade beam foundations. If a deep foundation system is to be utilized a supplementary geotechnical investigation must be conducted.

CMT Inc. would be pleased to review design drawings when they become available and provide further recommendations with respect to bearing and foundation elevations.

5.2 Deep Foundations

If bearing capacities greater than those listed above are required for the construction of the proposed structure, then a deep foundation system such as helical piles, driven piles, or caissons, may be a more cost-effective option. Estimated soil design parameters for use in the design of deep foundations can be found in Section 5.9.5 of this report. The following are provided as general recommendations should deep foundations be required for this site.

5.2.1 Caissons

The soils encountered at the site are generally considered feasible for the support of drilled caisson foundations. It should be noted, however, that the groundwater may pose to be an issue with respect to caisson type excavations and therefore, certain precautions or preventative measures should be taken if this founding method is utilized.

Temporary lining is expected to be required throughout the entire caisson installation depth. This is to prevent the collapse of the soft/loose subsoil into the caisson excavation as well as to seal off inflow of groundwater. “Telescoping” of several liners may be required. Where workers have to enter the caisson for inspection or cleaning, a liner has to be provided. A pump should be present on site to remove any water which may accumulate at the base of the caisson prior to concreting. Final cleaning of the caisson base and insertion of the reinforcing cage should not be carried out unless a concrete truck is present on site ready to discharge concrete immediately. Use of a tremie pipe must be used for concreting of the caissons, to avoid segregation of the concrete mix.

The caissons need to be advanced through the loose upper fill, buried topsoil, gravel and sand and/or sand and/or sandy clayey silt into the underlying very dense sandy clayey silt till soils or on probable boulder/bedrock. The probable bedrock was encountered at a depth of approximately 7.32 m in Borehole 1 and the sandy clayey silt till soils were encountered in Borehole 2 at a depth of approximately 10.67 m. It should also be cautioned that conventional caisson installation as described above is only expected to be possible down to approximately 2.39 m depth. This is because groundwater was encountered with depth and water inflow may cause quickening/heaving at the base of the excavation. It is therefore expected that special installation methods involving the use of a bentonite slurry (likely combined with temporary lining through the upper subsoil), to balance the hydrostatic pressure will be required. Concreting of the caisson would then be carried out under water, using a tremie or a concrete pump. It is therefore recommended that the deep foundation contractor be prepared for such an eventuality regardless of the depth of the caisson. An experienced deep foundations contractor should be employed for this installation.

5.2.2 Helical Piles

The soils encountered at the site are considered feasible for the support of helical pile foundations. The helical piles will need to be advanced through the loose upper fill, buried topsoil, gravel and sand and/or sand and/or sandy clayey silt into the underlying very dense sandy clayey silt till soils or on probable boulder/bedrock. The probable bedrock was encountered at a depth of approximately 7.32 m in Borehole 1 and the sandy clayey silt till soils were encountered in Borehole 2 at a depth of approximately 10.67 m. For design, it is recommended that the piles penetrate into the dense sandy clayey silt till soils or on probable bedrock. The majority of the resistance of the helical piles will come from end bearing resistance, and it would be recommended to ignore skin friction during design, especially within any saturated zones. No cobbles, boulders or fill materials which may hinder the installation of helical piles were encountered in the boreholes advanced on the subject site.

It should be noted that helical piles can be installed with many different configurations based on the intended application. It would be prudent to contact a specialized helical pile designer/installer for project specific helical pile designs.

When installing helical piles, the required load value is typically converted to a torque value based on the specific equipment used for installation. The conversion factors and equipment specifications are typically provided by the contractor/installer.

A qualified structural engineer should be retained to design the grade beams, pile cap foundations and structural slab for the helical pile system, using the estimated soil design parameters outlined in Section 5.9.5 of this report.

It is recommended that regular inspections by qualified personnel be conducted during helical pile installation in order to confirm the founding strata and installation torque values.

5.2.3 Driven Piles

The soils encountered at the site are considered feasible for the support of driven steel (H-pile, Pipe pile, etc.) foundations. The piles will need to be driven through the loose upper fill, buried topsoil, gravel and sand and/or sand and/or sandy clayey silt into the underlying very dense sandy clayey silt till soils or on probable boulder/bedrock. The probable bedrock was encountered at a depth of approximately 7.32 m in Borehole 1 and the sandy clayey silt till soils were encountered in Borehole 2 at a depth of approximately 10.67 m. For design, it is recommended that the piles penetrate into the dense sandy clayey silt till soils or on probable bedrock. No cobbles, boulders or fill materials which may hinder the

installation of driven piles was encountered in the borehole advanced on the subject site.

Preliminary design of the piles should be carried out on the basis of the axial geotechnical resistance and designed to a factored Ultimate Limit States (ULS). The majority of the resistance strength of the piles will come from end bearing resistance, however skin friction should be ignored within any saturated soil zones. The bearing resistances for the soils encountered on the subject site which can be used in the design are provided in Section 5.1 of this report. The structural resistance of the pile must be checked by the structural engineer.

Pile capacity estimated were completed for H-piles 310 x110 for each side of the structure. As such, for the proposed bridge reconstructions the pile toe would be set into the compact to very dense silt and clay-based soils. The following factored geotechnical axial resistance at ultimate limit states (ULS) and serviceability limit states (SLS) for the following sections of steel piles is appropriate. The geotechnical reaction at SLS allows for 25 mm compression of a single pile in the founding medium.

East Side - Structure B032085

Pile Section	Factored Geotechnical Axial Resistance at ULS (kN)	Allowable Geotechnical Resistance at SLS (kN)
HP 310x110	1,200	840

Please note, the above noted capacities were estimated based on an 9.3 m (30.5 ft) embedment below 5.0 m depth (elevation 293.16 m) and the soil stratigraphy encountered in Borehole 2.

West Side - Structure B032085

Pile Section	Factored Geotechnical Axial Resistance at ULS (kN)	Allowable Geotechnical Resistance at SLS (kN)
HP 310x110	1,500	_-

Please note, above noted capacities were estimated based on the soil stratigraphy encountered in Borehole 1 where refusal and presumed bedrock was encountered at a depth of 7.32 m. The settlement of deep foundations founded on bedrock is considered to be negligible.

It is anticipated that the working platforms to drive the piles will be cut into the existing embankment. Any additional fill that may be required at these locations should comprise OPSS Granular ‘A’ material to allow installation of the piles without damage. Alternative granular material such as Granular ‘B’ - Type II could be employed provided the maximum particle size does not exceed 75 mm.

The piles should be installed and monitored in accordance with the requirements of OPSS 903. This should involve confirmation of the founding elevation, alignment, plumbness, uniformity of set and quality of splices and should be done on a full-time basis by experienced geotechnical personnel. Piles must be driven a suitable depth to achieve the required end bearing resistance and the pile capacity must be verified in the field by the use of the Hiley formula (Standard Structural Drawing SS-103-11) or Pile Driving Analyzer (PDA). It is recommended that a pile driving log be kept for the entire driving of the pile. Normal tolerances during pile driving of 2% plumbness and 75 mm in location should not be exceeded.

Pile caps should be provided with at least 1.2 m of earth cover or equivalent thermal insulation as protection against frost action. A 25 mm thick layer of polystyrene insulation is thermally equivalent to 600 mm of soil cover.

5.3 Seismic Site Classification

The site classification for seismic response in Table 4.1.8.4-A of the 2024 Ontario Building Code relates to the average properties of the upper 30.0 m of strata. The information obtained in the geotechnical field investigation was gathered from the upper 7.32 m to 14.33 m of strata. Based on the information gathered in the geotechnical field investigation, the site classification for seismic site response would be considered Site Class D (stiff soil) for structures founded on the native soils at the recommended founding elevations provided in Section 5.1 of this report. For foundations constructed on structural fill, placed in accordance with Section 5.6 of this report, the site classification for seismic site response would also be considered Site Class D (stiff soil).

The structural engineer responsible for the design of the structure should review the earthquake loads and effects.

5.4 Existing Bridge Demolition/Removal or Relocation of Existing Services

All concrete components of the existing structure are to be removed, as well as all existing backfill material must be removed from areas of the demolished structure. The excavations must be inspected and backfilled (as required) according to the procedures outlined in Section 5.5 of this report. It is recommended that imported sand and gravel (OPSS 1010 Type I, II or III Granular 'B' or an approved alternative) be placed as structural fill to backfill the demolition area (as required).

Any existing underground services (if present) that may be located within the proposed new structure envelope should be removed/relocated. If left in place, the location of existing services must be reviewed to ensure that they do not conflict with proposed foundation locations. All terminated pipes must be completely sealed with watertight mechanical covers, concrete or grout at termination points to prevent the migration of soils into pipe voids which can result in potential settlement. All existing trench backfill material associated with any existing underground services must be subexcavated and the subsequent excavation should be backfilled with approved soils placed in accordance with Section 5.5 of this report.

5.5 Excavations

All excavations must be carried out in accordance with Ontario Regulation 213/91 (Reg 213/91) of the Occupational Health and Safety Act and Regulations for Construction Projects.

Type 3 Soils - The existing fill material and native soils, in a drained state (not saturated) would be classified as Type 3 soils under Reg 213/91 and must be sloped to the bottom of the excavation at a minimum gradient of 1 horizontal to 1 vertical. Soils that are underlain by Type 4 soils that are exposed in the excavation or soils that are in a saturated condition must be treated as Type 4 soils (addressed below).

Type 4 Soils - In general, wet to saturated sand soils would be classified as Type 4 soils under Reg 213/91. Type 4 soils must be sloped from the bottom of the excavation at a minimum gradient of 3 horizontal to 1 vertical.

If it is not practical to excavate according to the above requirements, then a trench support system (designed in accordance with the Ontario Health and Safety Act Regulations) may be utilized. When using a temporary trench support system consisting of trench boxes to reduce the lateral extent of the excavations, it should be noted that the support system is intended primarily to protect workers as opposed to controlling lateral soil movement. Any voids between the excavation walls and the support system should be immediately filled to reduce the potential for loss of ground and to provide support to existing adjacent utilities and structures, and it is recommended that the excavation be carried out in short sections, with the support system installed immediately upon excavation completion.

Sloughing/caving of the excavation walls should be expected when excavating into any wet to saturated soils. As such, it may be necessary to increase the planned width of the excavations to accommodate sloughing/caving soils.

5.6 Structural Fill

Following the sub-excavation of all fill, any organic soils that may be encountered, and any loose, native soils deemed unsuitable to support the design bearing capacity, the exposed subgrade must be thoroughly inspected by qualified geotechnical personnel and any soft or unstable areas observed must be subexcavated and replaced with approved fill materials. Any structural fill materials (if required) should be placed according to the following procedures:

- Prior to placement of any structural fill, the subgrade for the proposed foundations must be prepared large enough to accommodate a 1:1 slope commencing a distance of 1.0 m beyond the outside edges of the proposed foundations down to approved, competent native founding soils;

- If saturated founding soil conditions are encountered during construction, it will be necessary to construct either a crushed clear stone granular base (meeting the gradation and physical property requirements of OPSS 1004) or a concrete mud mat in order to prevent disturbance of the founding soils during construction. The contractor should have the crushed clear stone or concrete available for placement immediately following the completion of the excavation and subsequent inspection and approval by qualified geotechnical personnel;

- Imported granular fill (OPSS 1010 Type II or Type III Granular 'B' is recommended for use as structural fill) can be compacted utilizing adequate heavy vibratory smooth drum or padfoot compaction equipment (compaction with padfoot equipment requires that structural fill be placed a minimum 0.3 m above the design footing grade in order to account for the disturbance of the founding soils from the pads on the compaction equipment, or the final lift at the founding elevation can be compacted utilizing a smooth drum vibratory compactor or a large diesel vibratory plate compactor). Soils approved for use as structural fill must be placed in loose lifts not exceeding 0.3 m (12") in depth for granular soils (recommended fill materials) or the capacity of the compactor (whichever is less);

- Approved fill materials must be at suitable moisture contents to achieve the specified compaction. The saturated native soils observed in the boreholes would require extensive air-drying in order to achieve the specified density and therefore, are not recommended for use as structural fill. Soil moisture will also be dependent on weather conditions at the time of construction;

- Approved structural fill materials that will support the structure must be compacted to 100% Standard Proctor Maximum Dry Density (SPMDD);

- Approved bulk fill (backfill and bulk fill that will not support footings) must be compacted to a minimum 95% SPMDD.

All approved structural fill placed according to the above procedures will be considered capable of supporting foundations designed with a minimum bearing capacity of 150 kPa (3,000 psf) at SLS and 225 kPa (4,500 psf) at ULS.

It is imperative that when cohesive soils (clay and/or silt) are utilized as fill, the material must be broken down (pulverized) to minimize void space and reduce the potential for settlement. Problems associated with compacting cohesive soils include the potential for long-term settlement due to excessive void space caused by the generally blocky structure of the excavated soils. Therefore, the contractor must have equipment on-site that can effectively break down the cohesive excavated soil into workable sizes (as required). Backfilling utilizing this material must be performed in thin lifts with considerable compactive effort applied, thereby reducing the void space and minimizing long-term settlement. This process could be difficult and time-consuming. Based on the above, any cohesive silt/clayey silt soils should not be utilized as structural fill.

5.7 Foundation Subgrade Preparation

The native soils encountered in the boreholes are sensitive to changes in moisture content and can become loose/soft if the soils are subjected to additional water or precipitation. The native subgrade soils could also be easily disturbed if traveled on during construction. Once they become disturbed, they are no longer considered adequate for the support of shallow foundations. To ensure and protect the integrity of the founding soils during construction operations, the following is recommended:

- It is recommended to construct a concrete mud slab or crushed clear stone base to protect the structural integrity of the founding soils when cast-in-place footings are proposed. In the event that precast structures are proposed, a clear stone base is suggested in order to allow for more efficient levelling;

- During construction, the subgrade should be sloped or ditched (as required) to the outside of the structure footprint in the excavation to promote surface drainage of rainwater or seepage and the collected water should be pumped out of the excavation. It is critical that all water be controlled (not allowed to pond) and that the subgrade and foundation preparation commence in dry conditions;

- Construction equipment travel and foot traffic on the founding soils should be minimized;

- If construction is to be undertaken during subzero weather conditions, the founding native soils and any potential fill materials must be maintained above freezing;

- Prior to placing concrete for the footings, the footing area must be cleaned of all disturbed or caved materials;

- The foundation formwork and concrete should be installed as soon as practical following the excavation, inspection and approval of the founding soils. The longer that the excavated soils remain open to weather conditions and groundwater seepage, the greater the potential for construction problems to occur;

- If it is expected that the founding soils will be left open to exposure for an extended period of time, it is recommended that a 75 mm concrete mud slab be placed in order to protect the structural integrity of the founding soils.

It should be noted that the native soils and possible weathered bedrock were observed to become dense to very dense and as such may be difficult and/or slow to excavate with conventional excavation equipment.

5.8 Construction Dewatering

Seepage control requirements and groundwater conditions during construction are generally dependent on the water level of the river/creek, amount of precipitation, control of surface water, the time of year, the area of work on the site, as well as the depth of the excavations, and can fluctuate significantly in elevation and volume. Wet to saturated soil conditions were observed in both boreholes. As such, it is critical that provisions for site dewatering be part of the bridge reconstruction process. Seepage should generally be adequately controlled using conventional construction dewatering techniques such as ditching (as required) and pumping from sump pits. It may be required to excavate a larger working area in order to facilitate effective drainage of founding soils. Should heavy seepage be encountered, it may be necessary to increase the number of pumps during construction to effectively drain larger construction areas. Sloughing/caving of the excavation walls should be expected when excavating into any wet to saturated soils, as such a temporary shoring system may be required. It should also be expected that dewatering pumps and hoses may plug up with fine-grained soils, resulting in the requirement for continuous maintenance.

Dewatering works should be designed and constructed in accordance with requirements of regulatory agencies such as the Ministry of Natural Resources and the Ministry of the Environment, Conservation and Parks. Dewatering should be performed in accordance with OPSS 517 and the control of water must be in accordance with OPSS 518, as required. It is the responsibility of the contractor to propose a suitable dewatering system based on the groundwater elevation at the time of construction. Collected water should discharge a sufficient distance away from the excavation to prevent re-entry. Sediment control measures must be installed at the discharge point of the dewatering system to avoid any potential adverse impacts on the environment.

Seasonal variations in the groundwater should be expected, with higher levels generally occurring during the wet weather seasons in the spring and fall, and lower levels occurring during dry weather conditions. Therefore, in order to minimize the amount of water encountered during construction, it is recommended that the construction be performed during the typically drier summer months. It will be necessary to utilize a temporary dam technique in order to divert the water away from the construction area and prevent any surface water from flowing into the excavations. Products such as Nilex Aqua Barrier are commonly used for this application. Aqua Barrier is a water-inflated dam system that acts as a barricade and prevents water from entering the work area. The controlled water is then pumped around the construction area.

5.9 Wing Walls (if constructed)

5.9.1 Bridge/Abutments and Wing Wall Backfilling

To promote drainage behind the abutments and wing walls (if constructed) and alleviate hydrostatic pressure, the structures should be backfilled with a free-draining granular material such as Granular 'B' (OPSS 1010), extending out a minimum lateral distance of 1,200 mm from the wall. The backfill should be placed in accordance with OPSD 3101.150. It should be noted that the soils that are expected to be encountered in the excavations are not considered to be free-draining.

The backfill material used against the structure walls must be placed so that the allowable lateral earth pressures on the walls are not exceeded. Backfilling operations should be carried out with the following minimum requirements:

- Adequate vibratory compaction equipment (suited to soil type and proximity to walls) should be used to compact the soils;
- Loose lift thicknesses should not exceed 0.3 m (12") for granular soils or the capacity of the compactor (whichever is less);
- The soils must be at suitable moisture contents to achieve compaction to a minimum 100% SPMDD underlying the pavement structure;
- Backfill materials beyond the 1,200 mm distance from the structure walls and below the frost taper may consist of approved excavated native soils that are at suitable moisture contents to achieve the specified compaction and with no particles greater than 250 mm and no topsoil or other deleterious materials.

5.9.2 Abutment and Wing Wall Drainage

Drainage behind abutments and wing walls (if constructed) is of paramount importance. As such, it is recommended to install wall drains (as required) and a drainage system in accordance with OPSD 3101.150. It is recommended to install minimum 100 mm diameter perforated drainage tiles to collect and redirect water behind the abutments and wing walls. The perforated tiles should be installed at a depth that provides optimal drainage but must also allow for positive drainage towards a gravity outlet. The drainage tiles should be wrapped completely in a geotextile filter fabric such as Terrafix 270 or equivalent. The drainage tiles will reduce the potential for future hydrostatic pressures acting on the structure. A rodent guard should be installed at the outlet(s).

5.9.3 Frost Tapers

Frost tapers must be constructed in order to reduce the effects of differential frost action in the bridge/culvert approaches. The frost tapers should be constructed in accordance with OPSD 3101.150. According to the OPSD requirements, the required length of the frost taper must be at least 6.0 m, as measured from the outer limit of the bridge/abutment backfill. The frost taper must be constructed on both sides utilizing the OPSS 1010 granular material that is used for the bridge/abutment and wing wall backfill.

5.9.4 Lateral Earth Pressure

Permanent subsurface walls are to be designed to resist lateral earth pressures, which can be calculated by the following:

$$\mathbf{P = K (\gamma h + q)}$$

where: P = horizontal pressure at depth
h = depth of soil to footing (m)
K = earth pressure coefficient
γ = bulk unit weight of soil (kN/m^3)
q = complete surcharge loading (kPa) (kN/m^2)

This equation assumes that the backfill is free-draining and that an adequate drainage system with a positive drainage outlet has been placed below the footing level.

Computation should be performed in accordance with the latest edition of the Canadian Highway Bridge Design Code. Soil properties presented in the following section should be utilized in the computation.

5.9.5 Soil Design Parameters

The following table provides the estimated soil design parameters for imported granular fill, as well as the existing native soils encountered on-site. It should be noted that earth pressure coefficients (K_a, K_p, K_o) provided are for flat ground surface conditions and will differ for areas with slopes or embankments.

The estimated soil design parameters can be utilized for the design of perimeter shoring, foundations/structures and retaining walls, as required:

Soil Type	Soil Density (kg/m^3)	Friction Angle (Degree)	Coefficient of Active Pressure (K_a)	Coefficient of Passive Pressure (K_p)	Coefficient of At-Rest Pressure (K_o)	Coefficient of Friction (μ)
Imported Granular 'A' (OPSS 1010)	2,100	34°	0.28	3.54	0.44	0.45
Imported Granular 'B' (OPSS 1010)	2,050	32°	0.31	3.25	0.47	0.41
Existing Fill	1,800	28°	0.36	2.77	0.53	0.35
Gravel and Sand	1,850	34°	0.28	3.54	0.44	0.45
Sand	1,800	32°	0.31	3.25	0.47	0.41
Sandy Clayey Silt	1,900	30°	0.34	3.00	0.50	0.39
Sandy Clayey Silt Till	1,900	30°	0.34	3.00	0.50	0.39

5.10 Service Pipe Bedding

The native soils encountered in the geotechnical investigation are generally considered suitable for indirect support of the site service pipes (if installed), with the exception of the buried topsoil. Should instability due to saturated soil conditions be encountered, it may be necessary to increase the thickness of the granular base and utilize 19 mm clear stone to create an adequate supporting base for the service pipes and/or manholes.

Pipe embedment, cover and backfill for both flexible and rigid pipes should be in accordance with all current and applicable OPSD, OPSS and OBC standards and guidelines and as follows:

Flexible Pipes – The pipe bedding should be shaped to receive the bottom of the pipe. If necessary, pipe bridge frost treatment should be undertaken in accordance with OPSD-803.031. The trench excavations should be symmetrical with respect to the centreline of the pipe. The granular material placed under the haunches of the pipe must be compacted to 95% SPMDD prior to the continued placement and compaction of the embedment material. The homogeneous granular material used for embedment should be placed and compacted uniformly around the pipe. Should wet conditions be encountered at the base of the trench, then the pipe bedding should consist of 19 mm clear stone (meeting OPS Specifications) wrapped completely in a geotextile fabric such as Terrafix 270 or equivalent.

Rigid Pipes - In general, the pipe installation recommendations for rigid pipes are the same as those for flexible pipes, except that the minimum bedding depth below a rigid pipe should be 0.15*D* (where *D* is the pipe diameter). In no case should this dimension be less than 150 mm or greater than 300 mm.

Any service pipes that are not provided with sufficient frost coverage must be protected with the necessary equivalent thermal insulation. The general contractor is responsible to protect service piping from damage by heavy equipment.

5.11 Pavement Design/Drainage

The existing granular base was not tested with respect to OPSS 1010 gradation requirements for Granular 'A' or Granular 'B'; however, typically granular base materials that have been in place for a prolonged period of time do not meet the gradation requirements of OPSS 1010 and are not generally considered suitable for reuse in the new pavement structure. In most cases, the materials exceed the allowable amount of fine soils (materials passing the #200 sieve). The elevated fines content can generally be attributed to mechanical breakdown of the aggregate which occurs over time due to vehicular traffic as well as freeze/thaw cycles. As such, it is recommended that imported OPSS 1010 Granular 'B' Type III and OPSS 1010 Granular 'A' materials be utilized in the new pavement structure. It is recommended that the existing granular base be utilized as bulk fill, as required.

The buried topsoil encountered in the boreholes is highly susceptible to frost heaving, low in permeability and has low strength values which can lead to frost boils during rapid thawing and subsequent failure of the pavement structure. It would be considered sound construction practice to subexcavate all existing buried topsoil. All buried topsoil must be removed from the bridge replacement footprint, however, if it is not financially viable to subexcavate the full extent of the buried topsoil under the roadway during the reconstruction project due to the depth or amount of buried topsoil present, then separation and additional strength can be provided to reduce the above-noted frost-related issues by installing a geotextile such as Terrafix 270R (or equivalent) for separation and then a biaxial geogrid such as a Tensar BX1200 (or equivalent) for reinforcement.

If the buried topsoil is left in place, it would be recommended to subexcavate the existing material an additional 150 mm (6") below the design subgrade elevation prior to installation of the Terrafix 270R (or equivalent). The Terrafix 270R (or equivalent) should be installed directly on the prepared subgrade, in accordance with the manufacturer's installation procedures. It is then recommended that a 150 mm (6") thick layer of good quality Granular 'B' (OPSS 1010 Type II or Type III) be installed on the geotextile, followed by the installation of the Tensar BX1200 (or equivalent) biaxial geogrid (installed according to manufacturer's installation procedures). Placement of the remaining portion of Granular 'B' subbase would follow (in compacted layers).

If the existing buried topsoil (or portions thereof) is left in place, ongoing frost heave and settlement should be anticipated. The geotextile and geogrid should help to minimize the differential movement however continued heaving within the frost zone could occur.

The native subgrade soils are sensitive to changes in moisture content and may become loose or soft if the soils are subject to inclement weather and seepage or severe drying. Furthermore, the subgrade soils could be easily disturbed if traveled on during construction. As such, where this material will be exposed, it is recommended that the granular subbase be placed immediately upon completion and inspection of the subgrade preparation to protect the structural integrity of the subgrade soils.

Prior to placement of the granular base, the subgrade should be proof-rolled under the supervision of qualified geotechnical personnel, and any soft or unstable areas observed should be subexcavated and replaced with suitable drier materials, compacted to a minimum of 95% SPMDD. Frost tapers must be constructed as per Section 5.9.3 of this report.

Should wet and/or soft conditions be encountered during construction, site assessments may be required to determine what options can be undertaken to construct a modified pavement base. These options may include subexcavation of wet soils and increasing the thickness of the granular base, the use of reinforcing geotextiles and/or geogrids, or a combination of all**.**

The subgrade should be graded smooth and be free of depressions with a minimum grade of 3% towards the curb line or roadside ditch (if constructed).

Rapid drainage of the pavement structure is critical to ensure long-term performance. In order to improve the lateral support and drainage of the road structure, it is recommended that that the shoulder rounding be reconstructed in accordance with OPSD 200.010, OPSD 206.010 and/or OPSD 209.010, if feasible. The granular base as well as the granular subbase should daylight in the shoulder rounding which should be free of vegetation; the granular shoulder should also be sloped at 6% to the rounding breakpoint, all in accordance with OPSD 200.010, OPSD 206.010 and/or OPSD 209.010.

Any existing vegetation and generally minimal or negative slope on the existing shoulder would be expected to impede drainage of the granular base/subbase as well as surface drainage which can result in ponding of surface water (rain as well as melted snow and ice). In order to improve drainage of the road structure, it is recommended that, if feasible, the granular subbase should daylight in the shoulder rounding which should be free of vegetation; the granular shoulder should also be sloped at 6% to the rounding breakpoint, all in accordance with OPSD 200.010, OPSD 206.010 and/or OPSD 209.010. Consideration must be given in the road design to ensure that the gravel shoulder rounding is not subject to erosion by excessive overland flow of surface water.

It is expected that the road will be subjected to both heavy loading (delivery trucks, farm equipment, school buses, snow removal and maintenance equipment, waste services trucks and emergency vehicles), as well as light loading from passenger vehicles.

Considering anticipated loading and the frost-susceptibility of the subgrade soils, the following pavement design is recommended for the proposed road reconstruction areas:

Material	**Recommended Thickness (Heavy Traffic)**
Asphaltic Concrete	HL3 - 50 mm (2.0") HL4 or HL8 - 75 mm (3.0")
Granular 'A' Base (OPSS 1010)	150 mm (6.0")
Granular 'B' Subbase (OPSS 1010)	450 mm (18.0")

The granular subbase material and frost tapers must be compacted to 100% SPMDD. Asphaltic concrete should be supplied, placed and compacted to a minimum 92.0% Marshall maximum relative density in accordance with OPSS 1150 and OPSS 310.

Construction joints in the surface asphalt must be offset a minimum of 150 mm to 300 mm (6" to 12") from construction joints in the binder asphalt so that longitudinal joints do not coincide.

In areas where new asphalt will abut any existing asphalt, it is recommended that any joints in the existing asphalt be sawcut in a straight line prior to being milled to a depth of 80 mm and a width of 300 mm as per OPSD 509.010. It is recommended that a tack coat in conformance with OPSS 308 be applied to the edge and surface of all milled asphalt prior to placement of new asphalt.

The road should be designed to ensure that water will not pond on the road surface or road edge. It is imperative that a proper spillway be constructed to ensure that erosion of the shoulder rounding does not occur at all locations where surface flow is directed off the paved surface and into the ditch.

5.12 Chemical Analysis/Excess Soil Management

5.12.1 Chemical Testing

As requested, random representative samples of soil were obtained by CMT Inc. personnel and were submitted to ALS Laboratory Group in Waterloo, Ontario for geochemical analyses including Sodium Absorption Ratio (SAR) testing.

Geochemical analyses samples were obtained from the following depths and locations:

- Borehole 1 - depth 0.12 m to 0.42 m (0.40 ft to 1.38 ft),
- Borehole 1 – depth 3.05 m to 3.66 m (10.00 ft to 12.00 ft),
- Borehole 2 – depth 1.52 m to 2.13 m (5.00 ft to 7.00 ft), and
- Borehole 2 – depth 3.81 m to 4.42 m (12.50 ft to 14.50 ft).

The samples were tested for the following various parameters:

- Metals and Inorganics as per O.Reg. 153 as amended by R511;
- PAH, BTEX and PHC F1-F4 as per O.Reg. 153 as amended by R511; and
- Volatile Organic Compounds (VOC) as per O.Reg. 153.

The chemical analysis results were compared to Ontario Regulation 153/04 - as amended by O.Reg. 511 – April 15, 2011 Standards = [Suite] – ON-511-T1/T2-SOIL-RPI. Specifically, the results were compared to *T1-Soil-Res/Park/Inst/Ind/Com/Commu Property Use*, T2-*Soil-Ind/Comm/Commu Property Use* and *T2-Soil-Res/Park/Inst. Property Use*. The following tables outline any exceedances noted in the testing completed by ALS Environmental and reported on January 16, 2026. Please refer to the chemical analyses test results in Appendix C for Guideline Limit Reference numbers.

- The following table details the parameters which exceed the site condition standards in Borehole 1, Sample 1 - depth 0.12 m to 0.42 m:

Parameter	T1-Soil-Res/Park/Inst/Inc/Com/Commu. Property Use	T2-Soil-Res/Park/Inst. Property Use (Coarse/Fine)	T2-Soil-Ind/Comm/Comm Property Use (Coarse/Fine)
Fixed-Ratio Extractables			
Sodium Adsorption Ratio (SAR)	Exceed	Exceed	Exceed
Hydrocarbons			
F2 (C10-C16)	Exceed	--	--

- The following table details the parameters which exceed the site condition standards in Borehole 1, Sample 5 – depth 3.05 m to 3.66 m:

Parameter	T1-Soil-Res/Park/Inst/Inc/Com/Commu. Property Use	T2-Soil-Res/Park/Inst. Property Use (Coarse/Fine)	T2-Soil-Ind/Comm/Comm Property Use (Coarse/Fine)
Physical Tests			
Conductivity	Exceed	Exceed	Exceed
Fixed-Ratio Extractables			
Sodium Adsorption Ratio (SAR)	Exceed	Exceed	Exceed
Metals			
Cadmium	Exceed	Exceed	Exceed
Zinc	Exceed	Exceed	Exceed

- The following table details the parameters which exceed the site condition standards in Borehole 2, Sample 3 – depth 1.52 m to 2.13 m:

Parameter	T1-Soil-Res/Park/Inst/Inc/Com/Commu. Property Use	T2-Soil-Res/Park/Inst. Property Use (Coarse/Fine)	T2-Soil-Ind/Comm/Comm Property Use (Coarse/Fine)
Physical Tests			
Conductivity	Exceed	Exceed	Exceed
Fixed-Ratio Extractables			
Sodium Adsorption Ratio (SAR)	Exceed	Exceed	Exceed
Hydrocarbons			
F4 (C34-C50)	Exceed	--	--
F4G - sg	Exceed	--	--

- The following table details the parameters which exceed the site condition standards in Borehole 2, Sample 6 – 3.81 m to 4.42 m:

Parameter	T1-Soil-Res/Park/Inst/Inc/Com/Commu. Property Use	T2-Soil-Res/Park/Inst. Property Use (Coarse/Fine)	T2-Soil-Ind/Comm/Comm Property Use (Coarse/Fine)
Physical Tests			
Conductivity	Exceed	Exceed	Exceed
Fixed-Ratio Extractables			
Sodium Adsorption Ratio (SAR)	Exceed	Exceed	Exceed
Metals			
Zinc	Exceed	Exceed	Exceed

It should be noted that it is very common for the Sodium Adsorption Ratio (SAR) standards to be exceeded in soils underlying or in close proximity to areas where chemicals, such as de-icing salts, may be utilized for vehicle and pedestrian safety. The elevated SAR levels are anticipated to be associated with the use of road salt as a de-icing mechanism.

The above test results are based on single soil samples extracted from each borehole and do not constitute as a guarantee for the entire site. It is the responsibility of the contractor to notify the owner/consultant of any changes in site conditions such as odours or staining that would warrant further testing. The boreholes completed as part of the geotechnical investigation were advanced in areas that have not been subjected to excavation for existing service pipe installation.

5.12.2 Leachate Testing

If soils are transported off-site, additional chemical testing may be required. The extent of the leachate testing will be determined by the results of the initial chemical testing as well as the requirements of the disposal site.

The chemical analysis results would be compared to the site condition standards of Ontario Regulation 406/19. Typically, the results are compared to; *T1-Leachate Screening Levels – Res/Park/Inst/Ind/Com/Commu Property Use; T2-Leachate Screening Levels – Ind/Com/Commu/Property Use.*

When transporting soils off-site, the following is recommended:

- All chemical analyses and environmental assessment reports must be fully disclosed to the receiving site owners/authorities, whom must agree to receive the material;

- An environmental consultant must confirm the land use at the receiving site is compatible to receive the material;

- An environmental consultant must monitor the transportation and placement of the materials to ensure that the material is placed appropriately at the pre-approved site;

- The excess materials may not be transported to a site that has previously had a Record of Site Condition (RSC) filed, unless the material meets the criteria outlined in the RSC.

It should be noted that landfill sites will generally only accept laboratory test results that have been completed within 30 days of exporting. Therefore, it is recommended that provisions for chemical analysis be included in the tender documents. It should also be noted that the laboratory testing generally takes five (5) working days to process with a regular turnaround time.

As requested, a random representative sample of soil was obtained by CMT Inc. personnel and was submitted to ALS Laboratory Group in Waterloo, Ontario for leachate testing (TCLP).

A sample was obtained from the following depth and location:

- Borehole 1 – depth 3.05 m to 3.66 m (10.00 ft to 12.00 ft),

The sample was tested for the following various parameters:

- Metals and Inorganics as per O.Reg. 153 as amended by R511;
- Volatile Organic Compounds (VOC) as per O.Reg. 153.

The sample from Borehole 1, from an approximate depth of 3.05 m to 3.66 m did not exceed any guideline limits noted in the testing completed by ALS Environmental and reported on January 26, 2026. Please refer to the chemical analyses test results in Appendix C for Guideline Limit Reference numbers.

6.0 SITE INSPECTIONS

Qualified geotechnical personnel should supervise excavation inspections as well as compaction testing for structural filling, site grading and site servicing. This will ensure that footings are founded in the proper strata and that proper material and techniques are used and the specified compaction is achieved. CMT Inc. would be pleased to review the design drawings and provide an inspection and testing program for the construction of the proposed development.

7.0 LIMITATIONS OF THE INVESTIGATION

The recommendations made in this report are in accordance with our present understanding of the project. We request that we be permitted to review our recommendations when the drawings and specifications are complete, or if the proposed construction should differ from that mentioned in this report.

It is important to emphasize that a soil investigation is, in fact, a random sampling of a site and the comments are based on the results obtained at the test locations only. It is therefore assumed that these results are representative of the subsoil conditions across the site. Should any conditions at the site be encountered which differ from those found at the test locations, we request that we be notified immediately in order to permit a reassessment of our recommendations.

It should be noted that this report specifically addresses geotechnical aspects of the project and does not include any investigations or assessments relating to potential subsurface contamination. As such, there should be no assumptions or conclusions derived from this report with respect to potential soil or water contamination. Soil or water contamination is generally caused by the presence of xenobiotic (human-made) chemicals or other alteration processes in the natural soil and groundwater environment. If necessary, the investigation, assessment and rehabilitation of soil and water contaminants should be undertaken by qualified environmental specialists.

The samples obtained during the geotechnical investigation will be stored for a period of three months, after which time they will be disposed of unless alternative arrangements are made.

This report is intended solely for the client named. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the reliability of such third parties. The factual data, interpretation, and recommendations in this report pertain to a specific project as described in this report and are not applicable to any other project or site location. If the project is modified in concept, location or elevation, deviates from the assumptions stated herein, CMT Inc. should be given an opportunity to confirm that the recommendations are still valid. The subject geotechnical exploration and this report address only the geotechnical aspects of the proposed project; potential environmental impacts or related issues are beyond the defined scope of this work and have not been addressed.

We trust that this report meets your present requirements. Should you have any questions, please do not hesitate to contact our office.

Prepared by:

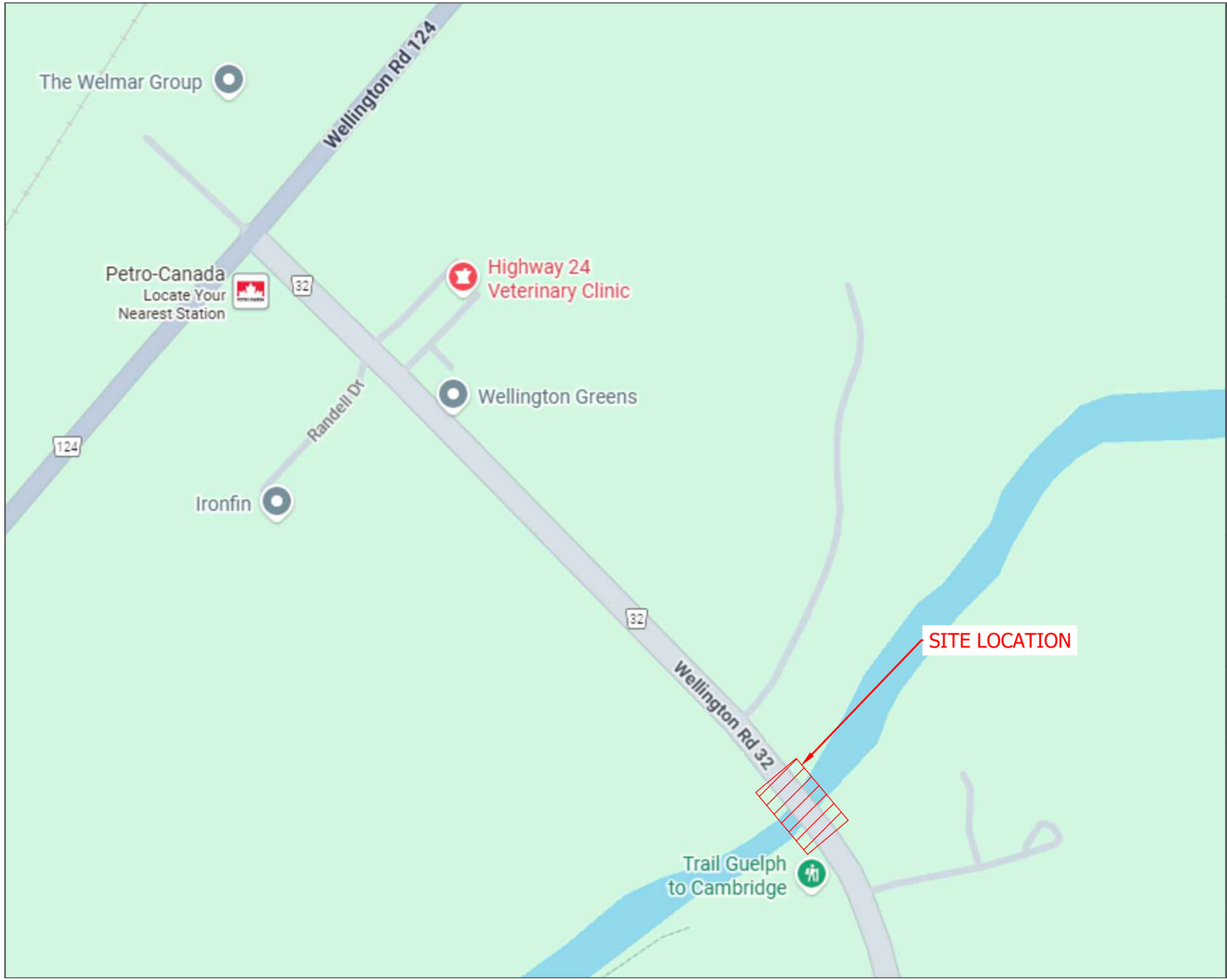
Brandon R Figg, C. Tech.
Senior Soil Technician



Reviewed by:

Nathan Chortos, P.Eng.
Senior Engineer

hz



NOTES:

1. BASE MAP PROVIDED BY GOOGLE MAPS.

N

NO.	DESCRIPTION	DATE

REVISIONS

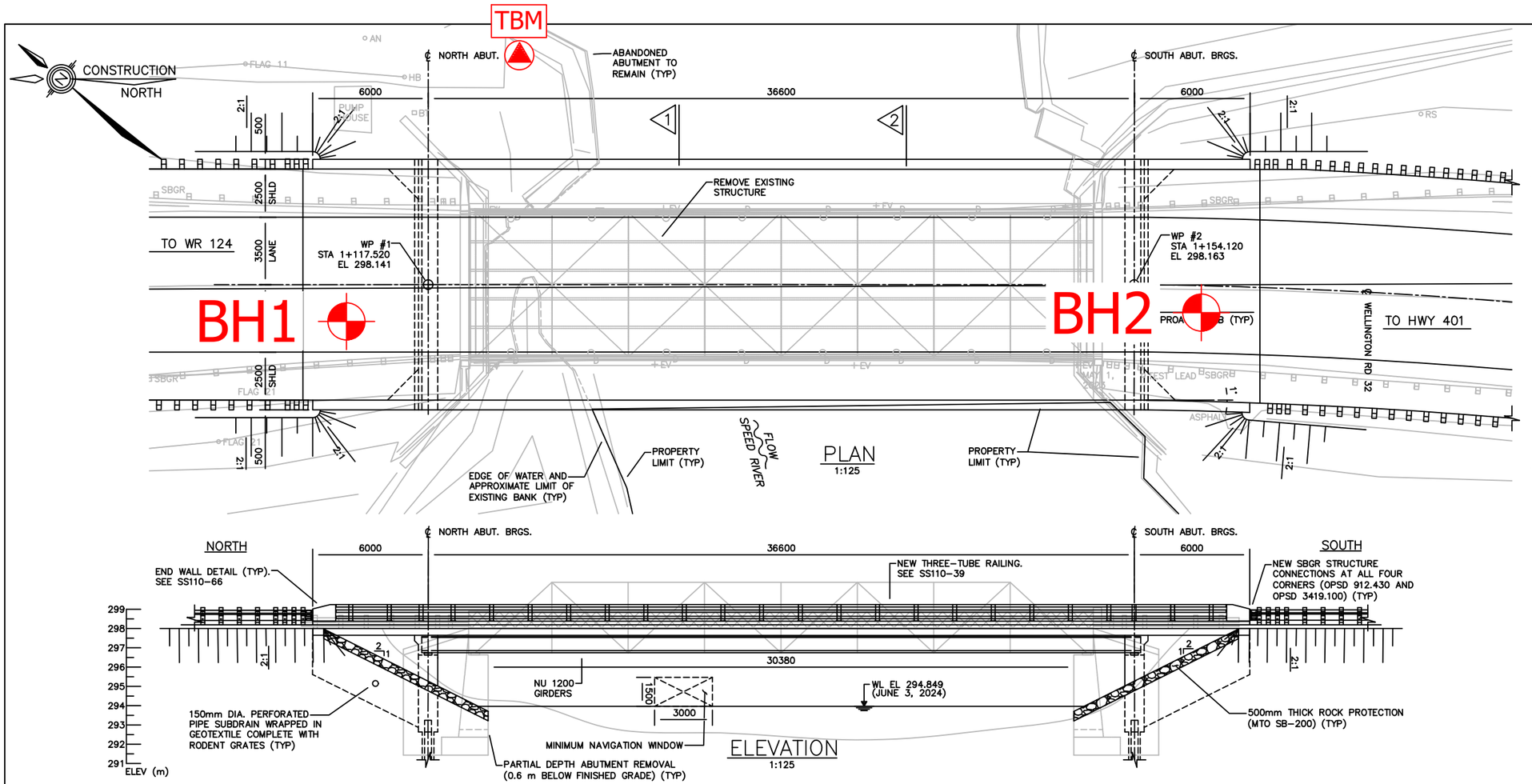
CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

PROJECT:
Geotechnical Investigation
Proposed Blatchford Bridge Replacement
(B032085)
Wellington Road 32,
County of Wellington, Ontario

DRAWING TITLE:

SITE LOCATION MAP

PROJECT NO.:	DATE:
24-888	January 27, 2026
SCALE:	DRAWING NO.
N.T.S.	1



NOTES:

1. DRAWING PROVIDED BY CLIENT.

CMT Borehole - 2026

Temporary Benchmark

NO.	DESCRIPTION	DATE

REVISIONS

CMT ENGINEERING INC.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
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PROJECT:
Geotechnical Investigation
Proposed Blatchford Bridge Replacement
(B032085)
Wellington Road 32,
County of Wellington, Ontario

DRAWING TITLE:
PROPOSED STRUCTURAL DRAWING SHOWING APPROXIMATE BOREHOLE LOCATIONS AND TEMPORARY BENCHMARK LOCATION

PROJECT NO.:	DATE:
25-888	March 9, 2026
SCALE:	DRAWING NO.
N.T.S.	2

APPENDIX A

BOREHOLE LOGS

CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, ON, N0B 2M0
Telephone: 519-699-5775

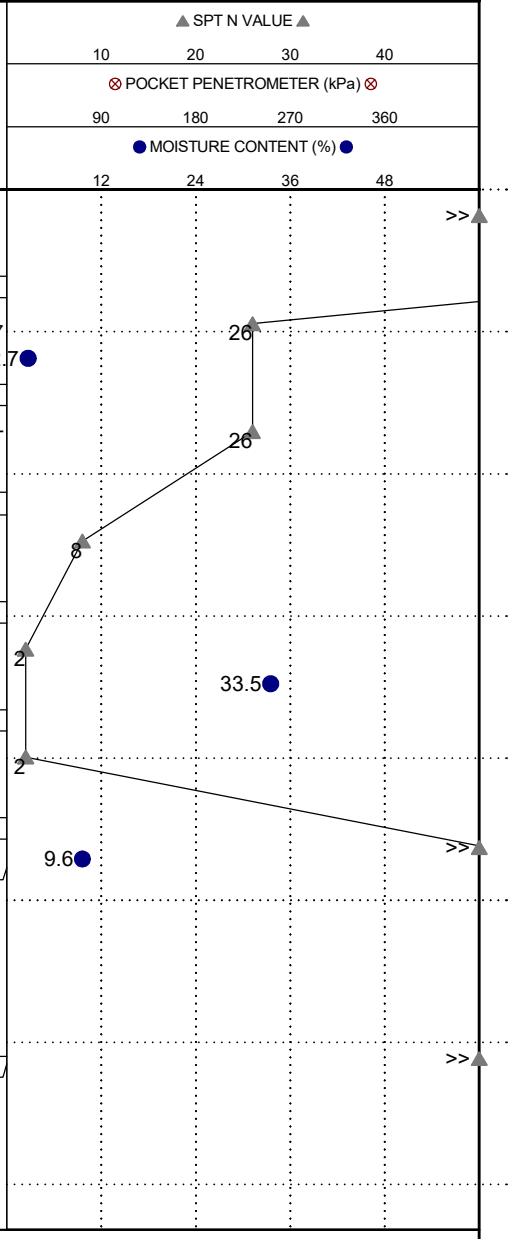
BOREHOLE NUMBER BH1

PROJECT: Proposed Blatchford Bridge Replacement (B032085)
PROJECT ADDRESS: Wellington Road 32
PROJECT NUMBER: 25-888
PROJECT LOCATION: County of Wellington, Ontario
DRILLING DATE: 26-1-8
GROUND ELEVATION: 298.14 m
DRILLING CONTRACTOR: Aardvark Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: CME 75
SAMPLING METHOD: SPT

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
	ASPHALT: Asphaltic Concrete (120 mm)	0.00, 298.14			
	GRANULAR FILL: Very dense, brown, gravelly sand fill, some silt, trace clay, moist (300 mm)	0.12, 298.02			
		0.42, 297.72	SPT 1	84	77-101-42-42 (143)
	SILTY SAND FILL: Very dense, black, silty sand fill, with organics, moist	0.76, 297.38			
1	**SAND AND GRAVEL FILL:** Compact, brown, sand and gravel fill, moist		SPT 2	46	33-17-9-7 (26)
2			SPT 3	0	10-15-11-5 (26)
	TOPSOIL: Loose, black, silty organic topsoil, moist (2,260 mm)	2.39, 295.75	SPT 4	49	6-4-4-6 (8)
3	becoming very loose	3.05, 295.09	SPT 5	100	1-1-1-2 (2)
4			SPT 6	75	1-1-1-1 (2)
	GRAVEL AND SAND: Very dense, brown, gravel and sand, trace silt and clay, saturated	4.65, 293.49	SPT 7	100	27-50/0.05
5					
6	possible fractured bedrock	6.10, 292.04	SPT 8	100	50/0.05
7					

Auger refusal in the borehole was encountered at a depth of approximately 7.32 m (El. 290.82 m) below ground surface on probale boulder/bedrock.

Bottom of borehole at 7.32 m, Elevation 290.82 m.



BOREHOLE LOG2 25-888 - BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 26-1-21

CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, ON, N0B 2M0
Telephone: 519-699-5775

BOREHOLE NUMBER BH2

PROJECT: Proposed Blatchford Bridge Replacement (B032085)
PROJECT ADDRESS: Wellington Road 32
PROJECT NUMBER: 25-888
PROJECT LOCATION: County of Wellington, Ontario
DRILLING DATE: 26-1-8
GROUND ELEVATION: 298.21 m
DRILLING CONTRACTOR: Aardvark Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: CME 75
SAMPLING METHOD: SPT

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
	ASPHALT: Asphaltic Concrete (120 mm)	0.00, 298.21			
	GRANULAR FILL: Very dense, brown, gravelly sand fill, some silt, trace clay, moist (300 mm)	0.12, 298.09	AU 1	49	3.2
		0.42, 297.79			
1	**SILTY SAND AND GRAVEL FILL:** Compact, dark brown, silty sand and gravel fill, very moist		SPT 2	62	7-6-8-6 (14)
2			SPT 3	100	3-5-5-5 (10)
3	**SILTY SAND FILL FILL:** Loose, dark brown, silty sand fill, some organics, moist	2.29, 295.92	SPT 4	67	1-1-3-3 (4)
	SAND FILL: Compact, black, sand fill, with organics, wet	3.05, 295.16	SPT 5	46	1-15-10-7 (25)
4	**TOPSOIL:** Loose, black, silty organic topsoil, moist (1,240 mm)	3.81, 294.40	SPT 6	49	2-2-8-4 (10)
5			SPT 7	92	1-2-2-4 (4)
6	**SAND:** Loose, grey, sand, wet	5.05, 293.16			
	trace rootlets	6.10, 292.11	SPT 8	100	16-21-17-25 (38)
7	**GRAVEL AND SAND:** Dense, brown, gravel and sand, trace silt and clay, saturated	6.22, 291.99			
8	**SANDY CLAYEY SILT:** Dense, grey, sandy clayey silt, trace gravel, moist	7.62, 290.59	SPT 9	100	8-12-20-25 (32)
9					
	becoming compact	9.14, 289.07	SPT 10	100	5-7-12-15 (19)
10					

SPT N VALUE: 10 20 30 40
POCKET PENETROMETER (kPa): 90 180 270 360
MOISTURE CONTENT (%): 12 24 36 48

3.2, 14, 10.4, 10, 4, 12.9, 25, 9.5, 10, 4, 38, 9.2, 32, 8.4, 19, 18.7

(Continued Next Page)

CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, ON, N0B 2M0
Telephone: 519-699-5775

BOREHOLE NUMBER BH2

PROJECT: Proposed Blatchford Bridge Replacement (B032085)

PROJECT ADDRESS: Wellington Road 32

PROJECT NUMBER: 25-888

PROJECT LOCATION: County of Wellington, Ontario

DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
		becoming compact *(continued)*	9.14, 289.07 *(continued)*			
11		**SANDY CLAYEY SILT TILL:** Very dense, grey, sandy clayey silt till, trace gravel, moist	10.67, 287.54	SPT 11	100	17-21-31-30 (52)
12				SPT 12	73	29-57-50/0.11
13						
14		becoming dark grey	13.72, 284.49	SPT 13	87	9-24-49-49 (73)

SPT N VALUE
10 20 30 40
POCKET PENETROMETER (kPa)
90 180 270 360
MOISTURE CONTENT (%)
12 24 36 48

10.3
14.5
12.5
>>
>>
>>

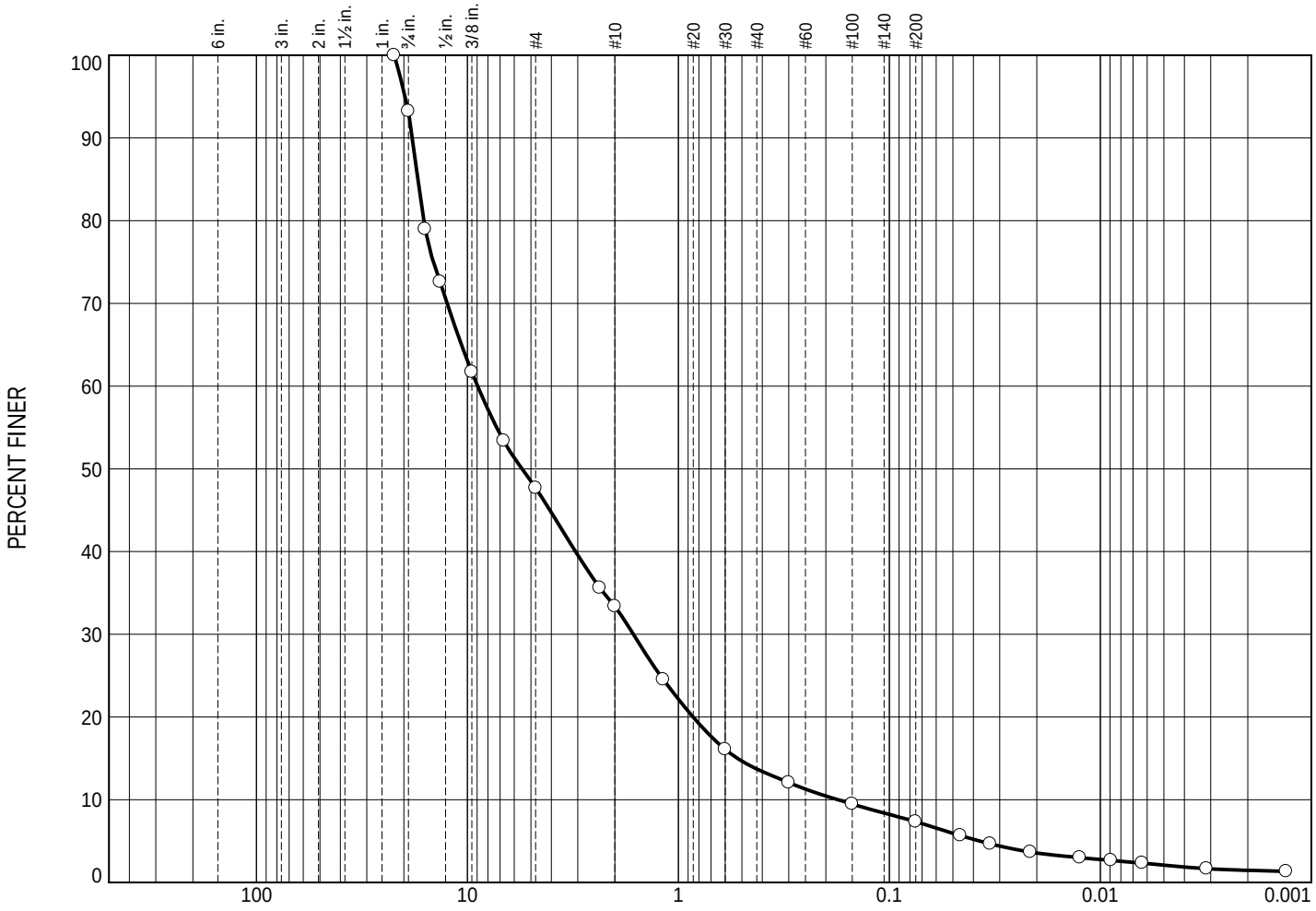
Caving in the borehole was encountered at a depth of approximately 11.28 m (El. 286.93 m) below ground surface.

Bottom of borehole at 14.33 m, Elevation 283.88 m.

APPENDIX B

GRAIN SIZE ANALYSES

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	6.8	45.5	14.3	19.7	6.4	5.8	1.5

SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH2	8	6.10-6.71m	gravel and sand, trace silt and clay	GW-GM
				Sampled by BRF of CMT Engineering Inc. January 8, 2026	
				Tested by JM of CMT Engineering Inc. January 14, 2026	

CMT Engineering Inc.

St. Clements, ON

Client: Gannett Fleming Canada ULC

Project: Proposed Blatchford Bridge Replacement (B032085)
Wellington Road 32, County of Wellington, Ontario

Project No.: 25-888

Figure 1

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	4.8	2.1	5.4	17.5	46.4	23.8

SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH2	13	13.72-	sandy, clayey silt, trace gravel	ML
			14.33m	Sampled by BRF of CMT Engineering Inc. January 8, 2026	
				Tested by JM of CMT Engineering Inc. January 14, 2026	

CMT Engineering Inc.

St. Clements, ON

Client: Gannett Fleming Canada ULC

Project: Proposed Blatchford Bridge Replacement (B032085)
Wellington Road 32, County of Wellington, Ontario

Project No.: 25-888

Figure 2

APPENDIX C

CHEMICAL ANALYSES RESULTS

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	:	**WT2600489**			
Client	:	**CMT Engineering Inc.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Jake Feeney	Account Manager	:	Mathy Mahadeva
Address	:	1011 Industrial Crescent Unit 1 St. Clements Ontario Canada N0B 2M0	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	519 699 5775	Telephone	:	+1 519 886 6910
Project	:	25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	:	09-Jan-2026 15:40
PO	:	----	Date Analysis Commenced	:	12-Jan-2026
C-O-C number	:	----	Issue Date	:	19-Jan-2026 18:10
Sampler	:	Brandon Figg			
Site	:	----			
Quote number	:	Standing Offer 2026 Pricing			
No. of samples received	:	4			
No. of samples analysed	:	4			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Organics, Waterloo, Ontario
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Jocelyn Kennedy	Department Manager - Semi-Volatile Organics	Organics, Waterloo, Ontario
Jon Fisher	Laboratory Manager - Environmental	Metals, Waterloo, Ontario
Jon Fisher	Laboratory Manager - Environmental	Inorganics, Waterloo, Ontario
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Summary of Guideline Breaches by Sample

SampleID/Client ID	Matrix	Analyte	Analyte Summary	Guideline	Category	Result	Limit
BH1S1 ----	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T1-RPIICC	8.03 -	2.4 -
	Soil/Solid	F2 (C10-C16)		ON153/04	T1-RPIICC	16 mg/kg	10 mg/kg
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-C	8.03 -	5 -
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	8.03 -	5 -
BH1S5 ----	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T1-RPIICC	1.57 mS/cm	0.57 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T1-RPIICC	16.1 -	2.4 -
	Soil/Solid	Cadmium		ON153/04	T1-RPIICC	3.87 mg/kg	1.2 mg/kg
	Soil/Solid	Zinc		ON153/04	T1-RPIICC	2350 mg/kg	290 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-C	1.57 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-C	16.1 -	12 -
	Soil/Solid	Cadmium		ON153/04	T2-ICC-C	3.87 mg/kg	1.9 mg/kg
	Soil/Solid	Zinc		ON153/04	T2-ICC-C	2350 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-F	1.57 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-F	16.1 -	12 -
	Soil/Solid	Cadmium		ON153/04	T2-ICC-F	3.87 mg/kg	1.9 mg/kg
	Soil/Solid	Zinc		ON153/04	T2-ICC-F	2350 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-C	1.57 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-C	16.1 -	5 -
	Soil/Solid	Cadmium		ON153/04	T2-RPI-C	3.87 mg/kg	1.2 mg/kg
	Soil/Solid	Zinc		ON153/04	T2-RPI-C	2350 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-F	1.57 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	16.1 -	5 -
	Soil/Solid	Cadmium		ON153/04	T2-RPI-F	3.87 mg/kg	1.2 mg/kg
	Soil/Solid	Zinc		ON153/04	T2-RPI-F	2350 mg/kg	340 mg/kg

BH2S3 ----	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T1-RPIICC	2.62 mS/cm	0.57 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T1-RPIICC	48.1 -	2.4 -
	Soil/Solid	F4 (C34-C50)		ON153/04	T1-RPIICC	440 mg/kg	120 mg/kg
	Soil/Solid	F4G-sg		ON153/04	T1-RPIICC	1780 mg/kg	120 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-C	2.62 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-C	48.1 -	12 -
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-F	2.62 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-F	48.1 -	12 -
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-C	2.62 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-C	48.1 -	5 -
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-F	2.62 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	48.1 -	5 -
BH2S6 ----	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T1-RPIICC	2.11 mS/cm	0.57 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T1-RPIICC	25.7 -	2.4 -
	Soil/Solid	Zinc		ON153/04	T1-RPIICC	378 mg/kg	290 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-C	2.11 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-C	25.7 -	12 -
	Soil/Solid	Zinc		ON153/04	T2-ICC-C	378 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-ICC-F	2.11 mS/cm	1.4 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-ICC-F	25.7 -	12 -
	Soil/Solid	Zinc		ON153/04	T2-ICC-F	378 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-C	2.11 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-C	25.7 -	5 -
	Soil/Solid	Zinc		ON153/04	T2-RPI-C	378 mg/kg	340 mg/kg
	Soil/Solid	Conductivity (1:2 leachate)		ON153/04	T2-RPI-F	2.11 mS/cm	0.7 mS/cm
	Soil/Solid	Sodium adsorption ratio [SAR]		ON153/04	T2-RPI-F	25.7 -	5 -
	Soil/Solid	Zinc		ON153/04	T2-RPI-F	378 mg/kg	340 mg/kg

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key: LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
%	percent
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
mS/cm	millisiemens per centimetre
pH units	pH units

>: greater than.
<: less than.

Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Analytical Results Evaluation

Matrix: Soil/Solid			Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
			Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
			Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
Analyte	CAS Number	Method/Lab	Unit	WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
				Result	Result	Result	Result	----	----	----
Physical Tests										
Conductivity (1:2 leachate)	----	E100-L/WT	mS/cm	0.352	1.57	2.62	2.11	----	----	----
Moisture	----	E144/WT	%	4.26	20.9	6.74	16.9	----	----	----
pH (1:2 soil:CaCl2-aq)	----	E108A/WT	pH units	8.19	6.96	8.28	7.43	----	----	----
Cyanides										
Cyanide, weak acid dissociable	----	E336A/WT	mg/kg	<0.050	<0.050	<0.050	<0.050	----	----	----
Fixed-Ratio Extractables										
Calcium, soluble ion content	7440-70-2	E484/WT	mg/L	1.98	18.5	4.26	13.9	----	----	----
Magnesium, soluble ion content	7439-95-4	E484/WT	mg/L	0.82	2.52	3.07	2.08	----	----	----
Sodium, soluble ion content	17341-25-2	E484/WT	mg/L	53.2	279	533	388	----	----	----
Sodium adsorption ratio [SAR]	----	E484/WT	-	8.03	16.1	48.1	25.7	----	----	----
Metals										
Antimony	7440-36-0	E440C/WT	mg/kg	<0.10	<0.10	<0.10	0.15	----	----	----
Arsenic	7440-38-2	E440C/WT	mg/kg	5.95	1.60	2.74	3.66	----	----	----
Barium	7440-39-3	E440C/WT	mg/kg	11.6	120	27.9	39.1	----	----	----
Beryllium	7440-41-7	E440C/WT	mg/kg	0.15	0.34	0.23	0.32	----	----	----
Boron	7440-42-8	E440C/WT	mg/kg	7.1	5.2	6.5	7.0	----	----	----
Boron, hot water soluble	7440-42-8	E487/WT	mg/kg	<0.10	0.41	0.18	0.58	----	----	----
Cadmium	7440-43-9	E440C/WT	mg/kg	0.308	3.87	0.395	1.06	----	----	----
Chromium	7440-47-3	E440C/WT	mg/kg	6.43	17.9	18.9	12.3	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Metals											
Cobalt	7440-48-4	E440C/WT	mg/kg		2.17	4.23	3.45	3.76	----	----	----
Copper	7440-50-8	E440C/WT	mg/kg		10.9	25.7	10.4	15.4	----	----	----
Lead	7439-92-1	E440C/WT	mg/kg		18.7	28.6	32.4	25.3	----	----	----
Mercury	7439-97-6	E510C/WT	mg/kg		<0.0050	0.119	0.0150	0.0724	----	----	----
Molybdenum	7439-98-7	E440C/WT	mg/kg		0.51	0.26	0.49	0.55	----	----	----
Nickel	7440-02-0	E440C/WT	mg/kg		4.82	8.96	6.83	8.24	----	----	----
Selenium	7782-49-2	E440C/WT	mg/kg		<0.20	0.59	<0.20	0.34	----	----	----
Silver	7440-22-4	E440C/WT	mg/kg		<0.10	<0.10	<0.10	<0.10	----	----	----
Thallium	7440-28-0	E440C/WT	mg/kg		<0.050	0.250	0.076	0.104	----	----	----
Uranium	7440-61-1	E440C/WT	mg/kg		0.379	0.433	0.424	0.509	----	----	----
Vanadium	7440-62-2	E440C/WT	mg/kg		11.9	18.8	23.7	22.5	----	----	----
Zinc	7440-66-6	E440C/WT	mg/kg		118	2350	183	378	----	----	----
Speciated Metals											
Chromium, hexavalent [Cr VI]	18540-29-9	E532/WT	mg/kg		<0.10	<0.10	<0.10	<0.10	----	----	----
Volatile Organic Compounds											
Acetone	67-64-1	E611D/WT	mg/kg		<0.50	----	<0.50	----	----	----	----
Benzene	71-43-2	E611D/WT	mg/kg		<0.0050	----	<0.0050	----	----	----	----
Benzene	71-43-2	E611A/WT	mg/kg		----	<0.0050	----	<0.0050	----	----	----
Bromodichloromethane	75-27-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Bromoform	75-25-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Volatile Organic Compounds											
Bromomethane	74-83-9	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Carbon tetrachloride	56-23-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Chlorobenzene	108-90-7	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Chloroform	67-66-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dibromochloromethane	124-48-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dibromoethane, 1,2-	106-93-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichlorobenzene, 1,2-	95-50-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichlorobenzene, 1,3-	541-73-1	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichlorobenzene, 1,4-	106-46-7	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichlorodifluoromethane	75-71-8	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloroethane, 1,1-	75-34-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloroethane, 1,2-	107-06-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloroethylene, 1,1-	75-35-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloroethylene, cis-1,2-	156-59-2	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloroethylene, trans-1,2-	156-60-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloromethane	75-09-2	E611D/WT	mg/kg		<0.045	----	<0.045	----	----	----	----
Dichloropropane, 1,2-	78-87-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D/WT	mg/kg		<0.030	----	<0.030	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D/WT	mg/kg		<0.030	----	<0.030	----	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Volatile Organic Compounds											
Ethylbenzene	100-41-4	E611D/WT	mg/kg		<0.015	----	<0.015	----	----	----	----
Ethylbenzene	100-41-4	E611A/WT	mg/kg		----	<0.015	----	<0.015	----	----	----
Hexane, n-	110-54-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Methyl ethyl ketone [MEK]	78-93-3	E611D/WT	mg/kg		<0.50	----	<0.50	----	----	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D/WT	mg/kg		<0.50	----	<0.50	----	----	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D/WT	mg/kg		<0.040	----	<0.040	----	----	----	----
Styrene	100-42-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Tetrachloroethylene	127-18-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Toluene	108-88-3	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Toluene	108-88-3	E611A/WT	mg/kg		----	<0.050	----	<0.050	----	----	----
Trichloroethane, 1,1,1-	71-55-6	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Trichloroethane, 1,1,2-	79-00-5	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Trichloroethylene	79-01-6	E611D/WT	mg/kg		<0.010	----	<0.010	----	----	----	----
Trichlorofluoromethane	75-69-4	E611D/WT	mg/kg		<0.050	----	<0.050	----	----	----	----
Vinyl chloride	75-01-4	E611D/WT	mg/kg		<0.020	----	<0.020	----	----	----	----
Xylene, m+p-	179601-23-1	E611D/WT	mg/kg		<0.030	----	<0.030	----	----	----	----
Xylene, m+p-	179601-23-1	E611A/WT	mg/kg		----	<0.030	----	<0.030	----	----	----
Xylene, o-	95-47-6	E611D/WT	mg/kg		<0.030	----	<0.030	----	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Volatile Organic Compounds											
Xylene, o-	95-47-6	E611A/WT	mg/kg	----	<0.030	----	<0.030	----	----	----	----
Xylenes, total	1330-20-7	E611D/WT	mg/kg	<0.050	----	<0.050	----	----	----	----	----
Xylenes, total	1330-20-7	E611A/WT	mg/kg	----	<0.050	----	<0.050	----	----	----	----
BTEX, total	----	E611D/WT	mg/kg	<0.10	----	<0.10	----	----	----	----	----
BTEX, total	----	E611A/WT	mg/kg	----	<0.10	----	<0.10	----	----	----	----
Hydrocarbons											
F1 (C6-C10)	----	E581.F1/WT	mg/kg	<5.0	<5.0	<5.0	<5.0	----	----	----	----
F2 (C10-C16)	----	E601.SG-L/WT	mg/kg	16	<10	<10	<10	----	----	----	----
F2-Naphthalene	----	EC600/WT	mg/kg	<25	<25	<25	<25	----	----	----	----
F3 (C16-C34)	----	E601.SG-L/WT	mg/kg	<50	<50	227	54	----	----	----	----
F3-PAH	n/a	EC600/WT	mg/kg	<50	<50	227	54	----	----	----	----
F4 (C34-C50)	----	E601.SG-L/WT	mg/kg	83	56	440	<50	----	----	----	----
F4G-sg	----	E601.F4G-L/WT	mg/kg	----	----	1780	----	----	----	----	----
F1-BTEX	----	EC580/WT	mg/kg	<5.0	<5.0	<5.0	<5.0	----	----	----	----
Hydrocarbons, total (C6-C50)	n/a	EC581/WT	mg/kg	99	<80	667	<80	----	----	----	----
Chromatogram to baseline at nC50	n/a	E601.SG-L/WT	-	YES	YES	NO	YES	----	----	----	----
Hydrocarbons Surrogates											
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L/WT	%	93.8	95.3	94.1	92.2	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	E581.F1/WT	%	77.7	79.3	100.0	74.8	----	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Volatile Organic Compounds Surrogates											
Bromofluorobenzene, 4-	460-00-4	E611D/WT	%		83.7	----	105	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	E611A/WT	%		----	91.8	----	94.4	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611D/WT	%		83.5	----	105	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	E611A/WT	%		----	94.8	----	96.4	----	----	----
Polycyclic Aromatic Hydrocarbons											
Acenaphthene	83-32-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Acenaphthylene	208-96-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Anthracene	120-12-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Benz(a)anthracene	56-55-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Benzo(a)pyrene	50-32-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Benzo(b+j)fluoranthene	n/a	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Benzo(g,h,i)perylene	191-24-2	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Benzo(k)fluoranthene	207-08-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Chrysene	218-01-9	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Dibenz(a,h)anthracene	53-70-3	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Fluoranthene	206-44-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Fluorene	86-73-7	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Methylnaphthalene, 1-	90-12-0	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	----	----	----
Methylnaphthalene, 1+2-	----	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S1 ----	BH1S5 ----	BH2S3 ----	BH2S6 ----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	08-Jan-2026 00:00	----	----	----
				Sub-Matrix	Soil	Soil	Soil	Soil	----	----	----
					WT2600489-001	WT2600489-002	WT2600489-003	WT2600489-004	----	----	----
					Result	Result	Result	Result	----	----	----
Polycyclic Aromatic Hydrocarbons											
Methylnaphthalene, 2-	91-57-6	E641A/WT	mg/kg		<0.030	<0.030	<0.030	<0.030	----	----	----
Naphthalene	91-20-3	E641A/WT	mg/kg		<0.010	<0.010	<0.010	<0.010	----	----	----
Phenanthrene	85-01-8	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Pyrene	129-00-0	E641A/WT	mg/kg		<0.050	<0.050	<0.050	<0.050	----	----	----
Polycyclic Aromatic Hydrocarbons Surrogates											
Acridine-d9	34749-75-2	E641A/WT	%		85.5	91.4	92.1	94.1	----	----	----
Chrysene-d12	1719-03-5	E641A/WT	%		91.3	98.7	96.8	95.8	----	----	----
Naphthalene-d8	1146-65-2	E641A/WT	%		95.9	103	102	98.7	----	----	----
Phenanthrene-d10	1517-22-2	E641A/WT	%		94.4	102	99.7	98.4	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ON153/04 T1-RPIICC	ON153/04 T2-ICC-C	ON153/04 T2-ICC-F	ON153/04 T2-RPI-C	ON153/04 T2-RPI-F		
Physical Tests									
Conductivity (1:2 leachate)		mS/cm	0.57 mS/cm	1.4 mS/cm	1.4 mS/cm	0.7 mS/cm	0.7 mS/cm	----	----
Moisture	----	%	----	----	----	----	----	----	----
pH (1:2 soil:CaCl2-aq)		pH units	----	----	----	----	----	----	----
Cyanides									
Cyanide, weak acid dissociable		mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	0.051 mg/kg	----	----
Fixed-Ratio Extractables									
Calcium, soluble ion content	7440-70-2	mg/L	----	----	----	----	----	----	----
Magnesium, soluble ion content	7439-95-4	mg/L	----	----	----	----	----	----	----
Sodium, soluble ion content	17341-25-2	mg/L	----	----	----	----	----	----	----
Sodium adsorption ratio [SAR]		-	2.4 -	12 -	12 -	5 -	5 -	----	----
Metals									
Antimony	7440-36-0	mg/kg	1.3 mg/kg	40 mg/kg	50 mg/kg	7.5 mg/kg	7.5 mg/kg	----	----
Arsenic	7440-38-2	mg/kg	18 mg/kg	18 mg/kg	18 mg/kg	18 mg/kg	18 mg/kg	----	----
Barium	7440-39-3	mg/kg	220 mg/kg	670 mg/kg	670 mg/kg	390 mg/kg	390 mg/kg	----	----
Beryllium	7440-41-7	mg/kg	2.5 mg/kg	8 mg/kg	10 mg/kg	4 mg/kg	5 mg/kg	----	----
Boron	7440-42-8	mg/kg	36 mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	----	----
Boron, hot water soluble	7440-42-8	mg/kg	----	2 mg/kg	2 mg/kg	1.5 mg/kg	1.5 mg/kg	----	----
Cadmium	7440-43-9	mg/kg	1.2 mg/kg	1.9 mg/kg	1.9 mg/kg	1.2 mg/kg	1.2 mg/kg	----	----
Chromium	7440-47-3	mg/kg	70 mg/kg	160 mg/kg	160 mg/kg	160 mg/kg	160 mg/kg	----	----
Cobalt	7440-48-4	mg/kg	21 mg/kg	80 mg/kg	100 mg/kg	22 mg/kg	22 mg/kg	----	----
Copper	7440-50-8	mg/kg	92 mg/kg	230 mg/kg	300 mg/kg	140 mg/kg	180 mg/kg	----	----
Lead	7439-92-1	mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	120 mg/kg	----	----
Mercury	7439-97-6	mg/kg	0.27 mg/kg	3.9 mg/kg	20 mg/kg	0.27 mg/kg	1.8 mg/kg	----	----

Molybdenum	7439-98-7	mg/kg	2 mg/kg	40 mg/kg	40 mg/kg	6.9 mg/kg	6.9 mg/kg	----	----
Nickel	7440-02-0	mg/kg	82 mg/kg	270 mg/kg	340 mg/kg	100 mg/kg	130 mg/kg	----	----
Selenium	7782-49-2	mg/kg	1.5 mg/kg	5.5 mg/kg	5.5 mg/kg	2.4 mg/kg	2.4 mg/kg	----	----
Silver	7440-22-4	mg/kg	0.5 mg/kg	40 mg/kg	50 mg/kg	20 mg/kg	25 mg/kg	----	----
Thallium	7440-28-0	mg/kg	1 mg/kg	3.3 mg/kg	3.3 mg/kg	1 mg/kg	1 mg/kg	----	----
Uranium	7440-61-1	mg/kg	2.5 mg/kg	33 mg/kg	33 mg/kg	23 mg/kg	23 mg/kg	----	----
Vanadium	7440-62-2	mg/kg	86 mg/kg	86 mg/kg	86 mg/kg	86 mg/kg	86 mg/kg	----	----
Zinc	7440-66-6	mg/kg	290 mg/kg	340 mg/kg	340 mg/kg	340 mg/kg	340 mg/kg	----	----
Speciated Metals									
Chromium, hexavalent [Cr VI]	18540-29-9	mg/kg	0.66 mg/kg	8 mg/kg	10 mg/kg	8 mg/kg	10 mg/kg	----	----
Volatile Organic Compounds									
Acetone	67-64-1	mg/kg	0.5 mg/kg	16 mg/kg	28 mg/kg	16 mg/kg	28 mg/kg	----	----
Benzene	71-43-2	mg/kg	0.02 mg/kg	0.32 mg/kg	0.4 mg/kg	0.21 mg/kg	0.17 mg/kg	----	----
Bromodichloromethane	75-27-4	mg/kg	0.05 mg/kg	1.5 mg/kg	1.9 mg/kg	1.5 mg/kg	1.9 mg/kg	----	----
Bromoform	75-25-2	mg/kg	0.05 mg/kg	0.61 mg/kg	1.7 mg/kg	0.27 mg/kg	0.26 mg/kg	----	----
Bromomethane	74-83-9	mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----
Carbon tetrachloride	56-23-5	mg/kg	0.05 mg/kg	0.21 mg/kg	0.71 mg/kg	0.05 mg/kg	0.12 mg/kg	----	----
Chlorobenzene	108-90-7	mg/kg	0.05 mg/kg	2.4 mg/kg	2.7 mg/kg	2.4 mg/kg	2.7 mg/kg	----	----
Chloroform	67-66-3	mg/kg	0.05 mg/kg	0.47 mg/kg	0.18 mg/kg	0.05 mg/kg	0.18 mg/kg	----	----
Dibromochloromethane	124-48-1	mg/kg	0.05 mg/kg	2.3 mg/kg	2.9 mg/kg	2.3 mg/kg	2.9 mg/kg	----	----
Dibromoethane, 1,2-	106-93-4	mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----
Dichlorobenzene, 1,2-	95-50-1	mg/kg	0.05 mg/kg	1.2 mg/kg	1.7 mg/kg	1.2 mg/kg	1.7 mg/kg	----	----
Dichlorobenzene, 1,3-	541-73-1	mg/kg	0.05 mg/kg	9.6 mg/kg	12 mg/kg	4.8 mg/kg	6 mg/kg	----	----
Dichlorobenzene, 1,4-	106-46-7	mg/kg	0.05 mg/kg	0.2 mg/kg	0.57 mg/kg	0.083 mg/kg	0.097 mg/kg	----	----
Dichlorodifluoromethane	75-71-8	mg/kg	0.05 mg/kg	16 mg/kg	25 mg/kg	16 mg/kg	25 mg/kg	----	----
Dichloroethane, 1,1-	75-34-3	mg/kg	0.05 mg/kg	0.47 mg/kg	0.6 mg/kg	0.47 mg/kg	0.6 mg/kg	----	----
Dichloroethane, 1,2-	107-06-2	mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----

Dichloroethylene, 1,1-	75-35-4	mg/kg	0.05 mg/kg	0.064 mg/kg	0.48 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----
Dichloroethylene, cis-1,2-	156-59-2	mg/kg	0.05 mg/kg	1.9 mg/kg	2.5 mg/kg	1.9 mg/kg	2.5 mg/kg	----	----
Dichloroethylene, trans-1,2-	156-60-5	mg/kg	0.05 mg/kg	1.3 mg/kg	2.5 mg/kg	0.084 mg/kg	0.75 mg/kg	----	----
Dichloromethane	75-09-2	mg/kg	0.05 mg/kg	1.6 mg/kg	2 mg/kg	0.1 mg/kg	0.96 mg/kg	----	----
Dichloropropane, 1,2-	78-87-5	mg/kg	0.05 mg/kg	0.16 mg/kg	0.68 mg/kg	0.05 mg/kg	0.085 mg/kg	----	----
Dichloropropylene, cis-1,3-	10061-01-5	mg/kg	----	----	----	----	----	----	----
Dichloropropylene, cis+trans-1,3-	542-75-6	mg/kg	0.05 mg/kg	0.059 mg/kg	0.081 mg/kg	0.05 mg/kg	0.081 mg/kg	----	----
Dichloropropylene, trans-1,3-	10061-02-6	mg/kg	----	----	----	----	----	----	----
Ethylbenzene	100-41-4	mg/kg	0.05 mg/kg	1.1 mg/kg	1.6 mg/kg	1.1 mg/kg	1.6 mg/kg	----	----
Hexane, n-	110-54-3	mg/kg	0.05 mg/kg	46 mg/kg	88 mg/kg	2.8 mg/kg	34 mg/kg	----	----
Methyl ethyl ketone [MEK]	78-93-3	mg/kg	0.5 mg/kg	70 mg/kg	88 mg/kg	16 mg/kg	44 mg/kg	----	----
Methyl isobutyl ketone [MIBK]	108-10-1	mg/kg	0.5 mg/kg	31 mg/kg	210 mg/kg	1.7 mg/kg	4.3 mg/kg	----	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	mg/kg	0.05 mg/kg	1.6 mg/kg	2.3 mg/kg	0.75 mg/kg	1.4 mg/kg	----	----
Styrene	100-42-5	mg/kg	0.05 mg/kg	34 mg/kg	43 mg/kg	0.7 mg/kg	2.2 mg/kg	----	----
Tetrachloroethane, 1,1,1,2-	630-20-6	mg/kg	0.05 mg/kg	0.087 mg/kg	0.11 mg/kg	0.058 mg/kg	0.05 mg/kg	----	----
Tetrachloroethane, 1,1,2,2-	79-34-5	mg/kg	0.05 mg/kg	0.05 mg/kg	0.094 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----
Tetrachloroethylene	127-18-4	mg/kg	0.05 mg/kg	1.9 mg/kg	2.5 mg/kg	0.28 mg/kg	2.3 mg/kg	----	----
Toluene	108-88-3	mg/kg	0.2 mg/kg	6.4 mg/kg	9 mg/kg	2.3 mg/kg	6 mg/kg	----	----
Trichloroethane, 1,1,1-	71-55-6	mg/kg	0.05 mg/kg	6.1 mg/kg	12 mg/kg	0.38 mg/kg	3.4 mg/kg	----	----
Trichloroethane, 1,1,2-	79-00-5	mg/kg	0.05 mg/kg	0.05 mg/kg	0.11 mg/kg	0.05 mg/kg	0.05 mg/kg	----	----
Trichloroethylene	79-01-6	mg/kg	0.05 mg/kg	0.55 mg/kg	0.61 mg/kg	0.061 mg/kg	0.52 mg/kg	----	----
Trichlorofluoromethane	75-69-4	mg/kg	0.25 mg/kg	4 mg/kg	5.8 mg/kg	4 mg/kg	5.8 mg/kg	----	----
Vinyl chloride	75-01-4	mg/kg	0.02 mg/kg	0.032 mg/kg	0.25 mg/kg	0.02 mg/kg	0.022 mg/kg	----	----
Xylene, m+p-	179601-23-1	mg/kg	----	----	----	----	----	----	----
Xylene, o-	95-47-6	mg/kg	----	----	----	----	----	----	----
Xylenes, total	1330-20-7	mg/kg	0.05 mg/kg	26 mg/kg	30 mg/kg	3.1 mg/kg	25 mg/kg	----	----
BTEX, total		mg/kg	----	----	----	----	----	----	----

Hydrocarbons									
F1 (C6-C10)		mg/kg	**25 mg/kg**	**55 mg/kg**	**65 mg/kg**	**55 mg/kg**	**65 mg/kg**	----	----
F2 (C10-C16)	----	mg/kg	**10 mg/kg**	**230 mg/kg**	**250 mg/kg**	**98 mg/kg**	**150 mg/kg**	----	----
F2-Naphthalene		mg/kg	----	----	----	----	----	----	----
F3 (C16-C34)	----	mg/kg	**240 mg/kg**	**1700 mg/kg**	**2500 mg/kg**	**300 mg/kg**	**1300 mg/kg**	----	----
F3-PAH	n/a	mg/kg	----	----	----	----	----	----	----
F4 (C34-C50)	----	mg/kg	**120 mg/kg**	**3300 mg/kg**	**6600 mg/kg**	**2800 mg/kg**	**5600 mg/kg**	----	----
F4G-sg		mg/kg	**120 mg/kg**	**3300 mg/kg**	**6600 mg/kg**	**2800 mg/kg**	**5600 mg/kg**	----	----
F1-BTEX		mg/kg	**25 mg/kg**	**55 mg/kg**	**65 mg/kg**	**55 mg/kg**	**65 mg/kg**	----	----
Hydrocarbons, total (C6-C50)	n/a	mg/kg	----	----	----	----	----	----	----
Chromatogram to baseline at nC50	n/a	-	----	----	----	----	----	----	----
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	%	----	----	----	----	----	----	----
Bromofluorobenzene, 4-	460-00-4	%	----	----	----	----	----	----	----
Dichlorotoluene, 3,4-	95-75-0	%	----	----	----	----	----	----	----
Difluorobenzene, 1,4-	540-36-3	%	----	----	----	----	----	----	----
Polycyclic Aromatic Hydrocarbons									
Acenaphthene	83-32-9	mg/kg	**0.072 mg/kg**	**21 mg/kg**	**29 mg/kg**	**7.9 mg/kg**	**29 mg/kg**	----	----
Acenaphthylene	208-96-8	mg/kg	**0.093 mg/kg**	**0.15 mg/kg**	**0.17 mg/kg**	**0.15 mg/kg**	**0.17 mg/kg**	----	----
Anthracene	120-12-7	mg/kg	**0.16 mg/kg**	**0.67 mg/kg**	**0.74 mg/kg**	**0.67 mg/kg**	**0.74 mg/kg**	----	----
Benz(a)anthracene	56-55-3	mg/kg	**0.36 mg/kg**	**0.96 mg/kg**	**0.96 mg/kg**	**0.5 mg/kg**	**0.63 mg/kg**	----	----
Benzo(a)pyrene	50-32-8	mg/kg	**0.3 mg/kg**	**0.3 mg/kg**	**0.3 mg/kg**	**0.3 mg/kg**	**0.3 mg/kg**	----	----
Benzo(b+j)fluoranthene	n/a	mg/kg	**0.47 mg/kg**	**0.96 mg/kg**	**0.96 mg/kg**	**0.78 mg/kg**	**0.78 mg/kg**	----	----
Benzo(g,h,i)perylene	191-24-2	mg/kg	**0.68 mg/kg**	**9.6 mg/kg**	**9.6 mg/kg**	**6.6 mg/kg**	**7.8 mg/kg**	----	----
Benzo(k)fluoranthene	207-08-9	mg/kg	**0.48 mg/kg**	**0.96 mg/kg**	**0.96 mg/kg**	**0.78 mg/kg**	**0.78 mg/kg**	----	----
Chrysene	218-01-9	mg/kg	**2.8 mg/kg**	**9.6 mg/kg**	**9.6 mg/kg**	**7 mg/kg**	**7.8 mg/kg**	----	----
Dibenz(a,h)anthracene	53-70-3	mg/kg	**0.1 mg/kg**	**0.1 mg/kg**	**0.1 mg/kg**	**0.1 mg/kg**	**0.1 mg/kg**	----	----
Fluoranthene	206-44-0	mg/kg	**0.56 mg/kg**	**9.6 mg/kg**	**9.6 mg/kg**	**0.69 mg/kg**	**0.69 mg/kg**	----	----

Fluorene	86-73-7	mg/kg	**0.12 mg/kg**	**62 mg/kg**	**69 mg/kg**	**62 mg/kg**	**69 mg/kg**	----	----
Indeno(1,2,3-c,d)pyrene	193-39-5	mg/kg	**0.23 mg/kg**	**0.76 mg/kg**	**0.95 mg/kg**	**0.38 mg/kg**	**0.48 mg/kg**	----	----
Methylnaphthalene, 1-	90-12-0	mg/kg	**0.59 mg/kg**	**30 mg/kg**	**42 mg/kg**	**0.99 mg/kg**	**3.4 mg/kg**	----	----
Methylnaphthalene, 1+2-	----	mg/kg	**0.59 mg/kg**	**30 mg/kg**	**42 mg/kg**	**0.99 mg/kg**	**3.4 mg/kg**	----	----
Methylnaphthalene, 2-	91-57-6	mg/kg	**0.59 mg/kg**	**30 mg/kg**	**42 mg/kg**	**0.99 mg/kg**	**3.4 mg/kg**	----	----
Naphthalene	91-20-3	mg/kg	**0.09 mg/kg**	**9.6 mg/kg**	**28 mg/kg**	**0.6 mg/kg**	**0.75 mg/kg**	----	----
Phenanthrene	85-01-8	mg/kg	**0.69 mg/kg**	**12 mg/kg**	**16 mg/kg**	**6.2 mg/kg**	**7.8 mg/kg**	----	----
Pyrene	129-00-0	mg/kg	**1 mg/kg**	**96 mg/kg**	**96 mg/kg**	**78 mg/kg**	**78 mg/kg**	----	----
Acridine-d9	34749-75-2	%	----	----	----	----	----	----	----
Chrysene-d12	1719-03-5	%	----	----	----	----	----	----	----
Naphthalene-d8	1146-65-2	%	----	----	----	----	----	----	----
Phenanthrene-d10	1517-22-2	%	----	----	----	----	----	----	----

Key:

ON153/04	Ontario Regulation 153/04 - April 15, 2011 Standards (JUL, 2011)
T1-RPIICC	153 Soil T1 Res/Park/Inst/Ind/Com/Commu Property Use
T2-ICC-C	153 Soil T2 Ind/Com/Commu Property Use (Coarse)
T2-ICC-F	153 Soil T2 Ind/Com/Commu Property Use (Fine)
T2-RPI-C	153 Soil T2 Res/Park/Inst. Property Use (Coarse)
T2-RPI-F	153 Soil T2 Res/Park/Inst. Property Use (Fine)

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2600489**	Page	: 1 of 16
Client	: **CMT Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Jake Feeney	Account Manager	: Mathy Mahadeva
Address	: 1011 Industrial Crescent Unit 1 St. Clements ON Canada N0B 2M0	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 699 5775	Telephone	: +1 519 886 6910
Project	: 25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	: 09-Jan-2026 15:40
PO	: ----	Issue Date	: 19-Jan-2026 18:10
C-O-C number	: ----		
Sampler	: Brandon Figg		
Site	: ----		
Quote number	: Standing Offer 2026 Pricing		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Metals	QC-MRG2-2415778 001	----	Zinc	7440-66-6	E440C	30.1 mg/kg MB-LOR	2 mg/kg	Blank result exceeds permitted value

Result Qualifiers

Qualifier	Description
MB-LOR	*Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E336A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E336A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E336A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	14 days	1 days	✓
Cyanides : WAD Cyanide (0.01M NaOH Extraction)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E336A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	14 days	1 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH1S1	E581.F1	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH1S5	E581.F1	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP]										
BH2S3	E581.F1	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Hydrocarbons : CCME PHC - F1 by Headspace GC-FID										
Glass soil methanol vial [ON MECP] BH2S6	E581.F1	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓
Hydrocarbons : CCME PHCs - F4G by Gravimetry (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH2S3	E601.F4G-L	08-Jan-2026	15-Jan-2026	14 days	8 days	✓	19-Jan-2026	40 days	4 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH1S1	E601.SG-L	08-Jan-2026	15-Jan-2026	14 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH1S5	E601.SG-L	08-Jan-2026	15-Jan-2026	14 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH2S3	E601.SG-L	08-Jan-2026	15-Jan-2026	14 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Hydrocarbons : CCME PHCs - F2-F4 by GC-FID (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP] BH2S6	E601.SG-L	08-Jan-2026	15-Jan-2026	14 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH1S1	E487	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH1S5	E487	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP] BH2S3	E487	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Boron-Hot Water Extractable by ICPOES										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E487	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E510C	08-Jan-2026	14-Jan-2026	28 days	7 days	✓	15-Jan-2026	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E510C	08-Jan-2026	14-Jan-2026	28 days	7 days	✓	15-Jan-2026	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E510C	08-Jan-2026	14-Jan-2026	28 days	7 days	✓	15-Jan-2026	28 days	0 days	✓
Metals : Mercury in Soil/Solid by CVAAS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E510C	08-Jan-2026	14-Jan-2026	28 days	7 days	✓	15-Jan-2026	28 days	0 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E440C	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E440C	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E440C	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS (<355 µm)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E440C	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E484	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E484	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E484	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Metals : Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E484	08-Jan-2026	14-Jan-2026	180 days	7 days	✓	15-Jan-2026	180 days	1 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E100-L	08-Jan-2026	14-Jan-2026	30 days	7 days	✓	15-Jan-2026	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E100-L	08-Jan-2026	14-Jan-2026	30 days	7 days	✓	15-Jan-2026	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E100-L	08-Jan-2026	14-Jan-2026	30 days	7 days	✓	15-Jan-2026	30 days	7 days	✓
Physical Tests : Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E100-L	08-Jan-2026	14-Jan-2026	30 days	7 days	✓	15-Jan-2026	30 days	7 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E144	08-Jan-2026	----	----	----		12-Jan-2026	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E144	08-Jan-2026	----	----	----		12-Jan-2026	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E144	08-Jan-2026	----	----	----		12-Jan-2026	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E144	08-Jan-2026	----	----	----		12-Jan-2026	----	----	
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E108A	08-Jan-2026	12-Jan-2026	30 days	5 days	✓	14-Jan-2026	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E108A	08-Jan-2026	12-Jan-2026	30 days	5 days	✓	14-Jan-2026	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S3	E108A	08-Jan-2026	12-Jan-2026	30 days	5 days	✓	14-Jan-2026	30 days	5 days	✓
Physical Tests : pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received										
Glass soil jar/Teflon lined cap [ON MECP]										
BH2S6	E108A	08-Jan-2026	12-Jan-2026	30 days	5 days	✓	14-Jan-2026	30 days	5 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S1	E641A	08-Jan-2026	15-Jan-2026	60 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP]										
BH1S5	E641A	08-Jan-2026	15-Jan-2026	60 days	8 days	✓	16-Jan-2026	40 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH2S3	E641A	08-Jan-2026	15-Jan-2026	60 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs in Soil/solid by Hex:Ace GC-MS										
Glass soil jar/Teflon lined cap [ON MECP] BH2S6	E641A	08-Jan-2026	15-Jan-2026	60 days	8 days	✓	16-Jan-2026	40 days	1 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH1S1	E532	08-Jan-2026	14-Jan-2026	30 days	6 days	✓	14-Jan-2026	7 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH1S5	E532	08-Jan-2026	14-Jan-2026	30 days	6 days	✓	14-Jan-2026	7 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH2S3	E532	08-Jan-2026	14-Jan-2026	30 days	6 days	✓	14-Jan-2026	7 days	0 days	✓
Speciated Metals : Hexavalent Chromium (Cr VI) by IC										
Glass soil jar/Teflon lined cap [ON MECP] BH2S6	E532	08-Jan-2026	14-Jan-2026	30 days	6 days	✓	14-Jan-2026	7 days	0 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH1S5	E611A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	1 days	✓
Volatile Organic Compounds : BTEX by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH2S6	E611A	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	1 days	✓
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP] BH1S1	E611D	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times		Eval	Analysis Date	Holding Times		Eval
				Rec	Actual			Rec	Actual	
Volatile Organic Compounds : VOCs (Eastern Canada List) by Headspace GC-MS										
Glass soil methanol vial [ON MECP]										
BH2S3	E611D	08-Jan-2026	12-Jan-2026	14 days	5 days	✓	13-Jan-2026	40 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: ✖ = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	2415776	1	10	10.0	5.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	2413528	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	2413534	1	5	20.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	2413524	1	9	11.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	2415779	1	10	10.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	2415775	1	10	10.0	5.0	✓
Boron-Hot Water Extractable by ICPOES	E487	2415777	1	10	10.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	2415778	1	10	10.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	2415774	1	4	25.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	2413626	2	37	5.4	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	2420466	0	1	0.0	5.0	✖
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	2413526	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	2413736	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2413624	1	20	5.0	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	2413525	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	2415776	2	10	20.0	10.0	✓
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A	2413528	1	11	9.0	5.0	✓
Moisture Content by Gravimetry	E144	2413534	1	5	20.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	2413524	1	9	11.1	5.0	✓
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	2415779	2	10	20.0	10.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	2415775	2	10	20.0	10.0	✓
Boron-Hot Water Extractable by ICPOES	E487	2415777	2	10	20.0	10.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	2415778	2	10	20.0	10.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	2415774	2	4	50.0	10.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	2413626	2	37	5.4	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	2420466	1	1	100.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	2413526	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	2413736	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2413624	1	20	5.0	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	2413525	1	9	11.1	5.0	✓
Method Blanks (MB)							
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L	2415776	1	10	10.0	5.0	✓
Moisture Content by Gravimetry	E144	2413534	1	5	20.0	5.0	✓
WAD Cyanide (0.01M NaOH Extraction)	E336A	2413524	1	9	11.1	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C	2415779	1	10	10.0	5.0	✓
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484	2415775	1	10	10.0	5.0	✓
Boron-Hot Water Extractable by ICPOES	E487	2415777	1	10	10.0	5.0	✓
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C	2415778	1	10	10.0	5.0	✓
Hexavalent Chromium (Cr VI) by IC	E532	2415774	1	4	25.0	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	2413626	2	37	5.4	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	2420466	1	1	100.0	5.0	✓
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	2413526	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	2413736	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2413624	1	20	5.0	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	2413525	1	9	11.1	5.0	✓
Matrix Spikes (MS)							
WAD Cyanide (0.01M NaOH Extraction)	E336A	2413524	1	9	11.1	5.0	✓
CCME PHC - F1 by Headspace GC-FID	E581.F1	2413626	2	37	5.4	5.0	✓
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L	2420466	0	1	0.0	5.0	×
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L	2413526	1	9	11.1	5.0	✓
BTEX by Headspace GC-MS	E611A	2413736	1	18	5.5	5.0	✓
VOCs (Eastern Canada List) by Headspace GC-MS	E611D	2413624	1	20	5.0	5.0	✓
PAHs in Soil/solid by Hex:Ace GC-MS	E641A	2413525	1	9	11.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (1:2 Soil:Water Extraction) (Low Level)	E100-L ALS Environmental - Waterloo	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a soil sample that has been added in a defined ratio of soil to deionized water, then shaken well and allowed to settle. Conductance is measured in the fluid that is observed in the upper layer.
pH by Meter (1:2 Soil:0.01M CaCl2 Extraction) - As Received	E108A ALS Environmental - Waterloo	Soil/Solid	MECP E3530	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) and is carried out in accordance with procedures described in the Analytical Protocol (prescriptive method). A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling, or decanting and then analyzed using a pH meter and electrode. This method is equivalent to ASTM D4972 and is acceptable for topsoil analysis.
Moisture Content by Gravimetry	E144 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
WAD Cyanide (0.01M NaOH Extraction)	E336A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Weak Acid Dissociable (WAD) cyanide is determined after extraction by Continuous Flow Analyzer (CFA) with in-line distillation followed by colourmetric analysis.
Metals in Soil/Solid by CRC ICPMS (<355 µm)	E440C ALS Environmental - Waterloo	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 355 µm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. This method does not adequately recover elemental sulfur, and is unsuitable for assessment of elemental sulfur standards or guidelines. Analysis is by Collision/Reaction Cell ICPMS.
Sodium Adsorption Ratio (SAR) - 1:2 Soil:Water (Dry)	E484 ALS Environmental - Waterloo	Soil/Solid	SW846 6010C	A dried, disaggregated solid sample is extracted with deionized water, the aqueous extract is separated from the solid, acidified and then analyzed using a ICP/OES. The concentrations of Na, Ca and Mg are reported as per CALA requirements for calculated parameters. These individual parameters are not for comparison to any guideline.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Boron-Hot Water Extractable by ICPOES	E487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).
Mercury in Soil/Solid by CVAAS (<355 µm)	E510C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2/1631 Appendix (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl, followed by CVAAS analysis.
Hexavalent Chromium (Cr VI) by IC	E532 ALS Environmental - Waterloo	Soil/Solid	APHA 3500-CR C	Instrumental analysis is performed by ion chromatography with UV detection.
CCME PHC - F1 by Headspace GC-FID	E581.F1 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	CCME Fraction 1 (F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law. Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
CCME PHCs - F4G by Gravimetry (Low Level)	E601.F4G-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	A portion of the silica gel treated sample extract is filtered and dried at 105°C and the mass of the residual gravimetric heavy hydrocarbons (F4G) is determined gravimetrically. Where both F4 and F4G are reported, the greater of both results must be used for comparison to CWS PHC F4 guidelines.
CCME PHCs - F2-F4 by GC-FID (Low Level)	E601.SG-L ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Sample extracts are subjected to in-situ silica gel treatment prior to analysis by GC-FID for CCME hydrocarbon fractions (F2-F4). Analytical methods for CCME Petroleum Hydrocarbons (PHCs) are validated to comply fully with the Reference Method for the Canada-Wide Standard for PHC. Test results are expressed on a dry weight basis. Unless qualified, all required quality control criteria of the CCME PHC method have been met, including response factor and linearity requirements.
BTEX by Headspace GC-MS	E611A ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs (Eastern Canada List) by Headspace GC-MS	E611D ALS Environmental - Waterloo	Soil/Solid	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs in Soil/solid by Hex:Ace GC-MS	E641A ALS Environmental - Waterloo	Soil/Solid	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are extracted with hexane/acetone and analyzed by GC-MS. Benzo(b+j+k)fluoranthene is reported as the arithmetic sum of Benzo(b+j)fluoranthene and Benzo(k)fluoranthene; the limit of reporting (LOR) for this sum is calculated by the root-sum-of-squares (RSS) of the component LORs (per CCME Vol. 4). Where reported, the Index of Additive Cancer Risk (IACR; unitless) and Benzo[a]pyrene toxic potency equivalents (B[a]P-TEQ; in soil concentration units) are calculated per the CCME PAH Soil Quality Guidelines fact sheet (2010) and/or AB Tier 1 using the individually measured PAH results (not pre-summed groupings). For these calculations, any included PAH that is not detected is assigned one-half of its limit of reporting (LOR).
F1-BTEX	EC580 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F1-BTEX is calculated as follows: F1-BTEX = F1 (C6-C10) minus benzene, toluene, ethylbenzene and xylenes (BTEX).
Sum F1 to F4 (C6-C50)	EC581 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	Hydrocarbons, total (C6-C50) is the sum of CCME Fractions F1(C6-C10), F2(C10-C16), F3(C16-C34), and F4(C34-C50). F4G-sg is not used within this calculation due to overlap with other fractions.
F2 to F3 minus PAH	EC600 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1	F2-Naphthalene = CCME Fraction 2 (C10-C16) minus Naphthalene F3-PAH = CCME Fraction 3 (C16-C34) minus sPhenanthrene, Fluoranthene, Pyrene, Benz(a)anthracene, benzo(b+j)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-c,d)pyrene, and Dibenz(a,h)anthracene.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:2 Soil:Water for pH/EC	EP108 ALS Environmental - Waterloo	Soil/Solid	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL	The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water.
Leach 1:2 Soil : 0.01CaCl2 - As Received for pH	EP108A ALS Environmental - Waterloo	Soil/Solid	MOEE E3137A	A minimum 10g portion of the sample, as received, is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil by centrifuging, settling or decanting and then analyzed using a pH meter and electrode.
Cyanide Extraction for CFA (0.01M NaOH)	EP333A ALS Environmental - Waterloo	Soil/Solid	ON MECP E3015 (mod)	Extraction for various cyanide analysis is by rotary extraction of the soil with 0.01M Sodium Hydroxide.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Metals and Mercury (355 µm Sieve)	EP440C ALS Environmental - Waterloo	Soil/Solid	EPA 200.2 (mod)	Samples are sieved through a 355 µm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
Boron-Hot Water Extractable	EP487 ALS Environmental - Waterloo	Soil/Solid	HW EXTR, EPA 6010B	A dried solid sample is extracted with weak calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES. Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011)
Preparation of Hexavalent Chromium (Cr VI) for IC	EP532 ALS Environmental - Waterloo	Soil/Solid	EPA 3060A	Field moist samples are digested with a sodium hydroxide/sodium carbonate solution as described in EPA 3060A.
VOCs Methanol Extraction for Headspace Analysis	EP581 ALS Environmental - Waterloo	Soil/Solid	EPA 5035A (mod)	VOCs in samples are extracted with methanol. Extracts are then prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PHCs and PAHs Hexane-Acetone Tumbler Extraction	EP601 ALS Environmental - Waterloo	Soil/Solid	CCME PHC in Soil - Tier 1 (mod)	Samples are subsampled and Petroleum Hydrocarbons (PHC) and PAHs are extracted with 1:1 hexane:acetone using a rotary extractor.

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QUALITY CONTROL REPORT

Work Order	: **WT2600489**		
Client	: CMT Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Jake Feeney	Account Manager	: Mathy Mahadeva
Address	: 1011 Industrial Crescent Unit 1 St. Clements ON Canada N0B 2M0	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 699 5775	Telephone	: +1 519 886 6910
Project	: 25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	: 09-Jan-2026 15:40
PO	: ----	Date Analysis Commenced	: 12-Jan-2026
C-O-C number	: ----	Issue Date	: 19-Jan-2026 18:10
Sampler	: Brandon Figg		
Site	: ----		
Quote number	: Standing Offer 2026 Pricing		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- @ReferenceMaterial!
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Amaninder Dhillon	Team Lead - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
Danielle Gravel	Supervisor - Semi-Volatile Instrumentation	Waterloo Organics, Waterloo, Ontario
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Jon Fisher	Laboratory Manager - Environmental	Waterloo Inorganics, Waterloo, Ontario
Jon Fisher	Laboratory Manager - Environmental	Waterloo Metals, Waterloo, Ontario
Josphin Masihi	Supervisor I	Waterloo Centralized Prep, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:
Anonymous=Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number=Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO=Data Quality Objective.
LOR=Limit of Reporting (detection limit).
RPD=Relative Percent Difference
=Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil**

Laboratory Duplicate (DUP) Report											
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests(QC Lot: 2413528)											
WT2600458-001	Anonymous	pH (1:2 soil:CaCl2-aq)	----	E108A	0.10	pH units	7.87	7.92	0.633 %	5%	---
Physical Tests(QC Lot: 2413534)											
WT2600489-001	BH1S1	Moisture	----	E144	0.25	%	4.26	3.92	8.39 %	20%	---
Physical Tests(QC Lot: 2415776)											
WT2600489-002	BH1S5	Conductivity (1:2 leachate)	----	E100-L	5.00	µS/cm	1.57 mS/cm	1490	5.43 %	20%	---
Cyanides(QC Lot: 2413524)											
WT2600489-001	BH1S1	Cyanide, weak acid dissociable	----	E336A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
Metals(QC Lot: 2415775)											
WT2600489-002	BH1S5	Calcium, soluble ion content	7440-70-2	E484	0.50	mg/L	18.5	17.1	7.87 %	30%	---
		Magnesium, soluble ion content	7439-95-4	E484	0.50	mg/L	2.52	2.35	0.17	Diff <2x LOR	---
		Sodium, soluble ion content	17341-25-2	E484	0.50	mg/L	279	267	4.40 %	30%	---
Metals(QC Lot: 2415777)											
WT2600489-001	BH1S1	Boron, hot water soluble	7440-42-8	E487	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	---
Metals(QC Lot: 2415778)											
WT2600489-001	BH1S1	Mercury	7439-97-6	E510C	0.0050	mg/kg	<0.0050	0.0057	0.0007	Diff <2x LOR	---
Metals(QC Lot: 2415779)											
WT2600489-001	BH1S1	Antimony	7440-36-0	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	---
		Arsenic	7440-38-2	E440C	0.10	mg/kg	5.95	6.07	1.96 %	30%	---
		Barium	7440-39-3	E440C	0.50	mg/kg	11.6	11.4	1.07 %	40%	---
		Beryllium	7440-41-7	E440C	0.10	mg/kg	0.15	0.15	0.003	Diff <2x LOR	---
		Boron	7440-42-8	E440C	5.0	mg/kg	7.1	7.6	0.5	Diff <2x LOR	---
		Cadmium	7440-43-9	E440C	0.020	mg/kg	0.308	0.288	7.02 %	30%	---
		Chromium	7440-47-3	E440C	0.50	mg/kg	6.43	6.81	5.72 %	30%	---
		Cobalt	7440-48-4	E440C	0.10	mg/kg	2.17	2.22	2.38 %	30%	---
		Copper	7440-50-8	E440C	0.50	mg/kg	10.9	10.8	1.53 %	30%	---
		Lead	7439-92-1	E440C	0.50	mg/kg	18.7	20.8	10.5 %	40%	---
		Molybdenum	7439-98-7	E440C	0.10	mg/kg	0.51	0.57	11.1 %	40%	---
		Nickel	7440-02-0	E440C	0.50	mg/kg	4.82	4.99	3.32 %	30%	---
		Selenium	7782-49-2	E440C	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	---
		Silver	7440-22-4	E440C	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	---
		Thallium	7440-28-0	E440C	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Uranium	7440-61-1	E440C	0.050	mg/kg	0.379	0.367	3.17 %	30%	---
		Vanadium	7440-62-2	E440C	0.20	mg/kg	11.9	13.1	9.36 %	30%	---
		Zinc	7440-66-6	E440C	40.0	mg/kg	118	116	2.2	Diff <2x LOR	---

Sub-Matrix: Soil

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Speciated Metals(QC Lot: 2415774)											
WT2600489-001	BH1S1	Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	---
Volatile Organic Compounds(QC Lot: 2413624)											
WT2600489-001	BH1S1	Acetone	67-64-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	---
		Benzene	71-43-2	E611D	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	---
		Bromodichloromethane	75-27-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Bromoform	75-25-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Bromomethane	74-83-9	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Carbon tetrachloride	56-23-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Chlorobenzene	108-90-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Chloroform	67-66-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dibromochloromethane	124-48-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dibromoethane, 1,2-	106-93-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichlorobenzene, 1,2-	95-50-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichlorobenzene, 1,3-	541-73-1	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichlorobenzene, 1,4-	106-46-7	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichlorodifluoromethane	75-71-8	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloroethane, 1,1-	75-34-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloroethane, 1,2-	107-06-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloroethylene, 1,1-	75-35-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloroethylene, cis-1,2-	156-59-2	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloroethylene, trans-1,2-	156-60-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	<0.045	0	Diff <2x LOR	---
		Dichloropropane, 1,2-	78-87-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	---
		Hexane, n-	110-54-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Methyl ethyl ketone [MEK]	78-93-3	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	---
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.040	mg/kg	<0.040	<0.040	0	Diff <2x LOR	---
		Styrene	100-42-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Tetrachloroethylene	127-18-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Toluene	108-88-3	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Trichloroethane, 1,1,1-	71-55-6	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---

Sub-Matrix: Soil

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Compounds(QC Lot: 2413624)											
		Trichloroethane, 1,1,2-	79-00-5	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Trichloroethylene	79-01-6	E611D	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	---
		Trichlorofluoromethane	75-69-4	E611D	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Vinyl chloride	75-01-4	E611D	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	---
		Xylene, m+p-	179601-23-1	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Xylene, o-	95-47-6	E611D	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
Volatile Organic Compounds(QC Lot: 2413736)											
WT2600419-002	Anonymous	Benzene	71-43-2	E611A	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	---
		Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	<0.015	0	Diff <2x LOR	---
		Toluene	108-88-3	E611A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Xylene, m+p-	179601-23-1	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Xylene, o-	95-47-6	E611A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
Hydrocarbons(QC Lot: 2413526)											
WT2600489-001	BH1S1	F2 (C10-C16)	----	E601.SG-L	10	mg/kg	16	16	0.3	Diff <2x LOR	---
		F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	<50	0	Diff <2x LOR	---
		F4 (C34-C50)	----	E601.SG-L	50	mg/kg	83	73	10	Diff <2x LOR	---
Hydrocarbons(QC Lot: 2413626)											
WT2600489-001	BH1S1	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	---
Hydrocarbons(QC Lot: 2413737)											
WT2600419-002	Anonymous	F1 (C6-C10)	----	E581.F1	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	---
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)											
WT2600489-001	BH1S1	Acenaphthene	83-32-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Acenaphthylene	208-96-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Anthracene	120-12-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Benz(a)anthracene	56-55-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Benzo(a)pyrene	50-32-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Benzo(b+j)fluoranthene	n/a	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Benzo(g,h,i)perylene	191-24-2	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Benzo(k)fluoranthene	207-08-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Chrysene	218-01-9	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Dibenz(a,h)anthracene	53-70-3	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Fluoranthene	206-44-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Fluorene	86-73-7	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Methylnaphthalene, 1-	90-12-0	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Methylnaphthalene, 2-	91-57-6	E641A	0.030	mg/kg	<0.030	<0.030	0	Diff <2x LOR	---
		Naphthalene	91-20-3	E641A	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	---

Sub-Matrix: Soil

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)											
		Phenanthrene	85-01-8	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---
		Pyrene	129-00-0	E641A	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	---

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests(QC Lot: 2413528)						
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	----	----
Physical Tests(QC Lot: 2413534)						
Moisture	----	E144	0.25	%	<0.25	----
Physical Tests(QC Lot: 2415776)						
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	<5.00	----
Cyanides(QC Lot: 2413524)						
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	<0.050	----
Metals(QC Lot: 2415775)						
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	<0.50	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	<0.50	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	<0.50	----
Metals(QC Lot: 2415777)						
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	<0.10	----
Metals(QC Lot: 2415778)						
Mercury	7439-97-6	E510C	0.005	mg/kg	<0.0050	----
Metals(QC Lot: 2415779)						
Antimony	7440-36-0	E440C	0.1	mg/kg	<0.10	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	<0.10	----
Barium	7440-39-3	E440C	0.5	mg/kg	<0.50	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	<0.10	----
Boron	7440-42-8	E440C	5	mg/kg	<5.0	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	<0.020	----

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals(QC Lot: 2415779)						
Chromium	7440-47-3	E440C	0.5	mg/kg	<0.50	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	<0.10	----
Copper	7440-50-8	E440C	0.5	mg/kg	<0.50	----
Lead	7439-92-1	E440C	0.5	mg/kg	<0.50	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	<0.10	----
Nickel	7440-02-0	E440C	0.5	mg/kg	<0.50	----
Selenium	7782-49-2	E440C	0.2	mg/kg	<0.20	----
Silver	7440-22-4	E440C	0.1	mg/kg	<0.10	----
Thallium	7440-28-0	E440C	0.05	mg/kg	<0.050	----
Uranium	7440-61-1	E440C	0.05	mg/kg	<0.050	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	<0.20	----
Zinc	7440-66-6	E440C	2	mg/kg	# 30.1	MB-LOR
Speciated Metals(QC Lot: 2415774)						
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	<0.10	----
Volatile Organic Compounds(QC Lot: 2413624)						
Acetone	67-64-1	E611D	0.5	mg/kg	<0.50	----
Benzene	71-43-2	E611D	0.005	mg/kg	<0.0050	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	<0.050	----
Bromoform	75-25-2	E611D	0.05	mg/kg	<0.050	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	<0.050	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	<0.050	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	<0.050	----
Chloroform	67-66-3	E611D	0.05	mg/kg	<0.050	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	<0.050	----
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	<0.050	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	<0.050	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	<0.050	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	<0.050	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	<0.050	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	<0.045	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	<0.050	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	<0.030	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	<0.030	----

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds(QC Lot: 2413624)						
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	<0.015	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	<0.050	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	<0.50	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	<0.50	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	<0.040	----
Styrene	100-42-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	<0.050	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	<0.050	----
Toluene	108-88-3	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	<0.050	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	<0.050	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	<0.010	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	<0.050	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	<0.020	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	<0.030	----
Volatile Organic Compounds(QC Lot: 2413736)						
Benzene	71-43-2	E611A	0.005	mg/kg	<0.0050	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	<0.015	----
Toluene	108-88-3	E611A	0.05	mg/kg	<0.050	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	<0.030	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	<0.030	----
Hydrocarbons(QC Lot: 2413526)						
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	<10	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	<50	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	<50	----
Hydrocarbons(QC Lot: 2413626)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons(QC Lot: 2413737)						
F1 (C6-C10)	----	E581.F1	5	mg/kg	<5.0	----
Hydrocarbons(QC Lot: 2420466)						
F4G-sg	----	E601.F4G-L	250	mg/kg	<250	----
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)						
Acenaphthene	83-32-9	E641A	0.05	mg/kg	<0.050	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	<0.050	----
Anthracene	120-12-7	E641A	0.05	mg/kg	<0.050	----

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)						
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	<0.050	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	<0.050	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	<0.050	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	<0.050	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	<0.050	----
Chrysene	218-01-9	E641A	0.05	mg/kg	<0.050	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	<0.050	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	<0.050	----
Fluorene	86-73-7	E641A	0.05	mg/kg	<0.050	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	<0.050	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	<0.030	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	<0.030	----
Naphthalene	91-20-3	E641A	0.01	mg/kg	<0.010	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	<0.050	----
Pyrene	129-00-0	E641A	0.05	mg/kg	<0.050	----

Qualifiers

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Soil

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Physical Tests(QC Lot: 2413528)									
pH (1:2 soil:CaCl2-aq)	----	E108A	----	pH units	7 pH units	101	98.0	102	----
Physical Tests(QC Lot: 2413534)									
Moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests(QC Lot: 2415776)									
Conductivity (1:2 leachate)	----	E100-L	5	µS/cm	1409 µS/cm	102	90.0	110	----
Cyanides(QC Lot: 2413524)									
Cyanide, weak acid dissociable	----	E336A	0.05	mg/kg	1.25 mg/kg	92.8	80.0	120	----

Sub-Matrix: Soil

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
Metals(QC Lot: 2415775)									
Calcium, soluble ion content	7440-70-2	E484	0.5	mg/L	300 mg/L	105	80.0	120	----
Magnesium, soluble ion content	7439-95-4	E484	0.5	mg/L	50 mg/L	102	80.0	120	----
Sodium, soluble ion content	17341-25-2	E484	0.5	mg/L	50 mg/L	102	80.0	120	----
Metals(QC Lot: 2415777)									
Boron, hot water soluble	7440-42-8	E487	0.1	mg/kg	2 mg/kg	101	70.0	130	----
Metals(QC Lot: 2415778)									
Mercury	7439-97-6	E510C	0.005	mg/kg	0.1 mg/kg	103	80.0	120	----
Metals(QC Lot: 2415779)									
Antimony	7440-36-0	E440C	0.1	mg/kg	100 mg/kg	101	80.0	120	----
Arsenic	7440-38-2	E440C	0.1	mg/kg	100 mg/kg	105	80.0	120	----
Barium	7440-39-3	E440C	0.5	mg/kg	25 mg/kg	103	80.0	120	----
Beryllium	7440-41-7	E440C	0.1	mg/kg	10 mg/kg	102	80.0	120	----
Boron	7440-42-8	E440C	5	mg/kg	100 mg/kg	99.3	80.0	120	----
Cadmium	7440-43-9	E440C	0.02	mg/kg	10 mg/kg	100.0	80.0	120	----
Chromium	7440-47-3	E440C	0.5	mg/kg	25 mg/kg	102	80.0	120	----
Cobalt	7440-48-4	E440C	0.1	mg/kg	25 mg/kg	99.7	80.0	120	----
Copper	7440-50-8	E440C	0.5	mg/kg	25 mg/kg	99.0	80.0	120	----
Lead	7439-92-1	E440C	0.5	mg/kg	50 mg/kg	99.7	80.0	120	----
Molybdenum	7439-98-7	E440C	0.1	mg/kg	25 mg/kg	102	80.0	120	----
Nickel	7440-02-0	E440C	0.5	mg/kg	50 mg/kg	99.3	80.0	120	----
Selenium	7782-49-2	E440C	0.2	mg/kg	100 mg/kg	99.8	80.0	120	----
Silver	7440-22-4	E440C	0.1	mg/kg	10 mg/kg	98.5	80.0	120	----
Thallium	7440-28-0	E440C	0.05	mg/kg	100 mg/kg	99.1	80.0	120	----
Uranium	7440-61-1	E440C	0.05	mg/kg	0.5 mg/kg	100	80.0	120	----
Vanadium	7440-62-2	E440C	0.2	mg/kg	50 mg/kg	102	80.0	120	----
Zinc	7440-66-6	E440C	2	mg/kg	50 mg/kg	99.4	80.0	120	----
Speciated Metals(QC Lot: 2415774)									
Chromium, hexavalent [Cr VI]	18540-29-9	E532	0.1	mg/kg	0.8 mg/kg	97.8	80.0	120	----
Volatile Organic Compounds(QC Lot: 2413624)									
Acetone	67-64-1	E611D	0.5	mg/kg	3.475 mg/kg	105	60.0	140	----
Benzene	71-43-2	E611D	0.005	mg/kg	3.475 mg/kg	96.8	70.0	130	----
Bromodichloromethane	75-27-4	E611D	0.05	mg/kg	3.475 mg/kg	100	50.0	140	----
Bromoform	75-25-2	E611D	0.05	mg/kg	3.475 mg/kg	102	70.0	130	----
Bromomethane	74-83-9	E611D	0.05	mg/kg	3.475 mg/kg	70.9	50.0	140	----
Carbon tetrachloride	56-23-5	E611D	0.05	mg/kg	3.475 mg/kg	90.3	70.0	130	----
Chlorobenzene	108-90-7	E611D	0.05	mg/kg	3.475 mg/kg	97.5	70.0	130	----
Chloroform	67-66-3	E611D	0.05	mg/kg	3.475 mg/kg	95.3	70.0	130	----
Dibromochloromethane	124-48-1	E611D	0.05	mg/kg	3.475 mg/kg	100	60.0	130	----

Sub-Matrix: Soil

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds(QC Lot: 2413624)									
Dibromoethane, 1,2-	106-93-4	E611D	0.05	mg/kg	3.475 mg/kg	100	70.0	130	----
Dichlorobenzene, 1,2-	95-50-1	E611D	0.05	mg/kg	3.475 mg/kg	97.9	70.0	130	----
Dichlorobenzene, 1,3-	541-73-1	E611D	0.05	mg/kg	3.475 mg/kg	98.2	70.0	130	----
Dichlorobenzene, 1,4-	106-46-7	E611D	0.05	mg/kg	3.475 mg/kg	98.2	70.0	130	----
Dichlorodifluoromethane	75-71-8	E611D	0.05	mg/kg	3.475 mg/kg	72.3	50.0	140	----
Dichloroethane, 1,1-	75-34-3	E611D	0.05	mg/kg	3.475 mg/kg	97.0	60.0	130	----
Dichloroethane, 1,2-	107-06-2	E611D	0.05	mg/kg	3.475 mg/kg	96.8	60.0	130	----
Dichloroethylene, 1,1-	75-35-4	E611D	0.05	mg/kg	3.475 mg/kg	91.6	60.0	130	----
Dichloroethylene, cis-1,2-	156-59-2	E611D	0.05	mg/kg	3.475 mg/kg	96.4	70.0	130	----
Dichloroethylene, trans-1,2-	156-60-5	E611D	0.05	mg/kg	3.475 mg/kg	94.4	60.0	130	----
Dichloromethane	75-09-2	E611D	0.045	mg/kg	3.475 mg/kg	96.2	70.0	130	----
Dichloropropane, 1,2-	78-87-5	E611D	0.05	mg/kg	3.475 mg/kg	96.5	70.0	130	----
Dichloropropylene, cis-1,3-	10061-01-5	E611D	0.03	mg/kg	3.475 mg/kg	103	70.0	130	----
Dichloropropylene, trans-1,3-	10061-02-6	E611D	0.03	mg/kg	3.475 mg/kg	101	70.0	130	----
Ethylbenzene	100-41-4	E611D	0.015	mg/kg	3.475 mg/kg	96.5	70.0	130	----
Hexane, n-	110-54-3	E611D	0.05	mg/kg	3.475 mg/kg	94.0	70.0	130	----
Methyl ethyl ketone [MEK]	78-93-3	E611D	0.5	mg/kg	3.475 mg/kg	110	60.0	140	----
Methyl isobutyl ketone [MIBK]	108-10-1	E611D	0.5	mg/kg	3.475 mg/kg	105	60.0	140	----
Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	0.04	mg/kg	3.475 mg/kg	94.3	70.0	130	----
Styrene	100-42-5	E611D	0.05	mg/kg	3.475 mg/kg	94.4	70.0	130	----
Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	0.05	mg/kg	3.475 mg/kg	91.3	60.0	130	----
Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	0.05	mg/kg	3.475 mg/kg	103	60.0	130	----
Tetrachloroethylene	127-18-4	E611D	0.05	mg/kg	3.475 mg/kg	85.4	60.0	130	----
Toluene	108-88-3	E611D	0.05	mg/kg	3.475 mg/kg	98.4	70.0	130	----
Trichloroethane, 1,1,1-	71-55-6	E611D	0.05	mg/kg	3.475 mg/kg	90.0	60.0	130	----
Trichloroethane, 1,1,2-	79-00-5	E611D	0.05	mg/kg	3.475 mg/kg	99.2	60.0	130	----
Trichloroethylene	79-01-6	E611D	0.01	mg/kg	3.475 mg/kg	94.4	60.0	130	----
Trichlorofluoromethane	75-69-4	E611D	0.05	mg/kg	3.475 mg/kg	85.5	50.0	140	----
Vinyl chloride	75-01-4	E611D	0.02	mg/kg	3.475 mg/kg	84.9	60.0	140	----
Xylene, m+p-	179601-23-1	E611D	0.03	mg/kg	6.95 mg/kg	96.6	70.0	130	----
Xylene, o-	95-47-6	E611D	0.03	mg/kg	3.475 mg/kg	98.1	70.0	130	----
Volatile Organic Compounds(QC Lot: 2413736)									
Benzene	71-43-2	E611A	0.005	mg/kg	3.475 mg/kg	111	70.0	130	----
Ethylbenzene	100-41-4	E611A	0.015	mg/kg	3.475 mg/kg	98.4	70.0	130	----
Toluene	108-88-3	E611A	0.05	mg/kg	3.475 mg/kg	108	70.0	130	----
Xylene, m+p-	179601-23-1	E611A	0.03	mg/kg	6.95 mg/kg	94.9	70.0	130	----
Xylene, o-	95-47-6	E611A	0.03	mg/kg	3.475 mg/kg	99.1	70.0	130	----

Sub-Matrix: Soil

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
Hydrocarbons(QC Lot: 2413526)									
F2 (C10-C16)	----	E601.SG-L	10	mg/kg	670.9 mg/kg	101	70.0	130	----
F3 (C16-C34)	----	E601.SG-L	50	mg/kg	1382 mg/kg	105	70.0	130	----
F4 (C34-C50)	----	E601.SG-L	50	mg/kg	748.2 mg/kg	105	70.0	130	----
Hydrocarbons(QC Lot: 2413626)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.19 mg/kg	110	80.0	120	----
Hydrocarbons(QC Lot: 2413737)									
F1 (C6-C10)	----	E581.F1	5	mg/kg	69.19 mg/kg	104	80.0	120	----
Hydrocarbons(QC Lot: 2420466)									
F4G-sg	----	E601.F4G-L	250	mg/kg	1299 mg/kg	90.2	70.0	130	----
Hydrocarbons Surrogates(QC Lot: 2413526)									
Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L	1	mg/kg	562.5 mg/kg	92.5	60	140	----
Hydrocarbons Surrogates(QC Lot: 2413626)									
Dichlorotoluene, 3,4-	95-75-0	E581.F1	1	mg/kg	34.62 mg/kg	110	60	140	----
Hydrocarbons Surrogates(QC Lot: 2413737)									
Dichlorotoluene, 3,4-	95-75-0	E581.F1	1	mg/kg	34.62 mg/kg	94.0	60	140	----
Volatile Organic Compounds Surrogates(QC Lot: 2413624)									
Bromofluorobenzene, 4-	460-00-4	E611D	0.1	mg/kg	0.3475 mg/kg	110	60	130	----
Difluorobenzene, 1,4-	540-36-3	E611D	0.1	mg/kg	0.3475 mg/kg	110	60	130	----
Volatile Organic Compounds Surrogates(QC Lot: 2413736)									
Bromofluorobenzene, 4-	460-00-4	E611A	0.1	mg/kg	0.3475 mg/kg	105	60	130	----
Difluorobenzene, 1,4-	540-36-3	E611A	0.1	mg/kg	0.3475 mg/kg	105	60	130	----
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)									
Acenaphthene	83-32-9	E641A	0.05	mg/kg	0.5 mg/kg	96.6	60.0	130	----
Acenaphthylene	208-96-8	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Anthracene	120-12-7	E641A	0.05	mg/kg	0.5 mg/kg	88.6	60.0	130	----
Benz(a)anthracene	56-55-3	E641A	0.05	mg/kg	0.5 mg/kg	88.4	60.0	130	----
Benzo(a)pyrene	50-32-8	E641A	0.05	mg/kg	0.5 mg/kg	91.4	60.0	130	----
Benzo(b+j)fluoranthene	n/a	E641A	0.05	mg/kg	0.5 mg/kg	90.7	60.0	130	----
Benzo(g,h,i)perylene	191-24-2	E641A	0.05	mg/kg	0.5 mg/kg	95.2	60.0	130	----
Benzo(k)fluoranthene	207-08-9	E641A	0.05	mg/kg	0.5 mg/kg	93.4	60.0	130	----
Chrysene	218-01-9	E641A	0.05	mg/kg	0.5 mg/kg	94.7	60.0	130	----
Dibenz(a,h)anthracene	53-70-3	E641A	0.05	mg/kg	0.5 mg/kg	89.8	60.0	130	----
Fluoranthene	206-44-0	E641A	0.05	mg/kg	0.5 mg/kg	93.5	60.0	130	----
Fluorene	86-73-7	E641A	0.05	mg/kg	0.5 mg/kg	91.0	60.0	130	----
Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.05	mg/kg	0.5 mg/kg	93.1	60.0	130	----
Methylnaphthalene, 1-	90-12-0	E641A	0.03	mg/kg	0.5 mg/kg	88.0	60.0	130	----
Methylnaphthalene, 2-	91-57-6	E641A	0.03	mg/kg	0.5 mg/kg	95.8	60.0	130	----

Sub-Matrix: Soil

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Target Concentration	LCS: Recovery (%)	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)									
Naphthalene	91-20-3	E641A	0.01	mg/kg	0.5 mg/kg	85.4	60.0	130	----
Phenanthrene	85-01-8	E641A	0.05	mg/kg	0.5 mg/kg	89.2	60.0	130	----
Pyrene	129-00-0	E641A	0.05	mg/kg	0.5 mg/kg	91.9	60.0	130	----
Polycyclic Aromatic Hydrocarbons Surrogates(QC Lot: 2413525)									
Acridine-d9	34749-75-2	E641A	0.1	mg/kg	0.375 mg/kg	90.1	60	130	----
Chrysene-d12	1719-03-5	E641A	0.1	mg/kg	0.375 mg/kg	95.0	60	130	----
Naphthalene-d8	1146-65-2	E641A	0.1	mg/kg	0.375 mg/kg	99.0	60	130	----
Phenanthrene-d10	1517-22-2	E641A	0.1	mg/kg	0.375 mg/kg	97.8	60	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for

Sub-Matrix: Soil

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Matrix Spike (MS) Report: Spike Concentration	Spike Target	Recovery (%) MS	Recovery (%) Low	Recovery (%) High	Qualifier
Cyanides(QC Lot: 2413524)										
WT2600489-001	BH1S1	Cyanide, weak acid dissociable	----	E336A	1.23 mg/kg	1.247 mg/kg	98.9	70.0	130	---
Volatile Organic Compounds(QC Lot: 2413624)										
WT2600489-001	BH1S1	Acetone	67-64-1	E611D	3.00 mg/kg	2.524 mg/kg	119	50.0	140	---
		Benzene	71-43-2	E611D	2.25 mg/kg	2.524 mg/kg	89.1	50.0	140	---
		Bromodichloromethane	75-27-4	E611D	2.49 mg/kg	2.524 mg/kg	98.5	50.0	140	---
		Bromoform	75-25-2	E611D	2.61 mg/kg	2.524 mg/kg	103	50.0	140	---
		Bromomethane	74-83-9	E611D	1.67 mg/kg	2.524 mg/kg	66.0	50.0	140	---
		Carbon tetrachloride	56-23-5	E611D	1.99 mg/kg	2.524 mg/kg	78.9	50.0	140	---
		Chlorobenzene	108-90-7	E611D	2.31 mg/kg	2.524 mg/kg	91.4	50.0	140	---
		Chloroform	67-66-3	E611D	2.27 mg/kg	2.524 mg/kg	90.0	50.0	140	---
		Dibromochloromethane	124-48-1	E611D	2.53 mg/kg	2.524 mg/kg	100	50.0	140	---
		Dibromoethane, 1,2-	106-93-4	E611D	2.58 mg/kg	2.524 mg/kg	102	50.0	140	---
		Dichlorobenzene, 1,2-	95-50-1	E611D	2.39 mg/kg	2.524 mg/kg	94.7	50.0	140	---
		Dichlorobenzene, 1,3-	541-73-1	E611D	2.37 mg/kg	2.524 mg/kg	93.7	50.0	140	---
		Dichlorobenzene, 1,4-	106-46-7	E611D	2.39 mg/kg	2.524 mg/kg	94.7	50.0	140	---
		Dichlorodifluoromethane	75-71-8	E611D	1.85 mg/kg	2.524 mg/kg	73.4	50.0	140	---

Sub-Matrix: Soil

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Volatile Organic Compounds(QC Lot: 2413624)										
		Dichloroethane, 1,1-	75-34-3	E611D	2.13 mg/kg	2.524 mg/kg	84.2	50.0	140	---
		Dichloroethane, 1,2-	107-06-2	E611D	2.46 mg/kg	2.524 mg/kg	97.6	50.0	140	---
		Dichloroethylene, 1,1-	75-35-4	E611D	2.03 mg/kg	2.524 mg/kg	80.6	50.0	140	---
		Dichloroethylene, cis-1,2-	156-59-2	E611D	2.27 mg/kg	2.524 mg/kg	90.1	50.0	140	---
		Dichloroethylene, trans-1,2-	156-60-5	E611D	2.12 mg/kg	2.524 mg/kg	84.2	50.0	140	---
		Dichloromethane	75-09-2	E611D	2.35 mg/kg	2.524 mg/kg	93.1	50.0	140	---
		Dichloropropane, 1,2-	78-87-5	E611D	2.35 mg/kg	2.524 mg/kg	93.1	50.0	140	---
		Dichloropropylene, cis-1,3-	10061-01-5	E611D	2.52 mg/kg	2.524 mg/kg	99.8	50.0	140	---
		Dichloropropylene, trans-1,3-	10061-02-6	E611D	2.51 mg/kg	2.524 mg/kg	99.6	50.0	140	---
		Ethylbenzene	100-41-4	E611D	2.24 mg/kg	2.524 mg/kg	88.9	50.0	140	---
		Hexane, n-	110-54-3	E611D	1.79 mg/kg	2.524 mg/kg	71.1	50.0	140	---
		Methyl ethyl ketone [MEK]	78-93-3	E611D	3.05 mg/kg	2.524 mg/kg	121	50.0	140	---
		Methyl isobutyl ketone [MIBK]	108-10-1	E611D	2.81 mg/kg	2.524 mg/kg	111	50.0	140	---
		Methyl-tert-butyl ether [MTBE]	1634-04-4	E611D	2.29 mg/kg	2.524 mg/kg	90.9	50.0	140	---
		Styrene	100-42-5	E611D	2.25 mg/kg	2.524 mg/kg	89.0	50.0	140	---
		Tetrachloroethane, 1,1,1,2-	630-20-6	E611D	2.22 mg/kg	2.524 mg/kg	88.0	50.0	140	---
		Tetrachloroethane, 1,1,2,2-	79-34-5	E611D	2.92 mg/kg	2.524 mg/kg	116	50.0	140	---
		Tetrachloroethylene	127-18-4	E611D	1.97 mg/kg	2.524 mg/kg	77.9	50.0	140	---
		Toluene	108-88-3	E611D	2.28 mg/kg	2.524 mg/kg	90.4	50.0	140	---
		Trichloroethane, 1,1,1-	71-55-6	E611D	2.02 mg/kg	2.524 mg/kg	80.2	50.0	140	---
		Trichloroethane, 1,1,2-	79-00-5	E611D	2.54 mg/kg	2.524 mg/kg	101	50.0	140	---
		Trichloroethylene	79-01-6	E611D	2.18 mg/kg	2.524 mg/kg	86.2	50.0	140	---
		Trichlorofluoromethane	75-69-4	E611D	1.91 mg/kg	2.524 mg/kg	75.5	50.0	140	---
		Vinyl chloride	75-01-4	E611D	1.94 mg/kg	2.524 mg/kg	76.8	50.0	140	---
		Xylene, m+p-	179601-23-1	E611D	4.54 mg/kg	5.047 mg/kg	90.0	50.0	140	---
		Xylene, o-	95-47-6	E611D	2.33 mg/kg	2.524 mg/kg	92.4	50.0	140	---
Volatile Organic Compounds(QC Lot: 2413736)										
WT2600419-002	Anonymous	Benzene	71-43-2	E611A	2.77 mg/kg	2.365 mg/kg	117	60.0	140	---
		Ethylbenzene	100-41-4	E611A	2.43 mg/kg	2.365 mg/kg	103	60.0	140	---
		Toluene	108-88-3	E611A	2.66 mg/kg	2.365 mg/kg	113	60.0	140	---
		Xylene, m+p-	179601-23-1	E611A	4.68 mg/kg	4.73 mg/kg	98.9	60.0	140	---
		Xylene, o-	95-47-6	E611A	2.44 mg/kg	2.365 mg/kg	103	60.0	140	---
Hydrocarbons(QC Lot: 2413526)										
WT2600489-001	BH1S1	F2 (C10-C16)	----	E601.SG-L	532 mg/kg	534.2 mg/kg	99.6	60.0	140	---
		F3 (C16-C34)	----	E601.SG-L	1150 mg/kg	1101 mg/kg	104	60.0	140	---
		F4 (C34-C50)	----	E601.SG-L	593 mg/kg	595.8 mg/kg	99.6	60.0	140	---

Sub-Matrix: Soil

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Hydrocarbons(QC Lot: 2413626)										
WT2600489-001	BH1S1	F1 (C6-C10)	----	E581.F1	49.7 mg/kg	50.47 mg/kg	98.5	60.0	140	---
Hydrocarbons(QC Lot: 2413737)										
WT2600419-002	Anonymous	F1 (C6-C10)	----	E581.F1	31.4 mg/kg	47.3 mg/kg	66.5	60.0	140	---
Hydrocarbons Surrogates(QC Lot: 2413526)										
		Bromobenzotrifluoride, 2- (F2-F4 surrogate)	392-83-6	E601.SG-L	416 mg/kg	447.9 mg/kg	93.0	60.0	140	---
Hydrocarbons Surrogates(QC Lot: 2413626)										
		Dichlorotoluene, 3,4-	95-75-0	E581.F1	19.2 mg/kg	25.26 mg/kg	76.1	60.0	140	---
Hydrocarbons Surrogates(QC Lot: 2413737)										
		Dichlorotoluene, 3,4-	95-75-0	E581.F1	19.4 mg/kg	23.67 mg/kg	82.1	60.0	140	---
Volatile Organic Compounds Surrogates(QC Lot: 2413624)										
		Bromofluorobenzene, 4-	460-00-4	E611D	0.26 mg/kg	0.2524 mg/kg	102	50.0	140	---
		Difluorobenzene, 1,4-	540-36-3	E611D	0.27 mg/kg	0.2524 mg/kg	106	50.0	140	---
Volatile Organic Compounds Surrogates(QC Lot: 2413736)										
		Bromofluorobenzene, 4-	460-00-4	E611A	0.26 mg/kg	0.2365 mg/kg	108	50.0	140	---
		Difluorobenzene, 1,4-	540-36-3	E611A	0.26 mg/kg	0.2365 mg/kg	109	50.0	140	---
Polycyclic Aromatic Hydrocarbons(QC Lot: 2413525)										
WT2600489-001	BH1S1	Acenaphthene	83-32-9	E641A	0.386 mg/kg	0.3982 mg/kg	97.0	50.0	140	---
		Acenaphthylene	208-96-8	E641A	0.376 mg/kg	0.3982 mg/kg	94.4	50.0	140	---
		Anthracene	120-12-7	E641A	0.362 mg/kg	0.3982 mg/kg	90.8	50.0	140	---
		Benz(a)anthracene	56-55-3	E641A	0.361 mg/kg	0.3982 mg/kg	90.6	50.0	140	---
		Benzo(a)pyrene	50-32-8	E641A	0.373 mg/kg	0.3982 mg/kg	93.6	50.0	140	---
		Benzo(b+j)fluoranthene	n/a	E641A	0.370 mg/kg	0.3982 mg/kg	93.0	50.0	140	---
		Benzo(g,h,i)perylene	191-24-2	E641A	0.380 mg/kg	0.3982 mg/kg	95.4	50.0	140	---
		Benzo(k)fluoranthene	207-08-9	E641A	0.378 mg/kg	0.3982 mg/kg	94.8	50.0	140	---
		Chrysene	218-01-9	E641A	0.379 mg/kg	0.3982 mg/kg	95.3	50.0	140	---
		Dibenz(a,h)anthracene	53-70-3	E641A	0.359 mg/kg	0.3982 mg/kg	90.3	50.0	140	---
		Fluoranthene	206-44-0	E641A	0.371 mg/kg	0.3982 mg/kg	93.1	50.0	140	---
		Fluorene	86-73-7	E641A	0.367 mg/kg	0.3982 mg/kg	92.2	50.0	140	---
		Indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.376 mg/kg	0.3982 mg/kg	94.5	50.0	140	---
		Methylnaphthalene, 1-	90-12-0	E641A	0.354 mg/kg	0.3982 mg/kg	88.9	50.0	140	---
		Methylnaphthalene, 2-	91-57-6	E641A	0.388 mg/kg	0.3982 mg/kg	97.4	50.0	140	---
		Naphthalene	91-20-3	E641A	0.349 mg/kg	0.3982 mg/kg	87.6	50.0	140	---
		Phenanthrene	85-01-8	E641A	0.360 mg/kg	0.3982 mg/kg	90.3	50.0	140	---
		Pyrene	129-00-0	E641A	0.366 mg/kg	0.3982 mg/kg	92.0	50.0	140	---
Polycyclic Aromatic Hydrocarbons Surrogates(QC Lot: 2413525)										
		Acridine-d9	34749-75-2	E641A	0.3 mg/kg	0.2986 mg/kg	94.2	60.0	130	---
		Chrysene-d12	1719-03-5	E641A	0.3 mg/kg	0.2986 mg/kg	98.5	60.0	130	---

Sub-Matrix: Soil

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
Polycyclic Aromatic Hydrocarbons Surrogates(QC Lot: 2413525)										
		Naphthalene-d8	1146-65-2	E641A	0.3 mg/kg	0.2986 mg/kg	102	60.0	130	---
		Phenanthrene-d10	1517-22-2	E641A	0.3 mg/kg	0.2986 mg/kg	100.0	60.0	130	---

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: Soil

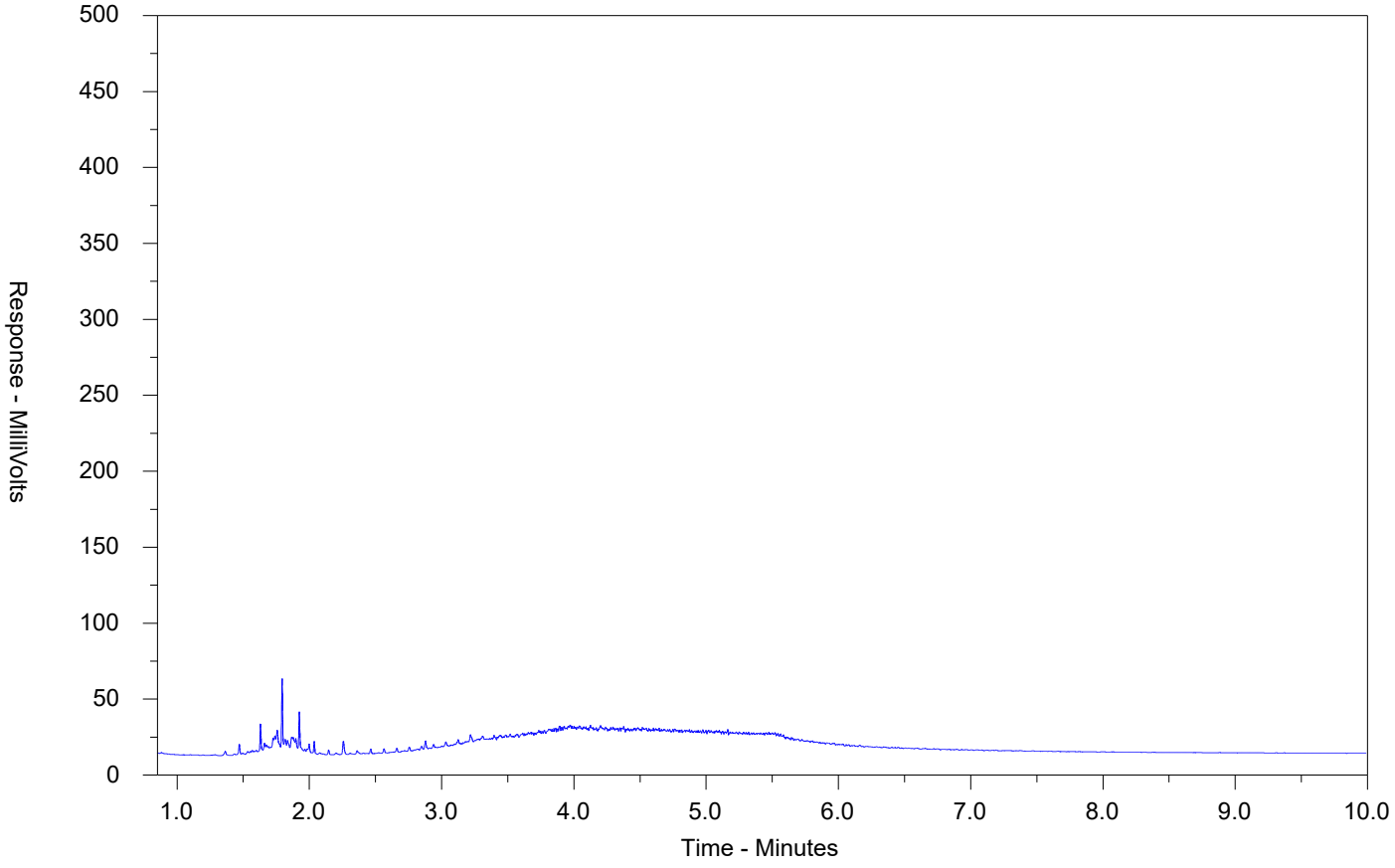
					Reference Material (RM) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Target Concentration	Original Result	LCS	Low	High	Qualifier
Physical Tests(QC Lot: 2415776)										
QC-MRG2-2415775001		Conductivity (1:2 leachate)	----	E100-L	714.1 µS/cm	714.1 µS/cm		70.0	130	----
Metals(QC Lot: 2415775)										
QC-MRG2-2415775001		Calcium, soluble ion content	7440-70-2	E484	77.21 mg/L	77.21 mg/L		70.0	130	----
		Magnesium, soluble ion content	7439-95-4	E484	8.343 mg/L	8.343 mg/L		70.0	130	----
		Sodium, soluble ion content	17341-25-2	E484	38.56 mg/L	38.56 mg/L		70.0	130	----
Metals(QC Lot: 2415777)										
QC-2415777-001		Boron, hot water soluble	7440-42-8	E487	0.487 mg/kg	0.487 mg/kg		60.0	140	----
Metals(QC Lot: 2415778)										
QC-MRG2-2415778001		Mercury	7439-97-6	E510C	0.0675 mg/kg	0.0675 mg/kg		70.0	130	----
Metals(QC Lot: 2415779)										
QC-MRG2-2415778001		Antimony	7440-36-0	E440C	24.8 mg/kg	24.8 mg/kg		70.0	130	----
		Arsenic	7440-38-2	E440C	21.2 mg/kg	21.2 mg/kg		70.0	130	----
		Barium	7440-39-3	E440C	788 mg/kg	788 mg/kg		70.0	130	----
		Beryllium	7440-41-7	E440C	1.82 mg/kg	1.82 mg/kg		70.0	130	----
		Cadmium	7440-43-9	E440C	2.15 mg/kg	2.15 mg/kg		70.0	130	----
		Chromium	7440-47-3	E440C	56.9 mg/kg	56.9 mg/kg		70.0	130	----
		Cobalt	7440-48-4	E440C	32 mg/kg	32 mg/kg		70.0	130	----
		Copper	7440-50-8	E440C	969 mg/kg	969 mg/kg		70.0	130	----
		Lead	7439-92-1	E440C	919 mg/kg	919 mg/kg		70.0	130	----
		Molybdenum	7439-98-7	E440C	25.1 mg/kg	25.1 mg/kg		70.0	130	----
		Nickel	7440-02-0	E440C	1004 mg/kg	1004 mg/kg		70.0	130	----
		Selenium	7782-49-2	E440C	1.04 mg/kg	1.04 mg/kg		60.0	140	----
		Silver	7440-22-4	E440C	8.98 mg/kg	8.98 mg/kg		70.0	130	----
		Thallium	7440-28-0	E440C	0.907 mg/kg	0.907 mg/kg		70.0	130	----
		Uranium	7440-61-1	E440C	3.97 mg/kg	3.97 mg/kg		70.0	130	----

Sub-Matrix: Soil

					Reference Material (RM) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Target Concentration	Original Result	LCS	Low	High	Qualifier
Metals(QC Lot: 2415779)										
		Vanadium	7440-62-2	E440C	66.2 mg/kg	66.2 mg/kg		70.0	130	----
		Zinc	7440-66-6	E440C	828 mg/kg	828 mg/kg		70.0	130	----
Speciated Metals(QC Lot: 2415774)										
QC-2415774-001		Chromium, hexavalent [Cr VI]	18540-29-9	E532	197 mg/kg	197 mg/kg		70.0	130	----

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2600489-001-E601.SG-L
Client Sample ID: BH1S1



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

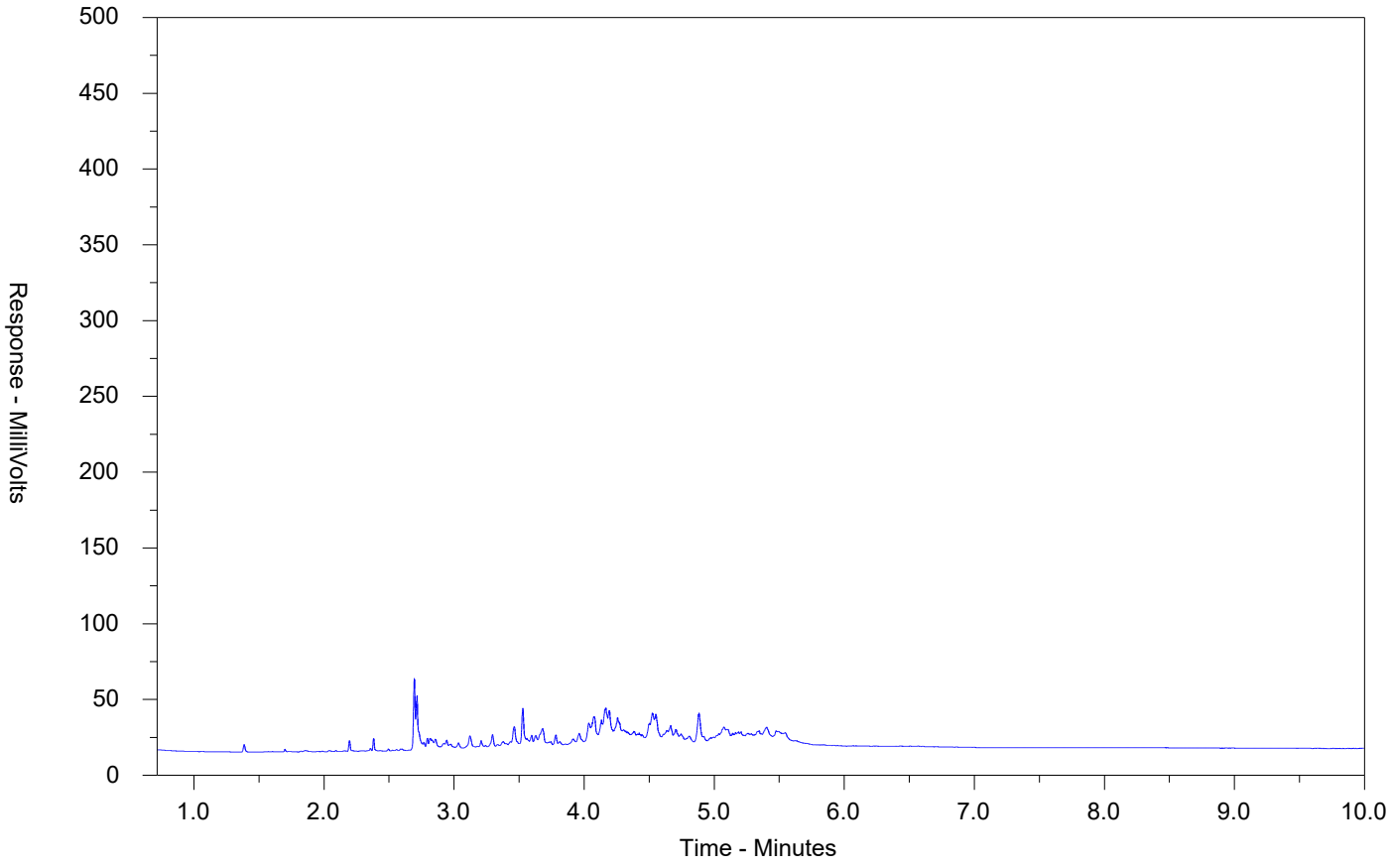
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2600489-002-E601.SG-L
Client Sample ID: BH1S5



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

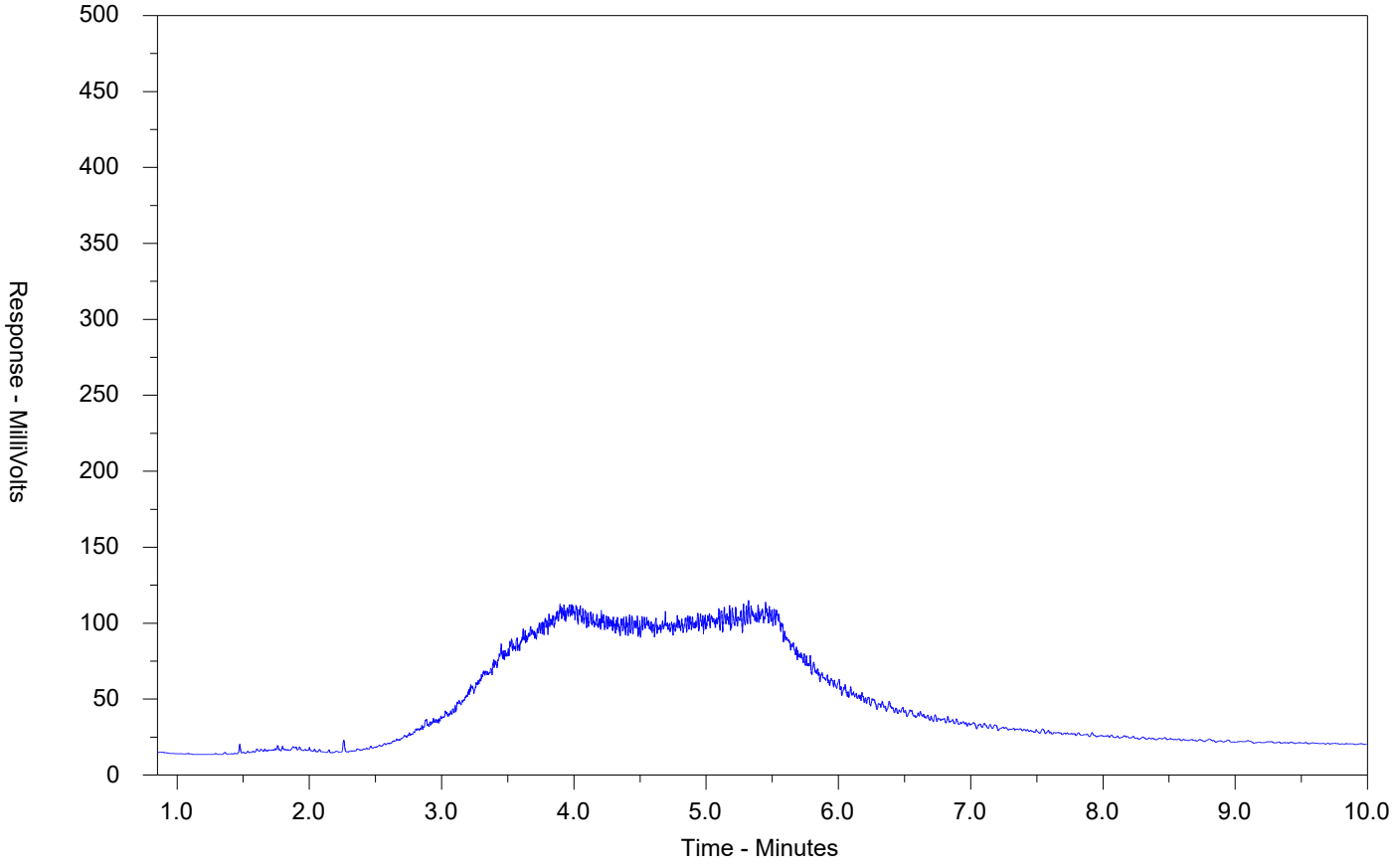
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2600489-003-E601.SG-L
Client Sample ID: BH2S3



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

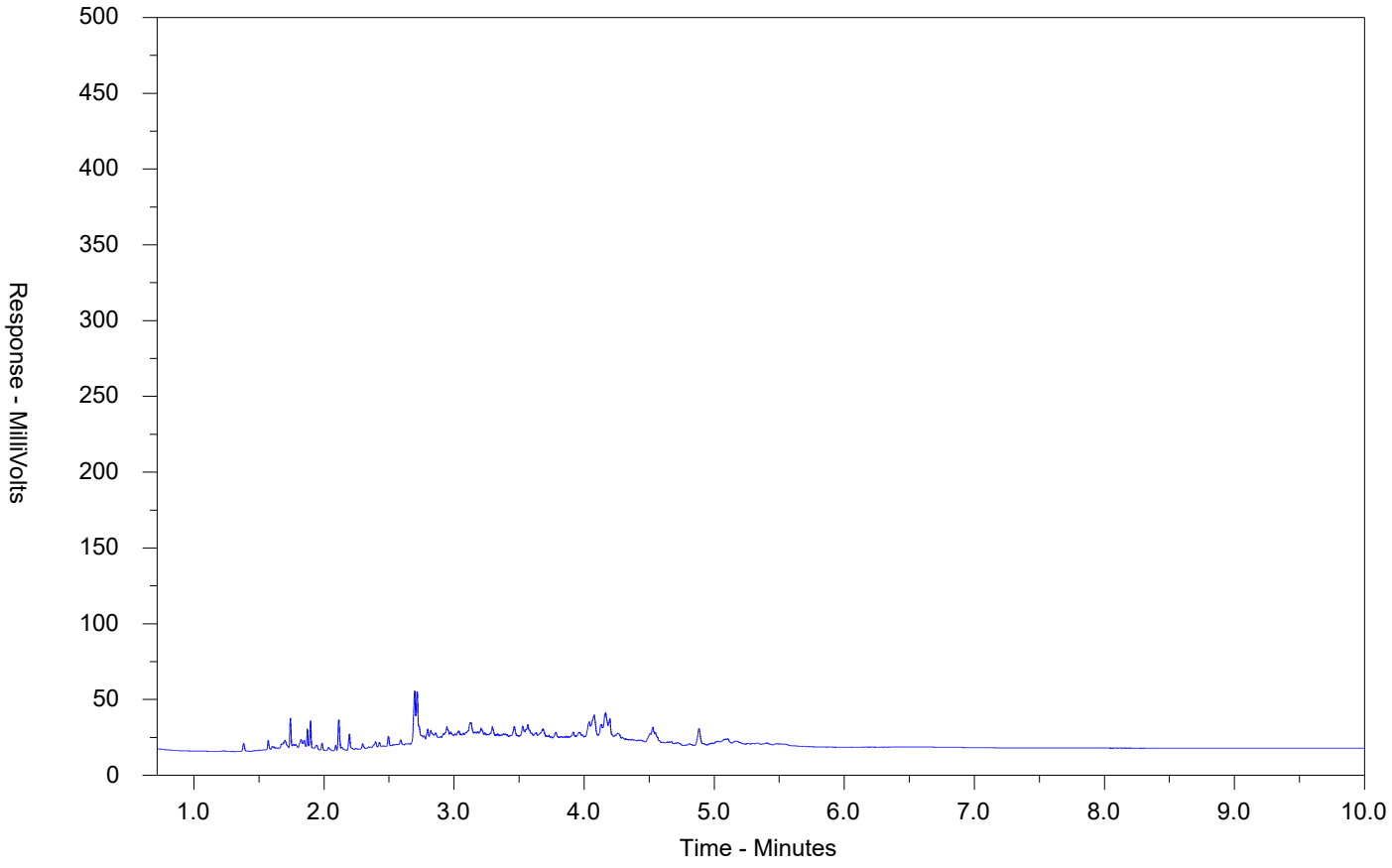
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WT2600489-004-E601.SG-L
Client Sample ID: BH2S6



←F2→	←F3→	←F4→	
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
Gasoline →		← Motor Oils/Lube Oils/Grease →	
← Diesel/Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor and the scale at the left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR Library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page

Environmental Division
Waterloo
Work Order Reference
WT2600489

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	CMT Engineering Inc.	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	J. Feeney	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	519-699-5775 (ext. 307)	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	1011 Industrial Cres. Unit 1	Email 1 or Fax nchortos@cmtinc.net	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	St. Clements, Ontario	Email 2 jfeeney@cmtinc.net	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Ad fees may apply to rush resuests on weekends, statutory holidays and routine tests
Postal Code:	N0B 2M0	Email 3 bfigg@cmtinc.net	Date and Time Required for all E&P TATs:
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Recipients**	For tests that can not be performed according to the T
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax egibbs@cmtinc.net	
Contact:		Email 2 jfeeney@cmtinc.net	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	25-888 Blatchford Bridge, Guelph, ON	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): WT2600489 NTB | ALS Contact: MM | Sampler: B. Figg

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals and Inorganics	BTEX, PHC F1-F4	PAH	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH1S1	8-Jan-26		SPT	6	R	R	R	R			
	BH1S5	8-Jan-26		SPT	6	R	R	R				
	BH2S3	8-Jan-26		SPT	6	R	R	R	R			
	BH2S6	8-Jan-26		MC5	6	R	R	R				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O. Reg.153 Table 1 RPIICC
Table 2 RPI
Table 2 ICC

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				15-7			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: NTB	Date: 09/01/026	Time: 15:40

Note all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VS 225 SOL 385

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS (GUIDELINE EVALUATION)

Work Order	:	**WT2601267**			
Client	:	**CMT Engineering Inc.**	Laboratory	:	ALS Environmental - Waterloo
Contact	:	Jake Feeney	Account Manager	:	Mathy Mahadeva
Address	:	1011 Industrial Crescent Unit 1 St. Clements Ontario Canada N0B 2M0	Address	:	60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	:	519 699 5775	Telephone	:	+1 519 886 6910
Project	:	25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	:	20-Jan-2026 15:17
PO	:	----	Date Analysis Commenced	:	21-Jan-2026
C-O-C number	:	----	Issue Date	:	26-Jan-2026 15:34
Sampler	:	----			
Site	:	----			
Quote number	:	Standing Offer 2026 Pricing			
No. of samples received	:	1			
No. of samples analysed	:	1			

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Guideline Comparison

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	VOC, Waterloo, Ontario
Nik Perkio	Senior Analyst	Metals, Waterloo, Ontario
Robert Braun	Soils Team Supervisor	Inorganics, Waterloo, Ontario

No Breaches Found

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guidelines are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.

Key: LOR: Limit of Reporting (detection limit).

Unit	*Description*
mg/L	milligrams per litre
pH units	pH units
µg/L	micrograms per litre

>: greater than.
<: less than.

Red shading is applied where the result or the LOR is greater than the Guideline Upper Limit (or lower than the Guideline Lower Limit, if applicable).
For drinking water samples, Red shading is applied where the result for E.coli, fecal or total coliforms is greater than or equal to the Guideline Upper Limit.

Qualifiers

Qualifier	Description
SFPR	Suspected False Positive Result, based on detection in Lab Blanks and/or Field Blanks, or other known issues.

Analytical Results Evaluation

Matrix: Soil/Solid				Client sample ID	BH1S5 ----	----	----	----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	----	----	----	----	----	----
				Sub-Matrix	Soil	----	----	----	----	----	----
Analyte	CAS Number	Method/Lab	Unit		WT2601267-002	----	----	----	----	----	----
					Result	----	----	----	----	----	----
TCLP Metals											
pH, TCLP 1st preliminary	----	EPP444/WT	pH units		8.36	----	----	----	----	----	----
pH, TCLP 2nd preliminary	----	EPP444/WT	pH units		5.03	----	----	----	----	----	----
pH, TCLP extraction fluid initial	----	EPP444/WT	pH units		2.88	----	----	----	----	----	----
pH, TCLP final	----	EPP444/WT	pH units		4.48	----	----	----	----	----	----
Antimony, TCLP	7440-36-0	E444/WT	mg/L		<0.10	----	----	----	----	----	----
Arsenic, TCLP	7440-38-2	E444/WT	mg/L		<1.0	----	----	----	----	----	----
Barium, TCLP	7440-39-3	E444/WT	mg/L		2.8	----	----	----	----	----	----
Beryllium, TCLP	7440-41-7	E444/WT	mg/L		<0.025	----	----	----	----	----	----
Boron, TCLP	7440-42-8	E444/WT	mg/L		<0.50	----	----	----	----	----	----
Cadmium, TCLP	7440-43-9	E444/WT	mg/L		0.054	----	----	----	----	----	----
Calcium, TCLP	7440-70-2	E444/WT	mg/L		579	----	----	----	----	----	----
Chromium, TCLP	7440-47-3	E444/WT	mg/L		<0.25	----	----	----	----	----	----
Cobalt, TCLP	7440-48-4	E444/WT	mg/L		0.083	----	----	----	----	----	----
Copper, TCLP	7440-50-8	E444/WT	mg/L		<0.050	----	----	----	----	----	----
Iron, TCLP	7439-89-6	E444/WT	mg/L		65.2	----	----	----	----	----	----
Lead, TCLP	7439-92-1	E444/WT	mg/L		<0.25	----	----	----	----	----	----
Magnesium, TCLP	7439-95-4	E444/WT	mg/L		131	----	----	----	----	----	----
Mercury, TCLP	7439-97-6	E512/WT	mg/L		<0.0010	----	----	----	----	----	----
Nickel, TCLP	7440-02-0	E444/WT	mg/L		<0.25	----	----	----	----	----	----

Matrix: Soil/Solid

Analyte	CAS Number	Method/Lab	Unit	Client sample ID	BH1S5 ----	----	----	----	----	----	----
				Client sampling date / time	08-Jan-2026 00:00	----	----	----	----	----	----
				Sub-Matrix	Soil	----	----	----	----	----	----
					WT2601267-002	----	----	----	----	----	----
					Result	----	----	----	----	----	----
TCLP Metals											
Selenium, TCLP	7782-49-2	E444/WT	mg/L		<0.10	----	----	----	----	----	----
Silver, TCLP	7440-22-4	E444/WT	mg/L		<0.050	----	----	----	----	----	----
Thallium, TCLP	7440-28-0	E444/WT	mg/L		<1.0	----	----	----	----	----	----
Uranium, TCLP	7440-61-1	E444/WT	mg/L		<0.20	----	----	----	----	----	----
Vanadium, TCLP	7440-62-2	E444/WT	mg/L		<0.15	----	----	----	----	----	----
Zinc, TCLP	7440-66-6	E444/WT	mg/L		18.9	----	----	----	----	----	----
Zirconium, TCLP	7440-67-7	E444/WT	mg/L		<10	----	----	----	----	----	----
TCLP VOCs											
Benzene, TCLP	71-43-2	E615B/WT	mg/L		<0.0050	----	----	----	----	----	----
Carbon tetrachloride, TCLP	56-23-5	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Chlorobenzene, TCLP	108-90-7	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Chloroform, TCLP	67-66-3	E615B/WT	mg/L		<0.10	----	----	----	----	----	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Dichloromethane, TCLP	75-09-2	E615B/WT	mg/L		<0.24 SFPR	----	----	----	----	----	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B/WT	mg/L		<0.10	----	----	----	----	----	----
Tetrachloroethylene, TCLP	127-18-4	E615B/WT	mg/L		<0.025	----	----	----	----	----	----
Trichloroethylene, TCLP	79-01-6	E615B/WT	mg/L		<0.025	----	----	----	----	----	----

Matrix: Soil/Solid										
			Client sample ID	**BH1S5 ----**	----	----	----	----	----	----
			Client sampling date / time	08-Jan-2026 00:00	----	----	----	----	----	----
			Sub-Matrix	Soil	----	----	----	----	----	----
Analyte	*CAS Number*	*Method/Lab*	*Unit*	**WT2601267-002**	----	----	----	----	----	----
				Result	----	----	----	----	----	----
TCLP VOCs										
Vinyl chloride, TCLP	75-01-4	E615B/WT	mg/L	<0.050	----	----	----	----	----	----
TCLP VOCs Surrogates										
Bromofluorobenzene, 4-, TCLP	460-00-4	E615B/WT	%	99.9	----	----	----	----	----	----
Difluorobenzene, 1,4-, TCLP	540-36-3	E615B/WT	%	96.2	----	----	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Summary of Guideline Limits

Analyte	CAS Number	Unit	ONWCR Sch. 4						
TCLP Metals									
pH, TCLP 1st preliminary	----	pH units	----	----	----	----	----	----	----
pH, TCLP 2nd preliminary	----	pH units	----	----	----	----	----	----	----
pH, TCLP extraction fluid initial	----	pH units	----	----	----	----	----	----	----
pH, TCLP final	----	pH units	----	----	----	----	----	----	----
Antimony, TCLP	7440-36-0	mg/L	----	----	----	----	----	----	----
Arsenic, TCLP	7440-38-2	mg/L	**2.5 mg/L**	----	----	----	----	----	----
Barium, TCLP	7440-39-3	mg/L	**100 mg/L**	----	----	----	----	----	----
Beryllium, TCLP	7440-41-7	mg/L	----	----	----	----	----	----	----
Boron, TCLP	7440-42-8	mg/L	**500 mg/L**	----	----	----	----	----	----
Cadmium, TCLP	7440-43-9	mg/L	**0.5 mg/L**	----	----	----	----	----	----
Calcium, TCLP	7440-70-2	mg/L	----	----	----	----	----	----	----
Chromium, TCLP	7440-47-3	mg/L	**5 mg/L**	----	----	----	----	----	----
Cobalt, TCLP	7440-48-4	mg/L	----	----	----	----	----	----	----
Copper, TCLP	7440-50-8	mg/L	----	----	----	----	----	----	----
Iron, TCLP	7439-89-6	mg/L	----	----	----	----	----	----	----
Lead, TCLP	7439-92-1	mg/L	**5 mg/L**	----	----	----	----	----	----
Magnesium, TCLP	7439-95-4	mg/L	----	----	----	----	----	----	----
Mercury, TCLP	7439-97-6	mg/L	**0.1 mg/L**	----	----	----	----	----	----
Nickel, TCLP	7440-02-0	mg/L	----	----	----	----	----	----	----
Selenium, TCLP	7782-49-2	mg/L	**1 mg/L**	----	----	----	----	----	----
Silver, TCLP	7440-22-4	mg/L	**5 mg/L**	----	----	----	----	----	----
Thallium, TCLP	7440-28-0	mg/L	----	----	----	----	----	----	----
Uranium, TCLP	7440-61-1	mg/L	**10 mg/L**	----	----	----	----	----	----

Vanadium, TCLP	7440-62-2	mg/L	----	----	----	----	----	----	----
Zinc, TCLP	7440-66-6	mg/L	----	----	----	----	----	----	----
Zirconium, TCLP	7440-67-7	mg/L	----	----	----	----	----	----	----
TCLP VOCs									
Benzene, TCLP	71-43-2	mg/L	**0.5 mg/L**	----	----	----	----	----	----
Carbon tetrachloride, TCLP	56-23-5	mg/L	**0.5 mg/L**	----	----	----	----	----	----
Chlorobenzene, TCLP	108-90-7	mg/L	**8 mg/L**	----	----	----	----	----	----
Chloroform, TCLP	67-66-3	mg/L	**10 mg/L**	----	----	----	----	----	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	mg/L	**20 mg/L**	----	----	----	----	----	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	mg/L	**0.5 mg/L**	----	----	----	----	----	----
Dichloroethane, 1,2-, TCLP	107-06-2	mg/L	**0.5 mg/L**	----	----	----	----	----	----
Dichloroethylene, 1,1-, TCLP	75-35-4	mg/L	**1.4 mg/L**	----	----	----	----	----	----
Dichloromethane, TCLP	75-09-2	mg/L	**5 mg/L**	----	----	----	----	----	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	mg/L	**200 mg/L**	----	----	----	----	----	----
Tetrachloroethylene, TCLP	127-18-4	mg/L	**3 mg/L**	----	----	----	----	----	----
Trichloroethylene, TCLP	79-01-6	mg/L	**5 mg/L**	----	----	----	----	----	----
Vinyl chloride, TCLP	75-01-4	mg/L	**0.2 mg/L**	----	----	----	----	----	----
Bromofluorobenzene, 4-, TCLP	460-00-4	%	----	----	----	----	----	----	----
Difluorobenzene, 1,4-, TCLP	540-36-3	%	----	----	----	----	----	----	----

Key:

ONWCR — Ontario MECP, General Waste Control Regulation No. 347/90,558/00

Sch. 4 — Schedule 4 Leachate Quality Criteria

ALS Canada Ltd.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WT2601267**	Page	: 1 of 5
Client	: **CMT Engineering Inc.**	Laboratory	: ALS Environmental - Waterloo
Contact	: Jake Feeney	Account Manager	: Mathy Mahadeva
Address	: 1011 Industrial Crescent Unit 1 St. Clements ON Canada N0B 2M0	Address	: 60 Northland Road, Unit 1 Waterloo, Ontario Canada N2V 2B8
Telephone	: 519 699 5775	Telephone	: +1 519 886 6910
Project	: 25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	: 20-Jan-2026 15:17
PO	: ----	Issue Date	: 26-Jan-2026 15:34
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer 2026 Pricing		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group : Analytical Method / Container / Client Sample ID(s)	*Method*	*Sampling Date*	*Extraction / Preparation*				*Analysis*			
			Preparation Date	*Holding Times* Rec	*Holding Times* Actual	*Eval*	*Analysis Date*	*Holding Times* Rec	*Holding Times* Actual	*Eval*
TCLP Metals : Mercury by CVAAS (TCLP)										
Glass vial - total (lab preserved) BH1S5	E512	21-Jan-2026	22-Jan-2026	41 days	14 days	✓	22-Jan-2026	41 days	14 days	✓
TCLP Metals : Metals by CRC ICPMS (TCLP)										
HDPE - total (lab preserved) BH1S5	E444	21-Jan-2026	22-Jan-2026	193 days	14 days	✓	22-Jan-2026	193 days	14 days	✓
TCLP Metals : TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)										
Lab Split - Non-Volatile Leach: 14 day HT (e.g. CN,SVOC) BH1S5	EPP444	08-Jan-2026	21-Jan-2026	----	----		----	14 days	13 days	✓
TCLP VOCs : VOCs by Headspace GC-MS (TCLP)										
Glass vial (sodium bisulfate) BH1S5	E615B	21-Jan-2026	22-Jan-2026	27 days	15 days	✓	23-Jan-2026	27 days	15 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Metals by CRC ICPMS (TCLP)	E444	2426240	1	4	25.0	5.0	✓
Mercury by CVAAS (TCLP)	E512	2426267	1	5	20.0	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	2427412	1	3	33.3	5.0	✓
Laboratory Control Samples (LCS)							
Metals by CRC ICPMS (TCLP)	E444	2426240	1	4	25.0	5.0	✓
Mercury by CVAAS (TCLP)	E512	2426267	1	5	20.0	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	2427412	1	3	33.3	5.0	✓
Method Blanks (MB)							
Metals by CRC ICPMS (TCLP)	E444	2426240	1	4	25.0	5.0	✓
Mercury by CVAAS (TCLP)	E512	2426267	1	5	20.0	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	2427412	1	3	33.3	5.0	✓
Matrix Spikes (MS)							
Metals by CRC ICPMS (TCLP)	E444	2426240	1	4	25.0	5.0	✓
Mercury by CVAAS (TCLP)	E512	2426267	1	5	20.0	5.0	✓
VOCs by Headspace GC-MS (TCLP)	E615B	2427412	1	3	33.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals by CRC ICPMS (TCLP)	E444 ALS Environmental - Waterloo	Soil/Solid	EPA 1311/6020B (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by Collision/Reaction Cell ICPMS.
Mercury by CVAAS (TCLP)	E512 ALS Environmental - Waterloo	Soil/Solid	EPA 1311/245.1 (mod)	An extract produced by the Toxicity Characteristic Leachate Procedure (TCLP) as per EPA 1311 is analyzed by CVAAS.
VOCs by Headspace GC-MS (TCLP)	E615B ALS Environmental - Waterloo	Soil/Solid	EPA 1311/8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
VOCs Preparation for Headspace Analysis (TCLP)	EP582 ALS Environmental - Waterloo	Soil/Solid	EPA 5021A (mod)	Liquid obtained after the TCLP process is prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
TCLP Leachate Preparation (Metals, Inorganics, and SVOCs)	EPP444 ALS Environmental - Waterloo	Soil/Solid	EPA 1311	Preparation of a Toxicity Characteristic Leaching Procedure (TCLP) solid sample involves particle size reduction, homogenization, then determination of appropriate extraction fluid. A measured portion of fresh subsample is placed in an extraction bottle with the appropriate extraction fluid then tumbled in a rotary extractor for 18+/- 2 hours at 23 +/- 2 C. The liquid leachate is filtered to separate from solids then bottled and prepared for analytical tests.
TCLP Leachate Preparation (VOCs)	EPP582 ALS Environmental - Waterloo	Soil/Solid	EPA 1311	An extract produced by the Toxicity Characteristic Leaching Procedure (TCLP) as per EPA 1311.

ALS Canada Ltd.

QUALITY CONTROL REPORT

Work Order	: **WT2601267**		
Client	: CMT Engineering Inc.	Laboratory	: ALS Environmental - Waterloo
Contact	: Jake Feeney	Account Manager	: Mathy Mahadeva
Address	: 1011 Industrial Crescent Unit 1 St. Clements ON Canada N0B 2M0	Address	: 60 Northland Road, Unit 1 Waterloo ON Canada N2V 2B8
Telephone	: 519 699 5775	Telephone	: +1 519 886 6910
Project	: 25-888 Blatchford Bridge, Guelph, ON	Date Samples Received	: 20-Jan-2026 15:17
PO	: ----	Date Analysis Commenced	: 21-Jan-2026
C-O-C number	: ----	Issue Date	: 26-Jan-2026 15:34
Sampler	: ----		
Site	: ----		
Quote number	: Standing Offer 2026 Pricing		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
David Tremblett	VOC Section Supervisor	Waterloo VOC, Waterloo, Ontario
Nik Perkio	Senior Analyst	Waterloo Metals, Waterloo, Ontario
Robert Braun	Soils Team Supervisor	Waterloo Inorganics, Waterloo, Ontario

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key:
Anonymous=Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number=Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO=Data Quality Objective.
LOR=Limit of Reporting (detection limit).
RPD=Relative Percent Difference
=Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: Soil

Laboratory Duplicate (DUP) Report

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
TCLP Metals(QC Lot: 2426240)											
WT2601267-002	BH1S5	Antimony, TCLP	7440-36-0	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	---
		Arsenic, TCLP	7440-38-2	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	---
		Barium, TCLP	7440-39-3	E444	2.5	mg/L	2.8	2.8	0.005	Diff <2x LOR	---
		Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	<0.025	0	Diff <2x LOR	---
		Boron, TCLP	7440-42-8	E444	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	---
		Cadmium, TCLP	7440-43-9	E444	0.050	mg/L	0.054	0.055	0.001	Diff <2x LOR	---
		Calcium, TCLP	7440-70-2	E444	10	mg/L	579	557	3.80 %	30%	---
		Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	---
		Cobalt, TCLP	7440-48-4	E444	0.050	mg/L	0.083	0.084	0.002	Diff <2x LOR	---
		Copper, TCLP	7440-50-8	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Iron, TCLP	7439-89-6	E444	5.0	mg/L	65.2	65.9	1.00 %	30%	---
		Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	---
		Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	131	134	2.54 %	30%	---
		Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	<0.25	0	Diff <2x LOR	---
		Selenium, TCLP	7782-49-2	E444	0.10	mg/L	<0.10	<0.10	0	Diff <2x LOR	---
		Silver, TCLP	7440-22-4	E444	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	---
		Thallium, TCLP	7440-28-0	E444	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR	---
		Uranium, TCLP	7440-61-1	E444	0.20	mg/L	<0.20	<0.20	0	Diff <2x LOR	---
		Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	<0.15	0	Diff <2x LOR	---
		Zinc, TCLP	7440-66-6	E444	0.50	mg/L	18.9	19.2	1.74 %	30%	---
		Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	<10	0	Diff <2x LOR	---
TCLP Metals(QC Lot: 2426267)											
WT2601267-002	BH1S5	Mercury, TCLP	7439-97-6	E512	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	---
TCLP VOCs(QC Lot: 2427412)											
WT2601267-002	BH1S5	Benzene, TCLP	71-43-2	E615B	5.0	µg/L	<0.0050 mg/L	<5.0	0	Diff <2x LOR	---
		Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Chloroform, TCLP	67-66-3	E615B	100	µg/L	<0.10 mg/L	<100	0	Diff <2x LOR	---
		Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Dichloromethane, TCLP	75-09-2	E615B	240	µg/L	<0.24 mg/L	<240	0	Diff <2x LOR	---
		Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	<0.10 mg/L	<100	0	Diff <2x LOR	---
		Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	<0.025 mg/L	<25	0	Diff <2x LOR	---
		Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	<0.050 mg/L	<50	0	Diff <2x LOR	---

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
TCLP Metals(QC Lot: 2426240)						
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	<0.10	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	<1.0	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	<2.5	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	<0.025	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	<0.50	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	<0.050	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	<10	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	<0.25	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	<0.050	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	<0.050	----
Iron, TCLP	7439-89-6	E444	5	mg/L	<5.0	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	<0.25	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	<2.5	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	<0.25	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	<0.10	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	<0.050	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	<1.0	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	<0.20	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	<0.15	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	<0.50	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	<10	----
TCLP Metals(QC Lot: 2426267)						
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	<0.0010	----
TCLP VOCs(QC Lot: 2427412)						
Benzene, TCLP	71-43-2	E615B	5	µg/L	<5.0	----
Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	<25	----
Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	<25	----
Chloroform, TCLP	67-66-3	E615B	100	µg/L	<100	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	<25	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	<25	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	<25	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	<25	----
Dichloromethane, TCLP	75-09-2	E615B	100	µg/L	<100	----
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	<100	----
Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	<25	----
Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	<25	----
Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	<50	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: Soil

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Target Concentration	LCS	Low	High	Qualifier
TCLP Metals(QC Lot: 2426240)									
Antimony, TCLP	7440-36-0	E444	0.1	mg/L	0.05 mg/L	105	70.0	130	----
Arsenic, TCLP	7440-38-2	E444	1	mg/L	0.05 mg/L	107	70.0	130	----
Barium, TCLP	7440-39-3	E444	2.5	mg/L	0.0125 mg/L	106	70.0	130	----
Beryllium, TCLP	7440-41-7	E444	0.025	mg/L	0.005 mg/L	104	70.0	130	----
Boron, TCLP	7440-42-8	E444	0.5	mg/L	0.05 mg/L	100	70.0	130	----
Cadmium, TCLP	7440-43-9	E444	0.05	mg/L	0.005 mg/L	104	70.0	130	----
Calcium, TCLP	7440-70-2	E444	10	mg/L	2.5 mg/L	101	70.0	130	----
Chromium, TCLP	7440-47-3	E444	0.25	mg/L	0.0125 mg/L	102	70.0	130	----
Cobalt, TCLP	7440-48-4	E444	0.05	mg/L	0.0125 mg/L	101	70.0	130	----
Copper, TCLP	7440-50-8	E444	0.05	mg/L	0.0125 mg/L	101	70.0	130	----
Iron, TCLP	7439-89-6	E444	5	mg/L	0.05 mg/L	102	70.0	130	----
Lead, TCLP	7439-92-1	E444	0.25	mg/L	0.025 mg/L	102	70.0	130	----
Magnesium, TCLP	7439-95-4	E444	2.5	mg/L	2.5 mg/L	112	70.0	130	----
Nickel, TCLP	7440-02-0	E444	0.25	mg/L	0.025 mg/L	101	70.0	130	----
Selenium, TCLP	7782-49-2	E444	0.1	mg/L	0.05 mg/L	101	70.0	130	----
Silver, TCLP	7440-22-4	E444	0.05	mg/L	0.005 mg/L	106	70.0	130	----
Thallium, TCLP	7440-28-0	E444	1	mg/L	0.05 mg/L	100	70.0	130	----
Uranium, TCLP	7440-61-1	E444	0.2	mg/L	0.0002 mg/L	107	70.0	130	----
Vanadium, TCLP	7440-62-2	E444	0.15	mg/L	0.025 mg/L	104	70.0	130	----
Zinc, TCLP	7440-66-6	E444	0.5	mg/L	0.025 mg/L	101	70.0	130	----
Zirconium, TCLP	7440-67-7	E444	10	mg/L	0.005 mg/L	102	70.0	130	----
TCLP Metals(QC Lot: 2426267)									
Mercury, TCLP	7439-97-6	E512	0.001	mg/L	0.0001 mg/L	102	70.0	130	----
TCLP VOCs(QC Lot: 2427412)									
Benzene, TCLP	71-43-2	E615B	5	µg/L	100 µg/L	104	70.0	130	----
Carbon tetrachloride, TCLP	56-23-5	E615B	25	µg/L	100 µg/L	105	60.0	140	----
Chlorobenzene, TCLP	108-90-7	E615B	25	µg/L	100 µg/L	95.7	70.0	130	----
Chloroform, TCLP	67-66-3	E615B	100	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	25	µg/L	100 µg/L	103	70.0	130	----
Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	25	µg/L	100 µg/L	102	70.0	130	----
Dichloroethane, 1,2-, TCLP	107-06-2	E615B	25	µg/L	100 µg/L	103	70.0	130	----
Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	25	µg/L	100 µg/L	98.6	70.0	130	----
Dichloromethane, TCLP	75-09-2	E615B	100	µg/L	100 µg/L	98.4	70.0	130	----

Sub-Matrix: Soil

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Target Concentration	LCS	Low	High	Qualifier
TCLP VOCs(QC Lot: 2427412)									
Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	100	µg/L	100 µg/L	93.2	50.0	150	----
Tetrachloroethylene, TCLP	127-18-4	E615B	25	µg/L	100 µg/L	101	70.0	130	----
Trichloroethylene, TCLP	79-01-6	E615B	25	µg/L	100 µg/L	106	70.0	130	----
Vinyl chloride, TCLP	75-01-4	E615B	50	µg/L	100 µg/L	97.8	60.0	130	----
TCLP VOCs Surrogates(QC Lot: 2427412)									
Bromofluorobenzene, 4-, TCLP	460-00-4	E615B	1	µg/L	10 µg/L	101	70	130	----
Difluorobenzene, 1,4-, TCLP	540-36-3	E615B	1	µg/L	10 µg/L	96.8	70	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for

Sub-Matrix: Soil

Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
					Concentration	Target	MS	Low	High	
TCLP Metals(QC Lot: 2426240)										
WT2601267-002	BH1S5	Antimony, TCLP	7440-36-0	E444	5.33 mg/L	5 mg/L	107	50.0	140	---
		Arsenic, TCLP	7440-38-2	E444	5.5 mg/L	5 mg/L	109	50.0	140	---
		Barium, TCLP	7440-39-3	E444	14.1 mg/L	12.5 mg/L	113	50.0	140	---
		Beryllium, TCLP	7440-41-7	E444	0.259 mg/L	0.25 mg/L	103	50.0	140	---
		Boron, TCLP	7440-42-8	E444	9.90 mg/L	10 mg/L	99.0	50.0	140	---
		Cadmium, TCLP	7440-43-9	E444	0.263 mg/L	0.25 mg/L	105	50.0	140	---
		Calcium, TCLP	7440-70-2	E444	ND	----	ND	50.0	140	---
		Chromium, TCLP	7440-47-3	E444	1.30 mg/L	1.25 mg/L	104	50.0	140	---
		Cobalt, TCLP	7440-48-4	E444	0.257 mg/L	0.25 mg/L	103	50.0	140	---
		Copper, TCLP	7440-50-8	E444	2.51 mg/L	2.5 mg/L	100	50.0	140	---
		Iron, TCLP	7439-89-6	E444	257 mg/L	250 mg/L	103	50.0	140	---
		Lead, TCLP	7439-92-1	E444	10.1 mg/L	10 mg/L	101	50.0	140	---
		Magnesium, TCLP	7439-95-4	E444	277 mg/L	250 mg/L	111	50.0	140	---
		Nickel, TCLP	7440-02-0	E444	2.52 mg/L	2.5 mg/L	101	50.0	140	---
		Selenium, TCLP	7782-49-2	E444	5.27 mg/L	5 mg/L	105	50.0	140	---
		Silver, TCLP	7440-22-4	E444	0.112 mg/L	0.1 mg/L	112	50.0	140	---
		Thallium, TCLP	7440-28-0	E444	5.0 mg/L	5 mg/L	101	50.0	140	---

Sub-Matrix: Soil

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery (%)		Qualifier
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	
TCLP Metals(QC Lot: 2426240)										
		Uranium, TCLP	7440-61-1	E444	5.23 mg/L	5 mg/L	105	50.0	140	---
		Vanadium, TCLP	7440-62-2	E444	0.79 mg/L	0.75 mg/L	105	50.0	140	---
		Zinc, TCLP	7440-66-6	E444	ND	----	ND	50.0	140	---
		Zirconium, TCLP	7440-67-7	E444	1 mg/L	1 mg/L	102	50.0	140	---
TCLP Metals(QC Lot: 2426267)										
WT2601267-002	BH1S5	Mercury, TCLP	7439-97-6	E512	0.0031 mg/L	0.003 mg/L	102	50.0	140	---
TCLP VOCs(QC Lot: 2427412)										
WT2601267-002	BH1S5	Benzene, TCLP	71-43-2	E615B	235 µg/L	250 µg/L	94.1	50.0	140	---
		Carbon tetrachloride, TCLP	56-23-5	E615B	218 µg/L	250 µg/L	87.4	50.0	140	---
		Chlorobenzene, TCLP	108-90-7	E615B	223 µg/L	250 µg/L	89.1	50.0	140	---
		Chloroform, TCLP	67-66-3	E615B	240 µg/L	250 µg/L	96.2	50.0	140	---
		Dichlorobenzene, 1,2-, TCLP	95-50-1	E615B	245 µg/L	250 µg/L	98.0	50.0	140	---
		Dichlorobenzene, 1,4-, TCLP	106-46-7	E615B	236 µg/L	250 µg/L	94.3	50.0	140	---
		Dichloroethane, 1,2-, TCLP	107-06-2	E615B	265 µg/L	250 µg/L	106	50.0	140	---
		Dichloroethylene, 1,1-, TCLP	75-35-4	E615B	207 µg/L	250 µg/L	82.7	50.0	140	---
		Dichloromethane, TCLP	75-09-2	E615B	270 µg/L	250 µg/L	106	50.0	140	---
		Methyl ethyl ketone [MEK], TCLP	78-93-3	E615B	290 µg/L	250 µg/L	116	50.0	140	---
		Tetrachloroethylene, TCLP	127-18-4	E615B	209 µg/L	250 µg/L	83.5	50.0	140	---
		Trichloroethylene, TCLP	79-01-6	E615B	232 µg/L	250 µg/L	92.7	50.0	140	---
		Vinyl chloride, TCLP	75-01-4	E615B	206 µg/L	250 µg/L	82.5	50.0	140	---
TCLP VOCs Surrogates(QC Lot: 2427412)										
		Bromofluorobenzene, 4-, TCLP	460-00-4	E615B	25.9 µg/L	25 µg/L	103	70.0	130	---
		Difluorobenzene, 1,4-, TCLP	540-36-3	E615B	24.1 µg/L	25 µg/L	96.3	70.0	130	---

Chain of Custody (COC) / Analytical Request Form

COC Number: 20 -

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Page

Environmental Division
Waterloo
Work Order Reference
WT2600489

Telephone : +1 519 886 6910

Report To	Contact and company name below will appear on the final report	Reports / Recipients	Turnaround Time (TAT) Requested
Company:	CMT Engineering Inc.	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	☑ Routine [R] if received by 3pm M-F - no surcharges apply
Contact:	J. Feeney	Merge QC/QCI Reports with COA ☑ YES ☐ NO ☐ N/A	☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
Phone:	519-699-5775 (ext. 307)	☑ Compare Results to Criteria on Report - provide details below if box checked	☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
Street:	1011 Industrial Cres. Unit 1	Email 1 or Fax nchortos@cmtinc.net	☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
City/Province:	St. Clements, Ontario	Email 2 jfeeney@cmtinc.net	☐ Same day [E2] if received by 10am M-S - 200% rush surcharge. Ad fees may apply to rush resuests on weekends, statutory holidays and routine tests
Postal Code:	N0B 2M0	Email 3 bfigg@cmtinc.net	Date and Time Required for all E&P TATs:
Invoice To	Same as Report To ☑ YES ☐ NO	**Invoice Recipients**	For tests that can not be performed according to the T
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax egibbs@cmtinc.net	
Contact:		Email 2 jfeeney@cmtinc.net	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	25-888 Blatchford Bridge, Guelph, ON	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only): WT2600489 NTB | ALS Contact: MM | Sampler: B. Figg

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Metals and Inorganics	BTEX, PHC F1-F4	PAH	VOC	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	BH1S1	8-Jan-26		SPT	6	R	R	R	R			
	BH1S5	8-Jan-26		SPT	6	R	R	R				
	BH2S3	8-Jan-26		SPT	6	R	R	R	R			
	BH2S6	8-Jan-26		MC5	6	R	R	R				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

O. Reg.153 Table 1 RPIICC
Table 2 RPI
Table 2 ICC

SAMPLE RECEIPT DETAILS (lab use only)

Cooling Method: ☐ NONE ☐ ICE ☑ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				15-7			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: NTB	Date: 09/01/026	Time: 15:40

Note all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

VS 225 SOL 385