MINISTRY OF TRANSPORTATION - WEST REGION

NEW HIGHWAY 7
PHASE 2 -GRAND RIVER BRIDGES

DESIGN AND CONSTRUCTION REPORT
GWP 3060-16-00, PART OF G.W.P. 408-88-00


Source: DTAH

SEPTEMBER 2023

DESIGN AND CONSTRUCTION REPORT

NEW HIGHWAY 7
PHASE 2 -GRAND RIVER BRIDGES

MINISTRY OF TRANSPORTATION, WEST REGION
GWP 3060-16-00 PART OF G.W.P. 408-88-00

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PROJECT MANAGER
WSP CANADA GROUP LIMITED

DATE: SEPTEMBER 2023

THE PUBLIC RECORD

The document is available for public review and comments for a period of thirty (30) days between September 27, 2023 and October 26, 2023 on the project website - **www.NewHighway7.ca**.

The Ministry of Transportation is committed to ensuring that government information and services are accessible for all Ontarians. For communication supports or to request project material in an alternate format, please contact one of the Project Team members listed below at **info@newhighway7.ca**:

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Ce document hautement spécialisé n'est disponsible qu'en anglais en virtue du règlement 411/97, qui en exempte l'application de la Loi sur les services en français. Pour de l'aide en français, veuillez communiquer avec le ministère des Transports, Bureau des services en français au: 905-704-2045 ou 905-704-2046.

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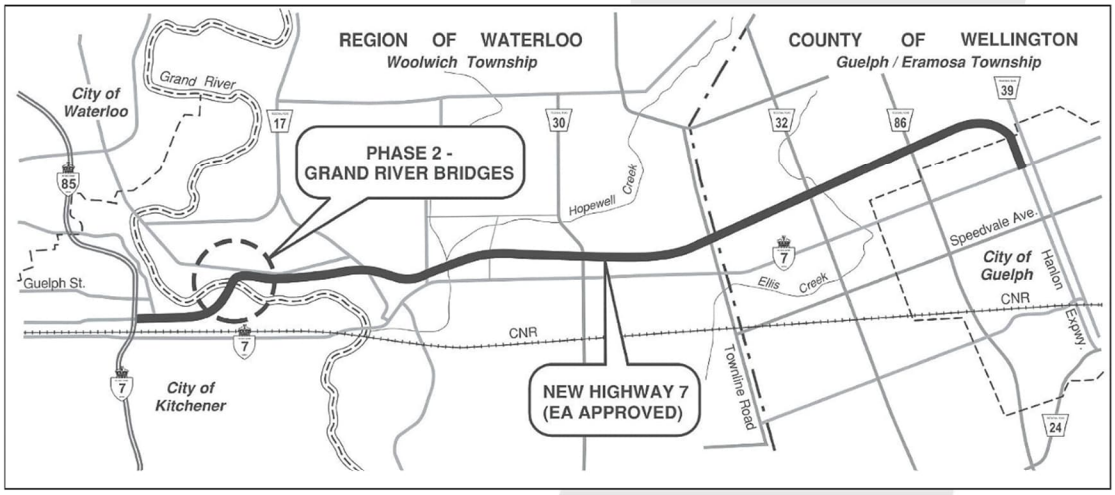
Figure ES1-1: Notice of DCR Filing

New Highway 7 – Kitchener to Guelph

Progress Update and Notice of Design and Construction Report for Phase 2 - Grand River Bridges (GWP 408-88-00)



THE PROJECT

The **Ministry of Transportation (MTO)** continues to move forward with new Highway 7 from Kitchener to Guelph following a three phased approach.

Phase 1 – Construction Completed

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction also included:

- widening and extension of Shirley Avenue in Kitchener (completed 2017);
- relocating municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener (completed 2017);
- clearing of vegetation and fencing if select areas along the new Highway 7 right-of-way between Kitchener and Guelph (completed 2018); and
- replacing the Victoria Street Bridge over Highway 85 in Kitchener (completed 2019).

Phase 2 – Grand River Bridges

Building on the approved Environmental Assessment for new Highway 7, the MTO is completing the Detailed Design for the two new bridges crossing the Grand River, to accommodate the eastbound and westbound lanes of new Highway 7. Advance work is being completed to facilitate Phase 3.

Phase 3 – Completion of new Highway 7

The engineering and environmental work for the final phase of new Highway 7 is progressing. Design and Construction Reports will also be prepared for Phase 3.

THE PROCESS

Design and Construction Report for Phase 2 – Grand River Bridges

A Design and Construction Report for the Grand River Bridges will be available for a 30 day review and comment period from **September 27, 2023 to October 26, 2023** at the project website **www.NewHighway7.ca.** A hard copy of the DCR will not be provided at public review locations. If you require an alternate format to review the DCR please contact a member of the Project Team to discuss options. This study has followed the approved environmental planning process for Group 'A' projects under the Class *Environmental Assessment for Provincial Transportation Facilities* (2000).

COMMENTS

Interested persons are encouraged to review this document and provide comments by **October 26, 2023** through the project website **www.NewHighway7.ca.** After the review period, construction can proceed subject to required approvals.

If you wish to obtain additional information, or to provide comments, please visit the project website at **www.NewHighway7.ca.** The project team can be contacted through email at **info@newhighway7.ca** or by phone:

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We are committed to ensuring that government information and services are accessible for all Ontarians. For communication supports or to request project material in an alternate format, please contact one of the Project Team members listed above.

Comments and information will be collected to assist the MTO in meeting the requirements of the *Environmental Assessment Act*. With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act*.

This Notice was first issued on September 27, 2023

Please visit us at www.NewHighway7.ca

Ontario

CORRRECTION: The original notice stated that; … the MTO has completed the Detailed Design for the two new bridges crossing the Grand River. It should read; … the MTO is completing the Detailed Design for the two new bridges crossing the Grand River.

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Executive Summary

WSP Canada Inc. (WSP) was retained by the Ministry of Transportation (MTO) to undertake the Detailed Design and Class Environmental Study for the new Highway 7 Bridges over the Grand River in the City of Kitchener and Township of Woolwich, in the Region of Waterloo. Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the project has followed the approved environmental planning process for Group 'A' projects under the Class Environmental Assessment (Class EA) for Provincial Transportation Facilities (2000).

This Design and Construction Report documents the Detailed Design phase for the new Highway 7 Grand River Bridges and how the EA commitments were addressed. Design features, refined environmental impacts, and mitigation measures are also described in this report.

In 1997, MTO completed the Individual Environmental Assessment (EA) for the construction of a new, four-lane highway between Kitchener and Guelph, Ontario. The new highway originates in the Regional Municipality of Waterloo and extends from the Kitchener-Waterloo Expressway (Highway 85) easterly to the Hanlon Expressway (Highway 6) in the City of Guelph, in the County of Wellington. The EA was approved with conditions in March 2007 (as documented in the Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report 1997 (2004)).

Design improvements developed from the subsequent Value Engineering Study were presented at two Public Information Centres (PICs) held on May 3, 2011 (Kitchener) and May 5, 2011 (Guelph) and documented in a Transportation Environmental Study Report (TESR) to amend the approved individual EA. The TESR received environmental clearance for Right-of-Way (ROW) Designation and Expropriation on October 22, 2012.

The Initial Design (30% Detailed Design) phase was completed in 2014, and is documented in the 2014 Initial Design Report. The Initial Design phase further developed and refined the approved EA design and incorporated the recommended Value Engineering design improvements.

MTO continues to move forward with new Highway 7 from Kitchener to Guelph following a three phased approach.

Phase 1 – Construction (Completed)

Phase 2 – Grand River Bridges (Subject of this DCR)

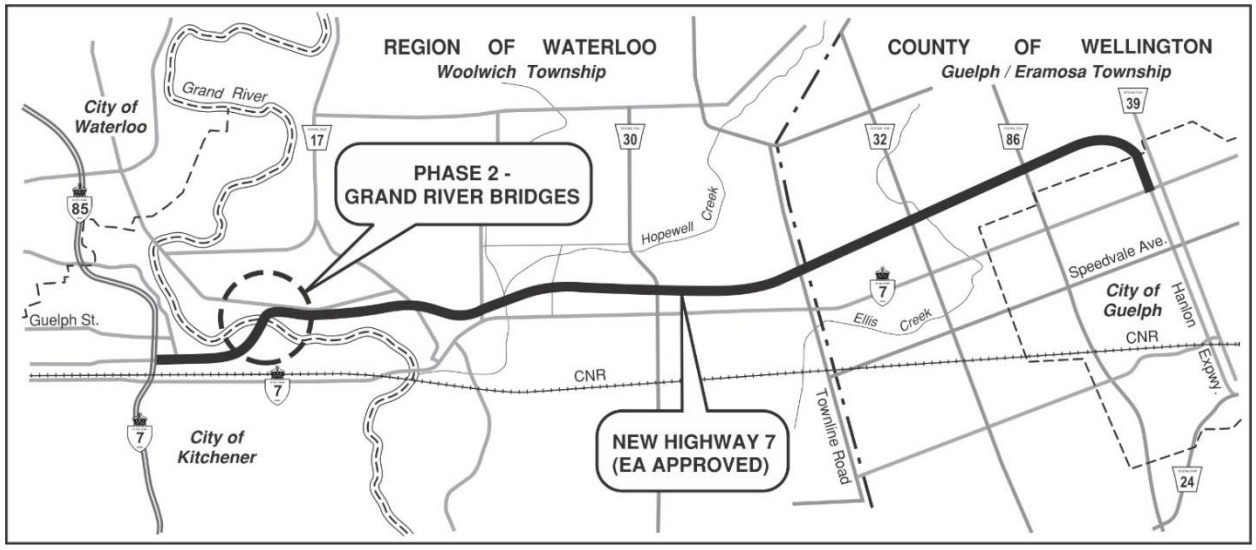
Building on the approved Environmental Assessment for new Highway 7, MTO has completed the Detailed Design for the two new bridges crossing the Grand River to accommodate the eastbound and westbound lanes of new Highway 7.

Phase 3 – Completion of new Highway 7 (In Design)

Summary Description of the Undertaking

The location of the new Highway 7 Grand River Bridges is shown in Figure ES1-2.

Figure ES1-2: Study Area / Project Limits



The Detailed Design for the new Highway 7 Grand River Bridges and approaches involves the following works:

- New crossing of the Grand River will be comprised of two bridges for eastbound and westbound lanes of the new highway.
- The Walter Bean Trail on the west side of the Grand River will be relocated closer to the Grand River to accommodate the new west bridge abutments.
- The bridge construction will also require the relocation of an existing entrance to 618 Bridge Street further east on Bridge Street.
- Temporary construction access roads to the east and west banks of the river from Bridge Street and Shirley Avenue will be constructed and removed following the completion of the new bridge.

Purpose of the Design and Construction Report

The purpose of this project is to evaluate the Detailed Design alternatives and develop the preferred Detailed Design plan. This builds on the EA approved plan documented in the *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report 1997* (2004) and the *Highway 7 New Transportation Environmental Study Report to Amend the Individual Environmental Assessment* (2012). This Design and Construction Report documents the environmentally significant aspects of the design and construction of the new Highway 7 Grand River Bridges. The study followed the MTO Class EA process for a Group 'A' project as defined in the *Class Environmental Assessment for Provincial Transportation Facilities* (2000).

Environmental technical studies carried out for this assignment included archaeology assessments, cultural heritage assessment, vegetation and wildlife surveys, fish and fish habitat assessments, and environmental site assessment for property contamination.

Engagement with Indigenous Communities

The Mississaugas of the New Credit First Nation (MNCFN), Six Nations of the Grand River Elected Council (SNEC), and Haudenosaunee Confederacy Chiefs Council (HCCC) via the Haudenosaunee Development Institute (HDI) were contacted by MTO to identify whether these communities had an interest in being involved with this project. Representatives expressed an interest and have been engaged throughout the study, receiving project status updates at scheduled Liaison Committee meetings, and participating in the archaeological assessments.

Consultation

In April / May 2017, the Project Team provided a Progress Update for the status of new Highway 7 between Kitchener and Guelph through notifications to external agencies, municipalities, Indigenous Communities and the public, and through the launch of a project website at **www.NewHighway7.ca**. The project website has served to provide updates on project progress, access to notices and reports, and interested individuals to request to be added to the contact list.

In addition, as the detailed design of the Phase 2 Grand River Bridges has advanced, MTO has consulted with review agencies to address permitting and approval requirements, and met with utility companies to coordinate design and construction activities.

Advanced Contract

Subject to completion of this DCR submission and public review period, as well as obtaining the necessary permits and approvals to receive environmental clearance to construct, an advance contract that includes preparatory works to facilitate the main bridge contract is being considered.

Construction of the new Highway 7 Grand River Bridges is anticipated to last approximately three to four years. Some lane closures are anticipated as part of the bridge construction.

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TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 PROJECT OVERVIEW

1.1 Background

WSP Canada Inc. (WSP) was retained by the Ministry of Transportation (MTO) to undertake the Detailed Design and Class Environmental Study for the new Highway 7 Bridges over the Grand River in the City of Kitchener and Township of Woolwich, in the Region of Waterloo. Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the project has followed the approved environmental planning process for Group 'A' projects under the Class Environmental Assessment (Class EA) for Provincial Transportation Facilities (2000).

In 1997, MTO completed the Individual Environmental Assessment (EA) for the construction of a new, four-lane highway between Kitchener and Guelph, Ontario. The new highway originates in the Regional Municipality of Waterloo and extends from the Kitchener-Waterloo Expressway (Highway 85) easterly to the Hanlon Expressway (Highway 6) in the City of Guelph, in the County of Wellington. The EA was approved with conditions in March 2007 (as documented in the Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report 1997 (2004)).

Design improvements developed from the subsequent Value Engineering Study were presented at two Public Information Centres (PICs) held on May 3, 2011 (Kitchener) and May 5, 2011 (Guelph) and documented in a Transportation Environmental Study Report (TESR) to amend the approved individual EA. The TESR received environmental clearance for Right-of-Way (ROW) Designation and Expropriation on October 22, 2012.

The Initial Design (30% Detailed Design) phase was completed in 2014, and is documented in the 2014 Initial Design Report. The Initial Design phase further developed and refined the approved EA design and incorporated the recommended Value Engineering design improvements.

MTO continues to move forward with new Highway 7 from Kitchener to Guelph following a three phased approach.

Phase 1 –Construction Completed

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction also included:

- widening the Guelph Street bridge (completed 2015);
- widening and extension of Shirley Avenue in Kitchener (completed 2017);
- relocation of municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener (completed 2017);
- clearing vegetation and fencing in select areas along the new Highway 7 right-of-way between Kitchener and Guelph (completed 2018); and,

- replacement of the Victoria Street Bridge over Highway 85 in Kitchener (completed 2019).

Phase 2 – Grand River Bridges (Subject of this DCR)

Building on the approved Environmental Assessment for new Highway 7, MTO has completed the Detailed Design for the two new bridges crossing the Grand River to accommodate the eastbound and westbound lanes of new Highway 7.

Phase 3 – Completion of new Highway 7 (In Design)

The engineering and environmental work for the final phase of new Highway 7 is progressing. Design and Construction Reports will also be prepared for Phase 3. Advance work is being completed to facilitate Phase 3 which includes:

- Highway 7 and Frederick Street underpass replacement in Kitchener
- Highway 6 (Hanlon Parkway) and Woodlawn Road Interchange in Guelph
- Guelph Junction Railway Modifications
- Two Species At Risk (SAR) habitat restoration projects
  - Bobolink and Eastern Meadowlark (started in 2022)
  - Little Brown Myotis

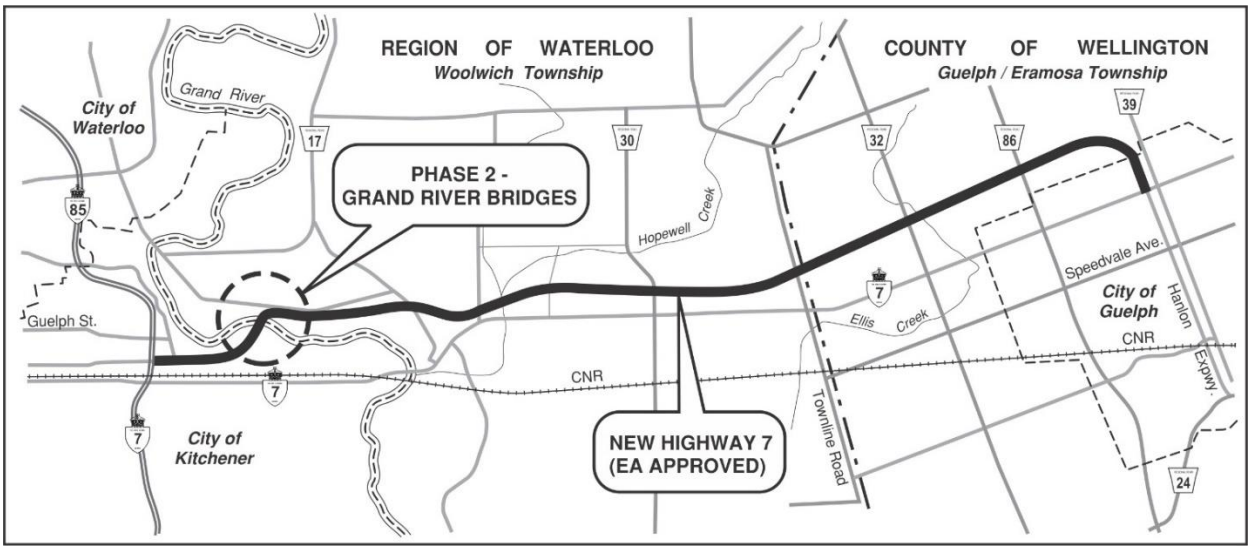
1.2 Summary Description of the Undertaking

The Detailed Design for the new Highway 7 Grand River Bridges and approaches involves the following works, which are described in greater detail in Section 3:

- New crossing of the Grand River will be comprised of two bridges for eastbound and westbound lanes of the new highway.
- The Walter Bean Trail on the west side of the Grand River will be relocated closer to the Grand River to accommodate the new west bridge abutments.
- The bridge construction will also require the relocation of an existing entrance to 618 Bridge Street further east on Bridge Street.
- Temporary construction access roads to the east and west banks of the river from Bridge Street and Shirley Avenue will be constructed and removed following the completion of the new bridge.

The location of the new Highway 7 Grand River Bridges is shown in Figure 1-1.

Figure 1-1: Study Area / Project Limits



1.3 Environmental Assessment Act Process

This Detailed Design study has followed the Ontario Ministry of Transportation Class EA process for Group "A" projects. The Group "A" Class EA process may be applied to projects which are approved under the EA Act. Group "A" projects generally include new provincial highways and freeways, major realignments and bypasses to existing provincial highways and freeways, and extensions to existing provincial highways and freeways.

Additional information about the Class EA process for Group 'A' projects is contained in the *Class Environmental Assessment for Provincial Transportation Facilities (2000)*.

This Design and Construction Report documents the Detailed Design phase for the new Highway 7 Grand River Bridges and how the EA commitments were addressed. Design features, refined environmental impacts, and mitigation measures are also described in this report.

Figure 1-2: Overview of the Class EA Process for Group 'A' Projects

1.4 Canadian Impact Assessment Act

Under the Canadian Impact Assessment Act, 2019 (IAA 2019), an environmental assessment is required for "designated projects." The study is not "designated" and therefore, will not require consideration of a federal environmental assessment. Readers

interested in obtaining additional information about IAA 2019 are encouraged to refer to: iaac-aeic.gc.ca.

1.5 Purpose of the Design and Construction Report

The purpose of this project is to evaluate the Detailed Design alternatives and develop the preferred Detailed Design plan. This builds on the EA approved plan documented in the *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report 1997* (2004) and the *Highway 7 New Transportation Environmental Study Report to Amend the Individual Environmental Assessment* (2012). This Design and Construction Report documents the environmentally significant aspects of the design and construction of the new Highway 7 Grand River Bridges. The study followed the MTO Class EA process for a Group 'A' project as defined in the *Class Environmental Assessment for Provincial Transportation Facilities* (2000).

This Design and Construction Report has been prepared to:

- Describe the Detailed Design of the new Highway 7 Grand River Bridges;
- Document specific environmental effects associated with the project and proposed mitigation;
- Identify mitigation measures that have been incorporated into the design and will be included in the contract drawings;
- Detail the impacts on traffic and access during construction of the recommended design; and,
- Summarize the consultation undertaken with external agencies, municipalities, Indigenous Communities, interest groups, utility companies, adjacent property owners and interested members of the public during the Detailed Design and Class EA Study.

This Design and Construction Report is not eligible for a Part II Order (i.e. "bump-up") under the provisions of the MTO Class EA. However, there is an opportunity at any time during the MTO Class EA process for interested persons to provide comments and review outstanding issues. The Design and Construction Report is available for a public period from **September 27, 2023** to **October 26, 2023**.

Any concerns raised by external agencies, municipalities, Indigenous Communities, interest groups, utilities, adjacent property owners and interested members of the public during this review period should be discussed with MTO or their consultants identified below, as all comments received during the review period will be considered by the MTO.

Additional information is also available by contacting the key project team members involved in this project at **info@newhighway7.ca**:

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2 CONSULTATION / ENGAGEMENT PROCESS

In April / May 2017, the Project Team provided a Progress Update for the status of new Highway 7 between Kitchener and Guelph through notifications to external agencies, municipalities, Indigenous Communities and the public, and through the launch of a project website at **www.NewHighway7.ca**. The Progress Update included the Notice of Study Commencement for Detailed Design for the new Highway 7 Grand River Bridges (Phase 2). The notice included information on the three phases of construction of new Highway 7, a map showing the project limits, and Project Team contact details.

A copy of the Progress Update is included in **Appendix A**.

2.1 External Agency Consultation

Consultation with external agencies was an important part of the study. The following federal and provincial government agencies, municipalities and school boards, stakeholder / interest groups, emergency services, and utilities were included on the external agency mailing list.

Federal Agencies

- CN Rail
- Department of Fisheries and Oceans Canada
- Environment and Climate Change Canada
- Crown-Indigenous Relations and Northern Affairs Canada

Provincial Ministries

- Infrastructure Ontario
- Ministry of Agriculture, Food and Rural Affairs
- Ministry of Children, Community and Social Services
- Ministry of Municipal Affairs and Housing
- Ministry of Economic Development, Job Creation and Trade
- Ministry of the Environment, Conservation and Parks
- Ministry of Natural Resources and Forestry
- Ministry of Citizenship and Multiculturalism

Municipalities and Emergency Services and Agencies

- Region of Waterloo
- County of Wellington
- City of Kitchener
- City of Guelph
- Township of Guelph/Eramosa
- Township of Woolwich
- Ontario Provincial Police
- Metrolinx

- Grand River Conservation Authority

School Boards

- Cambridge District Association for Christian Education (Woodland Christian Highschool)
- Waterloo Catholic District School Board
- Waterloo Region District School Board

Utility Companies

- Hydro One Networks Inc.
- Allstream
- Bell Canada
- Rogers Communications
- Enova Power Corp

A Progress Update notification letter was sent to the local Members of Provincial Parliament (MPPs) on April 19, 2017. Notification letters were mailed to external agencies, municipalities, local school boards, utilities, and interest groups on April 26, 2017. The letters to agencies included comment forms that provided agencies with an opportunity to express their concerns and comments regarding the study.

Between 2017 and 2023 meetings were held with the external agencies to discuss the project, and to address permitting and approvals requirements. A summary of the external agency comments received during the study is provided below. All comments were responded to and there are no known outstanding concerns. Copies of all external agency notification materials, comments and responses are in **Appendix A**.

A Project Update and Notification of Design and Construction Report (DCR) letter was sent to MPPs on September 21, 2023, and to review agencies on September 25, 2023. The letters included a copy of the published notice.

Table 2-1: Summary of External Agency Comments

Agency	Comments Received	Action Taken
Transport Canada	Confirmed that they do not require receipt of all individual or Class EA related notifications. Requested that project proponents self-assess their projects.	The Grand River north of Brantford is not a scheduled waterway under the Navigation Protection Act, thus, a formal navigable permit is not required.
Metrolinx	Acknowledged receipt of Study Commencement Notice and requested to be kept involved in all aspects of this study.	Project contact list updated for further communications.
Grand River Conservation Authority (GRCA)	Noted that due to the presence of features of interest to the GRCA they would appreciate the opportunity to review and comment on the most recent Design and Construction Report and any additional review materials that are available.	A Design and Construction Report will be prepared for the detailed design for the new Highway 7 / Grand River Bridges and is anticipated to be placed onto the public record for a 30-day review period in from September 27, 2023 – October 26, 2023.

2.2 Indigenous Consultation and Engagement

The Indigenous Communities identified below received notification at key milestones during the Detailed Design Study, including the Notice of Progress Update on April 19, 2017.

Indigenous Communities

- Beausoleil First Nation (Christian Island)
- Hiawatha First Nation
- Curve Lake First Nation
- Mississaugas of Scugog Island
- Mississaugas of the Credit First Nation
- Chippewas of the Thames First Nation
- Chippewas of Rama First Nation
- Chippewas of Georgina Island First Nation
- Williams Treaties First Nations
- Six Nations of the Grand River Territory, Haudenosaunee Confederacy Chiefs Council
- Haudenosaunee Development Institute
- Six Nations of the Grand River Territory

Project notifications were also published in the *Turtle Island News* and *Two Row Times* newspapers.

The Mississaugas of the New Credit First Nation (MNCFN), Six Nations of the Grand River Elected Council (SNEC), and Haudenosaunee Confederacy Chiefs Council (HCCC) via the Haudenosaunee Development Institute (HDI) were contacted by MTO to identify whether these communities had an interest in being involved with this project. Representatives expressed an interest and have been engaged throughout the study, receiving project status updates at scheduled Liaison Committee meetings, and participating in the archaeological assessments, and receiving information on the Species at Risk field investigations and mitigation strategies.

A Project Update and Notification of Design and Construction Report (DCR) letter was sent to MNCFN, SNEC, and HCCC via the HDI on September 25, 2023.

2.3 Public Consultation

Previously, the Progress Update in April / May 2017 included the Notice of Study Commencement for Detailed Design for the new Highway 7 Grand River Bridges (Phase 2). The Ontario Government Notice was advertised in the *Waterloo Region Record, Turtle Island News* and *Two Row Times* newspapers on May 3, 2017 and the *Guelph Tribune* on May 4, 2017. The notice included information on the three phases of construction of new Highway 7, a map showing the project limits, and Project Team contact details.

Notices were also sent to approximately 720 members of the public within the new Highway 7 study limits on April 26, 2017.

Comments received included acknowledgement of the notice, requests to be added to the project contact list, and questions about construction timing, construction noise and noise levels once the new highway is complete.

Since the Progress Update, the project website has served to provide further updates on project progress, access to notices and reports, and for interested individuals to request to be added to the contact list.

As part of this submission of the DCR, the Project Update and Notification of Design and Construction Report (DCR) was sent on September 25, 2023, to members of the public within the new Highway 7 study limits and who had requested to be included on the contact list.

Copies of the above noted Notices are found in **Appendix A**.

3 Detailed Description of the Recommended Design

3.1 Major Features of the Proposed Work

New Highway 7 will be an 18 km four-lane divided highway extending from Highway 85 in Kitchener easterly to Highway 6 (Hanlon Expressway) in Guelph and includes a new watercourse crossing over the Grand River between Shirley Avenue and Bridge Street. The Grand River at this location is flowing west to east, with the new bridges crossing in a north-south orientation.

For further information on the conclusions of the approved EA, refer to the *Highway 7 Kitchener to Guelph Amendment to the Environmental Assessment Report 1997* (2004) and 2012 Transportation Environmental Study Report to Amend the Individual Environmental Assessment (approved 2007). Copies of these reports are located on the project website at **www.NewHighway7.ca**.

Figure 3-1 illustrates the proposed layout for the new Highway 7 Grand River Bridges.

To accommodate the new bridges, a realignment of the Walter Bean Trail on the west side of the Grand River is required. The trail will be relocated closer the Grand River to accommodate the new west bridge abutments. The trail segment at the construction site will be closed for the duration of the bridge construction contract, i.e. for approximately three years. The bridge construction will also require the relocation of an existing entrance to 618 Bridge Street further east on Bridge Street.

Subject to completion of this DCR submission and public review period, and obtaining the necessary permits and approvals to receive environmental clearance to construct, an advance contract that includes preparatory works to facilitate the main bridge contract may be considered.

Construction of the new Highway 7 Grand River Bridges may last approximately three to four years. Some traffic closures are anticipated as part of the project.

Construction Staging

A temporary causeway is proposed to be constructed within a portion of the river channel to provide construction access and a construction platform for the bridge falsework. The temporary causeway will be removed following the construction of the bridges.

It is anticipated that the main span over the river will be constructed using balanced cantilever construction to avoid the need for further falsework in the river. To provide access to Pier 6 and to construct the easterly approach span on falsework, a temporary construction staging platform will be constructed on the east bank of the Grand River.

A temporary river wall will be installed outside of the surveyed limit for the Wavy-rayed Lampmussel habitat, and an existing river embankment will be excavated to provide a level construction platform for the falsework.

Temporary construction access roads to the east and west banks of the river from Bridge Street and Shirley Avenue will be constructed. The access roads will follow the proposed alignments for the new highway as much as possible. The west construction access road will be located adjacent to and set at the same elevation of the temporary causeway on the west side of the Grand River. Temporary access roads within the Grand River floodplain will be removed following the completion of the new bridges.

Modifications to the Preliminary Design Recommended Bridge Design

The following five design refinements to the Grand River Bridge crossings have occurred since EA approval was received. These refinements are not considered to be significant.

(1) Grand River Bridges Span Lengths and Span Configurations

The preliminary design for the Grand River Bridges endeaveroured to limit the extent of embankment fill by setting the structures on a series of piers that would span the river valley. To protect the habitat of aquatic species, the preliminary design also kept the piers supporting the main spans across the Grand River on the river banks.

Through Detailed Design these principles to avoid environmental impact were maintained. Details were refined, which included the span lengths and configurations, based on consideration of cost savings, and constructability.

(2) Reduction in new Highway 7 Design Speed

The design and posted speeds for new Highway 7 at the Grand River Bridges were reduced to 100 km/hr and 80 km/hr from 110 km/hr and 90 km/hr respectively. This reduction will assist with the transition of the highway from a rural to an urban freeway and ensure that the minimum sight stopping distances can be provided across both the eastbound and westbound bridges. The super elevation across the Grand River Bridges has been reduced to reflect the reduction in the highway design speed.

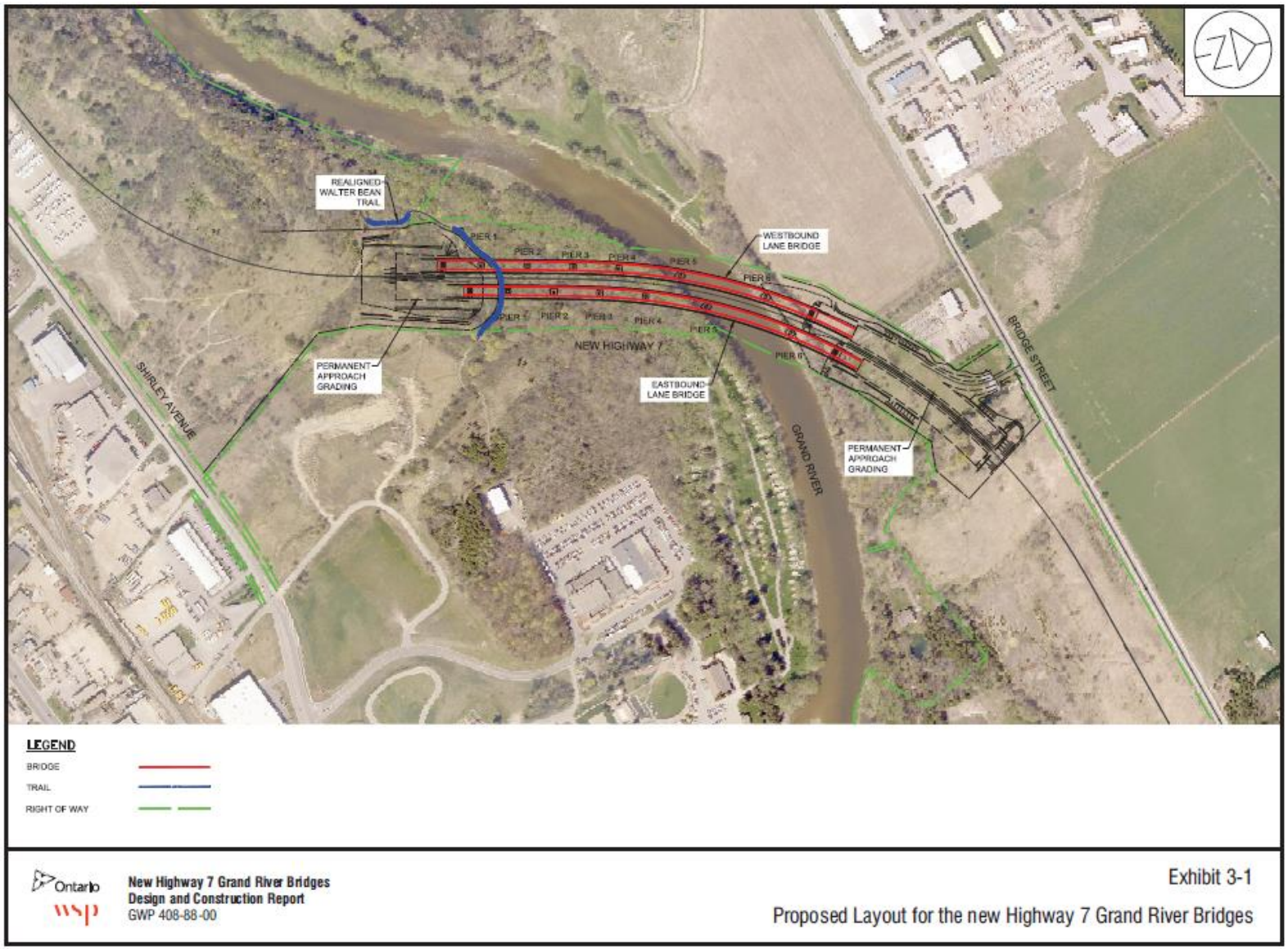
(3) Reduction in new Highway 7 Design Speed

The design and posted speeds for new Highway 7 at the Grand River Bridges were reduced to 100 km/hr and 80 km/hr from 110 km/hr and 90 km/hr respectively. This reduction will assist with the transition of the highway from a rural to an urban freeway and ensure that the minimum sight stopping distances can be provided across both the eastbound and westbound bridges. The super elevation across the Grand River Bridges has been reduced to reflect the reduction in the highway design speed.

(4) Provision for Future Widening of New Highway 7

The preliminary design for the Grand River Bridges proposed two general purpose lanes on each bridge. The westbound bridge also included a dedicated ramp speed change lane across its entire length. Although widening of the bridges is not expected for a number of years and would be subject to the Ministry of Transportation Class EA for Provincial Transportation Facilities, the Project Team reviewed certain aspects of the bridge design to consider the implications of accommodating future widening.

Figure 3-1: Proposed Layout for the New Highway 7 Grand River Bridges



Two alternatives were considered:

1. Provision to retrofit the eastbound two lane structure by extending the deck to accommodate a third lane; and,
2. Construct the eastbound structure to include a third lane, that would function initially as a dedicated ramp speed change lane.

Following a cost benefit analysis of these alternatives that included cost, environmental, durability and maintenance considerations, the Project Team recommended the construction of both bridges with three lanes. This approach will minimize traffic disruptions during future bridge rehabilitation works and potential future widening of new Highway 7 from four to six lanes. It will also minimize any future environmental impacts within the Grand River floodplain associated with the potential future widening of the highway.

(5) Widening of the Eastbound and Westbound Bridge Shoulders

The preliminary bridge design proposed 1.5 m wide shoulders on the westbound bridge and 1.5 m and 3.0 m median and outer shoulders respectively for the eastbound bridge.

To improve safety, it was decided to increase the median shoulder width on the westbound bridge and the outer shoulder width on the eastbound bridge.

(6) Shirley Avenue Ramp Terminal Relocation

The Shirley Avenue ramp terminal intersection was located opposite the entrance to 200 Shirley Avenue. Following completion of the EA, the 200 Shirley Avenue site was acquired by Metrolinx and a new GO Transit layover facility was constructed. However, the approved location for the Shirley Avenue interchange would restrict all moves at the entrance to the layover facility.

Following consultation with Metrolinx, the design for the Shirley Avenue interchange was revised and the ramp terminal intersection was relocated further to the east. The revised ramp terminal location permits all moves to access the existing entrances on Shirley Avenue while also ensuring that no future widening of the eastbound bridge would be required if new Highway 7 is widened to three lanes in each direction in the future.

3.1.2 CONSTRUCTION STAGING PLANS

Subject to completion of this DCR submission and public review period, and obtaining the necessary permits and approvals to receive environmental clearance to construct, an advance contract that includes preparatory works to facilitate the main bridge contract may be considered.

Construction of the new Highway 7 Grand River Bridges it is anticipated to last approximately three to four years. Some lane closures are anticipated as part of the bridge construction.

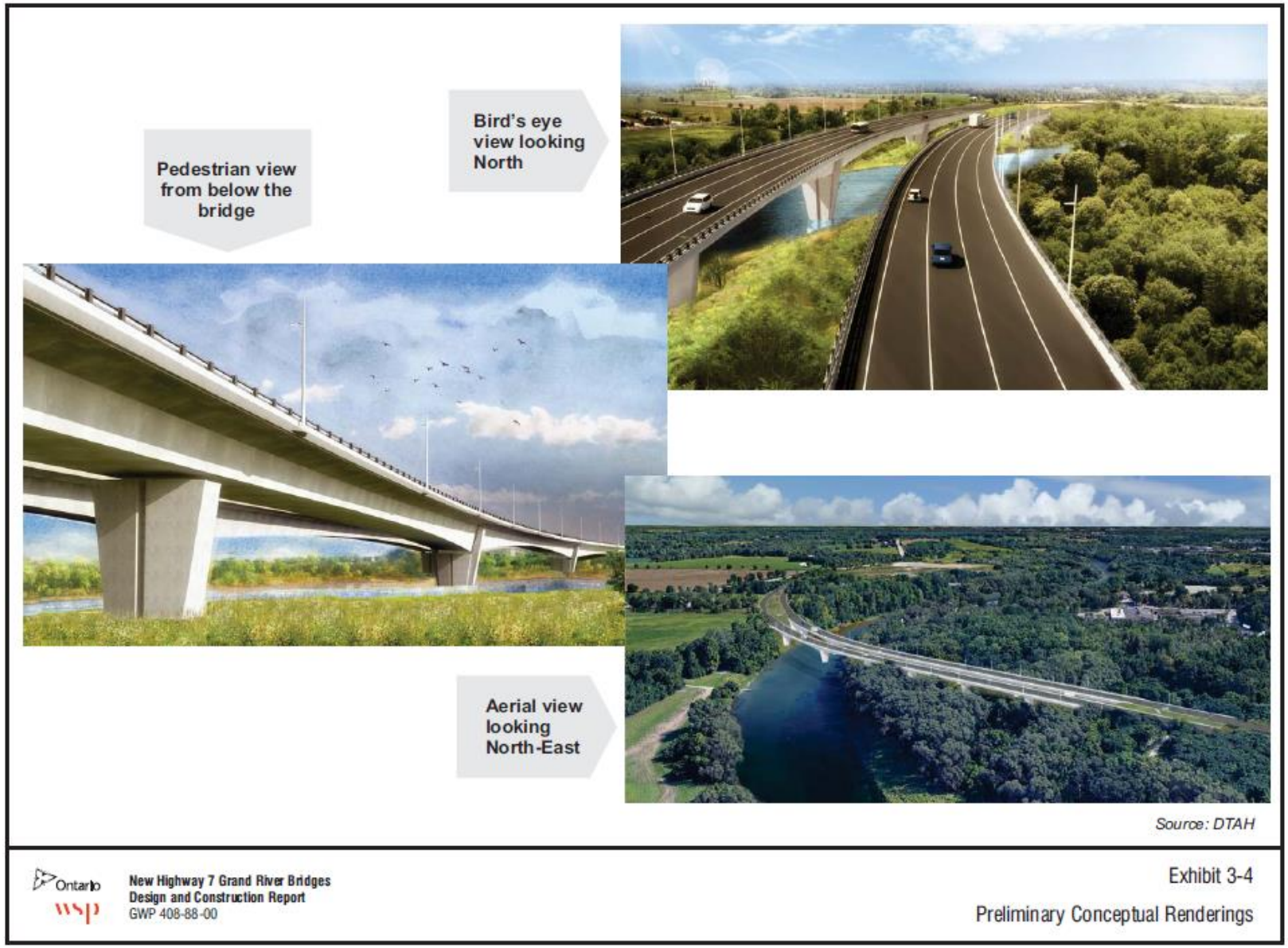
3.1.3 BRIDGE AESTHETICS

Consistent with the commitments made during the Initial Design Phase, the aesthetics of the Grand River Bridges take into account the potential visual impact of a new crossing over a Canadian Heritage River. The selected aesthetic treatments for the new Highway 7 Grand River Bridges include:

- Separated bridges configured in large-scale sweeping curves for a unique driving experience above the river valley;
- Combination steel / concrete traffic barriers to maximize transparency, visual lightness and views from the bridge to the valley;
- Roadway lighting poles evenly spaced to create a consistent rhythm on the outside of each bridge that accentuates the sweeping curves;
- Enhanced outer profile of traffic barrier featuring upper and lower facets providing visual interest and contrast;
- Pleasing shallow-arch girder profile over Grand River longest span;
- Designed to maximize shadow effect and visual lightness; and
- Enhanced pier shape featuring facetted plan profile, slender tapered outside face and contrasting shadow reveals.

The selected aesthetic treatments incorporated into the new bridge crossings are depicted in preliminary conceptual renderings prepared by DTAH and are from various viewpoints. The preliminary conceptual renderings are presented in Figure 3-2.

Figure 3-2: Preliminary Conceptual Renderings



4 POTENTIAL ENVIRONMENTAL EFFECTS, MITIGATION MEASURES AND COMMITMENTS TO FURTHER WORK

This section of the Design and Construction Report outlines the potential direct and indirect environmental effects associated with the project. This section also describes the mitigation measures that will be implemented to minimize these effects. Mitigation includes planning decisions, design features, construction requirements, construction constraints and follow-up monitoring requirements.

A number of commitments for additional work or environmental impact mitigation measures related to this project were identified in the 2014 Initial Design Report. As the design details were further developed for the Grand River Bridges, environmental mitigation requirements have been refined and detailed in the contract documents. The key to ensuring effective environmental quality control and risk management during the project is the development and proactive implementation of an approach that:

- Identifies the environmental sensitivities;
- Presents the environmental protection measures in a way that can be translated into contractual requirements and for which compliance can be verified; and,
- Includes a monitoring program, which verifies that environmental protection measures are being implemented and are effective.

The Contract Administrator and Contractor will be made aware of, and be prepared to deal with, all environmental issues that may arise during construction. Special provisions will be included in the contract documents to address specific environmental and operational concerns.

4.1 Natural Environment

4.1.1 Fish and Fish Habitat

Fish Habitat Overview

The Grand River is a large, meandering river system in Southwestern Ontario. It originates near the Hamlet of Wareham, Ontario flowing south through rural areas and urban communities (including the Town of Kitchener) before outletting at the north shore of Lake Erie at Port Maitland. The Grand River at the location of the bridges consists of a relatively low gradient with moderate/low flows. The bridge crossings are located on a large meander bend in the river with the outside of the bend located on the northeast shoreline and the inside bend on the southwest shoreline. The upstream, right-of-way and downstream habitat conditions were consistently similar (homogenous) throughout the study reaches and therefore have been described together below.

At the bridge crossing, the average wetted width at the time of the 2016 field investigations was approximately 76 m with water depths ranging between 0.3 and 1.2 m. The high water mark of the channel extended 5 m from the water's edge on the northeast shoreline and extended an average of 15 m on the southwest shoreline. The reach is relatively low gradient, with the thalweg (main flow path) flowing along the outside of the meander bend along the east bank, and the shallower, slower flows on the inside of the bend.

Channel morphology is dominated entirely by flats (100%) through the upstream, right-of-way and downstream reaches. Substrates along the east bank and through the centre of the channel are comprised of relatively coarse substrates including gravel (45%), cobble (30%), sand (20%) and boulders (5%). The west bank is comprised of slightly finer substrates including gravel (30%), silt (25%), sand (20%), and cobble (15%), with some boulders (5%) and detritus (5%). The difference in composition is the result of higher flow velocities filtering finer substrates from the east and centre of the channel while the west (inside channel bend) accumulates the finer substrates with lower flow velocities.

The study reaches have limited shade and cover for the resident fish with instream cover represented by organic debris (10%), emergent vegetation (10% arrowhead sp. and grass sp.) and submergent vegetation (35% pondweed sp. and milfoil sp.). Riparian vegetation along the banks of the reaches are comprised of a dense mix of deciduous forest and willow-shrub thicket

Fish/Mussel Community

Fish community sampling was not carried out on the Grand River at the new bridges location as the Ministry of Natural Resources and Forestry (MNRF) provided sufficient recent fish community records for the study reaches. Table 4-1 below documents the results of the background information on fish community provided by MNRF fish records and background information inquiries completed in 2016.

Table 4-1: Fish Community at the New Grand River Bridges Locations

Common Name	Scientific Name
Blackside Darter	*Percina maculata*
*Black Redhorse	*Moxostoma duquesnei*
Common Shiner	*Luxilus cornutus*
Fantail Darter	*Etheostoma flabellare*
Greenside Darter	*Etheostoma blennioides*
Golden Redhorse	*Moxostoma erythrurum*
Rainbow Darter	*Etheostoma caeruleum*
Rock Bass	*Ambloplites rupestris*
*Silver Shiner	*Notropis photogenis*
Smallmouth Bass	*Micropterus dolomieu*
Stonecat	*Noturus flavus*
White Sucker	*Catostomus commersonii*

** - Denotes fish species at risk*

A representative from the Department of Fisheries and Oceans (DFO) met with staff from MTO on October 2, 2015 to survey the location of the proposed bridges for mussels and suitable substrate (Pers. Comm, 2015). The Department of Fisheries and Oceans noted that there is more potential for Species at Risk (SAR) mussel occurrence, including Wavy-rayed Lampmussel. The Department of Fisheries and Oceans joined WSP ecologists for a second onsite field investigation of the bridge locations on July 19, 2016. Visual observations confirmed the presence of Wavy-rayed Lampmussel along the east shoreline and the absence of any live mussel or shell occurrence along the west shoreline that extends 1/3 into the channel (approximately 15 m from the southwest shoreline). Other observations of displaying Wavy-rayed Lampmussel were recorded along the northside shoreline in 2018 by WSP ecologists, when they accompanied the WSP surveying crew. Table 4-2 below documents the results of the mussel survey as well as the mussels potentially present according to consultation with the Department of Fisheries and Oceans and Ministry of Natural Resources and Forestry.

Table 4-2: Mussel Community at the New Grand River Bridges Location

Common Name	Scientific Name
Flutedshell	*Lasmigona costata*
*Rainbow	*Villosa iris*
Spike	*Elliptio dilatata*
*Wavy-rayed Lampmussel	*Lampsilis fasciola*

** - Denotes mussel species at risk*

Species at Risk

The term Species at Risk (SAR) is used to encompass species that are “designated” by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and/or listed under the Species at Risk Act (SARA), including those (Endangered and Threatened) listed and regulated under Ontario’s Endangered Species Act (ESA).

The Grand River is classified by the Ministry of Natural Resources and Forestry as a warmwater river supporting a diverse fish community of bait, pan, and sportfish species. SAR specific site investigations were conducted and agency consultation was carried out through the submission of an Information Gathering Form and Request for Review. These determined that although some SAR are using habitat within this portion of the Grand River (Wavy-rayed Lampmussel, Silver Shiner and Black Redhorse), the habitat being impacted by the in-water footprints of the piers do not support critical life functions for the SAR and therefore negative impacts to the SAR are not anticipated. As such, no ESA permit is required for the identified area of impact.

As Noted in the Table 4-1, Silver Shiner (*Notropis photogenis*) is listed as present in the Grand River within the study limits. In the Spring of 2023, a regulation was put in place under SARA to establish protection of critical habitat for Silver Shiner. The effect of this regulation on the project is that, in addition to having to address the impact of the in-water works on fish and fish habitat, it is also necessary to assess the impact of removing critical

habitat out of the water that supports the life-cycle processes of Silver Shiner. This critical habitat consists of terrestrial insect species as well as riparian vegetation, which provides suitable habitat for these prey items, consequently leading to their availability as a food source for Silver Shiner.

Description of Potential Effects

As outlined in the *Fisheries Protection Policy Statement* (DFO, 2019); DFO applies a risk-based approach when evaluating the impacts of works, undertakings or activities on fish habitat. Following from the definition of fish habitat noted above, the Department interprets "harmful alteration, disruption or destruction" as any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish.

The construction of the two instream piers results in local habitat loss and alteration of substrates on the bed of the channel. In addition to the total area for the piers themselves, the installation of scour protection (i.e., sheet piling and river stone) around both piers will also result in permanent loss of localized habitat. There are also some temporary (approximately 2 year) instream impacts on the bed of the channel associated with the construction of the causeway required to erect the bridge and in-water piers. Other impacts below the high water mark are associated with construction of access roads to the river and scour protection along the northeast bank.

All footprint impacts at the Grand River Bridges, below the high water mark, have been classified into two categories based on the Department of Oceans and Fisheries direction and definitions provided in their *Fisheries Protection Policy Statement* (DFO, 2014);

- Permanent Destruction - the destruction of fish habitat of a spatial scale, duration, or intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes (DFO, 2014).
- Permanent Alteration – a permanent alteration to fish habitat of a spatial scale, duration or intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing, or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes (DFO, 2014).

The tree removals and vegetation clearing that may be part of an advance contract, will have direct impact on the identified critical habitat to support life cycle needs for Silver Shiner (Notropis photogenis).

Permanent Destruction

Piers: The total permanent in-water footprint impacts associated with the construction of the bridges includes the total area for the Pier # 5 shaft permanent destruction. The impacted habitat includes flat habitat with fine substrates.

Permanent Alteration

Construction Access Roads: The majority of the impacts associated with the construction of the new Highway 7 eastbound and westbound bridges over the Grand River are directly associated with the construction of two access roads down into the floodplain for construction of the piers. Currently, some habitat below the high-water mark is being considered as altered for construction of the access roads to build the bridge piers. The area impacted by the construction access roads will be restored / re-instated once the access roads are no longer required.

Causeway: The in-water footprint impacts required for the construction includes the installation of a rock causeway placed on the channel bed to form construction platforms for the erection of the in-water piers. This temporary platform will be in place for the duration of the construction period (~3 years), but will be removed and the impacted area will be re-instated following construction. The habitat being impacted includes flat habitat with fine substrates that was recorded as a depositional area for debris and dense algae growth.

Scour Protection: The area of rock protection required around the Pier # 5 shafts results in instream habitat that will be permanently altered. The impacted habitat includes flat habitat with fine substrates.

Bank Stabilization: The permanent footprint impacts below the high water mark associated with the construction of the bridges includes the total area of bank protection required along the northeast bank for stabilization and armouring against future scour. This habitat includes upland deciduous forest with dense shrub thicket.

Vegetation Removal: The total calculated permanent footprint impacts below the Regional Floodline associated with bridge construction includes the total additional area of vegetation removal above the high water mark required along the northeast bank for a working zone during construction, and for grading limits results in permanent alteration of Critical Habitat for Silver Shiner. This habitat includes upland deciduous forest with dense shrub thicket.

Proposed Detailed Design Mitigation Measures

Mitigation measures to minimize potential impacts to the Grand River during construction activities are outlined below:

- A warmwater permissible in-water construction timing window of July 1st to March 31st will be implemented at the crossings. No in-water works will be permitted between April 1st and June 30th of any given year.
- Any temporarily stockpiled soil, debris or other excess materials, and any construction-related materials, will be properly contained (e.g. within silt fencing) in areas separated at least 30 m from the Grand River or its tributary/drainage features. All construction materials, excess materials and debris should be removed and appropriately disposed of following construction.
- Only clean materials free of fine particulate matter should be placed in the water for temporary construction measures (e.g. coffer dams will be

constructed of ‘pea gravel’ bags, geotextile fabric, sheet pile or other clean material).

- If dewatering is required, appropriate energy dissipation and settling/filtration measures should be used for discharge of dewatering water to ensure no erosion or sediment release occurs in the Grand River / drainage features.
- The Contract Administrator’s team will include an Environmental Inspector experienced in working around watercourses to ensure the erosion and sediment control measures are functioning effectively, being maintained, and that all of the other general mitigation measures are being implemented as intended.
- If the Contractor wishes to alter any of the mitigation plans as outlined in the Contract Documents, then the associated approval agency will need to be made aware of and approve the changes prior to construction.
- All excess materials in and around the drainage features will be managed.
- Removal of riparian vegetation in and around the drainage features will be managed to ensure shoreline/bank/vegetation stabilization.
- The construction access, work areas and associated requirements for removal of riparian vegetation will be minimized to the extent required for the construction activities, and these areas then delineated in the field using properly installed protective silt fencing.
- All construction-related activities should be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to the drainage feature.
- In-stream construction and staging (piers and causeway) have been designed to avoid sensitive habitat. During evaluation of alternatives, the preferred bridge design was selected because it avoided impacts to the mussel habitat along the east bank. No freshwater mussels were observed in the proposed Pier 5 locations.
- A fish and mussel rescue/relocation will be carried out for all in-water works once isolation measures have been installed. These rescue/relocations will be carried out by qualified professionals following the measures outlined in the Licence to Collect Fish for Scientific Purposes issued by the Ministry of Natural Resources and Forestry, and transferred to suitable habitat downstream of the construction areas.
- The scour bank protection along the east bank piers (Pier 6) will be graded to match the existing bank slopes to transition smoothly with adjacent banks and limit erosion around the piers.
- The Contractor will follow all erosion and sediment control measures identified in the contract and prevent/control potential for erosion and

sediment caused by their construction methods and operations so as to meet all legislative requirements, to prevent entry of sediments into all drainage features (including the Grand River itself), and to prevent damage to features and property inside or outside of the right-of-way.

Although the majority of the proposed works can be mitigated such that harmful alteration, disruption or destruction of fish habitat (HADD) is avoided, there are a few residual negative effects that could not be sufficiently mitigated such that serious harm is avoided. A Request for Review (RfR) was submitted to the Department of Fisheries and Oceans in 2017, which determined that the size of the area being impacted within the wetted width was large enough that a Fisheries Act Authorization would be required to address the impacts on fish and fish habitat for this project, including the riparian vegetation removal impact on Silver Shiner Critical Habitat.

The Project Team is currently in consultation with the Department of Fisheries and Oceans to determine habitat enhancement measures that will off-set the impacts of the bridge works on fish and fish habitat within the Grand River. Once determined, a Fisheries Act Authorization application will be completed and submitted to the Department of Fisheries and Oceans for their approval on the project. Department of Fisheries and Oceans Fisheries Act Authorization will need to be obtained prior to construction of the Grand River Bridges.

Standard mitigation measures are appropriate and will ensure that impacts from the proposed works are minimal. Mitigation measures are presented later in Table 4-4.

4.1.2 Vegetation, Wildlife and Terrestrial Habitats

Vegetation Overview

The landscape surrounding the new Highway 7 Grand River Bridges is characterized by a mixture of natural and anthropogenic features. A large tract of forest is present south of the Grand River (Grand River Tract), with naturalized and regenerating fields and thickets to the north. The landscape also supports extensive commercial and industrial development, including the Bingemans Centre. Further removed from the bridge crossing, low density residential areas are prevalent.

The study area supports a variety of vegetation communities, as identified in Figure 4-1. Generally, the more disturbed and less treed vegetation communities are present north of the Grand River. These include Dry – Moist Old Field Meadow Type (CUM1-1), Buckthorn Deciduous Cultural Thicket (CUT1-7), Mineral Cultural Woodland (CUW1) and a narrow strip of Dry-fresh Sugar Maple – Oak Deciduous Forest (FOD5-3) along the northern riverbank.

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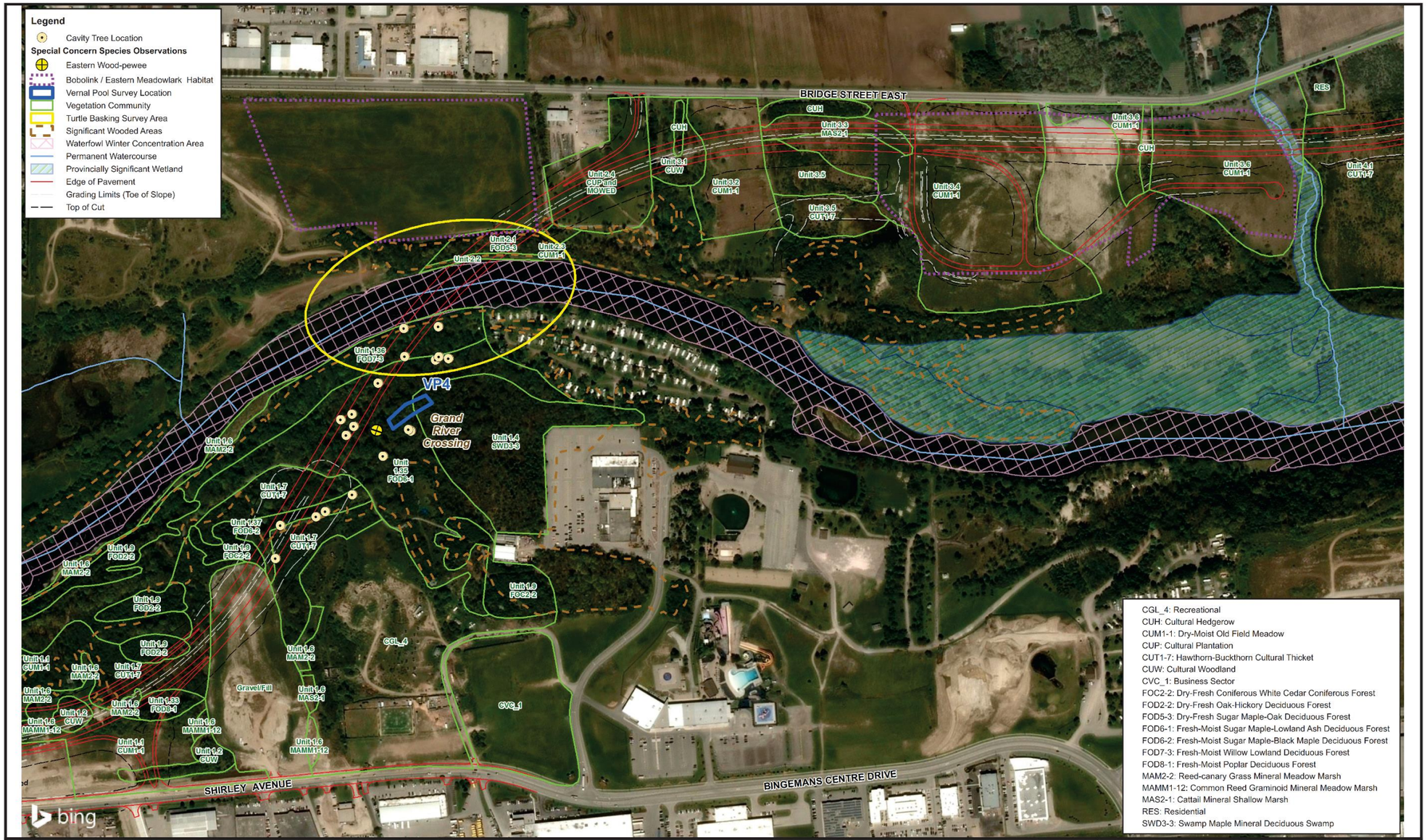
Figure 4-1: Existing Terrestrial Features



Ontario
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New Highway 7 Grand River Bridges
Design and Construction Report
GWP 408-88-00

Exhibit 4-4

Existing Terrestrial Features

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The landscape south of the river is primarily treed, and supports a number of forested vegetation communities including Dry-fresh Oak -Hickory Deciduous Forest (FOD2-2), Dry-fresh Sugar Maple – Oak Deciduous Forest (FOD5-3), Fresh-moist Sugar Maple – Lowland Ash Deciduous Forest (FOD6-1), Fresh-moist Sugar Maple – Black Maple Deciduous Forest (FOD6-2), Fresh-moist Willow Lowland Deciduous Forest (FOD7-3), Fresh-moist Poplar Deciduous Forest (FOD8-1), and Swamp Maple Mineral Deciduous Swamp (SWD3-3), and small Reed Canary Grass Mineral Meadow Marshes (MAM2-2) as well as more disturbed units such as Mineral Cultural Woodland.

Designated Natural Areas and Significant Wildlife Habitat

Significant Woodlands

Significant Woodlands are defined in the Waterloo Regional Official Plan (2015) as woodlands that meet all the following criteria: greater than four hectares in size, excluding adjoining hedgerows; consisting primarily of native tree species; and meets the criteria of a woodland in accordance with the provisions of the Regional Woodland Conservation By-law. There is one Significant Woodland in the Grand River Bridges Study Area; the Grand River Tract, located south of the river, which contains interior forest habitat, defined as forest area 100 m or more from forest edge.

Environmentally Significant Valley Features

Significant Valleys comprise the entire Grand River channel within the region and run up to the point where the slope of the valley transitions into the surrounding upland, as determined by the Waterloo Region Official Plan (2015).

Potential Impacts

Impacts from the bridge construction on vegetation communities are anticipated. Although much of the vegetation in the approved ROW is cultural in nature (cultural meadow, agricultural land, manicured lawn etc.), construction will also involve the permanent removal of natural vegetation and features (forest, wetland). The works includes direct longer-term and short-term impacts to vegetation as well as indirect impacts to adjacent retained vegetation features. These impacts include:

- Creating new forest edges, and highly disturbed ROW corridor;
- Impacting / removing edge and interior habitat;
- Potential spills of contaminants, fuels and other materials that may reach semi-natural areas;
- Potential release of construction-generated sediment to adjacent habitats;
- Potential damage from excessive or improper application of herbicides and pesticides for ROW maintenance requirements;
- Potential damage to adjacent natural vegetation from roadway maintenance activities such as salting and sanding, structure/culvert repairs and ditch cleanout;

- Potential salt runoff and salt spray into vegetated areas may cause loss of vegetation vigour and in extreme cases, vegetation dieback and spread of salt tolerant flora (halophytes); and
- Changes in drainage patterns (groundwater and/or surface runoff flow) that can impact dependent vegetation areas located either up-gradient or down-gradient of the ROW. An increase in downstream runoff can result in erosion impacts on receiving vegetation.

The new crossing structures will span a large part of the valleyland and thus minimize the amount of vegetation removal. The majority of vegetation occurs on the south side of the river. The alignment will span through areas of cultural meadow, cultural thicket and cultural woodland. One of the cultural thicket communities is dominated by the invasive Buckthorn and therefore some of its removal is regarded as a net benefit to the valleyland ecosystem. Some amount of willow floodplain vegetation will be removed for construction access and individual tall specimens will be removed where they interfere with the height of the structure. Some small amount of the Willow Lowland Deciduous forest may be impacted on the west side at the south crossing.

An assessment of impacts on forest interior habitat resulting from the intrusion of the highway into areas that provide forest interior habitat identified a loss of less than one hectare of interior forest within the study area. The remaining interior habitat is preserved.

Wildlife Overview

During the 2016 field surveys, 60 bird species were recorded within the Grand River Bridges study area. Breeding evidence was recorded for 46 of these species. This relatively high number of species is expected due the quality and variety of habitats present.

The Grand River riparian zone is known to act as an important bird migration pathway and ice-free portions of the river can provide waterfowl winter concentration habitat. A number of spring migrant species were observed (e.g., Golden-crowned Kinglet, Bufflehead, Common Merganser, Red-breasted Merganser); while the number of waterfowl observed during the 2016 surveys was relatively low (<10 individuals), this area of the Grand River is known to support waterfowl winter concentration habitat (LIO data).

Five herpetofauna species were recorded in the Grand River crossing study area: American Toad, Spring Peeper, Midland Painted Turtle, Green Frog and Northern Leopard Frog. Due to the amphibian calling station placement, the precise location of anuran breeding habitat north of the Grand River cannot be confirmed; however, it is likely in flooded fields outside of the approved ROW because the steep slopes north of the Grand River are unlikely to support suitable breeding pools. Potential for turtle hibernation habitat was identified in the Grand River crossing area in pools with depths greater than 1 m. In addition, potential turtle nesting habitat was noted in the Grand River study area, including sun-exposed lawns (Bingemans Campground), hiking trails and adjacent agricultural fields. No herpetofauna Species of Conservation Concern (SCC) were confirmed in the Grand River study area during the 2016 field surveys or previous reporting (MMM 2014, MRC 2003); however, there is moderate-high potential for Snapping Turtle and Northern Map Turtle to occur this area.

No Significant Wildlife Habitat (SWH) has been identified by the MNRF within or near the study area; however, it is likely that riparian zones provide corridors for local wildlife movement (including White-tailed Deer movement) and the wetlands provide amphibian breeding habitat. The Grand River likely also provides turtle hibernation habitat.

Potential Impacts

Significant Woodlands

Interior forest habitat has limited availability on a regional scale and it is vulnerable due to fragmentation or edge effects, and is particularly important for certain bird species that require large areas of interior forest (Area Sensitive species).

The impacts on the local bird community in this feature are expected to be minimal as larger areas of forest habitat will remain available along the Grand River corridor and the habitat connectivity will be maintained with vegetation beneath the bridge (the bridge will span the valleyland, allowing suitable passage and potential nesting habitat for birds below).

Impacts on Wildlife Movement

Deer have been reported by the MNRF to occupy the Grand River valleyland in the vicinity of the crossing. The aerial survey did not identify an abundance of deer in this area; however, during the fall vegetation surveys, there was evidence of deer presence in the form of bedding areas, tracks and pellets, but no animals were observed. The bridges over the Grand River will span the majority of the valleyland. This will provide opportunity for deer and other wildlife to move easily through the valley at this location. Local movement out of the valleyland to the tableland in this area of the crossing will be lost.

Impacts on other Specialized Wildlife Habitat

The Waterfowl Winter Concentration Area mapped in the Land Information Ontario (LIO) data extends upstream and downstream of the Grand River bridge crossing. This waterfowl area can also correlate with overwintering habitat for Bald Eagle, as both require ice-free portions of the river and suitable foraging conditions. Although there may be temporary disturbance to this habitat during construction of the Grand River Bridge, the disturbance area will likely be limited to the area in close proximity to the bridge, and no long-term or direct impacts on the winter waterfowl habitat are anticipated.

Species of Conservation Concern Overview

The Guelph District Ministry of Natural Resources and Forestry (MNRF) was contacted to gather existing terrestrial information in the vicinity of the study area. The MNRF's Natural Heritage Information Centre database was also queried to gather information on designated and significant natural features, habitats and Species of Conservation Concern (SCC) within or near the study area. Field surveys, including targeted SAR wildlife surveys, were undertaken from March to August 2016. The following SAR were recorded in the Grand River Bridges study area during the 2016 field surveys:

- Bald Eagle (*Haliaeetus leucocephalus* – Special Concern, COSSARO). One individual observed flying along Grand River with no breeding evidence recorded.

- Barn Swallow (*Hirundo rustica* – Special Concern, COSEWIC and COSSARO). Five individuals foraging over Grand River and fields to the north with no breeding evidence.
- Bobolink (*Dolichonyx oryzivorus* – Threatened, COSEWIC and COSSARO). One singing male recorded in the field north of the crossing.
- Eastern Meadowlark (*Sturnella magna* – Threatened, COSEWIC and COSSARO). At least one breeding pair recorded in the field north of crossing.
- Chimney Swift (*Chaetura pelagica* – Threatened, COSEWIC and COSSARO; SARA Schedule 1). Five individuals foraging above the forest canopy with no breeding evidence recorded (no uncapped chimneys in urban / semi-urban areas).
- Eastern Wood-pewee (*Contopus virens* – Special Concern, COSEWIC and COSSARO). Two individuals with probable breeding evidence recorded in deciduous forest habitat.
- Little Brown Bat (*Myotis lucifugus* - Endangered, COSEWIC and COSSARO). This species was confirmed in the Grand River Tract through acoustic monitoring surveys. Areas adjacent to the new Grand River Bridges and bridge approaches and immediately adjacent to the grading limits of the Walter Bean Trail realignment are considered SAR Bat habitat and established Bat Maternity Roost habitat.
- Two species are considered “Area Sensitive” species (MNRF 2015): Scarlet Tanager (*Piranga olivacea*) and Sharp-shinned Hawk (*Accipiter striatus*).
- 7 Locally Significant bird species (Region of Waterloo 1996) with breeding evidence were identified: Belted Kingfisher (*Megaceryle alcyon*), Brown Creeper (*Certhia americana*), Brown Thrasher (*Toxostoma rufum*), Least Flycatcher (*Empidonax minimus*), Red-bellied Woodpecker (*Melanerpes carolinus*), Scarlet Tanager and Sharp-shinned Hawk (suitable breeding habitat, but no confirmed nesting location identified)., three additionally were recorded in the previous reporting for the Grand River study area; Alder Flycatcher (*Empidonax alnorum*), Black-billed Cuckoo (*Coccyzus erythropthalmus*) and Northern Waterthrush (*Parkesia noveboracensis*).

There is suitable habitat for several additional species not recorded during the Initial Design Stage or during the 2016 field investigations. Based on the known geographic distributions and observed habitat conditions, there are seven additional species that have a **moderate or high potential** of occurring in the vicinity of the works:

- Red-headed Woodpecker* (*Melanerpes erythrocephalus* – Endangered, COSEWIC; Special Concern, COSSARO; SARA Schedule 1);
- Northern Map Turtle (*Graptemys geographica* – Special Concern, COSEWIC and COSSARO; SARA Schedule 1);

- Snapping Turtle (*Chelydra serpentina* – Special Concern, COSEWIC, COSSARO; SARA Schedule 1);
- Eastern Ribbonsnake (*Thamnophis sauritus septentrionalis* – Special Concern, COSEWIC, COSSARO; SARA Schedule 1);
- Monarch (*Danaus plexippus* – Special Concern, COSSARO and SARA, and Endangered, COSEWIC)
- Wood Thrush (*Hylocichla mustelina* – Threatened, COSEWIC and Special Concern, COSSARO)
- Butternut (*Juglans cinerea* – Endangered, COSEWIC, COSSARO)

* In 2023 McIntosh Perry was retained by MTO to conduct a survey of the Highway 7 New Kitchener to Guelph Corridor, including the Phase 2 Grand River Bridges Study Area, for Red-headed Woodpecker (*Melanerpes erythrocephalus*) The results of the survey did not identify any Red-Headed Woodpecker (*Melanerpes erythrocephalus*) occurrences in the corridor. A copy of the McIntosh Perry Technical Memo is found in Appendix B.

Potential Impacts

Seven SAR were confirmed in the Grand River Bridges study area and potential impacts to these species are discussed below:

- **Bald Eagle** (Special Concern) - Minimal or no impacts anticipated. This species is known to travel along the Grand River corridor and may perch in trees or forage in the Grand River; however, no breeding evidence was recorded and no suitable nesting habitat (super canopy trees) will be removed.
- **Barn Swallow** (Special Concern) - No nesting activity was recorded in the study area. Low potential for temporary disturbance to individuals foraging near construction areas, and minimal impacts on foraging/dispersal habitats, which is widely available in the landscape.
- **Bobolink** and **Eastern Meadowlark** (Threatened) - Breeding evidence for these grassland birds was recorded in the field north of the crossing. The alignment will result in edge impacts to breeding habitat. The Notice of Activity (NOA) process has been followed to address impacts to this species throughout the entire new highway alignment. Candidate compensation lands have been identified and the Habitat Management Plan completed and the NOA submitted as per O.Reg. 242/08. MTO has entered into agreement with Upper Thames River Conservation Authority to complete habitat compensation work to offset impacts of the project and that work commenced in Fall 2022.
- **Chimney Swift** (Threatened) - No nesting activity was recorded in the study area. Low potential for temporary disturbance to individuals foraging near construction

areas, and minimal impacts on foraging / dispersal habitats, which is widely available in the landscape.

- **Eastern Wood-pewee** (Special Concern) - Breeding evidence was recorded in deciduous forest habitat in the Grand River Tract. This species is not particularly area sensitive and is known to occur in a variety of forest types, including relatively small woodlots adjacent to highways or other developments. Although the works will reduce the areas of suitable nesting habitat the overall effect on local populations is expected to be minimal.
- **Little Brown Bat** (Endangered) – Acoustic monitoring surveys confirmed the presence of Little Brown Bat in the Grand River Tract. The analysis identified a high potential for impacts on maternity roost habitat in this area. MNRF has confirmed that impacts to SAR bat habitat will require compliance with the ESA in the form of an Overall Benefit Permit.

There is potential for three herpetofauna detailed above to use habitat in the study area. These species may be incidentally encountered as they move across the highway or 'wander' into construction areas. There is some potential that turtle SCC may nest in the road-shoulder or other open areas that are adjacent to aquatic features. Potential turtle overwintering habitat (water depths ≥50 cm) is present in the Grand River crossing; however, no turtles were observed during early spring emergence surveys.

Proposed Mitigation Measures

Impacts to vegetation and habitat features can be managed through the implementation of mitigation measures, as outlined below. A complete list of proposed mitigation measures is presented later in Table 4-4**.**

- Restrict operations to the right-of-way and preserve existing vegetation as much as possible;
- Areas where vegetation is removed will be replanted, where possible, with native vegetation or other suitable plants;
- Compensate for permanent forest and wetland vegetation removals at a minimum ratio of 1:1;
- Where possible, topsoil removed during clearing/grubbing will be stored and utilized locally if soils are required after the construction phase to facilitate a relatively quick reestablishment of the indigenous species in the disturbed area;
- Implement the Forest Edge Management Plan, including planting new forest edges, invasive species control measures;
- Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on its own. If an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to

the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified;

- The Contractor will avoid destroying active nests of breeding migratory birds, as per the stipulations of the Migratory Birds Convention Act;
- Bird Nesting Preventative Measures are recommended for all newly constructed structures where there is potential for migratory bird nesting and additional works are to be completed in subsequent breeding seasons.;
- Create suitable replacement nesting habitat for Bobolink/Eastern Meadowlark*, per requirements of O. Reg 242/08;
- The combined timing window for tree clearing for migratory birds and bat habitat is October 1 to March 31;
- Temporary exclusion fencing will be installed prior to June 1 to prevent snakes and turtles from entering and/or nesting in the construction or grading zones located adjacent to watercourses and wetlands.
- In-water works in the Grand River should be avoided during the turtle hibernation period (September 1 to April 30), where a higher potential for overwintering habitat (water depth >0.5 m) was identified. If in-water works cannot be avoided during the turtle hibernation period, the sheet piling and causeway containment measures should be installed prior to September 1 the year of construction (to exclude turtles from the in-water work areas), or a qualified ecologist should be on-site during the installation to identify and remove any turtles from the work area.

The Project Team is currently in consultation with the Ministry of Environment Conservation and Parks to determine mitigation measures that will off-set the impacts of the removal of bat habitat for new Highway 7 as part of obtaining the ESA Overall Benefit Permit for Little Brown Bats.

** As noted above, with the cooperation of the Upper Thames River Conservation Authority a parcel of land was made available, and in 2022 restoration efforts started to create suitable habitat for Eastern Meadowlark and Bobolink to offset the impacted lands.*

4.1.3 Erosion and Sediment Control

Mitigation measures for erosion and sediment control will be used to prevent sediment from entering forested areas and watercourses / river. Erosion and sediment control measures will be implemented prior to construction, and will be maintained throughout construction as per Ontario Provincial Standard Specifications (OPSS) 804 and 805. Erosion and sediment best management control practices will be designed and implemented in accordance with the Ontario Ministry of Transportation's *Environmental Guide for Erosion and Sediment Control During Construction of Highway Projects* (February 2007).

An ESC Plan will be incorporated into final design package to prevent migration of sediment laden runoff (or other contaminants) from the construction zone to the Grand River.

4.1.4 Groundwater and Wells

WSP has prepared a Hydrogeological Assessment in support of the Ontario Ministry of Environment, Conservation and Parks Category 3 Permit to Take Water (PTTW) application. The application will be submitted in advance of the main bridge construction contract. WSP has reviewed available background information for the project including the mapping of the site, Thurber's 2018 Geotechnical Memo and Ministry of Environment, Conservation and Parks databases for water well records. WSP has collected groundwater samples from the existing monitoring wells on site and completed single well response tests. Additional supplementary test pits, pumping tests and boreholes will be completed on site this Fall (2018).

Standard mitigation measures are appropriate and will ensure that impacts from the proposed works to groundwater are minimal. Mitigation measures are presented later in Table 4-4.

Permit to Take Water (PTTW)

In accordance of the Ontario Water Resource Act (OWRA), the diversion of surface water or the extraction of groundwater in excess of 50,000 litres per day (24 hrs) requires a PTTW from the Ministry of Environment, Conservation and Parks. It is anticipated that construction activities associated with this project could result in a need for some water taking due to dewatering requirements to facilitate abutment construction 'in the dry'. As a result, a Category 3 Permit to Take Water (PTTW) will be obtained from the Ministry of Environment, Conservation and Parks prior to construction.

4.2 Socio-Economic Environment

4.2.1 Contaminated Property / Excess Materials and Waste Management

An Environmental Soil Quality Investigation (ESQI) was undertaken at the Grand River Bridge pier locations to assess the environmental quality of excess soil anticipated to be generated during construction of the Grand River Bridge in support of excess soil management during construction. The scope of work, which was coordinated with the geotechnical consultant (Thurber Engineering Ltd.), included the completion of six (6) geo-environmental boreholes, and the collection and chemical analysis of representative soil samples. The field program was completed between December 11, 2017 and February 26, 2018.

The chemical results of the investigation did not identify any soil exceedances of the applicable Ministry of Environment, Conservation and Parks Table 2 Site Condition Standards (SCS) for the parameters tested.

The chemical results identified minor chromium VI and sodium adsorption ratio (salt-related parameter) exceedances of the Ministry of Environment, Conservation and Parks P Table 1 SCS (background conditions). Table 1 SCS was also applied to the soil for the purpose of determining potential receiving sites within the project limits for disposal of excess soil.

In addition to the above-noted ESQI for the Grand River Bridge pier locations, an Environmental Soil and Groundwater Quality Investigation is currently being undertaken within the proposed construction footprint of the advance construction for the Grand River Bridge east approach drainage work (ditches, culverts and storm water pond) to assess the environmental quality of excess soil and groundwater anticipated to be generated during construction in support of excess soil and groundwater management during construction. The scope of work includes the completion of boreholes, monitoring wells and test pits across the study area, and the collection and chemical analysis of representative soil and groundwater samples. Results to-date, based on the completion of twelve (12) boreholes and fourteen (14) test pits, have identified polycyclic aromatic hydrocarbons (PAH) soil exceedances of Ministry of Environment, Conservation and Parks Table 2 SCS at a few investigated locations. Additional soil and groundwater investigations are being reviewed for the east approach to fully inform the final design of the ditches and storm water managing ponds and minimize the management of contaminated excess soil and groundwater.

Given these initial findings, excess soil generated during construction will need to be managed in accordance with the applicable regulatory framework. As such, an Earth Management Plan (EMP) will be prepared in advance of construction to ensure that excess soil identified for this project and which has been chemically characterized (as per the environment soil quality investigations noted above) is managed in accordance with regulatory requirements and industry best practices. This plan will encourage the reuse of the excess soil at the site where it is excavated to limit the amount of excess soil that requires offsite management.

4.2.2 Noise

Per the Ministry of Transportation Noise Guide, in order to determine noise impacts, a comparison is made between the predicted future noise levels with the proposed undertaking in place (10 years after construction) and the predicted future noise levels associated with the “do nothing” alternative at the same date for the outdoor living area.

Where increases in noise levels are predicted, the mitigation efforts to be applied for the predicted change in noise level above the ambient and the projected noise level with the proposed improvements are as shown in **Error! Reference source not found.**.

Table 4-3: Noise Mitigation Requirements

Change in Noise Level Above Ambient / Projected Noise Levels with Proposed Improvements	Mitigation Effort Required
< 5 dBA change & < 65 dBA	• None
> 5 dBA change OR ≥ 65 dBA	• Investigate noise control measures on right-of-way (ROW) • Introduce noise control measures within ROW and mitigate to ambient if technically, economically and administratively feasible • Noise control measures, where introduced, should achieve a minimum of 5 dBA attenuation, over first row receivers

Based on the Ministry of Transportation Noise Guide, a noise sensitive area is defined as a noise sensitive land use (urban or rural) with an outdoor living area associated with the land use. Noise sensitive areas include:

- private homes such as single family residences;
- townhouses;
- multiple unit buildings, such as, apartments with outdoor living areas for use by all occupants;
- hospitals, nursing homes where there are outdoor living areas for the patients/residents;
- educational facilities and day care centres, where there are outdoor living areas for students;
- campgrounds that provided overnight accommodation; and
- hotels / motels where there are outdoor living areas for visitors.

To identify the noise sensitive areas in the vicinity of the new Grand River Bridges, a review of land uses confirmed that the nearest camping area within Bingemans Park is within 600 metres of the nearest bridge structure over the Grand River. It is noted that this camping is considered as one Noise Sensitive Area. No other noise sensitive areas are located within 600 m of the new Highway 7 Grand River Bridges.
The scope of the study was limited to road traffic noise sources only. Noise modeling was carried out for the following scenarios:

- Future noise levels (Year 2031) – without the construction of new Highway 7 from Kitchener to Guelph (i.e. “Do Nothing” scenario).
- Future noise levels (Year 2031) – with the construction of new Highway 7 from Kitchener to Guelph (i.e. “Future with Undertaking” scenario). Based on the MTO Noise Guide, future noise levels from the proposed undertaking are based on traffic projections 10 years after construction completion of the undertaking.

Noise levels were calculated in the camping area at Bingemans Park within the new Highway 7 Grand River Bridges study limits. At these receptors, the predicted increase in future noise levels experienced as a result of the proposed undertaking is greater than 5 dBA and absolute noise levels are greater than 65 dBA, after considering the transition between asphalt and concrete at the bridge.

Based on the predicted future noise levels with the project, a review of the technical and economic feasibility of a potential noise barrier was investigated. The noise analysis determined that a noise barrier is considered to be technically feasible. However, a barrier at this location is not considered economically feasible. On this basis, placing a noise wall on the bridge is not recommended.

Construction Noise

There is the potential for noise to result from construction activities. Standard mitigation measures will be implemented to keep construction noise impacts to a minimum and are presented in Table 4-4. The Contractor will be required to keep idling of construction equipment to a minimum and to maintain equipment in good working order to reduce noise resulting from construction activities.

Despite compliance with any noise control measures identified in the contract documents, a persistent complaint must require a field investigation to determine noise level emissions. If noise level emissions for the construction equipment in use exceed the sound level criteria for construction equipment contained in the Ministry of Environment, Conservation and Parks Model Municipal Noise Control Bylaw, MTO requires the contractor to comply with the sound level criteria where quieter alternative equipment is reasonably available.

Noise Bylaws

The Legislation Act exempts the Ministry of Transportation from the requirements of municipal bylaws. As such, MTO is not required to obtain noise exemption permits. However, mitigation measures to reduce the impact of construction noise on the local community will be implemented, as appropriate including equipment maintenance and operation constraints.

4.3 Landscape Composition

A landscape analysis was completed for the new Highway 7 Grand River Bridges study limits that included an examination of existing landscape conditions, vistas and landforms, and an inventory of potentially impacted vegetation. A photographic inventory of the study area was collected.

Detailed landscape plans, and a detailed forest edge plan, for the impacted area along the Grand River will be prepared and included in the contract package and implemented as part of the overall construction for the new Highway 7 Grand River Bridges, or during the next phase of construction.

4.4 Cultural Environment

4.4.1 Archaeology

Archaeological assessments were previously carried out on several sites based on the recommendations from the 2004 approved EA in support of the proposed new Highway 7 alignment. During the Initial Design Phase, additional Stage 1, 2 and 3 Archaeological Assessments were carried out in support of the proposed new Highway 7 alignment.

For the new Highway 7 Grand River Bridges detailed design phase, additional Stage 1, 2, and 3 archaeological assessments have been completed, and Stage 4 archaeological assessments are currently under review. Concurrence from the Ministry of Citizenship and Multiculturalism will be obtained prior to construction.

Indigenous Engagement

Indigenous engagement was an important part of the archaeological assessment completed as part of the Detailed Design assignment for the new Grand River Bridges project. The Mississaugas of the Credit First Nation (MCFN), Six Nations of the Grand River Elected Council (SNEC), and the Haudenosaunee Confederacy Chiefs Council (HCCC), via the Haudenosaunee Development Institute (HDI), were involved in all phases of the archaeological assessment including discussions about work planning, inclusion of archaeological liaisons/monitors, requests for meetings, report sharing and archaeological sensitivity plans. The results of these discussions were applicable to all Stage 1-2, Stage 3, and Stage 4 archaeological assessments completed for this project.

Indigenous Community Field Liaisons were deployed during the Stage 2 assessments and the Stage 3 and 4 excavations on the Grand River floodplain. The consultant archaeologists retained and coordinated the deployment of monitors, provided site locational information and field director contact information, provided summaries (when requested) of completed work, and tracked all points of engagement. They also provided regular updates on the progress of the assessments and excavations, and presented both the archaeological assessment results, strategies and the proposed recommendations to community representatives prior to the submission of reports.

Preliminary summaries of the Stage 4 results and recommendations were provided to the engaged Indigenous groups with a request for feedback.

4.4.2 Built Heritage and Cultural Landscapes

The cultural heritage resources within the project limits were previously documented by Unterman McPhail Associates (UMcA), Heritage Resource Management Consultants in a Cultural Heritage Evaluation Report (CHER) for direct impacts and another CHER for indirect impacts.

The findings were presented in the 2014 IDR. For this current study, UMcA prepared a *Cultural Heritage Assessment Report* (CHAR) for the new Highway 7 Grand River Bridge crossings. The report is on file with MTO.

A survey of the study area was completed in April 2016. The river crossing over the Grand River is located north of the existing Highway 7 and east of the Kitchener Waterloo Expressway. The Grand River was designated a Canadian Heritage River in 1994. This designation does not provide statutory protection, however, it does indicate the cultural heritage value of the waterway. No other cultural heritage resources, including cultural heritage landscapes and built heritage resources were identified in the study area. The Grand River, forested areas, former agricultural fields, and commercial and recreational activities characterize the land uses.

The Canadian Heritage Rivers System promotes, protects and enhances Canada’s river heritage. The cultural heritage value, as well as the natural and recreational qualities of designated rivers should be recognized, conserved and managed in a sustainable manner. Therefore, the design of the new bridge crossing over the Grand River and its aesthetic qualities is a matter of public interest.

Although from a cultural heritage perspective the minimizing of piers in the river reduces the impacts to the Grand River and the cultural heritage value or interest of the Grand

River, the disruption of the waterway by the construction of a new bridge crossing was recognized and the following recommendations made to minimize the impact of the new physical element, i.e. the new bridge, to the existing landscape:

- A photographic record will be completed prior to construction start.
- Design solutions to develop a visually attractive structure have been developed and the aesthetic appearance of the piers has been incorporated into the new bridge crossing.
- As part of the future design of the overall new Highway 7 project, additional stakeholder consultation with local municipalities and the Grand River Conservation Authority will continue to obtain information with regards to the heritage significance of the Grand River area in relation to the new crossing and any other local sensitivity and will be documented at that time.

4.5 Transportation

4.5.1 Construction Staging

Traffic and access to local roads will be maintained during this construction phase of the project. The majority of the work will occur within the new Highway 7 ROW, well away from existing roadways, thereby minimizing local traffic impacts. Bridge Street, Ebycrest Road and Shirley Avenue will be used as construction haul routes to transfer material from the north bank to the south bank of the river.

Construction access for the works at Bridge Street and Shirley Avenue will be conducted using temporary lane closures for short durations to either provide safe work areas or for the unloading and loading of equipment.

While there are not expected to be any significant traffic delays, construction staging measures will include the following, to minimize traffic impacts:

- Advance signage will be provided where required for temporary lane closures in order to notify motorists of construction.
- Emergency services, OPP, school boards, transit authorities and municipalities will be advised directly a minimum of 7 days prior to the implementation of traffic control measures. Notice of traffic disruptions will also be posted on the project website.
- Access will be via existing municipal roads.

4.5.2 Navigability

The Grand River, within the project limits, is not identified on Transport Canada's List of Scheduled Waters under the Navigation Protection Act. However, a 4.0 m high x 6.5 m wide clearance envelope, that can accommodate motorized vessels greater than 8 m long, will be available during and following construction of the new bridges. Signage will be provided to make users of the watercourse aware of the construction on the approaches to the bridges.

4.5.3 Utilities

No utility conflicts have been identified. Hydro and Bell service connections on the east side of the Grand River will be maintained during construction.

4.5.4 Illumination

Full conventional illumination will be provided along the Grand River Bridges. This lighting will however only be energised following the completion of the new Highway 7.

4.5.5 Emergency Services

Notification will be sent to the Ontario Provincial Police, municipalities and emergency service providers to advise them of the detailed construction staging plan and the timing for construction. Consultation with OPP, municipalities and emergency service providers as required to ensure minimal impacts during construction.

4.5.6 Property

Property has been identified and obtained as part of the new Highway 7 project.

4.6 Permits, Approvals and Authorizations

The following permits/approvals have/will be secured for the project:

- **ESA – Endangered Species Act:** MECPC-Permit ESA permit is required for SAR bats under the Endangered Species Act legislation.
- **Archaeology:** Archaeological concurrence from MCM for completed archaeological assessments within the study limits is required prior to construction.
- **Fisheries Act Authorization:** A Request-for-Review (RfR) was submitted to Department of Fisheries and Oceans in 2017, which determined that the size of the area impacted within the wetted width was large enough that a Fisheries Act Authorization would be required to address the impacts on fish and fish habitat. Department of Fisheries and Oceans Fisheries Act Authorization will need to be obtained prior to construction. As noted in section 4.1.1, the Fisheries Act Authorization will need to include the efforts to avoid, mitigate, and offset the impacts to Critical Habitat for Silver Shiner (*Notropis photogenis*).
- **PTTW:** It is anticipated that construction activities associated with this project could result in a need for some water taking due to dewatering requirements. As a result, a Category 3 Permit to Take Water (PTTW) will be obtained from the Ministry of Environment, Conservation and Parks prior to construction.
- **Notice of Activity:** The Notice of Activity (NOA) process was followed to address impacts to Bobolink and Eastern Meadowlark and submitted as per O.Reg. 242/08.

4.7 Summary of Environmental Effects, Proposed Mitigation, and Commitments to Further Work

Table 4-4 below summarizes the identified environmental concerns and proposed mitigation measures, based on the identified environmental sensitivities and the Detailed Design plans.

Legend	
MNRF: Ministry of Natural Resources and Forestry	RES/BUS: Local residents and/or business owners
MECP: Ministry of the Environment, Conservation and Parks	TC: Transport Canada
MCM: Ministry of Citizenship and Multiculturalism	UTIL: Utilities
MTO: Ministry of Transportation	DFO: Department of Fisheries and Oceans
EMS: Emergency Medical Services& Fire Dept	OPP: Ontario Provincial Police
GRCA: Grand River Conservation Authority	

Table 4-4: Summary of Environmental Effects, Proposed Mitigation, and Commitments to Further Work

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
Natural Environment			
1.0 Species at Risk (SAR)			
1.1	Species Encounters and potential impacts to Eastern Meadowlark and Bobolink, SAR Bats (Myotis / Perimyotis sp.), SAR Turtles (Snapping Turtle, Northern Map Turtle, Blanding's Turtle, Spiny Softshell).	MECP MTO MNRF DFO GRCA	• If an unexpected Species at Risk or possible Endangered or Threatened species is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. The Contract Administrator will then contact the MECP SAR Biologist for direction, as these animals are protected under the ESA (2007). • The combined timing window allows tree clearing for migratory birds and bat habitat is October 1 to March 31 • The Notice of Activity (NOA) process will be followed to address impacts to Bobolink and Eastern Meadowlark and submitted as per O.Reg. 242/08. • Lands will continue to be used for agricultural purposes until the Registration process has been completed and habitat removed. • A C-Permit Application for Overall Benefit from MNRF under the ESA is required prior to removal of vegetation in Bat Habitat (Grand River Forest, Weiland Tract and Marden South woodlots). • Vegetation removals in bat habitat areas are restricted to October 1 - March 31. • Works in the confirmed SAR bat habitat may be subject to other mitigation measures or restrictions as specified in an Overall Benefit Permit to be received from MECP. • Avoid in-water works in the Grand River during the turtle hibernation period (September 1 – April 30), where a higher potential for overwintering habitat (water depth >0.5 m) was identified. If in-water works cannot be avoided during the turtle hibernation period, the sheet piling and causeway containment measures should be installed prior to September 1st the year of construction (to exclude turtles from the in-water work areas), or a qualified ecologist should be on-site during the installation to identify and remove any turtles from the work area. • Draining or infilling of waterbodies (i.e. ponds, not watercourses) will require a thorough search, conducted by a qualified biologist, to identify, remove and/or relocate any turtles. • Temporary exclusion fencing will be installed prior to June 1 to prevent snakes and turtles from entering and/or nesting in the construction or grading zones located adjacent to watercourses and wetlands.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
2.0 Fish and Fish Habitat			
2.1	Impacts to the Grand River during construction activities and local habitat loss and alteration of substrates.	MECP MTO MNRF DFO GRCA	• All required permits and approvals will be obtained from external agencies prior to construction. • A warmwater permissible in-water construction timing window of July 1st to March 31st will be implemented at the crossings. No in-water works will be permitted between April 1st and June 30th of any given year. • Any temporarily stockpiled soil, debris or other excess materials, and any construction-related materials, will be properly contained (e.g. within silt fencing) in areas separated at least 30 m from the Grand River or its tributary/drainage features. All construction materials, excess materials and debris should be removed and appropriately disposed of following construction. • Only clean materials free of fine particulate matter should be placed in the water for temporary construction measures (e.g. coffer dams will be constructed of 'pea gravel' bags, geotextile fabric, sheet pile or other clean material). • If dewatering is required, appropriate energy dissipation and settling/filtration measures should be used for discharge of dewatering water to ensure no erosion or sediment release occurs in the Grand River / drainage features. • The Contract Administrator's team will include a Fisheries Contract Specialist and an Environmental Inspector experienced in working around watercourses, who will be responsible for ensuring the erosion and sediment control measures are functioning effectively, being maintained and that all of the other general mitigation measures are being implemented as intended. The Environmental Inspector will also ensure all environmental mitigation and design measures are properly installed/constructed and maintained. Appropriate contingency and response plans will be in place and implemented if required. • If the Contractor wishes to alter any of the mitigation plans as outlined in the Contract Documents, then the associated approval agency will need to be made aware of and approve the changes prior to construction. • The installation, monitoring, maintenance, and removal of temporary erosion and sediment control measures shall be carried out. • The construction access, work areas and associated requirements for removal of riparian vegetation will be minimized to the extent required for the construction activities, and these areas then delineated in the field using properly installed protective silt fencing. All temporarily disturbed areas will be re-stabilized following construction. • All construction-related activities should be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment as outlined above, to the drainage feature. • In-stream construction and staging (piers and causeway) have been designed to avoid sensitive habitat. During evaluation of alternatives, the preferred bridge design was selected because it avoided impacts to the mussel habitat along the east bank. No freshwater mussels were observed in the proposed Pier 5 locations. • A fish and mussel rescue/relocation will be carried out for all in-water works once isolation measures have been installed. These rescue/relocations will be carried out by qualified professionals following the measures outlined in the Licence to Collect Fish for Scientific Purposes issued by the MNRF, and transferred to suitable habitat downstream of the construction areas. • The scour bank protection along the east bank piers (Pier 6) will be graded to match the existing bank slopes to transition smoothly with adjacent banks and limit erosion around the piers.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
3.0 Vegetation			
3.1	Impacts to vegetation, interior habitat and native topsoil.	MTO MNRF	• Restrict operations to the right-of-way and preserve existing vegetation as much as possible. • Site stabilization: Reseeded areas will be covered with mulch to prevent erosion and to help seeds germinate. If there is insufficient time remaining in the growing season, the site will be stabilized (e.g., cover exposed areas with erosion control blankets to keep the soil in place and prevent erosion) and vegetated the following spring. • Areas where vegetation is removed will be replanted, where possible, with native vegetation or other suitable plants. • Compensate for permanent forest and wetland vegetation removals at a minimum ratio of 1:1. • Where possible, topsoil removed during clearing/grubbing will be stored and utilized locally if soils are required after the construction phase to facilitate a relatively quick reestablishment of the indigenous species in the disturbed area. • Implement the Forest Edge Management Plan (detailed in the Terrestrial Ecosystems Impacts Assessment Report), including planting new forest edges, invasive species control measures. • The alignment will bisect the Grand River Tract woodlot in a north-south direction, creating a new east-facing and west-facing edge. The Forest Edge Management Plan is to plant 2 m tall trembling aspen, 1 m tall nannyberry, 1 m tall chokecherry at / within the new forest edge (east / west) to initiate protection from wind, sunscald and drying of soils. A double row of white spruce or equivalent salt-tolerant species will be planted at the forest edge. Any buckthorn present will be removed and replaced with a native shrub species such as chokecherry or nannyberry. Invasive species locations will be monitored yearly for 5 years from the time of clearing. Forest edge plantings, including invasive species removal where necessary, will occur in the next favourable time for planting (after removals have occurred) rather than waiting for completion of construction. • Implement careful grubbing/grading practices (Cut stems left in place to promote suckering, seed bank is left to germinate ground cover, microtopography left to maintain drainage characteristics). • Monitor effectiveness of Buckthorn control measures yearly for 5 years from time of ROW clearing (or as per guidelines set out in the Forest Edge Management Plan).
4.0 Wildlife			
4.1	Wildlife entering the work zone during the construction period may be directly impacted.	MTO MNRF	• Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on its own. If an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified. • The Contractor will avoid destroying active nests of breeding migratory birds, as per the stipulations of the Migratory Birds Convention Act. • The combined timing window allows tree clearing for migratory birds and bat habitat from October 1st to March 31st. • Migratory Bird Protection is recommended to specify that active nests cannot be destroyed and a Timing Constraint for Clearing is recommended for all areas where removal of vegetation (including trees, shrubs and plants) is required. • Bird Nesting Preventative Measures are recommended for all newly constructed structures where there is potential for migratory bird nesting and additional works are to be completed in subsequent breeding seasons.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
			• The Grand River is a major wildlife corridor on the landscape. Retaining movement through this corridor is important for populations of small mammals, herpetofauna, and White-tailed Deer. The bridge will be of sufficient height for deer movement beneath (>4 m; MTO 2015). • On the south side of the Grand River movement is similar to the south, however here White-tailed Deer are likely concentrated along the river bank due to the steep slopes. The bridge at this location will be of sufficient height for deer movement beneath (>4 m; MTO 2015). • Deer crossing signs should be considered where practical along with other measures to improve deer crossing awareness and help to reduce the risk of road mortality.
5.0 Erosion and Sediment Control			
5.1	Surface runoff from the site does not flow directly into a local watercourse, but construction activities have the potential to contribute surface sediments into the surrounding area.	MECP MTO MNRF DFO GRCA	• An Erosion and Sediment Control Plan will be incorporated into final design package to prevent migration of sediment laden runoff (or other contaminants) from the construction zone to the Grand River. • The Contractor will follow all erosion and sediment control measures identified in the contract and prevent/control potential for erosion and sediment caused by their construction methods and operations so as to meet all legislative requirements, to prevent entry of sediments into all drainage features (including the Grand River itself), and to prevent damage to features and property inside or outside of the ROW. • Vegetation removals will be minimized to the extent required for the construction activities, and these areas then delineated in the field using properly installed protective silt fencing. All temporarily disturbed areas will be re-stabilized following construction.
6.0 Groundwater			
6.1	Potential impacts resulting from construction activities to groundwater.	MTO MECP	• Advanced notification will be sent to well owners/tenants residing on properties abutting the study area prior to construction activities. This is to ensure that the public is aware of the purpose and timing of the project. A contact phone number should be provided to owners in case water quality and/or water quantity issues arise in relation to construction activities.
7.0 Landscape			
7.1	The existing landscape conditions, vistas, landforms and vegetation will be impacted by the implementation of the New Grand River Bridges crossing.	MTO MECP MNRF GRCA	• Detailed landscape plans, and a detailed forest edge plan for the impacted area along the Grand River will be included in the contract package and implemented as part of the overall construction for the New Highway 7 Grand River Bridges to soften the visual intrusion of the bridge. • Monitoring proposed during the construction includes: — Tree protection; and — Management of construction access, deliver and removal of materials.
Socio-Economic Environment			
8.0 Contaminated Property / Excess Materials and Waste Management			
8.1	Excess soil management during construction and construction waste have the potential to contaminate the surrounding environment if not properly managed.	MTO MECP MNRF	• All construction-related activities should be controlled so as to prevent entry of any petroleum products, debris or other potential contaminants/deleterious substances, in addition to sediment, to the drainage feature. • Excess soil generated during construction will need to be managed in accordance with the applicable regulatory framework.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
			• An Earth Management Plan (EMP) will be prepared in advance of construction to ensure that excess soil identified for this project and which has been chemically characterized is managed in accordance with regulatory requirements and industry best practices. • Excess soil within the vicinity of borehole GRB16-11 between ground surface and 0.61 mbgs, and borehole GRB16-12 between 0.76 and 1.37 mbgs shall not be used as backfill material within 30 metres of water bodies (i.e. Grand River), permanent water courses, environmentally sensitive areas, or within or adjacent to an Area of Natural and Scientific Interest (ANSI). • Reuse of soil is subject to geotechnical conditions. • Excess materials and construction waste should be removed off-site and managed in accordance with provincial standards. • A Spill Control and Response Plan should be developed and implemented to prevent deleterious substances from entering the natural environment. The plan should ensure machinery arrives on site in clean condition and maintained free of fluid leaks. • An emergency spill kit should be kept on-site in case of spills during activities or fluid leaks or spills from equipment. • When spills occur, the MECP Spills Action Centre should be contacted and all reasonable corrective action should be taken to contain and clean the spill immediately. • Vehicle maintenance and refueling shall be confined to designated areas a minimum of 30 m away from watercourses and wetlands, and all activities shall be controlled to prevent entry of petroleum products or other deleterious substances into the natural environment.
9.0 Air Quality			
9.1	Dust emissions may result from construction activities.	MECP MTO	• Standard construction practices for the control of dust will be implemented during the construction period to minimize the generation and spread of dust. • Dust suppression shall be completed using water, not chemical suppressants, and in accordance with the Ministry's general condition.
10.0 Noise			
10.1	Noise impacts as a result of the preferred plan will be limited to construction related noise.	MTO Municipalities Area Residents	• The Contractor will be required to keep the idling of construction equipment to a minimum and to maintain equipment in good working order to reduce noise resulting from construction activities. • If noise level emissions for the construction equipment in use exceed the sound level criteria for construction equipment contained in the MECP Model Municipal Noise Control Bylaw, MTO requires the contractor to comply with the sound level criteria where quieter alternative equipment is reasonably available. • The Legislation Act exempts the Ministry of Transportation from the requirements of municipal bylaws. As such, MTO is not required to obtain noise exemption permits. However, mitigation measures to reduce the impact of construction noise on the local community will be implemented, as appropriate including equipment maintenance and operation constraints.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
Cultural Environment			
11.0 Archaeology / Heritage			
11.1	Archaeological resources and cultural heritage features	MTO MCM Indigenous Communities	• In the event that deeply buried archaeological deposits are discovered in the course of construction, the Ministry of Citizenship and Multiculturalism (416-212-0036) should be notified immediately. Should previously undocumented archaeological resources be discovered, they may be new archaeological sites 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 a determination of their nature and significance. • In the event that human remains are encountered during construction, the Cemeteries Regulation Unit of the Ministry of Consumer Service (1-800-889-9768) should be notified. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be contacted to ensure that the site is not subject to unlicensed alterations which would be a contravention of the *Ontario Heritage Act*. • Bridge Heritage enhancements will be incorporated into the design contract documents prior to construction. • A photographic inventory of the study area was collected. • A Grand River commemoration strategy is being reviewed to address the Grand River heritage context. Consultation is ongoing regarding commemorating the heritage design of the Grand River. • Concurrence from the Ministry of Citizenship and Multiculturalism will be sought upon completion of the archaeological investigations and reports and obtained prior to any sites being impacted by construction.
Transportation			
12.0 Construction Staging			
12.1	A potential advance clearing and grading contract that includes preparatory works to facilitate the main bridge contract will commence in the Fall of 2018.	MTO Municipalities Residents & Businesses	• Traffic and access to local roads will be maintained. • The majority of the work will occur within the new Highway 7 ROW, well away from existing roadways, thereby minimizing local traffic impacts. Bridge Street, Ebycrest Road and Shirley Avenue will be used as construction haul routes to transfer material from the north bank to the south bank of the river. • Construction access for the works at Bridge Street and Shirley Avenue will be conducted using temporary lane closures for short durations to either provide safe work areas or for the unloading and loading of equipment. • While there are not expected to be any significant traffic delays, construction staging measures will include the following, to minimize traffic impacts: — Advance signage will be provided where required for temporary lane closures in order to notify motorists of construction. — Emergency services, OPP, school boards, transit authorities and municipalities will be advised directly a minimum of 7 days prior to the implementation of traffic control measures. Notice of traffic disruptions will also be posted on the project website. — Access will be via existing municipal roads.

Issue #	Concern / Potential Effect	Relevant Agency	Mitigating Measure
13.0 Utilities			
13.1	Impact to utility locations.	MTO Utilities	• No utility conflicts have been identified. Hydro and Bell service connections on the east side of the Grand River will be maintained during construction.
14.0 Illumination			
14.1	Appropriate level of illumination will be provided.	MTO Municipalities Residents	• Full conventional illumination will be provided along the Grand River Bridges. This lighting will only be energised following the completion of the new highway. • The design of the future lighting will consider a balance of road user safety and environmental concerns, including the review of potential shielding to minimize light trespass on adjacent sensitive areas.
15.0 Emergency Services			
15.1	Potential impacts to emergency services response times.	MTO Municipalities OPP	• Notification will be sent to the Ontario Provincial Police, municipalities and emergency service providers to advise them of the detailed construction staging plan and the timing for construction. Consultation with OPP, municipalities and emergency service providers as required to ensure minimal impacts during construction.

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5 MONITORING

The Contract Administrator will ensure that the environmental protection measures outlined in this Design and Construction Report are carried out. If the impacts of construction are different than anticipated, or if the method of construction is such that there are greater than anticipated impacts, the Contractor's methods of operation will be changed or modified to reduce those impacts. During construction, the on-site Contract Administrator ensures that implementation of mitigating measures and key design features are consistent with the contract and external commitments. In addition, the effectiveness of the environmental mitigating measures is assessed to ensure that:

- Individual mitigating measures are providing the expected control and/or protection;
- Composite control and/or protection provided by the mitigating measures is adequate;
- Mitigation measures are maintained and any unnecessary repairs are completed quickly; and
- Additional mitigating measures are provided, as required, for any unanticipated environmental problems that may develop during construction.

On-site construction administration staff will ensure that the environmental measures outlined in the contract documents are carried out. Post-construction monitoring will be carried out as required by environmental permits / registrations. In the event that problems develop, the MTO Environmental Section and appropriate provincial ministries and/or agencies will be contacted to provide additional input and recommendation.

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APPENDIX

A

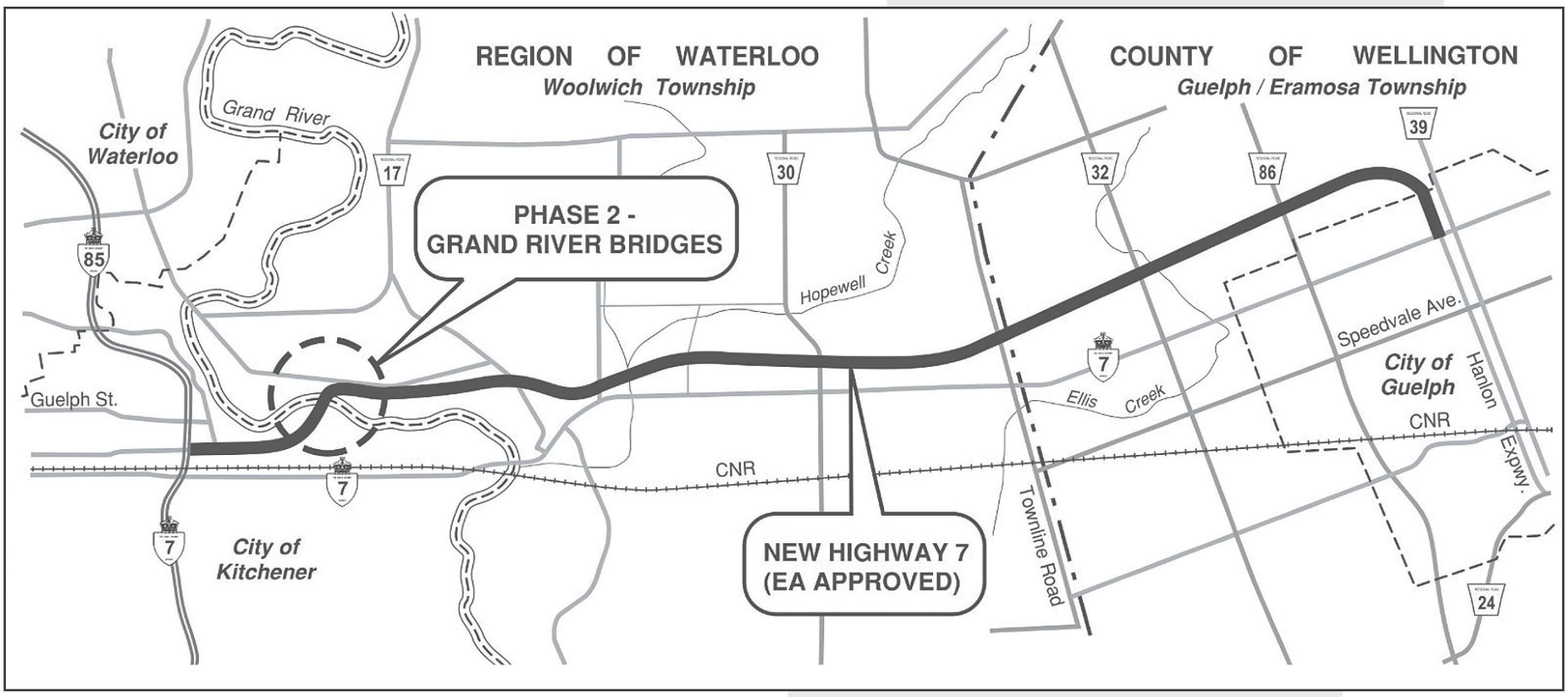
PUBLIC AND AGENCY CORRESPONDENCE

This notice appeared in the Waterloo Region Record, Turtle Island News and Two Row Times newspapers on September 27, 2023 and digitally on the Guelph Mercury Tribune from September 27, 2023 - October 26, 2023.

CORRRECTION: The original notice stated that; … the MTO has completed the Detailed Design for the two new bridges crossing the Grand River. It should read; … the MTO is completing the Detailed Design for the two new bridges crossing the Grand River.

New Highway 7 – Kitchener to Guelph

Progress Update and Notice of Design and Construction Report for Phase 2 - Grand River Bridges (GWP 408-88-00)



THE PROJECT

The **Ministry of Transportation (MTO)** continues to move forward with new Highway 7 from Kitchener to Guelph following a three phased approach.

Phase 1 – Construction Completed

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction also included:

- widening and extension of Shirley Avenue in Kitchener (completed 2017);
- relocating municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener (completed 2017);
- clearing of vegetation and fencing if select areas along the new Highway 7 right-of-way between Kitchener and Guelph (completed 2018); and
- replacing the Victoria Street Bridge over Highway 85 in Kitchener (completed 2019).

Phase 2 – Grand River Bridges

Building on the approved Environmental Assessment for new Highway 7, the MTO is completing the Detailed Design for the two new bridges crossing the Grand River, to accommodate the eastbound and westbound lanes of new Highway 7. Advance work is being completed to facilitate Phase 3.

Phase 3 – Completion of new Highway 7

The engineering and environmental work for the final phase of new Highway 7 is progressing. Design and Construction Reports will also be prepared for Phase 3.

THE PROCESS

Design and Construction Report for Phase 2 – Grand River Bridges

A Design and Construction Report for the Grand River Bridges will be available for a 30 day review and comment period from **September 27, 2023 to October 26, 2023** at the project website **www.NewHighway7.ca.** A hard copy of the DCR will not be provided at public review locations. If you require an alternate format to review the DCR please contact a member of the Project Team to discuss options. This study has followed the approved environmental planning process for Group 'A' projects under the Class *Environmental Assessment for Provincial Transportation Facilities* (2000).

COMMENTS

Interested persons are encouraged to review this document and provide comments by **October 26, 2023** through the project website **www.NewHighway7.ca.** After the review period, construction can proceed subject to required approvals.

If you wish to obtain additional information, or to provide comments, please visit the project website at **www.NewHighway7.ca.** The project team can be contacted through email at **info@newhighway7.ca** or by phone:

Rob Kleine, P.Eng.
Manager, Transportation | Highways
WSP Canada Group Limited
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1
tel: (905) 882-7225
toll free : 1-877-562-7947

Sarah Jewell, P.Eng., M.Eng.
Project Engineer
Ministry of Transportation - West Region
659 Exeter Road
London, ON N6E 1L3
tel: (519) 873-4812
toll free : 1-800-265-6072

We are committed to ensuring that government information and services are accessible for all Ontarians. For communication supports or to request project material in an alternate format, please contact one of the Project Team members listed above.

Comments and information will be collected to assist the MTO in meeting the requirements of the *Environmental Assessment Act.* With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act.*

This Notice was first issued on September 27, 2023

Please visit us at www.NewHighway7.ca

Ontario

Sample letter to Agencies

September 21, 2023

«AddressBlock»

Attention: «First_Name» «Last_Name»
«PositionTitle»
«AgencyCompany»

RE: New Highway 7 – Kitchener to Guelph
Progress Update and Notice of Design and Construction Report for Phase 2 - Grand River Bridges (G.W.P 408-88-00)

Dear «GreetingLine»:

The Ontario Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph. Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has completed the Detailed Design for the new Grand River Bridges crossings and approaches (Phase 2) as shown in the attached Progress Update and Notice of Design and Construction Report.

The purpose of this letter is to inform you that a Design and Construction Report (DCR) for Phase 2 has been prepared and is available for a 30-day public and external agency review period on the project website at **www.NewHighway7.ca** from **September 27, 2023 to October 26, 2023**. The study has followed the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

If you wish to obtain additional information, or to provide comments, please contact the Project Team members listed in the Notice.

Yours very truly,

Rob Kleine, P. Eng.
Manager, Transportation | Highways
WSP Canada Group Limited

100 Commerce Valley Drive West
Thornhill, ON
Canada L3T 0A1

T: +1 905 882-1100
F: + 905 882-0055
wsp.com

Attach. Progress Update and Notice of Design and Construction Report

cc: Sarah Jewell, MTO, Project Engineer
Kelly Jensen, MTO, A, Senior Environmental Planner
Bob Felker, WSP, Environmental Planner

Sample letter to MPPs

September 21, 2023

«AddressBlock»

Attention: «FirstName» «LastName»
«Group» «Company1»

RE: Notice of Design and Construction Report
New Highway 7, Grand River Bridges (Phase 2)
Detailed Design and Class Environmental Assessment Study (G.W.P 408-88-00)

Dear «Title» «LastName»:

The Ontario Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph. Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has completed the Detailed Design for the new Grand River Bridges crossings and approaches (Phase 2) as shown in the attached Notice of Design and Construction Report.

The purpose of this letter is to inform you that a Design and Construction Report (DCR for Phase 2) has been prepared and is available for a 30-day public and external agency review period on the project website at **www.NewHighway7.ca** and at the locations listed in the attached Notice during regular business hours from **September 27, 2023 to October 26, 2023**. The study has followed the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

The attached Notice of DCR Filing will be published in the following newspapers, on the noted dates:

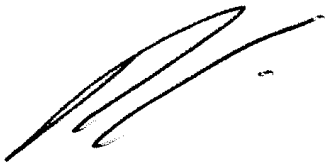
- *Waterloo Regional Record* — Wednesday, September 27, 2023
- *Turtle Island News* — Wednesday, September 27, 2023
- *Two Row Times* — Wednesday, September 27, 2023
- *Guelph Mercury Tribune (digital only)* — Wednesday, September 27 – Thursday, October 26, 2023

If you wish to obtain additional information, or to provide comments, please contact the Project Team members listed in the Notice.

100 Commerce Valley Drive West
Thornhill, ON
Canada L3T 0A1

T: +1 905 882-1100
F: + 905 882-0055
wsp.com

Yours very truly,



Rob Kleine, P. Eng.
Consultant Project Manager
WSP Canada Group Limited

Attach. Notice of Design and Construction Report

cc: Sarah Jewell, MTO, Project Manager
Kelly Jensen, MTO, A, Senior Environmental Planner
Bob Felker, WSP, Environmental Planner

Ministry of Transportation

Engineering Program Delivery West
Environmental Section

659 Exeter Road
London, Ontario N6E 1L3
Telephone: (226) 448-7949
Facsimile: (226) 448-7949
Email: Kelly.Jansen@ontario.ca

Ministère des Transports

Bureau du génie
Section de l'environnement
Région de l'Ouest

659, rue Exeter
London (Ontario) N6E 1L3
Téléphone: (226) 448-7949
Télécopieur: (226) 448-7949

Ontario

September 25, 2023

Sample letter to Indigenous Nations

Re: Notice of Design and Construction Report
New Highway 7, Grand River Bridges (Phase 2)
Detailed Design and Class Environmental Assessment Study (GWP 408-88-00)

Dear :

The Ontario Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph. Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has completed the Detailed Design for the new Grand River Bridges crossings and approaches (Phase 2) as shown in the attached Notice of Design and Construction Report.

The purpose of this letter is to inform you that a Design and Construction Report (DCR) for Phase 2 has been prepared and is available for a 30-day public and external agency review period on the project website at www.**NewHighway7.ca** and at the locations listed in the attached Notice of Design and Construction Report during regular business hours from **September 27, 2023 to October 26, 2023.** The study has followed the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

If you would like to provide comments, or if you require further information regarding this study, please feel free to contact me by phone at (226) 448-7949.

Yours truly,

Kelly Jansen
(A) Senior Environmental Planner
Ministry of Transportation
Engineering Program Delivery West
(226) 448-7949

Encl. Notice of Design and Construction Report

cc: Sarah Jewell, MTO, Project Engineer
Kelly Jansen, MTO, A, Senior Environmental Planner
Khahy Ho, MTO, Indigenous Liaison Specialist
Rob Kleine, WSP, Consultant Project Manager
Bob Felker, WSP, Environmental Planner
Lonny Bomberry, SNGR, Director Lands and Resources
Dawn Russell, SNGR, Consultation Administrative Assistant

This notice appeared in the *Waterloo Region Record, Turtle Island News* and *Two Row Times* newspapers on May 3, 2017 and the *Guelph Tribune* on May 4, 2017

NEW HIGHWAY 7 – KITCHENER TO GUELPH

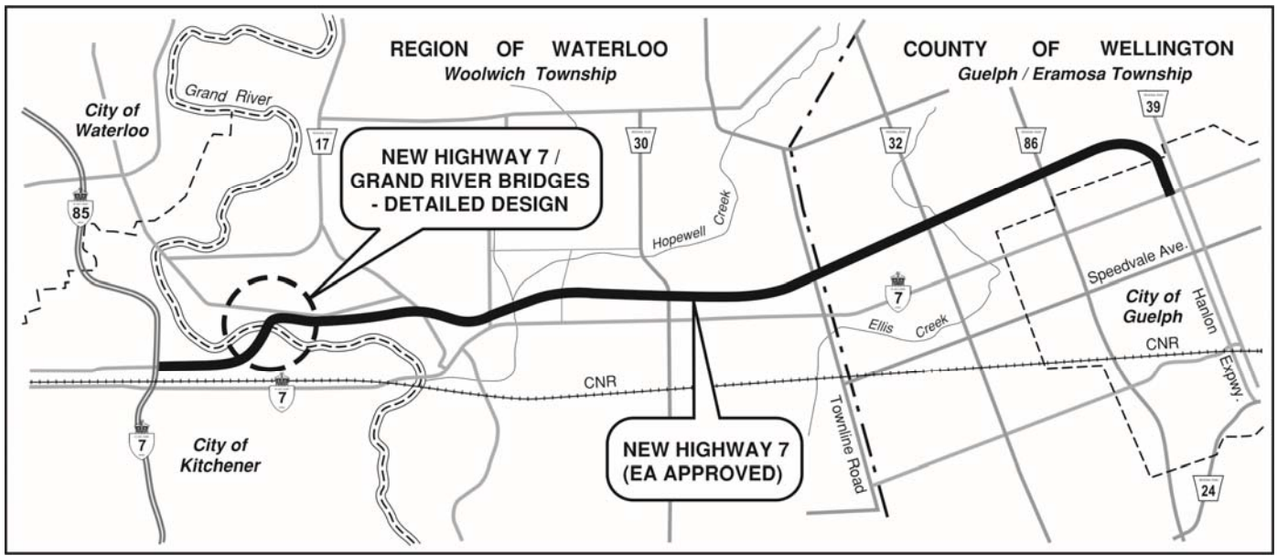
Progress Update; GWP 408-88-00

The **Ministry of Transportation (MTO)** continues to move forward with new Highway 7 from Kitchener to Guelph following a three phase approach:

Phase 1 – Ongoing construction and construction to commence in 2017

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction planned for 2017 includes:

- Continuing work to widen and extend Shirley Avenue in Kitchener;
- Continuing the relocation of municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener;
- Begin replacement of the Victoria Street Bridge over Highway 85 in Kitchener; and
- Begin clearing vegetation and fencing the new Highway 7 right-of-way between Kitchener and Guelph.



Phase 2 – New Highway 7 Grand River Bridges

Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has initiated Detailed Design for the new Grand River Bridges. This design work will follow the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

A Design and Construction Report (DCR) will be prepared to document the Detailed Design of the new Grand River Bridges and associated environmental mitigation measures. The planned work includes grading at the approaches to the bridges. The DCR will be made available for a 30-day public review period. Notices will be posted on the project website **www.NewHighway7.ca**, published in local newspapers, and sent to persons on the project mailing list when the DCR is available for viewing. If there are no significant outstanding concerns at the end of the 30-day public review period for the DCR, the project may proceed to construction.

Phase 3 – Completion of new Highway 7

The design for new Highway 7 from Kitchener to Guelph project is also progressing. MMM Group is updating the natural, social and cultural environmental conditions and developing mitigation measures; undertaking detailed soil and foundation investigations and analysis; and continuing detailed engineering work.

Comments

Interested persons are encouraged to visit the project website **www.NewHighway7.ca** for further information about the project, and to submit comments to the Project Team. To obtain additional information, provide comments or to be placed on the mailing list, please contact:

Ms. Alla Dinerman, P.Eng.
Consultant Project Manager
MMM Group
100 Commerce Valley Drive West
Thornhill, ON L3T 0A1
Tel: (905) 882-7212
Toll Free : 1-877-562-7947
Fax: (905) 882-0055
E-mail: dinermana@mmm.ca

Mr. Kevin DeVos, LEL
Senior Engineering Project Manager
Ministry of Transportation - West Region
659 Exeter Road
London, ON N6E 1L3
Tel: (519) 873-4602
Toll Free : 1-800-265-6072 ext 519-873-4602
Fax: (519) 873-4600
E-mail:kevin.devos@ontario.ca

We are committed to ensuring that government information and services are accessible for all Ontarians. For communication supports or to request project material in an alternate format, please contact one of the Project Team members listed above.

Comments and information will be collected to assist the MTO in meeting the requirements of the *Environmental Assessment Act*. With the exception of personal information, all comments will become part of the public record in accordance with the *Freedom of Information and Protection of Privacy Act.*

Please visit us at www.NewHighway7.ca

Ontario

MMM Group Limited
100 Commerce Valley Drive West
Thornhill, ON Canada L3T 0A1
t: 905-882-4211 | f: 905-822-0055

www.mmmgrouplimited.com

April 26, 2017

Sample Agency Letter

Re:
New Highway 7 – Kitchener to Guelph
Progress Update; GWP 408-88-00

Dear ,

The Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph (see enclosed key plan) following a three phase approach:

Phase 1 – Ongoing construction and construction to commence in 2017

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction planned for 2017 includes:

- Continuing work to widen and extend Shirley Avenue in Kitchener;
- Continuing the relocation of municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener;
- Begin replacement of the Victoria Street Bridge over Highway 85 in Kitchener; and
- Begin clearing vegetation and fencing the new Highway 7 right-of-way between Kitchener and Guelph.

Phase 2 – New Highway 7 Grand River Bridges

Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has initiated Detailed Design for the new Grand River Bridges. This design work will follow the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

A Design and Construction Report (DCR) will be prepared to document the Detailed Design of the new Grand River Bridges and associated environmental mitigation measures. The planned work includes grading at the approaches to the bridges. The DCR will be made available for a 30-day public review period. Notices will be posted on the project website **www.NewHighway7.ca**, published in local newspapers, and sent to persons on the project mailing list when the DCR is available for viewing. If there are no significant outstanding concerns at the end of the 30-day public review period for the DCR, the project may proceed to construction.

Phase 3 – Completion of new Highway 7

The design for new Highway 7 from Kitchener to Guelph project is also progressing. MMM Group is updating the natural, social and cultural environmental conditions and developing mitigation measures; undertaking detailed soil and foundation investigations and analysis; and continuing detailed engineering work.

Comments

Please provide any comments you may have about this project to Greg Moore (MMM) via the attached comment form by Friday, **May 26 2017**. Alternately, comments can be submitted through the project website at www.NewHighway7.ca.

Comments and information regarding this project are being collected to assist MTO in meeting the requirements of the Environmental Assessment Act. All comments and information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

Should you require further information regarding this study or wish to provide input, please feel free to contact the project team members listed on the attached notice.

Yours truly,

MMM Group

Alla Dinerman, P.Eng.

Manager – Highways
Transportation
WSP | MMM Group Limited

Encl. Notice of Study Commencement
Comment Sheet

c: Kevin DeVos, MTO, Senior Engineering Project Manager
Khahy Ho, MTO, (A) Senior Environmental Planner
Greg Moore, WSP | MMM, Consultant Environmental Planner

New Highway 7 - Kitchener to Guelph
Progress Update; GWP 408-88-00

COMMENT FORM

Type of Project: Detailed Design

Environmental Assessment Type: Group "A", Class EA for Provincial Transportation Facilities

Location: Cities of Kitchener and Guelph, Region of Waterloo

Agency Name & division/branch:	

COMMENTS:

1. Does your organization wish to participate in this project? ☐ YES ☐ NO

2. If yes to the above, please provide the contact name, telephone #, address and e-mail for future correspondence.

3. Please identify any concerns/comments your organization may have at this time.

For further information regarding this project, please contact the Consultant Project Manager, Ms. Alla Dinerman, P.Eng, MMM Group Limited toll free at 1-877-562-7947 or email dinermana@mmm.ca.

PLEASE FAX THIS FORM BACK BY **Friday, May 26, 2017.**

FAX #: (905) 823-8503

ATTN: Mr. Greg Moore, B.E.S.
Consultant Environmental Planner
MMM Group Limited
610 Chartwell Road, Suite 300
Oakville, ON Canada L6J 4A5
e-mail: mooreg@mmm.ca

WEBSITE: Comments may also be submitted on the project website at www.NewHighway7.ca.

MMM Group Limited
100 Commerce Valley Drive West
Thornhill, ON Canada L3T 0A1
t: 905-882-4211 | f: 905-822-0055

www.mmmgrouplimited.com

April 19, 2017

The Honourable Liz Sandals
MPP, Guelph
173 Woolwich Street
Guelph, ON N1H 3V4

Re: New Highway 7 – Kitchener to Guelph
Progress Update; GWP 408-88-00

Dear Minister Sandals,

The Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph following a three phase approach:

Phase 1 – Ongoing construction and construction to commence in 2017

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction planned for 2017 includes:

- Continuing work to widen and extend Shirley Avenue in Kitchener;
- Continuing the relocation of municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener;
- Begin replacement of the Victoria Street Bridge over Highway 85 in Kitchener; and
- Begin clearing vegetation and fencing the new Highway 7 right-of-way between Kitchener and Guelph.

Phase 2 – New Highway 7 Grand River Bridges

Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has initiated Detailed Design for the new Grand River Bridges. This design work will follow the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

A Design and Construction Report (DCR) will be prepared to document the Detailed Design of the new Grand River Bridges and associated environmental mitigation measures. The planned work includes grading at the approaches to the bridges. The DCR will be made available for a 30-day public review period. Notices will be posted on the project website **www.NewHighway7.ca**, published in local newspapers, and sent to persons on the project mailing list when the DCR is available for viewing. If there are no significant outstanding concerns at the end of the 30-day public review period for the DCR, the project may proceed to construction.

Phase 3 – Completion of new Highway 7

The design for new Highway 7 from Kitchener to Guelph project is also progressing. MMM Group is updating the natural, social and cultural environmental conditions and developing mitigation measures; undertaking detailed soil and foundation investigations and analysis; and continuing detailed engineering work.

A copy of the Ontario Government Notice containing additional study information is included for your reference. All newspaper notices for this study will be advertised in the *Waterloo Regional Record, Guelph Tribune, Turtle Island News* and *Two Row Times*.

Should you require further information regarding this study or wish to provide input, please feel free to contact the project team members listed on the attached notice.

Yours truly,

MMM Group

Alla Dinerman, P.Eng.

Manager – Highways
Transportation
WSP | MMM Group Limited

Encl. Notice of Study Commencement

c: Kevin DeVos, MTO, Senior Engineering Project Manager
Khahy Ho, MTO, (A) Senior Environmental Planner
Greg Moore, WSP | MMM, Consultant Environmental Planner

Ministry of Transportation

Engineering Office
Environmental Section
West Region

659 Exeter Road
London, Ontario N6E 1L3
Telephone: (519) 873-4560
Facsimile: (519) 873-4600
Email: Cathy.Giesbrecht@ontario.ca

Ministère des Transports

Bureau du génie
Section de l'environnement
Région de l'Ouest

659, rue Exeter
London (Ontario) N6E 1L3
Téléphone: (519) 873-4560
Télécopieur: (519) 873-4600

April 26, 2017

Sample Letter to Indigenous Nations

Re: New Highway 7 – Kitchener to Guelph
Progress Update; GWP 408-88-00

The Ministry of Transportation (MTO) continues to move forward with new Highway 7 from Kitchener to Guelph following a three phase approach:

Phase 1 – Ongoing construction and construction to commence in 2017

Phase 1 of new Highway 7 construction began in 2015 when the Guelph Street overpass was widened to accommodate the future interchange at Highway 85. Phase 1 construction planned for 2017 includes:

- Continuing work to widen and extend Shirley Avenue in Kitchener;
- Continuing the relocation of municipal utilities at the Victoria Street Bridge over Highway 85 in Kitchener;
- Begin replacement of the Victoria Street Bridge over Highway 85 in Kitchener; and
- Begin clearing vegetation and fencing the new Highway 7 right-of-way between Kitchener and Guelph.

Phase 2 – New Highway 7 Grand River Bridges

Building on the approved Environmental Assessment (EA) for new Highway 7 from Kitchener to Guelph, the MTO has initiated Detailed Design for the new Grand River Bridges. This design work will follow the approved environmental planning process for Group 'A' projects under the *Class Environmental Assessment* (Class EA) *for Provincial Transportation Facilities* (2000).

A Design and Construction Report (DCR) will be prepared to document the Detailed Design of the new Grand River Bridges and associated environmental mitigation measures. The planned work includes grading at the approaches to the bridges. The DCR will be made available for a 30-day public review period. Notices will be posted on the project website **www.NewHighway7.ca**, published in local newspapers, and sent to persons on the project mailing list when the DCR is available for viewing. If there are no significant outstanding concerns at the end of the 30-day public review period for the DCR, the project may proceed to construction.

Phase 3 – Completion of new Highway 7

The design for new Highway 7 from Kitchener to Guelph project is also progressing. MMM Group is updating the natural, social and cultural environmental conditions and developing mitigation measures; undertaking detailed soil and foundation investigations and analysis; and continuing detailed engineering work.

In spring / summer 2016, field investigations were completed along the banks of the Grand River within the vicinity of the new bridges and along the new Highway 7 corridor between Kitchener and Guelph. The limits of construction access and potential in-water works will be confirmed as the study progresses.

Stage 1, 2, 3 and 4 Archaeological Assessments for the proposed new Highway 7 corridor between Kitchener and Guelph are being carried out to build upon the Archaeological Assessments from the previous design phases.

A copy of the Ontario Government Notice containing additional study information is included for your reference.

MTO is inviting Beausoleil First Nation (Christian Island) to identify any environmental, social or cultural values your community may have within the study area and any issues or concerns that you may have regarding this project.

If you have any questions or concerns please feel free to contact me.

Sincerely,

Cathy Giesbrecht
Head, Environmental Section
MTO, West Region
Ministry of Transportation, West Region
(519) 873-4560

Encl. Notice of Study Commencement

c: Kevin DeVos, MTO, Senior Engineering Project Manager
Khahy Ho, MTO, (A) Senior Environmental Planner
Rob Wallis, MTO, Aboriginal Liaison
Alla Dinerman, WSP | MMM, Consultant Project Manager
Greg Moore, WSP | MMM, Consultant Environmental Planner

APPENDIX

B

TARGETED RED-HEADED WOODPECKER AND BLACK ASH SPECIES AT RISK SURVEY MEMORANDUM

TARGETED RED-HEADED WOODPECKER AND BLACK ASH SPECIES AT RISK SURVEY MEMORANDUM

New Highway 7 from Kitchener to Guelph
Agreement 3019-E-0013
Assignment# 9

Prepared for:

Ontario

Ministry of Transportation – West Region
659 Exeter Road
London, Ontario N6E 1L3

Prepared by:

McINTOSH PERRY

McIntosh Perry Consulting Engineers Ltd.
1-1329 Gardiners Road
Kingston, ON. K7P 0L8

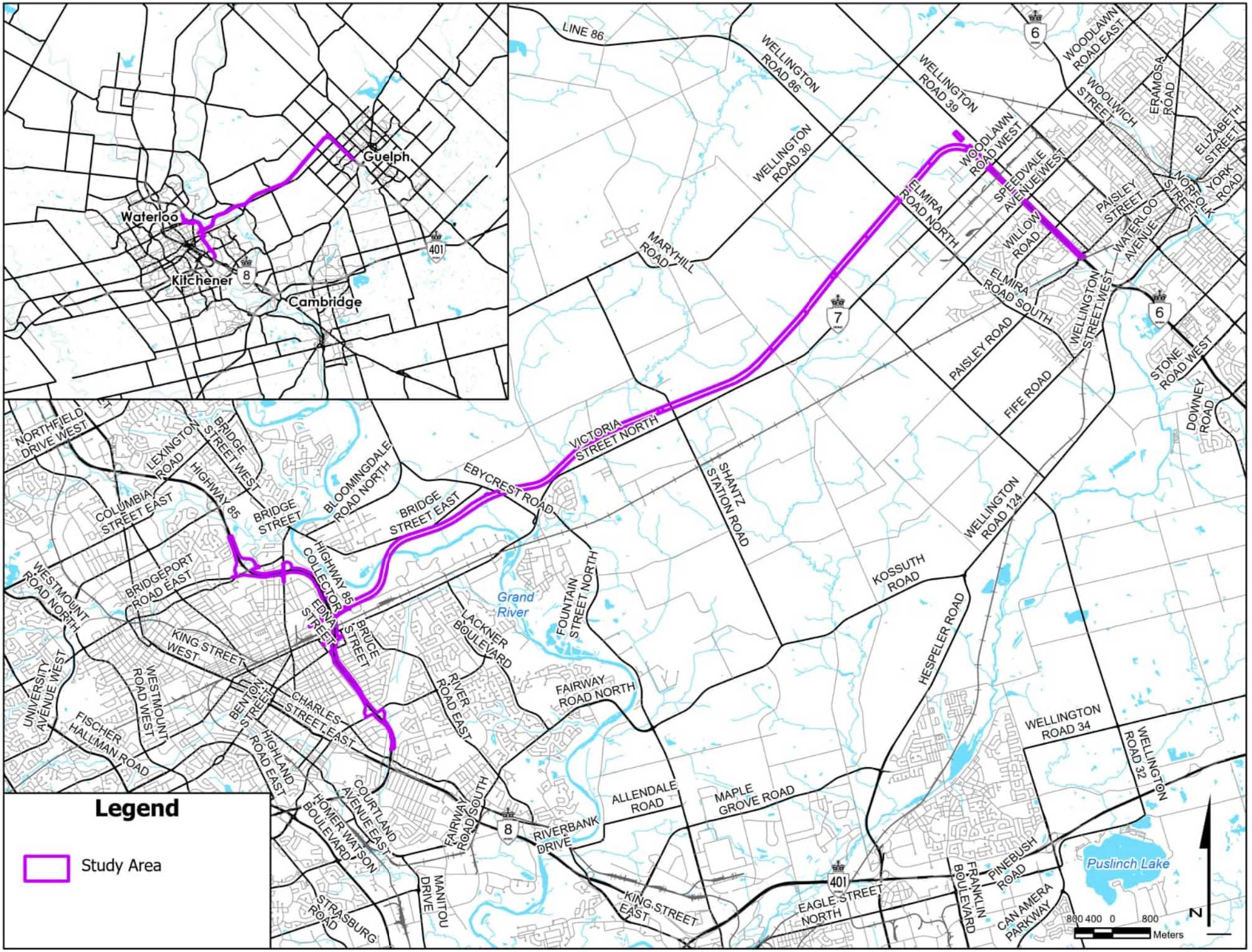
INTRODUCTION

The following memorandum provides a summary of the results of the targeted Species at Risk (SAR) surveys for Red-headed Woodpeckers (*Melanerpes erythrocephalus*), Black Ash (*Fraxinus nigra*), and SAR breeding birds within the newly proposed Highway 7 corridor from Kitchener to Guelph before construction works begin. McIntosh Perry Consulting Engineers Ltd. (McIntosh Perry) was retained by the Ontario Ministry of Transportation – Western Region (MTO), under Retainer Assignment # 9 (3019-E-0013), to conduct natural sciences services for Terrestrial Species at Risk Assessment for the project area at Highway 7 from Kitchener to Guelph (in the geographic townships of Guelph and Waterloo). This memorandum addresses the project-specific survey results of Red-headed Woodpeckers and Black Ash surveys, designated as 'Endangered' under the *Endangered Species Act* (2007).

Although Black Ash should receive habitat protection based on its designation as 'Endangered', this species was recently listed by MECP (January 26, 2022), and MECP is temporarily suspending protections for Black Ash for a period of 2 years from the listing. Authorizations for activities that impact Black Ash and their habitat are not required by proponents proposing to impact the species or its habitat (based on the ESA; other authorizations by other regulatory agencies may still apply) at this time. Black Ash in Ontario has been severely impacted since the discovery of the Emerald Ash Borer (*Agrilus planipennis*) in June 2002. This species of beetle, native to Asia, has now infested most ash species and ash forests within the southern, eastern, and parts of

northeastern Ontario, causing severe declines in ash populations. Black Ash populations in southern and eastern Ontario have rapidly declined due to the Emerald Ash Borer presence.

The study area is located along the proposed new Highway 7 right-of-way (ROW) from Kitchener (west) to Guelph (east) for a total length of 18 km (**Figure 1**). The new Highway 7 corridor is proposed to be constructed north of the existing Highway 7, and the surrounding land use of this area is comprised mainly of agricultural land and natural areas.


Guelph
Waterloo
Kitchener
Cambridge
401
8
LINE 86
WELLINGTON ROAD 86
WELLINGTON ROAD 39
WELLINGTON ROAD 30
MARYHILL ROAD
ELMIRA ROAD NORTH
WOODLAWN ROAD WEST
WOODLAWN ROAD EAST
WOOLWICH STREET
ERAMOSA ROAD
ELIZABETH STREET
NORFOLK STREET
YORK ROAD
SPEEDVALE AVENUE WEST
WILLOW ROAD
PAISLEY STREET
WATERLOO AVENUE
ELMIRA ROAD SOUTH
WELLINGTON STREET WEST
PAISLEY ROAD
FIFE ROAD
STONE ROAD WEST
DOWNEY ROAD
6
7
VICTORIA STREET NORTH
EBYCREST ROAD
SHANTZ STATION ROAD
WELLINGTON ROAD 124
KOSSUTH ROAD
HESPELER ROAD
NORTHFIELD DRIVE WEST
LEXINGTON ROAD
BRIDGE STREET WEST
HIGHWAY 85
COLUMBIA STREET EAST
BRIDGE STREET
BLOOMINGDALE ROAD NORTH
BRIDGE STREET EAST
HIGHWAY 85 COLLECTOR
WESTMOUNT ROAD NORTH
BRIDGEPORT ROAD EAST
EDNA STREET
BRUCE STREET
KING STREET WEST
UNIVERSITY AVENUE WEST
WESTMOUNT ROAD WEST
BENTON STREET
CHARLES STREET EAST
FISCHER HALLMAN ROAD
HIGHLAND ROAD EAST
Grand River
LACKNER BOULEVARD
FOUNTAIN STREET NORTH
RIVER ROAD EAST
FAIRWAY ROAD NORTH
COURTLAND AVENUE EAST
HOMER WATSON BOULEVARD
FAIRWAY ROAD SOUTH
RIVERBANK DRIVE
ALLENDALE ROAD
MAPLE GROVE ROAD
WELLINGTON ROAD 34
WELLINGTON ROAD 32
STRASBURG ROAD
MANITOU DRIVE
KING STREET EAST
EAGLE STREET NORTH
FRANKLIN BOULEVARD
PINEBUSH ROAD
CAN AMERA PARKWAY
Puslinch Lake
800 400 0 800
Meters
N
Legend
Study Area

METHODOLOGY

The Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) database identifies Black Ash and Red-headed Woodpeckers within the general study area boundaries of the proposed new Highway 7 corridor. As such, MP was retained by MTO to conduct natural science investigations for these species prior to construction. **Appendix A** shows the Notice of Activity (NOA) registration submitted to MECP before conducting field investigations per the requirements under the ESA 2007, O. Reg. 242/08 s.23.17.2.

Red-headed Woodpecker Targeted Surveys

Targeted surveys for Red-headed Woodpeckers were conducted in habitats within the study area that were considered suitable for the species, such as open woodland and woodland edges and riparian forests with dead trees used for nesting and perching. Prior to field investigations, 17 different survey stations were chosen based on aerial imagery accessed through Google Earth aerial mapping (Maxar Technologies, 2022) for targeted Red-headed Woodpecker surveys (**Table 1**).

Table 1: Targeted Red-headed Woodpecker Survey Station Locations

Survey Station #	Latitude/ Longitude	Survey Station #	Latitude/ Longitude
1	43.467377°N/-80.467867°W	10	43.489446°N /-80.421488°W
2	43.468174°N /-80.465671°W	11	43.490040°N /-80.418899°W
3	43.469120°N /-80.462813°W	12	43.494184°N /-80.410514°W
4	43.469828°N /-80.460591°W	13	43.502239°N /-80.391829°W
5	43.471340°N /-80.458947°W	14	43.510474°N /-80.363628°W
6	43.472566°N /-80.458445°W	15	43.522794°N /-80.346959°W
7	43.474644°N /-80.458276°W	16	43.551857°N /-80.312586°W
8	43.475625°N /-80.457344°W	17	43.550382°N /-80.314373°W
9	43.480001°N /-80.454444°W	.	.

Surveys were completed using the following methodology:

- Three (3) surveys conducted a minimum of seven (7) days apart.
- Parallel line transects delineated using aerial imagery and spaced approximately 200 m apart.
- Use call playbacks every 200 m (using an audio device capable of broadcasting up to 100 m). The call playbacks were obtained using the '*Merlin Bird ID*' App (The Cornell Lab). Before each broadcast, the surveyor would listen for 2 minutes of silent observation. If no Red-headed Woodpeckers were heard, a pre-recorded Red-headed Woodpecker call and drumming audio file was broadcast for three (3) minutes, followed by another two (2) minutes of silent observation.
- Surveys conducted between May 25 to June 30 (the breeding season window) commenced within 15 minutes of sunrise and were completed within four (4) hours or by 10:00 AM.

- Observations of fresh excavations or active cavities were recorded. For surveys conducted after June 30, call playbacks were excluded and followed the same methodology as above.
- Surveys conducted during appropriate weather conditions (i.e., no fog, rain, or wind > 10 mph; Ralph et al. 1993).
- Photos of each survey station (**Appendix D**).

Black Ash Targeted Surveys

Targeted Black Ash surveys were conducted in ecosites suitable for the species such as swamp thickets, deciduous swamps, mixed-swamps and coniferous swamp communities found within the ROW. Initially, Black Ash surveys were conducted by individually identifying, flagging, and marking the location of each tree using a handheld GPS. This approach required adaptation after encountering hundreds of individual Black Ash saplings in the study area (i.e., a patch of forest on the east end of the study area and northwest of the City of Guelph). Therefore, six (6) standardized 10 m by 10 m plot counts (100 m^2) were used in the densest area where Black Ash trees or saplings were concentrated (an area from the east boundary of the woodlot extending 100 m westward. Three (3) plot counts were randomly sampled in the north half of this concentrated area and three (3) in the south due to the apparent difference in concentration of Black Ash (much more concentrated in the north half). The total count of Black Ash trees within each of the six plot counts was extrapolated using a cruise percent which was then utilized to multiply the total trees in the plot samples of each half: Total number of Black Ash in plot samples * (total area of Black Ash m^2 / (100 m^2 plot sizes * 3 plots)) = total estimated quantity of species. This provided an estimated count of Black Ash within the first 100 m of the corridor in the woodlot starting from the east. The remaining Black Ash further westward were counted individually due to low densities. Surveys were completed using the following methodology:

- Locations of individuals and/or standardized plot counts were recorded using a handheld GPS.
- Count (individual trees) or an estimated total of Black Ash trees observed based on standardized plot counts.
- The general health of each tree or stand of trees was recorded, including signs of the invasive Emerald Ash Borer (EAB).
- Representative photographs recorded throughout the study area (**Appendix C**).

RESULTS & OBSERVATIONS

The following sections outline the results and observations of both the Red-headed Woodpecker (or other SAR birds) and Black Ash targeted surveys within the study area of the new Highway 7 ROW from Kitchener to Guelph.

Red-headed Woodpecker Targeted Surveys

Three (3) field investigations, at each identified location, were carried out by MP staff over multiple days (**Table 2**). The purpose of these field investigations was to conduct line transects with call playbacks (every 200 m) for the Red-headed Woodpecker, including looking for signs of nesting or recent excavations (see Methodology).

Table 2: Targeted Red-headed Woodpecker Survey Dates and MP Staff		
Field Survey #	Date	Inspector
1	2022-06-28	E. Pohanka and S. Thornley
2	2022-06-29	E. Pohanka and S. Thornley
3	2022-07-12	A. Kingsley
4	2022-07-13	A. Kingsley
5	2022-07-23	A. Kingsley
6	2022-07-25	A. Kingsley

At each of the seventeen survey stations, MP staff observed, listened, played Red-headed Woodpecker call playbacks, and recorded the total number of the species observed or heard, including other SAR birds that were observed or heard (**Appendix B**). No Red-headed Woodpeckers were observed or heard during the multiple field investigations. During the targeted Red-headed Woodpecker surveys, the following SAR birds were observed or heard (**Figure 2**):

- Eastern Wood-Pewee (*Contopus virens*; Special Concern, ESA, 2007)
    - Heard at survey stations #7, 11, 12, 14, and 16.
- Ten (10) individual Barn Swallow (*Hirundo rustica*; Special Concern, ESA 2007)
    - Observed during two (2) field surveys at survey station #10.

BLOOMINGDALE ROAD NORTH

BRIDGE STREET EAST

9

N

Bloomingdale Rosendale Swamp

8

Eastern Wood-Pewee (June 28, 2022)

7

6

5

4

3

2

1

BINGEMANS CENTRE DRIVE

RIVERBEND DRIVE

HIGHWAY 85

GUELPH STREET

HIGHWAY 85 COLLECTOR

SHIRLEY AVENUE

SPRING VALLEY ROAD

WELLINGTON STREET NORTH

VICTORIA STREET NORTH

FREDERICK STREET

CARSON DRIVE

NATCHEZ ROAD

LEGEND

- Proposed Highway 7 Corridor
- Wildlife Activity Area

Targeted Red-headed Woodpecker Survey Station

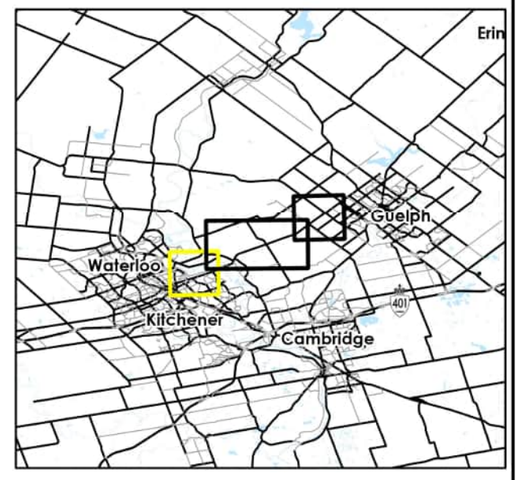
- Station Number

SAR Observations

- Eastern Wood-Pewee

Natural Heritage Features

- Watercourse
- Waterbody
- Unevaluated Wetland
- Provincially Significant Wetland



REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2023.

200 100 0 200 Meters

Scale 1:7,500

CLIENT: MTO - WESTERN REGION

PROJECT: NEW HIGHWAY 7 FROM KITCHENER TO GUELPH - TARGETED SAR SURVEYS

TITLE: TARGETED RED-HEADED WOODPECKER SURVEY LOCATIONS & LOCATIONS OF SAR BIRDS

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

PROJECT NO: CCO-21-1020-09		FIGURE:
Date	Feb., 15, 2023	2-1
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ST CHARLES STREET WEST

Waterloo Guelph Townline Wetland

15

Eastern Wood-Pewee (July 13 & 23, 2022)

14

7

13

Bloomingdale Rosendale Swamp

SHANTZ STATION ROAD

VICTORIA STREET NORTH

Eastern Wood-Pewee (July 23, 2022)

12

Eastern Wood-Pewee (July 13, 2022)

11

10

Barn Swallows aerially foraging (June 28 & July 23, 2022)

EBY CREST ROAD

FOUNTAIN STREET NORTH

Breslau Wetland Complex

Ellis Creek Wetland Complex

N

LEGEND

- Proposed Highway 7 Corridor
- Wildlife Activity Area

SAR Observations

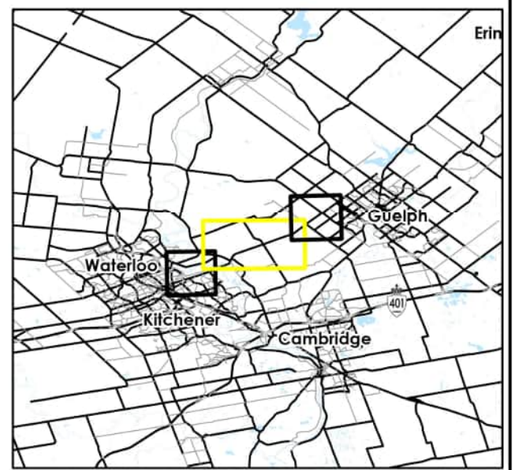
- Barn Swallows aerially foraging (June 28 & July 23, 2022)
- Eastern Wood-Pewee

Targeted Red-headed Woodpecker Survey Station

- Station Number

Natural Heritage Features

- Watercourse
- Waterbody
- Unevaluated Wetland
- Provincially Significant Wetland



REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2023.

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CLIENT: MTO - WESTERN REGION

PROJECT: NEW HIGHWAY 7 FROM KITCHENER TO GUELPH - TARGETED SAR SURVEYS

TITLE: TARGETED RED-HEADED WOODPECKER SURVEY LOCATIONS & LOCATIONS OF SAR BIRDS

McINTOSH PERRY
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PROJECT NO: CCO-21-1020-09		FIGURE: 2-2
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GIS	AH	
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Marden South Wetland Complex

Eastern Wood-Pewee (July 13, 2022) 16

Eastern Wood-Pewee (June 29, 2022) 17

WELLINGTON ROAD 30

WELLINGTON ROAD 86

WOODLAWN ROAD WEST

ELMIRA ROAD NORTH

TOWNSHIP ROAD 3

Ellis Creek Wetland Complex

7

Waterloo Guelph Townline Wetland

15

WELLINGTON ROAD 32

SPEEDVALE AVENUE WEST

N

LEGEND

- Proposed Highway 7 Corridor
- Wildlife Activity Area

SAR Observations

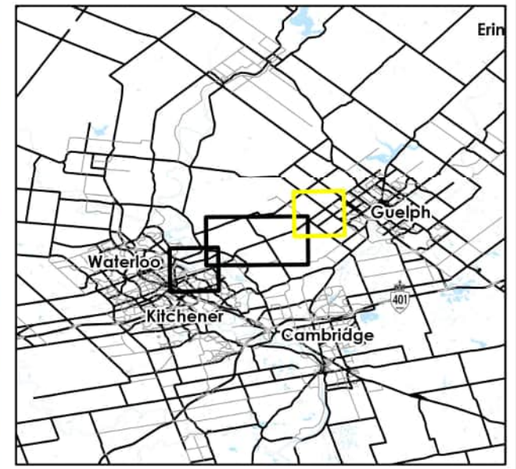
- Eastern Wood-Pewee

Targeted Red-headed Woodpecker Survey Station

- Station Number

Natural Heritage Features

- Watercourse
- Waterbody
- Unevaluated Wetland
- Provincially Significant Wetland



REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2023.

400 200 0 400 Meters

Scale 1:15,000

CLIENT: MTO - WESTERN REGION

PROJECT: NEW HIGHWAY 7 FROM KITCHENER TO GUELPH - TARGETED SAR SURVEYS

TITLE: TARGETED RED-HEADED WOODPECKER SURVEY LOCATIONS & LOCATIONS OF SAR BIRDS

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PROJECT NO:	CCO-21-1020-09
Date	Feb., 15, 2023
GIS	AH
Checked By	PG

FIGURE: 2-3

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Black Ash Targeted Surveys

Multiple field investigations were carried out by MP staff to survey Black Ash (**Table 3**). The purpose of these field investigations was to identify individuals and/or conduct standardized plot counts to estimate the total number of Black Ash trees or saplings present in the study area. Notes of their health status, including signs of EAB (mature trees only), and representative photos of the observations were also taken (**Appendix C**).

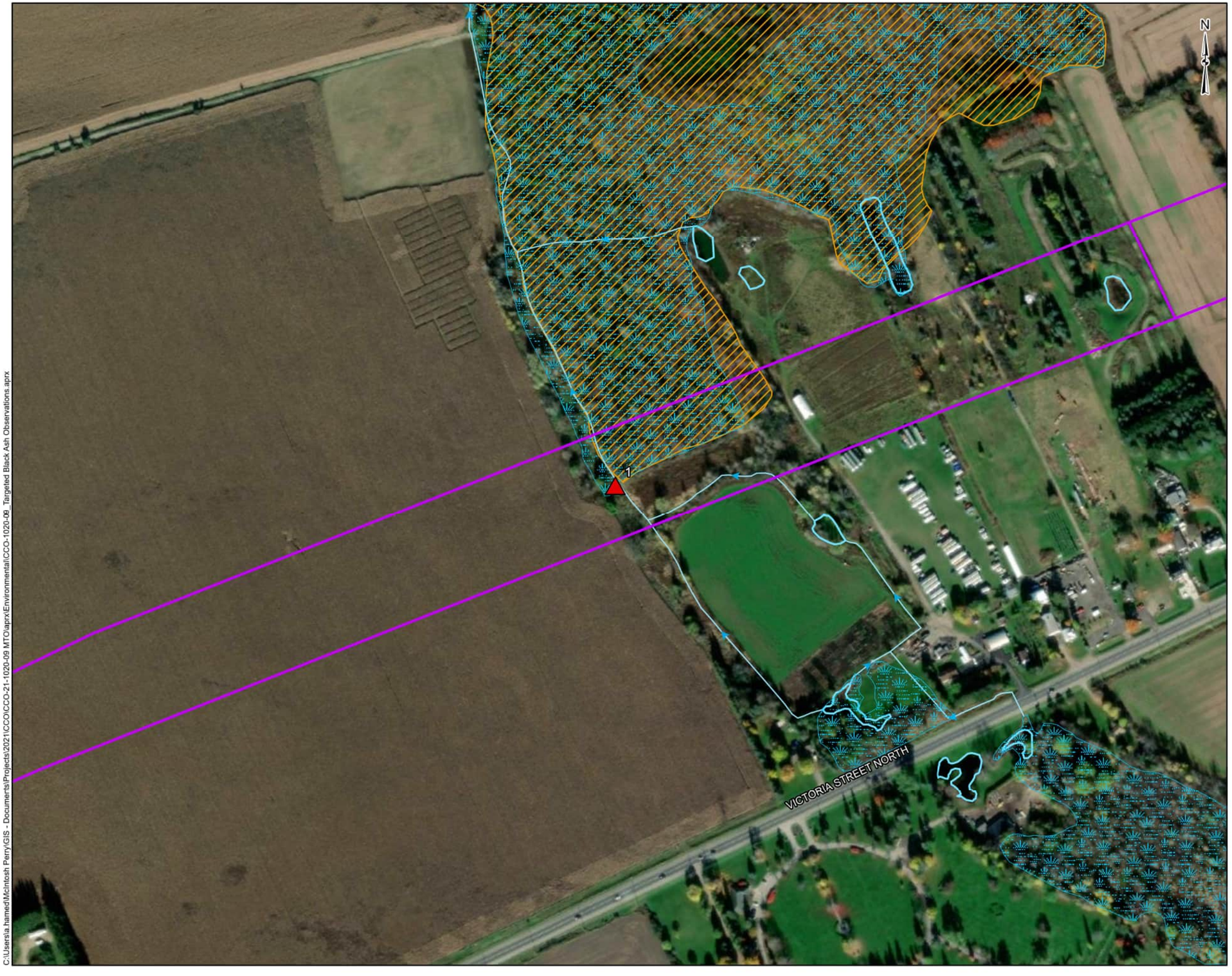
Table 3: Targeted Black Ash Surveys

Field Investigation #	Date	Inspector
1	2022-06-28	E. Pohanka and S. Thornley
2	2022-06-29	E. Pohanka and S. Thornley
3	2022-09-19	J. Abernethy and E. Porche
4	2022-10-21	E. Pohanka and E. Porche

The concentration of Black Ash trees or saplings was mapped and broken down into three distinct sections, one to three, in the eastern portion of the study area where most Black Ash was observed (**Figure 3-2**). Within this forest stand (i.e., sections one to three), there was a historically disturbed corridor that followed the same general path as the new proposed Highway 7 corridor (**Figure 3-2**). This historically disturbed area typically had a higher concentration of Black Ash. Due to the high concentration of Black Ash observed in Section One (green), which had a total area of 11450 m^2, three (3) standardized plot samples were randomly chosen in each of the northern and southern halves of Section One. This produced a total of six (6) standardized plots in Section One. The plot sizes were 10 m by 10 m (100 m^2). The northern half plots contained 19, 24, and 11 individual Black Ash. The southern half plots contained 5, 7, and 6 Black Ash. Based on this data, the following number of Black Ash was calculated as an estimate in Section One using cruise percent:

- Northern half of Section One:
    - 54 total Black Ash in the plots * (5725 m^2 total area / (100 m^2 plot sizes * 3 plots)) = 1,031 Black Ash.
- Southern half of Section One:
    - 18 total Black Ash in the plots * (5725 m^2 total area / (100 m^2 plot sizes * 3 plots)) = 344 Black Ash.
- Total estimated number of Black Ash in Section One = 1375.

Of those Black Ash trees, a total of 12 mature trees showed signs of EAB. The majority of Black Ash observed within the study area were saplings concentrated in Section One, with a total estimate of 1375 trees or saplings. Section Two (red) had a total of 13 saplings, and Section Three (yellow) had a total of eight (8) saplings. One (1) isolated Black Ash tree was identified near the middle of the study area and was in poor health (**Figure 3-1**). In total, an estimated 1397 Black Ash individuals are estimated to be present within the entire study area.



N

LEGEND

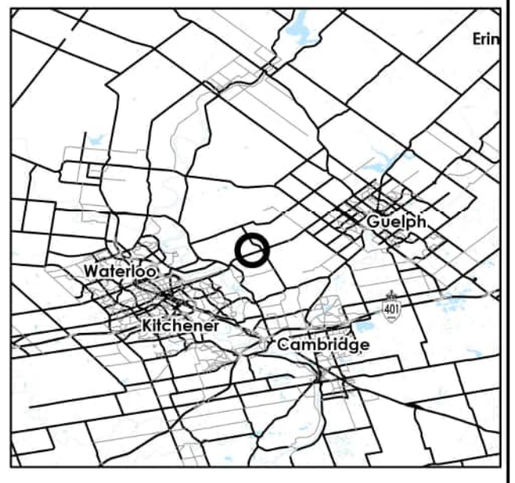
- Proposed Highway 7 Corridor
- Wildlife Activity Area

Targeted Black Ash Survey Observations

- Black Ash (n = 1)

Natural Heritage Features

- Watercourse
- Waterbody
- Unevaluated Wetland



REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2023.

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Scale 1:3,500

CLIENT: MTO - WESTERN REGION

PROJECT: NEW HIGHWAY 7 FROM KITCHENER TO GUELPH - TARGETED SAR SURVEYS

TITLE: TARGETED BLACK ASH OBSERVATIONS

McINTOSH PERRY
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www.mcintoshperry.com

PROJECT NO:	CCO-21-1020-09
Date	Feb., 13, 2023
GIS	AH
Checked By	PG

FIGURE: 3-1

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LEGEND

- Proposed Highway 7 Corridor
- Historically Disturbed Corridor
- Wildlife Activity Area

Natural Heritage Features

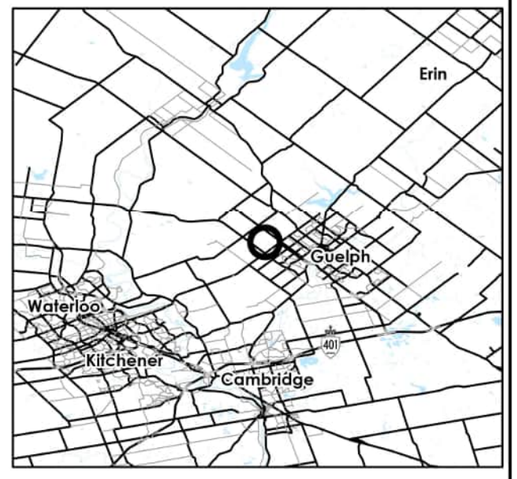
- Watercourse
- Waterbody
- Provincially Significant Wetland

Targeted Black Ash Survey Observations

- Section One - Black Ash (n = 1,375 estimated)
- Section Two - Black Ash (n = 13)
- Section Three - Black Ash (n = 8)

Section One Standardized Plots (10 x 10 m)

- North Plots
- South Plots



REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2023.

100 50 0 100 Meters

Scale 1:3,500

CLIENT: MTO - WESTERN REGION

PROJECT: NEW HIGHWAY 7 FROM KITCHENER TO GUELPH - TARGETED SAR SURVEYS

TITLE: TARGETED BLACK ASH OBSERVATIONS

McINTOSH PERRY
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www.mcintoshperry.com

PROJECT NO:	CCO-21-1020-09
Date	Feb., 15, 2023
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Checked By	PG

FIGURE: 3-2

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CONCLUSION

This report has been prepared for specific application to this site and project and is based upon visual observation of the study area and targeted SAR surveys at various locations as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions. It should also be noted that the ash trees were observed during 2022, and additional saplings could be located within the study area in each new growing season.

Please contact the undersigned if you have any questions.

Respectfully,

Patrick Gilhooly

Biologist
McIntosh Perry Consulting Engineers Ltd.
6240 Highway 7, Suite 200
Woodbridge, Ontario, L4H 4G3
C. 647. 212. 7748
p.gilhooly@mcintoshperry.com | www.mcintoshperry.com

APPENDIX A – NOTICE OF ACTIVITY (NOA)

Ontario

CONFIRMATION OF REGISTRATION

Form Name:	Species at risk surveys (O. Reg. 242/08 s.23.17.2)
Date Registration Filed:	06/27/2022
Confirmation ID:	M-102-7483222514
Version Number:	001
Update Date:	

Dear Sir/Madam,

For your reference, your Notice Form contained the following as your contact information:

McIntosh Perry Consulting Engineers

If you need to update your contact information, please sign in to your ONe-key account and update the information in "My Profile."
You have submitted a Notice Form to the Ministry of the Environment, Conservation and Parks under the following subsection of the specified regulation under the *Endangered Species Act, 2007*:

Species at risk surveys (O. Reg. 242/08 s.23.17.2)

For activites located at:

Hwy 7 & Victoria St. North intersection to Hwy 7 & Hwy 6 intersection

Note: If the site for this registration has multiple locations, only the location identified as the primary location will be displayed here.

The species to be impacted by the registered activity are listed in Appendix A (see last page of this document).
Please retain this Confirmation of Registration for your records.

It is your responsibility to:
- Ensure that your activity does not contravene the Endangered Species Act, 2007 (ESA).
- Determine whether your activity will impact a species that is listed as endangered, threatened or extirpated on the Species at Risk in Ontario (SARO) List (Ontario Regulation 230/8) and monitor the SARO List for changes that may be relevant to your activity, such as newly listed species.
- Ensure your activity satisfies the eligibility requirements for the conditional exemption for which you have registered.
- Fulfil all conditions of the conditional exemption for which you have registered.
- Monitor the applicable regulation for changes that may be relevant to your activity.

For more information:
Ontario Regulation 230/08 (SARO List): www.ontario.ca/laws/regulation/080230
Ontario Regulation 242/08 (General Regulation): www.ontario.ca/laws/regulation/080242
Ontario Regulation 830/21 (Exemptions - Barn Swallow, Bobolink, Eastern Meadowlark and Butternut): https://www.ontario.ca/laws/regulation/210830
Information about ESA authorizations and regulatory requirements is available on our website at: www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

Additional requirements:
- You are required to show this Confirmation of Registration upon request of the Ministry.
- When documents are requested by the Ministry of the Environment, Conservation and Parks, they are due within 14 days of the request.

Technical questions about the online registry system should be directed to:
Registry and Approval Services Centre
Toll Free: 1-855-613-4256
Email: mnr.rasc@ontario.ca

Questions about this Confirmation of Registration or the conditional exemptions in regulations under the Endangered Species Act, 2007 should be directed to:
Species at Risk Branch

Ministry of the Environment, Conservation and Parks
Email: SARregistry@ontario.ca
Learn about Ontario's species at risk at www.ontario.ca/page/species-risk-ontario

Appendix A:

Species impacted by the registered activity:

Red-headed Woodpecker (Melanerpes erythrocephalus)

APPENDIX B – RED-HEADED WOODPECKER SURVEYS

Appendix B: Targeted Red-headed Woodpecker Surveys by Station						
Survey Station #	Date	Time	Weather Conditions	Inspector	# of Red-headed Woodpeckers Observed	Notes
1	2022-06-28	05:38 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	06:15 AM	Partly sunny, humid, Beaufort 2-3, 22°C	A. Kingsley	0	N/A
	2022-07-25	07:45 AM	Partly sunny, Beaufort 2, 16°C	A. Kingsley	0	N/A
2	2022-06-28	06:06 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	07:27 AM	Partly sunny, humid, Beaufort 2-3, 27°C	A. Kingsley	0	Poor habitat
	2022-07-25	07:58 AM	Partly sunny, Beaufort 2, 16°C	A. Kingsley	0	N/A
3	2022-06-28	6:37 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	07:12 AM	Partly sunny, humid, Beaufort 2-3, 25°C	A. Kingsley	0	Bigger tree stand, possible Red-headed Woodpecker habitat
	2022-07-25	08:19 AM	Partly sunny, Beaufort 2, 17°C	A. Kingsley	0	N/A
4	2022-06-28	6:52 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	7:03 AM	Partly sunny, humid, Beaufort 2-3, 22°C	A. Kingsley	0	Homeless encampment present
	2022-07-25	08:40 AM	Partly sunny, Beaufort 2,	A. Kingsley	0	N/A

Appendix B: Targeted Red-headed Woodpecker Surveys by Station						
Survey Station #	Date	Time	Weather Conditions	Inspector	# of Red-headed Woodpeckers Observed	Notes
			17°C			
5	2022-06-28	7:12 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	9:35 AM	Partly sunny, humid, Beaufort 2, 27°C	A. Kingsley	0	Poor habitat
	2022-07-25	07:32 AM	Partly sunny, Beaufort 1, 16°C	A. Kingsley	0	Lots of bird activity in the area
6	2022-06-28	7:25 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	9:15 AM	Partly sunny, humid, Beaufort 2, 27°C	A. Kingsley	0	N/A
	2022-07-25	07:01 AM	Partly sunny, Beaufort 1, 16°C	A. Kingsley	0	N/A
7	2022-06-28	7:36 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	Eastern Wood-Pewee (SAR) heard calling
	2022-07-12	8:35 AM	Partly sunny, humid, Beaufort 2, 27°C	A. Kingsley	0	N/A
	2022-07-25	6:45 AM	Partly sunny, Beaufort 1, 16°C	A. Kingsley	0	N/A
8	2022-06-28	8:26 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	8:50 AM	Partly sunny, Beaufort 2, 27°C	A. Kingsley	0	N/A
	2022-07-25	6:29 AM	Partly sunny, humid, Beaufort 0,	A. Kingsley	0	N/A

Appendix B: Targeted Red-headed Woodpecker Surveys by Station						
Survey Station #	Date	Time	Weather Conditions	Inspector	# of Red-headed Woodpeckers Observed	Notes
			16°C			
9	2022-06-28	8:26 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-12	10:00 AM	Cloudy, Beaufort 2-3, 27°C	A. Kingsley	0	Poor habitat
	2022-07-23	9:00 AM	Partly sunny, humid, Beaufort 1, 16°C	A. Kingsley	0	N/A
10	2022-06-28	8:46 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	Ten (10) Barn Swallows (SAR) were observed aerially foraging over soy field adjacent to the forest
	2022-07-13	6:08 AM	Low fog, Beaufort 0, 15°C	A. Kingsley	0	N/A
	2022-07-23	8:15 AM	Partly sunny, humid, Beaufort 1-2, 24°C	A. Kingsley	0	Ten (10) Barn Swallows (SAR) were observed aerially foraging over soy field adjacent to the forest
11	2022-06-28	9:01 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-13	6:31 AM	Low fog, Beaufort 0, 15°C	A. Kingsley	0	Eastern Wood-Pewee (SAR) heard
	2022-07-23	8:32 AM	Partly sunny, humid, Beaufort 1, 25°C	A. Kingsley	0	N/A
12	2022-06-28	9:25 AM	Clear sky, sunny, 15°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-13	6:59 AM	No fog, Beaufort 0, 15°C	A. Kingsley	0	Suitable habitat

Appendix B: Targeted Red-headed Woodpecker Surveys by Station						
Survey Station #	Date	Time	Weather Conditions	Inspector	# of Red-headed Woodpeckers Observed	Notes
	2022-07-23	7:47 AM	Partly sunny, humid, Beaufort 1, 24°C	A. Kingsley	0	Eastern Wood-Pewee (SAR) heard
13	2022-06-29	5:47 AM	Overcast, calm, 20°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-13	7:30 AM	No fog, Beaufort 1, 17°C	A. Kingsley	0	Poor habitat
	2022-07-23	7:28 AM	Partly sunny, humid, Beaufort 0, 22°C	A. Kingsley	0	N/A
14	2022-06-29	6:17 AM	Overcast, calm, 20°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-13	8:00 AM	Sunny, Beaufort 1, 17°C	A. Kingsley	0	Eastern Wood-Pewee (SAR) heard
	2022-07-23	7:09 AM	Partly sunny, humid, Beaufort 0, 22°C	A. Kingsley	0	Eastern Wood-Pewee (SAR) heard
15	2022-06-29	6:53 AM	Overcast, calm, 20°C	E. Pohanka and S. Thornley	0	Access to the station was via private land, and permission was required before accessing the station.
16	2022-06-29	7:36 AM	Overcast, calm, 20°C	E. Pohanka and S. Thornley	0	N/A
	2022-07-13	9:00 AM	Sunny, Beaufort 0, 24°C	A. Kingsley	0	Eastern Wood-Pewee (SAR) heard
	2022-07-23	6:40 AM	Partly sunny, humid, Beaufort 0, 22°C	A. Kingsley	0	N/A
17	2022-06-29	7:53 AM	Overcast, calm, 20°C	E. Pohanka and S.	0	Eastern Wood-Pewee (SAR) heard

Appendix B: Targeted Red-headed Woodpecker Surveys by Station						
Survey Station #	Date	Time	Weather Conditions	Inspector	# of Red-headed Woodpeckers Observed	Notes
				Thornley		
	2022-07-13	8:40 AM	Sunny, Beaufort 0, 24°C	A. Kingsley	0	Suitable habitat
	2022-07-23	6:20 AM	Partly sunny, humid, Beaufort 0, 22°C	A. Kingsley	0	N/A

APPENDIX C – PHOTOS (BLACK ASH)

Photo 1-2: Black Ash sapling observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 29-June-2022.

Photo 3: Black Ash sapling observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 19-September-2022.

Photo 4: Black Ash saplings observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 19-September-2022.

Photo 5: Black Ash observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 19-September-2022.

Photo 6: Black Ash observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 19-September-2022.

Photo 7: Black Ash observed in good health. The location is northwest of the City of Guelph within the large stand of Black Ash (Section One). 19-September-2022.

APPENDIX D – PHOTOS (RED-HEADED WOODPECKER)

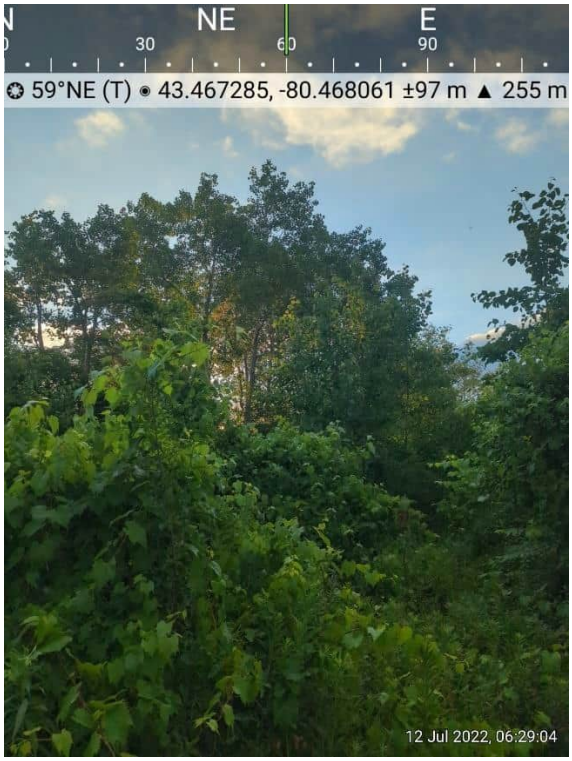
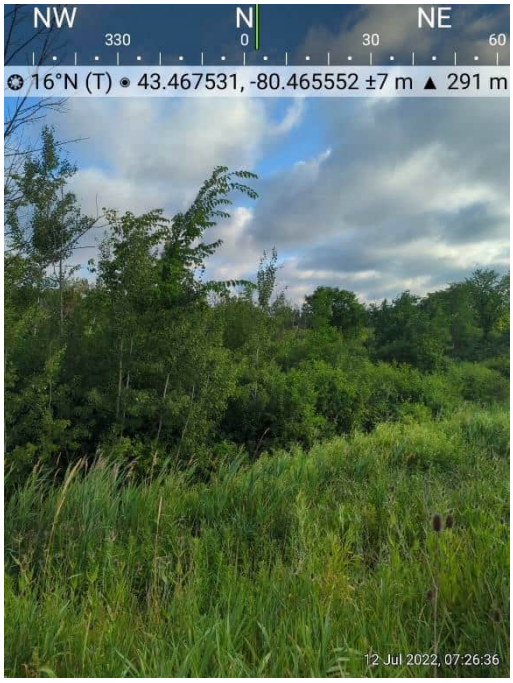


Photo 1: Red-headed Woodpecker survey station 1. 12-July-2022.



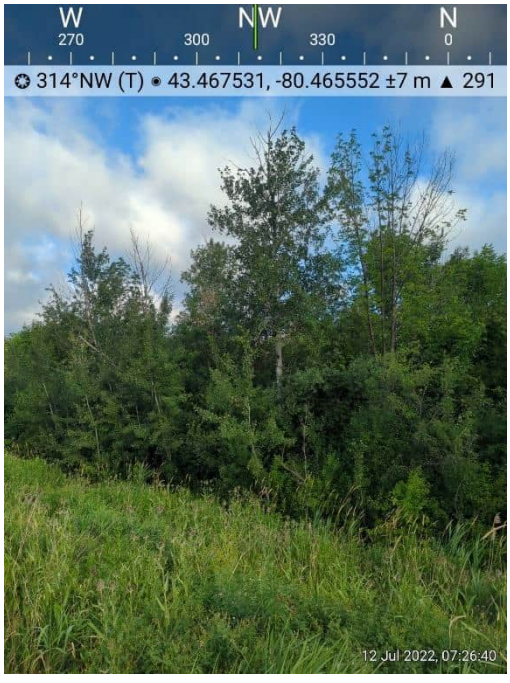


Photo 2: Red-headed Woodpecker survey station 2. 12-July-2022.

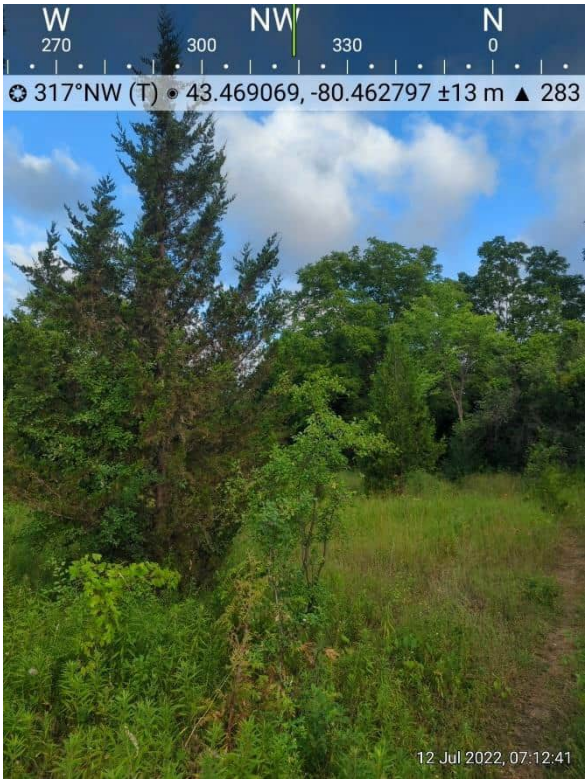


Photo 3: Red-headed Woodpecker survey station 3. 12-July-2022.

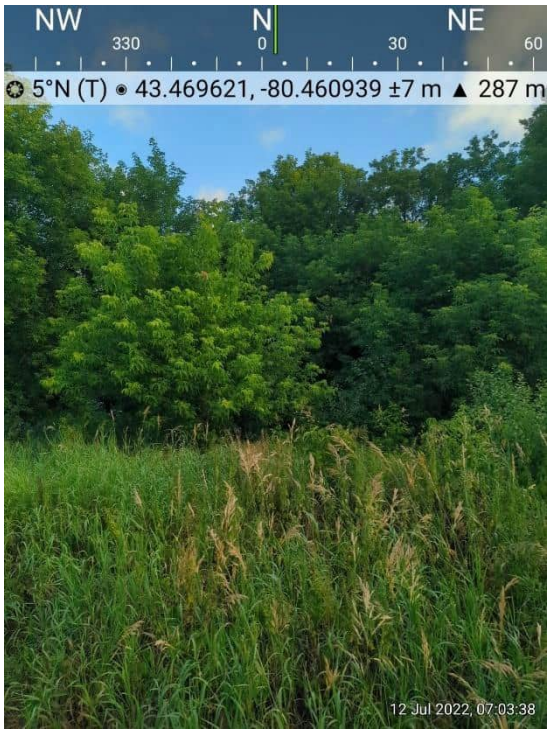
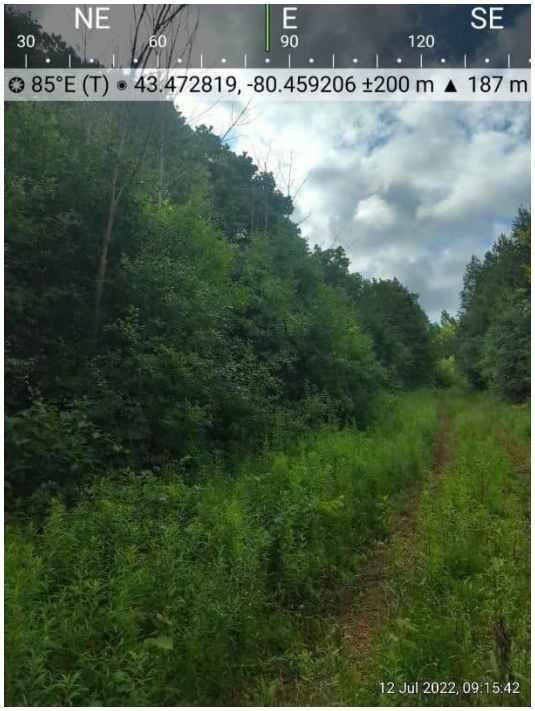


Photo 4: Red-headed Woodpecker survey station 4. 12-July-2022.



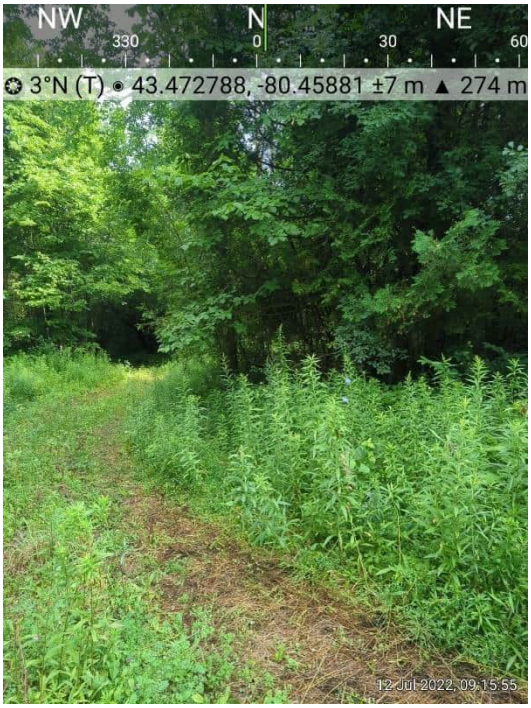
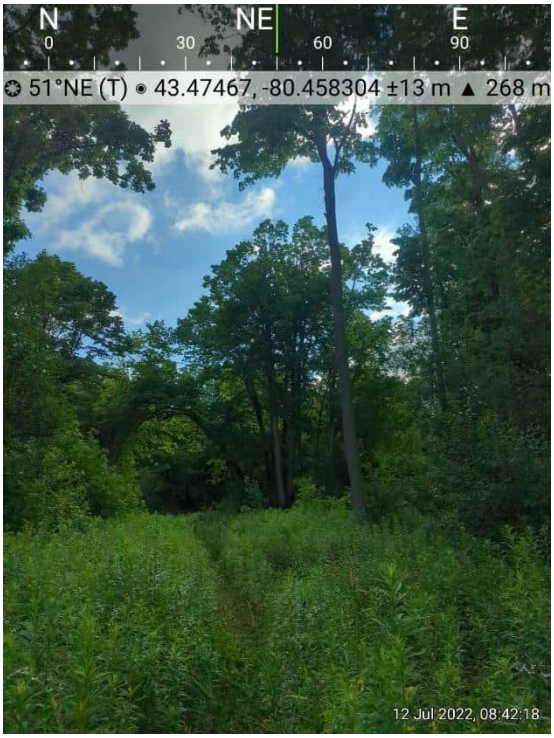


Photo 5: Red-headed Woodpecker survey station 6. 12-July-2022.



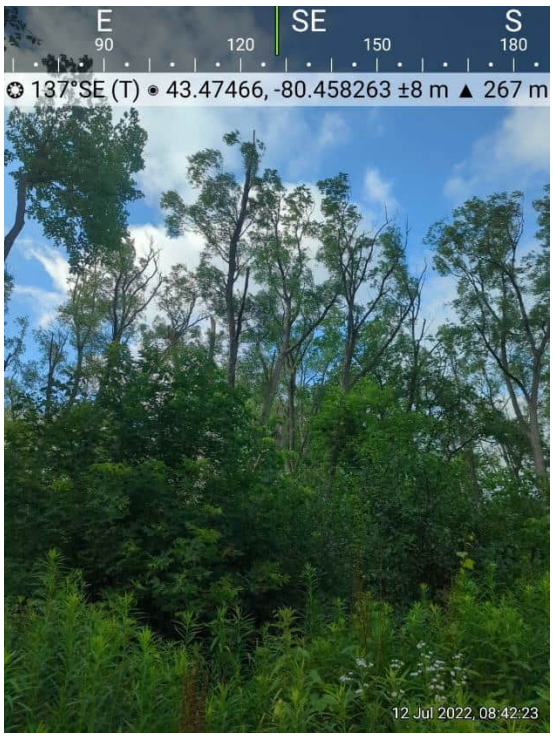
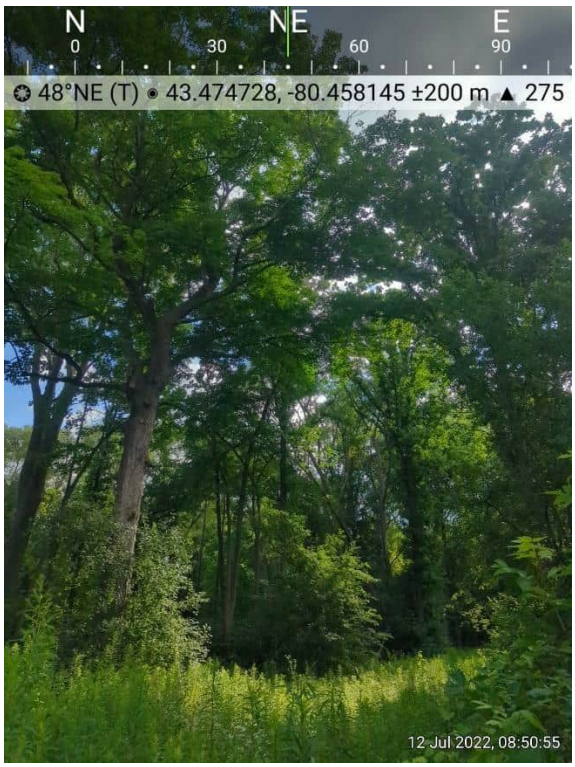


Photo 6: Red-headed Woodpecker survey station 7. 12-July-2022.



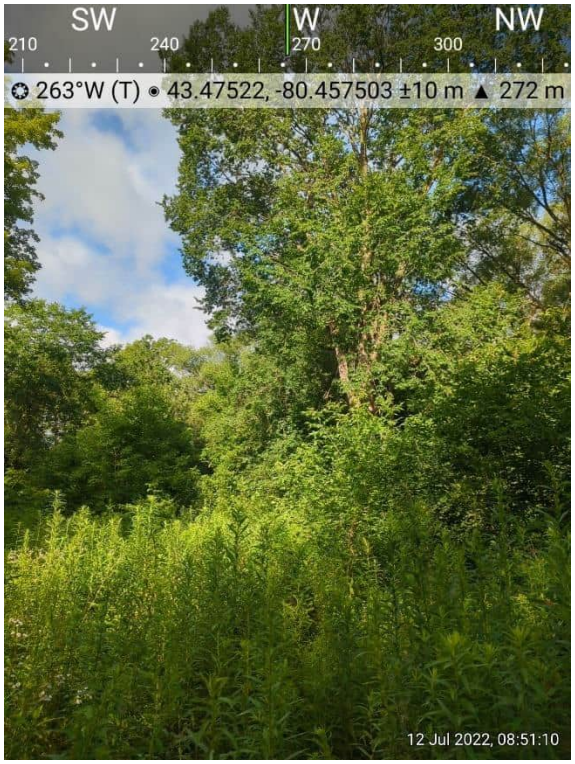
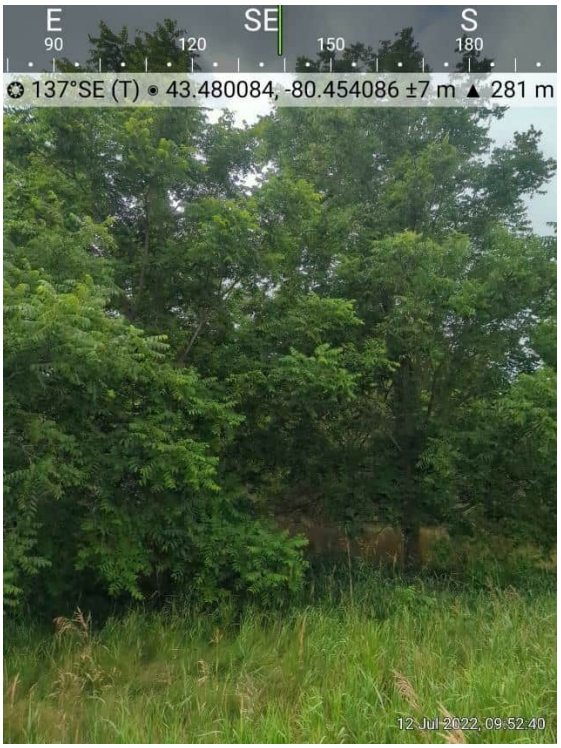


Photo 7: Red-headed Woodpecker survey station 8. 12-July-2022.



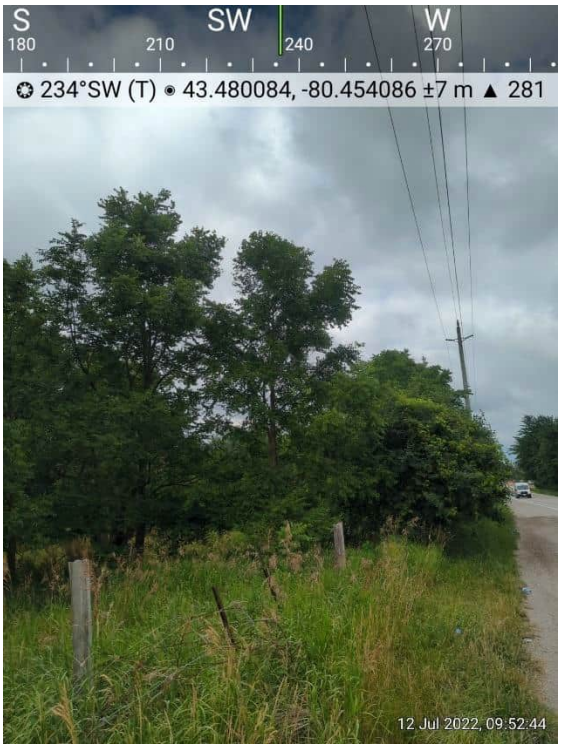
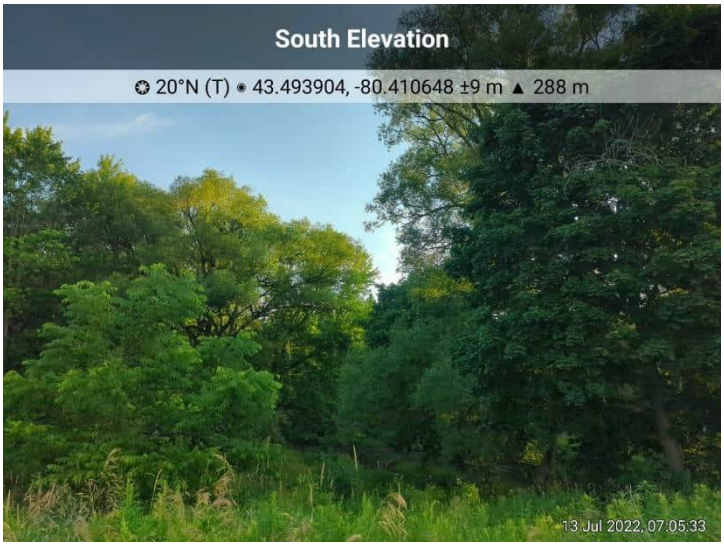


Photo 8: Red-headed Woodpecker survey station 9. 12-July-2022.

Photo 9: Red-headed Woodpecker survey station 10. 13-July-2022.

Photo 10: Red-headed Woodpecker survey station 11. 13-July-2022.



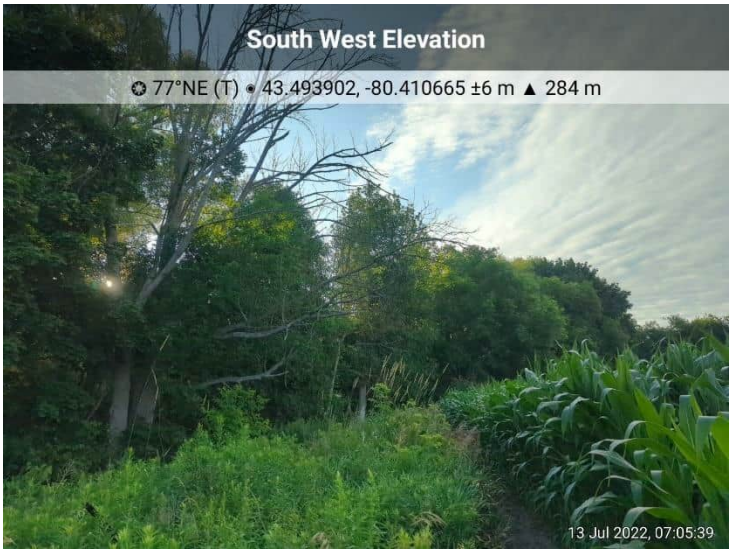
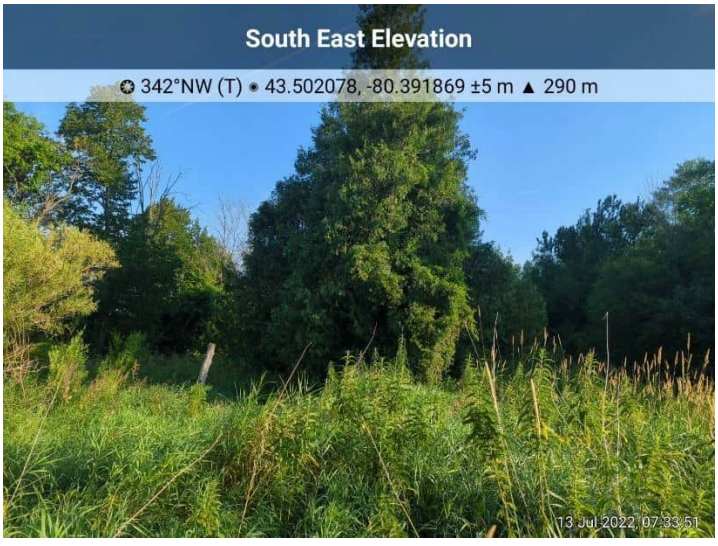


Photo 11: Red-headed Woodpecker survey station 12. 13-July-2022.



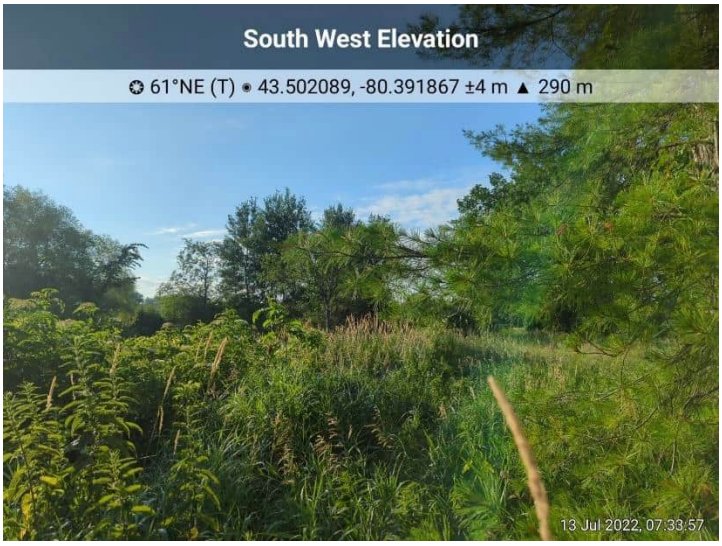


Photo 12: Red-headed Woodpecker survey station 13. 13-July-2022.

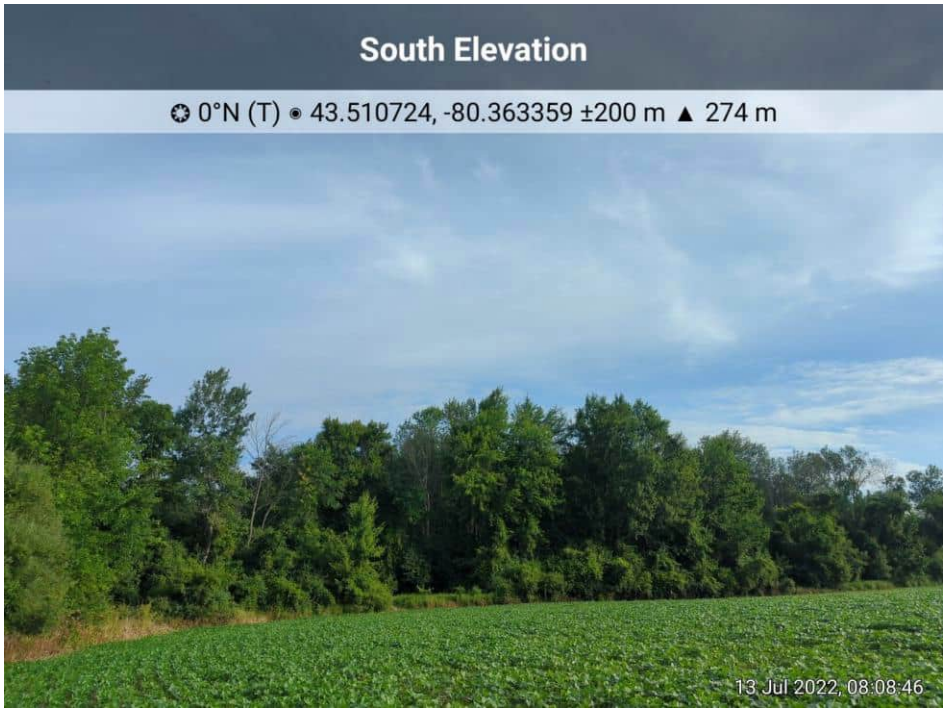


Photo 13: Red-headed Woodpecker survey station 14. 13-July-2022.

Photo 14: Red-headed Woodpecker survey station 16. 13-July-2022.

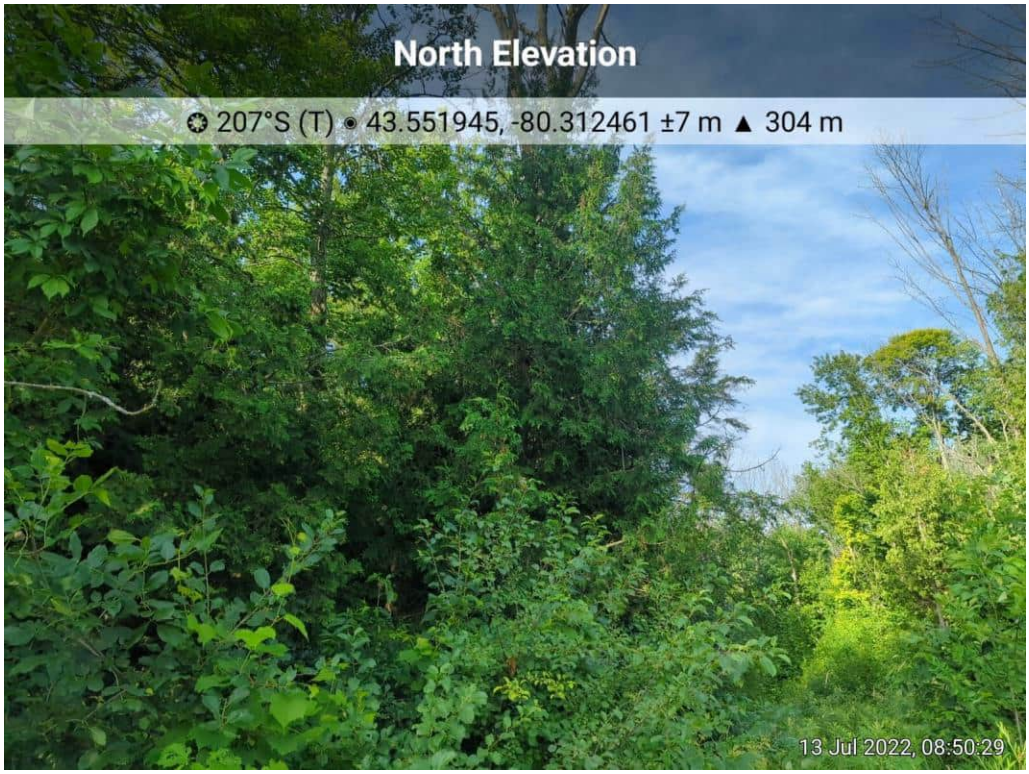


Photo 15: Red-headed Woodpecker survey station 17. 13-July-2022.