

DESIGN AND CONSTRUCTION REPORT



Detail Design for Roundabout Construction at the Intersection of Highway 62 and Moira/Ridge Road, West Huntingdon Station, Municipality of Centre Hastings

W.P. 4028-05-01

MP Project No.: 0KM-17-7131-02

Prepared for:

Ministry of Transportation – Eastern Region

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Kingston, Ontario K7K 0E5

Prepared by:

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February 7, 2022

DESIGN AND CONSTRUCTION REPORT

DETAIL DESIGN FOR ROUNDABOUT CONSTRUCTION AT THE INTERSECTION OF HIGHWAY 62 AND
MOIRA/RIDGE ROAD, WEST HUNTINGDON STATION, MUNICIPALITY OF CENTRE HASTINGS
W.P. 4028-05-01

Prepared by:

McINTOSH PERRY

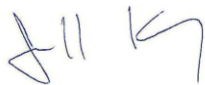
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THE PUBLIC RECORD

This Design and Construction Report (DCR) has been prepared under the Ministry of Transportation's Class Environmental Assessment for Provincial Transportation Facilities (2000) for a Group 'B' project, in compliance with the requirements of the Ontario *Environmental Assessment Act*. This DCR includes a summary of the Detail Design study and environmental assessment process undertaken for this project, existing environmental conditions, and the mitigation measures developed to address environmental concerns.

A Transportation Environmental Study Report (TESR) was approved in 2014, for the Moira/Ridge Road Intersection Improvements and Rawdon Creek Structure Replacement. The recommendations from the TESR (URS, 2014) have been enhanced as part of the Detail Design for the study area specified within.

This DCR is available for a 30-day public and external agency comment period **from February 10, 2022 to March 11, 2022** on the project website: www.moiraroundabout.ca. Interested persons are encouraged to review the DCR and provide comments to the following Project Team members by **March 11, 2022**:

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Consultant Project Manager
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1-1329 Gardiners Road,
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The Project Team will respond to all comments generated during the 30-day public review. Outstanding concerns are to be directed to the proponent for a response, unless the outstanding concerns are regarding potential adverse impacts to constitutionally protected Aboriginal or treaty rights, in which case Part II Order requests on these matters should be addressed in writing to the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment Conservation and Parks
777 Bay Street, 5th Floor
Toronto, Ontario M7A 2J3
E-mail: minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment Conservation and Parks
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario M4V 1P5
E-mail: EABDirector@ontario.ca

If you have accessibility requirements in order to participate in this project, please contact one of the Project Team members listed above. 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.

Cette publication hautement spécialisée n'est disponible qu'en anglais en vertu du règlement 671/92, qui en exempte la traduction selon l'application de la loi sur les services en français. Pour obtenir des renseignements en français, veuillez communiquer avec le ministère des transports, bureau des services en français au: 905-704-2045.

Notice of Completion for Design and Construction Report

Detail Design for Roundabout Construction at the Intersection of Highway 62 and Ridge/Moira Road (W.P. 4028-05-01)

THE PROJECT

The Ministry of Transportation Ontario (MTO) has retained McIntosh Perry Consulting Engineers Ltd. and LEA Consulting Ltd. Joint Venture (MP-LEA Joint Venture) to carry out the Detail Design and Class Environmental Assessment (Class EA) for the construction of a roundabout at the intersection of Highway 62 and Ridge/Moira Road (County Road 8) in West Huntingdon Station in the Municipality of Centre Hastings.

The project scope of work includes, but is not limited to:

- Intersection improvements including construction of a roundabout at the Highway 62 and Ridge/Moira Road intersection;
- Minor alignment modifications to Highway 62 and Ridge/Moira Road;
- Improvements to intersection sight distances; and
- Installation of new concrete islands with curb and gutter on roundabout approaches and modification of entrance connections.

THE PROCESS

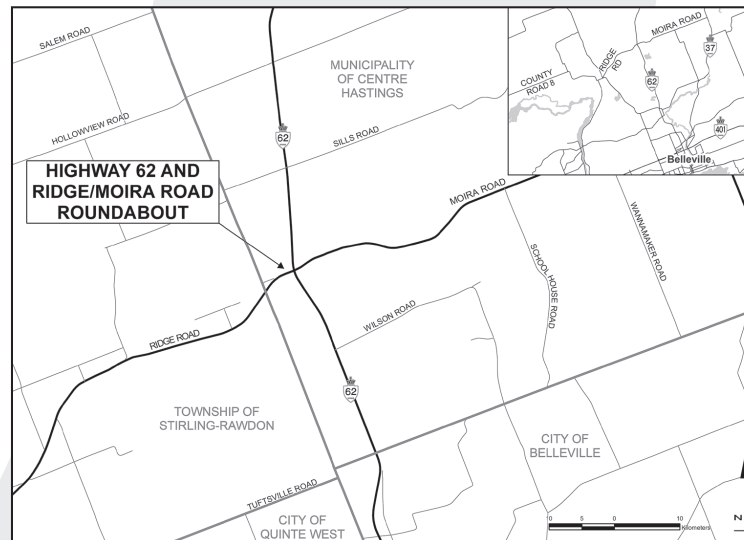
A Transportation Environmental Study Report (TESR) was prepared in 2014 during preliminary design which evaluated and selected a preferred design alternative for long term improvements at the intersection. This project was carried out in accordance with the approved environmental planning process for projects under the *Class Environmental Assessment for Provincial Transportation Facilities* (2000) for a Group "B" project, with the opportunity for public input throughout the project. A Public Information Centre (PIC) was held virtually on the project website from August 19, 2021 to September 3, 2021, to provide an opportunity for stakeholder input during detail design.

The purpose of this notice is to inform the public that the Design and Construction Report (DCR) has been prepared and will be available from February 10, 2022 to March 11, 2022 for a 30-day public comment period. Due to Covid-19 restrictions, the DCR will be available electronically on the project website www.moiraroundabout.ca. Hard copies of the DCR are also available upon request and can be mailed to your address.

COMMENTS

Interested persons may provide written comments to our project team by March 11, 2022. All comments and concerns should be sent directly to one, or both, of the project team members listed below.

In addition, a request may be made to the Ministry of the Environment, Conservation and Parks for an order requiring a higher level of study (i.e., requiring an individual/comprehensive EA approval before being able to proceed), or that conditions be imposed (e.g., require further studies), only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Requests on other grounds will not be considered. Requests should include the requester contact information and full name for the ministry.



Requests should specify what kind of order is being requested (request for additional conditions or a request for an individual/comprehensive environmental assessment), how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. This will ensure that the ministry is able to efficiently begin reviewing the request.

The request should be sent in writing or by e-mail to:

Minister of the Environment,
Conservation and Parks
Ministry of Environment,
Conservation and Parks
777 Bay Street, 5th Floor
Toronto, ON M7A 1P5
e-mail: Minister.mecp@ontario.ca

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

Requests should also be sent to the project team listed below by mail or by email.

Mr. Bob Boutilier
Project Manager
McIntosh Perry Consulting Engineers
1-1329 Gardiners Road
Kingston, ON K7P 0L8
tel: 343-344-2638 or
toll free: 1-888-348-8991
e-mail: b.boutilier@mcintoshperry.com

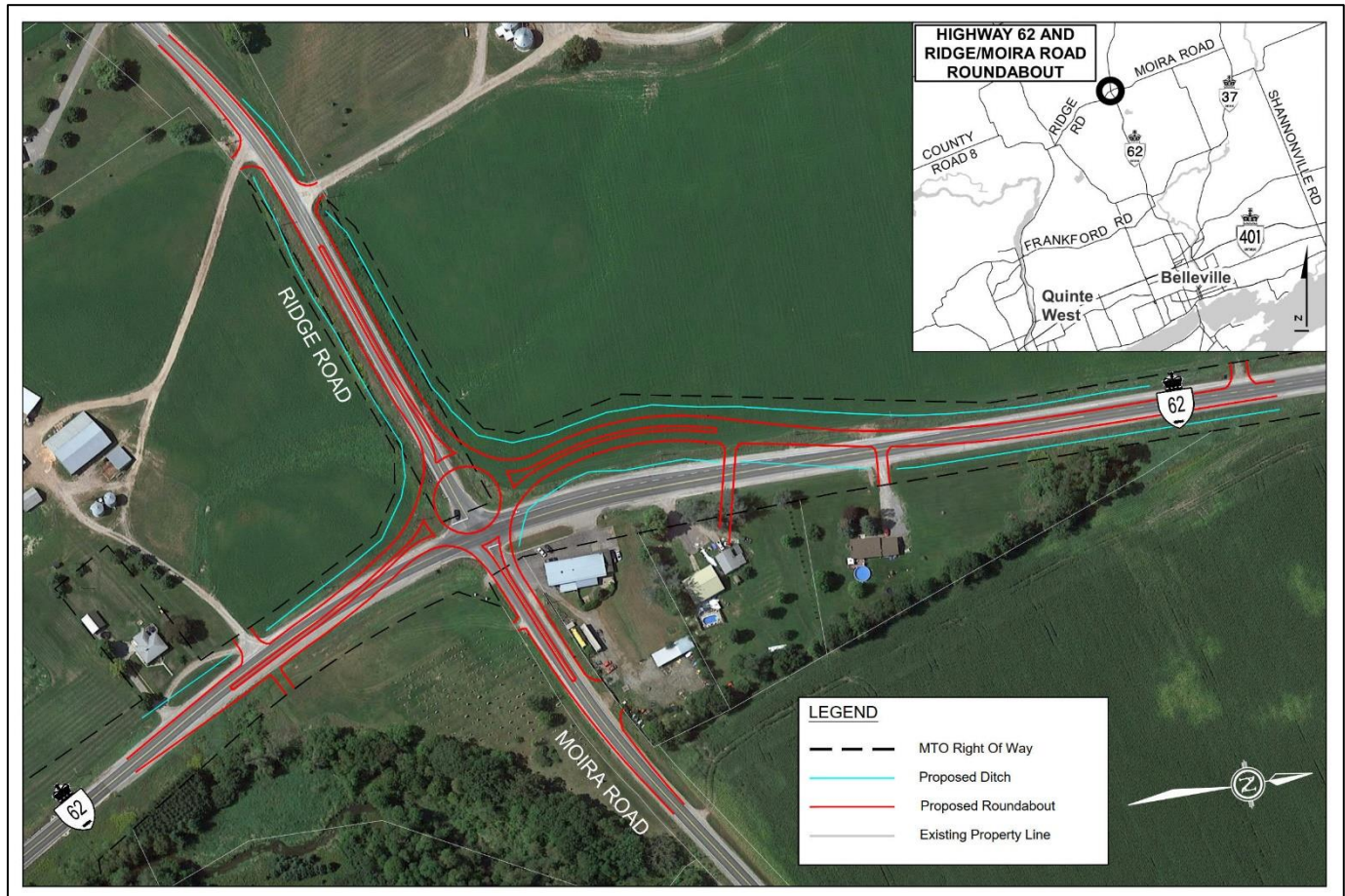
Mr. Chris Kardassis
Project Manager
Ministry of Transportation - Eastern Region
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Kingston, ON K7L 5A3
tel: 613-545-4735 or
toll free: 1-800-267-0295 ext. 4735
e-mail: chris.kardassis@ontario.ca

Information will be collected in accordance with the Municipal *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

If you have accessibility requirements in order to participate in this project, please contact one of the project team members listed above.

EXECUTIVE SUMMARY

The Ministry of Transportation of Ontario (MTO) Eastern Region retained McIntosh Perry Consulting Engineers Ltd. and LEA Consulting Ltd. Joint Venture (MP-LEA Joint Venture) to complete the Detail Design and Class Environmental Assessment (Class EA) Study for the construction of a roundabout at the intersection of Highway 62 and Moira/Ridge Road (County Road 8), in West Huntingdon Station within the Municipality of Centre Hastings. The key map below shows the intersection of Highway 62 and Moira/Ridge Road study area location, and proposed roundabout configuration.



Intersection of Highway 62 and Moira/Ridge Road Study Area Key Map

In 2014, a Class EA Study and associated Transportation Environmental Study Report (TESR) was undertaken to document the required improvements for the intersection of Highway 62 and Moira/Ridge Road (GWP 4028-05-00) and the replacement of the Rawdon Creek structure on Highway 62 (GWP 4044-10-00). That study evaluated several design alternatives and determined the Technically Preferred Alternative (TPA) was to construct a modern roundabout at the intersection of Highway 62 and Moira/Ridge Road and replace the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.

In 2015, The MTO retained McIntosh Perry Consulting Engineers Ltd. and LEA Consulting Ltd. Joint Venture (MP-LEA Joint Venture) to conduct Detail Design and an Environmental Assessment study (G.W.P. 4044-10-00) for the

replacement of the Highway 62 Rawdon Creek structure. A Design and Construction Report (DCR) was prepared and placed on public review for a 30-day period. As a result, the MTO was granted approval to continue with the replacement project, and the Highway 62 Rawdon Creek structure was replaced in 2017/2018.

In 2017, the MTO retained MP-LEA Joint Venture to conduct Detail Design and an Environmental Assessment study for the construction of a modern roundabout at the intersection of Highway 62 and Moira/Ridge Road (GWP 4060-16-00). This study has followed the approved planning process for a Group 'B' project under the *Class Environmental Assessment for Provincial Transportation Facilities (2000)*, approved under the *Ontario Environmental Assessment Act (EA Act)* for provincial transportation projects of a defined scope and magnitude. This DCR presents the results of the transportation engineering and environmental assessment study and has been prepared to document the consultation program, recommended design details, environmental issues and commitments and construction monitoring requirements.

The recommended design consists of the following:

- Construction of a modern roundabout at the Highway 62 and Moira/Ridge Road intersection.
 - The roundabout has been designed to accommodate both tractor-trailer combination vehicles, horse and buggies, and farm equipment;
- Minor alignment revisions to Highway 62 and Moira/Ridge Road;
- Improvements to intersection sight distances;
- Installation of new concrete islands with curb and gutter on roundabout approaches;
- New entrance connections and property access modifications, and
- Provide partial illumination along the Highway 62 approaches, at the roundabout intersection, and at the crossing of the Trail of Two Lakes and Highway 62.

Commitments have been made to protect environmental features with appropriate mitigation measures for terrestrial and aquatic ecosystems, species at risk, traffic disruptions, and construction staging, among others. A *Summary of Existing Environmental Concerns and Commitments Table* is included in this document, which outlines the environmental issues and concerns identified during the Class EA process and the measures and approaches that have been developed to address these issues and concerns. All mitigation measures have been incorporated into the Contract Documents for implementation during construction.

This DCR is available for a 30-day public and external comment period from February 10, 2022 to March 11, 2022 on the project website: www.moiraroundabout.ca.

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1.0 INTRODUCTION AND BACKGROUND

In 2014, a Class EA Study and associated TESR was undertaken to document the required improvements for the intersection of Highway 62 at Moira/Ridge Road (GWP 4028-05-00) and the replacement of the Rawdon Creek structure on Highway 62 (GWP 4044-10-00). That study evaluated several design alternatives and determined the Technically Preferred Alternative (TPA) was to construct a modern roundabout at the intersection of Highway 62 and Moira/Ridge Road and replace the existing Highway 62 Rawdon Creek structure to the west of the existing alignment.

In 2015, The MTO retained MP-LEA Joint Venture to conduct Detail Design and an Environmental Assessment study (G.W.P. 4044-10-00) for the replacement of the Highway 62 Rawdon Creek structure. A DCR was prepared and placed on public review for a 30-day period. As a result, the MTO was granted approval to continue with the replacement project, and the Highway 62 Rawdon Creek structure was replaced in 2017/2018.

In 2017, the MTO retained MP-LEA Joint Venture to conduct Detail Design and an Environmental Assessment study for the construction of a modern roundabout at the intersection of Highway 62 and Moira/Ridge Road (GWP 4060-16-00). Figure 1 shows the Intersection of Highway 62 and Moira/Ridge Road study area location and proposed roundabout configuration.

This DCR presents the results of the transportation engineering and environmental assessment study carried out in accordance with the approved environmental planning process for Group 'B' undertakings under the MTO's Class EA for Provincial Transportation Facilities (MTO, 2000), which has been approved under the *Ontario Environmental Assessment Act* (1990) for provincial transportation projects of a defined scope and magnitude. This DCR has been prepared to document the consultation program, recommended design details, environmental issues and commitments and construction monitoring requirements.

1.1 Study Area

Highway 62, within the limits of this project, is a rural undivided highway with a posted speed of 80 km/h. Highway 62 begins at Highway 33 (Loyalist Parkway) in Bloomfield within Prince Edward County, and continues north to Highway 127 in Maynooth. The project limits are located in a rural setting with the main traffic generators expected to be commuters.

Ridge Road is an approximately 7 km municipal roadway that runs east-west starting at Sutherland Road and ending at Highway 62. The roadway provides access to farm and residential properties. Ridge Road has a posted speed limit of 80 km/h in the vicinity of Highway 62.

Moira Road is an approximately 12 km municipal roadway that runs east-west starting at Highway 62 and ending at Highway 37 in the east. The roadway provides access to farm and residential properties. Moira Road has a posted speed limit of 80 km/h in the vicinity of Highway 62.

The study area is located at the intersection of Highway 62 and Moira Road / Ridge Road (County Road 8), in West Huntingdon Station, within the Municipality of Centre Hastings. The study area includes Highway 62 from station 12+580, south of the Moira/Ridge Road intersection to station 12+180, north of the Moira/Ridge Road intersection, and Moira/Ridge Road from station 10+180, west of the Highway 62 intersection to station 9+735, east of the Highway 62 intersection, as shown in Figure 1 (proposed roundabout indicated in red).

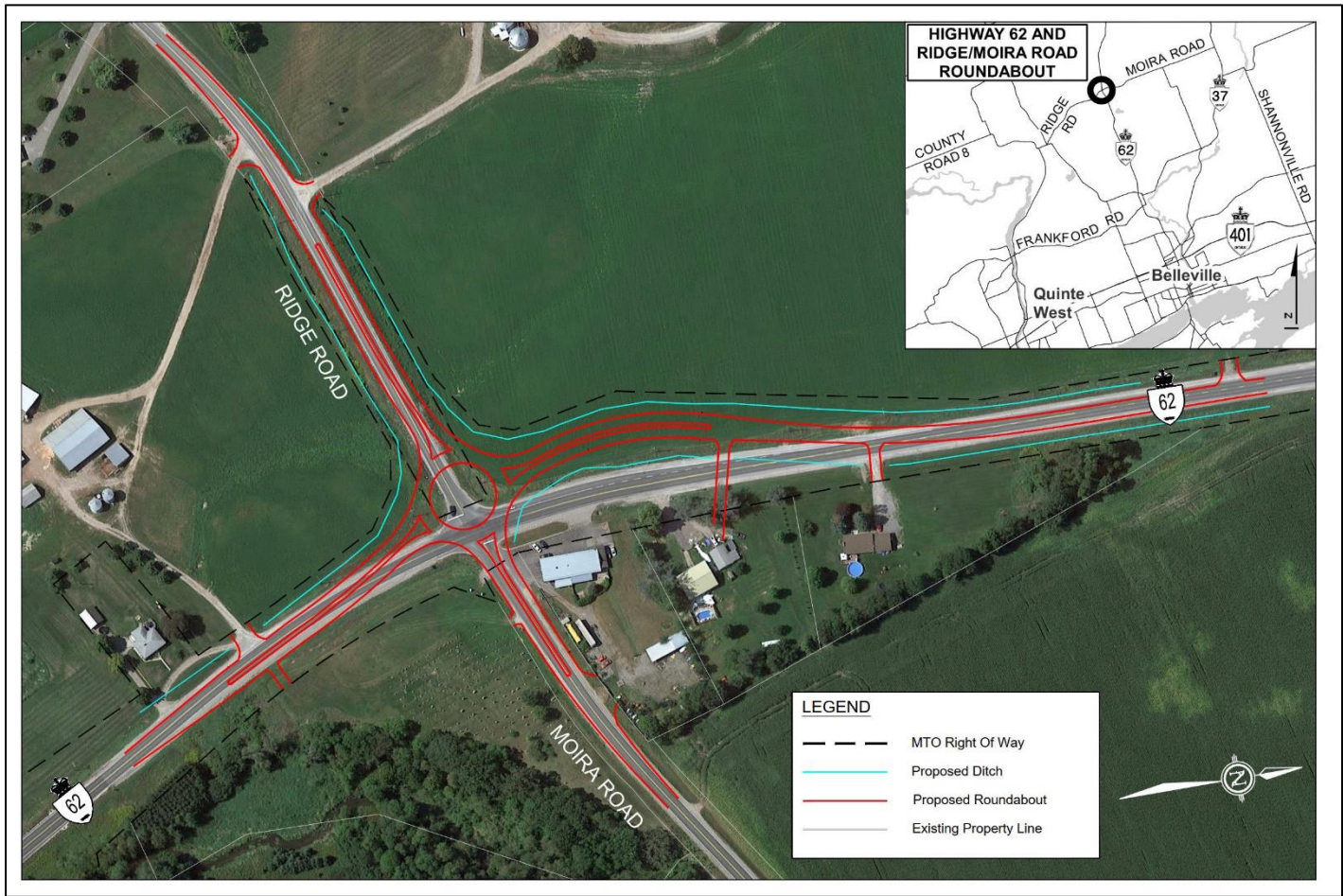


Figure 1: Intersection of Highway 62 and Moira/Ridge Road Study Area Key Map

1.2 Ontario Environmental Assessment Act

The environmental assessment process ensures that governments and public bodies consider potential environmental effects before an infrastructure project begins. The objectives of an environmental assessment are to minimise or avoid adverse effects before they occur and incorporate environmental factors into decision-making while providing opportunities for public input into the process and investigations.

1.2.1 Class Environmental Assessment for Provincial Transportation Facilities (2000)

The MTO's Class EA was approved under the *Ontario Environmental Assessment Act* in 1999 and amended in 2000. MTO has prepared the MTO Class EA to manage the need to undertake transportation-related infrastructure projects using a streamlined approach.

The MTO Class EA (2000) defines the EA process to be followed in respect of projects and activities similar in complexity and performed by the MTO. Provided the appropriate EA process is followed, projects and activities included under the MTO Class EA do not require formal review and approval separately under the EA Act. Under the Class EA, the groupings are largely defined by their relative complexity and potential impacts of the undertakings, or projects are classified into three groups:

- **Group A:** projects that are new provincial transportation facilities and highway / freeway realignments.
- **Group B:** projects that modify access or add capacity to existing provincial transportation facilities, and new services / maintenance / operations facilities.
- **Group C:** Improvements to existing transportation facilities.

The Class EA outlines principles and processes that must be followed for applicable projects, including consultation, development and evaluation of alternatives, and documentation. Public participation and consultation with property owners and other interested parties is a significant element of the decision-making process.

This Detail Design and Environmental Assessment Study has followed the requirements of a Group 'B' undertaking in accordance with the MTO Class EA. Group 'B' projects include major improvements to existing transportation facilities including highway improvements that provide/cause a significant modification in traffic access (may also modify "footprint") to and from existing highways, or that introduce/remove municipal road access to local areas.

The Class EA process, which is principle-based rather than prescriptive, has been culminated in this document, recognized as the Design and Construction Report, also known as the DCR.

1.2.2 Impact Assessment Act

On August 28, 2019 the *Impact Assessment Act* (IAA) replaced the former *Canadian Environmental Assessment Act* (CEEA), 2012. The Impact Assessment Act outlines a process for assessing the impacts of major projects and activities carried out on federal lands or outside of Canada. Impact assessment is a planning and decision-making tool used to assess the positive and negative environmental, economic, health and social affects of proposed projects and impacts to Indigenous groups and rights of Indigenous peoples.

The projects and activities that are subject to the IAA are very similar to those that were subject to an environmental assessment under the CEEA, 2012. The Project List focuses on federal impact assessments on projects that have the most potential for adverse environmental effects in areas of federal jurisdiction. However, some changes have been made to the "Project List", such as new thresholds (i.e., project complexity) or projects have been introduced or increased. Under the IAA, only those projects designated by the Physical Activities Regulations or designated by the Ministry of Environment Conservation and Protection (MECP) on a discretionary basis may be subject to the federal environmental assessment. It has been determined that this project does not include physical activities identified on the list and is therefore not subject to the IAA process.

2.0 CONSULTATION

Consultation is a fundamental component of the Class EA process. Consultation was ongoing throughout the planning of the project in conjunction with the transportation, engineering, and environmental protection principles. It is essential for the success of Class EA studies that the consultation program be fully transparent, open, and inclusive; all public/stakeholder communication must be clear, timely and accessible to all.

A Consultation Program was developed in collaboration with the MTO that meets or exceeds the mandatory requirement of the MTO Class EA for a Group 'B' project. The primary objective of the consultation program was to keep stakeholders informed throughout the study and encourage comments using effective consultation methods. Opportunities were provided throughout the study for interested agencies, Indigenous Communities, stakeholder groups, and individuals to provide input and obtain information about the study.

The consultation program for this study included the following:

- Maintenance of an external agency/stakeholder contact list and property owner/interested public contact list provided by MTO from the preliminary design process;
- Preparation and publication of Ontario Government Notices (OGNs), including:
 - Notice of Study Commencement;
 - Notice of Public Information Centre, and
 - Notice of Completion of Design and Construction Report and 30-day Public Comment Period.
- Preparation and distribution of notification letters to external agency/stakeholders and property owner/interested public contacts;
- Development and maintenance of a project website;
- Ongoing communication, negotiation, and consultation with municipalities, agencies, stakeholders, property owners and local businesses, as required;
- Consultation with Indigenous Communities,
- Online Public Information Centre;
- Stakeholder meetings with affected agencies and stakeholders, and
- Summary of the consultation process in the environmental project documentation.

2.1 Project Contact List

An external Contact List of potentially interested stakeholder groups and individuals was maintained throughout this study, and updated for completeness and accuracy as required. This list included federal and provincial government agencies and ministries, municipal staff and elected officials, Member of Provincial Parliament (MPP), Indigenous Communities, emergency services, utility companies, public interest groups, businesses, and property owners/tenants who may be directly or indirectly affected by the project. Additionally, to ensure communication materials were distributed to all stakeholders within proposed construction traffic staging areas, the Canada Post Precision Targeter Tool was used to distribute to specific mailing routes that may be impacted by the project works.

2.2 Notice of Study Commencement

At the onset of the project a Notice of Study Commencement was produced, which included a brief background of the Highway 62 intersection improvements and Class EA process. Notifications were distributed as follows:

- Letters were mailed to the project Contact List (i.e., agencies, Indigenous Communities, MPP) on August 1, 2019;
- An Ontario Government Notice (OGN) was posted in the Belleville Community Press on March 5, 2020;
- Notices were distributed through Canada Post to the general public on March 5, 2020, and
- A website was launched on August 1, 2019, which contained the following information:
 - Overview of the study, including project rationale;
 - Map of the study area;
 - Schedule;
 - Public Notices;
 - Details related to the Class EA process;
 - Study reports;
 - Frequently asked questions (FAQs), and
 - Contact details for the Project Team.

Notice of Study Commencement materials, including example letters and advertisements can be found in Appendix A.

2.3 Public Information Centre

Due to the COVID-19 restrictions, an in-person Public Information Centre (PIC) was not possible. In lieu of an in-person PIC, information was posted to the Project Website as part of an online PIC for public review. The purpose of the PIC was to present the study process, recommended design, environmental mitigation, and construction staging and receive comments on the proposed improvements. Notifications of the Online PIC were distributed as follows:

- A notice was emailed to the project Contact List on August 19, 2021;
- An OGN was posted in the Belleville Community Press on August 19, 2021,
- Notices were distributed through Canada Post using mailing routes for areas effected by the proposed detour routes on August 19, 2021, and
- The OGN was posted to the Project Website on August 19, 2021.

Notice of Online PIC materials, including presentation materials, example letters and OGN can be found in Appendix A.

2.4 Consultation Responses

As a result of the ongoing project consultation, several responses were received. Individual responses were provided in an effort to address their comments and concerns. Many comments were similar in nature and related to the concern that a roundabout is not suitable for this intersection. The Consultation Responses have been summarized in Table 1 below.

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
Notice of Study Commencement		
Public	Homeowner inquired about their new property entrance and had discussions with the project team regarding a more direct route from Highway 62 to their garage. They noted that utilities may be located within the preferred entrance relocation area. Homeowner also requested that they could keep any wood from tree clearing due to the new entrance.	The project team advised this stakeholder that they would look into how the new entrance could be placed in a more direct route to their garage but noted that some tree clearing may be required in addition to utility relocations. Homeowner noted that they are fine with the tree removal but asked that wood debris be left for them to use as firewood.
	Homeowner advised the project team that the mailboxes, as well as garbage pick up services for several properties along Highway 62, are located across the highway (i.e., on the west side). Homeowner inquired if it would be possible to switch the services to the east side of the highway.	A provision will be added to the Contract Tender to have the Contractor to make arrangements with the homeowner to keep the wood from the tree clearing for firewood. Refer to Section 2.7 for additional information on garbage and mailbox relocation.
Public	Stakeholder inquired about their new property entrance layout as a result of the new roundabout and Highway 62 realignment. Major concern was in relation to drainage issues along their front lawn.	The project team provided the proposed entrance layout for this stakeholder property. MP drainage team took the concerns into consideration for the design.
Public	Stakeholder inquired about the anticipated cost of the roundabout vs. a smart light with road improvements for sight distance. They also inquired about the budget for this project and cost of private lands that have been required for expropriation.	The project team advised this stakeholder that a preliminary design study was conducted in 2014/2015 and an evaluation of alternatives to improve the intersection was conducted which included alternatives such as a signalized intersection. However, based on the evaluation, which included factors such as transportation, cost, natural environment, socio-economic environment, and cultural environment, it was established that a roundabout was the best option to take forward to construction.

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
		<p>The project team provided a link to the 2015 Transportation Environmental Study Report.</p> <p>The project team advised this stakeholder that they are not at liberty to disclose costs of private property purchases under the <i>Freedom of Information and Protection of Privacy Act</i> (FIPPA), however noted that the ministry acquires land based on market value and entitlements according to the <i>Expropriations Act</i>. The project team suggested that this stakeholder direct their inquiry to the FIPPA office or submit a written request and accompanied cheque to the MTO Freedom of Information and Privacy Office.</p>
Public	<p>Stakeholder responded to the Notice of Study Commencement and expressed their concerns regarding the intersections north and south of Old Madoc Road on Highway 62. They noted that these intersections are extremely dangerous at night without lights and furthermore, there are no turn-off lanes from both north and south bound directions. This stakeholder noted to the project team that these locations should have priority over the proposed roundabout intersection at Highway 62 and Moira/Ridge Road.</p>	<p>The project team advised this stakeholder that they had forwarded on their concerns as questions related to other potential projects are best answered by the Ministry of Transportation Ontario. The project team noted that McIntosh Perry is only involved with the roundabout project but thanked this stakeholder for expressing their concerns regarding traffic safety on Highway 62.</p>
Public	<p>Stakeholder expressed that they believe a roundabout in this location is a fantastic idea and will really improve visibility from Moira Road as well as improve traffic flow. They inquired if this roundabout will be big enough to accommodate trucks and farm equipment.</p>	<p>The project team advised that the new roundabout would accommodate large trucks and farm equipment.</p>

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNR)	The MNR responded to the Notice of Study Commencement to advise the project team of natural heritage information for the study area including: wetlands, Areas of Natural and Scientific Interest (ANSIs), Fish and Fish Habitat, Significant Valleylands, Significant Wildlife Habitat (SWH), Species at Risk (SAR), and other approvals that should be considered.	The project team reviewed the information provided and completed online and field reviews to verify natural heritage information within the study area. Additionally, the project team consulted with the Ministry of Environment, Conservation and Parks regarding SAR within the study area as recommended by the MNR.
Mayor Tom Deline	Mayor Deline advised the project team that he is not in favour of this roundabout, but noted that it is not his decision. The Mayor requested that the roundabout is constructed large enough to accommodate buggies and have a travel lane within it for slow moving traffic.	Comments were discussed in Centre Hastings Stakeholder Meeting. Please see Table 2 below.
County of Hastings	The County of Hastings advised the project team that they don't believe they have any questions of concerns regarding the proposed works.	No further response was required.
Notice of Public Information Centre		
Public	Stakeholder expressed that they do not feel like this is a good location for a roundabout as there is a lot of volume on Highway 62 and the posted speed is 80 km/hr. This stakeholder added that transport and other large trucks would have to really slow down to navigate the roundabout which would cause a lot more fuel burned and wear and tear on all vehicles because of braking and acceleration. They note that this will be a huge bottle neck. They also noted that they feel like this is a	A formal response letter was developed in conjunction with MTO and MP and was sent to these stakeholders to respond to their concern and explain the rationale for the roundabout at the intersection. Please refer to Appendix A.

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
	total waste of money when there are many other roads and bridges that require attention and repair. They suggested that rather than a roundabout the road should be straightened and left turn lanes to both directions on Highway 62 should be added.	
Public	Stakeholder advised the project team that people are not familiar with roundabouts in this area and expressed concerns for drivers causing accidents because they do not know how to handle such a situation. This stakeholder also expressed concerns with a roundabout located on a highway where there are aggressive drivers and transport trucks many of which are driving at 80 km/hr or greater. This stakeholder notes that they believe this is a very bad idea.	
Public	Stakeholder noted that they understand the benefits of a roundabout configuration but expressed concerns with the selection of a roundabout configuration at this intersection and noted that the money should be spend training motorists on how to us and navigate a roundabout as a majority of road users do not use them correctly.	
Public	Stakeholder advised the project team that the line of sight east to west is not good, requiring the westbound driver to pull out into the intersection which is what they currently do. This stakeholder notes that tractor trailer trucks traveling northbound generally have to go fast (>90 km/hr) to get up the hill, especially in the winter. They note that it would be problematic for trucks to slow down to enter the roundabout. This stakeholder also notes that Canadian drivers are not	

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
	formally trained to use roundabouts, which they believe should be part of their driving test.	
Public	<p>Stakeholder expresses that they consider this roundabout unnecessary because accidents that have occurred at this intersection have often been due to the lack of clear vision from Moira/Ridge due to the positioning of the sign in front of the cemetery and roadway alignment. They added that the Centre Hastings Fire Department suggested many years ago that including rumble strips on the approach to the junction would help and this was never tried. This stakeholder noted that simple measures could make this a safe intersection and already with the recent slight realignment of Highway 62 the number of accidents appears to have decreased. They believe a roundabout taking up a large area and slowing traffic seems rather excessive.</p> <p>Additionally, this stakeholder notes that Canadians are generally not accustomed to using roundabouts which will be a hazard. They note that the roundabout will go ahead whether they think it is a good idea or not, but ask that the project team make it as safe as possible by including the installation of signage and making sure approaches from the east and west are well-designed with clear vision.</p>	
Public	Stakeholder expressed that they agree that this intersection needs something but that they feel as though a set of lights would have been a better idea. This stakeholder notes that in their opinion roundabouts are not suited to highways as busy as Highway 62. They note that they wish a vote would have been	

Table 1: Summary of Consultation Responses

Stakeholder Group	Stakeholder Comment/Concern	How It Was Addressed
	taken by the public prior to hiring an engineering group to build this roundabout so the public had a say. They also inquired about when the project team anticipates construction to start.	
Public	Stakeholder expressed concerns with the new roundabout and its ability to accommodate the various mix of vehicles using this intersection and noted that it would be dangerous.	The project team explained to this stakeholder that the problem is delays for motorists attempting to cross or turn onto Highway 62 and that intersection control is warranted. The project team noted that given the various constraints the roundabout was the better of the two options available, a roundabout or traffic signals. The project team advised that consultation with trucking, farming, Amish/Mennonite groups has been undertaken and that their issues have been considered within the roundabout design.
Public	Stakeholder contacted the project team to note that they do not have access to the Online Public Information Centre and that they oppose the roundabout construction	The project team sent this stakeholder a hard copy of the Public Information Centre via Canada Post for their review. No further comments were received.
Public	Stakeholder advised the project team that this is the worst thing they could do in this location and noted that what they need to do is move the intersection north and have merging traffic. This stakeholder noted that they designed it themselves and it would work.	The project team asked this stakeholder to forward their design which relocates the intersection to the north for more context. The project team also requested to set up a call to discuss this further. No further response was provided from this stakeholder.
Public	Stakeholder inquired if there were any planned impacts to the cemetery property.	The project team told this stakeholder about the minor change to the entrance location and of the entrance on Highway 62. No further response was needed.

2.5 Stakeholder Information Meetings

The Project Team hosted a Stakeholder Information Meeting (SIM) to disseminate information related to the proposed project work and discuss potential impacts that the traffic management proposed during construction may cause to the travelling public. Information gathered during the SIMs were used during the decision-making process and preparation of mitigation measures. The following sections summarize the SIMs.

2.5.1 Municipality of Centre Hastings

A SIM with the Municipality of Centre Hastings was held on May 19, 2020. The SIM meeting minutes can be found in Appendix A.

The SIM was held virtually to adhere to Covid-19 public health regulations. The meeting was organized to provide details regarding the project, including the progress to date, and the proposed staging sequence changes to the existing entrances at the cemetery and Fine Line Design. Attendees at the SIM were as follows:

- Tom Deline – Centre Hastings, Mayor (Amish Community Representative)
- Eric Sandford – Centre Hastings, Deputy Mayor
- Typhany Choinard – Centre Hastings, CAO/Clerk
- Kevin Hart – Centre Hastings, Public Works
- Dan Brandao – MTO, P&D PM
- Steve Baczyk – MTO, Environmental
- Lori Brake – MTO, Traffic
- Chris Garlough – MTO Traffic
- Bob Boutilier – MP, PM & Highway
- Joe Alves – MP, Highway

Table 2 summarizes comments and discussions held during the SIM.

Table 2: Summary of Centre Hastings Stakeholder Information Meeting Comments	
Concern	Response
Centre Hastings noted that council was not in favour of the roundabout selection at this location due to the steep grades at Rawdon Creek. They noted that currently many trucks (i.e., tractor-trailers) that use Highway 62 in the winter, get stuck climbing the steep grades on the approaches to the Rawdon Creek structure. They noted concerns with trucks having to slow down for the roundabout and not having enough speed to climb the hill south of Rawdon Creek. They inquired if a truck climbing lane was considered for this location. Centre Hastings added that if a truck climbing lane could not be built at this location then asked that	MTO noted that a truck climbing lane was not within the scope of this project, but the MP/MTO would review the preliminary design and truck speeds to confirm that they would have sufficient speed to climb the grades. MTO noted that the roundabout was selected to improve safety at the intersection. MTO noted that they would discuss the request for increased winter road maintenance operations internally and would provide a response in writing to the municipality. The project team followed up with the municipality on January 6, 2022 regarding truck climbing lane and increased/priority winter road maintenance in this

Table 2: Summary of Centre Hastings Stakeholder Information Meeting Comments

Concern	Response
<p>the MTO increase winter road maintenance operations and that this location be given priority after winter weather events.</p>	<p>location (Appendix A). The project team advised that the Ministry will continue to monitor this location post construction to determine if the roundabout has had any impact on the operation of the highway on the hill south of the roundabout. In addition, the project team noted that they discussed with the MTO winter maintenance staff and they indicated that all highways are maintained based on service levels set by the classification of the highway. Due to the logistics of highway winter maintenance, there is no ability to place a higher priority on segments of highway within the same classification. MTO maintenance staff are will monitor the highway to ensure that service standards are met.</p>
<p>Centre Hastings expressed concerns for the Amish/Mennonite community’s horse and buggies sharing the roadway in the roundabout with larger vehicles.</p>	<p>MP advised that the approach lanes to the roundabout are 5 m wide and additional signage will be provided to inform all roadway users to share the road with slower vehicles.</p>
<p><i>Post Meeting Note: Centre Hastings noted that a major concern is large trucks holding back traffic as they climb the hill at 20-40 km/hr. They believe this will have traffic trying to pass them on the hill putting oncoming traffic at risk due to the blind spot at the top of the hill.</i></p>	<p>MTO/MP reviewed traffic speeds of trucks to determine if they have sufficient speed to climb the grades at Rawdon Creek.</p>
<p>Centre Hastings were interested to know when construction would occur.</p>	<p>The project team mentioned that construction was currently scheduled for spring/summer of 2021 pending the acquisition of funding, permits and approvals. The project team added that there would be a Public Information Centre later in the design process to fully inform the public of the proposed deign and to seek public input.</p> <p><i>Post Meeting Note: The PIC informed stakeholders that construction was anticipated to commence in spring of 2022 pending funding and approvals.</i></p>

2.5.2 Cemetery Board Meeting

A SIM with the Cemetery Board Representatives was held on October 25, 2019. The SIM meeting minutes can be found in Appendix A.

The site meeting was organized to provide details regarding the project, including the proposed closure of the existing main entrance to Luke’s Cemetery, proposed modifications to the existing gravel entrance on the south side of Moira Road, and a potential new ‘exit only’ entrance at the south limit of the cemetery on the east side of Highway 62. Attendees at the SIM were as follows:

- Barb Ashley-Caterer – Cemetery Board
- Terry Shannon – Cemetery Board
- Grant Thompson – Cemetery Board
- Dan Brandao – MTO, P&D PM
- Steve Baczyk – MTO, Environmental
- Bob Boutilier – MP, PM & Highway

Table 2 summarizes comments and discussions held during the SIM.

Table 3: Summary of Cemetery Board Stakeholder Information Meeting Comments	
Concern	Response
The Cemetery Board representatives agreed with abandoning the existing main entrance by ditching along the current frontage to physically prohibit any access. The existing monuments and gate will remain in place.	The project team will implement this during construction.
The Cemetery Board representatives requested that MTO consider moving the new gravel entrance on Moira Road a few meters to the west to avoid conflicts with the first row of grave markers.	The project team prepared new design to mitigate these concerns.
The Cemetery Board agreed with the installation of an ‘exit only’ entrance to facilitate vehicles leaving the site heading south on Highway 62.	The project team noted that this would eliminate the potential ‘U-turn’ out of the Moira Road entrance for those heading south after an interment. The entrance would have a gate that remains locked at all times and opened by cemetery staff as required for vehicles to exit a funeral.
The Cemetery Board representatives were interested to know when construction would occur.	The project team mentioned that construction was currently scheduled for spring/summer of 2021 pending the acquisition of funding, permits and approvals. The project team added that there would be a Public Information Centre later in the design process to fully

Table 3: Summary of Cemetery Board Stakeholder Information Meeting Comments

Concern	Response
	<p>inform the public of the proposed design and to seek public input.</p> <p><i>Post Meeting Note: The PIC informed stakeholders that construction was anticipated to commence in spring of 2022 pending funding and approvals.</i></p>

2.5.3 Private Stakeholder Meeting – Fine Line Design

The MTO Project Team met with a private stakeholder at various times throughout the Detail Design process. The project team was able to acquire information from the effected stakeholder regarding their concerns and seek input to reach an ultimate solution. The main concern this stakeholder had was conflicts with access to their property caused by the new roundabout configuration and impacts to septic and weeping system during construction. The project team has consulted with this stakeholder to reach a solution to the issues raised and design considerations as well as Construction Operational Constraints have been added to the Contract Package to address relevant issues.

2.6 Indigenous Community Consultation

Engaging Indigenous Communities in project studies (i.e., archaeology, terrestrial, fisheries, etc..) is an important way of acknowledging Indigenous interests in the stewardship of their heritage and traditional territories. Following the recommendations of the final report of the Truth and Reconciliation Commission of Canada (TRC) a number of Supreme Court decisions regarding the Duty to Consult, the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) has required proponents to reach out to local communities to request participation in the review of fieldwork for archaeological assessments (Stage 1 through 4) conducted within their traditional territory.

The MTO Indigenous liaison engaged Indigenous Communities located within the general vicinity of the study area (i.e., Curve Lake First Nation, Alderville First Nation, Mississaugas of Scugog First Nation, Mohawks of the Bay of Quinte, Beausoleil First Nation, Georgina Island First Nation, Chippewas of Rama, Hiawatha First Nation, Williams Treaties First Nations and the Métis Nation of Ontario) to provide opportunity for the review of the Stage 1-4 Archaeological Assessment Reports. Comments from Indigenous Communities noted that they had no comments or concerns with the Stage 1-4 Archaeological Reports as the findings were post-contact. Additionally, the MTO provided opportunity for Indigenous Communities to review and participate in fieldwork in the role of indigenous monitor during Stage 2-4 Assessments, however none chose to participate in the archaeological fieldwork for this project.

2.7 Additional Consultation

During the consultation program carried out for this project, it was noted that the proposed roundabout construction works may have impacts to local residents’ mail and garbage services. As such, the project team consulted with Canada Post regarding customer impacts during construction. Canada Post advised that the mailboxes should be temporarily

relocated for the impacted properties to immediately outside of the construction area and reinstated back to the original location once the road work is complete. As the new road alignment and driveway entrance locations will be altered, the project team confirmed that they will be installed back on the same side of the road and installed in the same location but aligned to the new roadway. An *Operational Constraint – Rural Mailboxes* has been included in the Contract Tender to advise the Contract to coordinate with Canada Post during construction.

The project team also consulted with the Municipality of Centre Hastings regarding impacts to garbage and recycling pick-up for residents within the proposed roundabout construction work area. Centre Hastings agreed that garbage pick-up and recycling locations can be moved outside of the construction area. A *Non- Standard Special Provision (NSSP)- Garbage and Recycling* to notify the Contractor to contact the Manager of Public Works three weeks prior to construction, so the Municipality can advise the impacted residents of the temporary change in garbage and recycling pick-ups.

The above information was communicated to the impacted residents.

2.8 Notice of Completion – Design and Construction Report

The Notice of Completion – Design and Construction Report notification letters were distributed to the MPPs and Indigenous Communities on February 7, 2022, and to the project mailing list on February 8, 2022 . The letters contained information about the Detail Design for the construction of a modern roundabout at the intersection of Highway 62 and Moira/Ridge Road and notified recipients of this DCR being available for a 30-day public review period. In addition, one (1) OGN was placed in the Belleville Community Press on February 10, 2022.

Educational literature, in the form of a brochure on “How to Use Roundabouts”, was mailed out to local residents within the vicinity of the intersection to provide information and tips on how to use roundabouts. The brochure included information on common signs posted at roundabout locations and what they mean, the benefits of roundabouts, rules for roundabouts and information on how to navigate multi-lane roundabouts. Additionally, an instructional video on how to use roundabouts was made available on the project website for the duration of this Class EA study.

Notice of Completion – Design and Construction Report materials, including example letters, contact list, and advertisements, can be found in Appendix A.

3.0 DETAILED DESCRIPTION OF THE RECOMMENDED DESIGN

The purpose of this section is to provide a summary of the major features of the Detail Design and construction staging. Emphasis on the environmental protection/mitigation and environmental monitoring are integral components of the Detail Design, which are incorporated into the Contract Documents that the Contractor is required to follow. Drawings of the Recommended Design are included in Appendix B.

The intersection at Highway 62 and Moira/Ridge Road is currently two-way stop controlled, with the stop control given to the eastbound and westbound approaches (Moira Road/Ridge Road). As mentioned previously, the proposed roundabout configuration at the Highway 62 and Moira/Ridge Road intersection includes a modern single-lane roundabout that is realigned to the west, as outlined in the Preliminary Design Report and TESR (URS, 2014).

3.1 Major Features of the Proposed Work

The proposed works will reconstruct the existing stop-controlled intersection into a single-lane roundabout, with a central island and truck apron. The new modern roundabout will accommodate both tractor trailer combination vehicles and farm equipment, as well as horse and buggy. Reconstruction and realignment of Highway 62 and Moira/Ridge Road near the intersection will also be required to accommodate the new roundabout intersection configuration. The New Construction drawings are included in Appendix B.

3.2 Drainage and Stormwater Management

The existing drainage patterns will be maintained under the proposed conditions, which eventually flow south towards Rawdon Creek. The proposed work for this assignment includes the improvement of Moira Road/Ridge Road and Highway 62 intersection as well as the roadway approaches. These improvements will utilize urban cross-sections complete with curb and gutter systems. Therefore, for the urban cross-sections, a series of storm-sewer systems, strategically placed, are required to manage stormwater runoff and to ensure flow spread is maintained within the shoulders.

In accordance with MTO Standards and Guidelines, the recommended drainage works for the roundabout construction at the intersection of Highway 62 and Moira/Ridge Road (GWP 4060-16-00) are summarized as follows:

- Replacement of eight entrance culverts within the project limits that are impacted by the reconstruction;
- Replacement of two centreline culverts located adjacent to the proposed roundabout;
- Removal and relocation of one centreline culvert to improve drainage patterns and reduce flooding extents;
- Placement of sewer systems and curb outlets along the proposed roundabout;
- Installation of Rip-Rap pads at pipe outlets where erosion is expected.

3.3 Roadside Safety and Signing

All roadside features have been designed to the MTO Roadside Design Manual (2017). As this project involves new construction on new alignments, where applicable, guiderails will be installed.

Due to the proposed intersection improvements at Highway 62 and Moira/Ridge Road, existing signs will be replaced to accommodate the new roundabout intersection design to comply with the Ontario Traffic Manual. As it was determined that Amish and Mennonite communities are located within the Municipality of Centre Hastings and utilize this intersection using horse and buggy transportation, signage will be posted at the new modern roundabout to alert drivers of slow-moving vehicles. French signing is not required under the French Language Services Act.

3.4 Electrical/Illumination

The Highway 62 and Moira/Ridge Road intersection will be converted into a single-lane roundabout. Illumination at the roundabout and along the Highway 62 approaches to the intersection is to be provided. Additionally, illumination at the crossing of the Trail of Two Lakes and Highway 62 will be provided as well, as per the Bikeways Design Manual.

3.5 Entrances

A new entrance connection will be provided from Moira Road to the commercial property (Fine Line Design) in the northeast quadrant of the Highway 62 and Moira/Ridge Road intersection. The existing entrance on Highway 62 and Moira Road to commercial property (Fine Line Design) in the northeast quadrant of Highway 62 and Moira/Ridge Road intersection will be closed.

Additionally, entrances of four (4) residential properties and one (1) community facility (i.e., Luke's Cemetery) will be extended or modified to tie into the ultimate improvements on Highway 62.

All construction activities will be carried out in such a manner that access to side roads, driveways, and commercial/private entrances will be maintained at all times.

3.6 Intersections

A single-lane roundabout will be constructed at the Highway 62 and Moira/Ridge Road intersection. Each of the four legs will have one approaching and one departing lane.

3.7 Active Transportation Infrastructure

No active transportation infrastructure is applicable to this project.

3.8 Utilities and Pipelines

The following utilities requiring relocation are located within or adjacent to the Highway 62 right-of-way:

- Bell Canada – Utility poles are located on the east side of Highway 62 and at the Moira/Ridge Road intersection;
- Hydro One – Utilities located along the west side of Highway 62, and
- Enbridge Gas - 6" high-pressure gas line located in the northwest quadrant of Highway 62 and Moira/Ridge Road intersection.

3.9 Construction Staging

The reconstruction of the intersection at Highway 62 and Moira/Ridge Road from a typical four leg intersection to a roundabout will involve active flagging at each of the approaches. Flagging operations will be used to control the one-lane two-way traffic. A minimum lane width of 3.5 m will be provided during flagging operations. Staging for the construction of the roundabout will be completed in the following stages:

Stage 1:

- The construction work will involve short term closures, however this stage is expected to have no impacts on the existing traffic operations at and within the vicinity of the intersection.
- Construction will be required on the west side of Highway 62 from south of the intersection and extending north of the intersection. Additionally, work will be completed on both the north and south side of ridge road.
- Short term closures on the east side of Highway 62 until the intersection of Moira/Ridge Road, as well as on the south side of Moira Road, east of the intersection is complete.

Stage 2:

- Long duration flagged single lane closure westerly along Ridge Road and from the intersection of Highway 62 and Moira/Ridge Road for approximately 275 m.

Stage 3:

- Long duration flagged single lane closure along Highway 62 south of Moira/Ridge Road for approximately 150 m.

Stage 4:

- Long duration flagged single lane closure along Highway 62 north of Moira/Ridge Road for approximately 200 m.

Stage 5:

- Long duration flagged single lane closure easterly along Moira Road from the intersection of Highway 62 and Moira/Ridge Road for approximately 170 m.

Stage 6:

- Involves the construction of medians at the approaches as well as a round median at the centre of the intersection. No lane closures are expected and therefore, this stage is not expected to have an impact on the traffic operations.

4.0 ENVIRONMENTAL CONDITIONS, ISSUES AND COMMITMENTS

This section presents an overview of the existing conditions, environmental concerns and potential impacts to the natural, socio-economic, and cultural environments associated with the project. To mitigate the potential impacts on the natural, socio-economic, and cultural environments, the Contractor is responsible for implementing the requirements of referenced Special Provisions (SP), Non-Standard Special Provisions (NSSP), and Ontario Provincial Standard Specifications (OPSS) prescribed in the Contract Documents. In general, the Contractor is responsible for the protection of people, property and the natural environment from adverse impacts and damage that may result from this contract, in accordance with Operational Constraint – Environmental Protection Requirements – General. Table 5 provides a Summary of the Environmental Concerns and Commitments that are described below.

4.1 Natural Environment

During Preliminary Design, the MTO's service provider conducted a Terrestrial Ecosystems Existing Environmental Conditions and Impact Assessment Report (SLR Global Environmental Solutions, September, 2014) that included both the Highway 62 intersection at Moira/Ridge Road, and the Highway 62 Rawdon Creek Structure.

During Detail Design, McIntosh Perry conducted field investigations during the 2019 and 2020 field seasons, collecting data related to existing natural environmental conditions throughout the study area. The investigations included identification of the following, where applicable:

- Existing vegetation communities;
- Existing wetland areas;
- Observations of SAR and their habitat (including suitable habitat);
- Resident or migrant bird and wildlife species;
- Wildlife corridors;
- Significant habitat areas or vegetation communities, and
- Current land uses surrounding the study area.

Refer to the *Terrestrial Ecosystems Existing Conditions and Impact Assessment Report*, WP 4028-05-01, prepared by McIntosh Perry (2020) for further detailed information on the below.

The following sections describe the potential impacts to the natural environment associated with the project works. A summary of mitigation measures is provided in Table 5.

4.1.1 Aquatic Habitat and Fish Communities

During Preliminary Design, it was determined that there is no fish habitat located within the vicinity of the Highway 62 and Moira/Ridge Road intersection. The only drainage feature observed aside from the roadway ditches in the vicinity of the intersection study area was a southward draining agricultural surface feature from an actively cultivated field located northwest of the intersection. There are no identified sensitivities for this ephemeral agricultural drainage.

4.1.2 Vegetation and Vegetation Communities

The study area vegetation is dominated by agricultural fields and sparse cultural vegetation. The agricultural land use adjacent to the intersection of Highway 62 and Moira/Ridge Road study area includes fields used by grazing dairy cattle, soybean fields, and hayfields. The reconfiguration of the intersection and construction of the proposed roundabout required property acquisition for a portion of the adjacent farm property within the northwest quadrant of the study area. The portion, which has been procured by the MTO, was previously actively farmed with rotating crop cultivation, and therefore, is considered to be heavily influenced by human activities and contains a range of native and non-native herbaceous vegetation species. Commercial and residential properties are located northeast of the intersection which contain manicured lawns and sparse woody vegetation. No rare vegetation communities or vegetation species at risk (SAR) were observed in association with the study area during any of the field investigations.

Lands adjacent to the Highway 62 and Moira/Ridge Road travel corridor consist of a variety of vegetative communities. Based on Ecological Land Classification (ELC) vegetation types, vegetation communities were identified through field review and satellite image interpretation within, and adjacent to, the study area. Figure 2 illustrates the vegetation communities and ELC vegetation types identified within the study area.

The project will result in some permanent disturbance of vegetation and vegetation communities within ELC communities identified as agricultural lands and residential/commercial (for the construction of a new entrance to residential property 10134 Highway 62) and temporary disturbance of ROW herbaceous vegetation. These areas are heavily influenced by human activity and contain a range of native and non-native vegetation species. No impacts to SAR plant species are anticipated, as none were identified.

A Landscape Planting Plan has been developed for stabilization of disturbed areas during construction and has been included in the Contract Documents. Refer to Section 4.1.3 below, for more information.

4.1.2.1 Invasive and Noxious Plant Species

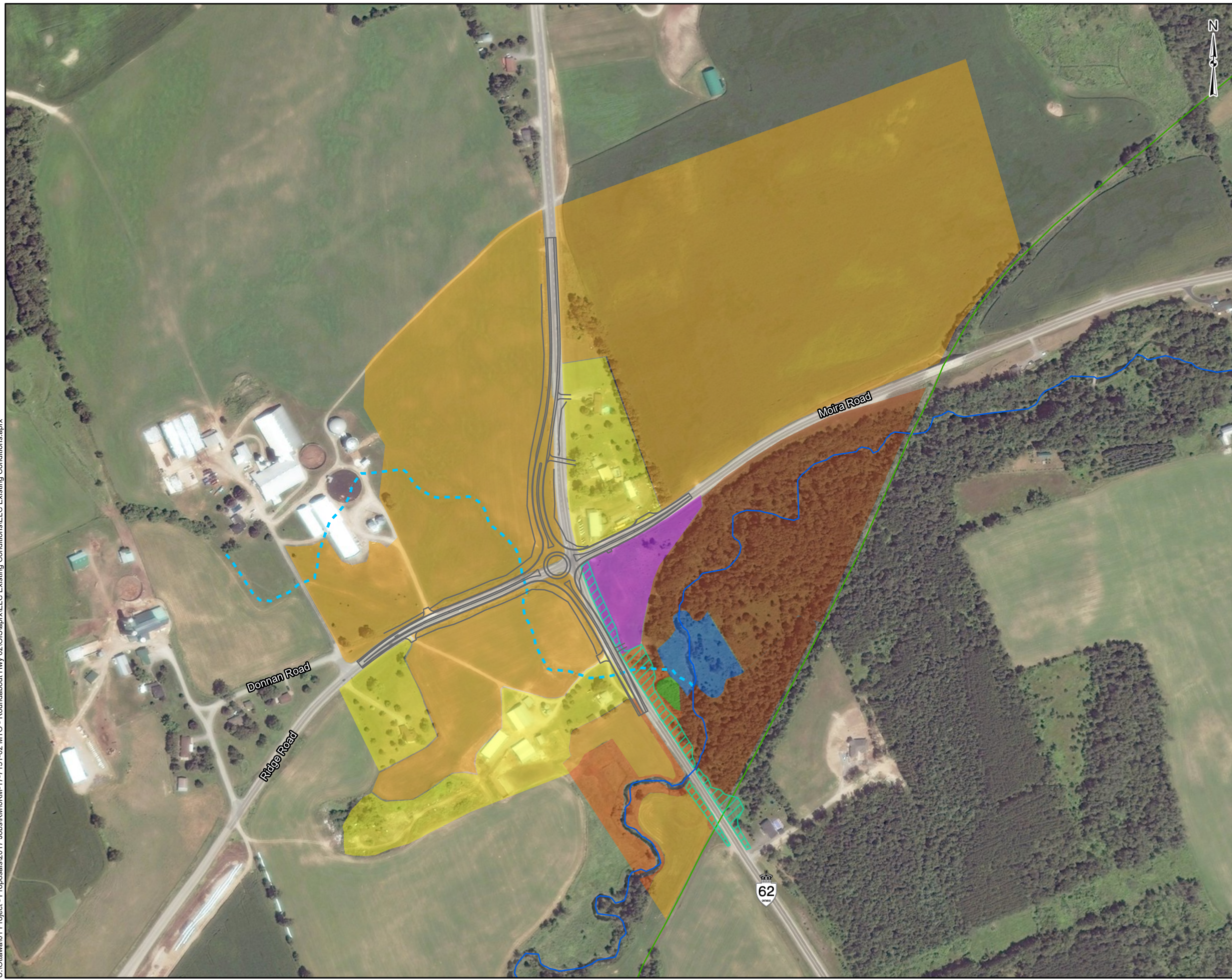
Invasive species of plants are listed in *Table 2* (prohibited invasive species) and *Table 4* (restrictive invasive species) of the *Invasive Species Act* (2015). Noxious plant species are listed in the Noxious Weeds Table under the *Weed Control Act* (1990). In general, invasive, and noxious vegetation should be controlled to avoid spreading.

No species classified as *invasive* plant species under the *Invasive Species Act* (2015) were observed within the Highway 62 intersection at Moira/Ridge Road study area. However, six (6) plant species designated as *noxious* were observed within the study area including: wild parsnip (*Pastinaca sativa*), bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), coltsfoot (*Tussilago farfara*), common ragweed (*Ambrosia artemisiifolia*), and European buckthorn (*Rhamnus cathartica*).

Of the noxious weeds, a concentrated area of wild parsnip exists within the study area, particularly along the southeast side of Highway 62 (as shown in Figure 2). As construction disturbance is anticipated in these areas, the Contractor will be responsible for control of the spread and removal of wild parsnip during construction.

It should be noted that the exact location of other invasive and/or noxious plants within the study area have not been mapped due to the small size of area or limited number of individuals of each species (i.e., no stands of the species but rather sporadic occurrence of individuals).

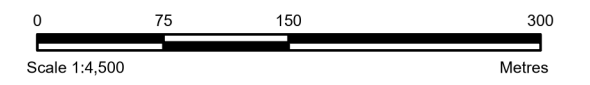
U:\Ottawa\01 Project - Proposals\2017 Jobs\KM\00KM-17-7131-02 MTO - Roundabout Hwy 62\GIS\aprx\ELC Existing Conditions.aprx



LEGEND

- Cemetery
- RES/COM: Residential/Commercial
- AG: Agricultural Lands
- CUP3-1: Managed Red Pine / Coniferous Plantation Type
- FOD4: Dry-Fresh Upland / Deciduous Forest Ecosite
- MAM: Mineral Meadow Marsh
- MEM: Mixed Meadow
- Wild Parsnip
- Intermittent Agricultural Drainage
- Watercourse
- Trail of Two Lakes
- Proposed Roundabout Study Area
- Road

REFERENCE
 GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2020.



CLIENT: MINISTRY OF TRANSPORTATION EASTERN REGION	
PROJECT: HIGHWAY 62 ROUNDABOUT MOIRA/RIDGE ROAD	
TITLE: ELC COMMUNITIES	
McINTOSH PERRY	PROJECT NO: KM-17-7131-02
115 Walgreen Road, RR3, Carp, ON K0A1L0 Tel: 613-836-2184 Fax: 613-836-3742 www.mcintoshperry.com	FIGURE: 3
Date: Apr., 06, 2020	
Checked By: SP	
GIS: EU	

4.1.3 Landscape Composition

Developed in conjunction with the highway design and staging plans, a Landscape Planting Plan aims to address the need for stabilization of disturbed areas due to construction through revegetation. CSW Landscape Architects Ltd. (CSW) prepared a series of landscape plans that are designed to integrate the roundabout infrastructure within the study area landscape, to minimize the environmental and visual impact of construction. (Appendix B, Recommended Design Drawing).

4.1.4 Wildlife

Migratory birds are known to nest within vegetation present within the study area. Timing windows allow vegetation removal activities to avoid periods when birds are actively nesting. The period when a bird is actively nesting is considered its most critical life stage as many species are highly dependent on habitat around their nest sites to supply food for nesting and to conceal their nest, eggs, and young. Vegetation removal activities will be planned to avoid the migratory bird timing window of April 15 to September 5 (i.e., the period when most birds are anticipated to be actively nesting) in any calendar year, for the intersection of Highway 62 and Moira/Ridge Road. The study area contains a variety of habitat types, and it is important to note that this timing window will be applied to all vegetation removals as ground nesting species may also be present within the work area associated with this project. Should vegetation clearing (i.e., clearing, grubbing, or close-cut clearing) be required during the timing restriction, a screening of the study area for the presence of migratory birds or their nests should be undertaken by a qualified avian biologist, prior to disturbance or removal of vegetation during the bird nesting window.

4.1.5 Erosion and Sediment Control

Existing environmental conditions within the study area mainly consist of vegetated areas with a variety of soil types over variable topography. Construction activities required to complete the project work will disturb areas that are currently stable under normal conditions. In order to mitigate concerns related to erosion and sedimentation, erosion and sediment control (ESC) measures are included in the Contract Drawings. ESC is a multi-layered approach that includes several temporary and permanent components across the site, which may include (but not limited to):

- Light and heavy-duty sediment fence;
- Light-duty fibre roll;
- Rock and straw bale flow check dams;
- Rip rap spillway protection;
- Rip rap ditchline protection, and
- Rip rap/waterbody material culvert inlet and outlet protection.

Temporary ESC measures will be maintained by the Contractor and kept in place until 100% of all work has been completed and stabilized. Temporary control measures shall be removed at the completion of the work, but not until permanent erosion control measures, if required, as specified in the contract, have been established.

4.1.6 Wetland Communities

No evaluated, or unevaluated wetlands were identified within the study area. However, one provincially significant wetland (PSW), the Rawdon Creek Wetland Complex, was identified approximately 660 m southwest of the intersection, and several small unevaluated wetlands are located approximately 160 m southwest of the intersection within a forested area.

Mitigation measures (i.e., temporary ESC measures) will be implemented to control the release of water and/or sediment during construction to prevent negative impacts to the identified wetland areas outside of the study area.

4.1.7 Species At Risk

Background data collection identified the potential presence of several terrestrial SAR (i.e., birds, mammals, insects, amphibians, snakes, lizards, turtles, and plants) within the study area. During the 2019 field investigations, habitat found within the intersection of Highway 62 and Moira/Ridge Road study area appeared suitable for the life processes of avian grassland SAR species (i.e., Eastern Meadowlark and Bobolink). McIntosh Perry conducted targeted surveys for grassland avian SAR; however, neither species was observed at any point during these investigations, or during investigations undertaken during Preliminary Design.

Only one (1) SAR, Barn Swallow (*Hirundo rustica*) was observed within the study area during McIntosh Perry's field investigations. The Barn Swallow is listed as 'Threatened' under the *Endangered Species Act* (ESA), 2007 and under the *Species at Risk Act* (SARA), 2002. An individual Barn Swallow was observed foraging within the study area during the 2019 field investigations conducted by McIntosh Perry. A barn on the farm property located in the southwest quadrant of the intersection study area, appeared suitable for Barn Swallow nesting, and it is assumed that this location was the nesting site of the individual that was observed.

As per the MNR's Barn Swallow General Habitat Description, the agricultural fields located adjacent to the intersection (i.e., southwest and northwest quadrants) provide Category 3 habitat for Barn Swallow, which extends into the proposed roundabout construction area. Category 3 Barn Swallow Habitat includes area between 5 m to 200 m from the nest, therefore, a 200 m buffer around the assumed nesting site (i.e., barn located in the southwest quadrant of the intersection) was delineated. It was determined that there is 125,664 m² of total available Category 3 habitat, and that 2,124 m² is within the proposed roundabout construction area (i.e., 1.69% habitat loss).

As per the MNR's Barn Swallow General Habitat Description, this species depends on Category 3 habitat for various life processes such as rearing, feeding, and resting, however, it is considered to be highly tolerant to alteration. Activities in general habitat may continue as long as the function of the area is maintained for the species' life processes, and as long as large tracts of suitable habitat is not developed. McIntosh Perry determined that due to the small footprint of the disturbed area (i.e., 1.69%) within Category 3 habitat, compared to adjacent available habitat, the proposed roundabout construction is considered to have very minor impacts, which are not anticipated to affect the function of the habitat for supporting this species' life processes or result in large tracts of suitable habitat being developed. Furthermore, the type of habitat in question (agricultural field) is widely available within the general vicinity of the study area, and within Ontario, and has been categorized as moderately tolerant.

4.1.8 Physiography, Bedrock and Soils

Topography in the Highway 62 study area is located within the Peterborough Drumlin Field physiographic region, which is characterized by highly calcareous till with local differences (Chapman & Putnam, 1984). The Peterborough Drumlin Field is also notable for its eskers that consist of gravel ridges. A medium-sized esker is present between Stirling and West Huntingdon along Moira/Ridge Road. In general, quaternary deposits within the study area consist of clay (with pockets of sand and gravel) and sand deposits of the glaciolustrine origin to a depth greater than 30.6 mbg (meters below ground). A layer of fill soil was observed above the sand deposit and/or limestone bedrock in the vicinity of the norther study area limit. The sand deposit within the study area was found to be thick with a maximum thickness of 17.4 m and the sand layer is present throughout the study area. The sand deposit is exposed at the ground surface in the vicinity of the Highway 62 and Moira/Ridge Road intersection. According to the geological data collection from two boreholes drilled in the vicinity of the Rawdon Creek structure (Golder, March 2013), a sandy overburden soil is underlain by limestone bedrock.

4.1.9 Surface Water

The Highway 62 and Moira/Ridge Road intersection is within the Rawdon Creek sub watershed and is drained by Rawdon Creek. The watershed is primarily agricultural lands with some scattered rural residential development and urban development. Hydrologic and hydraulic analyses were performed for the study area based on design criteria and guidelines detailed in a variety of MTO and other relevant standards documents. The proposed intersection improvements will result in an insignificant change in the total drainage area for Rawdon Creek. The designs of the new highway drainage features were completed to meet the minimum requirements of the MTO Drainage Management Manual and Highway Drainage Design Standards. The drainage strategy considered the need for flood mitigation, pavement drainage, water quality treatment and erosion protection, using acceptable methods to meet the design objectives and requirements.

4.1.10 Groundwater

During the field investigations in 2019, no evidence of groundwater seeps were identified within the study area. Well-water records were obtained from the MECP Well Records. A review identified a total of six (6) wells within the study area; four (4) of which are domestic/commercial water supply. No municipal groundwater supply wells are located within or in the vicinity of the study area.

Although construction dewatering may be required to ensure that the work areas remain dry, there are no anticipated impacts to groundwater resources as result of the proposed works.

4.1.11 Climate Change

The MECP recently finalized a 'guide' for the Considerations of Climate Change in Environmental Assessments In Ontario (November 2017), which together with their code of practices sets the MECP's expectations for considering climate change in the preparation, execution, and documentation of environmental assessment studies and processes.

The MTO has considered climate change in the detail design study and determined that the preferred design will have negligible impacts on the generation of greenhouse gasses and no impacts on carbon sinks.

4.2 Socio-Economic Environment

A thorough review of the socio-economic environment within the study area was conducted during Detail Design. The existing conditions outlined in the Preliminary Design Report and TESR were examined and are generally consistent with current conditions. Potential socio-economic impacts of the proposed work to the study area are restricted to the Highway 62, Moira Road, and Ridge Road ROW, adjacent land uses, and staging areas.

The following sections describe the potential impacts to the socio-economic environment associated with the project works. A summary of mitigation measures is provided in Table 5.

4.2.1 Land Use

The study area is located within the Municipality of Centre Hastings, Hastings County, Geographic Township of Huntingdon. The intersection of Highway 62 and Moira/Ridge Road forms the small rural hamlet known as West Huntingdon Station, which consists of agricultural, rural residential, highway commercial, community facility and environmentally protected properties, as per the County of Hastings Municipal Zoning Interactive Mapping shown in Figure 3.

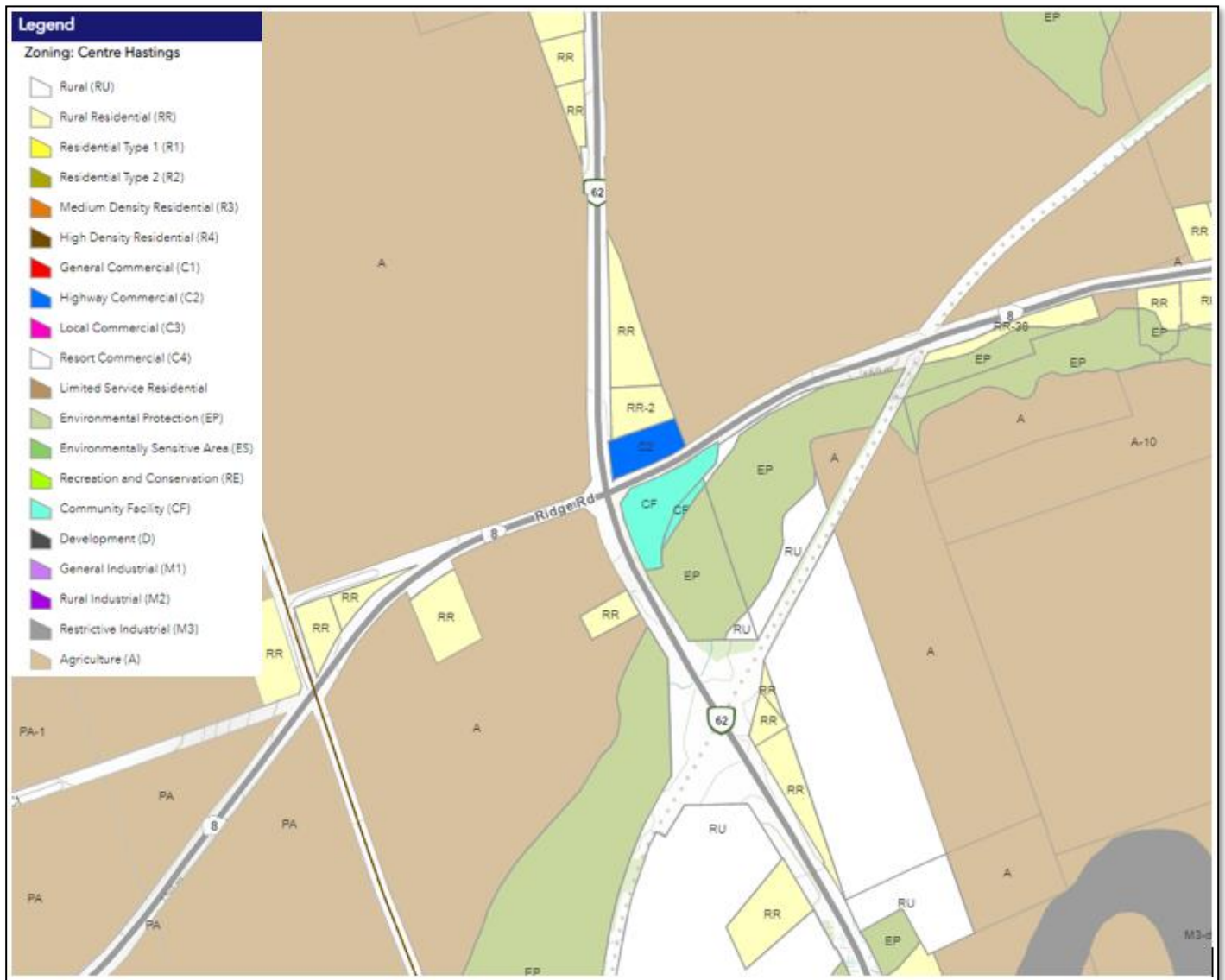


Figure 3: County of Hastings Municipal Zoning within the Intersection of Highway 62 and Moira/Ridge Study Area

Agricultural lands and pasture lands for livestock represent the largest land uses within the study area and is a major economic factor within and surrounding the study area. One (1) highway commercial property, Fine Line Design, is located in the northeast quadrant of the study area, and one (1) community facility, Luke’s Cemetery is located within the southeast quadrant of the study area.

The construction of the new roundabout at the intersection of Highway 62 and Moira/Ridge Road will require eight (8) private entrance impacts, on six (6) private properties from the proposed work (i.e., new or reconstructed). All entrances impacted by the new roundabout configuration will be reconstructed. Properties with entrances to be removed and closed will receive new entrances. Figure 4 below shows the location and proposed property impacts. All mail delivery

and garbage pickup will continue for these properties throughout construction, and any mailboxes impacted by construction will be reinstalled in their present location or relocated as necessary.



Figure 4: Intersection of Highway 62 and Moira/Ridge Road Property Entrance Impacts

During Preliminary Design, property acquisitions were required from properties in the northwest and southwest quadrants of the study area for the new modern roundabout configuration and realignment of approaches. With the exception of the MTO acquired property, land uses within the study area will not be impacted due to the project work.

4.2.2 Designated areas

The Trail of Two Lakes crosses approximately 0.36 km south of the intersection of Highway 62 and Moira/Ridge Road. The trail is a 22 km municipal trail providing access for pedestrians, cyclists, and recreational vehicles (ATV's and snowmobiles). The Tweed Snow Scooters Snow Club, part of the Ontario Federation of Snowmobile Clubs (OFSC) District 3 also utilizes this trail as a feeder trail. The project is not anticipated to impact the trail or trail users. Illumination at the intersection of the Trail of Two Lakes and Highway 62 will be provided during the construction of this project.

4.2.3 Municipal Services and Traffic Operations

Highway 62, within the project limits is a rural undivided highway with a posted speed limit of 80 km/h. Within the project limits, Highway 62 has a rural surrounding with the main traffic generators expected to be commuters. MTO has classified this segment of Highway 62 as having 'Commuter' traffic pattern north of Moira/Ridge Road and an 'Urban Commuter' traffic pattern south of Moira/Ridge Road. Within the project limits, Highway 62 consists of two lanes (i.e., one traveling in each direction).

Ridge Road is an approximately 7 km municipal roadway that runs east-west starting at Sutherland Road and ending at Highway 62. The roadway provides access to farm and residential properties. Ridge Road has a posted speed limit of 80 km/h within the vicinity of Highway 62.

Moira Road is an approximately 12 km municipal roadway that runs east-west starting at Highway 62 and ending at Highway 37 in the east. The roadway provides access to farm and residential properties. Moira Road has a posted speed limit of 80 km/h within the vicinity of Highway 62.

Amish and Mennonite communities have been established within the Municipality of Centre Hastings and use Highway 62 as a travel route. Signs are posted along Highway 62, Moira Road, and Ridge Road indicating that the use of horse and buggy transportation is present within and surrounding the study area. The new modern roundabout configuration, proposed for the intersection of Highway 62 and Moira/Ridge Road, has been designed to accommodate horse and buggy transportation, and additional signage will be installed to alert traffic to possible slow-moving vehicles.

4.2.4 Construction Staging

In order to complete the planned work for this project, construction staging is required and has been broken down into six (6) stages expected to last one (1) construction season. Highway 62 and Moira/Ridge Road staging will be completed such that:

- Traffic is restored to one (1) lane in each direction prior to daily shutdown;
- All side roads, commercial, and private entrances are always accessible;
- Accessibility for farm machinery and horse and buggy traffic will be maintained throughout construction;
- No work will be conducted during weekends (Saturday and Sunday) or on statutory holidays;
- Nighttime construction work will be required;
- When lane closures are required, traffic management shall be provided with one lane two-way traffic movements controlled by a traffic control persons (TCPs), and
- Lane widths of no less than 3.5 m and offsets between traffic and temporary concrete barrier of no less than 0.5 m must be maintained at all times during construction staging.

Impacts on Highway 62, Moira Road and Ridge Road are expected to be moderate during construction staging. Some work will be preformed overnight to avoid higher volume traffic during the day.

Impacts associated with traffic disruptions include emergency service response time, student transportation services, and local traffic/commuters. The construction staging plans have been discussed with the affected emergency service providers, the student transportation consortium, and the Municipality. The Contractor will be required to notify the

emergency services, the student transportation consortium, and the Municipality of Centre Hastings a minimum of two weeks in advance of construction start, and a minimum of two days (48hrs) in advance of any lane closures. The Contractor will also be required to notify adjacent landowners at least two weeks in advance of construction start regarding the construction schedule. Additionally, Portable Variable Message Signs (PVMS) will be used to provide up-to-date information to drivers regarding construction works, and temporary advance notification signs will be used to provide drivers with advance notification of lane closures.

4.2.5 Construction Noise

Unlike operational traffic noise, the MTO does not establish a quantitative threshold noise level to establish construction noise impacts. However, in accordance with MTO policy, construction noise produced by the Contractor’s operations shall be mitigated as shown in Table 4.

Table 4: Construction Noise Constraints	
Constraint	Constraint Details
Equipment Maintenance	Equipment shall be maintained in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts.
Equipment Operation	Idling of equipment shall be restricted to the minimum necessary to perform the specified work.

4.2.6 Contamination and Waste Management

A Contamination Overview Study was undertaken as part of the Preliminary Design Study (URS, 2013) to identify environmental site contamination within the study area. The study did not reveal any evidence of actual environmental site contamination within the study area, and no properties were identified as having high potential for contamination.

Additionally, during the Preliminary Design, a Designated Substances Survey (DSS) was completed by URS to determine the possible presence of the eleven (11) designated substances identified by Ontario Regulation 490/09 under the *Occupational Health and Safety Act*, including:

- Acrylonitrile
- Arsenic
- Asbestos
- Benzene
- Coke Oven Emissions
- Ethylene Oxide
- Isocyanates
- Lead
- Mercury
- Silica
- Vinyl Chloride

A collection of samples were taken within the study area and submitted for analytical testing to determine the presence of designated substances within the construction work area. Of the designated substances listed above, Silica was identified as being present throughout the working area including, but not limited to, asphalt, concrete, and granular materials. No other designated substances were confirmed within the study area during the DSS. All other designated

substances are either not likely to be present in the study area or have been polymerized into a form which would no longer be considered as a designated substance. The Contractor will be advised of the presence of designated substances within the study area and will be responsible for taking any necessary precautions during construction.

4.2.7 Air Quality

The MTO has a methodology for assessing local air quality impact, which is set out in the Environmental Guide for Assessing and Mitigating the Air Quality Impacts and Greenhouse Gas Emissions of Provincial Transportation Projects (AQ Guide) (MTO, 2012). During the preliminary design study the Highway 62 intersection study area was analyzed under the AQ Guide. The study determined that proposed work at the intersection would have negligible impacts to air quality and no design changes were recommended.

The project work generally has the potential to create dust due of construction activities. Dust suppressants will be required to be used by the contractor during construction to ensure dust is kept to a minimum.

4.2.8 Utilities

It is the Contractor's responsibility as 'Constructor' under the *Occupational Health and Safety Act* to coordinate the activities of all employees and subcontractors and work operations within the contract limits to ensure that the requirements of the *Occupational Health and Safety Act* are satisfied.

The Tender documents advise the Contractor that there are existing utilities within the project limits owned by Bell Canada, Hydro One, and Union Gas. It is the Contractor's responsibility to liaise with appropriate utility companies/authorities to confirm the exact nature, extent, and number of the existing utilities. The Contractor shall be responsible for the protection of all utilities during construction operations. The Contractor shall exercise due care so as to not cause any detrimental effects to these utilities. Any damages to these utilities shall be immediately reported to the Contract Administrator and the affected utility owner. Any repairs to damaged utilities shall be the responsibility of the Contractor at no additional cost to MTO.

4.3 Cultural Environment

4.3.1 Archaeology

During the Preliminary Design Study, a Stage 1 Archaeological Assessment Report was prepared to document archaeological potential within the greater study area including the replacement of the Rawdon Creek Bridge and intersection of Highway 62 and Moira/Ridge Road (URS, 2013). The results from the assessments suggested that the majority of the study area is undisturbed and therefore contains archaeological potential. Background research indicated that two historic transportation routes (i.e., Highway 62 and Moira/Ridge Road), a historical settlement (i.e., West Huntingdon Station) and a possible Aboriginal trail are all present within the study area.

As such, McIntosh Perry retained the services of Past Recovery Archaeological Services Inc. (Past Recovery) to review and complete Stage 2, 3 & 4 Archaeological Assessment for areas that may be impacted by the intersection construction to determine if there are any areas of archaeological interest/importance (Past Recovery, 2020). The results from the Stage 2 assessment discovered the location of mid-nineteenth century rural farmstead occupied by the Haggerty family from at least c. 1860 to 1867, referred to as the "Haggerty Site". Testing was conducted by means of shovel test pit surveys and

pedestrian survey at five-meter intervals which resulted in the identification of 271 post-Contact-Euro-Canadian artifacts dating to the mid-nineteenth century. The site meets criteria set by the Ministry of Sport, Tourism and Culture Industries (MHSTCI) for archaeological sites requiring registration with the *Ontario Archaeological Sites Database*, and accordingly, have been registered with the number BcGi-10. In addition, the site meets criteria set by MHSTCI for archaeological sites requiring Stage 3 site-specific archeological assessment.

The Stage 3 assessment determined that the Haggerty Site within the new MTO right-of-way and the accompanying historical research retains cultural heritage value or interest and that the site meets Standards 3.4.2.1a, which applies to determining the cultural heritage value or interest of domestic Euro-Canadian archeological sites that post-date 1830 (MHSTCI 2011:59). The Stage 3 recommended Stage 4 Archaeological Assessment for the Haggerty Site in compliance with *Standards and Guidelines for Consultant Archaeologists* (MHSTCI, 2011).

The Stage 4 Archaeological Assessment completed by Past Recovery (Past Recovery, 2021) included extensive hand excavation over the core of the Haggerty Site within the new proposed MTO right-of-way, mechanical topsoil removal across the remaining portions of the site in this area, the recovery of artifacts, and the documentation of cultural features and soil stratigraphy. Several features of archaeological significance related to the occupation of the site by the Haggerty family from c. 1860 to 1867 were fully excavated and recorded. These included a wood-lined cellar pit, a slightly smaller stone-lined cellar pit, an area of burnt subsoil and a small unidentified pit. The Stage 4 mitigative excavation of the portion of the Haggerty Site lying within the newly acquired MTO ROW that will be impacted by the roundabout construction were completed and no further archaeological concerns remain for this area.

Archaeological concerns remain for any portion of the Haggerty Site which may lie immediately west of the new Highway 62 right-of-way, on privately owned property. However, no impacts are anticipated as the Contractors work will be restricted to the Stage 4 mitigative excavation area through avoidance and protection constraints. The avoidance and protection constraints include fencing off the areas outside the Stage 4 mitigative excavation area, and photographs of the area before, during and after construction to ensure that the remaining portion of the Haggerty site was protected.

4.3.2 Built Heritage and Cultural Heritage Landscape

During Preliminary Design a Built Heritage and Cultural Heritage Landscape Assessment was prepared by URS (URS, 2013b) to assess the cultural heritage landscapes and built heritage resources for the study area.

URS determined that a historical municipal cemetery (Luke's Cemetery) is located within the southeast quadrant of the intersection. Luke's Cemetery is a significant local Cultural Heritage Landscape and serves as a marker and memorial to the families who established the farming economy in the area in the early 19th century. The construction of the new modern roundabout at the intersection of Highway 62 and Moira/Ridge Road will require removal of an existing entrance to the cemetery that is in conflict with the new roundabout configuration, and a new cemetery access will be provided. The proposed improvements to the intersection do not pose a negative impact to the Luke's Cemetery Cultural Heritage Landscape.

Insufficient resources remain to express the former character of the crossroads hamlet of West Huntingdon Station. The character of the cultural heritage landscape is now representative of the typical mid-20th century rural pattern after the rise of private automotive transportation caused most crossroad communities to dwindle, as people were able to go to town to meet a wider range of needs. This cultural heritage landscape may have significance for the Municipality of Centre

Wellington, however the proposed improvements to the intersection do not pose a negative impact its character at this time.

4.4 Summary of Environmental Concerns and Commitments

The environmental protection/mitigation measures identified in the DCR have been incorporated into the contract package to address potential environmental effects resulting from this project. Areas of environmental sensitivity or concern, the sources of those concerns, and the mitigation measures associated with the undertaking are described in Table 5:.

Table 5: Summary of Environmental Concerns and Commitments

ID #	Issues/Concerns/Potential Affects	Concerned Agencies	ID #	Mitigation/Protection/Monitoring
1.0 Natural Environment				
1.1	Construction, staging areas, and access routes will result in the disturbance of vegetation.	MNDMNRF Ministry of Environment, Conservation and Parks (MECP) Environment Canada (EC)	1.1.1	Vegetation removals and disturbance of vegetation should be minimized wherever operationally feasible. Removal of vegetation must be completed in accordance with <i>OPSS 182 – General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks</i> .
			1.1.2	Existing trees must be protected during construction through delineation of areas off-limits to construction activities as per <i>OPSS 801 – Construction Specification for the Protection of Trees</i> .
			1.1.3	Areas that have been disturbed shall be restored to their pre-construction condition, or better and areas of exposed soils shall be revegetated as soon as possible following disturbance as per <i>OPSS 804 – Construction Specification for Seed and Cover</i> and <i>OPSS 802 – Construction Specification for Topsoil</i> . A Landscape Planting Plan has been developed and included in the Contract Documents.
1.2	Invasive and noxious vegetation can be spread through the study area during construction works.	MECP MNDMNRF	1.2.1	The provisions of <i>OPSS 803</i> , which apply to the <i>Control and Spread of Invasive Species and Noxious Vegetation (803.07.01.01)</i> , shall be applied to the project works.
			1.2.2	Given the large stand of wild parsnip within and adjacent to the study area, mechanical or chemical control of the species within the Highway 62 ROW shall be carried out in accordance with <i>Special Provisions No. ENVR0011 – Invasive and Noxious Vegetation Spraying</i> and <i>Special Provision – Invasive and Noxious Vegetation Disposal</i> , which has been included in the Contract Documents
1.3	Construction activities, including excavation, grading, roundabout construction, and associated vegetation removal, have the potential to disturb wildlife and bird habitat such as nesting and foraging habitat.	Ministry of Northern Development, Mines, Natural Resources and Forestry (MNDMNRF) EC	1.3.1	Vegetation clearing during the breeding bird-window (April 15 to September 5) shall not occur in order to prevent disturbance of migratory birds. Should vegetation clearing (i.e., clearing, grubbing, or close-cut clearing) be required during the timing restriction, a screening of the study area for the presence of migratory birds or their nests should be undertaken by a qualified avian biologist, prior to disturbance or removal of vegetation during the bird nesting window. If migratory birds or their nests are encountered at any time of the year, all requirements of <i>Operational Constraint (Environmental) – Migratory Bird Protection – General</i> shall be followed, and work should not continue in the location of the nest until: <ul style="list-style-type: none"> • After it has been determined by an avian specialist that the young have fledged and vacated the nest and work area; or • An avian specialist determines a suitable buffer distance at which work may continue to prevent disturbance of the bird(s); and <p>Where an appropriate buffer distance has been implemented, an avian specialist must undertake monitoring during construction to ensure migratory birds and their eggs are not disturbed, destroyed, or taken.</p>

Table 5: Summary of Environmental Concerns and Commitments

ID #	Issues/Concerns/Potential Affects	Concerned Agencies	ID #	Mitigation/Protection/Monitoring
2.0 Erosion and Sediment Control				
2.1	Disturbance of existing vegetation and general grading works in the project area has the potential for erosion and sedimentation concerns due to soil types, slopes, and sensitive receptors (drainage ditchlines).	MNDMNRF MECP DFO	2.1.1	Removal or disturbance of vegetation shall be minimized during construction operations in order to prevent unnecessary loss of ground cover and stability, as per <i>OPSS 182 – General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks</i> .
			2.1.2	In order to prevent the entrainment of sediment in drainage ditches, leading into watercourses/wetlands outside of the study area, the Contractor shall install erosion and sediment control measures appropriate to the site conditions, in locations outlined in the Contract Drawings, as per <i>OPSS 805 – Construction Specification for Temporary Sediment Control</i> , <i>OPSS 804 – Construction Specification for Temporary Erosion Control</i> and <i>Special Provision ENVR0015 – Requirements For Temporary Erosion Control Measures in Temporary Erosion Control Areas (Teca)</i> .
			2.1.3	If areas are exposed, all areas should be protected to limit the time that such areas are exposed prior to final application of topsoil and seed. The Contractor shall apply topsoil and seed as per <i>OPSS 803 – Construction Specification for Vegetation Cover</i> and <i>OPSS 802 – Construction Specification for Topsoil</i> .
			2.1.4	<i>Operational Constraint (Environmental) – Erosion and Sedimentation Control</i> has been included in the Contract Tender to notify the Contractor of their responsibilities to install, inspect, maintain and removal ESC measures, as specified, during construction.
			2.1.5	The Erosion and Sediment Control measures has been included in the Contract Drawings.
3.0 Species at Risk				
3.1	Species at Risk (SAR) may be encountered during construction, which may have impacts on the individual species or their habitat.	MECP	3.1.1	As per <i>Operational Constraint (Environmental) – Protection of Species at Risk (ENVR0007)</i> , if the Contractor encounters SAR within the working area that are likely to be impacted by the Contractor’s operations: <ul style="list-style-type: none"> The Contractor shall immediately notify the Contract Administrator and suspend operations within the area identified by the Contract Administrator, and Work shall remain suspended within that area until otherwise directed by the Contract Administrator in writing.
			3.1.2	The Contractor must provide fact sheets and identification training to all onsite personnel for the identification of SAR which may be encountered within or directly adjacent to the work area. MECP Fact Sheets: <ul style="list-style-type: none"> Barn Swallows – https://www.ontario.ca/page/barn-swallow;
			3.1.3	Daily site inspections/sweeps are required prior to commencing work activities to ensure SAR have not entered or nested in the construction area for the duration of the project works.
			3.1.4	If any SAR or their nests are encountered within the work area, the Contractor shall immediately document and report to the Contract Administrator verbally and in writing within 24 hrs of the observation. Work must be temporarily suspended until the species is out of harms way. SAR that are encountered within the work zone shall be allowed reasonable amount of time to leave the work area at their own accord.

Table 5: Summary of Environmental Concerns and Commitments

ID #	Issues/Concerns/Potential Affects	Concerned Agencies	ID #	Mitigation/Protection/Monitoring
4.0 Surface Water and Groundwater				
4.1	Construction activities, such as refuelling, can increase the potential for accidental spillage and subsequent contamination of groundwater sources and surface water (i.e., ditchlines leading to Rawdon Creek)	MNDMNRF MECP DFO	4.1.1	Construction activities, such as refuelling, can increase the potential for accidental spillage and subsequent contamination of groundwater sources. The Contractor is required to have a spill kit available on site in the event of a spill. All spills that may have an adverse effect should be reported to the MECP Spills Action Centre (1-800-268-6060) in accordance with provincial and federal legislation.
			4.1.2	Equipment operating near any ditchline shall be in good working condition, properly maintained and free of excess oil/grease to reduce the risk of contaminant leakage. In the event that a spill occurs, proper containment, clean up, and reporting, in accordance with provincial requirements, shall be completed.
4.2	Construction activities can lead to the accumulation of litter and debris within ditchlines.	MTO	4.2.1	The Contractor shall take all necessary precautions to prevent the accumulation of litter and construction debris within watercourses/drainage ditchlines.
5.0 Socio-economic Environment				
5.1	Property owners located within the vicinity of the study area may be impacted during the construction of the roundabout (i.e., entrances, mailboxes, garbage removal, horse and buggy)	Nearby Residents & Businesses County of Hastings Canada Post Amish Community	5.1.1	The Contractor shall notify adjacent landowners at least two (2) weeks in advance of construction start regarding the construction schedule, as per <i>Notice to Contractor – Notification to Adjacent Landowners</i> .
			5.1.2	<i>Operational Constraint – Rural Mailboxes</i> has been included in the Contract Documents to notify the Contractor that all existing rural mailboxes in conflict with the work shall be relocated temporarily by the Contractor to ensure local mail delivery is maintained. The Contractor shall coordinate with Canada Post to determine the preferred location of the mailboxes in an area convenient to the homeowner for the duration of the work, and in a position that Canada Post personnel can safely reach and deliver the mail through the passenger window of the mail delivery vehicle without getting out of the vehicle or being an impediment to other traffic. The Contractor shall be responsible for any damages to the existing mailboxes and shall repair/replace the existing mailboxes immediately at the Contractor's expense.
			5.1.3	<i>Operational Constraint – Civic Address Sign (911 Identification Numbers)</i> has been included in the Contract Documents to notify the Contractor of their responsibility to ensure that the Civic Address Signs (i.e., 911 Identification Numbers) are in place at all times. Temporary relocation due to construction operations will be permitted but the address numbers must be in the proximity of the entrance and be made visible throughout the duration of the Contract. Prior to relocation, the Contractor shall submit the proposed location to the Contract administrator for review and approval. Any damaged signs shall be replaced immediately at the Contractor's expense.
			5.1.4	<i>Operational Constraint – Access to Private Entrances</i> has been included in the Contract Documents to notify the Contractor that existing private property entrances within the project shall always be maintained in a safe and usable condition and that the Contractor shall provide, in writing, notification of any temporary or permanent entrance impacts (start and duration) to the property owner(s)/occupants seventy-two (72) hours in advance of work.
			5.1.5	<i>Non- Standard Special Provision – Garbage and Recycling</i> has been included in the Contract Documents to notify the Contractor to contact the Manager of Public Works Manager three weeks prior to construction, so the Municipality can advise the impacted residents of the temporary change in garbage and recycling pick-up location

Table 5: Summary of Environmental Concerns and Commitments

ID #	Issues/Concerns/Potential Affects	Concerned Agencies	ID #	Mitigation/Protection/Monitoring
6.0 Traffic Operations and Staging				
6.1	Project work will temporarily disturb normal traffic operations on Highway 62, Moria Road and Ridge Road (i.e. lane closures). Safety of construction workers, motorists and pedestrians is of primary concern.	MTO	6.1.1	<i>Special Provision No. 199F01 – Temporary Roadway Closures</i> has been included in the Contract Documents to advise the Contractor of the constraints and requirements associated with any temporary road closures necessary to complete the project.
		Motorists	6.1.2	The Contractor shall notify identified emergency services, the Municipality of Centre Hastings, Hastings County, and student transportation services, in writing at least two (2) weeks prior to construction start regarding the construction schedule, and at least 2 days (48 hrs) in advance of any lane closures, as per <i>Operational Constraint – Notification of Affected Agencies</i> , which has been included in the Contract Documents.
		Local Municipalities	6.1.3	<i>Operational Constraint – Maintenance of Traffic</i> has been included in the Contract Documents to advise the Contractor of the constraints and requirements associated with maintaining the flow of traffic during construction.
	Nearby Commercial Businesses			
	Emergency Services			
6.2	Amish community's horse and buggies sharing the roadway in the roundabout with larger vehicles.	Amish Community	6.2.1	The Contract will include additional permanent signage will be added to warn motorists about the slow moving horse and buggies in the area.
7.0 Construction Noise				
7.1	Improper maintenance of construction equipment can cause excessive noise that may disturb neighbouring residents.	Nearby Residents and Businesses	7.1.1	The Contractor is required to control construction related noise as per <i>Special Provision No. 199F33</i> , which includes maintaining equipment in an operating condition that prevents unnecessary noise, including but not limited to non-defective muffler systems, properly secured components, and the lubrication of moving parts.
			7.1.2	Idling of equipment shall be restricted to the minimum necessary to perform the specified work.
		County of Hastings		
7.2	Nighttime work will take place for minor works.	Nearby Residents and Businesses	7.2.1	The Contract will include a NSSP that will advise the Contractor to notify the nearby residents one week prior to any nighttime work.
		County of Hastings		
8.0 Contamination and Waste Management				
8.1	Exposed soils and/or stockpiles of excess material located onsite have the potential to contaminate the work area without proper containment and environmental protection measures.	MECP	8.1.1	All excess material may be reused within the highway ROW for construction material or managed as fill, including materials such as asphalt, concrete, wood, earth, and rock. Management of excess materials will be subject to the requirements of <i>OPSS 180 – General Specification for the Management of Excess Material</i> and <i>Ontario Regulation 406/19</i> (as amended) under the <i>Environmental Protection Act</i> .
8.2	Designated substances may be present in on-site existing construction materials, which may pose a threat to the health and safety of the construction workers.	MECP	8.2.1	In accordance with the <i>Occupational Health and Safety Act</i> , R.S.O. 1990, c. 0.1, <i>Special Provision No. 101F21, Occupational Health, and Safety Act Compliance</i> , has been added to the Contract Package to advise the Contractor of the presence of the following Designated Substance(s): <ul style="list-style-type: none"> Silica is assumed present throughout the working area including, but not limited to, all concrete and masonry products, materials, and finishes.

Table 5: Summary of Environmental Concerns and Commitments

ID #	Issues/Concerns/Potential Affects	Concerned Agencies	ID #	Mitigation/Protection/Monitoring
9.0 Air Quality				
9.1	It is anticipated that dust and emissions from machinery will be generated during construction, which can lead to degrade air quality	MECP MTO	9.1.1	Odour and fume impacts will be minimized by ensuring all equipment is properly maintained and that all pollution control devices on the equipment are operational and properly maintained.
			9.1.2	Dust shall be controlled as per <i>OPSS. PROV 100 – MTO General Conditions of the Contract (GC 7.07)</i> .
10.0 Utilities				
10.1	The project team has identified various utilities within the vicinity of the roundabout construction and private property entrance realignment/relocation works, which require protection/coordination.	Utility Companies	10.1.1	It is the Contractor’s responsibility to liaise with appropriate utility companies/authorities to confirm the exact nature, extent, and number of the existing utilities. The Contractor shall be responsible for the protection of all utilities during construction operations. The Contractor shall exercise due care so as not to cause any detrimental effects to these utilities. Any damage to these utilities shall be immediately reported to the Contract Administrator and the affected utility owner. Any repairs to damaged utilities shall be the responsibility of the Contractor at no additional cost to MTO.
			10.1.2	The Contractor shall determine the location of existing utilities throughout the contract limits by contacting all applicable utility companies. The Contractor shall notify all utility companies in writing two (2) weeks prior to the commencement of any construction activities to obtain the location of the utilities plan, as per <i>Operational Constraint – Notification of Utility Companies and Working around Utilities</i> .
11.0 Cultural Environment				
11.1	During construction, there is always a chance of encountering buried archaeological material. Particularly, an archaeological site (i.e., Haggerty Site) and Luke’s Cemetery are located within the study area.	Ministry of Heritage, Sport, Tourism and Cultural Industries (MHSTCI) Ministry of Indigenous Affairs (MIA)	11.1.1	If this occurs, the Contractor shall immediately stop all construction activities in the area and contact the office of the Heritage Operations Unit MTSTCI (416-314-7159). If unmarked human remains are uncovered, the provisions of the <i>Ontario Cemeteries Act</i> apply. The Contractor shall immediately stop all construction activities in the area and contact the office of the Heritage Operations Unit, MTSTCI the Registrar of Cemeteries (416-326-8394), the local Ontario Provincial Police (OPP) and the local Coroner, as per <i>Notice to Contractor – Areas of Archaeological Concern and Archaeological Materials</i> .
			11.1.2	The Contractor’s work will be restricted to the Stage 4 mitigative excavation area through avoidance and protection constraints. These avoidance and protection constraints include fencing off the areas outside the Stage 4 mitigative excavation area, and photographs of the area before, during and after construction to ensure that the remaining portion of the Haggerty site were protected. This information will be included in the Contract Documents.

5.0 FOLLOW UP AND COMPLIANCE MONITORING

On-site contract administration/inspection staff (retained by MTO) will be responsible for inspecting the construction area and for ensuring that the construction contractor complies with all environmental, operational constraints, has all required environmental permits/approvals, and has all required environmental protection measures properly sited, installed, and maintained as per the Construction Contract.

The Contract Administrator and their inspectors will be responsible for monitoring the Contractor's operations on a day-to-day basis as per the MTO *Construction Administration and Inspection Task Manual*. The Contract Administrator's inspectors will be responsible for maintaining an environmental diary, which will include a daily recording of activities related to the environment, such as the condition and effectiveness of erosion and sedimentation control measures and weather conditions.

The Contract Administrator shall provide the standard environmental inspection services and deliverables for the entire project as set out in the MTO *Construction Administration and Inspection Task Manual*. They shall possess related environmental inspection experience on construction projects of similar scope and nature to the work under this project.

6.0 REFERENCES

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